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## **RESPONSES TO COMMENTS ON THE DRAFT PROGRAM EIR**

<b>Comment Letter #1:</b>	<b>Valspar</b>
<b>Comment Letter #2a:</b>	<b>Textured Coatings of America</b>
<b>Comment Letter #2b:</b>	<b>Textured Coatings of America</b>
<b>Comment Letter #3:</b>	<b>Monterey Bay Unified Air Pollution Control District</b>
<b>Comment Letter #4a:</b>	<b>National Paint and Coatings Association</b>
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<b>Comment Letter #18:</b>	<b>Wm. Zinsser &amp; Co.</b>
<b>Comment Letter #19:</b>	<b>Smiland Paint Co.</b>
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<b>Comment Letter #21:</b>	<b>Tropical Asphalt</b>

ARB received a total of 22 comment letters from 18 different commenters on the Draft Program EIR for the architectural coatings SCM before the end of the 45-day comment period. Additionally, ARB received three comment letters on the Draft Program EIR after the 45-day comment period. Furthermore, ARB received some California Environmental Quality Act (CEQA)-related comments during the March 16, 2000, public workshop.

Many of the comments submitted by the various commenters were not specifically CEQA-related; rather the comments were directed to the scope and structure of the SCM. However, the comment letters and responses to the comments contained in the 25 total comment letters, as well as responses to CEQA-related public workshop comments, are contained herein. Chapter VI of the Staff Report also contains responses to comments that were made regarding the SCM, but do not specifically relate to the Draft Program EIR.

**COMMENT LETTER #1**  
**Valspar**  
**February 14, 2000**

- 1-1. Comment: Our response to the ARB cost survey reflects the allocation of 44% of our R&D budget to complying with the proposed standards. However, this does not mean that we can achieve the desired VOC level and maintain performance for every quality in every category; it just means we have dedicated resources to make the attempt. We can make low cost, low quality products that meet the 2002 standards, but we cannot maintain performance in higher quality products that the consumer expects to perform. We get few complaints on low quality paints because consumers don't expect much, but the expectations on higher quality paints (\$15 to \$25 per gallon price) is much greater.

Response: No response relative to cost impacts is necessary here, since the commenter does not state his position on the proposed standards' commercial feasibility, but instead focuses on the performance aspects of reformulated products. As such, this comment deals with the technological feasibility of the proposed standards and is more appropriately addressed along with similar comments elsewhere in this report.

- 1-2. Comment: Because the company manufactures mostly high end paints, it cannot use the averaging provision; the company does not make enough low end paint to "bank" with what they need on the high end.

Response: Although the proposed SCM does not currently include an averaging provision, we are currently working with interested parties to develop such a provision. An averaging provision would provide manufacturers with some additional flexibility to meet the regulation. Under such an approach a coating manufacturer would be able to average the emissions of overcomplying coatings with the emissions of noncomplying coatings. South Coast AQMD Rule 1113 contains such a provision and we are looking at their approach for the SCM with the inclusion of a sunset date. We plan to propose an averaging provision for the SCM when it is presented to the Board at the June 22, 2000, board meeting.

While this provision may not provide enough emissions to offset all of this company's high VOC products, it may help when used in conjunction with reformulation efforts.

- 1-3. Comment: The commenter submitted test results of paints that he formulated at different VOC levels. The tests of interior/exterior high gloss paints showed that the test formulations at 150 grams per liter (g/l) and 50 g/l did not perform as well overall as currently-marketed paints made by Valspar formulated at 203-248 g/l VOC. Also, available resins for formulating high gloss exterior paints at low VOC levels are not adequate for making paints with performance up to the standards of the commenter's existing higher quality products. (Note: The letter was discussed with the commenter at his request; some of his points were clarified during the discussion.)

Response: In our technical evaluation we identified several high gloss exterior (including interior/exterior) coatings on the market with VOC levels less than 150 g/l that are classified as premium quality by their manufacturers. The 150 g/l limit was the originally proposed VOC limit for the entire non-flat coatings category and is the interim limit adopted by the South Coast Air Quality Management District (South Coast AQMD or SCAQMD) for non-flat coatings. The responses to Comments #2-12, #3-34, #3-35, #10-3, and #16-6 in the Draft Program Environmental Impact Report (EIR) were consistent with applying the 150 g/l limit to the entire non-flat coatings category. However, after further evaluation, we are now recommending that the non-flat coatings category include a separate subcategory for high gloss coatings with a VOC limit of 250 g/l. Our recommendation is due primarily to enforcement concerns, especially for California districts with fewer enforcement resources than the South Coast AQMD. Many high gloss non-flat coatings satisfy the gloss and dry time criteria of quick-dry enamels, a separate category in the SCM with a proposed VOC limit of 250 g/l. We recognize that there is overlap between the high gloss non-flat and quick-dry enamel categories, and that companies could relabel products rather than reformulate them if the VOC limit is different for those two categories. Moreover, some high gloss products might be illegally labeled as quick-dry enamels even if they do not meet the dry time criteria, which would be problematic for enforcement personnel in some districts to detect. For greater enforceability, we modified the proposed SCM to include a subcategory for high gloss non-flat coatings that has the same VOC limit as the quick-dry enamel category.

Since most districts' architectural coatings rules currently include a quick-dry enamel category, the proposed SCM retains that category with its new VOC limit. This was done so that district rules, once amended in accordance with the proposed SCM, will clearly show that the VOC limit for quick-dry enamels is reduced from 400 g/l to 250 g/l. Further, we recommend that districts eventually eliminate the quick-dry enamel category from their architectural coatings rules, which would in effect require such products to meet the VOC limit of the high gloss non-flat subcategory.

**COMMENT LETTER #2a**  
**Textured Coatings of America (TCA)**  
**February 17, 2000**

The commenter submitted two letters on the above date, which are combined in these responses. The commenter also attached and incorporated by reference a letter addressed to Textured Coatings of America from Jack P. Broadbent, SCAQMD, dated May 5, 1999.

- 2a-1. Comment: A variety of technical reasons are provided as to why the SCM should include a category for “waterproofing concrete/masonry sealers” with a limit of 400 g/l. The technical discussion provided relates to the commenter’s XL-70® product line, which consists of high performance coatings that have been repeatedly reformulated to the lowest possible VOC content of 400 g/l.

Response: Although previous responses to this commenter indicated that we did not believe such a category and associated limit were necessary, our current proposal is to include a waterproofing concrete/masonry sealer category with a limit of 400 g/l. This decision is based on review of additional information provided by this as well as other members of industry related to this category. We now believe this category and associated higher limit is necessary to address a greater variety of application and performance needs than was previously realized. The proposed category and associated limit of 400 g/l is consistent with SCAQMD Rule 1113.

- 2a-2. Comment: TCA currently employs 65 people. In addition, there are hundreds of people who make their living selling and applying these products. If the Waterproofing Concrete/Masonry Sealer category were eliminated, one of the outcomes for TCA would be to close its Los Angeles factory and relocate it outside of California. This could be economically and socially devastating for many of our employees, some who have been with TCA in excess of 30 years or more and whose livelihoods depend on the operation of this factory.

Response: Based on comments received, the proposed standard for Waterproofing Concrete/Masonry Sealer has been raised from 250 to 400 g/l. This particular manufacturer already complies with the standard. Because 400 g/l is the existing standard in the SCAQMD, other manufacturers should have little or no additional compliance costs to meet this limit in the rest of the State. Thus, there is no possibility of this category or this commenter’s facility being eliminated in California as a direct result of the ARB’s Suggested Control Measure. (See response to Comment #2a-1 of the Final Program EIR.)

**COMMENT LETTER #2b**  
**Textured Coatings of America**  
**April 6, 2000**

2b-1. Comment: A variety of technical reasons are provided as to why the SCM should include a category for “waterproofing concrete/masonry sealers” with a limit of 400 g/l. The technical discussion provided relates to the commenter’s XL-70® product line, which consists of high performance coatings that have been repeatedly reformulated to the lowest possible VOC content of 400 g/l.

Response: Although previous responses to this commenter indicated that we did not believe such a category and associated limit were necessary, our current proposal is to include a waterproofing concrete/masonry sealer category with a limit of 400 g/l. (See response to Comment #2a-1 of the Final Program EIR.)

**COMMENT LETTER #3**  
**Monterey Bay Unified Air Pollution Control District**  
**February 25, 2000**

- 3-1. Comment: The commenter points out that reference is made in the Draft Program EIR on page IV-60 that the significance thresholds of the SCAQMD tend to be the most conservative in California. The commenter has supplied a table, undertaken for the CAPCOA Planning Managers in 1998, of the significance thresholds of various districts throughout California, showing that several districts have lower thresholds than the SCAQMD.

Response: ARB staff thanks the commenter for supplying the table and we agree that several districts have more stringent CEQA significance criteria than the SCAQMD for pollutants. We have incorporated the table as Appendix H and refer to it in the text of the Final Program EIR.

However, it should be pointed out that because the project (the proposed SCM) will reduce emissions, the pollutant thresholds are not as relevant in this Final Program EIR as other significance criteria, such as water demand, water quality, public services, transportation/circulation, solid and hazardous wastes, and hazards. Since significance criteria for such impact topics are not included on the supplied table, we will continue to use those of the South Coast AQMD that were used in the Draft Program EIR. In addition, as was stated in the Draft Program EIR, the use of the South Coast AQMD's significance criteria is not intended to supplant individual districts' CEQA significance criteria. If a district has different significance criteria for a particular impact topic, the district will need to decide whether to use those criteria in lieu of the criteria discussed in this Final Program EIR. (Draft Program EIR, p IV-60)

- 3-2. Comment: ARB staff has prepared a thorough and comprehensive EIR that will be invaluable for districts who subsequently adopt the SCM.

Response: We appreciate the District's assessment of the value of the Draft Program EIR. As explained on pages I-2 and I-3 of the Draft Program EIR, the ARB's regulatory program has been certified by the Secretary of the Resources Agency, which authorizes the ARB to prepare a plan or other written document in lieu of an environmental impact report. However, because each district adopting the SCM will need to comply with CEQA requirements, the ARB chose the Program EIR format as being more useful to districts.

**COMMENT LETTER #4a**  
**National Paint and Coatings Association (NPCA)**  
**February 28, 2000**

The commenter submitted two letters on the above date, which are combined in these responses. The commenter also attached and incorporated by reference two letters from Textured Coatings of America, which are addressed in the responses to Comment Letter #2a of the Final Program EIR.

- 4a-1. Comment: ARB staff and industry need to have an open discussion on the findings of the Draft Program EIR, particularly technology and cost of reformulation issues raised by the proposed VOC limits in the SCM. The commenter references an attached letter regarding waterproofing concrete/masonry sealers as an example of the type of technology discussions that are needed. A full day meeting is needed for the March 16, 2000, workshop.

Response: At the commenter's request, the ARB held a full day meeting on the specified date. The schedule allowed time for a thorough discussion of the issues on each category, as well as a cost analysis discussion. The points made at this meeting are addressed in the respective category discussions in Chapter VI of the Staff Report, or in the March 16, 2000, workshop comments at the end of the Responses to Comments on the Draft Program EIR.

- 4a-2. Comment: Some manufacturers did not receive the cost survey, and they were directed to where a replacement copy could be obtained. The survey is still being completed by other manufacturers, but some information will be available for the March 16, 2000, workshop. The March 16 workshop will present an opportunity to more comprehensively discuss cost and feasible technology issues than has occurred previously.

Response: The cost survey was mailed to all respondents to the 1998 architectural coatings survey. Upon request, we provided additional time for manufacturers to complete the survey. Regarding the agenda for the March 16, 2000, workshop, the commenter is referred to the response to Comment #4a-1 of the Final Program EIR.

- 4a-3. Comment: Reference is made to comments submitted by Textured Coatings of America regarding ARB's rationale for not including a waterproofing concrete/masonry sealer category in the draft SCM. Reference is also made to a previous telephone conference, when the Sherwin-Williams representative did not receive a response when asking for specifics about the types of two pack floor coating systems staff has found to be available for non-professional homeowner use.

Response: Our current proposal is to include a waterproofing concrete/masonry sealer category with a limit of 400 g/l. (See the response to Comments #2a-1 and #2b-1 of the Final Program EIR.)

Regarding the comment about two-pack floor systems, staff has found two such products available in the Sacramento area, both are two component epoxy floor coatings. Both Home Depot, and Home Base, sell a product manufactured by Litex, Inc., called “2-Part Epoxy Waterbased Floor Coating.” Home Depot offers an additional product manufactured by Epoxi-Tech, Inc., called “Epoxy Shield.”

- 4a-4. Comment: The purpose of the SCM is to identify best available retrofit control technology to reduce districts’ need for extensive fact finding. The SCM must be based on facts, not “pie in the sky” hopes. To achieve this purpose, industry and staff must have frank and detailed discussions on feasibility.

Response: The ARB has not yet made any formal determination on what constitutes best available retrofit control technology (BARCT) for architectural coatings. BARCT is an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each source category (Health and Safety Code section 40406). While in the SCM staff has identified VOC limits that are technologically and commercially feasible, it may be more appropriate to identify more stringent limits as constituting BARCT. As discussed in Chapter IX of the Staff Report, ARB staff plans to perform additional work in the future to evaluate more stringent VOC limits. However, ARB staff does agree with the commenter that the SCM is designed to be relied on by the districts, in order to reduce or eliminate the districts’ need for extensive fact finding when the districts adopt their own architectural coatings rules. We also believe that the provisions of the SCM are based on facts, not on “pie-in-the sky” hopes. The facts supporting the SCM are set forth in detail in the Staff Report and in the Final Program EIR.

- 4a-5. Comment: The NPCA fully endorses the comments made by the Textured Coatings of America (see Comment Letter #2a of the Final Program EIR).

Response: The comment is noted. (See responses to Comments #2a and #2b of the Final Program EIR.)

- 4a-6. Comment: The SCM development process concerns the commenter. ARB staff has not adequately considered the technical information provided by industry, both orally in public and private meetings, and in written submissions. Staff has not engaged in dialogue with submitters of the information that would indicate a genuine interest in determining what VOC limits are technologically and economically feasible. Instead, staff has declined to engage in any discussions of specific performance characteristics with industry representatives, except general statements indicating that they believe the limits are technically feasible. The commenter references and attaches letters from Textured Coatings of America as examples of the detailed, technically sound arguments that staff has not responded to. When questioning the ARB’s lack of meaningful responses, or the continued inclusion of unjustifiably low VOC limits in the draft SCM, the commenter was told to wait for the rationale presented in the technology assessment in the draft EIR.

Response: As noted in the responses to Comments #3-16 and #3-26 of the Draft Program EIR, the ARB staff has conducted extensive technology evaluations in more than 60 categories. Based on the ARB's review of resin manufacturers' and coating formulators' product information sheets, which includes weatherability data, and NTS and Harlan test data, low-VOC coatings with performance characteristics comparable to traditional coatings are available to meet the proposed SCM VOC limits.

To date the staff has conducted eight workshops (five workshops specifically focused on the proposed SCM) where industry members, the public, air districts, and the U.S. EPA have had an opportunity to express their concerns. The ARB has considered more than 100 comment letters, held about 40 meetings with individual stakeholders, and held 20 meetings and conference calls with districts and U.S. EPA. Individual staff made dozens of phone calls to manufacturers, and carefully analyzed data provided by manufacturers. The results of this fact-finding and outreach process were thoroughly discussed in the Draft Program EIR.

The commenter is referred to the responses to Comment Letter #2a of the Final Program EIR regarding his comments on the Textured Coatings of America letters.

We disagree with the commenter's claim that ARB staff has not engaged in dialog with submitters of technical information. In fact, ARB staff has contacted manufacturers to gather basic facts about complying and non-complying products, to request more information about submitted data, and to clarify workshop comments throughout the process. At every workshop and in every workshop notice, the ARB has requested that stakeholders meet with ARB staff to discuss matters of individual concern. Also, the Draft Program EIR (DEIR) comment period exists for formal written comments which must be addressed prior to the release of the Final Program EIR.

- 4a-7. Comment: Reference is made regarding the DEIR's discussion of "Concrete Protective Coatings" found at page 186. The comment indicates that none of the information provided in the DEIR adequately responds to the chief technical point made by Textured Coatings of America – *i.e.*, the lower VOC (<400 g/l) coatings do not have all of the important properties of Tex-Cote XL-70<sup>®</sup> Coating.

Response: Our current proposal is to include a waterproofing concrete/masonry sealer category with a limit of 400 g/l. The referenced product, Tex-Cote XL-70<sup>®</sup>, has been reformulated to comply with this limit. (See response to Comments #2a-1 and #2b-1 of the Final Program EIR.)

- 4a-8. Comment: The magazine article used in the section for concrete protective coatings showed that low VOC concrete coatings don't have the same performance characteristics as higher VOC coatings.

Response: The referenced article was used only to help describe concrete protective coatings and their uses. It was not used as a technical basis for a proposed VOC limit, since the SCM does not include a separate category for concrete protective coatings. As

stated in Chapter VI of the Staff Report, these coatings are included in the waterproofing concrete/masonry sealer coating category.

- 4a-9. Comment: An SCM is supposed to identify available technology so districts don't have to reexamine the recommended technologies. The drawbacks of lower VOC coatings for particular applications should be examined and discussed as thoroughly as conclusions that the coatings are technologically feasible.

Response: The Staff Report for the SCM does identify available technology to comply with the proposed VOC limits. The ARB staff considered the potential drawbacks of lower VOC coatings for particular applications in determining the technological feasibility of each limit. Where appropriate, a discussion of these potential application limitations is included in each category discussion in Chapter VI of the Staff Report. For example, specialty categories such as the antenna coatings category were included in the SCM to meet the needs of particular applications.

- 4a-10. Comment: The commenter requests that the SCM include a Waterproofing Concrete/Masonry Sealer category with a limit of 400 g/l.

Response: Our current proposal is to include a waterproofing concrete/masonry sealer category with a limit of 400 g/l. (See response to Comments #2a-1 and #2b-1 of the Final Program EIR.)

**COMMENT LETTER #4b**  
**National Paint and Coatings Association (NPCA)**  
**April 7, 2000**

4b-1. Comment: NPCA recognizes the obligations of the industry to contribute coatings technology improvements, and the industry has lowered VOC content without regulatory prodding. NPCA's role is to contribute its best estimates of technological feasibility and the consequences and costs of certain technologies, and to that end has consistently urged its members to cooperate with ARB in surveys and in individual meetings to discuss technology issues. The commenter is disappointed in the process utilized to adopt the SCM and in the lack of adequate fact finding. The SCM will stand as a presumptively valid decision about cost effective, commercially viable, and technologically productive coatings for the California districts. NPCA represents the full spectrum of coatings manufacturers, including low VOC coatings manufacturers.

Response: The ARB staff sincerely appreciates the efforts of NPCA in coordinating with its members throughout the development of the 1998 architectural coatings survey and the proposed SCM. However, we disagree with the commenter's characterization of the SCM development process.

Our public process has included eight workshops, 20 meetings and conference calls with districts and representatives of the U.S. EPA, and 40 individual meetings with manufacturers, suppliers, user groups, associations, and other interested parties. Our workshop announcements, SCM revisions, reports, surveys, workshop summaries, workshop slide presentations, and lists of workshop attendees have been placed on the ARB's Internet site.

Although we repeatedly stressed at our workshops and in written communications that we welcomed individual meetings with manufacturers to discuss issues of individual concern, only about seven percent of the manufacturers who responded to the architectural coatings survey took advantage of this opportunity. Only about four percent of the survey respondents provided comparative test data.

In contrast to the commenter's characterization of a lack of fact finding, we believe we did extensive fact finding in the development of the SCM. The technology and economic assessments included an evaluation of manufacturers' brochures, product data sheets, product labels, and material safety data sheets; Internet websites; books and trade magazines; technical reports; training manuals; evaluation of test results and specifications; U.S. EPA's Background Information Document; SCAQMD staff reports from Rule 1113 amendments; interviews with manufacturers and users of coatings; evaluation of 1998 survey data; comparison of district rules and discussions with district staff; the 1989 SCM technical support document; seven meetings with resin manufacturers; patents searches; shelf cost surveys; evaluation of actual laboratory data and third party testing provided by individual manufacturers; starting formulations from resin suppliers and coatings manufacturers; and information from trade organizations including NPCA.

We believe it is appropriate for the districts to use the SCM as a document that identifies cost effective, commercially viable, and technologically productive coatings.

- 4b-2. Comment: NPCA does not contend that only high VOC coatings technology is presently or foreseeably available. Rather, NPCA believes that low VOC technology can be used to meet the performance requirements of one particular application and exposure environment of a general class of coatings. However, a thorough evaluation of this technology must occur before it can be mandated for all or most of the application, performance, and exposure requirements of that general class of coatings. The commenter does not believe a thorough, open minded, and objective evaluation of existing and reasonably foreseeable coatings technology has occurred in conjunction with setting future VOC limits. Some NPCA members most concerned about the proposed limits are those that manufacture and emphasize sales of their low VOC coatings because of their profitability.

Response: We disagree with the commenter's characterization of our evaluation of coatings technology. We did look at application, performance, and exposure requirements for both complying and non-complying coatings for a variety of usage requirements and substrates, both in evaluating product information and in evaluating the National Technical Systems (NTS) data. We also evaluated testing data provided by manufacturers and users of coatings. We evaluated resin technologies for a variety of application, performance, and exposure requirements within a given category. For example, in the industrial maintenance category, we looked at coatings recommended for chemical storage tanks, tank lining and piping, and immersion service. Where we found that there was a need for higher VOC limits than the general industrial maintenance limit, we established new categories, such as rust preventative coatings, temperature-indicator safety coatings, high temperature coatings, antenna coatings, anti-fouling coatings, and flow coatings. We also added language to allow for higher VOC industrial maintenance coatings to be used in foggy areas of the North Central Coast, San Francisco Bay Area, and North Coast Air Basins. Table IV-2 of the Final Program EIR summarizes some of these important properties, and Appendix E of the Final Program EIR contains more detailed information about the products evaluated. Overall, our assessment demonstrated that overall, complying coatings exhibit performance similar to non-complying coatings.

- 4b-3. Comment: The SCM is a "suggestion" from a reviewing authority that ultimately has the authority to disapprove district plans. As a practical matter, districts do not deviate significantly from SCMs, even though they have reservations about their conclusions. The Program EIR needs to be as accurate as possible so that districts can rely on it without further consideration.

Response: The ARB staff agrees that the SCM is a nonbinding model rule, and that individual districts will ultimately decide whether or not to adopt the SCM, or some modified version of the SCM. In order to promote statewide uniformity in architectural coatings rules, the ARB encourages the districts to adopt the SCM without making significant modifications. Districts retain the ultimate authority to control this source

category, however, and in the past, districts have made a number of changes to architectural coatings SCMs approved by the ARB. The ARB staff agrees that the Program EIR should be as accurate as possible so that districts, if they choose to do so, may rely on it in their rule adoption process. ARB staff believes that the Program EIR does accurately discuss the potential environmental impacts, and reaches appropriate conclusions.

- 4b-4. Comment: The commenter is deeply concerned about the fundamentally flawed conclusions about the technological and economic feasibility of many of the VOC limits. If staff has erred about the technological feasibility, then the environmental impacts are equally flawed.

Response: The commenter is referred to the responses to Comments #4b-1 and #4b-2 of the Final Program EIR for a discussion of the components of the technological and economic feasibility assessment. For the reasons stated in these responses, we disagree with the commenter's characterization regarding our conclusions reached in these areas, and therefore we do not believe that the environmental impacts assessment is flawed.

- 4b-5. Comment: Because the SCM is only guidance, it does not need to comport with the requirements for a rulemaking. This has the potential for a classic "Catch-22." If the technology is not consensus technology, the public never has a realistic opportunity to fully air its concerns; the SCM is conducted without the requirements of legally sufficient fact findings, and the districts are not required to reconsider the findings except as their discretion dictates. This raises concerns about the potential for denial of due process and interference with interstate commerce, as the resulting regulation may impose disproportionate burdens on out-of-state manufacturers.

Response: The ARB staff agrees that the SCM is nonbinding guidance, and does not need to be adopted under the formal rulemaking procedures of the California Administrative Procedure Act. However, the process employed by the ARB results in more opportunities for industry and the public to protect their interests, not less. The ARB will hold a public meeting on the SCM at which the industry and the public can voice any concerns they may have. In addition, under the CEQA process the ARB staff has responded in writing to all of the comments made on the Draft Program EIR. Included are responses to comments on the feasibility of the technology for making complying coatings, since the issue of whether these coatings will perform properly is one of the central issues in evaluating whether adverse environmental impacts will result from the SCM. Having such a process at the statewide level is an advantage to industry, since industry can focus its resources on a single forum, instead of having to expend the resources to participate in many individual district rulemakings. After this extensive process at the statewide level, each district must then conduct a separate process under state law to adopt its architectural coatings rule. Affected companies thus have another opportunity (if they so choose) to raise any issues that they believe the Program EIR has not adequately evaluated, as well any district-specific issues that they may have. The procedures described above are more than adequate to satisfy any due process or constitutional concerns. Finally, we do not agree that the SCM imposes disproportionate

burdens on out-of-state manufacturers, since the VOC limits specified in the SCM apply uniformly to all persons who sell or manufacture coatings for sale in California, regardless of whether such persons are located within or outside of the State.

- 4b-6. Comment: The staff has relied on: results of laboratory tests from NTS and Harlan studies; what is characterized as “extensive” review of compliant coatings product data sheets; results from the 1998 ARB architectural coatings survey that shows a large percentage of coatings already meet the proposed limits; and information on “foreseeable coatings technologies” obtained from resin suppliers, manufacturers’ data sheets, and promotional magazine articles.

Response: The commenter is referred to the response to Comment #4b-1 of the Final Program EIR for a listing of the information sources used in the technology assessment. As discussed in that response, we used every source of information available to us. We repeatedly asked manufacturers for supplemental performance data, and we considered all of the information submitted to us.

- 4b-7. Comment: The EIR’s treatment of available test data manifests fundamental misconceptions about the effective use of such information by the industry. Coatings manufacturers extensively test new coatings before introducing them to the market. These tests include two and three-year field exposure tests because it is only under such real world conditions that new coatings’ performance characteristics can be assured.

Response: The Draft Program EIR relied on information from a variety of sources, which included test data. The Draft Program EIR also considered the wide range of commercially available products that comply with the proposed VOC limits. As stated in the comment, the manufacturers of these coatings have undertaken extensive real time exposure testing prior to their introduction to the market to ensure reliable performance.

- 4b-8. Comment: Any decisions about the technological and economic feasibility of the limits proposed in the SCM for the six categories being evaluated in the NTS study should be postponed until the final results of the study are complete. Proceeding with SCM adoption of limits for these six categories will require local air districts to evaluate the technology of the limits for these coatings before accepting them as feasible.

Response: The ARB staff disagrees with the commenter’s assertion that decisions on the technological and economic feasibility of the limits for the six coating categories in the NTS study should be postponed until the final results are made available. As stated in the Draft Program EIR, there is a wide range of commercially available coatings that meet the proposed VOC content limits in the SCM, including the six coating categories being examined by the NTS study. The coating industry states that prior to making a product commercially available it undergoes extensive real time exposure testing to ensure reliable performance. The initial results (laboratory) of the NTS study support the fact that commercially available products that meet the proposed limits provide comparable performance characteristics to existing higher VOC coatings (see Appendix E of the Staff Report). Finally, the ARB regards the NTS study as only one of the pieces of

information used to reach its conclusion that the proposed limits are technologically feasible. Thus, sufficient evidence is available to establish that the proposed VOC limits are technologically feasible, and we do not believe that it will be necessary for districts to reevaluate the VOC limits before accepting them as feasible.

The cost-effectiveness or economic feasibility of the SCM is addressed in the ARB staff's economic analysis, which is contained in the Staff Report.

- 4b-9. Comment: The ARB has rejected industry's request to formally commit to a technical assessment of the SCM limits prior to their becoming effective. The statements made by the ARB (see Draft Program EIR C 7-8) indicate that the conclusions of the staff about the feasibility of the limits proposed in the SCM are suspect and will require further analysis.

Response: The ARB does not feel it is necessary to formally commit to a technical assessment by including language in the actual text of the SCM. After all, the SCM is intended as a model rule for adoption by the districts, and it would not be appropriate to include an ARB commitment in a district rule. Moreover, the ARB believes that compliant coatings are currently available to meet the proposed limits in the SCM. The 1998 ARB Architectural Coatings Survey, coating manufacturers' product data sheets, and initial results of the NTS study support this conclusion. The ARB does remain committed to work with industry and districts as they conduct technology assessments of future VOC limits like those included in South Coast AQMD's Architectural Coatings Rule 1113, and ARB staff intends to conduct technology assessments for the eleven proposed limits that are more stringent than the predominant limits in existing district rules. This type of assessment is routinely done for ARB consumer products and motor vehicle regulations. Such a routine commitment does not mean that ARB staff is uncertain about the feasibility of the VOC limits in the SCM.

- 4b-10. Comment: The NTS laboratory results that are available are suspect in their own right as has been explained to staff in a letter from Christine Stanley, Vice President of Technology, of Ameron, and in NPCA's letter to Jim Nyarady on this subject.

Response: The letter by Christine Stanley of Ameron contained comments directed at the industrial maintenance category results only. The comments can be summarized into coating descriptions, test methods used, and lack of control samples. The comments regarding coating descriptions discuss the need to clarify a coatings resin type (*e.g.*, epoxy *vs.* zinc rich epoxy) or VOC contents reported by the manufacturer. The ARB anticipates that, if appropriate, the SCAQMD will incorporate necessary changes to coating descriptions in the final NTS report.

Regarding the appropriateness of some of the test methods used and lack of control samples, the commenter is reminded that the Technical Advisory Committee (TAC) reviewed, selected and approved all test methods and protocols used for the NTS study. The NTS contractor performed all tests as outlined by assigned test methods or protocols. The TAC, which is primarily composed of members of industry, but also includes

SCAQMD, ARB, and one environmental group, has presided over the NTS project since the beginning. The TAC was involved in all aspects of the project including project design, selection of the contractor, coatings to be tested, and ongoing status meetings to address any unpredicted issues.

- 4b-11. Comment: The Harlan study is an incomplete report, providing only raw data, and the evaluation of these data was left to ARB staff. Information on individual coatings such as use and application of the coatings was not included in the report. The report was not peer reviewed. Blind samples were used, making verification of the results impossible. Different contractors were used and many of the tests were subjective. No mention of QA/QC procedures was indicated.

Response: The Harlan study is only one of the many pieces of information we used in evaluating the performance of complying versus non-complying coatings. The results were analyzed not only by ARB staff but by staff of the Ventura County Air Pollution Control District. The Harlan study was published in February 1995. The purpose of the study was to determine the VOC content and physical properties of 110 products in eight coating categories. The study did not include any analysis of the data or conclusions by design in order to minimize any potential bias of the contractor. The published raw data allows for peer review and analysis by all interested parties.

As mentioned earlier, the primary intent of the Harlan Study was to compile VOC content and physical properties of coatings. This information would then allow a more objective review of physical property changes with varying VOC contents. The coating samples used in the study were intentionally blinded to avoid any potential bias. Information on individual coatings was available in the form of coating category type (*e.g.*, primer/sealer, lacquer, industrial maintenance, non-flat, sanding sealer, waterproofing sealer, and industrial maintenance) that are well defined and understood in the coating industry. In addition to coating category type, information on each coating was provided regarding solvent classification (*i.e.*, water-based, solvent-based) and binder classification (*e.g.*, acrylic, epoxy, polyurethane, *etc.*). Product names for each coating were never published at the request of the manufacturers.

The characterization by the commenter that the tests were subjective is incorrect. VOC and performance tests on the coatings samples used in the Harlan Study conducted by the contractor and subcontractors utilized test methods developed by the American Society for Testing and Materials (ASTM), the Federal Test Method Standard (FTMS), Federal Specifications and the contractor.

The assertion that there was no mention of QA/QC procedures is also incorrect. Program management of the subcontractors in this contract included inspection of the subcontractor's facilities, quality control/cross check analyses by the contractor, and frequent discussions to maintain excellence in analysis and reporting. The contractor duplicated a minimum of 20 percent of the subcontracted testing. Data analysis of the subcontractor and contractor test results was within the precision limits cited by the respective ASTM methods.

We utilized the Harlan study results to support and supplement the newer NTS study. The NTS study was commissioned by the SCAQMD, in conjunction with a technical advisory committee comprised of industry, government agencies, and environmental groups. The technical advisory committee designed the testing protocols, decided which coatings to test, and evaluated the results. The ARB staff has performed an independent analysis of the NTS results, which are found in Appendix E of the Staff Report. The commenter is referred to the response to Comment #4b-1 of the Final Program EIR for a listing of the other information we utilized in our technology assessment.

- 4b-12. Comment: The EIR's comparisons of low VOC coatings in Table IV-2 are based on relatively insignificant properties (*i.e.*, range of VOC, average VOC content, average solids by volume, average coverage, average dry time, average pot life, average shelf life) of coatings that do not say anything about performance and durability, or suitability of a coating for a particular job.

Response: In addition to the summary table mentioned by the commenter, more detail on each coating evaluated is in Appendix E of the Draft Program EIR. Manufacturers have repeatedly told us that solids, coverage, dry times, pot life, and shelf life are vital factors in determining performance. In fact, the commenter has mentioned some of these factors in this letter. We disagree with the commenter's assertion that these properties do not relate to performance, durability, or suitability of a coating for a particular job. We have provided laboratory durability data where it is available to supplement the information from the product data sheets.

- 4b-13. Comment: A true comparison of a coating's characteristics must consider performance, application latitude, surface latitude, cost effectiveness, and waste. These issues must be addressed when evaluating whether a coating can be substituted for another, an especially complex task with industrial maintenance coatings.

Response: All of the coating characteristics were considered by ARB staff. We considered performance, through the use of product data sheets, the NTS study, the Harlan study, and data provided by manufacturers. We evaluated product data sheets for information on application latitude and surface latitude. We also considered cost effectiveness, which is discussed in detail in Chapter VIII of the Staff Report. We considered waste impacts in Chapter IV of the Draft Program EIR. We also considered testing data provided by manufacturers or users of coatings. As a result of these evaluations, in the proposed SCM for the Final Program EIR (Appendix A), we are proposing changes to the industrial maintenance category. We are proposing five industrial maintenance breakout categories, anti-fouling coatings, flow coatings, temperature-indicator safety coatings, rust preventative coatings, and antenna coatings. We are proposing to include the rust preventative category, consistent with the National Rule and SCAQMD Rule 1113. Finally, we are proposing a provision that would allow the use (in appropriate situations) of higher VOC industrial maintenance coatings for the districts in the San Francisco Bay Area, North Central Coast, and North Coast Air Basins, where areas exist with persistent fog and low temperature conditions.

4b-14. Comment: It is obvious that the ARB did not consider the factors mentioned in Comment #4b-13 of the Final Program EIR in its review of product data sheets, but coatings formulators, specifiers, and applicators would consider these factors crucial in determining suitability of a coating for a particular application. Districts should undertake an evaluation of these factors.

Response: Manufacturers provide product data sheets to their customers. These customers include formulators, specifiers, applicators, as well as do-it-yourselfers. We believe it is likely that manufacturers' product data sheets are providing accurate and understandable information to these customers, since there could be considerable liability in providing imprecise information. In addition to product data sheets, we also looked at product labels and MSDSs, both of which are subject to legal requirements. As explained in the response to Comment #4b-13 of the Final Program EIR, the ARB did consider performance, application latitude, surface latitude, cost effectiveness, and waste considerations in developing the SCM. Our intent in developing the SCM and the Final Program EIR is to consider all of these factors to minimize or eliminate additional work for the individual districts. We believe that we have thoroughly considered all of these factors, and, accordingly, it should not be necessary for districts to undertake a separate, additional evaluation when they adopt their own rules.

4b-15. Comment: Too much reliance has been placed on product data sheets for staff's conclusions. Product data sheets often require review by a coatings expert to be fully comprehended. The ARB's conclusion that low-VOC coatings do not require substantially more surface preparation than conventional coatings is completely at variance with industry knowledge, and training and education by industry associations. Two-component high performance coatings require more attention to proper surface preparation than conventional coatings. While conventional coatings also require adequate surface preparation, it concerns the commenter that ARB staff equates the degree of surface preparation required by the two types of instructions that are associated with radically different coatings. The commenter is concerned that staff does not fully comprehend the greatly differing consequences with using these two different coatings systems.

Response: As we explained in the response to Comment #4b-14 of the Final Program EIR, manufacturers provide product data sheets for their customers' use, including do-it-yourselfers, and we believe that it is appropriate to assume that this information is correct. We disagree that for full comprehension, coatings experts must review product data sheets. The product data sheets for industrial maintenance coatings may be more complex and require review by a coatings expert, but these coatings are not used by do-it-yourselfers. As the commenter mentions in Comment #4b-6 of the Final Program EIR, we did not rely solely on product data sheets in performing our technology assessment. Product data sheets were only one of the many sources of information that staff considered in its assessment.

With regard to the surface preparation issue, the commenter quotes the response to Comment #2-14 in the Draft Program EIR. This comment relates to potential depletion of groundwater supplies due to power washing. On page IV-84 of the Draft Program EIR, under the analysis for water demand, we explained that "...manufacturers' recommendations are the same for conventional and low-VOC coatings (*i.e.*, apply to clean, dry surfaces). It is not expected that these recommendations would change if additional coatings were to be reformulated as a result of the SCM."

A more detailed discussion of surface preparation is in Chapter VI of the Staff Report, under the industrial maintenance category description. Because of the variety of uses and types of coatings, the recommended surface preparation and application methods vary. For more demanding situations, abrasive blasting, etching with muriatic acid, high-pressure water blasting, hand tool cleaning, or wire brushing may be required. In less demanding situations, such as clean and dry surfaces, the use of primers or base coats may be appropriate. Surface preparation is important for both conventional coatings and two component coatings, and the degree of surface preparation depends on the substrate and the environment in which the coating is used.

On page IV-84, the ARB staff is indicating that the manufacturers' recommendations for surface preparation are the same for conventional and low-VOC coatings (*i.e.*, apply to clean, dry surfaces). Thus, the ARB staff is indicating that the environmental impacts of power washing are not significant.

4b-16. Comment: Staff's conclusion based on product data sheets that pot life problems are not expected with multi-component coatings is at variance with the real world experience of industry. Individual product data sheets may minimize the problems or state that they are not substantial if instructions for use are closely followed. Pot life is a significant and complex issue affecting the cost of application.

Response: The commenter is quoting the response to Comment #2-24 in the Draft Program EIR. As we explained in the response to Comment #4b-14 in the Final Program EIR, manufacturers provide product data sheets for their customers' use, and it is reasonable to assume that this information is materially correct.

As the commenter mentions in Comment #4b-6 of the Final Program EIR, we did not rely solely on product data sheets in performing our technology assessment. We agree that instructions must be closely followed for successful use of two-component coatings. The commenter's concerns about heavy reliance on two-component coatings in the industrial maintenance and floor coatings categories have been addressed in the proposed SCM. Specifically, we have raised the VOC limit for floor coatings to 250 g/l to address overlap with other categories, which also allows for the use of more single component coatings. We have included five breakout categories from industrial maintenance (rust preventative coatings, flow coatings, anti-fouling coatings, temperature-indicator safety coatings, and antenna coatings), all with higher limits to allow for the use of more single component coatings.

Regarding the pot-life issue, Tables E-10 and E-11 show that pot-lives, on average, are not significantly greater for 420 to 250 g/l industrial maintenance coatings than for  $\leq 250$  g/l industrial maintenance coatings. Thus, industrial maintenance applicators are already familiar with pot life issues with current coatings. However, the analysis on solid waste/hazardous waste on pages IV-101 through IV-106 of the Draft Program EIR concludes that even if some compliant coatings were placed in a landfill due to freeze-thaw, shelf-life, or pot-life problems, the solid waste impact would not be significant. We did not indicate that there are no pot life problems associated with multi-component systems.

4b-17. Comment: The coatings industry cautions the ARB about using of the 1998 Architectural Coatings Survey data. The commenter indicates that the current existence of low VOC product technology may be successfully used to meet the performance requirements of one particular application and exposure environment of a general class of coatings. However, there must be a thorough evaluation of this technology before it can be mandated as being feasible for all or even most of the application, performance, and exposure requirements of the general class of coatings to which it belongs.

Response: The 1998 ARB survey is just one of many sources of information relied upon by the ARB. Product application, performance, and exposure requirements were considered and evaluated through the use of the NTS and Harlan studies. The ARB reviewed information on hundreds of commercially available products that comply with the limits proposed in the SCM. The commenter would probably agree that, in general, commercially available coatings have undergone extensive real time exposure testing prior to their introduction to the market to ensure reliable performance.

4b-18. Comment: Caution should be exercised in relying on information from resin and coating manufacturers and on articles published in non peer-reviewed trade journals. These materials are meant to be a starting point for coating formulators, and should not be assumed to represent adequate, cost-effective coatings.

Response: As explained in the response to Comment #4b-1 of the Final Program EIR, we did not rely solely on information from resin and coating manufacturers, nor from articles in non peer-reviewed trade journals. We realize that these materials may be promotional in nature and that following the recommendations in these materials do not necessarily result in adequate, cost-effective coatings. We relied on the totality of the information available to us, including that provided by manufacturers.

4b-19. Comment: Many of the coating products listed in Appendix E do not belong in the coating category listed. For example, over 30 percent of the products listed as lacquers are in reality polyurethane varnishes.

Response: Based on input from manufacturers, the tables in Appendix E of the Final Program EIR have been modified to more accurately reflect the correct coating categories. With regard to lacquers in Appendix E, Tables E1 through E3 listed a total of 132 product samples. The ARB staff did find 21 of 132 (16 percent, not

30 percent) products miscategorized and have removed them from Table E for lacquers. This modification to Table E does not affect any of the conclusions reached in the Final Program EIR.

- 4b-20. Comment: ARB is proposing to expand the SCM definition of floor coatings to cover floors exposed to extreme environmental conditions which historically have been covered by the industrial maintenance category.

Response: This comment actually refers to the exclusion of floor coatings from the SCM definition of industrial maintenance coatings. The definition of industrial maintenance coatings has been modified and no longer excludes floor coatings.

- 4b-21. Comment: The data sheets that ARB is relying on to make a decision concerning the VOC limit for floor coatings cover a wide variety of product type and coatings technologies. Several of the specific coatings listed as floor coatings do not belong to the floor coatings category.

Response: Staff agrees that available floor coatings include a wide variety of product types and coatings technologies. Staff also agrees that there are products miscategorized in the Draft Program EIR listings. Staff has attempted to make all appropriate corrections to this as well as other categories. These corrections are relatively minor ones that do not affect the conclusions reached in the Final Program EIR.

- 4b-22. Comment: It should be obvious from the wide variety of products currently being sold as floor coatings, that no single product or technology is able to satisfy all of the varying application conditions and performance requirements covered by this category. To rely on high end two component or polyurethane technologies, as the basis for the proposed limit does not reflect the true market place needs for floor coatings in all situations such as industrial, institutional, commercial and residential. A recommended revised definition for floor coatings is provided.

Response: Although staff believes a 100 g/l limit for floor coatings is achievable by technologies other than two component epoxy or polyurethane systems, the proposed limit has been modified to 250 g/l. There are several reasons for this increase in the proposed floor coatings VOC limit.

The primary reason is to avoid enforcement issues that may arise from overlaps between categories with different limits. The categories of concern here are industrial maintenance, floor, stains, and waterproofing wood sealers. Many floor coatings could readily be categorized into one of these other similar categories. Having the same limit apply to these categories simplifies enforcement which is a major concern for smaller air districts with limited resources.

A limit of 250 g/l for floor coatings also increases the number of currently available compliant single component products available. This increase in compliant product availability also addresses concerns regarding the wide variety of products currently

being sold to satisfy all of the varying application conditions and performance requirements covered by this category.

A limit of 250 g/l for floor coatings also addresses other concerns raised regarding their use as industrial maintenance coatings. (See response to Comment #4b-20 of the Final Program EIR.)

- 4b-23. Comment: The definition for “industrial maintenance coatings” should be revised to remove the phrase “excluding floor coatings but.”

Response: We have revised the definition for industrial maintenance coatings as requested. Also, see responses to Comments #14-1 and #14-2 of the Final Program EIR.

- 4b-24. Comment: The commenter is particularly concerned with the proposed VOC limits for non-flat coatings; primers, sealers, and undercoaters; stains; industrial maintenance coatings; and lacquers. The commenter has facilitated information exchange between coatings experts and ARB staff regarding the technological and economic feasibility of the proposed VOC limits. The commenter urges ARB to consider the information and comments provided, and to rely on the consensus judgement of the coatings experts in establishing VOC limits for the SCM.

Response: We have taken the comments and information provided by the coatings experts into consideration in our technical evaluation of the proposed VOC limits for the categories mentioned. We weighed such comments alongside other information such as ARB survey data on complying marketshares, product information from manufacturers, laboratory performance tests, and information on available resin technology. Changes to the VOC limits or use conditions in some of the mentioned categories (*i.e.*, non-flat coatings, specialty primers, sealers, and undercoaters, and industrial maintenance coatings) have been proposed.

Specifically, in the non-flat coatings category, we have changed the proposed VOC limit for high gloss non-flat coatings to 250 g/l, which is consistent with the recommendations made by NPCA coatings experts. This change, however, was made primarily due to enforcement concerns (see response to Comment #1-3 of the Final Program EIR).

The specialty primer, sealer, and undercoater category allows for 350 g/l coatings for stain blocking and excessively chalky surfaces.

Regarding industrial maintenance coatings, we have proposed in the SCM separate categories for three of the small “national” categories (antenna, flow, and antifouling). From discussions with coatings experts and the information they have provided, we have determined that the three categories contain small volume coatings for which a limit higher than 250 g/l is appropriate. We have also included a category for temperature-indicator safety coatings and rust preventative coatings. We have proposed a climate-related provision for industrial maintenance coatings to allow use of coatings up to

340 g/l to address problems caused by persistent fog and low temperature conditions prevalent along certain parts of the California coast. This provision was developed through coordination with coatings experts from essential public service agencies, who have expertise and actual-use experience with high-performance coatings applied under those climatic conditions. (See responses to Comments #3-17 of the Draft Program EIR, page C-24; responses to Comments #13-4 and 15-24b of the Final Program EIR; and section 3.8 of the proposed SCM.)

We believe the proposed VOC limit for stains is technologically and commercially feasible by the January 1, 2003, effective date based on our review of the literature and trade journals, complying marketshare, existing regulatory limits, literature searches, and information provided by manufacturers or resin suppliers. The new alkyd/acrylic hybrid polymers, alkyd-modified acrylics, and modified acrylic/water dispersible drying oil formulations provide acceptable open times that result in reduced lapping potential; minimal, if any, grain raising; and better penetration. In addition, the use of water-based pre-stain and wood conditioners will reduce grain raise on all bare wood surfaces. Penetration has also been enhanced by advancements in pigment technology, which have substantially reduced the size of available pigments, which results in better penetration. (See responses to Comments 9b-12, 9b-13, 9b-14, 9b-15, and 9b-16.)

For lacquers, the proposed 550 g/l VOC limit is based on information from manufacturers, product availability, and complying marketshare. The use of acetone as an alternative VOC exempt solvent has resulted in the development of 550 g/l lacquers without sacrificing significant properties preferred by the wood finishing industry. Major manufacturers have introduced nitrocellulose lacquers using acetone to lower the VOC content to 550 g/l. SCAQMD Rule 1136 – Wood Coatings was amended in June 1996 to include a 550 g/l limit for lacquers. At that time, the coating formulators (coating experts) supported the SCAQMD 550 g/l limit for lacquers. Akzo-Nobel, Dunn-Edwards, Frazee, Rodda, Trinity, and other manufacturers (see Appendix E, Table E-3, Final Program EIR) have all introduced lacquers at or below the proposed 550 g/l limit. Finally, the ARB 1998 Architectural Coating Survey identified 138 products comprising approximately 14 percent of the California market that comply with the proposed limit for lacquers.

- 4b-25. Comment: Staff has reconsidered its initial decision to exclude the “concrete protective coatings” category recognized by the national AIM rule and now plans to incorporate this category with a 400 g/l limit into the SCM. We endorse the inclusion of this category.

Response: Staff is not proposing to incorporate the concrete protective coatings category into the SCM. However, staff is proposing to include a waterproofing concrete/masonry sealer category with a limit of 400 g/l in the SCM. We believe this category covers those products that would fall under the national “concrete protective coatings” category while maintaining consistency with SCAQMD Rule 1113. (See response to Comments #2a-1 and #2b-1 of the Final Program EIR.)

- 4b-26. Comment: Inland Coatings provided information to ARB staff requesting that a “thermoplastic rubber coatings and mastics” category be added to the regulation.

Discussions with staff about the exchange of information between Inland Coatings and staff indicate that there may have been some miscommunication. Staff stated that the company failed to provide sufficient information to demonstrate that its thermoplastic rubber products are more durable, and result in less emissions over time than comparable bituminous roof products or latex roof products. It is our understanding that the company has attempted to respond to these points and is prepared to provide more information on this matter. With respect to durability, it is generally accepted information within the industry that coatings like Inland's dramatically outlast bituminous coatings, which are of limited durability. Inland Coatings can demonstrate single application, no repair histories for its coatings extending over several years. The same is true of its claims about adhering to single ply membranes, with one of the major manufacturers of single ply membrane coatings recommending Inland Coatings for repair of its product. Finally, concerning the fact that the company's product is not used in California, this has occurred only because the company has refused requests for distributors to carry its product for unregulated areas in California because of concern that the product would inadvertently be sold in regulated areas.

Response: Inland Coatings requested a "thermoplastic rubber and mastics" category with a 550 g/l VOC limit, as provided in the National Rule, and they have stated that their product outlasts alternative asphaltic products, as noted by the commenter. However, when contacted, Inland Coatings was not able to offer test data or any other information to substantiate their claims about product life and lower overall emissions compared to lower VOC asphaltic or elastomeric latex products that are currently used in California. In addition, we did not receive any additional information during the public comment period on the Draft Program EIR, despite the commenter's assertion that Inland Coatings is prepared to provide additional information.

4b-27. Comment: The proposed SCM would require the use of nuclear coatings that would be astronomically more expensive than existing systems and this added expense is grossly disproportionate to the minuscule amounts of VOC emissions that result from the small usage of the existing coatings systems.

Response: See response to Comment #14-6 of the Final Program EIR.

4b-28. Comment: (a) The ARB staff should reconsider its decision to exclude the coatings categories in the U.S. EPA's architectural coatings rule that are not in the SCM. We do not believe that the staff have had an opportunity to receive or fully review all of the information that would be necessary in order to make a sound decision on these coatings. The process to date has focused on the larger coatings categories. Many of the niche coating categories excluded from the SCM are produced by small businesses that need more time to respond.

(b) ARB staff should recognize that coatings are developed for certain purposes. In this highly competitive industry, if a lower VOC product can cost effectively serve the same coatings requirements of a high VOC product, it is selected over the higher VOC products. The U.S. EPA recognized this and created separate categories for certain low

volume niche coatings that previously fell under the general category of industrial maintenance, but needed a higher VOC content than the lowered VOC level for industrial maintenance.

(c) The EIR is very cursory in its discussion of the excluded national categories, often stating little more than assumptions that are based upon the general coatings category of industrial maintenance coatings. Data concerning these coatings may not have been reported under the category. For example, with respect to chalkboard resurfacing coatings, the EIR reflects that only a very small portion of the coatings reported in the CARB AIM survey were identified as chalkboard resurfacing coatings. It is likely that some of the volume used in California was reported as general industrial maintenance coatings.

(d) ARB staff should consider the possibility that information developed later in the rulemaking will demonstrate that indeed a higher VOC limit is required for the national categories excluded from the proposed SCM, or for other excluded categories. We plan to provide additional information on these coatings, as it becomes available to us.

Response: (a) As detailed in the Draft Program EIR, each of the coatings categories that were included in the U.S. EPA's National Rule were fully evaluated for possible inclusion in the proposed SCM. Based on these evaluations, some additional categories that are not included in current district regulations (antenna, flow, antifouling coatings) were added to the proposed SCM. We believe that companies, including small businesses, have had ample opportunity to provide information to ARB staff. In developing the proposed SCM, we have held eight public meetings attended by representatives from industry.

(b) We disagree that lower VOC products will automatically be chosen over their higher VOC counterparts. Consumers make buying decisions on a variety of factors, including price, availability, color choices, brand recognition, product label information, and marketing claims. There is no credible evidence that VOC content is a major factor to most customers (except, perhaps, in cases where there is a choice between a higher VOC solvent-based paint and a lower VOC water-based paint). Similarly, manufacturers of coatings also base manufacturing decisions on a variety of factors, not solely on the VOC content. We recognize that the national categories not included in the SCM will fall under one of the more general coatings categories in the SCM, such as the industrial maintenance category. This was considered in evaluating each of these categories for possible inclusion in the SCM.

(c) ARB staff reviewed all available information on the national categories. The EIR discussions of many of the national categories excluded from the proposed SCM are brief because there was little information available or provided by industry. If companies misreported some of their niche products in other coatings categories in the ARB survey, they should notify ARB staff. These companies have had ample opportunity to review the survey results and comment on discrepancies.

(d) ARB will consider any additional information provided by industry or other interested parties. If information received in the future demonstrates the need to modify a particular VOC limit, appropriate changes will be made and forwarded to the districts.

4b-29. Comment: We are concerned that the ARB has not chosen to include an averaging compliance option in the proposed SCM or at least retain the placeholder statement on averaging that appeared in the December 1, 1999 draft of the SCM. The industry agrees that differences exist between industry, SCAQMD, and ARB on how to design a workable averaging program. The ARB has chosen not to move forward with trying to resolve these difficulties. Instead the ARB appears to have placed a lower priority on averaging by indicating that the existence or absence of an averaging program does not affect the ARB's analysis of the technical feasibility of the VOC limits in the SCM or the ARB environmental analysis for the SCM. Industry disagrees and feels averaging will be required to make some of the requirements feasible. Without an averaging provision the proposed SCM is more restrictive than the SCAQMD's current Rule 1113.

Response: Although the proposed SCM does not currently include an averaging provision, we are currently working with interested parties to develop such a provision to be presented at the June 22, 2000, Board meeting. Please see the response to Comment #1-2 of the Final Program EIR. ARB staff continues to believe (as discussed on page V-159 of the Draft Program EIR) that each of the VOC limits in the SCM is independently feasible, and that averaging is not necessary to make the SCM feasible. Rather, an averaging provision would be proposed to provide flexibility and increased cost-effectiveness for industry.

4b-30. Comment: Alternative B, extending all of the effective dates for the VOC content limits to January 1, 2004, was considered infeasible because any delay in achieving emission reductions is not technically or economically justified. The commenter disagrees with this conclusion in light of industry's comments on the technical merits of the SCM development.

Response: We disagree. No evidence was presented by the industry suggesting that the compliance date should be postponed, except for the industrial maintenance category. We cannot justify postponing emission reductions because our analysis indicates the proposed VOC limits are technologically and economically feasible by January 1, 2003 (January 1, 2004 for industrial maintenance coatings).

4b-31. Comment: (a) There are fundamental problems with the use of model formulas to estimate potential material costs. The approach carries the inherent assumption that only one coating technology (resin technology) will be used to meet the lower VOC limits. Said another way, the approach implies that one technology will meet all the requirements of a category. This is unlikely and therefore the approach will not accurately estimate associated reformulation costs.

(b) The model formulas are simplistic. Generally, one cannot simply substitute a low VOC resin for a high VOC resin without changing other important components of the

coating. To obtain anything close to approximating a realistic estimate using this approach would require the use of real world formulas.

Response: (a) The commenter incorrectly interprets the purpose of the model formulas. Contrary to the commenter's suggestion, the model formulas are not intended to reflect any inherent assumption that only one coating technology will be used to meet the VOC limits. Indeed, staff has gone to great lengths to discuss in detail the various types of coating technologies that will be used by manufacturers to meet the VOC limits (see Appendix D of the Draft Program EIR) However, the fact that there are numerous options for reformulating products, many of which differ only slightly from other coatings in the category, makes it highly impractical to develop numerous model formulas for each coating category. Rather, we believe it would be appropriate to develop more than one model formula for a category only when that category is further divided into subcategories, each subcategory having its own VOC limits. To do otherwise would not be consistent with staff's view that one limit is appropriate for one category or subcategory, even if there are a variety of technologies represented within each category.

Most coatings within a given category have relatively similar compositions, varying primarily in the type and amount of non-volatiles (*e.g.*, resins, binders, pigments, *etc.*). Thus, we believe the better approach to use for purposes of estimating cost impacts (as opposed to showing technical feasibility) is to develop representative model formulas for each category, which would then be used to generate low and high cost estimates. The low and high cost estimates would be estimated by using the low and high unit costs (*i.e.*, dollars per pound of raw material) for each component in the model formulas, especially the non-volatiles. For instance, the low-cost complying formulation in a category might have a unit cost of \$0.60 per pound for resins, while the associated high-cost complying formulation might have a unit cost of \$0.72 (assumed 20 percent increase) per pound of resins.

It is important to note that, as part of our standard practice, we have provided preliminary model formulas for the industry to comment on and suggest alternative model formulas if alternative model formulas are deemed appropriate. This approach of using model formulas with industry input on the appropriateness of each model formula has been reviewed and accepted by the regulated consumer products industry over the ten years of ARB rulemaking in the consumer products arena.

(b) We agree that one generally cannot simply substitute a low VOC resin for a high VOC resin without changing other important components of the coating. However, the changes to the other important components of a coating are likely to involve changes to the type of component (*e.g.*, change from solvent A to solvent B), rather than changes to the amount of each component. Thus, we believe it is important to vary the unit price of the resin and other non-volatiles, to obtain low and high cost estimates as described previously, while maintaining the unit price of the other components in a coating. However, it should be noted that we would consider changing the model formula

components and their weight percents in any given category based on credible and persuasive evidence provided by manufacturers to show that alternative model formulas are more appropriate.

4b-32. Comment: (a) A more straightforward and more accurate way of estimating and comparing raw material costs of high and [low] VOC coatings would be to compare only the cost of the high VOC resin to the low VOC resin on a weight or volume solids basis. By doing this, one would at least get an idea of the magnitude of the cost difference, *e.g.*, 1.5 times or 2 times more costly. To get a better cost comparison beyond this, one would need actual VOC formulas for the current high VOC product and the low VOC replacement.

(b) It is also important to note that raw material costs are only one factor in calculating the total cost of reformulating coatings. Additional costs include packaging costs, direct R&D labor, *etc.*

Response: (a) We disagree with the first part of the comment and agree with the second part. Because a coating is comprised of many components, only one of which is the resin, a comparison of only the cost of high VOC resin to low VOC resin would be inappropriate. To illustrate, let's say a coating's resin cost doubled from \$1.50 to \$3.00 per pound. Using the commenter's suggested methodology, we would report a 100 percent increase in materials cost for this category under this scenario. However, the commenter neglects the fact that resins represent only a fraction of coatings. Thus, if the above coating has a resin content of 50 percent by weight, and the remaining 50 percent costs \$1.00 per pound, then the actual materials cost increase would be 60 percent, which is significantly less than the 100 percent increase under the commenter's suggestion [*i.e.*, old cost =  $(0.50 \times \$1.00 + 0.50 \times \$1.50) = \$1.25$ , new cost =  $(0.50 \times \$1.00 + 0.50 \times \$3.00) = \$2.00$ ; percent increase =  $(\$2.00/\$1.25 - 1) \times 100 = 60$  percent]. As this example illustrates, the actual increase or decrease in total materials cost is dependent on the amount and unit price of each component in a coating, not just the change in resin cost.

We do agree with the commenter that a better analysis than the one he suggests would use actual VOC formulas for the current high VOC product and the low VOC replacement. This is exactly why we use actual formulations obtained from either the ARB Architectural Coating Survey or from trade journals or other published sources. As we stated in the March 16, 2000, workshop, the model formulas we are using in the cost impacts analysis are based on actual formulations obtained from the ARB's architectural coatings survey or manufacturer-supplied formulations that have been modified slightly to avoid divulging trade secrets.

(b) It is unclear why the commenter is implying that raw material costs are the only costs we will be taking into account, because information on one-time costs such as research and development (R&D), equipment modifications, labeling/packaging changes, and all other fixed costs are specifically requested in Table 1 of the Economic Impacts Survey we mailed to industry. (Economic Impacts Survey, page3) In addition, the respondents

are requested to provide in Table 2 of the survey their estimates of annual on-going costs for complying with the proposed standards. (*Id.*) Moreover, the cover letter to the survey instructs as follows: “If you believe it would be useful to provide us with additional or explanatory information, please feel free to attach such information to your completed survey form.” We reiterated this several times at the March 16, 2000, workshop. Thus, we have made it clear that we are taking into account a wide variety of cost factors in addition to raw materials cost.

4b-33. Comment: The commenters intend to continue to work with ARB staff to provide their best judgment and technical information about the technological and economic feasibility of the coatings technology decisions CARB is contemplating. Ultimately, the issue of whether Californians will continue to have cost effective, productive coatings rests with the CARB and the districts.

Response: The ARB welcomes constructive input from NPCA and its member companies, as well as data that would enhance our expertise on technological, performance, economic, and related issues. The ARB and the districts take seriously their responsibility for assuring that Californians have cost effective, productive architectural coatings available.

## COMMENT LETTER #5

United States Environmental Protection Agency (U.S. EPA), Region IX  
March 1, 2000

- 5-1. Comment: The U.S. EPA is primarily concerned with the clarity and enforceability of the SCM and its stringency relative to the National Rule and current coating technology. The postponement of the effective date of the regulation and the addition of several specialty coating category definitions and limits are significant changes from previous versions of the SCM, but are generally consistent with national regulations and reflect available current coating technology.

Response: The comment is noted.

- 5-2. Comment: It is not clear how the “temperature-indicator safety coatings” differ from the “high temperature coatings.” Both types of coatings must sustain exposure to temperatures above 204°C (400°F). Does the ability of “temperature-indicator safety coatings” to change color necessitate the higher VOC limit in the proposed SCM?

Response: Yes, the ability of the “temperature-indicator safety coatings” to change color for the purpose of safety necessitates a higher VOC limit. The proposed new category is for coatings that are primarily used for safety, rather than primarily as a conventional, anti-deterioration coating in the “high-temperature coatings” category. The description and technical assessment for the proposed “temperature-indicator safety coatings” category is included as Section A-26 of Appendix D of the Draft Program EIR.

- 5-3. Comment: The removal of certain language in Sections 3.2.2, 3.2.5, 3.2.8, and 3.2.9 has broadened the exception to Section 3.2 (Most Restrictive Limit) in the SCM. The additions of Sections 3.2.11-14 also widen the scope of the exceptions to Section 3.2. Collectively, these changes make the “Most Restrictive Limit” provision of the SCM less stringent than the corresponding provision in EPA’s National AIM Rule. The differences between the wording of this section of the SCM and that of the National Rule may cause confusion among the regulated entities.

Response: The removal of certain language and the additions of Sections 3.2.11-13 do indeed broaden the scope of the exceptions, however, we believe the changes are warranted. These changes are intended to make Section 3.2 consistent with the various specialty categories included in the SCM. Although one may argue that this specific SCM provision is less stringent than the corresponding provision in the National AIM Rule, overall the SCM is still clearly more stringent. We do not believe the differences between the wording of this section of the SCM and that of the National Rule will cause confusion. These changes are intended to clarify and simplify the wording of Section 3.2.

- 5-4. Comment: It is unclear why labeling requirements for quick-dry and recycled coatings in a previous SCM draft have been removed. The labeling requirement for recycled

coatings should be retained for consistency with the labeling requirements of the National AIM Rule.

Response: It was an oversight that the quick-dry labeling requirements were removed and appropriate portions of this section have now been restored.

The recycled coating compliance option in the National Rule is voluntary and allows manufacturers of such coatings to calculate an adjusted-VOC content, based on the amount of post-consumer material contained in the recycled coating. There are labeling and reporting requirements associated with this provision. The labeling requirement contained in a previous version of the SCM was similar to the labeling requirement in the National Rule, which required the labeling of the post-consumer coating content of the recycled coating. However, consistent with SCAQMD Rule 1113, the ARB staff has proposed simply applying a VOC limit to recycled coatings, and defined the minimum post-consumer and secondary coating content. Because there is no need to calculate the VOC content based on post-consumer coating content, the labeling requirement was judged to be burdensome and was removed. California manufacturers who choose to participate in the federal recycled coating program would have to comply with the federal labeling requirements.

- 5-5. Comment: The reporting requirements for recycled coatings contained in a previous SCM draft should be restored. This information must be reported to EPA under the National AIM rule, and would not represent an additional burden to manufacturers. The ARB should ensure that manufacturers are meeting the minimum percentages of secondary or post-consumer contents.

Response: The commenter is referred to the response to Comment #5-4 of the Final Program EIR for a discussion of the reason for the labeling and reporting requirements in the National Rule. Because we are proposing a VOC limit for recycled coatings, and not the provisions of the federal program, the ARB staff believes that reporting requirements to monitor the post-consumer and secondary coating content would be burdensome, particularly to many small manufacturers who already make recycled coatings. There is an economic incentive to maximize the amount of post-consumer and secondary coating used in recycled coatings, and to minimize the use of virgin coating. Consistent with SCAQMD Rule 1113, we are proposing only that manufacturers submit an initial notification of their status as a recycled paint manufacturer, and an annual report of the number of gallons of recycled paint produced. California manufacturers who participate in the federal recycled coating program would have to comply with federal reporting requirements.

- 5-6. Comment: The proposed 530 g/l VOC limit for antenna coatings, although consistent with the U.S. EPA's National Rule VOC limit, may create a relaxation issue for certain districts who wish to add this category to their local rules and who have SIP approved rules containing a 420 g/l limit for industrial maintenance coatings.

Response: The emissions from the antenna coatings category are extremely small because this is a highly specialized niche category with limited applications. The VOC emissions from this category are estimated to be less than 0.01 tons per day statewide. As such, the loss in emission reductions in an individual district from raising the antenna coatings limit from 420 g/l to 530 g/l would be significantly less than 0.01 tons per day. This loss in emission reductions would be compensated for by the increased emission reductions from the VOC limits for other categories in the proposed SCM that would likely be adopted by districts along with the VOC limit for antenna coatings.

5-7. Comment: The category and VOC limit for low solids coatings appears twice in Table 1 of the draft SCM.

Response: This minor editorial error has been corrected.

**COMMENT LETTER #6**  
**Palmer Asphalt Company**  
**March 6, 2000**

The commenter has attached and incorporated by reference a previously submitted comment letter dated December 6, 1999. Responses are provided for both letters.

- 6-1. Comment: I would like to call your attention to my letter of December 6, 1999, as it concerns the proposed limits for both bituminous roof and bituminous roof primers, and which seems to have been ignored. It is especially unusual to have a primer with a VOC content less than the subsequent coatings likely to be applied over the primer.

Response: Your December 6, 1999, letter was addressed in the bituminous roof coatings write-up in Appendix D. Letters that were sent during the comment period last June were addressed in Appendix C. All other letters were addressed in the category descriptions in Appendix D.

In addition, it appears that you misunderstood our proposal. In our December proposal, bituminous roof primers were included in the bituminous roof category. Accordingly, bituminous roof primers had the same limit, 250 g/l, as bituminous roof coatings. At the time of that proposal we were still working with the Roof Coatings Manufacturers Association (RCMA). RCMA has subsequently provided substantial data showing that a higher limit is needed for colder climates and which supports creating a new category for bituminous roof primers with a limit of 350 g/l, due to climate and viscosity issues present outside of the South Coast Air Basin. This limit is the most common current district limit for primers, sealers, and undercoaters and has been in existence for about ten years. There are water-based and solvent-based products that meet this limit and they represent 57 percent of the current market share. In addition, we are proposing a 300 g/l limit for bituminous roof coatings based on similar data. This is the most common current district limit and 98 percent of the bituminous roof market share complies with it.

- 6-2. Comment: With respect to the VOC limitations in the category of bituminous roof coatings the proposed 250 g/l limitation is precisely half of the limitation permitted in the recently adopted national EPA rule (500 g/l). In addition, it is substantially below the current 300 g/l limit, which I believe is your current regulation. Reducing the VOC content in this particular line of product will result in a coating likely to be brittle and lacking flexibility normally associated with bituminous roof coatings. It will result in the application of a thicker film which would defeat the intent of lowering VOCs because more will be applied to the surface.

Response: We are proposing to set a limit of 300 g/l for bituminous roof coatings, due to issues with viscosity in low temperature areas outside of the South Coast Air Basin. Please see response to Comment #6-1 of the Final Program EIR.

- 6-3. Comment: I don't believe our industry has done a very good job with respect to explaining the use of bituminous primers in the application of a wide variety of roof

systems. This particular material is most often specified for conformance with ASTM D-41. In order to conform to that ASTM designation most asphalt primers would probably require a minimum VOC content of 480-500 g/l. As the former chairman, and the current vice chairman of the ASTM sub-committee responsible for this particular standard I can tell you very honestly that this ASTM sub-committee has not been able to devise an asphalt primer standard that would satisfy your proposed low VOC requirements.

Here, also, trying to reduce the solvent content and develop a replacement to satisfy your proposed regulation would result in the application of a heavier film of product resulting in more solvent applied per square foot. In addition it would probably mean that the dry time for the primer would be delayed and that would result in an open and unprotected roof for an unreasonable and dangerous period of time.

The bottom line is that we are asking you to establish within your bituminous roof coatings category an exception for bituminous roof primers, which should be permitted to have a VOC content of 500 grams per liter.

Response: Bituminous roof coatings are maintenance coatings and are applied to form a sacrificial layer of protection over the top of the main waterproofing structure. From our discussions with manufacturers, the dry time for bituminous primers varies by product and ranges from one to 24 hours to dry for solvent-borne products and one hour to five days for water-borne products. Both water-based and solvent-based products can dry in short periods of time and are dependent upon the temperature and humidity.

Districts currently regulate bituminous primers under their primers, sealers and undercoaters category, which has a VOC limit of 350 g/l. This limit has been in effect for this category for about ten years. At the time of the release of the Draft Program EIR, we were still waiting for additional documentation to support industry's claims. RCMA and the manufacturers have worked to provide us information on the issues associated with bituminous roof primers and bituminous roof coatings. We have reviewed the data on the minimum requirements of viscosity for brushing and spraying and the VOC content curves over temperature and viscosity plots.

We are proposing a VOC content limit of 350 g/l statewide. In areas with climate similar to that in the South Coast Air Basin, lower VOC limits are possible. According to the industry data provided, the proposed limit of 350 g/l will address the dry time, viscosity, and coating thickness issues present in areas with colder and more humid climates than those present in the South Coast Air Basin.

An additional option for reformulation is the use of exempt solvents. The commenter mentions only one formulation option present to manufacturers, namely, the reduction of solvent and increase of solids. Other manufacturers have bituminous roof primers that meet the 350 g/l limit, which show that reformulation options exist and are being sold in a significant quantity.

Based on our survey data and the additional data provided by the RCMA, approximately 57 percent of the market currently complies with the proposed limit of 350 g/l, and includes both solvent-based and water-based bituminous roof primers. We believe that it is inappropriate to raise a limit, which has existed for almost ten years and has over half of the market complying.

**COMMENT LETTER #7**  
**FSC Coatings, Inc.**  
**March 13, 2000**

The commenter has attached and incorporated by reference a previously submitted comment letter dated November 20, 1999, as well as an outline and binder from a meeting with ARB staff. Responses are provided for all attachments.

- 7-1. Comment: The commenter requests responses to comments made in a letter dated November 1999, an outline from a meeting with ARB staff in September 1999, and a notebook forwarded in January 2000 containing information on coatings of concern.

Response: The individual categories of concern to the commenter are: industrial maintenance coatings, rust preventative coatings, floor coatings, stains, anti-graffiti coatings, lacquers, and varnishes. These comments will be addressed individually in responses to Comments #7-5, #7-7, #7-8, #7-9, #7-10, and #7-11 of the Final Program EIR.

- 7-2. Comment: The commenter requests review of the current method of calculating VOC and changes to include the exempt solvent inside the calculation equation. The current method of calculating VOC is unfair to exempt solvents, and penalizes manufacturers for doing what the ARB wants manufacturers to do. The VOC calculation method should be changed to include exempt solvents in the calculation to benefit the manufacturer who uses environmentally friendly solvents. By using high percentages of exempt solvents in our products, the current VOC calculation method yields an artificially high value in comparison to the actual VOC used. It is misleading as to what has been done to lower VOC emissions, and is particularly important to water-borne systems, metal maintenance systems, urethanes and epoxies, acrylic lacquers for sealing masonry, and high solids, quick dry varnishes.

Response: The commenter refers to the formula for calculating VOC content in subsection 6.1 of the proposed SCM in which the labeled VOC is determined by excluding the volume of any water and exempt compounds. The commenter is correct that in coatings containing a large amount of water or exempt solvent, the labeled VOC is considerably higher than the actual VOC in the can. The “less water and exempts” provision is used to provide an equivalent basis for comparing the polluting portion of solvent-based and water-based coatings, *i.e.*, on a solvent to solids ratio.

We can understand the commenter’s frustration regarding this provision. However, this requirement has been included in district rules for many years and is required by the U.S. EPA in the National AIM Rule as well as in other types of federal rules. We discussed the possibility of changing this provision to conform to the commenter’s ideas at two workshops. The feedback at the first workshop was that if California districts had

a different VOC labeling provision than required by the National Rule, all products would have to be relabeled, which would result in enormous cost to the industry. At the second workshop, commenters said that such a provision would be attractive if a long phase-in period for labeling accompanied it. However, we did not pursue the direction from the second workshop because districts would likely have problems with the approvability of their architectural coatings rules as State Implementation Plan (SIP) revisions by the U.S. EPA, which means that districts would not be able to claim the emission reductions from the rule. This commenter and others who are concerned about this issue are encouraged to express these concerns to the U.S. EPA, as well as at the State and local level. Nevertheless, we will continue to explore this approach in the future.

- 7-3. Comment: The commenter expresses appreciation for the willingness of ARB staff to consider alternative solutions to issues raised by the commenter. The commenter expresses hope that the result of this cooperation will result in a more balanced rule, with environmental benefits, lower costs to the end user, and enhanced system performance.

Response: The ARB staff appreciates this comment, and shares the commenter's expectations regarding the benefits of the rule.

- 7-4. Comment: The commenter believes that his suggestions in subsequent comments are valid and will help achieve the goal for cleaner air.

Response: The comment is noted.

- 7-5. Comment: (a) Air dry, single-component coatings are simpler, more likely to be applied in accordance with the manufacturer's instructions, and would result in less waste, compared with two-component coatings. The single-component coatings also adhere better to surfaces with less than perfect surface preparation.

(b) There are problems with two-component, mix-at-the-tip epoxy coatings, because of variations in adhesion and the reactivity of the coatings before they reach the steel substrate, preventing penetration into the surface.

(c) Problems with 90 to 100 percent solids coatings include additional costs and poor repairability.

(d) The two-component coatings require deeper abrasive blast patterns for surface preparation, greater use of sand, and creation of hazardous residues. This creates more pollution and additional costs. Few workers are capable of handling two-component coatings.

Response: (a) We concur that the traditional alkyd coatings may be easier to use, more tolerant of less than perfect surface preparation, adhere better to these poorer surfaces, and result in less waste. That is the reason the "rust preventative" coatings category is included in the SCM. That category is intended for non-industrial users (*i.e.* residential,

commercial, and institutional users) with minimal skill, such as “do-it-yourselfers” and general painting contractors for houses, businesses, and institutions. Most of the alkyd coatings in the “rust preventative” category are in the range of 300 to 400 g/l. The VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect.

For the industrial maintenance category, higher-skilled professionals/contractors are available for applying both single and two-component industrial maintenance coatings. Currently, both high and low-VOC coatings are being used by these higher-skilled industrial workers, who should be able to apply various types of industrial maintenance coatings that comply with the proposed SCM. Proper and thorough surface preparation is crucial to the performance of high-performance industrial maintenance coatings. Industrial workers have the equipment and skill for using various surface preparation options, such as abrasive blasting.

(b) Generally, two-component coatings are manually premixed in a container shortly before application, rather than automatically mixed near the spray tip of the spray apparatus as the coating is being applied. Premixing inherently does not have the potential for dynamic mixing variations with “plural” component spray equipment that mechanically mixes the components near the spray tip. The main considerations with premixing include following the appropriate mixing procedure, notably using the proper ratio of components, and working within the “pot life” of the coating mix. With proper surface preparation, epoxy coatings are among the best for adhesion to surfaces, including steel substrates.

(c) Generally, the very high solids, industrial maintenance coatings are used for extreme conditions when the higher costs and more effort for coating repair are warranted. Since the coatings are designed to withstand severe use, there should be less frequent damage to the coating itself, and hence less frequent need for coating repair.

(d) Generally, two-component coatings, both high-VOC and low-VOC, are currently used for severe condition or “heavy-duty” uses when the more thorough surface preparation requirements and higher costs are warranted. We anticipate that for the less severe (“light-duty” and “medium-duty”) uses, water-based industrial maintenance coatings, such as single-component acrylic coatings, will be used to a greater extent. We also anticipate that the surface preparation requirements and costs of coatings for “less severe” uses will be slightly greater, but not substantially greater, than with traditional alkyd coatings. Generally for any type of coating, the extent of surface preparation needed is related to the level of performance needed. For the future, we believe that efforts are underway to develop water-based alkyd coatings that will comply with the proposed 250 g/l limit for industrial maintenance coatings.

Since two-component coatings are already being used for severe condition uses, we anticipate that the amount of sand used in the future for abrasive blasting would not substantially increase. For the “less severe” uses, we anticipate that two-component coatings will be minimally used as replacement coatings, since single-component coatings are available. Therefore, we anticipate that the amount of sand would minimally

increase for the “less severe” uses. Air emissions and the types of waste generated from outdoor abrasive blasting in California are already regulated by the ARB. The human health aspects of abrasive blasting has been addressed in the Draft Program EIR, page IV-112.

The issue of architectural and industrial maintenance coating “waste” has been addressed in the Draft Program EIR, pp IV-101 through 103. We have determined that, with the proposed SCM, the total amount of solid waste and hazardous waste material deposited in California’s landfills will not create a significant solid waste or hazardous waste impact. No mitigation measures are required.

Regarding skills that industrial maintenance workers need, see response part (a) of this comment above.

7-6. Comment: Air-dry coatings use renewable resources.

Response: While some traditional solvent-based, high-VOC coatings may contain certain renewable constituents, the coatings are generally far from being totally renewable. For example, alkyd coatings may be formulated with vegetable-oil-derived alkyd resins, from vegetables produced by commercial farming using mechanized operations, pesticides, and fertilizers that may be associated with petroleum or natural gas. The traditional coatings also use substantial quantities of solvents, which are generally petroleum-based. Water-based coatings use water, which is also a renewable resource.

7-7. Comment: Single-component, solvent-based coatings provide health benefits, since they do not have the “body tissue reactive components” of two-component coatings.

Response: Industrial workers have available professional-grade protective gear, including protective clothing and respirators, to minimize the health hazards when applying industrial maintenance coatings. The Draft Program EIR, pages IV-108 through 120, discussed potential human health impacts. We have determined that human health impacts are not significant and mitigation measures are not required. Low-VOC coatings also inherently provide the health benefits of lower VOC emissions into the air, the main purpose of the proposed SCM.

7-8. Comment: Description of acrylic lacquer sealers for concrete, masonry, and aggregate surfaces. The commenter requests an SCM limit of 550 g/l for such products.

Response: Our current proposal is to include a waterproofing concrete/masonry sealer category for these products with a limit of 400 g/l. (See response to Comments #2a-1 and #2b-1 of the Final Program EIR.) The most common current district limit for these coatings is 400 g/l, which our proposal maintains.

7-9. Comment: This comment appears under the heading of floor coatings and is in outline format only. Supporting documentation is incomplete, only one of the indicated

attachments (#4) was submitted and it concerned antenna coatings. The commenter is requesting a limit of 350 g/l.

Response: Although the comment is quite vague, staff would like to point out that the proposed VOC limit for floor coatings has been modified to 250 g/l. The most common current district limit for floor coatings is 250 g/l (default limit). Our proposal maintains that limit, for which there is an 85 percent complying marketshare. For floor coatings used in industrial settings, the limit is also 250 g/l, which is lower than the most common district industrial maintenance limit of 420 g/l. However, there are many compliant industrial maintenance floor coatings at this limit and lower. Also, for metal non-industrial substrates, there are rust preventative coatings at 400 g/l, and waterproofing concrete/masonry sealers at 400 g/l for these types of surfaces. (See the response to Comment #4b-22 of the Final Program EIR.)

- 7-10. Comment: The comment appears under the heading of wood stains. A number of articles are presented regarding wood preservative use on log homes, and on wood shakes and shingles. Also presented are various data sheets and product comparisons for the commenter's line of wood preservatives/stains called "Total Wood Preservative (TWP)." The commenter requests a 350 g/l limit.

Response: It should be noted that wood preservative and stains are two separate coatings categories with different VOC limits recommended for each. The TWP-200 product has a VOC content of less than 50 g/l and is recommended for roofs, siding, fencing, and log homes. The VOC content of the other two products for which data sheets are provided is 350 g/l, both are recommended for decks, one for furniture. Although two of these three products would not currently comply with a 250 g/l limit, one product would. Also, per Section 3.2 of the SCM, wood preservatives that are also stains would be allowed to meet 350 g/l.

- 7-11. Comment: The SCM should propose a VOC limit of 550 g/l or higher for high performance anti-graffiti coatings because: (1) low solids systems are more chemical resistant and have higher color retention; (2) these coatings are used in low volumes; and (3) these coatings are used mostly by schools and governments.

Response: While we agree that the volume of antigraffiti coatings sold is relatively small, and that these coatings are used by schools and governments, we disagree that a 550 g/l VOC limit is appropriate. As stated in the analysis of antigraffiti coatings in Appendix D the Draft Program EIR, we are aware of numerous antigraffiti coatings, both permanent and sacrificial, that are below the VOC limits proposed in the SCM (specifically, permanent antigraffiti coatings would generally qualify as industrial maintenance coatings with a 250 g/l VOC limit, while sacrificial antigraffiti coatings would fall under the general flat or nonflat coatings limits of 100 and 150 g/l, respectively).

The commenter mentions that low solids (presumably higher VOC coatings) have better chemical resistance and color retention. However, the commenter provided no information to substantiate these claims, and did not clarify the level of solids he

considers as “low.” In addition, we note that the solids level of the commenter’s antigraffiti product, 2-605 Graffiti Max, is very similar to the solids levels of some of the complying products cited in the Draft Program EIR. For example, the product data for 2-605 Graffiti Max lists the volume solids to be 41.5 percent. This compares to 40-46 percent solids for Armaglaze WB 6000, a low-VOC product cited in the Draft Program EIR. Finally, with regard to the commenter’s statement that low solids products have better chemical resistance and color retention, the commenter cited an article that he wrote entitled “The A-B-C’s of Graffiti Control,” in which he describes a product called “Graffiti No More” that is “tremendously effective,” and is available “as paint...with a very high solids content ranging from 50-55%....” The article also warns against the use of inferior antigraffiti products that are “very low solids” and “lower grade, low solid acrylic urethanes.”

**Comments and responses regarding a binder sent to ARB by FSC Coatings  
December 22, 1999**

- 7-12. Comment: The ARB is not considering the performance of replacement coatings, life-cycle costs, emissions associated with more frequent recoating, and costs of lost business to other states and other countries with less stringent emission standards.

Response: We have considered all of these issues. Data from the NTS and Harlan Associates studies show that, in general, the performance of high and low-VOC coatings are similar. The Draft Program EIR, pages IV-70 and 71, discussed the issue of “more frequent recoating.” We concluded that, in general, low-VOC coatings are as durable and as long lasting as traditional solvent-based coatings, and thus more frequent recoating is not necessary.

We have determined that the basic market demand for various coating uses will be met by coatings that comply with the proposed SCM. Our cost analysis indicates minimal cost increases. Architectural coatings are coatings applied to facilities and infrastructure that is in place and does not move. Current California industry and other infrastructure will continue to need industrial maintenance coatings. Thus, the basic demand for industrial maintenance coatings will not change.

We anticipate that other states and countries may benefit, in terms of less solvent exposure and improved air quality, from the lead efforts that much of California is anticipated to take with the proposed SCM.

- 7-13. Comment: Air-dry phenolic alkyd coatings are superior maintenance coatings for above grade and above waterline applications. Information regarding “Zero-Rust” primer coatings, “SA-3 Silicone Alkyd” topcoat, “SA-3 Silicone Poly Plus” topcoat, test results, and user experiences are provided.

Response: We appreciate receiving information regarding these coatings. The proposed limit for the “rust preventative” category is 400 g/l, and for the “industrial maintenance” category is 250 g/l. As discussed in the Draft Program EIR, we believe that

reformulation options are available for coatings to comply. Data from the NTS and Harlan Associates studies show that, in general, the performance of high and low-VOC coatings are similar.

Some of the provided information concern coatings for Navy ships. The proposed SCM does not pertain to coatings for ships, and will not affect the VOC content of those marine coatings.

**COMMENT LETTER #8a**  
**Henry Company**  
**March 10, 2000**

8a-1. Comment: We do not believe that functional asphaltic primers can be formulated at the proposed VOC limits. The key performance requirements are to use a compatible asphalt and to have a low viscosity at low temperatures. Reducing the VOC content of the primer rapidly increases the viscosity, especially at cold temperatures. Keeping the viscosity at even semi-acceptable levels requires reducing the quality of the asphalt, transitioning from pure air-blown roofing asphalt to blends with softer asphalts and perhaps asphaltic oils. Changing the bitumen this way prolongs the drying time and eventually creates a surface, which is incompatible with the coating, thus causing coating failures. Primers with a viscosity at the application temperature below ~200 – 400 centipoise are acceptable. High viscosity makes the coating more difficult to apply and leaves a heavier applied film. This adds more solvent to the surface, delays the job by prolonging the dry time of the primer, and may contribute to the functional problems seen with some of the low-VOC primers.

Response: We have worked with the Roof Coating Manufacturers Association (RCMA) and several manufacturers to address bituminous primers. At the time of the release of the Draft Program EIR, we were still waiting for additional documentation to support this industry's claims. RCMA and the manufacturers have worked to provide us information on the issues associated with bituminous roof primers and bituminous roof coatings. We have reviewed the data on the minimum requirements of viscosity for brushing and spraying and the VOC content curves over temperature and viscosity plots. We believe that the VOC content should be 350 g/l for areas outside of the South Coast Air Basin, due to climatic conditions. Therefore, we are proposing to raise the limit to 350 g/l for bituminous roof primers. Districts currently regulate bituminous primers under their primers, sealers and undercoaters category, which has a VOC limit of 350 g/l. This limit has been in effect for this category for about ten years. Based on our survey data and the additional data provided by the RCMA, approximately 57 percent of the market can comply with the proposed limit of 350 g/l, and includes both solvent-based and water-based primers.

8a-2. Comment: The only “non-ozone depleting” exempt solvent in Section 2.57 into which asphalt will dissolve is parachlorobenzotrifluoride, sold under the trade name Oxsol® 100. This solvent presents some problems if used in a roofing primer. The solvent has an offensive odor – a combination of toluene and mothballs. The solvent is extremely expensive, roughly \$30 per gallon in drums. [I don't believe that anyone makes enough asphalt primer to be able to dedicate a new solvent tank to the product.] A gallon of primer at the proposed limits will require ~1/2 gallon of exempt solvent, which will increase the cost of the material by more than a factor of 10.

Response: Exempt solvents represent one way to comply with the limit. Manufacturers that decide to use Oxsol in their primers may use them in their bituminous roof coatings as well. Hence, the tank could be used for both categories over the span of their

bituminous roof product line, which may also include their aluminum bituminous roof coatings. Aluminum bituminous roof coatings, which meet the definition of metallic pigmented coatings are regulated under the metallic pigmented coatings category. Nevertheless, the proposed limit of 350 g/l is the current limit in many districts, and there is a high compliance rate with this limit without the use of Oxsol, so this should not be a concern.

**COMMENT LETTER #8b**  
**Henry Company**  
**March 13, 2000**

8b-1. Comment: As we discussed in our meeting with CARB staff on January 18, 2000, solvent-based bituminous roof coatings provide a vital part of roof maintenance which cannot be replaced by water-borne coatings. The VOC limit for such coatings in the proposed SCM is not adequate to permit a coating, which can be applied at the low temperatures commonly found throughout the state. Because of weather limitations, water-borne (emulsion) roof coatings are not a substitute for solvent-borne coatings in many parts of the state for much of the year.

Response: Based on our research and the information provided by the RCMA, water-based coatings are, in general, used from April through October. In areas like the South Coast, solvent-based and water-based coatings may be used year round, due to the unique climate in southern California. Contractors choosing to use solvent-based coatings will not experience the issues discussed above and water-based coatings can be used more often due to the ambient temperature and the amount of precipitation. However, in areas that experience much colder winters and increased precipitation, solvent-based roof coatings are necessary. Therefore, we are proposing a limit of 300 g/l for the non-South Coast AQMD areas of the state.

8b-2. Comment: *Water-based Coatings*. Because they are water dispersions, water-borne bituminous roof coatings must be allowed to cure completely before being exposed to precipitation. Low temperatures and evening dew can prolong the cure of the coating substantially. For this reason they are typically applied only where warm, clear weather is predicted. Our recommended weather envelope is 50 °F and rising, with no dew, precipitation, or temperatures below 40 °F for 48 hours. These requirements leave much of California outside the safe application window for much of the year.

*Solvent-based Coatings*. Solvent-based coatings can be applied at almost any temperature. Since they are not water sensitive, they can be applied in cold weather and trusted to finish their cure without concern for the weather. They can be applied just before a rainfall if necessary. For these reasons, solvent-borne coatings are often used to effect emergency repairs of weathered roofs.

Reducing the VOC content of a solvent-borne bituminous coating rapidly increases the viscosity, especially at cold temperatures. It is our experience that a roof coating can not be applied by brush (the usual method for solvent-borne coatings) if the viscosity is above ~80,000 centipoise.

Response: Please see the response to Comment #8b-1 of the Final Program EIR.

**COMMENT LETTER #9a**  
**The Sherwin-Williams Company**  
**March 24, 2000**

9a-1. Comment: The commenter is submitting a number of product data sheets and material safety data sheets to correct a number of errors related to Sherwin-Williams products in Appendix E of the Draft Program EIR.

Response: We appreciate the corrected information and have incorporated it into the tables.

9a-2. Comment: Table E-8, Floor Coatings, includes a safety and zone marking latex paint listed as a floor coating. This product is clearly not a floor coating.

Response: The comment is noted. Table E-8 has been corrected.

9a-3. Comment: Table E-2, Lacquers from 550 to 680 g/l, includes two coatings which are labeled for Industrial Use Only (Original Equipment Manufacturer Use) and are not for field application.

Response: We have removed these coatings from Table E-2.

9a-4. Comment: Table E-3, Lacquers < 550 g/l, includes a lacquer and a polyurethane product which are labeled for Industrial Use Only and are not for field application.

Response: Table E-3 has been updated.

9a-5. Comment: The text in the corresponding category discussions should be modified in accordance with the specified corrections made to the VOC contents of some flat and non-flat products. Specifically, the claim for “low temperature application to 35° F” should be deleted in the list of properties found for complying flat coatings and the associated discussion should be modified unless there are other complying coatings that make the same claim. Also, the claim for “alkyd-like flow and leveling” should be deleted in the list of properties found for complying non-flat coatings and the associated discussion should be modified unless there are other complying coatings that make the same claim.

Response: The claim for “low temperature application to 35° F” was not unique to the specified Sherwin Williams product, so no changes were needed for the corresponding text in the flat category discussion. The text in the non-flat category discussion has been corrected.

9a-6. Comment: The commenter submitted corrections to the VOC contents of the following Sherwin-Williams products listed in Appendix E of the draft EIR: EverClean Latex Interior Flat, Low Temp 35 Latex Exterior Flat, ProClassic Waterborne Acrylic Semi-Gloss, ProClassic Waterborne Acrylic Gloss, ProMar 200 Interior Latex Gloss Enamel,

SuperPaint Exterior High Gloss Latex, EverClean Interior Satin, LowTemp 35 Exterior Satin House Paint, A-100 Line-Satin, A-100 Line-Gloss, ProClassic Waterborne Acrylic Gloss, and ProMar 200 Latex Gloss Enamel. Also, the ProMar 200 Latex Gloss Enamel does not meet the gloss criterion of a quick-dry enamel and should not be listed under that category.

Response: The corrections have been made to the tables.

- 9a-7. Comment: An error was found in the product data sheet for the Sherwin-Williams “Tank-Clad™ HS Epoxy (B62-80 series)” coating. The VOC content listed as 177 g/l should be corrected to be 249 g/l (catalyzed and reduced 10 percent).

Response: The comment is noted, and we have corrected the Appendix E table accordingly in the Final Program EIR.

- 9a-8. Comment: There are corrections needed to the VOC content of the following Sherwin-Williams products listed in Appendix E of the Draft Program EIR: Loxon® Exterior Acrylic Masonry Primer, PrepRite™ 400, and PrepRite™ 200.

Response: Thank you for submitting the corrected information. The appropriate corrections have been made to Appendix E of the Draft Program EIR.

- 9a-9. Comment: An error was found in the product data sheet for S-W Cuprinol® Clear Deck Sealer. The VOC content listed in Table E-25 as 27 g/l should be corrected to be 287 g/l.

Response: The comment is noted, and the correction has been made.

**COMMENT LETTER #9b**  
**The Sherwin-Williams Company**  
**April 7, 2000**

9b-1. Comment: In earlier discussions and meetings with industry the ARB seemed committed to developing an averaging provision for the SCM, but the Draft Program EIR states that the ARB will not be including such a provision with the current proposal. The Draft Program EIR notes that there are difficulties in developing such a program, but the ARB has not held additional meetings needed to discuss and resolve these difficulties. Without an averaging provision the proposed SCM is more restrictive than SCAQMD 1113, the only district in the country ranked as severe for ozone nonattainment by the U.S. EPA. The ARB should postpone the hearing on the proposed SCM until an averaging program can be developed.

Response: Although the proposed SCM does not currently include an averaging provision, we are currently working with interested parties to develop such a provision to be presented at the June 22, 2000, Board meeting. Please see the response to Comment #1-2 of the Final Program EIR.

9b-2. Comment: The proposed SCM would prohibit the use of “rust preventative coatings” for industrial maintenance, even when a rust preventative coating meets the 250 g/l VOC limit of the industrial maintenance category. Rust preventative coatings meeting the 250 g/l limit should be allowed for industrial maintenance use, since there would be no difference in emissions. Section 3.7 should be changed back to the wording in the December 1, 1999 version of the proposed SCM:

Rust Preventative Coatings: Effective January 1, 2004, no person shall apply or solicit the application of any rust preventative coating for industrial use, unless such a rust preventative coating complies with the industrial maintenance coatings VOC limit.

Response: We concur and have revised the proposed SCM as recommended.

9b-3. Comment: Section 3.3 of the SCM needs to be modified to allow the use of coatings manufactured prior to the effective date of the rule, for an indefinite period of time. As written, after the rule’s effective date, the product would not be allowed to be used, and would need to be disposed of as hazardous waste.

Response: The requested change has been made to the proposed SCM.

9b-4. Comment: The description of floor coating category states “a variety of high performance clear or opaque coatings.” However, the SCM definition states “An opaque coating...” We consider it critically important to only include opaque coatings in this category.

Response: The commenter has taken the language regarding “a variety of high performance clear or opaque coatings” out of context. This language is not being used to

describe the SCM floor coatings category, rather, it is used in describing the common meaning associated with the use of the term “floor coating.” The category description clearly states that for the purposes of the SCM category, floor coatings are opaque only.

- 9b-5. Comment: The commenter recommends dividing the floor coating category into two sub-categories, one for residential application and the other for commercial and industrial applications.

The commenter believes multi-component systems inappropriate and too hazardous for nonprofessional application in residential settings. Such products are marketed as part of their industrial maintenance product line and are not recommended for nonprofessional users. The Product Data Sheet and MSDS for a specific example product are referenced. It is stated that “In no way does the Product Data Sheet indicate a residential use.” To contrast this type of product information, the Product Data Sheet and MSDS are referenced for their Acrylic Latex Floor Enamel that is intended for use by nonprofessionals in residential settings. The commenter believes it is obvious from the data sheet that this product is recommended for residential uses, such as floors, steps, concrete, wood, and steel, and that the product can easily be applied in a safe manner.

Response: Staff does not believe it is necessary to divide this category into two sub-categories. Staff has however modified the proposed limit for this category. The proposed higher limit of 250 g/l will address this concern. (See response to Comments #4a-3 and #4b-22 of the Final Program EIR.)

- 9b-6. Comment: Appendix E lists only two floor coating products that are not multi-component coatings which might be considered appropriate for residential use. Of these, one is not a floor coating. This leaves only one product included in the EIR that is appropriate for non-professional use in residential settings which could comply with the proposed limit.

An evaluation of three other products is presented in support of the commenter’s belief that most, if not all, coating manufacturers consider multi-component coatings for use only by professionals.

Response: The commenter is correct that one of the products listed is not a floor coating. The error has been corrected.

Although staff agrees that there are certain types of multi-component coatings (such as urethanes containing free isocyanates) which would be considered inappropriate for non-professional use in residential settings, not all multi-component coatings require such use restrictions (e.g., epoxies). Staff also believes that the availability of various multi-component coatings for purchase by non-professional consumers demonstrates that not all manufacturers agree with the commenter regarding appropriate use of such products. However, the proposed limit has been increased to 250 g/l which has resulted in more complying single component products. (See response to Comments #4-3 and #9b-5 of the Final Program EIR.)

9b-7. Comment: At the 3/16 Workshop, staff mentioned they had found additional floor coatings that would meet the proposed 100 g/l limit and which would be appropriate for residential use. A table that outlines information provided for specific products and the commenter's concerns with those products is included.

Response: At the workshop, staff indicated they had found additional products relevant to the recommended floor coatings limit, some of which have VOC contents above 100 g/l. Following are brief summaries of the commenter's concerns with specific products and staff's responses to these concerns:

#### Seal-Krete Skid-Proof EZ Coat

Concerns: Neutral in color, not opaque, as such does not qualify as a floor coating. Recommends mixing by mechanical shaker to add color, mixing equipment not found in most residential settings. Recommends etching with muriatic acid followed by surface pH neutralization, not activities typical of residential users. Recommends two coats after application of a sealer.

Response: Prior to tinting, product is tan in color, and as such does qualify as a floor coating. Mixing of tint into product by mechanical shaker is something done at the time of purchase by the seller. Acid etching, pH neutralization, and sealer/primer application are all common recommendations associated with floor coatings; the data sheet for commenter's very own product (Acrylic Latex Floor Enamel) which is recommended for non-professional users in residential settings recommends all three of these surface preparations.

#### Seal-Krete Proformance Skid-Proof

Concerns: In addition to the same concerns mentioned above regarding color and product mixing, application is by trowel, spray hopper or larger textured sprayer, such equipment is not familiar to non-professional users. Product provides limited coverage.

Response: Although non-professional users may not be familiar with using a trowel to apply floor coatings, staff believes that the use of a trowel for other purposes by non-professionals is common practice and should not present a problem for most users. Many floor coatings are designed as high build products, and as such, these products do provide limited coverage.

#### Seal-Krete Commercial Floor Sealer

Concern: This product is a clear sealer and does not meet the definition for a floor coating.

Response: The commenter is correct, this product is not a floor coating by definition and does not appear in the tabular listing for this category. The information was provided in response to concerns raised by the commenter at the workshop regarding the availability of primers that are part of a recommended system.

#### Snow Roof Safe-T-Kote

Concerns: Recommended for roofs and thus does not qualify as a floor coating. MSDS states that an eyewash and safety shower should be nearby and ready to use, neither of these is available in residential settings.

Response: The data for this product clearly describes a floor coating recommended for use on stairways, walkways, wheelchair ramps, porches, patios, and decks. Staff believes the availability of residential faucets, sinks and showers adequately address the MSDS safety considerations for such settings.

#### Snow Roof Safe-T-Prime

Concern: This product is a primer and does not meet the definition for a floor coating.

Response: The commenter is correct, this product is not a floor coating by definition and does not appear in the tabular listing for this category. The information was provided in response to concerns raised by the commenter at the workshop regarding the availability of primers that are part of a recommended system.

#### Jasco Stop Slip

Concerns: Information provided is handwritten note on a copy of Jasco's internet homepage indicating the availability of the new product with 32 g/l VOC content. No other information appears available. Rule making should not be based on such flimsy information.

Response: This product is available from Home Depot stores in the Sacramento area. The VOC content provided commenter was obtained by staff from the manufacturer in response to our e-mail request for information. The manufacturer does not currently have a product data sheet available for this new product but has provided a MSDS pursuant to staff's request.

#### Sherwin-Williams Armorseal 1000 HS

Concerns: The product is an industrial maintenance and marine coating. The recommended uses for this product which appear on the label are not floors. The label states, "Not for Residential Use" and "For Professional Use Only."

Response: The product is marketed as an industrial maintenance coating. The product label also clearly classifies the product as a "HEAVY DUTY FLOOR COATING" and includes concrete floors in the list of recommended uses. U.S. EPA's National AIM Rule requires labels on industrial maintenance coatings to include descriptions such as "Not for Residential Use" and "For Professional Use Only." This is only a labeling requirement, there are no restrictions to use. As indicated previously, staff has found industrial maintenance coatings, including this product, to be readily available to the general public.

#### Litex 2-Part Epoxy Waterbased Floor Coating

Concerns: Two-component epoxy – not appropriate for non-professional users. Very little information provided, including no VOC information, no MSDS.

Response: Staff does not agree that two-component epoxy products are not appropriate for non-professional users. This product is available at major home improvement centers in the Sacramento area. Product literature indicates easy application with brush or roller to wood, asphalt, masonry, and concrete with no acid etching required. VOC content reported on label is 209 g/l. MSDS is available.

#### Litex 2-Part Epoxy Waterbased Rubber Floor Coating

Concerns: Two-component epoxy – not appropriate for non-professional users. Very little information provided, including no VOC information, no MSDS. Seems to be recommended for concrete surfaces, not for general purpose, wood porches, *etc.*

Response: Staff does not agree that two-component epoxy products are not appropriate for non-professional users. The product is recommended for concrete only.

#### Litex 2-Part Epoxy Waterbased High Gloss Clear

Concern: This is a clear coating, and thus does not meet the definition of floor coating.

Response: Commenter is correct, this product does not meet the definition of a floor coating. Product does not appear in the tabular listing of products for this category.

#### Litex 2-Part Epoxy Waterbased Concrete Stain

Concern: As a stain, this is not opaque and thus is not a floor coating.

Response: Stains can be opaque, and thus can be considered floor coatings. The product literature does not specify whether this product is opaque or semi-transparent. This product has not been included in the tabular listing of products in this category.

#### Epoxi-Tech Epoxy Shield

Concern: This claims to be a garage floor coating, nothing else. Very little information provided, including no VOC information, no MSDS.

Response: Product is marketed as a concrete garage floor coating. The VOC content reported on the label is 250 g/l maximum. This product is available at major home improvement centers in the Sacramento area. MSDS is available.

- 9b-8. Comment: With all the data accumulated by ARB, only one floor coating product that would be appropriate for use by non-professionals in residential settings was found with a VOC content to comply with the proposed 100 g/l limit. This is an inadequate basis for establishing a limit that will essentially require residential users to be exposed to hazardous chemicals.

Response: Staff has found more than one currently available product that meets the originally proposed limit of 100 g/l. Staff does not agree with the commenter's conclusion regarding residential users being exposed to hazardous chemicals (see response to Comment #9b-6 of the Final Program EIR.) Although staff believes a 100 g/l limit for floor coatings is achievable by technologies other than epoxy or polyurethane, the proposed limit has been modified to 250 g/l. There are several reasons for this increase in the proposed floor coatings VOC limit (see response to Comment #4b-22 of the Final Program EIR).

- 9b-9. Comment: The commenter recommends that the floor coating category be divided into two sub-categories, one for industrial and commercial use and one for residential use, with VOC contents of 100 and 250 g/l respectively. They also recommend definitions for single component and multi-component floor coatings.

Response: The originally proposed limit for floor coatings has been modified to 250 g/l. With this proposal there is no need to divide the category or create new definitions (see response to Comment #4b-22 of the Final Program EIR).

- 9b-10. Comment: The primers and undercoaters recommended by the Sherwin-Williams Company for use on wood and composition board under all exterior latex coatings are consistently solvent-borne with a VOC content of 350 g/l. We have reviewed all the Sherwin-Williams product data sheets and have found only one product line where a latex primer is recommended: the LowTemp 35<sup>TM</sup> product line recommends the LowTemp 35<sup>TM</sup> Exterior Latex Primer for application over wood and composition board. However, since this is a unique system, we do not generally recommend this primer for use on wood and composition board under our other exterior latex coatings. Product data sheets for all of the exterior latex systems are enclosed.

We want to stress that the concerns with wood and composition board are not limited to stains bleeding through the substrate. While that is a significant problem with water-borne coatings on certain woods (*e.g.* redwood, cedar, *etc.*), it is less of a problem with composition board. However, composition board frequently has a wax-type of material bleeding out. Unless sealed by a solvent-borne primer, this wax will appear as unsightly dark patches on the finish. We recommend the following category be added with a 350 g/l limit:

Exterior wood primer, sealer, and undercoater: A primer, sealer, or undercoater formulated and recommended for use exclusively on exterior wood.

Response: Review of the product data sheets provided for the exterior latex systems confirms that the LowTemp 35<sup>TM</sup> Exterior Latex (Flat and Satin) product data sheets recommend use of LowTemp 35<sup>TM</sup> Exterior Latex Primer. Review of the provided product data sheets for other Sherwin-Williams exterior latex coatings also indicated that they have exterior latex coatings recommended for use on wood surfaces that are self-priming (Duration<sup>TM</sup> Exterior Latex Flat Coating K32 Series and Duration<sup>TM</sup> Exterior Latex Satin Coating K33 Series); and therefore do not require the use of a separate

primer. Both Duration™ products are at or extremely close to the VOC content levels proposed for the product categories to which they belong. All product data sheets submitted, with the exception of the LowTemp 35™ exterior latexes, specified the use of A-100 Exterior Latex Wood Primer over exterior plywood surfaces.

A review of Sherwin-Williams product data sheets for exterior primers indicates recommendations that differ from those provided on the product data sheets for their exterior latexes. For example, the product data sheet for A-100 Exterior Latex Wood Primer (VOC content of 123 g/l) indicates that it is “designed for use on exterior wood and plywood siding and trim as a spot primer or overall primer,” but the exterior latex product data sheets submitted make reference to using this primer over exterior plywood only. Because of the inconsistencies between recommendations made on exterior latex vs. primer, sealer, undercoater product data sheets, we assume that the information presented on the product data sheets for primers, sealers, and undercoaters, rather than those specified on exterior latex product data sheets, are correct use conditions for primers, sealers, and undercoaters. The A-100 Exterior Latex Wood Primer product data sheet indicates it may be topcoated by either an exterior latex or alkyd product, and there is no reference that would indicate it is not suitable for use on composition board.

The commenter makes reference to composition board, more commonly referred to as hardboard, and the problems resulting from wax bleed unless primed with a solvent-borne product. Further review of the commenter’s product data sheets indicate they have a latex primer recommended for use on exterior wood and hardboard that meets the proposed limit for primers, sealers, and undercoaters (PrepRite® ProBlock® Interior/Exterior Latex Primer Sealer).

Review of Pittsburgh Paints’ Technical Data Bulletin for Exterior Hardboard Latex Primer-Sealer 17-13 indicates that it “blocks wax migration that sometimes occurs when hardboard, particleboard, or similar surfaces are exposed to hot sunlight or high moisture conditions.”

In addition to those mentioned above, the following products, all of which comply with the proposed standard for primers, sealers, and undercoaters, have information on their product data sheets that indicates their suitability for exterior use over wood and/or hardboard substrates: 250 Acrylic Primer-Sealer All Purpose Primer for Exterior Concrete, Stucco, Hardboard, and Non-Staining Woods (Kelly-Moore Paint Company), Speedhide® 6-609 Exterior Latex Wood Primer (Pittsburgh Paints), SunCare™ 2-500 Exterior Latex Wood Primer (Pittsburgh Paints), M-P Prime Acrylic Multi-purpose Primer W 713 (Dunn-Edwards Corporation), Ultra-Hide Durus Exterior Acrylic Primecoat (ICI), Z-Prime II Universal Water-based Acrylic Primer-Sealer (Zehrunge Corporation), 97 Multi-purpose Primer (Evr-Gard Coatings). Thus, we believe it is unnecessary to add a category for exterior wood primer, sealer, undercoater with a VOC limit of 350 g/l.

- 9b-11. Comment: The lowering of the VOC limit for sealers and quick-dry sealers to 200 g/l will force these mineral spirits-based products to either raise solids or use alternative exempt solvents, neither of which is feasible. Compliance with the proposed limit of

200 g/l would force solvent-borne interior wood sealers to become cost prohibitive, less efficacious, or potentially dangerous (*e.g.*, flammability of acetone), and would effectively ban all performing products in this category.

Water-borne sealers are less efficacious because they cause grain raise, and can cause wood boards in floors to become glued together. Water-borne sealers are also more expensive than solvent-borne sealers.

We recommend the following category be added with a 350 g/l limit:

Interior Wood Sealer: A coating formulated and recommended for the application to interior wood surfaces to prevent absorption by the substrate of stains; to prevent harm to the wood; to prevent staining of the wood by outside agents; to prevent dirt from getting into the wood; to prevent subsequent coatings from being absorbed by the substrate; or to prevent harm to subsequent coatings by materials in the substrate.

Response: As noted in Appendix D of the Draft Program EIR, a review of product labels and product data sheets indicates that many of the products in the primer, sealer, undercoater category are intended for use on both interior and exterior surfaces. The 1998 ARB survey gathered data specific to sealers which indicates that 61 percent of the sealer products are for interior use, 26 percent are for exterior use, and 14 percent can be used on either interior or exterior surfaces. In the quick-dry primer, sealer, undercoater category, 27 percent of the volume of coatings were reported to be for use on both interior and exterior surfaces. The dual-use of coatings reported in both the primer, sealer, undercoater category and the quick-dry primer, sealer, undercoater category are mentioned because products reported as primer, sealer, undercoater products may in fact be quick-dry coatings (please see response to Comment #18-2 of the Final Program EIR). There are high complying market shares for both of the above mentioned coatings categories; the complying market share for the primer, sealer, undercoater category is 73 percent, and the complying market share for the quick-dry primer, sealer, undercoater category is 35 percent. In addition, there is not always a clear-cut distinction between sealer products and primer or undercoater products. Creating a product category that is specific to only those products that seal interior wood surfaces would cause those manufacturers with multi-use interior/exterior products to relabel their products, and thus narrow the market for their product.

Compliance is technologically feasible through the use of water-based technology. A review of product data sheets indicates that there are latex sealers suitable for use on interior wood substrates, all of which would comply with the proposed VOC limit for primers, sealers, and undercoaters. The following products make claims of efficacy as interior wood sealers, are not cost prohibitive, and do not contain acetone: PrepRite® ProBlock® Interior/Exterior Latex Primer Sealer (Sherwin-Williams), and Peel Stop Clear Bond Coat (Wm. Zinsser Co., Inc.). Thus, we do not believe it is necessary to create an interior wood sealer category with a 350 g/l limit.

9b-12. Comment: The current definition of stains excludes concrete stains by defining stains as wood coatings. No previous rule has ever limited the stain category to coatings for wood. The commenter recommends deleting the word “wood” from the definition.

Response: The definition for stains has been modified as requested.

9b-13. Comment: Appendix D of the DEIR identifies several companies that have stains able to comply with the proposed limit, however, no products from these companies are shown in Table E-27. In addition, documents received in response to the FOIA request included no product literature for any complying interior semi-transparent wood stains. The only interior semi-transparent stain product literature was for a Deft Stain that did not include VOC information. We believe such vague representations are an inadequate basis for a rule.

Response: The literature search section of Appendix D for this category includes a paragraph that identifies the mentioned companies as having products below 250 g/l. The source of this information, identified by reference, is the SCAQMD Draft Staff Report “Proposed Amendments to Rule 1113 – Architectural Coatings” May 14, 1999. Table E-27 only includes products for which ARB has documentation such as data sheets or other literature. It should be noted that Appendix D also does present a discussion of products that are shown in Table E-27.

Documents that were provided in response to the Freedom of Information Act request did include product literature for compliant interior semi-transparent wood stains. These products include Rhinoguard Wood Defense, Pittsburgh Paints Rez 77-460, Vianova 586 WS, Blue River Coatings Wood Stain, and Okon Weather Pro and Natural Choice. Thus, we disagree that insufficient evidence is provided as a basis for the proposed 250 g/l limit.

9b-14. Comment: A limit for stains of 250 g/l is an effective ban of solvent borne stains. Use of exempt solvents is not a feasible alternative; acetone is too highly flammable, Oxsol 100 is prohibitively expensive, and t-butyl acetate (if exempted) has an unacceptable odor.

Response: Staff does not agree that the proposed limit is an effective ban of solvent-based stains. Solvent-based stains above 250 g/l will continue to be available in quart containers. ARB’s 1998 Survey Results indicate that 86 percent of interior semi-transparent stains are sold in quart containers. Staff believes the use of exempt solvents is a feasible alternative for reformulation of solvent-based stains. Staff does not agree that acetone is too highly flammable (see response to Comment #20-2 of the Final Program EIR). If there is an actual demand for specific performance characteristics from solvent based formulations, the use of exempt solvents or quarts are viable options.

9b-15. Comment: Existing water borne interior wood stains cause grain raising and are prone to lapping problems. Reducing the VOC limit to 250 g/l will only enhance the potential for such problems. If resulting grain raise produces an unacceptably rough surface, sanding must occur after subsequent topcoating (with varnish or lacquer). This can cause

entrapment of microfoam in middle coats. This microfoam can not be removed when the raised grain is finally sanded.

Response: The new alkyd/acrylic hybrid polymers, alkyd-modified acrylics, and modified acrylic/water dispersible drying oil formulations maintain acceptable open time and associated lapping performance. Raw materials manufacturers have developed VOC free wet edge enhancers to reduce the potential for lapping problems. These types of formulations specify minimal, if any, grain raising. In addition, one must consider the area to be covered as well as environmental conditions when determining the appropriate application technique which should be used in order to maintain a wet edge and avoid lapping problems. It is also possible to use water-based pre-stain and wood conditioners to help minimize blotching. The concern about microfoam entrapment appears to be related to the application and/or sanding of the subsequent topcoats. It is possible that the microfoam entrapment is the result of the topcoat being applied incorrectly, possibly too quickly. Proper application of appropriate topcoats should result in a smooth final finish.

9b-16. Comment: Recommendation that the limit for interior semi-transparent wood stains be maintained at 350 g/l. A suggested definition for such a category is presented.

Response: Staff does not believe the creation of such a new sub-category is necessary or appropriate. For reasons previously presented, staff believes the proposed limit applicable to interior wood stains is technologically and commercially feasible.

9b-17. Comment: A remaining area of concern involves coatings for tank linings and pipes. These coatings need a higher limit than the 250 g/l VOC limit in the proposed SCM. A separate category for “tank lining and pipe coating” should be included in the SCM that would be similar to, but broader than, the “chemical storage tank coating” category in SCAQMD Rule 1113. The recommended separate category would be applicable to tanks, reservoirs, and piping exposed to water, wastewater, organic solvents, and chemical solutions (aqueous and non aqueous solutions), and would have a recommended VOC limit at 400 g/l.

Response: As discussed in Issue/Response No.2, page 57, Appendix D, Draft Program EIR, dividing the “industrial maintenance” category into subcategories would make the SCM provisions more confusing to the regulated community and more difficult for districts to enforce. Coatings for lining tanks and pipes are currently available with VOC contents below 250 g/l. In addition, due to technical and administrative procedures to be conducted by essential public service agencies, the proposed effective date of the 250 g/l VOC limit has already been extended one year to January 1, 2004, to be applicable to industrial maintenance coating users in general. This time extension was discussed in Issue/Response No. 2 and 3, pages 57-58, Appendix D, Draft Program EIR. There are several reformulation options available to meet the proposed limit by the effective date, as discussed in Section A-12 of Appendix D of the Draft Program EIR.

In subsequent communications with the commenter, we were informed that the company no longer has a concern with the proposed 250 g/l limit applicable to coatings for tank linings and pipe.

**COMMENT LETTER #10**  
**Rust-Oleum Corporation**  
**March 31, 2000**

- 10-1. Comment: Industrial maintenance is not a monolithic category. One VOC limit is unrealistic. The proposed 250 g/l limit is questionable for a number of reasons. Industrial maintenance ranges from light-duty to heavy-duty applications.

Response: As already discussed in Issue/Response No. 1, page 57, Appendix D, Draft Program EIR, dividing the “industrial maintenance” category into subcategories would make the SCM provisions more confusing to the regulated community and more difficult for districts to enforce. As defined in subsection 2.26 of the proposed SCM, industrial maintenance coatings are high-performance coatings for use under extreme environmental conditions involving exposure to one or more of the following: immersion in water, wastewater, chemicals, or interior moisture condensation; exposure to chemicals; exposure to temperatures from 250°F to 400°F; heavy abrasion including frequent cleaning; or exterior exposure of metal. The proposed SCM definition is consistent with the federal definition and the SCAQMD’s Rule 1113 definition, which also do not subdivide industrial maintenance into different duty levels.

The ARB staff is proposing to include three of the small “national” categories in the SCM, as separate categories from the industrial maintenance category. The categories are for antenna coatings, antifouling coatings, and flow coatings. These new categories include special-use small volume coatings for which it is not technologically and commercially feasible to meet the proposed 250 g/l limit in the industrial maintenance category. We do not expect any confusion nor enforcement difficulty with these new categories.

There are reformulation options available to meet the proposed limit for various types of industrial maintenance coatings, including light duty, medium duty, and heavy duty, as discussed in Appendix D-A-12 of the Draft Program EIR. As industrial workers using high-performance coatings, they are expected to have adequate skill, experience, and proper equipment to use coatings necessary for industry to operate.

- 10-2. Comment: The light-duty uses are applicable to general maintenance workers for servicing equipment used under mild conditions. There will be a shift from low-cost alkyds to higher-cost acrylic enamels. Surface preparation will be more critical and the temperature/humidity requirements will be narrower. The performance of replacement coatings will be adequate.

Response: We agree that acrylic enamels will perform adequately for light duty uses of industrial maintenance coatings. With acrylic coatings and alkyd coatings, proper surface preparation is required to ensure optimum performance. The cost analysis contained in Chapter VIII of the Staff Report shows that cost increases from the proposed SCM are within the range of similar regulations adopted by the ARB and districts. Also, resin and

coating manufacturers are making efforts to develop low-VOC alkyd coatings that would comply with the proposed limit.

The SCM includes a “rust preventative” coatings category that is specifically intended to allow limited use of current alkyd coatings under less-severe environmental conditions. The category is for non-industrial users (*i.e.* residential, commercial, and institutional users). The proposed VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect for that category. Historically, district rules (except the current South Coast AQMD rule), have considered the rust preventative coatings as industrial maintenance coatings.

- 10-3. Comment: The greatest impact will be on the medium-duty uses. The alkyd coatings will be replaced by two-component coatings. These coatings can not be applied by general maintenance workers, who are less experienced people. Also, special application equipment will be needed to apply the two-component coatings. Acrylic (single-component) coatings will not perform well for medium-duty applications. Low-cost alkyds will be replaced by high-cost coatings of questionable utility and performance. The replacement coatings will result in misapplication and more coating use to redo jobs, or less frequent painting because of the difficulty involved.

Response: We disagree with the assertion that compliant coatings will not perform adequately for medium duty uses. Single-component low-VOC acrylic coatings are already available for “medium duty” use, as intended by the manufacturers. For steel substrates, “direct to metal” acrylic coatings are available, that do not require a separate primer coat. For exterior use with sunlight exposure, acrylic coatings are generally superior and more durable than alkyd coatings. Being single-component, acrylic coatings do not have a “pot life” and hence do not generate any waste from exceeding a problem with “pot life.”

We believe that industrial workers have adequate skills to apply high-performance coatings for use under extreme environmental conditions, whether the coatings are one-component, two-component, light-duty, medium duty, or heavy-duty. Industrial workers are already applying the full range of industrial maintenance coatings, and low-VOC coatings will not introduce new techniques to the profession.

Currently, some of the traditional alkyd coatings may meet the definition of “rust preventative coatings” for residential, commercial, and institutional use. The VOC limit for “rust preventative coatings” in the SCM is 400 g/l and is the same as the national limit already in effect for that category. Historically, district rules (except the current South Coast AQMD rule), have generally considered the rust preventative coatings as industrial maintenance coatings. As we mentioned above, we believe that efforts are underway to develop low-VOC alkyd coatings to meet the 250 g/l limit for industrial maintenance coatings. In the future, there may be low-VOC alkyd coatings that are suitable for “medium duty,” as well as for “light duty” industrial use.

- 10-4. Comment: The high-performance coatings are two-component and 100 percent solids that are applied by professional contractors using plural component spray systems. The heavy-duty uses will go from high-cost coatings to even higher-cost coatings.

Response: The “heavy-duty” coatings already tend to be two-component, high-solids coatings that are higher in cost for the needed high-performance, whether the coatings are solvent-based, water-based, high-VOC, or low-VOC. Since a number of the currently available “heavy-duty” coatings are already low-VOC and comply with the proposed VOC limit, as indicated in Section D-A-12 of Appendix D, and Tables E 11 and 12 of Appendix E of the Draft Program EIR, we believe the cost difference will be minimal. (See Chapter VIII of the Staff Report.)

- 10-5. Comment: Essential public service agencies (EPSAs, consisting of the Metropolitan Water District of Southern California, the California Department of Water Resources, the California Department of Transportation, and the Los Angeles County Sanitation Districts) have tested low-VOC coatings and have found deficient durability and performance. The SCAQMD provided an extension to the EPSAs to find coatings that comply. In addition, the ARB staff provided an extension from July 1, 2002 to January 1, 2004, in the proposed SCM. The ARB statement that “... complying coatings perform as well as higher-VOC industrial maintenance coatings ...” is not true.

Response: Test results from the NTS study show that low-VOC industrial maintenance coatings perform similar to high-VOC industrial maintenance coatings. While we have preliminary information from the EPSA testing, we do not have completed test results for review at this time. Our current understanding is that the EPSA testing is mainly for coatings with VOC contents in the vicinity of 100 g/l, for the purpose of meeting the SCAQMD’s final limit effective in 2006. We believe that very few coatings in the EPSA testing have VOC contents in the vicinity of the 250 g/l limit in the proposed SCM. However, based on actual use experience by the EPSAs, we are including a provision for limited use of coatings up to 340 g/l in persistent fog, low temperature areas of California.

We have been in contact with the ESPAs and have indicated our interest in their testing. When any intermediate or completed test results become available to us, we will review them with the ESPAs. We will also conduct a technology assessment one year before the 250 g/l VOC limit goes into effect in 2004.

- 10-6. Comment: The NTS study did not adequately or scientifically compare long term protection/durability performance. The study relied on initially observable properties of the few coatings tested.

Response: The laboratory test phase of the NTS study shows that the performance of low-VOC industrial maintenance coatings is similar to the performance of high-VOC industrial maintenance coatings (see Chapter VI and Appendix E of the Staff Report). The field evaluation phase of the NTS study, to confirm the results from the laboratory phase, is still ongoing. The coatings and tests chosen for the NTS study were selected by

an advisory committee, in which most of the members are from the coating industry. We will continue to track the NTS study and will consider the results in our technical assessment.

- 10-7. Comment: ARB staff referenced dubious commercially available products having weak claims, erroneous claims, and depended on market “puffery” that persuades unknowledgeable audiences. These claims lack credibility. ARB staff relied on those unproven product literature claims. Resin supplier claims are unsubstantiated and overblown product literature of questionable veracity. ARB staff does not understand industrial maintenance coatings and uses.

Response: The commenter has provided little information to support his belief that product literature claims are erroneous, unproven, unsubstantiated, overblown, untruthful, and lack credibility. We assume that manufacturers provide accurate information to their customers to improve business and to avoid liability problems. We have reviewed all available information on industrial maintenance coatings and their uses in developing the proposed VOC limits (see Chapter VI of the Staff Report). Specific responses to specific comments are presented below.

- 10-8. Comment: Product literature from a coating manufacturer showed “imprecise salt spray data, overblown rhetoric, and an erroneous claim of non-carcinogenic asphalt (*sic*) based coating.”

Response: We reviewed the questioned information and found no basis for the comments made. The “salt spray data” consist of a statement of “no deterioration of test panels,” meaning that steel test panels used for exposure testing did not deteriorate. Regarding whether or not the asphalt coating is carcinogenic, we are not aware of any health hazard issue associated with asphalt coatings. During coating application, industrial workers are trained and required to use appropriate protective equipment, including respirators and clothing, and are required to follow industrial safety practices and regulations. We believe that existing procedures and requirements would protect workers. We note that coal tar epoxy coatings are important coatings used for water and chemical immersion service. Bituminous coatings are important coatings used for roofing. Once a coating is cured, we are not aware of any asphalt health problem with asphalt that is securely fixed within solid material. We also note, that thousands of miles of freeways, roads, streets, and parking lots are currently paved with asphalt and are used by the public.

- 10-9. Comment: Product literature from a coating manufacturer stated “VOC=70 degree @ 60 degree angle.”

Response: This is a typographical error and a photocopy distortion of the information and page. The corrected information is “VOC=0” and “70 @ 60 degree angle.” The latter is the gloss rating to be expected from the coating, as measured by a gloss meter that is commonly used in the industry.

We have been informed that this coating is no longer available, and for that reason we have deleted all information from the Draft Program EIR, Final Program EIR, and Staff Report, regarding this coating. The deletion results in only very minor changes to our analysis, notably very small changes in the averages of data pertaining to coating characteristics. Our basic analysis and overall conclusions remain unchanged.

- 10-10. Comment: Product literature from a coating manufacturer stated “waterborne moisture cure polyurethane coating” (chemically impossible).

Response: We have not been able to contact the coating manufacturer’s technical staff concerning this comment. However, we have been informed that this coating is no longer available, and for that reason we have deleted from the Draft Program EIR, Final Program EIR, and Staff Report, all information regarding this coating. The deletion results in only very minor changes to our analysis, notably very small changes in the averages of data pertaining to coating characteristics. Our basic analysis and overall conclusions remain unchanged.

- 10-11. Comment: Some of the information used by the ARB staff was actually resin supplier data on “starting point formulations” to demonstrate the feasibility of technology. The resin supplier claims of performance may not come true when subjected to verification. The resin manufacturer data are not indicative of commercially available technology and can not be relied upon.

Response: After further review of the questioned information, we concluded that the coating data are indeed for “starting point formulations” from a resin manufacturer. Accordingly, we have deleted, from the Draft Program EIR, Final Program EIR, and Staff Report, all “starting point formulation” data from the resin manufacturer. The deletion results in only very minor changes to our analysis, notably very small changes in the averages of data pertaining to coating characteristics. Our basic analysis and overall conclusions remain unchanged.

- 10-12. Comment: Product literature from a coating manufacturer indicates a commercially-available, water-based, low-VOC acrylic coating needs a primer coat over metal. The coating may not be used for immersion service.

Response: The coating manufacturer states that the acrylic coating may be used either with a primer coat or used “direct to metal on most exterior and interior surfaces.” For certain dark colors, a primer coat is recommended for metallic surfaces, presumably for color considerations. As described in Section A-12 of Appendix D of the Draft Program EIR, multi-coat systems consisting of primer coat and midcoats/topcoats may provide the best performance for extreme environmental conditions. Whether the primer is needed or not may depend in part on the severity of service. For example, in some situations an alkyd primer may be used with an alkyd topcoat.

Each industrial maintenance coating is designed for specific uses, since it is impossible to design one coating that is superior for all uses. Coatings for immersion service in

particular are specialized. Epoxy coatings are generally used, not acrylic or alkyd coatings. The particular low-VOC acrylic coating of interest is designed to be used as a topcoat or single-coat coating for exterior and interior use on steel, concrete, and other substrates -- for industrial, marine, institutional, and food processing plant use -- not for immersion use.

- 10-13. Comment: Product literature from a coating manufacturer indicates that a zero-VOC epoxy coating needs a primer coat over steel and concrete. Pot life, temperature conditions, and humidity conditions concerning application are also questioned.

Response: The coating is a gloss topcoat with various colors available. Generally, topcoats are intended to be applied over primer coats or midcoats. As previously mentioned and described in Section A-12 of Appendix D of the Draft Program EIR, multi-coat systems consisting of primer coat and midcoats/topcoats may provide the best performance for extreme environmental conditions.

For this particular coating, the temperature requirement for the air and substrate is between 50°F and 120°F. The relative humidity requirement is for a maximum of 85 percent from 50°F to 120°F, and a maximum of 95 percent above 100°F. These requirements are consistent with other water-based coatings and only slightly narrower than the requirements for many solvent-based coatings. The only notable difference is at the low end of the temperature range, for which a typical solvent-based coating may be used down to about 45°F or 40°F, compared with 50°F for the coating of interest.

The pot life of 45 minutes (at 70°F) is shorter than the typical two to six hours for other two-component coatings (see Appendix E, Tables E-10, 11, and 12 of the Draft Program EIR). We believe that the short pot life should not be a problem, since the batch size is as small as 1.25 gallons of coating mix at a time, which may be applied very quickly with high capacity, professional spray equipment.

- 10-14. Comment: Product literature from a coating manufacturer indicates that a water-based, low-VOC polyurethane coating has pot life and shelf life limitations.

Response: The stated pot life of two hours (at 77°F) and shelf life of one year should not cause any problem. The batch size is as small as one gallon of coating mix at a time, which may be applied very quickly with high capacity, professional spray equipment. The shelf life of one year is essentially the same as other industrial maintenance coatings, including one-component and two-component, high-VOC and low-VOC coatings (see Appendix E, Tables E-10, 11, and 12 of the Draft Program EIR).

- 10-15. Comment: Product literature from a coating manufacturer indicates that a low-VOC polyurethane acrylate coating uses aziridine as a cross-linker performance enhancer. Aziridine is a carcinogen.

Response: Industrial maintenance coatings in general, including those that are high-VOC, low-VOC, solvent-based, and water-based, may contain various toxic substances.

To achieve the high-performance characteristics needed for extreme industrial use, coating manufacturers have utilized such substances. Coating manufacturers provide specific safety requirements that must be followed. Industrial workers are trained and required to use protective equipment including respirators, and are required to follow industrial safety practices and regulations. Human health aspects of high and low-VOC coatings, including polyurethane coatings containing toluene diisocyanate, are discussed in the Draft Program EIR, pages IV-108 to IV-120. A general discussion of the regulatory framework to protect human health, regarding hazards associated with architectural and industrial maintenance coatings, is discussed in the Draft Program EIR, pages III-53 to III-56.

Information available from the United States Environmental Agency states that aziridine (also known as ethyleneimine) is a “probable human carcinogen of high carcinogenic hazard.” Industrial workers are already required to be protected from exposure to other toxic substances present in coatings, and therefore we believe that workers should be similarly protected from exposure to aziridine when this particular polyurethane coating is applied to industrial facilities in accordance with all safety requirements. Regarding public exposure, we believe that this coating would generally be used away from the public. The coating is a two-component coating, so we believe that only workers trained to use industrial-grade spray and other equipment, would use this coating.

According to the manufacturer, the coating has been accepted by the United States Department of Food and Agriculture, and Agricultural Canada, for use in food production facilities. Also according to the manufacturer, the coating is suitable for use at drink and pharmaceutical manufacturing facilities.

- 10-16. Comment: ARB staff included review of coatings that have limited special uses and or require special equipment. For example, a coating used as a tank lining is a specialized coating that needs special spray equipment.

Response: The coating referred to is a tank lining coating for chemical protection of concrete and steel surfaces at higher temperatures (+200°F). The coating is intended to resist chemicals, such as high temperature crude oils, high temperature water and brine, and certain other chemicals associated with the petrochemical, water and wastewater, mining and milling, pulp and paper, and certain other industries. The coating clearly meets the definition of “industrial maintenance coating” in the proposed SCM, since the coating is for temperature and chemical resistance. The coating may be applied with heavy-duty airless and conventional spray equipment. These are typical spray equipment used in industry.

- 10-17. Comment: ARB staff included review of coatings that have limited special uses and or require special equipment. For example, certain coatings are force-cured (heat-cured) coatings.

Response: The coatings referred to are temperature, chemical, or abrasion resistant coatings used to protect equipment at electric power plants and various other industrial

facilities. The coatings clearly meet the definition of “industrial maintenance coating” in Section 2.26 of the proposed SCM, since the coatings are for temperature, chemical, or abrasion resistance. The category of “industrial maintenance coatings” does not exclude force-cured (heat-cured) coatings.

- 10-18. Comment: ARB staff included review of coatings that require special equipment. For example, an epoxy coating requires heated plural-component airless spray equipment.

Response: As discussed in the response to Comment #10-1 of the Final Program EIR, the category of industrial maintenance coatings includes high-performance coatings for use under extreme environmental conditions. The category of “industrial maintenance coatings” does not exclude coatings that require heated plural-component airless spray equipment.

- 10-19. Comment: ARB staff included review of a coating characterized by a gel time of five seconds. The commenter views this as a problem.

Response: The manufacturer states that the coating “sets in seconds to reduce facility downtime.” We do not view this as a problem, since five seconds is sufficient time from the tip of the spray equipment to the surface and subsequent gel formation. The commenter may be confusing gel time with pot life, which is different. Pot life is described in Section A-12 of Appendix D of the Draft Program EIR. The coating is clearly in the category of “industrial maintenance coatings,” since the coating is used for chemical resistance, temperature extremes, weather extremes, and abrasion resistance.

- 10-20. Comment: ARB staff depended on “technical” articles by industry suppliers. There is the issue of conflict of interest. The articles do not validate technology that has not been tested thoroughly.

Response: We believe that the resin manufacturers and suppliers are at the forefront of developing new technologies, in particular new resins, that may be used for developing new low-VOC coatings for the future. If the resin suppliers publish information about their research and development, we do not view this as a conflict of interest. We depend on information from the resin suppliers mainly to find what technologies may be emerging from research efforts, to either modify noncompliant coatings to comply, or to replace noncompliant coatings with compliant ones. We do not rely on resin supplier information in terms of validating technology or as test results for validating technologies.

As discussed in Chapter IV of the Final Program EIR, we relied on several approaches in our development of the proposed VOC limits for the proposed SCM. Information from resin manufacturers and suppliers is just one of the approaches.

- 10-21. Comment: ARB staff should unify coating categories and VOC limits in the proposed SCM with those in U.S. EPA’s National Rule.

Response: The proposed definition in the proposed SCM is similar to the national definition. Our review of the “niche” categories (see Section B of Appendix D of the Draft Program EIR) shows that only a few of the “national categories” need separate VOC limits in California. The National Rule is intended to be minimum national requirements. Because California has the most severe ozone air quality problem in the nation, California needs to adopt lower VOC limits that are technologically and commercially feasible.

The SCM includes a “rust preventative” coatings category that is specifically intended to allow limited use of current alkyd coatings. The category is for non-industrial users (*i.e.* residential, commercial, and institutional users). The VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect for that category. Historically, district rules (except the current South Coast AQMD rule), have considered the rust preventative coatings as industrial maintenance coatings.

- 10-22. Comment: ARB should segregate industrial maintenance into real use categories, and set VOC limits based upon proven, fully tested technology.

Response: Subdividing the category would make the provisions in the proposed SCM more confusing to the regulated community and more difficult for the districts to enforce (see response to issue no. 2, Section A-12, Appendix D, Draft Program EIR, pages 57-58 and to Comment #10-1a of the Final Program EIR). Our technology assessment shows that industrial maintenance coatings that comply with the proposed VOC limit are technologically feasible and commercially available for essentially any type of use, including “light-duty,” “medium-duty,” and “heavy-duty.” Available test results show that low-VOC coatings perform similar to high-VOC coatings.

The SCM includes a “rust preventative” coatings category that is specifically intended to allow limited use of current alkyd coatings. The category is for non-industrial users (*i.e.*, residential, commercial, and institutional users). The VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect for that category. Historically, district rules (except the current South Coast AQMD rule), have considered the rust preventative coatings as industrial maintenance coatings.

- 10-23. Comment: ARB staff should consider allowing coating manufacturers of industrial maintenance coatings to average higher VOC coatings for light to moderate duty uses, with lower VOC coatings for super high-performance specialty uses.

Response: We will consider this suggestion during our ongoing development of an overall averaging provision for the proposed SCM. Please see the response to Comment #1-2 of the Final Program EIR.

- 10-24. Comment: The commenter would like the opportunity to meet with ARB staff to expand on the comments. The commenter would also like to discuss the ARB staff’s response to issue #17-1, concerning the time extension of the effective date of the VOC limit to

January 1, 2004, and the ongoing EPSA tests indicating that low VOC coatings are not available.

Response: On April 11, 2000, we met with the commenter to discuss these and other comments. Also, see responses to Comments #16-3 and #16-4 of the Final Program EIR.

**COMMENT LETTER #11**  
**Ventura County Air Pollution Control District**  
**April 4, 2000**

- 11-1. Comment: The commenter finds the Draft Program EIR to be thorough and accurate, and concurs with the conclusions made regarding significance of the impacts. Once certified by the ARB, districts can incorporate the EIR by reference in CEQA documents prepared for their own architectural coating rules.

Response: We appreciate and concur with the District's assessment of the value of the Draft Program EIR. The commenter is also referred to the response to Comment #3-2 of the Final Program EIR for a description of the use of the EIR by the districts.

- 11-2. Comment: Comment: The term "VOC content" is used inconsistently throughout the EIR, relating to whether or not the VOC content is calculated as less water and exempt solvents, and can give significantly different values. The VOC calculation method (as presented in Section 6.1 of the SCM) should be clearly indicated wherever the term is used. It is not clear in Table II-3 how the anticipated VOC emission reductions were calculated.

Response: The suggested changes have been made in the Final Program EIR.

- 11-3. Comment: The discussion of "significance criteria" in Section IV.C.1 does not include a discussion of consistency with air quality plans, yet consistency is discussed in Section IV.F but not in the Executive Summary. Consistency should either be included in the "Air Quality Impacts," or the Executive Summary should be revised to reflect the actual format and content of the Section IV text.

Response: The latter suggested changes have been made in the Final Program EIR.

- 11-4. Comment: Section IV air quality impacts include an extensive analysis of the potential negative air quality impacts of the SCM, while Section II details the purpose of the SCM and the positive air quality impacts. Positive air quality impacts are discussed very little in Section IV. District staff suggests that Section IV contain a more detailed discussion of positive impacts such as reduction of VOC emissions and lowering of ambient ozone concentrations on a statewide basis.

Response: The suggested changes have been made in the Final Program EIR by referring the reader of Section IV to Section II.

- 11-5. Comment: Section IV.B. states that SCAQMD's significance criteria tend to be the most conservative, but Ventura County APCD's significance thresholds are more conservative.

Response: The commenter is referred to the response to Comment #3-1 of the Final Program EIR.

11-6. Comment: The emission reductions in the Section IV.C.1 do not agree with the figures presented in Table II-3 and on Page IV-61.

Response: The corrections have been made in the Final Program EIR.

**COMMENT LETTER #12**  
**Golden Artist Colors, Inc.**  
**April 5, 2000**

- 12-1. Comment: We request that the VOC limit for faux finishes be changed from 350 to 700 g/l. The 350 g/l VOC limit does not allow for products that meet the performance demands of professional faux finishers, as shown in the attached comments that were sent to your staff. The ARB believes that a product at 350 g/l has the same open time as a product at 700 g/l (response to issue #1, page 34, Appendix D of the Draft EIR), but provided no basis for this statement. We tested actual products and found that the open time is directly proportional to the VOC level. The low VOC product tested with reported VOC up to 350 g/l had 7-10 minutes open time on the edges, while our product was open for 20 minutes. While simple techniques can be accomplished with products having the shorter open times, more sophisticated finishes require more steps and even 20 minutes challenges finishers.

Response: As discussed in the Draft Program EIR, we do not believe that a 700 g/l VOC limit is necessary for faux finishes because of the variety of faux finishes available at or below the proposed 350 g/l VOC limit. These lower VOC faux finishes are widely available and generally below 250 g/l, which is the VOC limit for these coatings in many districts in California. The comments sent to ARB staff by two individuals indicating their preference for the commenter's product do not indicate that a 700 g/l VOC level is appropriate. There may be other individuals that have a preference for the lower VOC products as well. Regarding the "open time" (dry time) of the lower VOC products, the Draft Program EIR cites a faux finish manufactured by Sherwin Williams with a VOC content of 248 g/l and a reported open time of about 15 minutes. This was compared to the open time of higher VOC products such as the commenter's product, with a reported open time of 10 to 30 minutes. The test data supplied by the commenter in their April 5, 2000, letter (and subsequent electronic mail submitted after the public comment period) did show that their product has a longer open time than the lower VOC products mentioned in the Staff Report. However, the dry time data generated by the commenter tested faux finishes on a flat paint basecoat, which decreases the open time. As mentioned in the Staff Report, most manufacturers of faux finishes recommend a basecoat of semi-gloss or satin/eggshell paint to extend the open time. We also note that the low VOC faux finishes tested by the commenter are generally below 250 g/l, which is less than the 350 g/l limit proposed in the SCM. Therefore, the commenter would not need to reformulate their product down to the level of most of the products they tested. Finally, faster dry times can be accommodated by working in smaller areas, as mentioned in the Staff Report.

**COMMENT LETTER #13**  
**Los Angeles Department of Water and Power (LADWP)**  
**April 6, 2000**

- 13-1. Comment: The essential public service agencies (EPSA) group, in conjunction with the South Coast AQMD, is conducting a test program for corrosion-protection industrial maintenance coatings complying with the proposed 250 g/l limit. The Los Angeles Department of Water and Power (LADWP) recommends that the ARB staff formally recognize the test program in the final EIR for the SCM. The test results are crucial in determining the low-VOC limits for industrial maintenance coatings. Industry will also be interested in the test results.

Response: We recognize the importance of the EPSA test program, and will recommend that our Board, at the June 22/23, 2000, meeting, take action to formally recognize the test program as suggested. We will track the EPSA test program and will review the associated SCAQMD technical assessment when available. We will conduct our own technology assessment one year before the 250 g/l limit goes into effect in 2004.

- 13-2. Comment: The LADWP supports the ARB staff's revised proposal for a one-year extension of the effective date, to January 1, 2004, for industrial maintenance coatings. The additional year will provide more time to test low-VOC coatings. However, the LADWP is still concerned that low-VOC coatings may not perform adequately, and that not all the testing will be sufficiently completed before the compliance date. The LADWP would like to discuss available EPSA test results with the ARB staff at least six months before the compliance date.

Response: We intend to review and discuss the EPSA test results with the EPSA, as results become available. We will conduct a technology assessment one year before the 250 g/l limit goes into effect in 2004.

- 13-3. Comment: Coating manufacturers recommend that the ARB staff not rely on product data sheets, provided by coating manufacturers. Some product data sheets can be viewed as sales brochures that represent overly optimistic views of coating performance. The LADWP supports the coating manufacturers' recommendation and recommends that the ARB staff review the EPSA test results.

Response: We will review and discuss the EPSA test results with the EPSA, as results become available. As discussed in the Draft Program EIR and the Final Program EIR, we considered various information in developing the proposed VOC limits. In addition to product data sheets, we considered information from resin manufactures, independent testing, VOC limits from federal and district regulations already in effect, publications from industry/trade journals, and discussions and input from various affected groups such as EPSAs.

- 13-4. Comment: The LADWP supports the ARB staff efforts for a higher VOC limit for industrial maintenance coatings to be used in the coastal areas of California, where there

is highly corrosive salt air. Electric power plants are commonly located next to the ocean to use ocean water for the condenser cooling. These electric power plants have substantial equipment that must be protected from corrosion with the use of industrial maintenance coatings.

Response: According to Caltrans, in a “multi-agency” EPSA letter dated July 21, 1999, the areas of concern are within one to fifteen miles from the California coastline, estuaries, or bays, where coastal fog exists more than six months per year. During a December 1, 1999, meeting at the ARB, Caltrans further informed us that the coastal areas of concern range from Point Sur, in Monterey County, north to the Oregon border. The problem in the coastal areas mainly involve the high humidity and low temperatures, and the slightly narrower temperature and humidity requirements for water-based coatings to be applied onto substrates, compared with solvent-based coatings. The conditions along the coast make the Caltrans coating operations for bridges more limited with low-VOC coatings, since the acceptable days to apply coatings become even more limited. Our current efforts for a higher VOC limit are mainly to address the coating application problem along the coast that affect Caltrans and other industrial maintenance coating users, such as operators of electric power plants. We have added Section 3.8 to the proposed SCM to address this concern.

- 13-5. Comment: The LADWP needs a low-VOC, quick-dry primer to coat electrical equipment, such as transformers. Equipment must be prime-coated, quickly dried, top-coated, and returned to service within eight hours to minimize electrical down-time for impacted industry, businesses, and residences. The coating system then must last ten years. Test primers will be included in the EPSA test program. If the primer coatings do not pass the testing, LADWP recommends that a higher VOC category be created for such primers.

Response: We will track the EPSA test program and will review the associated SCAQMD technical assessment when available. We will conduct our own technology assessment one year before the 250 g/l limit goes into effect in 2004 and make a determination at that time whether or not to propose revising the SCM.

The proposed SCM already includes a new “flow coatings” category specifically for coating the cooling fins of electrical transformers. The proposed VOC limit for “flow coatings” is 420 g/l (see Section A-10 of Appendix D of the Draft Program EIR).

**COMMENT LETTER #14**  
**Ameron Coatings**  
**April 7, 2000**

- 14-1. Comment: The exclusion of floor coatings from the latest proposed definition of industrial maintenance coatings is inappropriate. The ARB survey data does not reflect this new definition. It is common practice in industrial settings to use the same coating that is specified for the walls of a facility on the floors as well. The limit for floor coatings should be 250 g/l or the definition of Industrial maintenance coatings should not exclude floor coatings.

Response: In response to this comment as well as other concerns, the SCM has been modified as requested. (See also response to Comment #4b-22 of the Final Program EIR.)

- 14-2. Comment: The proposed SCM specifies a limit of 100 g/l for industrial floors, under the “floor coatings” category, but specifies a limit of 250 g/l for vertical surfaces (such as industrial concrete walls and structural steel) under the “industrial maintenance coatings” category. For some very-high solids and 100 percent solids coatings for complying with a 100 g/l limit, Method 24 provides unrealistic high measurements of VOC content, due to the test temperature of 110°C. A coating used at ambient temperatures may be zero VOC, but with the Method 24 test temperature, the test results may show as high as 150 g/l VOC.

Response: The proposed SCM has been revised to include industrial floors in the “industrial maintenance coatings” category, so the 250 g/l VOC limit for “industrial maintenance coatings” would apply to industrial floors as well. This change would simplify the use of coatings at industrial facilities, since the same industrial maintenance coating may be used on both vertical surfaces and floors. With various earlier proposals for the SCM, the floor coatings VOC limit was applicable because it was the most restrictive limit, since the “floor coatings” category did not exclude industrial floors. With the current revision to the proposed SCM, the “floor coatings” category does not apply to industrial floors.

Based on the information provided by the commenter regarding Method 24, and our revision to a VOC limit of 250 g/l for industrial floors, we believe that Method 24 should no longer be a problem for the very-high solids and 100 percent solids coatings of concern. The VOC limit at 250 g/l is well above the 150 g/l level from Method 24 test results, as commented.

- 14-3. Comment: The coatings identified in the literature search and cited in the references of Appendix D are not well suited for severe service environments. They would not be suitable for rigorous and repeated steam cleaning as required in food processing industries nor would they have sufficient chemical resistance required for use in pulp and paper facilities or the chemical process industries.

Response: Several of the products identified by staff are recommended for extreme abrasion and chemical resistance applications and specify use in USDA facilities. These products simply represent a sample of those currently available below 100 g/l. With the revised limit for this category of 250 g/l, compliant product availability is increased considerably. The compliant market share from the ARB survey increased from 35 percent to 85 percent as a result of the limit increase.

- 14-4. Comment: Staff should not consider starting formulas from raw material manufacturers evidence of product availability. Uses of such starting formulas often produce less-than-promised results.

Response: Staff realizes that such starting formulas do not produce a finished product. The intent of such formulas is to provide coatings manufacturers with a starting point for the development of new coatings with the specific performance characteristics associated with the raw materials. It would not make sense for a major raw material manufacturer to market materials that promise certain performance characteristics, unless the material manufacturer believed that a coating manufacturer would actually be able to develop an acceptable finished product.

- 14-5. Comment: The projected costs for compliance we submitted in response to the ARB Economic Impacts Survey were based on an analysis of our High Heat, Metallic Pigmented and Industrial Maintenance product lines as we understood them to be defined in the SCM draft dated 12/1/99. However, the 2/11/00 draft SCM excluded Floor Coatings from the Industrial Maintenance category. As previously stated, we have no accurate way of distinguishing sales in these coatings categories. We are very disappointed because the data submitted in the Economic Impacts Survey would be invalid if these definitions are changed and we have no data that would allow use to access [*sic*] the impact of these definition changes on our survey response.

Response: This comment has been addressed with the new proposed 250 g/l standard for Floor Coatings, which is the same VOC limit as the standard for Industrial Maintenance coatings, and with the deletion of the language excluding floor coatings from Industrial Maintenance coatings. Because of these changes to the SCM, the in-house cost analysis the commenter performed under a 250 g/l standard should be applicable under the new Floor Coating standard.

- 14-6. Comment: The SCM should add a category for Nuclear coatings like that in the National Rule. We do not dispute the availability and/or technical feasibility of compliant coatings, but rather the economic feasibility. This is because of the expensive testing requirements. It cannot be assumed that a product approved in one plant can be used in another because the conditions vary with different plants and reactors. Further testing is required when a new coating system is used on an old one or on a new substrate. We also believe that the small quantities used in California should be considered.

Response: California has two nuclear facilities, Diablo Canyon and San Onofre. As stated in the Draft Program EIR, staff contacted personnel at both of these facilities and

found that: (1) in the case of San Onofre, all of the coatings they use are below the proposed 250 g/l level; and (2) in the case of Diablo Canyon, they use primarily coatings below 250 g/l, and can use quarts for the few cases where higher VOC coatings may be needed. Therefore, we believe that the proposed VOC limits are economically feasible and will not require extensive testing.

**COMMENT LETTER #15**  
**Kessler and Associates Business Services, Inc.**  
**April 7, 2000**

15-1a. Comment: The SCM is an unenforceable guideline which districts may choose to adopt and enforce in the future. The SCM bans architectural coatings with VOC contents higher than the limits set in the SCM. The Draft Program EIR does not fulfill CEQA requirements because of factual errors, misinterpretation of accepted science, and questionable policy decisions, and incorrectly concludes that the SCM will have no adverse environmental impacts. Consideration of region-by-region effects of the proposed SCM is essential because the effects of VOC reductions on ozone vary in different areas of California. The SCM may cause significant adverse regional impacts, while providing virtually no environmental benefit anywhere. The Draft EIR has ignored these consequences and misinformed the public about the true impact of the SCM.

Response: We disagree that the SCM bans architectural coatings; in fact, that assertion conflicts with the commenter's earlier statement that the SCM is an unenforceable guideline. District rules based on the SCM will necessitate reformulation of coatings with VOC contents higher than the limits in the proposed SCM. However, Chapter VI of the Staff Report demonstrates that each of the VOC limits in the SCM is technologically and commercially feasible by the proposed effective date. We disagree with the commenter's statements that we have made errors in the Draft Program EIR that invalidate our conclusions that the SCM will have no adverse environmental impacts. The commenter makes some general, nonspecific remarks that the Draft Program EIR's technical analysis is flawed. The ARB staff does not agree with these general remarks, and the reasons for the ARB's position can be found throughout the responses to the various comments made on the Draft Program EIR.

In addition, contrary to the commenter's statements, we have performed a region-by-region analysis of environmental impacts and mitigation wherever practical (*e.g.*, water demand, POTW impacts, and solid waste impacts in Chapter IV of the Draft Program EIR). As a result of this analysis, we are proposing to allow the use of higher VOC industrial maintenance coatings in areas with persistent fog and cold temperatures. We have also proposed higher VOC limits for bituminous roof coatings and bituminous roof primers to allow for the use of solvent-based products in cooler areas of the State. We received no data to substantiate regional performance issues in any categories except industrial maintenance and bituminous coatings.

We have also considered how VOC and NO<sub>x</sub> conditions typical of various areas of the State may impact the effectiveness of ozone reduction strategies. We agree with the commenter that ozone production is influenced by a myriad of factors including VOC and NO<sub>x</sub> concentrations, and topographic and meteorological conditions. These factors vary not only throughout California, but also on a daily basis.

However, we cannot agree that the SCM may cause significant adverse regional impacts, while providing virtually no environmental benefit, or that we have misinformed the

public about the true impact of the SCM. The commenter has failed to provide any basis for those claims and, as explained above, we have considered regional effects and documented the environmental benefits in Chapters II and IV of the Final Program EIR. Based on this analysis, ARB staff has concluded that reducing VOC emissions from architectural coatings is an effective ozone control strategy for nonattainment areas, and will not result in adverse environmental impacts (see the response to Comment #15-39 of the Final Program EIR).

- 15-2. Comment: The Draft EIR does not properly evaluate the science of ozone production and destruction. The necessary understanding of the objectives, and the mechanisms used to achieve the objectives, of using VOC regulations to reduce ozone is lacking. The ARB should re-evaluate its emphasis on statewide VOC controls as the primary tool for reducing ozone, in light of the National Academy of Sciences findings in “Rethinking the Ozone Problem” which concluded that NO<sub>x</sub> control *instead* of VOC control was the optimal ozone reduction strategy in some areas. The Draft EIR should explain the effect on ozone levels of VOC emission reductions in the presence of varying NO<sub>x</sub> levels, and should include a detailed examination of NO<sub>x</sub> transport across California. VOC regulations alone cannot attain the NAAQS, and can be counterproductive if not optimally implemented. NO<sub>x</sub> reductions and control of NO<sub>x</sub> transportation are crucial. VOC control may be ineffective in reducing ozone and in fact can *increase ozone levels* in some circumstances. The Draft EIR should determine *where* VOC controls will be effective and ineffective, including mapping areas conducive to negative reactivity. Instead, the Draft EIR assumes that VOC emission reductions are the optimal strategy in all regions of California, which in turn precludes ARB from understanding the true effects of the SCM and its environmental impact. The Draft EIR does not comply with CEQA.

Response: ARB staff disagrees with the commenter’s assertion that the Draft Program EIR does not properly evaluate the science of ozone production and destruction. The description of ozone formation contained in pages IV-76 through IV-79 of the Draft Program EIR contains all of the relevant facts regarding the production or destruction of ozone in the atmosphere.

The recommendation of the National Academy of Sciences (NAS) was: “To substantially reduce ozone concentrations..., the control of NO<sub>x</sub> emissions will probably be necessary in addition to, or instead of, the control of VOCs” (page 11, *Rethinking the Ozone Problem in Urban and Regional Air Pollution*). Modeling of local VOC/NO<sub>x</sub> conditions is necessary to predict the effects of VOC and NO<sub>x</sub> on ozone concentrations. We explain the relationship between VOC and NO<sub>x</sub> levels on ozone levels, the effectiveness of VOC controls, and the concept of negative reactivity, in the response to Comment #15-39 of the Final Program EIR.

We agree with the commenter that VOC regulations alone cannot attain the national ambient air quality standards; for that reason we have both VOC and NO<sub>x</sub> controls in California. However, we do not agree that VOC controls can be counterproductive to either peak ozone or population exposure, as will be explained in the response to

Comment #15-39 of the Final Program EIR. We also do not agree that the Draft Program EIR assumes that VOC emission reductions are the only optimal strategy in all regions of California. We have focused on VOC reductions in the Draft Program EIR because architectural coatings emissions are VOCs; however, we do discuss that the ARB's and districts' overall emission reduction strategy is based on statewide VOC and NO<sub>x</sub> control in Chapter IV of the Draft Program EIR. For these reasons, we disagree that the Draft Program EIR does not comply with CEQA.

- 15-3. Comment: Dunn-Edwards hopes its comments will clear up misinformation and provide a sound basis for an SCM that improves the environment and allows continued production of high quality coatings.

Response: The ARB staff welcomes constructive dialogue with Dunn-Edwards and other companies on scientific issues of mutual interest.

- 15-4. Comment: A program EIR is not the appropriate CEQA document for the SCM because it does not provide the technical information needed to evaluate the potential adverse environmental impacts of the SCM. It is incorrect to assume that effects of VOC reduction on ozone levels will be qualitatively identical across airsheds. In general, the Draft Program EIR does not fulfill CEQA requirements because it contains factual errors, improper analysis of statistical and technical data, and the misinterpretation of accepted science. As a result, the Draft Program EIR incorrectly concludes that the SCM will have no adverse environmental impacts.

Response: In commenting that a program EIR is “not the appropriate CEQA document”, the commenter does not appear to be criticizing the principle of using a program EIR for the SCM (as opposed to some other type of EIR). Rather, the commenter objects to the Program EIR because he believes that the analysis contained in the EIR is inadequate. In making this criticism, the commenter first makes some general, nonspecific remarks that the EIR's technical analysis is flawed. The ARB staff does not agree with these general remarks, and the reasons for the ARB's position can be found throughout the responses to the various comments made on the EIR. The commenter also offers one more specific criticism—that the Draft EIR inappropriately assumes that the impacts of the SCM on ozone levels will be qualitatively identical across different airsheds in different regions of the state, and that this assumption glosses over the possible negative impacts on ozone that may occur because of region-by-region differences in atmospheric chemistry. The ARB staff does not agree with this criticism, for the reasons discussed at length in the responses to Comments #15-1, #15-5, #15-24, and #15-39 of the Final Program EIR.

- 15-5. Comment: The technical analysis of the impacts in the Draft EIR is vague and does not address the unique conditions of each air district. The commenter states that the ARB assumes that each district will prepare its own CEQA analysis, and suggests that most districts do not complete CEQA documentation, nor do they have staff resources or experience to prepare additional CEQA documents to support district rules based on the SCM.

Response: We disagree that we have not considered the effects of the SCM based on regional conditions. The commenter is referred to the response to Comment #15-1 of the Final Program EIR for examples of how we have accounted for regional effects. The possible ways that the ARB expects the districts to use the EIR are described on page I-3 of the Draft Program EIR. The districts may utilize the Final Program EIR as the basis of whatever CEQA documents the districts choose to prepare. It is not true that most districts fail to prepare CEQA documentation, although CEQA analysis may take several forms depending on individual district policies and the particular rules being considered.

- 15-6. Comment: The Draft EIR does not include adequate analysis of potential adverse environmental consequences associated with the SCM. The Draft EIR does not include adequate analysis of significant effects on air quality and ozone formation throughout California. The Draft EIR does not hint that there could be negative or qualitatively different effects of ozone levels in certain regions of the state. As a result, the SCM is flawed and the Draft EIR is non-compliant with CEQA requirements.

Response: ARB staff disagrees with the commenter's assertion that the Draft Program EIR does not adequately analyze potential adverse environmental impacts because it does not address impacts throughout California. Chapter IV of the Draft Program EIR contains a detailed discussion of negative reactivity and regional effects on ozone. The commenter is referred to the response to Comment #15-39 of the Final Program EIR for a further discussion of negative reactivity and regional effects on ozone. For the reasons discussed in Comment #15-39 of the Final Program EIR, we disagree with the commenter's assertion that the SCM is flawed and the Draft Program EIR does not comply with CEQA.

- 15-7. Comment: The Draft EIR incorrectly assumes that VOC emissions from architectural coatings make up four percent of the VOC inventory. As a result, the Draft EIR overestimates the necessity and environmental benefits of the SCM, while underestimating the adverse environmental impacts of the SCM. The ARB should re-evaluate the conclusions of the Draft EIR and reconsider the advisability of the SCM.

Response: We disagree with the assertion that the ARB incorrectly assumes that VOC emissions from architectural coatings make up four percent of the VOC inventory. The inventory for area sources like architectural coatings and consumer products is based on periodic surveys, in which manufacturers provide data on VOC content and sales of products in California. The ARB and districts utilize a variety of methods to measure emissions from stationary point sources and mobile sources in California. The proportion of the inventory contributed by architectural coatings is dependent on the contribution from other sources, but the inventories from all sources and the methods used to estimate emissions are based on the best available data. We respond to the commenter's specific issues with the architectural coatings inventory in the response to Comment #15-9 of the Final Program EIR. Therefore, we disagree with the commenter's general statement that because of errors in the emission inventory, the Draft Program EIR overestimates the benefits and underestimates the adverse impacts of the SCM, or that our conclusions and

recommendations are incorrect. In fact, the architectural coatings inventory discussed in the Draft Program EIR is based on 1996 sales data provided by manufacturers in the 1998 ARB survey.

- 15-8a. Comment: Contrary to the Draft EIR's characterization, the SCM does not regulate VOC emissions, but rather regulates the VOC content of architectural coatings. The Draft EIR incorrectly assumes that reductions in VOC content translate into reductions in VOC emissions. CARB addresses this assumption in its response to Dunn-Edwards' July 12, 1999 comment on CARB's Initial Study, claiming that it is supported by the use of Method 24 which purports to measure VOC emissions from Architectural Coatings. (EIR Appendix C-4). Dunn-Edwards believes that Method 24 does not accurately measure VOC emissions from coatings under real-world evaporative conditions because Method 24 measures VOCs emitted from coatings when the coatings are heated above the boiling point of water. Therefore, the expected benefits of the SCM and projections/conclusions regarding the SCM's effect on ozone levels should be re-examined.

Response: Architectural coatings are regulated based on VOC content because VOC content is directly measured by Method 24 for compliance purposes. Thus, a regulation based on VOC content is necessary to enforce the VOC limits (*i.e.*, U.S. EPA Method 24). Regulating architectural coatings by VOC content is consistent with existing district rules and the National AIM rule.

ARB staff disagrees with the commenter's assertion that Method 24 does not accurately measure VOC emissions from coatings. Method 24 was developed to simulate, in a reasonable amount of time, the emissions from the coating over the life of the coating. ARB's Monitoring and Laboratory Division (MLD) used Method 24 to analyze several hydrocarbon distillate cuts similar to those used in architectural coatings to determine the percentage of VOCs actually emitted. Method 24 did not drive off all of the VOCs in some of the samples, some of the heavier VOCs remained. Thus, Method 24 already accounts for low volatility VOCs in architectural coatings. Method 24 is the best test method available at this time and is required by the U.S. EPA.

The commenter provides no basis for his statement that reductions in VOC content do not translate into reductions in VOC emissions. Because architectural coatings are applied as a liquid and are designed to dry, the majority of VOCs from architectural coatings evaporate, and therefore are emitted into the atmosphere. This issue is discussed further on pages V-147 through V-148 of the Draft Program EIR.

The commenter makes an unsubstantiated claim that reductions in VOC content do not translate to reductions in VOC emissions and, therefore, the SCM does not have an effect on ozone levels. We disagree because the best available evidence indicates that the majority of VOCs in coatings evaporate and become VOC emissions, and thus are available to form ozone in the atmosphere.

15-9. Comment: The Draft EIR attempts to dismiss the discrepancy between emission inventory estimates and ambient monitoring data by citing a source apportionment study with an erroneous and misleading analysis. The study does not report that architectural coatings are a major contributor to ambient VOCs in the South Coast Air Basin, but rather that surface coatings in aggregate are major contributors. Several errors were made in reporting and interpreting the results of the study. The discrepancies pointed out by the commenter raise questions as to whether architectural coatings significantly contribute to air pollution, and whether future regulation of architectural coatings is warranted, especially the drastic reductions of the proposed SCM.

Response: The source apportionment study by Fujita, *et al.* (Determination of Mobile Source Emission Fraction Using Ambient Field Measurements, Final Report for the Coordinating Research Council, July 23, 1997) was not introduced in the Draft Program EIR to validate the emissions inventory. Rather, we were responding to the commenter's claim that ambient monitoring data show that architectural coatings contribute substantially less to the inventory than reported by the ARB. To quantify our previous response to the commenter, we used the Fujita *et al.* study, excerpts of which were submitted to us by the commenter after the August 1998 workshop in which these issues were discussed. As explained on page II-20 of the Draft Program EIR, we were reporting on the Fujita work as reported in Table 3 of a review article by Watson, *et al.* (Review of Volatile Organic Compound Source Apportionment by Chemical Mass Balance, undated publication at: <http://narsto.owt.com/Narsto/reactinfo.html>). The reason we used the Watson paper was that it explained which representative species of which coating categories were actually measured by the monitors. Table 2 of the Watson paper shows that the species profiles used to represent the architectural coatings only covered solvent-based quick dry primers and graphic arts coatings. The solvent-based graphic arts coatings and quick dry primers make up less than five percent of the VOC emissions from architectural coatings, according to the ARB's 1998 architectural coatings survey. Thus, the speciation was not fully representative of solvent-based architectural coatings and did not include water-based coatings. As reported on page II-20 of the Draft Program EIR, Fujita confirmed to us that the sampling and analysis methods used in this study focused on emissions from motor vehicles, and did not attempt to quantify the types of oxygenated compounds commonly contained in water-based coatings. Therefore, the study underestimated the contribution of architectural coatings.

We agree with the commenter that the solvent-based coatings account for 67 percent of the total VOC emissions, and the contribution of architectural coatings to the inventory should be measured in emissions rather than overall volume of paint sold. Again, this 67 percent figure comes from our 1998 architectural coatings survey, not monitoring data.

In response to the commenter's concerns, we have investigated the differences in the contributions of architectural coatings as reported by Watson, *et al.* versus those in the original Fujita, *et al.* paper. It does appear that the summary range cited in the Watson paper was inadvertently derived from a different line of the table in the original study. Nonetheless, as discussed in the Draft Program EIR, the Fujita, *et al.* study was designed

to measure vehicular emissions. The author has told us that the results should not be considered to be representative of coatings in the Los Angeles area. Because the study focused on vehicular emissions, the monitors were not designed to get representative regional contributions from architectural coatings. This study attempted to assign emissions to only a few of the many dozens of hydrocarbon emission categories. In fact, it is more notable that architectural coatings were observed when the study was not specifically designed to measure them. The author also pointed out that there is a high degree of uncertainty in the values reported in the study, as represented by the standard deviations. A very carefully designed study specifically for architectural coatings emissions would be required to better confirm the inventory.

Based on our explanation of the reasons for the problems with the numbers we reported and the limitations of the source apportionment study, we cannot agree that it is questionable whether architectural coatings significantly contribute to air pollution. We also disagree that the alleged discrepancies between the source apportionment study and the architectural coatings inventory cast doubt on whether future regulation of architectural coatings, such as that proposed in the SCM, is warranted. We believe that the survey method of determining the inventory (as described in the response to Comment #15-7 of the Final Program EIR) is more accurate than relying on a motor vehicles source apportionment study in which architectural coatings were only coincidentally found.

15-10. Comment: (a) The ARB's justification for the SCM is the supposed need to reduce VOC emissions from architectural coatings estimated to be 11.3 tons per day if adopted statewide. The Draft EIR's own statistics, however, demonstrate that regulation is not necessary to achieve this goal. First, the Draft EIR incorrectly asserts that "for the most part, California districts will not see additional emission reductions from the National Rule, since the majority of the national limits are equal to or higher than the districts' limits." Currently, only one half of California's 35 air districts have adopted limits more stringent than EPA's national architectural coatings rule. All other districts must comply with the National Rule and so will achieve the attendant emission reductions.

(b) The Draft EIR indicates that from 1990 to 1996, a period in which no significant new architectural coating rules or amendments to pre-existing rules were put into effect in California, VOC emissions from architectural coatings fell from 126 tons per day to 117 tons per day. This translates into a reduction of seven percent or 1.2 percent a year for that time period. Assuming the same rate of reduction (absent any further regulation), for the seven-year period from 1996 to 2003 (implementation date of the SCM), VOC emissions from architectural coatings would fall a further 8.4 tons - almost the entire amount targeted by the SCM. This directly contradicts the Draft EIR's assumption that "without additional architectural coating regulations, the inventory for architectural coating emissions will increase due to population growth." The internal inconsistency of the Draft EIR on such a crucial point demonstrates the need for further consideration of the SCM and its projected impacts.

Response: (a) California's 17 districts with architectural coating rules in place that are more stringent than the National Rule comprise 96 percent of the State's entire population. Thus, the emissions benefit that could result from the National Rule in the remaining 18 districts, which only comprise four percent of the State's population, is negligible.

(b) The ARB disagrees with the commenter's assertion that significant reductions in VOC emissions from architectural coatings will result without further regulation. During the six year period between 1990 and 1996 the U.S. EPA national architectural coatings rule was under development with the coatings industry. The U.S. EPA's national architectural coatings rule became effective in September 1999. In California, eleven (65 percent) of the 17 districts with architectural coating rules made at least one amendment to their rules between 1990 and 1996. In addition, during this same period the SCAQMD's Architectural Coatings Rule 1113 was amended eight times. So the commenter's implication is unfounded that emissions naturally declined during a period when no regulation occurred. The remaining argument regarding emissions and their estimated natural decline from 1996 through 2003 (absent any further regulation) is predicated on an assumption that cannot be proven. The California statewide emission inventory is divided into mobile, stationary, and area sources. Architectural coating emissions are accounted for in the area source portion of the statewide inventory. As other emission sources reduce their contribution to the emissions inventory via regulation, the relative contribution of architectural coatings is expected to increase with time and population growth in the absence of further regulation.

- 15-11. Comment: The Draft EIR's reliance on the ARB survey and the NTS performance study to demonstrate the technological feasibility of the SCM's VOC limits is flawed. In particular, the Draft EIR's conclusion that the VOC limits are feasible is based primarily on the fact that there are some currently available coatings that comply with the proposed limits, and can adequately perform the full range of applications required of these coatings. The survey and NTS study do not provide adequate basis or justification for rule development based on the proposed SCM.

Response: The commenter is referred to the response to Comment #4b-1 of the Final Program EIR for a description of the information utilized in our technology assessment, as well as our economic analysis. As discussed in that response, we did not rely solely on survey data, on the number of complying products found, or on limited application and substrate requirements. We performed a detailed assessment based on many sources of information. We cite the detailed data analysis in Chapter VI of the Staff Report, and in Appendix E of the Final Program EIR. In addition, the NTS data are analyzed in Appendix E of the Staff Report. We believe that the totality of the evidence is sufficient for the districts to develop rules based on the proposed SCM.

- 15-12. Comment: (a) The 1996 survey is flawed because respondents for a number of reasons miscategorized many coatings. In some cases, manufacturers were simply unfamiliar with the definition and rationale for a given category. For example, a large volume of waterborne primers, sealers and undercoaters was miscategorized as "Quick-Dry Primers,

Sealers & Undercoaters” based on the dry-time included in the definition of that category. In other cases confusion was generated by including in the survey form approximately 20 categories defined in the U.S. EPA's new national rule for architectural coatings, but not found in local district rules.

(b) Even had all the products been correctly categorized, however, the survey still fails to provide reliable guidance on appropriate VOC content limits, because the survey collected no performance data on the coatings subsumed under each category. The arbitrary breadth of the major coating categories results in aggregation of many coatings that differ widely in composition, specific intended use, performance characteristics, and VOC content. As the basis for its conclusion that the SCM's VOC limits are feasible, the Draft EIR appears to assume that all coatings within a category are interchangeable. In fact, the various products within a category are not interchangeable. In general, coatings at the lower end of the VOC range are not adequate substitutes for all coatings at the higher end.

Response: (a) The ARB disagrees with the commenter's assertion that the 1996 survey is flawed. The survey used category definitions consistent with those found in the national U.S. EPA architectural coatings rule and local district rules in California. The definitions found in these rules were developed with industry's input. During development of the 1998 survey, the ARB worked with the coatings industry to improve the overall comprehension and quality of the survey. The additional categories found in the U.S. EPA rule are merely subcategories of those found in local district rules. The definition for quick-dry primers, sealers and undercoaters is not only consistent with the U.S. EPA national architectural coatings rule, but also local district rules in California. Architectural coatings rules have been in place in California since the early 1970s. In addition, the industry is aware that coatings must undergo a dry time determination performed by using the American Society for Testing and Materials (ASTM) test method D1640 to qualify for the quick-dry primers, sealers, and undercoaters category. No evidence has been presented that supports the comment that "a large volume of waterborne primers, sealers and undercoaters was miscategorized as Quick Dry Primers, Sealers, & Undercoaters."

The ARB also engaged in extensive Quality Assurance and Quality Control (QA/QC) of the data by contacting virtually every company who submitted data to clarify any data records that appeared to be in error (*e.g.*, VOC content, coating category type). The ARB released several drafts of summarized survey data to industry in January 1998 for review and comment. In March 1999, the ARB held a formal public workshop requesting comments on the architectural coatings survey “draft report” released in February 1999. After careful evaluation of all comments received on the draft survey report, the ARB published a final report in September 1999.

(b) The design of the 1998 ARB survey satisfied its intended goal, which was to primarily capture sales volume, VOC content, and ingredient information for products sold in California. The collection of performance data was beyond the scope of the

1998 survey, but was taken into consideration in the technical analysis of the feasibility of the proposed VOC limits. The commenter is well aware that the survey is only one of many sources (*e.g.*, performance data, complying products, manufacturer comments, SCAQMD NTS Performance Study, *etc.*) relied upon by ARB staff when evaluating the technical and commercial feasibility of a proposed limit. ARB staff did evaluate the availability of coatings to satisfy required performance characteristics within each category and concluded that complying products were available that were capable of providing overall equivalent performance.

- 15-13. Comment: The proposed 150 g/l VOC limit for non-flat coatings is technologically infeasible. The coatings with the best performance characteristics (durability and resistance to the following: deterioration by water, corrosion, physical contact, loss of adhesion, erosion, film cracking, discoloration, household chemical attack, and the effects of sunlight) require “hard” resins that must be formulated with VOC levels above 200 g/l to achieve maximum performance. The low-VOC resins cited in the NTS study at best show good block resistance. The discussion of non-flat coatings in Appendix D is misleading. The NTS study shows that flow and leveling characteristics are superior for alkyd paints (>350 g/l VOC) when compared to the water based products (150-250 g/l VOC) and the 150 g/l paints tested did not show the highest performance levels achievable. The qualities claimed by manufacturers for their products are marketing terms that de-emphasize compromises made necessary by excessively stringent VOC content limits and do not indicate a guarantee of the ultimate of performance.

Response: Due primarily to enforcement concerns for districts with more limited resources than the SCAQMD, a subcategory for high gloss non-flat coatings has been created with a proposed 250 g/l VOC limit. (See Comment #1-3 of the Final Program EIR.) However, we disagree with the commenter’s claim that high quality low and medium gloss coatings cannot be formulated at 150 g/l with current technology. Our conclusion is based on laboratory performance tests viewed in conjunction with information published by coatings manufacturers.

Specifically, the laboratory tests conducted by NTS show comparable performance for lower VOC non-flat coatings when compared to higher VOC non-flat coatings in many performance areas listed by the commenter. For the purposes of staff’s evaluation of non-flat coatings, it was appropriate to compare coatings that comply with the proposed 150 g/l limit with higher VOC coatings that comply with the most common current California district limit of 250 g/l. The high VOC coatings (> 350 g/l) mentioned by the commenter would not be allowed under current district rules for non-flat coatings, and were thus excluded from that comparison. Moreover, most of those high VOC coatings (> 350 g/l) tested were “quick-dry enamels.” Such coatings must meet specific gloss and dry time criteria, and are classified in a separate category from non-flat coatings. It is only appropriate to use the NTS results for those coatings in the context of evaluating the proposed VOC limit for the quick-dry enamel category, as was done by ARB staff.

Our survey of product information sheets indicates that there are a number of complying interior and exterior low and medium gloss coatings that are identified by their

manufacturers as premium quality coatings. Further, the product information indicates that there are complying coatings that are described as having superior durability and that have excellent performance in the other areas listed by the commenter. Regarding using product data sheets published by coating manufacturers, we believe it is appropriate to use such information in conjunction with test results and other information in our assessment. Coating manufacturers publish the product data sheets to provide customers with information regarding important characteristics of their coatings. The information contained in the product data sheets is typically based on laboratory tests and may also be based on field studies. The commenter states that the product information sheets are simply marketing tools and do not guarantee performance. We believe that customers rely on the information contained in the sheets to assist them in choosing products, and that providing inaccurate information as a marketing tool does not make good business sense. Also, more credence is given to the information contained in product data sheets when similar performance claims are made for complying and non-complying products, and when different manufacturers make similar performance claims for complying products.

15-14. Comment: (a) Alkyd based primers, sealers, and undercoaters at 350 g/l are more forgiving to certain surfaces, *e.g.*, wood prone to bleed through, rusty metal and chalky surfaces. Products at 200 g/l and less are satisfactory, in most cases, only when a very clean, uncompromised surface is available.

(b) General alkyd based wood primers need at least 380 g/l to effectively protect natural wood surfaces.

(c) Alkyd and other solvent borne primers, sealers, and undercoaters for man-made synthetic woods and other composite building materials may need >400 g/l coatings because of their unique surface chemistries and physical profiles which are difficult to adhere to.

Response: (a) Products intended for use on the surfaces indicated would not be categorized as primer, sealer, undercoater products. Products intended for use on substrates to block stains (such as extractive bleeding) or to condition excessively chalky surfaces are considered specialty primers, sealers, and undercoaters, which has a proposed limit of 350 g/l. The 350 g/l limit is consistent with existing limits in district rules. Products intended for use only on rusty metal substrates would fall under the rust preventative coatings category, with a proposed limit of 400 g/l. For further information on specialty primers, sealers, and undercoaters, and rust preventative coatings, please refer to Chapter VI of the Staff Report.

(b) With regard to the alkyd based wood primers, please refer to the response to Comment #9b-10 of the Final Program EIR.

(c) With regard to the synthetic wood materials, please refer to the response to

Comment #9b-10 of the Final Program EIR. We have identified many primer, sealer, or undercoater products, identified on their product data sheets as suitable for use on composite building materials, which meet the proposed limit of 200 g/l.

- 15-15. Comment: The category of industrial maintenance is too broad for one VOC limit. The types of resins, surface conditions where coatings are used, and cost of coverage per year of service should be considered. Two-component epoxy coatings complying with a 250 g/l VOC limit are adequate for tank linings or concrete, but a single-component polyurethane coating with a VOC content above 250 g/l may be best for resistance from ultraviolet degradation.

Response: See the response to Comment #10-1 of the Final Program EIR. In the Draft Program EIR, we considered resin types, surface preparation needs (proper surface preparation is crucial for all high-performance coatings), coating coverage, and coating durability. Available test results indicate that low-VOC coatings are durable. Along with coating coverage data and the cost information we were able to obtain, we have determined that the suggested factors do not warrant different VOC limits. Based on our review of information available for low-VOC coatings, we have determined that industrial maintenance coatings complying with a 250 g/l limit are available to meet industry needs, except for coating application in persistent low-temperature, high-humidity areas along part of the California coast (see the response to Comment #13-4 of the Final Program EIR). In these areas, the opportunity through the year to apply such coatings is extremely limited. We have determined that limited use of 340 g/l coatings is appropriate in these coastal areas, when justified. In addition, we have added five breakout categories from industrial maintenance coatings with higher VOC limits, *i.e.*, antenna coatings, flow coatings, antifouling coatings, rust preventative coatings, and temperature-indicator safety coatings.

For resistance to ultraviolet degradation, two-component polyurethane coatings that comply with the proposed VOC limit of 250 g/l are available. Single-component polyurethanes that comply with a 340 g/l VOC limit may be considered for use in coastal areas, when justified.

- 15-16. Comment: Using inadequate lower VOC substitutes for higher VOC products would be counterproductive because more coating material will be applied on each job; more thinning solvents will be added to coatings; and more frequent re-coating will be necessary; therefore, more paint will be used and more VOCs emitted.

Response: We disagree that the lower VOC products would be inadequate substitutes for existing higher VOC products. As explained in detail in Chapter VI of the Staff Report, the VOC limits for each of the architectural coatings categories are technologically and commercially feasible by the proposed effective date. Chapter VI discusses the number of products currently complying with the proposed limits, the techniques that can be used to reformulate products to meet the proposed limits, and other data demonstrating the feasibility of the proposed VOC limits. We also disagree with the commenter's assertions that lower VOC paints will result in more coating material applied on each job, more

thinning, and more frequent recoating. Each of these issues is addressed in detail in the responses to Comments #15-27 through #15-33 of the Final Program EIR.

- 15-17. Comment: The ARB survey shows that 28 percent of industrial maintenance coatings comply with the proposed VOC limit of 250 g/l. It is doubtful that the existing coatings that comply can perform adequately to replace all existing high-VOC coatings.

Response: As discussed in Chapter VI of the Staff Report, the available test results show that the performance of low-VOC coatings is similar to the performance of high-VOC coatings. Coatings that comply with the proposed VOC limit of 250 g/l are commercially available for essentially any use and application, and can replace high-VOC coatings, except along parts of the California coast (as discussed in the response to Comment #13-4 of the Final Program EIR) when coatings with VOC up to 340 g/l may be needed. The commenter is also referred to the response to Comment #15-15 of the Final Program EIR.

The effective date for the industrial maintenance VOC limit is not until January 1, 2004, which provides three and one-half years for coating manufacturers to comply. As discussed in Chapter VI of the Staff Report, several reformulation options are available for the noncomplying coatings. We anticipate that many more complying coatings will be available by the effective date, in addition to the existing ones.

Historically, district rules (except the current South Coast AQMD rule) have considered the rust preventative coatings as industrial maintenance coatings. For that reason, some of the manufacturers of rust preventative coatings included those higher VOC coatings as industrial maintenance coatings in the ARB survey, and thus caused the percent of complying market share to be lower than it actually should be for industrial maintenance coatings. The SCM now includes a “rust preventative” coatings category that is specifically intended to allow limited use of current alkyd coatings. The category is for non-industrial users (*i.e.* residential, commercial, and institutional users). The VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect for that category.

- 15-18. Comment: The Draft EIR relies on the NTS study which is divided into three phases: laboratory testing, field application testing, and long term exposure studies. To date, only the first phase, laboratory testing has been completed and the data is still undergoing QA/QC review. The Draft EIR mischaracterizes the preliminary laboratory results of the NTS study, saying they “show that when compared to conventional, currently compliant coatings, low-VOC coatings available today have similar application and performance characteristics, including blocking resistance, mar resistance, adhesion, abrasion resistance, and corrosion protection.” The NTS results show that while a given low-VOC alternative product demonstrates similar performance, all these products are deficient in other characteristics. The low-VOC alternatives are less adequate when examined in terms of the total constellation of performance characteristics that coating formulators seek to optimize. (See enclosed article, “Novel Approach to Formulation Modeling,” *European Coatings Journal*, Jan/Feb 2000).

Response: The ARB acknowledges that the NTS field study and long term exposure study have not been completed and are ongoing. As stated in the Draft Program EIR, there is a wide range of commercially available coatings that meet the proposed VOC content limits in the SCM which includes the six coating categories being examined by the NTS study. The ARB used the NTS laboratory data to supplement its findings that the proposed limits in the SCM and products at those VOC levels are capable of providing similar performance when compared to conventional high VOC coatings. The ARB disagrees with the commenter's assertion that the Draft Program EIR mischaracterizes the laboratory data from the NTS study. The ARB stands by its original statement that the NTS Study (laboratory portion) revealed that low VOC coatings exhibited similar performance when compared to conventional high VOC coatings. The low VOC alternatives or coatings examined in the NTS study were not less adequate in the context of tests that were performed for each of the categories examined. The variety of tests selected for each category in the NTS study was tailored to reflect desirable performance attributes relative to the category. The article "Novel Approach to Formulation Modeling" is an interesting approach to formulating products, but only when, as stated by the author, sufficient data exist to allow adequate computer modeling.

The commenter is reminded that the Technical Advisory Committee (TAC) reviewed, selected and approved all test methods and protocols used for the NTS study. The NTS contractor performed all tests as outlined by assigned test methods or protocols. The TAC, which is primarily composed of members of industry, but also includes SCAQMD, ARB, and one environmental group, has presided over the NTS project since the beginning. The TAC was involved in all aspects of the project including project design, selection of the contractor, coatings to be tested, and ongoing status meetings to address any unpredicted issues. The commenter is referred to Appendix E of the Staff Report for an analysis of the NTS study results.

- 15-19. Comment: The Draft EIR's description of ozone formation is oversimplified and misleading. The Draft EIR does not adequately address the role of NO<sub>x</sub> emissions and NO<sub>x</sub> transport throughout California in ozone formation, which is critical to determine the environmental effects of VOC emission reductions. The Draft EIR incorrectly implies that VOCs always contribute to ozone formation. The Draft EIR should explain the roles of NO<sub>x</sub>, VOCs, and other atmospheric factors on ozone formation under the variety of atmospheric conditions in California throughout the year.

Response: The description of ozone formation and destruction contained in pages IV-76 through IV-79 of the Draft Program EIR contains adequate information on all of the relevant events that result in the production or destruction of ozone. The Draft Program EIR clearly acknowledges that under most conditions VOCs will promote ozone formation, but it also mentions that under specific conditions, some VOCs can act as NO<sub>x</sub> sinks and, therefore, limit the amount of ozone formed (see discussion on page IV-79 of the Draft Program EIR). A discussion of the role of NO<sub>x</sub> levels in determining the reactivity of VOCs is contained on pages IV-76 to IV-79 of the Draft Program EIR. The commenter is referred to the response to Comment #15-39 of the Final Program EIR for a

discussion of negative reactivity, the relationship between NO<sub>x</sub> and VOCs under different atmospheric conditions, and NO<sub>x</sub> transport.

- 15-20. Comment: Water delivery systems in California are painted with a coating that is intended to last several years. If the integrity of these coatings is reduced, repainting at significant costs will be needed. The ability to pay for this is questionable, with the degradation of the delivery systems being negatively impacted.

Response: As stated in the response to Comment #15-33 of the Final Program EIR, the best available data indicate that low-VOC coatings for industrial maintenance applications have comparable durability overall to their higher VOC counterparts. ARB staff has worked closely with representatives of “essential public services” agencies such as municipal water districts in developing the proposed VOC limit and effective date for industrial maintenance coatings in the SCM. Due in part to these discussions, we have provided an extra year for industrial maintenance coatings to allow for testing and approval of lower VOC products for use on water delivery infrastructure. Essential public services agencies are currently testing low VOC coatings for water delivery systems. We will review and discuss the results of these tests as they become available and will conduct a technology assessment one year prior to the implementation of the 250 g/l limit for these coatings that is effective on January 1, 2004.

- 15-21. Comment: Decreased coating quality will result in more painting, and will place more strain on municipal wastewater treatment facilities and landfills.

Response: The commenter is referred to our analysis of impacts on publicly owned treatment works and landfills on pages IV-88 through IV-93 and IV-101 through IV-103 of the Draft Program EIR, respectively, and to our analysis of the more frequent recoating issue on pages IV-70 through IV-71 of the Draft Program EIR. Based on our technology assessment of over 60 categories of architectural coatings, we conclude that lower VOC coatings will work as well as conventional coatings, and that more frequent repainting will not occur. Consequently, there will be an insignificant change in the amount of wastewater to be diverted to POTWs, and there will be no significant increase in the amount of solid waste diverted to landfills if the SCM were implemented throughout California. The commenter has submitted no additional data to substantiate his claim of adverse impacts in these areas.

- 15-22. Comment: School budgets and child safety will be adversely impacted. The cost of more frequent repainting may be prohibitive, causing some structures to degrade. This may place children in structures that are not as sound as they otherwise would be.

Response: As stated in the Draft Program EIR and the response to Comment #15-33 of the Final Program EIR, coatings reformulated to the proposed VOC limits in the SCM will be comparable in performance to existing coatings. Therefore, more frequent recoating will not be necessary, and school budgets and child safety will not be adversely impacted.

15-23. Comment: Replacing commonly used solvents through reformulation will lead to increased hazards. Acetone is touted as a replacement solvent, but it is a hazard to homeowners. Coatings containing the most dangerous VOCs are typically handled by contractors, and the proposed SCM will force new and unproven technology on do-it-yourselfers.

Response: The commenter is referred to our analysis of this issue on pages IV-94 through IV-107 of the Draft Program EIR. We disagree that reformulation by replacement solvents such as acetone will increase hazards to do-it-yourselfers. The Uniform Fire Code lists equal relative fire hazard ratings to acetone, butyl acetate, methyl ethyl ketone, and xylenes. Increased use of acetone will generally be balanced by reduced usage of equally or more hazardous solvents such as methyl ethyl ketone, toluene, and xylene. Also, we have no evidence that more hazardous diisocyanate-containing two-component coatings will be forced on do-it-yourselfers by the lower limits in the proposed SCM.

In the Final Program EIR, we are proposing some changes to the SCM relating to this issue. We are proposing that the 400 g/l VOC limit for rust preventative coatings be extended to all non-industrial users. We are also proposing to increase the VOC limit for floor coatings to 250 g/l to improve the ease of application for do-it-yourselfers, and increase enforceability. For more information on these changes, please refer to Chapter VI of the Staff Report.

15-24. Comment: (a) Because of the variety of climates in California, the EIR should propose a more sophisticated approach than one-size-fits-all. The SCM may cause different effects in each region, such as those related to biogenic VOCs and negative reactivity. The existing setting should describe each airshed and how the SCM will impact each on a seasonal basis. The analysis would show that architectural coating regulations are not necessary in many regions, and that the SCM will not reduce ozone throughout California. The Draft EIR is too general to describe the effects of the SCM, and does not meet CEQA requirements to fully address the environmental impacts of the SCM. The Draft EIR does not address the need for, and the ability of, currently available compliant coatings to perform under extreme climatic conditions including heat, cold, humidity, rain, and pollution.

(b) The DEIR did not take into account regional and climatic factors, such as air basin characteristics and seasonal impacts. The DEIR did not discuss how existing coatings that already comply with the proposed VOC limits perform under extreme climatic conditions, including heat, cold, humidity, rain, and pollution.

Response: (a) The commenter is referred to the response to Comment #15-1 of the Final Program EIR for a discussion of how we analyzed regional effects. The commenter is suggesting that ARB evaluate the impacts of the SCM not only on regional effects, but also on seasonal effects in each region, including biogenic emissions and negative reactivity. This is coupled with variable VOC and NO<sub>x</sub> concentrations, as well as

topographical and meteorological conditions that vary not only throughout California, but also on a daily basis.

The reasons that regional and seasonal regulations were found to be infeasible alternatives are discussed in the Draft Program EIR on pages V-139 through V-140. As described therein, due to enforcement concerns, the districts could not regulate coatings based on seasons or regions, and it would place an unacceptable burden on most manufacturers to be required to rotate their stock on a seasonal basis. It is even difficult for some manufacturers to distribute their products on a regional basis, *i.e.*, sending different products into districts with different VOC limits. Instead, some national manufacturers provide products that comply with the lowest district limit for all of California, even in districts without an architectural coatings rule. It will be up to each district to decide whether it is necessary to adopt the SCM to achieve additional emission reductions to attain the State and federal ozone air quality standards. In fact, districts in attainment for the State ozone standard may not adopt an architectural coating rule based on the SCM (although the National Rule is in effect). But we believe our analysis in Chapters IV and V of the Draft Program EIR show that the SCM will reduce ozone in districts that do adopt rules.

The Draft Program EIR addresses the need for, and the ability of, currently available compliant coatings to perform under varying climatic conditions. An analysis of climatic conditions was included in the technology assessment for industrial maintenance coatings. Based on this assessment, the proposed SCM would allow for limited use of industrial maintenance coatings up to 340 g/l in the San Francisco Bay Area, North Central Coast, and North Coast Air Basins due to persistent fog and cold temperatures. We are also proposing higher VOC limits for bituminous roof coatings and bituminous roof primers to allow for the use of solvent-based coatings in colder areas. We did not receive documentation justifying the need for any other climate-related adjustments to the proposed SCM.

(b) ARB staff disagrees with the commenter's assertion that regional and climatic factors were not taken into account in the Draft Program EIR. We are proposing limited use of 340 g/l industrial maintenance coatings that are needed because of regional, climatic, and seasonal factors, in persistent fog and low-temperature areas of the California coast (see the response to Comment #13-4 of the Final Program EIR). Regarding ozone considerations by air basin, we anticipate that the SCM, if approved by the ARB, will be used by the districts based on the extent of the ozone air quality problem and the need for reductions in VOC emissions. This will be determined individually by each district, which has primary responsibility for the control of emissions from architectural coatings.

In terms of performance after they are applied to substrates, available test results and product data sheets show that low-VOC coatings perform similar to high-VOC coatings under varying climatic conditions.

15-25. Comment: (a) The Draft EIR nowhere estimates the SCM's actual effect on ozone levels. This is probably because the 11.3 tons per day VOC reduction contemplated by the SCM, even if achieved, will have virtually no effect on ozone levels.

(b) To portray the SCM as effective and substantial, the Draft EIR attempts to justify it by indicating the absolute tonnage reduction and the percentage reduction from existing architectural coatings VOC emission levels. Although this indicates the SCM could substantially reduce the percentage content of VOCs in architectural coatings (with extremely high attendant costs for manufacturers and consumers), the Draft EIR's analysis does not indicate what percentage of the overall VOC emission inventory will be reduced by the SCM. In fact, according to the Draft EIR, the 11.3 tons/day decrease represents a miniscule 0.3% decrease in the overall anthropogenic VOC emission inventory.

(c) (Footnote 6): The overall VOC inventory is reported to be 3200 tons per day.

Response: (a) The ARB disagrees with the commenter's statement about the SCM's effect on ozone levels, especially in light of the fact that no evidence is provided to substantiate the claim. To the contrary, data support a conclusion that mass-based VOC control strategies have been and continue to be an effective means to reduce the formation of ground level ozone. As shown in Table IV-5 of the Draft Program EIR, between 1980 and 1998, the number of days that the South Coast Air Basin has exceeded the federal ozone standard has decreased from 167 days in 1980 to 60 days in 1998. During this same period, the maximum one-hour ozone concentrations have decreased from 0.49 parts-per-million (ppm) in 1980 to 0.24 ppm in 1998. Virtually all of the emission reductions were due to mass-based control of VOCs and NO<sub>x</sub>. In one study, Fiore *et al.* ("Long-Term Trends in Ground Level Ozone Over the Contiguous United States, 1980-1995," *Journal of Geophysical Research* 103:14871-80, 1998) it is suggested that decreasing trends in ground-level ozone from 1980 through 1995 are attributed to emission controls. It is a well documented fact that VOCs and NO<sub>x</sub> react in the presence of sunlight to form ozone. The rate of ozone generation is related closely to the rate of VOC production as well as the availability of NO<sub>x</sub> in the atmosphere (U.S. EPA, Air Quality Criteria for Ozone and Related Photochemical Oxidants, July 1996, Volume I and III; Seinfeld and Pandis, *Atmospheric Chemistry and Physics*, John Wiley & Sons, New York, 1998). At low ambient concentrations, ozone is a colorless, odorless gas, and the chief component of urban smog. Air quality data have revealed that 75 percent of the nation's exposure to ozone occurs in California (ARB, National Exposure to Ozone, from Terry McGuire to Michael H. Scheible, January 6, 1994). As shown in Figure III-1 of the Draft Program EIR, the population-weighted average exposure to ozone concentrations above the State ambient air quality standard of nine parts per million in the South Coast Air Basin has been declining. However, despite this decline and nearly 25 years of regulatory efforts, ozone continues to be an important environmental and health concern.

(b) The ARB properly characterized the emission contribution from architectural coatings in the "Project Description" section of the Draft Program EIR under "Architectural

Coatings Emission Inventory,” pages II-18 & II-19. Emissions from architectural coatings (130 tons per day) represent about eight percent of the total stationary source emissions, and about four percent of all VOC emissions (includes stationary, area-wide, mobile, and natural-nonanthropogenic sources) statewide. The contribution of architectural coating emissions to the inventory is more than all VOC emissions from petroleum refining and marketing combined, and is comparable in size to the VOC emissions from emission categories of pesticides, degreasing operations, and all other coatings.

The Draft Program EIR indicates that the SCM would reduce VOC emissions by 11.3 tons per day outside of the South Coast AQMD which represents 55 percent of the anticipated statewide reductions from the SCM. If the ARB included benefits that would result from the South Coast AQMD Rule 1113, which has similar VOC limits, the total statewide benefits anticipated from the proposed VOC limits are 20.5 tons per day or 0.6 percent out of a total of 3200 tons per day from all sources including stationary, area-wide, mobile, and natural (non-anthropogenic) sources.

(c) Regarding the footnote, the 3200 tons per day value is correct.

- 15-26. Comment: We raised a number of issues, commonly referred to as the “Seven Deadly Sins,” that bring into doubt the draft EIR’s conclusion that VOC content limits will result in an overall decrease in emissions from architectural coatings. These issues suggest that stringent regulations like the SCM will lead to substitution of less adequate coatings that require more coats, more priming, more frequent recoating, more touch-ups, and more thinning, to cover the same area for the same period of time as a higher VOC coating. Therefore more paint is needed to do the same job and more VOCs are emitted. The comments also suggest that because the VOCs commonly found in low-VOC coatings often have higher reactivities than the most prevalent VOCs in higher-VOC coatings, regulations limiting the mass content of VOCs may actually result in increased ozone.

The draft EIR’s (DEIR) response to these issues is inadequate. First, the DEIR repeatedly misstates industry’s position in important ways. Second, the Draft EIR can point to no study supporting its positions. Instead, the Draft EIR’s arguments rest on the partially completed NTS study, which has to date yielded no field application or long-term exposure information on low-VOC coatings, sales volume information, and product data sheets, which are little more than marketing materials. None of these is a substitute for a proper analysis of issues raised by industry repeatedly for years, on issues that bear directly on whether mass-based VOC regulations are at all effective, or whether they actually harm the environment.

Response: Each of the issues raised by the commenter is addressed in detail in the responses to Comments #15-27 through #15-35 of the Final Program EIR. As discussed in these responses, we do not believe that the Draft Program EIR misstates the industry’s positions. The industry has not always stated the “seven deadly sins” exactly as stated by the commenter. In addition, some of these issues, as stated by the commenter, are outdated and apply to very few products subject to the SCM, making them largely

irrelevant. For example, regarding the “More Thickness” issue (Comment #15-27 of the Final Program EIR), the commenter stated that the issue was raised primarily with respect to low VOC high-solids solvent-based alkyd coatings, particularly Nonflats. However, coatings in the Nonflat category are almost completely water-based now, and any remaining solvent-based products would be expected to switch to a water-based formulation rather than a high solids solvent-based alkyd formulation.

We also disagree that the Draft Program EIR can point to no study or proper analysis to support its positions. We provide a variety of information to support our positions in the Draft Program EIR. This information includes performance testing by independent contractors (the “NTS” and Harlan Associates studies), studies to determine thinning practices by contractors in the field, product data and technical sheets, product labels, the architectural coatings survey data, and discussions with manufacturers and resin suppliers. The commenter criticizes some of these sources of information. However, we believe that in combination they substantiate our positions. By contrast, the commenter provides no information to substantiate their claims.

- 15-27. Comment: Contrary to the Draft EIR’s characterization, industry representatives did not contend that low-VOC waterborne coatings tend to produce thicker films. This issue was raised primarily with respect to low-VOC high-solids solvent-based alkyd coatings, particularly nonflats. This also applies to two-component high-build Industrial Maintenance Coatings, which are purposely formulated to produce thicker films. The Draft EIR’s misstatement of industry’s position allowed the inclusion of data on waterborne coatings, resulting in the conclusion that there is no relationship between low-VOC levels, thickness, solids, and coverage. Moreover, the draft EIR does not appear to note that coverage rates are a function of coating solids by volume and dry film thickness, which relates to coating viscosity and application method. Low-VOC high-solids solvent-based alkyd coatings typically have high viscosity, and will tend to produce thicker films, increasing VOC emissions per unit of area covered. The Draft EIR does not analyze this impact.

Response: The “thickness issue,” as raised by industry, has not always been limited to solvent-based alkyd coatings or two component industrial maintenance coatings as stated by the commenter. The discussion in the Draft Program EIR appropriately considers the reality that water-based coatings constitute a majority of architectural coatings, particularly in the nonflat category mentioned by the commenter, where about 95 percent of the coatings are water-based according to the ARB’s architectural coatings survey. As such, it makes sense to analyze this issue with coatings representative of what is now used in the marketplace. The commenter’s concerns are limited in scope to a minority of products, and are less relevant now that water-based coatings are so prevalent, and solvent-based alkyd coatings are accommodated in the SCM with relatively high VOC limits in the appropriate specialty coatings categories (such as “rust preventative” and “specialty primer, sealer, and undercoater”). Nevertheless, the commenter’s assertion that lower VOC limits will result in thicker coatings and less coverage are not necessarily valid even for the solvent-based coatings. This is because many of the solvent-based formulations will not be reformulated to higher solids alkyds as predicted by the

commenter. For example, they may reformulate using exempt solvents that lower the VOC content without increasing solids, or they may reformulate to a water-based system. For example, we expect most existing solvent-based nonflat coatings and quick dry enamels to be reformulated to a water-based system. Even considering the narrow situation described by the commenter, where a solvent-based alkyd or two component formulation is reformulated to a higher solids level, this may not result in a thicker product with lower coverage because the manufacturer may use a less viscous resin that allows the product to be applied in a thinner film. We also note that if the commenter's assertions were valid, sales of architectural coatings would be expected to increase on a per capita basis whenever VOC content limits were raised. In the past, we have not found that sales of architectural coatings, per capita, have increased with decreases in the VOC content limits. In fact, sales per capita have remained remarkably constant since 1988.

- 15-28. Comment: Regarding the “thinning issue”, manufacturers did not assert that thinning occurs in low VOC waterborne coatings, but rather in the same types of coatings that would tend to produce more thickness unless thinned in the field beyond manufacturers recommendations. Coverage rates shown in Table IV-2 are taken from product labels or data sheets, which generally indicate theoretical coverage at the recommended dry film thickness, although actual dry film thickness may vary as applied. In addition, CARB's 1991 field study of thinning practices cited in the DEIR is seriously flawed because: (1) only 49 of 121 coatings observed were tested; (2) 18 of the 49 coatings were waterbased and would not be thinned with solvents; (3) four of the remaining 31 coatings were thinned in excess of the VOC limits; (4) painting contractors admitted to being intimidated by the local district personnel performing the field work and were reluctant to disclose actual field-thinning practices; and (5) the study focused on relatively higher VOC specialty coatings that are less likely to be thinned than lower-VOC general purpose coatings.

Response: Although the thinning studies discussed in the Draft Program EIR analyzed both water-based and solvent-based coatings, the studies are still valid for solvent-based paints such as those mentioned by the commenter. Regarding the comment that coverage rates printed on labels and data sheets are theoretical and will vary with application techniques, we believe that they represent good approximations. Since we are comparing data sheets for both high and low VOC products, both using theoretical coverage, the overall comparisons of coverage for low and high VOC products are valid.

The commenter also asserts that the ARB's 1991 “Field Investigation on Thinning Practices During the Application of Architectural Coatings in Selected Districts in California” was seriously flawed. However, the commenter's statements do not support this assertion as discussed below.

- The commenter mentions that only 49 of the 121 coatings observed in the study were tested. However, in accordance with the protocol for the field study, samples were taken when a painter indicated that the coating was thinned with VOC containing material. In addition, district inspectors were encouraged to take samples of other

specialty and general purpose architectural coatings if the listed VOC content was greater than allowed or samples were needed to verify compliance. The additional coatings were not sampled because the painters indicated they were not thinned with VOC containing material.

- The commenter's statement that water-based coatings can only be thinned with water was found to be inaccurate in at least one case. During the investigation, we found a water-based coating which was thinned with VOC containing gun-cleaning solvents.
- The commenter indicates that four solvent-based coatings had been thinned in excess of the applicable limit. We listed three of these coatings as being in violation of the VOC limits (Table 2). The fourth coating was within 2.5 percent of the limit and was considered to be in compliance with the limit in accordance with the study protocol and enforcement practice at the time of the study (within 10 percent of the limit to account for laboratory accuracy). It was reported in Table 3 of the report under "Thinned Coatings in Compliance."
- The statement by the commenter that "four of the remaining 31 solvent-based coatings (*i.e.*, 13 percent) had apparently been thinned to excess of applicable limits" is an inaccurate and invalid comparison because it excludes other solvent-based coatings that were applied without thinning with VOC containing material.
- The assertion that having enforcement personnel conducting the investigation resulted in reluctance on the part of the painting contractors to disclose actual field-thinning practices is unsupported speculation. To our knowledge, the inspection reports for this study documenting the comments from the actual painters have never been compared to any interviews with painting contractors which are alleged to have been conducted after the study. In fact, the study report (without actual inspection forms) was not released until six months after the completion of the inspections that would have made this comparison difficult. It should also be noted that the inspector would typically arrive during painting and would sample a coating that had already been thinned. The samples taken of both thinned and non-thinned coatings supported the information on thinning practices provided by the painters. We do not have any reason to believe that the painters were reluctant to provide truthful responses to our basic questions on thinning practices.
- The commenter stated that more general coatings should have been tested because they are more likely to be thinned than the relatively higher VOC specialty coatings. However, the general flat and nonflat coatings are virtually all water-based, and the commenter stated the study should focus only on the solvent-based products. During the study, we did not find any general-purpose coating that was identified by the painter as being thinned with VOC containing material.

Finally, the Draft Program EIR also relied on the results of three additional thinning studies performed by the South Coast AQMD. To date, we have not received any data

which substantiates industry's claims regarding thinning, although we have repeatedly requested such data.

15-29. Please see comment and response to Comment #15-28 of the Final Program EIR.

15-30. Comment: More primers will be necessary because of the increasing use of low-VOC water-based latex enamels on difficult substrates, including previously enameled surfaces. Such products have demonstrated poorer adhesion than solvent-based alkyd enamels, which will adhere adequately to previously enameled surfaces. As a general precaution, it is generally recommended that difficult substrates to be topcoated with latex enamel be primed first, with either solvent-based or water-based primers. Such priming would be unnecessary with a better adhering alkyd enamel. Also, the draft EIR does not address greater use of priming due to the relatively poor sealing and stain-blocking properties of water-based primers.

Response: ARB staff reviewed product data sheets from both high gloss latex and alkyd topcoats and found that they do not substantiate the commenters claim that primers are generally recommended prior to the application of a latex enamel on a previously enameled surface. Generally, product data sheets include similar surface preparation instructions for latex and alkyd enamels. Specifically, it is recommended for either type of enamel that glossy surfaces be sanded or etched to roughen the surface and promote adhesion. In addition, data sheets for complying high gloss latex enamels list features such as "excellent adhesion to aged enamels" and "excellent adhesion even to difficult surfaces." In addition, as stated in the Draft Program EIR, if a trend had developed where more primers were being used prior to the application of low VOC topcoats, the survey data would be expected to reflect this trend as an increase in the per capita use of architectural coatings for past regulatory efforts. Such a trend has not been observed. Finally, the commenter states that the Draft Program EIR does not address greater use of priming due to the relatively poor sealing and stain-blocking properties of water-based primers. However, the proposed SCM includes a higher VOC category for "specialty primers, sealers, and undercoaters" that addresses this exact issue by allowing higher VOC primers with better sealing and stain-blocking properties.

15-31. Comment: (a) Contrary to the DEIR's statement, manufacturers and contractors do not assert that low-VOC solvent-based topcoats may not cover, build or flow-and-level as well as higher-VOC solvent-based formulations, but rather that water-based latex topcoats exhibit deficiencies in [sic] these areas.

(b) Reliance on the preliminary laboratory data from the NTS study is particularly misguided because one of the major flaws of this portion of the study was that all testing panels were prepared by the draw down method rather than typical real-world application methods such as brush, roller, or spray.

(c) The draft EIR's reliance on the Ventura County APCD study is also misplaced. Paint manufacturers and contractors strongly disagree with the conclusions of the study. The study was severely limited in:

(1) The number and type of applications each product tested: The study was generally limited to one application of the water-based coatings tested, and the specific applications selected avoid the conditions most associated with failure of water-based coatings, for example: application of latex enamel over surfaces previously enameled with high-gloss alkyd enamel; application of exterior latex primer and/or enamel over chalky, oxidized substrates; application of interior latex primer and/or enamel to substrates contaminated with residues of oil, grease, or wax; and application of latex sealer to surfaces marked with water soluble stains. Also, none of these coatings tested were subjected to the range of extreme exposure conditions that industrial maintenance coatings are formulated to resist;

(2) The timeframe of the tests: The six month timeframe of the testing project was far too limited to allow for evaluation of long-term durability of the substitute products as compared to higher-VOC products. Durability is the single factor most related to frequency of repainting; and

(3) The range of product tested: The study tested almost exclusively water-based coatings that might be used as substitutes for higher-VOC Quick-Dry Enamels, QD primers, industrial maintenance coatings, and lacquer coatings, the performance problems of which are of a different nature than those associated with complying solvent-based coatings that are often the preferred substitute.

(d) The draft EIR's assessment of coatings technology "breakthroughs" is unrealistically optimistic, and is not supported by industry experience.

(e) In the NTS study, the industrial maintenance topcoats were not subjected to and tested for the range of extreme exposure conditions that industrial maintenance coatings are formulated to resist.

Response: (a) Even considering only the low VOC water-based nonflat latex products, the NTS testing did not demonstrate deficiencies in coverage, build, or flow-and-leveling for water-based latex products.

(b) The NTS testing of flow and leveling using the draw down method is appropriate even though paint is applied in different ways because it measures flow and leveling in a precise standardized fashion that is indicative of flow and leveling in actual use. The commenter also fails to mention that the NTS study included a test of brushing properties using the Federal Test Method Standard Method 4321.2. Under this test, complying high gloss latex paints were found to have similar brushing properties when compared to solvent-based quick-dry enamels.

(c) The commenter criticizes the Ventura County APCD's study as being too limited, yet provides no specific evidence to support its position. With regard to the concern that the testing did not include the application of latex coatings on high gloss alkyd enamels, chalky oxidized substrates, and substrates contaminated with residues of oil, grease or

wax, the commenter is inappropriately asking for application of paints to poorly prepared surfaces that would not be appropriate for any topcoat. Specifically, manufacturers of any topcoat will generally recommend that glossy surfaces be sanded or etched, and that all chalk, oil, grease, or wax be removed prior to the application of topcoats.

Regarding the concern that the testing did not include the application of latex sealers to surfaces marked with water soluble stains, and that the coatings were not subjected to the range of extreme exposure conditions that industrial maintenance coatings are formulated to resist, it seems unreasonable to expect any test to examine all possible exposure conditions that could conceivably be encountered.

With regard to the concern that the six month evaluation timeframe is too short, it seems appropriate in responding to the commenter's concern, as stated in the Draft Program EIR, that whether or not more topcoats will be needed because of poor coverage, build, or flow-and-level, would be apparent shortly after application.

Finally, with regard to the concern that the study used low VOC water-based paints, we should first note that there are few solvent-based coatings currently meeting the proposed VOC limit of 250 g/l for industrial maintenance coatings. That is reflected accordingly in the NTS study. The coatings and tests that were used in the study were selected by an advisory committee comprised mostly of coating industry representatives. Even if the commenter is correct in that some users may want low-VOC, solvent-based paints as the preferred substitute, the results of the study provide convincing evidence that the transition to low-VOC, water-based coatings will be essentially transparent to most consumers since the study showed that current low-VOC, water-based coatings performed well and did not require the use of additional topcoats.

(d) The commenter states, without specific supporting evidence, that the Draft Program EIR's mention of technology breakthroughs over the last few years are overly optimistic. However, the specific technology advances are detailed in the Draft Program EIR and are not challenged in any meaningful way by the commenter.

(e) The NTS study was intended to compare the performance of low-VOC and high-VOC industrial maintenance coatings by subjecting them to the same standardized tests. The purpose of the NTS study was not to test for every possible extreme condition. Industrial maintenance coatings have varied uses and thus varied performance characteristics. For example, a topcoat may be formulated for resistance mainly to one or several of the following types of exposure: chemical vapors, ultraviolet light, salt air, substrate temperatures from 250° F to 400°F, or heavy abrasion. To cover these characteristics, the number of coatings and tests needed for extreme conditions would be considerable. While such testing may be of specific interest to some users, the results would not be useful for our purpose in comparing the performance of low-VOC and high-VOC coatings, in general.

The coatings and tests chosen for the NTS study were selected by an advisory committee, in which most of the members are from the coating industry.

15-32. Comment: Manufacturers and contractors do not assert that water-based formulations dry slowly and are susceptible to damage such as sagging, wrinkling, alligatoring, or becoming scraped or scratched. These problems were noted with regard to low-VOC high solids solvent-based alkyd enamels. Moreover, as indicated above, the DEIR's reliance on manufacturer-produced marketing materials cannot substitute for scientific technical analysis. The preliminary laboratory data from the NTS study is also inadequate for evaluating the coating deficiencies that result in more touch-ups and repair work under real-world application conditions.

Response: We do not envision a trend toward reformulation to high solids alkyds as explained in the response to Comment #15-27 of the Final Program EIR. Therefore, it is appropriate to consider both solvent-based alkyd and water-based latex technologies in the analysis in the Draft Program EIR. Many of the proposed limits in the SCM are designed specifically to accommodate solvent-based alkyds for the applications where they are desirable, such as rust preventative coatings and specialty primers, sealers, and undercoaters. However, manufacturers can make low-VOC water-based coatings if they cannot produce low-VOC solvent-based coatings that meet their performance criteria.

We also believe it is appropriate to use information on data sheets in conjunction with other information as discussed in the response to Comment #15-13 of the Final Program EIR. The commenter states that the information provided on manufacturer data and technical sheets are for "marketing" purposes and are not a replacement for scientific technical analysis. Then the commenter states that the results of the NTS study, which the industry was involved with in designing, are inadequate for evaluating the coating deficiencies that result in more touch-ups and repair work under real-world conditions. Yet, this is the scientific technical analysis the commenter says is needed.

While criticizing the NTS study in broad and general terms, the commenter does not explain why it feels the NTS results are inadequate and provides no information to support its claims. By contrast, ARB staff has proposed VOC limits developed from extensive discussions with industry and which generally accommodate numerous types of water-based and solvent-based technologies. In proposing these limits, ARB staff relied on detailed, scientifically sound studies designed with industry involvement, information obtained through surveys, product labels, technical data/specification sheets, meetings with industry representatives, and extensive technical literature searches.

15-33. Comment: The preliminary laboratory testing phase of the NTS study was never intended to address the long-term performance issues that relate to more frequent recoating. This is precisely why the NTS study also includes a long-term exposure study phase, which has yet to be initiated. Moreover, coating durability is not simply a question of high-VOC versus low-VOC products. Different types of coatings, formulated from a wide variety of resins, solvents, and other components, characteristically have different levels of VOC content and correspondingly different sets of performance attributes, which make them suitable for different purposes. Coatings that typically have lower VOC content may be fully adequate for certain uses, and yet be utterly inadequate

as substitutes for coatings that might be banned on the bases of the higher VOC content. Therefore, while VOC content is not the sole determinant of coating performance, some optimum amount of VOC is necessary to achieve maximum performance in any given type of coating. If a VOC content limit is set below the optimum amount for a particular coating use – as the proposed SCM will require – performance of available substitutes is inadequate, service life is shortened and frequency of recoating is increased. The Draft EIR makes no attempt to analyze this issue by identifying specifically which coatings would be banned by the proposed limits, what the likely substitutes would be, and their respective performance characteristics.

Response: As discussed in the Draft Program EIR, the best available data indicate that low-VOC coatings for both architectural and industrial maintenance applications have comparable durability overall relative to their higher VOC counterparts. While we agree that coating durability is not simply a question of high-VOC versus low-VOC products, we disagree that the VOC limits will ban products and result in inadequate performance, shortened service life, and greater frequency of recoating. First, we note that, as in many of the commenter's previous comments, no specific data were submitted to support the contention that lower VOC coatings will be less durable than higher VOC coatings. Second, the proposed SCM contains over 40 different coatings categories with VOC limits that are designed to accommodate each type of architectural coating. ARB staff developed these categories and limits through extensive work with the industry, providing them with an opportunity to demonstrate whether certain types of products would be adversely affected by the proposed limits. Based on these discussions, ARB staff modified their original proposal to add some additional categories of coatings to the proposed SCM. Finally, we note that this same comment regarding more frequent recoating was raised during past regulatory efforts to reduce VOC emissions from architectural coatings. However, our architectural coatings surveys in the 1990's have not shown any increase in per capita sales volumes that would indicate more frequent recoatings due to the use of reformulated coatings. Thus, empirical data on the California coatings market simply do not support the contention that reformulated coatings are generally inferior in durability to higher VOC products.

As is standard practice with nearly all recently-adopted ARB regulations, we will propose in the Board Resolution that we conduct a technology review(s) of industry's progress to meet the 11 proposed limits that are lower than the predominant VOC limits in existing district rules prior to their implementation dates. This will ensure that any necessary changes to the VOC limits can be made, if necessary.

- 15-34. Comment: The tremendous variety of architectural coatings available today exists because of market demand for cost-effective solutions to specific performance needs. When a VOC content limit bans the best performing coatings in a given category, substitutes are likely to come from another category, which may have a higher VOC content limit, thereby circumventing the regulation and eliminating the projected VOC emission reductions. The nature of markets is to seek the greatest value from the widest possible range of options. The Draft EIR makes no attempt to analyze factors that will determine substitute product selection within the context of all remaining architectural

coatings after implementation of the proposed SCM. Instead, the Draft EIR incorrectly assumes that the level of usage of each category will remain constant.

Response: As discussed in the Draft Program EIR, proposed VOC limits for each of the coating categories in the SCM are technologically and commercially feasible. In most cases, there is a substantial market share of complying products already meeting the applicable limits. The NTS study also demonstrates similar performance overall when comparing the lower VOC and higher VOC products. Therefore, we do not believe the proposed limits will ban the best performing products or result in the substitution of higher VOC products designed for another use.

- 15-35. Comment: The Draft EIR does not comprehensively determine the effects of VOC emission reductions across the air districts of California. It ignores differences in reactivity among VOCs, airsheds, and seasons. It incorrectly concludes that the SCM will not lead to substitution of more reactive VOCs, and that it will not cause increases in ozone levels because of negative reactivity.

Response: The commenter is referred to the response to Comment #15-39 of the Final Program EIR for a discussion of negative reactivity and regional effects, and to the response to Comment #15-37 of the Final Program EIR for a discussion of substitution of more reactive VOCs in water-based coatings.

- 15-36. Comment: The Draft EIR first argues that although propylene glycol (a primary VOC in water-based coatings) is two to three times more reactive than “a typical mineral spirit used in solvent-based coatings,” it is less reactive than some VOCs used in solvent-based coatings, such as toluene and xylenes; therefore, its increase use should not increase ozone levels (Id. a IV-73). But the Draft EIR does not mention that mineral spirits compose 80% of VOCs in solvent-based coatings, whereas toluene and xylenes comprise only 4.2% (Harley, *et al.* “Respeciation of Organic Gas Emissions and the Detection of Excess Unburned Gasoline in the Atmosphere,” 25 *Environ. Sci. Technol.* 2395-2408 (1992). Therefore, even a significantly smaller volume of propylene glycol in water-based coatings than mineral spirits in solvent-based coatings will have the effect of *increasing* ozone levels due to propylene glycol’s higher reactivity. [emphasis in original]

Response: The commenter is referred to the response to Comment #15-37 of the Final Program EIR, which presents a discussion on the reactivity of the ingredients of water-based and solvent-based coatings. (The commenter misquotes the Harley, *et al.* study, which states that mineral spirits make up 70 percent of the VOCs in solvent-based coatings, not 80 percent.)

- 15-37. Comment: The Draft EIR misstates the nature of the issue of the reactivities of water-based and solvent-based coatings; the real issue is whether a water-based substitute for a solvent-based product will have equal or greater ozone formation impacts, accounting for differences for both VOC content and VOC reactivity. The comparison in the Draft EIR does not provide strong evidence that reformulating solvent-based coatings to water-based coatings is an effective strategy to reduce ozone formation potential of architectural

coatings. This is because the comparison deals with a few categories with currently available coatings that include large volumes of low-VOC water-based coatings, but are not intended as substitutes intended for specific end-uses. For example, water-based primer/sealer/undercoaters (average VOC actual of 41 g/l) includes a large volume of low-VOC water-based latex drywall sealer and a small volume of solvent-based primers for special surfaces (average VOC actual of 345 g/l). The eight-fold difference in average VOC content overwhelms any potential difference in VOC reactivity. However, water-based latex sealers are not a suitable replacement for solvent-based specialty primers; water-based replacements would likely be around 200 g/l. Solvent-based coatings have by-volume solids 1.5 to 2 times higher than water-based coatings, so it takes 1.5 to 2 gallons of water-based coating to replace one gallon of solvent-based product. Most solvent-based products contain only mineral spirits, while water-based products contain glycol compounds, so if glycols are two to three times more reactive than mineral spirits, the water-based replacement at 200 g/l could have as much as 1.74 times more ozone formation potential than the 345 g/l solvent-based product.

Response: We believe that the most appropriate way to compare reactivities, is to compare water-based and solvent-based coatings by looking at the total, or weighted reactivity of a product or product category. To do this weighted VOC profiles were developed for water-based and solvent-based coatings using the ARB survey (ARB, 1998 Architectural Coatings Survey Results Final Report, September 1999). This comparison of species profiles provides strong evidence that reformulating from solvent-based to water-based coatings to reduce total VOC content is an effective strategy to reduce the ozone formation potential from the architectural coatings category as a whole. In fact, the comparison found that, on a weighted basis, solvent-based coatings are over two times more reactive than water-based coatings.

According to the 1998 Architectural Coatings survey, propylene glycol makes up about two percent of the overall speciated inventory (a little over two percent of the water-based inventory), while distillates such as mineral spirits make up about eight percent (or about 65 percent of the solvent-based inventory). Xylene and toluene together total about one percent of the overall inventory (about seven percent of the solvent-based inventory). Xylene and toluene were used as examples because of their high reactivity, not as an indicator of a typical solvent in solvent-based coatings. The reactivity as measured by (MIR) of propylene glycol is 2.75, while mineral spirits range from 0.78 to 1.27, according to Dr. Carter's April 2000 updates (Carter, The SAPRC-99 Chemical Mechanism and Updated VOC Reactivity Scales, App. C, Rev. 4/3/2000, <<http://www.cert.ucr.edu/~carter/reactdat.htm>>, visited 4/25/00). Thus, the contribution of an average MIR of 1 for mineral spirits at eight percent of the overall inventory outweighs the MIR of 2.75 for propylene glycol at two percent of the overall inventory. On a per gallon basis and accounting for reactivity, the water-based coating has the potential to emit 0.57 pounds of ozone per pound of product while the solvent-based coating has the potential to emit 1.23 pounds of ozone per pound of product. The examples in the Draft Program EIR appropriately focused on categories that are not currently water-based.

Although the sales weighted average solids content for the categories mentioned are typically higher in solvent-based coatings than in water-based coatings, Table IV-2 of the Draft Program EIR does not confirm the commenter's assertion that the coverage of solvent-based coatings is 1.5 to 2 times that of water-based coatings. For example, in the category cited by the commenter, the highest VOC primer, sealer, undercoaters cover an average of 390 square feet per gallon compared to 415 square feet per gallon for lower VOC products. Therefore, we disagree with the commenter that the difference in solids would mean that it would take 1.5 to 2 gallons of water-based coating to replace one gallon of solvent-based product.

- 15-38. Comment: Recent work by Dr. Carter cited in the Draft EIR suggesting that mineral spirits may be more reactive than previously thought are actually computer modeled reactivities for certain mineral spirits. This conflicts with Dr. Carter's air chamber reactivity measurements which demonstrate that mineral spirits are either negatively reactive or cause essentially no change in final ozone levels.

Response: Environmental chamber experiments can be used to evaluate the reactivity of a VOC under a limited set of conditions. Chamber experiments have the advantage that they do not depend on chemical mechanism uncertainty. However, reactivities depend on environmental conditions, and it would be impractical to use environmental chambers to attempt to represent the set of conditions present in ambient air.

Computer modeling is necessary to generate reactivity values which reflect atmospheric conditions. Conditions in environmental chambers are not those of the atmosphere (Bergin, *et al.* Reactivity Assessments, 5/5/99, at <http://narsto.owt.com/Narsto/reactinfo.html>); for example, NO<sub>x</sub> concentrations are typically much higher in a chamber than in ambient conditions. To calculate reactivity under atmospheric conditions it is necessary to use computer models. This is how the MIRs used in ARB's reactivity regulations are determined. The observation of negative reactivity in the chamber does not mean that the mineral spirits will be negatively reactive under atmospheric conditions. It is inappropriate to compare experimental reactivity values with MIRs, as these represent very different conditions. Dr. Carter's paper did find small changes in ozone concentrations due to mineral spirits, which is reflected in mineral spirits' relatively low MIR value.

In the most recent work of Dr. Carter (Carter, Documentation of the SAPRC-99 Chemical Mechanism for VOC Reactivity Assessment, Appendix C-1, page C-21, April 11, 2000, at <http://cert.ucr.edu/~carter/bycarter.htm>), the MIR value of mineral spirits ranges from 0.78 to 1.27. Footnote 26 on page C-26 says that, contrary to the earlier version of the mechanism discussed in the report cited by the commenter, the current mechanism performs reasonably well in simulating the chamber results for the samples tested. In the documentation for SAPRC-99, Dr. Carter assigned an uncertainty code of one for mineral spirits, which means he considers that their "reactivity is not expected to change significantly." Furthermore, as proposed in the ARB's aerosol coating regulation, the Chemical Manufacturers Association says that the ARB's

characterization of the reactivity of mineral spirits agrees within 15 percent of the Association's knowledge of these compounds.

- 15-39. Comment: The Draft EIR acknowledges that VOCs are negatively reactive under certain conditions, but does not indicate when, where, or how often those conditions occur in California. The Draft EIR notes that negative reactivity is not commonly found in ozone non-attainment urban areas, but does not address negative reactivity in the vast majority of the state that is attainment for ozone. The Draft EIR cannot know whether the SCM will result in increased ozone levels without a full analysis of the conditions where negative reactivity occurs and the prevalence of those conditions in California.

Response: The commenter asserts that the Draft Program EIR does not account for regional effects on ozone production. In addition to the comments summarized in Comment #15-39 of the Final Program EIR, the commenter states that the Draft Program EIR does not include adequate analysis of significant effects on air quality and ozone formation throughout California, and that there could be negative or qualitatively different effects of ozone levels in certain regions of the state (Comment #15-6). The commenter indicates that the EIR does not comprehensively determine the effect of VOC emission reductions across the air districts of California (Comment #15-35). Finally, the commenter claims that the EIR ignores differences in reactivity among VOCs, airsheds, and seasons (Comment #15-35).

The commenter mentions negative reactivity throughout his letter, yet he provides very little supporting information. The references cited by the commenter (Seinfeld, *et al.*, *Rethinking the Ozone Problem in Urban and Regional Air Pollution*, National Academy Press, Washington, D.C., 1991, quoting Carter and Atkinson, Computer Modeling Study of Incremental Hydrocarbon Reactivity, *Environmental Science and Technology* 23:864-880, 1989; Carter, *et al.*, Investigation of the Atmospheric Ozone Forming Potentials of Selected Mineral Sprits Samples, July 25, 1997, at <http://cert.ucr.edu/~carter/bycarter.htm>) simply mention that negative reactivity exists for a few compounds in some VOC/NO<sub>x</sub> scenarios. These references do not support the proposition that VOC control will be counterproductive in California nonattainment areas.

Contrary to the commenter's position, we did consider regional and seasonal differences in reactivity and concluded that the Draft Program EIR's approach of uniform statewide VOC limits is the most effective, enforceable, and practical approach to reducing ozone formation from architectural coatings. In the Draft Program EIR, we discussed the fact that high biogenic emissions are emitted in elevated and largely unpopulated areas downwind of the urban areas, and that sustained mixing from above the air basin down to urban centers is required for biogenic emissions to play a significant role in population exposure to ozone (pages II-21 through II-22 of the Draft Program EIR). We also discussed the MIR scale, which is used by ARB for regulatory applications because this scale reflects reactivities under environmental conditions that are most sensitive to the effects of VOC controls (page V-155 of the Draft Program EIR). We also said that a combined strategy of VOC and NO<sub>x</sub> controls are used in ARB's fuels and low emission vehicle programs because both VOC-limited and NO<sub>x</sub>-limited regions exist in an airshed

and, coupled with the changing chemical composition of an air basin, VOC controls or NO<sub>x</sub> controls alone are not as effective as a combined strategy (page IV-78 of the Draft Program EIR).

Pursuant to State law, the ARB evaluated the effects of transport on ozone concentrations in downwind areas in 1990. Because atmospheric chemical reactions remove NO<sub>x</sub> much faster than they remove VOCs, air masses generally become NO<sub>x</sub>-poor downwind. In these air masses, ozone production is limited by NO<sub>x</sub> concentrations. Reducing NO<sub>x</sub> emissions upwind further reduces the amount of ozone which can be formed in transported air masses. This strategy is supported by ambient ozone trends for monitoring sites in the Southeast Desert Air Basin, which are frequently impacted by transport from the South Coast Air Basin. Decreased ozone concentrations at these sites are correlated with reductions in NO<sub>x</sub> emissions in the South Coast Air Basin. State law also requires the ARB to establish mitigation requirements for the control of ozone precursors in upwind areas that are sources of overwhelming or significant transport. While the control of NO<sub>x</sub> emissions may sometimes result in ozone increases near the urban NO<sub>x</sub> source areas, there are major benefits downwind of these areas. In such areas, additional VOC controls can be used near the source of NO<sub>x</sub> reductions to offset increased ozone concentrations. Reducing NO<sub>x</sub> emissions also limits the ability of biogenic VOC emissions in rural areas to react with transported NO<sub>x</sub> to produce ozone. Many areas downwind of large cities have relatively high emissions of biogenic VOCs from trees and other vegetation. Reactions of transported anthropogenic NO<sub>x</sub> with biogenic VOCs are able to produce ozone concentrations of 80 to 100 parts per billion or greater. Because ozone formation in rural areas is limited by the availability of NO<sub>x</sub>, control of NO<sub>x</sub> in upwind areas is an important strategy. (ARB, Rethinking the Ozone Problem in Urban and Regional Air Pollution, The California Perspective, 1993).

We included a discussion of negative reactivity in the Draft Program EIR (pages IV-79 through IV-80). The Draft Program EIR acknowledges that under some conditions VOCs will promote ozone formation, but also mentions that VOCs can act as NO<sub>x</sub> sinks, thus limiting the amount of ozone formed. The NO<sub>x</sub> concentrations typically found in California are high enough that VOC controls are an effective strategy throughout the State. Low 6 a.m. to 9 a.m. NO<sub>x</sub> conditions, combined with high VOC/NO<sub>x</sub> ratios that tend to suppress VOC reactivity, do not commonly occur in nonattainment urban areas. Most ozone non-attainment episodes, such as in the South Coast Air Basin, are characterized by high 6 a.m. to 9 a.m. concentrations of NO<sub>x</sub>, and low VOC/NO<sub>x</sub> ratios, conditions which are not conducive to negative reactivity.

Ordinary ambient air monitoring collects data on ozone and NO<sub>x</sub>, which are criteria pollutants. In California, certain VOCs are measured by Photochemical Assessment Monitoring Stations (PAMS) monitors, in the summer months in serious, severe, and extreme federal ozone non-attainment areas. About 70 percent of the population of California resides in districts where PAMS data are available. Thus, PAMS data supporting the need for VOC reductions are available for many districts that have architectural coatings rules.

Although data are not available for all of California, we used the data provided by the PAMS to calculate the 6 a.m. to 9 a.m. non-methane organic compounds (NMOC)/NO<sub>x</sub> ratios for several monitoring sites throughout California. Sites included urban and rural areas of the State. During the summers of 1996 and 1997, the average NMOC/NO<sub>x</sub> ratio was below 15 for all sites studied. The percent of samples that had a NO<sub>x</sub> concentration of 40 ppb or less, and a NMOC/NO<sub>x</sub> ratio of 20 or greater are 0 to 4 percent at most sites. We found that atmospheric concentrations typical of California have NO<sub>x</sub> levels which are greater and NMOC/NO<sub>x</sub> ratios which are almost always lower than those that result in negative reactivities (Woodhouse, L., NO<sub>x</sub> Concentrations and VOC/NO<sub>x</sub> Ratios in California, Planning and Technical Support Division, California Air Resources Board, January 19, 1999).

According to the study presented to us by Dunn-Edwards (Letter and enclosures from Edward D. Edwards to ARB staff, August 19, 1998), the urban reactive organic gases mix which is used to represent ambient air in smog chamber experiments, had a negative reactivity at a NMOC/NO<sub>x</sub> ratio of 20 or greater, and NO<sub>x</sub> concentrations from 5 to 40 ppb. According to that study, VOC/NO<sub>x</sub> ratios higher than 20 are needed for negative reactivity to occur. Our experience has shown that wherever vehicular emissions occur, VOC/NO<sub>x</sub> ratios are low enough and the NO<sub>x</sub> concentrations are high enough to promote ozone formation. Thus, the NO<sub>x</sub> concentrations and NMOC/NO<sub>x</sub> ratios used in the Dunn-Edwards study are not typical of the ambient conditions found in populated areas of California.

We know from our modeling experience that negative reactivity almost always occurs where there are very low ozone levels (because there is low NO<sub>x</sub>). However, the proposed SCM is intended for ozone nonattainment areas where negative reactivity rarely occurs. We also know from modeling that peak ozone is always responsive to NO<sub>x</sub> control, and we have never seen conditions where VOC control is counterproductive in ozone nonattainment areas.

- 15-40. Comment: The Draft EIR reasons that because mass-based VOC controls have been somewhat effective in the past, they are preferred for the SCM. The Draft EIR does not distinguish the effectiveness of mass-based architectural VOC control strategies from mass-based mobile source control strategies or other control strategies. This is crucial because different sources emit different VOCs which have different effects on ozone levels. Some VOCs can cause an order of magnitude more ozone than others, and some VOCs are negatively reactive. The mass-based regulation does not selectively remove VOCs, thus ARB does not know whether the SCM will make products more or less reactive. There is insufficient supporting discussion of the SCM's mass-based approach.

Response: Architectural coatings are area sources similar to consumer products. To distinguish the effectiveness of mass-based consumer products VOC control strategies from mass-based mobile source control strategies, modeling results were reported in an October 29, 1996, Consumer Products Working Group meeting.

In this case, the Urban Airshed Model was used to simulate the impacts of consumer product emissions on peak ozone and population exposure for the South Coast Air Basin. The simulations were for the South Coast Air Basin for August 26-27, 1987, and used emissions and meteorology from the 1994 SIP. These simulations showed that consumer product emissions are about 60 percent as effective in reducing peak ozone as motor vehicle emissions per ton of VOC emitted. Reductions of population exposure to ozone concentrations above 9 parts per hundred million (the State ozone standard) were the same for consumer products as for motor vehicles per ton of VOC emitted.

Mobile source controls are more effective in reducing maximum ozone in peak concentration areas because motor vehicle emissions are more reactive than area source emissions. However, area source controls (such as for consumer products and architectural coatings) are very effective in reducing population-weighted exposures to ozone. Thus, on a population-weighted basis, any decrease in mass VOC emissions from area sources is very effective in reducing ozone exposures.

The commenter is referred to the response to Comment #15-37 of the Final Program EIR for a discussion of the reactivity impacts of substitution.

- 15-41. Comment: A recently published article found that acetone is 25 times more hazardous than mineral spirits. The Draft EIR concludes that any increased use of acetone will generally be balanced by reduced usage of other equally or more hazardous materials such as MEK, toluene, xylenes, *etc.* Contrary to the Draft EIR's characterization, however, if the SCM's VOC content limits for major categories were implemented (without a viable averaging provision), acetone would serve as a replacement primarily for mineral spirits (paint thinner), not MEK, toluene, and xylenes. This replacement of mineral spirits with acetone would be widespread, and would result in considerably increased health and safety hazards.

Response: The evidence does not support the contention that increased fire and safety hazards will result from the SCM. The ARB acknowledges that the application of some paint formulations presents an inherent fire danger if accepted operating guidelines are not followed. If existing fire department codes are followed when working with flammable or combustible liquids it would be difficult if not impossible to achieve the vapor concentrations necessary to pose fire danger. In the 1998 ARB survey, which reports 1996 sales data, acetone was reported as less than one percent of the speciated inventory. Although acetone has been exempted since June 1995, we have not received information that significant reformulation of architectural coatings with acetone will occur. Acetone use was reported in only eight coating categories, including lacquers and traffic paints, and industry agrees its use will be limited by its solvent characteristics. There are no additional Department of Transportation requirements for distribution or sale of acetone, although there are additional storage requirements because of the high flash point. All of the large coating manufacturers currently offer for sale acetone in quart or gallon containers recommended as special-purpose thinner, cleaner, and remover. In addition, containers for typical lacquer thinners manufactured by numerous manufacturers indicated the presence of acetone, ranging from 7 to 25 percent by volume.

These lacquer thinners are recommended and are used widely for reducing coatings, cleaning equipment, and cleaning paint spills. In setting the VOC limits in the SCM, the ARB did not rely exclusively on acetone as a reformulation option--it is only one of several compliance options.

- 15-42. Comment: Mass-based VOC regulations are inefficient for reducing VOC emissions because lower VOC paint may lead to increased paint use. The Draft EIR must determine not only the level of VOC emission reductions from a given volume of paint, but also the change in the amount of paint required to complete a given job due to changes in product performance (as indicated by reduced coverage, more coats, more thinning, more priming, more touch-ups, or more frequent recoating). Emissions potential should be measured as emissions per area covered divided by service life. The Draft EIR rejects a performance-based alternative because no consensus could be reached regarding measurement of performance standards. In fact, consensus was not reached on any of the SCM's provisions. ARB staff did not attempt to generate consensus on a performance-based alternative, but instead simply rejected this alternative. Without a performance-based alternative, the potential exists for more paint usage and thus adverse environmental impacts. The Draft EIR does not comply with CEQA.

Response: Performance-based standards are addressed on pages V-138 and V-139 of the Draft Program EIR. The Draft Program EIR addresses the change in the amount of paint required to complete a given job due to changes in product performance (*i.e.*, the "seven deadly sins") on pages IV-61 through IV-80. The commenter has presented no data that would suggest that without a performance-based alternative, more paint would be used, or that CEQA requirements have not been met. As discussed in the Draft Program EIR, performance-based standards would be burdensome, expensive, and unenforceable.

According to the July 1998 EL RAP concept paper, "Innovative Approaches to Regulating Architectural Coatings," the performance-based alternative assumes that performance is measured by coverage (which is not defined) and durability or service life (*i.e.*, the average interval between successive re-applications). Service life would be quantified by using a "standardized test protocol involving those qualities that most contribute to long-term durability (*i.e.*, adhesion, hardness, abrasion resistance, soil release and stain resistance, color retention, weatherability, moisture and chemical resistance, and corrosion resistance)." An analogy is drawn to fuel economy tests on vehicles.

The commenter's suggestion that "performance" be based on the "emissions potential" of "emissions per area covered divided by service life" oversimplifies the complexities of measuring all of the characteristics that would need to be measured. The proposal assumes that regulators and manufacturers could agree on what constitutes acceptable performance characteristics, as measured by agreed upon tests, for agreed upon testing duration. Durability is also influenced by the wide variety of substrates, under a wide range of environmental conditions, by an infinite number of users' application techniques and surface preparation. If performance-based standards replaced VOC limits for individual coating categories, each of the thousands of coatings on sale in California

would have to be certified by the standardized test protocol, labeled specifically for California based on the standard test protocol results, and comply with recordkeeping and reporting requirements. Unlike vehicle fuel economy tests, which certify a relatively small number of vehicles, the testing protocol would have to be performed on thousands of coatings. These tests would be expensive and burdensome for manufacturers.

Contrary to the commenter's claim, we believe that consensus was reached on many of the SCM's provisions because of the public process and the individual meetings with manufacturers, in which specific issues and data were discussed. Several changes were made to our original proposal based on this input. We also disagree that ARB made no attempt to reach consensus on performance-based standards, as we did discuss this alternative as presented in the EL RAP paper at the August 1998 workshop. The result of the discussion was that performance-based standards were determined to be unenforceable, and would pose a severe administrative burden on manufacturers. Based on this discussion, and in the absence of a more concrete proposal, we did not pursue it further.

- 15-43. Comment: According to a paper by Harley, et al., mineral spirits represent approximately 80 percent of the volume of solvents used in solvent-based architectural coatings. In aggregate, MEK, toluene, and xylenes make up only five percent. For example, a typical solvent-based Primer, Sealer and Undercoater formulated with mineral spirits to meet the current limit of 350 g/l could be reformulated to meet the proposed limit of 200 g/l by replacing half the mineral spirits with acetone. This would greatly increase the product's potential health and safety impacts.

Response: The primary purpose of this paper is to address diesel emissions, not architectural coatings. According to our 1998 architectural coatings survey, petroleum distillates account for approximately 64 percent of the VOCs in solvent-based coatings. The commenter is referred to the response to Comments #15-36 and #15-37.

We believe that acetone will displace some mineral spirits as well as other solvents. However, we do not believe that acetone usage will be widespread. We expect it to be used in a limited number of categories (*e.g.*, lacquer). The potential health and safety impacts of using acetone will be less than those impacts associated with the current products. Due to increases in the proposed limits for floor coatings and waterproofing sealers, we do not believe acetone will be used in these categories.

- 15-44. Comment: The Draft EIR rejects a seasonal approach for several reasons. First, the Draft EIR suggests that manufacturers may have difficulty managing their inventory to comply. Of course, if this were a real issue manufacturers could avoid the problem by producing compliant coatings year round. Second, the Draft EIR offers no explanation about why labeling will not solve the problem of informing individual painters as to when it is "legal" to use a can of paint. After all, it is assumed that painters will follow other aspects of the label directions, such as directions on thinning. Third, the Draft EIR does not discuss possible enforcement mechanisms or quantify the costs or "difficulty" associated with seasonal regulation.

Response: On the commenter's first point, the ARB staff believes that managing inventory is in fact a real issue. A seasonal regulation alternative would not simply involve inventory management by manufacturers. Distributors and retailers would also be involved, because they would have to manage inventories of many thousands of individual cans of paint, at thousands of distribution centers and retail locations. Some of these cans would be legal to sell only at certain times of the year, and everyone in the system would have to make sure that all the "illegal" cans of paint were taken off the shelf and not sold during certain times of the year. The potential for mistakes is obviously fairly high. It is true that manufacturers could avoid this problem by producing compliant coatings year-round; this is exactly what the SCM requires as it is presently written, without the seasonal regulation alternative.

On the commenter's second point, the Draft Program EIR points out a number of practical reasons why it is not realistic to expect thousands of individual painters to both know the rules and follow them. Common sense indicates that labeling would not solve this problem. Many people either will not read the label, or will not follow a labeling restriction that relates solely to air quality considerations, and not considerations about how the paint will perform to do the job at hand. It is far more likely that painters will read and follow thinning directions. Thinning involves actually changing the contents of a can of paint, as opposed to simply opening a can and using the paint. When someone is taking the trouble to add water, lacquer thinner, mineral spirits, or some other substance to a can of paint, they are more likely to check the label and make sure that: (1) they are adding the right type of thinner, and (2) they aren't adding so much thinner that the performance of the paint will be compromised. Such common sense observations about thinning are based on empirical studies and other considerations, as discussed in Chapter IV of the Draft Program EIR and the response to Comment #15-28 of the Final Program EIR.

Regarding the commenter's third and final point, the enforcement mechanisms for a seasonal regulation approach are fairly obvious: each air district could hire more air quality inspectors (or redirect existing district inspectors to architectural coatings duty, instead of enforcing other district rules), and send them out to inspect hundreds of retail paint stores, as well as thousands of job sites where painting is occurring. That such an enforcement approach would be both expensive and very difficult is also obvious. To reach this conclusion, quantifying the costs of the approach is not really necessary.

- 15-45. Comment: The Draft EIR rejects a regional regulation alternative because of the difficulty of enforcement and modeling regional effects of the SCM, yet it projects statewide environmental impacts. The SCM should be postponed until gaps regarding regional effects are filled by data from the new air chamber at the University of California at Riverside.

Response: There is no good reason for postponing the adoption of the SCM. Research on air quality is being conducted on an ongoing basis, and it is almost always true that we will know more in the future than we know now. But extensive research on air quality

has already been done over the last three decades, and the ARB staff is confident that there currently exists more than enough data to conclude that VOC reductions from the SCM will improve air quality in California (see the response to Comment #15-39 of the Final Program EIR). It is not necessary to wait for more research before proceeding.

Regarding the alternative of regional regulation, the commenter has incorrectly interpreted the discussion in the Draft Program EIR. The Draft Program EIR does not reject the regional regulation alternative because "... it is too difficult to predict the effects of regulation in various regions of the state ...". Rather, this alternative was rejected because: (1) it is virtually impossible to enforce, (2) it could have an adverse effect on PM<sub>10</sub> levels, and (3) it is not possible to accurately determine whether allowing an exemption from VOC regulations in particular geographical areas could be done without harming air quality. The commenter misinterprets this last point (*i.e.*, that we do not know enough to be confident that an exemption from VOC regulation can be safely undertaken in certain areas), and erroneously concludes that, therefore, we must not know enough to determine whether VOC reductions in general will actually benefit air quality statewide. Based on years of research, however, the ARB staff does have sufficient knowledge to answer this question. For more a more detailed discussion of these issues, please see the responses to Comments #15-2 and #15-24.

- 15-46. Comment: The Draft EIR rejects the exceedance fee option from the National Rule because the fees are too low, but does not explain why a higher fee could not be instituted. The lack of this provision precludes manufacture of high quality, high VOC coatings, and results in use of less durable coatings and use of more paint.

Response: The Draft Program EIR lists several reasons for rejecting the exceedance fee approach, and not does not base this rejection solely on the low amount of the fee. Regarding the amount of the fee, however, the ARB staff agrees that it would be possible to implement a higher fee than the amount specified in the National Rule. In theory, the higher the fee, the less coating manufacturers would take advantage of this option, and the less adverse emissions impact the fee would have. But there are problems with simply raising the fee. First, no one has any idea at what level to set the fee, because there is no historical experience to indicate how much of an emissions impact would result from different fee levels. More fundamentally, the ARB staff simply does not see a convincing rationale for implementing an exceedance fee approach. California needs the emission reductions from the SCM, and fewer emission reductions will result if some manufacturers simply pay the fee instead of reformulating some of their coatings. Since the ARB staff has also concluded that the VOC limits in the SCM are feasible (as discussed at length throughout the Draft Program EIR), staff does not accept the commenter's argument that there is some technical need for exceedance fees to remedy performance problems in coatings.

- 15-47. Comment: The LVP exemption in the EPA and ARB consumer products regulations set the legal and technical precedent for an LVP exemption for other regulations, including the SCM. The reasons the Draft EIR rejects the LVP-VOC alternative are technically unclear. The SCM's purpose is to bring consistency to architectural coatings regulations,

and the lack of an LVP exemption in current district rules is not a reason not to consider it in the SCM. The real issue is equity with other similarly situated parties. Many consumer products (*e.g.*, floor polishes, adhesives, caulking compounds, and fabric protectants) are coating-like, being applied to a surface and harden or cure by drying after application. Both architectural coatings and consumer products have low to high volatility compounds, with low volatility compounds making up a small fraction of total VOC contents. LVP-VOCs are used in architectural coatings as co-solvents in water-based coatings, which regulators favor because of their lower VOC content. Exemption of LVP-VOC will enhance formulation flexibility for water-based coatings, and minimize regulatory impacts for industry and consumers.

Response: We disagree that the LVP-VOC exemptions given for consumer products set the precedent for a similar exemption in architectural coatings. There is no precedent for an LVP-VOC exemption in any other architectural coating rule at the national, state, or local level. There is also no precedent in aerosol coatings, adhesives and sealants (which are regulated by districts), or aerosol adhesives, nor is there a precedent among district coating rules of any type (*e.g.*, wood, metal, plastic, marine).

We also disagree that architectural coatings and consumer products are similar enough to justify an exemption based on equity. While a few categories of consumer products such as floor waxes and caulking compounds are applied to last a long time, most categories of consumer products and architectural coatings are very dissimilar in their usage mechanisms and durability requirements. The largest categories of consumer products, personal care products such as hair sprays, are not exposed to the same long-term exposure to environmental conditions as architectural coatings. Also, the emissions from the use of LVP-VOC hydrocarbon distillates are included in the consumer products emission inventory.

We also disagree that low volatility compounds make up a very small portion of the architectural coatings inventory. As mentioned in the Draft Program EIR, the commenter claims that an LVP-VOC exemption would reduce the emissions inventory for architectural coatings by 30 percent. This cannot be construed as a “small” portion of the inventory. We believe that if an LVP-VOC exemption were granted, the 30 percent figure cited by the commenter would grow even larger, resulting in substantially less emission reductions from the SCM.

- 15-48. Comment: U.S. EPA Test Method 24 conditions (110°C for one hour) do not represent normal application conditions of architectural coatings. The U.S. EPA does not believe an LVP exemption would be appropriate for low volatility compounds because under “certain processes” these compounds would volatilize; the commenter suggests that “certain processes” would involve high temperatures and hot gas emissions, whereas architectural coatings are not heated during or after application. Method 24 uses temperatures of 230 °F for 1 hour, which would drive off compounds that would not volatilize to the same extent or at all under normal application conditions. This is confirmed by the ARB’s indoor air quality study (Hodgson, 1999) which demonstrated

that only 10 to 30 percent of latex paints LVP-VOC co-solvents are emitted two weeks following application to interior drywall. The study states that it is unknown if all the co-solvents are re-emitted. The commenter states that even if the co-solvents were re-emitted at lower rates over longer time periods, most of the emissions would not occur when they could contribute to ozone formation, *i.e.*, during non-ozone season.

Response: U.S. EPA Method 24 was developed to simulate the VOC emissions over the lifetime of the coating in a reasonable amount of time, and is not meant to simulate the application conditions of coatings. During the lifetime of a coating, exposure, climate, and changing temperatures affect the VOC emissions. All test methods are designed to represent data under certain specific conditions, Method 24 being no exception. In this instance, these conditions serve as a way to compare each coating's emissions. The Censullo *et al.* (*Improvement of Speciation Profiles for Architectural and Industrial Maintenance Coating Operations*, Final Report for ARB Contract 93-319, June 30, 1996) study shows how low volatility compounds behave under Method 24 conditions. After drying a semigloss paint film containing a known amount of Texanol® for 100 minutes at 110°C, 8.3 percent of the Texanol® that was in the original coating was left in the film. Thus, if a manufacturer used the Method 24 results to label the amount of VOC in this coating, this small amount of Texanol® would not have to be declared as a VOC. We believe that Method 24, as the approved method by the U.S. EPA and districts, does represent real-world conditions over the period of years that many coatings are in service.

The U.S. EPA (Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations, Clarification to Appendix D of November 24, 1987 *Federal Register*, May 25, 1988) has said that low volatility compounds, under "certain processes," would volatilize and participate in photochemical reactions. The volatility of VOCs is affected by temperature, high air exchange, temporary absorption onto substrates, removal mechanisms such as aerosol formation, and the nature of the matrix in which they are dissolved (Kurland, *et al.*, *Volatility and Fate*, June 6, 1999, <http://narsto.owt.com/Narsto/reactinfo.html>). Other influences on volatility of VOCs coatings are the thickness of the paint film and the substrate. The references cited in Chapter V of the Draft Program EIR provide more detail on the fate of low volatility compounds in coatings.

The commenter's statements about the Hodgson (*Common Indoor Sources of Volatile Organic Compounds: Emission Rates and Techniques for Reducing Consumer Exposures*, ARB Contract No. 95-302, January 1999) study are partially true. After two weeks, 19 to 35 percent of the Texanol® and four to 14 percent of the LVP solvents were emitted, depending on the ventilation rate. However, the study also states that after three months, less than 20 percent of the applied ethylene glycol and less than 50 percent of the applied Texanol® would be expected to be emitted. The study concludes that if 100 percent of the ethylene glycol and Texanol® applied to gypsum board were re-emittable, it would take more than one year for them to be completely released to the air. Since this process is continuous, it is not true that most of the emissions would be given off during the non-ozone season. Chang, *et al.* (*Evaluation of Sink Effects on VOCs from a Latex Paint*, *Journal of the Air and Waste Management Association* 48:953-958, 1998) estimated that it would take as long as 3½ years for all of the ethylene glycol to be

re-emitted from gypsum board. Furthermore, Chang, *et al.* (Substrate Effects on VOC Emission from a Latex Paint, *Indoor Air* 7:241-247, 1997) demonstrated that when the substrate was metal, 89 to 100 percent of the LVP-VOCs were emitted within two weeks. The point is that no study we know of actually was conducted long enough to conclusively answer the question of whether the LVP-VOCs are completely re-emitted from wallboard, but a large percentage has been shown to emit over a period of a few months.

- 15-49. Comment: Failure to grant an LVP-VOC exemption is counterproductive to optimizing performance of water-based coatings, thus adding to total ecological burdens of paint production, distribution, and use. This would impact air and water quality, material and energy resource consumption, health and safety, and solid waste disposal.

Response: The commenter provides no basis for why failure to grant an LVP-VOC exemption would result in ecological burdens from paint production, distribution, and use, as well as air and water quality impacts, material and energy resource consumption, health, safety, and solid waste disposal. We disagree that failure to grant an LVP-VOC exemption is counterproductive to optimizing performance of water-based coatings. As has been stated at workshops and in written comments, solvents are not used frivolously in coatings—they are used for a specific purpose. The lack of an LVP-VOC exemption does not materially affect manufacturers' choices for the performance characteristics desired because they already use these compounds for their functionality. An LVP-VOC exemption would be more detrimental to the environment because there would be a tendency to find new uses for the exempt VOCs, thus adding to the emissions of these compounds. We have analyzed all of the impacts of the SCM mentioned in Chapter IV of the Draft Program EIR, and have found them to be insignificant.

- 15-50. Comment: Dunn-Edwards supports the ARB's commitment of studying reactivity issues and pursuing a possible reactivity-based rule, but disagrees with the Draft EIR's conclusion that such a rule is not currently feasible. The commenter quotes a 1995 article in *Science* magazine (Russell, *et al.*, Urban Ozone Control and Atmospheric Reactivity of Organic Gases, *Science* 269:491-495, July 28, 1995) that concluded that reactivity-based architectural coatings regulations were feasible *at that time*. ARB's experience with reactivity-based regulations should make it easier to implement for architectural coatings. The Draft EIR contends that VOC inventory and reactivity data are needed, while the *Science* article concludes that sufficient information already exists. Any gaps in reactivity data and coatings' VOC inventories could be temporarily filled using reasonable assumptions or can be quickly generated.

Response: The Russell, *et al.* article quoted does not conclude "that reactivity-based architectural coatings regulations were feasible *at that time*," as the commenter claims. It says that reactivity-based regulations are currently used for automobile emission regulations in California, and that because of the potential of adopting similar vehicular regulations elsewhere in the U.S., there is a need to understand the science, benefits, issues, and research needs associated with reactivity weighting. (Reactivity weighting is the relative reactivity method used in ARB's Zero Emission Vehicle/Clean Fuels

regulation where the reactivity factor used in the regulation is the ratio of the reactivity of the alternative fuel to that of standard gasoline.)

As we said on pages V-153 to V-154 in the Draft Program EIR, The ARB is not opposed to considering reactivity-based standards for architectural coatings at some point, but we first need better survey data. In the ARB's reactivity-based regulation for aerosol coatings, which will be considered by the Board in June 2000, survey reporting requirements include a product-by-product complete speciation of all VOCs (including exempt compounds), to the nearest 0.1 percent composition of the product. This level of information is considerably more detailed than the architectural coatings industry has so far agreed to provide. Without this level of detail, the emission impacts of the regulation cannot be fully assessed. It would not be good science to make assumptions on reactivity of some compounds for which we do not have peer reviewed reactivity data, especially in view of the lack of detailed speciation on architectural coatings. The aerosol coatings reactivity-based standards will be the first regulation based on MIRs instead of relative reactivity factors based on MIRs. We think that first implementing the aerosol coatings regulation and evaluating the results, before proposing a similar program for architectural coatings, is a prudent approach. The extra time can be used to conduct a more detailed architectural coatings survey.

- 15-51. Comment: The commenter urges ARB to reconsider its apparent decision to use the Maximum Incremental Reactivity (MIR) scale for characterizing the reactivity of VOCs. This scale is valid only for an extremely narrow range of environmental conditions most often found in the laboratory, or occasionally in a few heavily populated urban cores. Under the ambient conditions that predominate in California, *i.e.*, low NO<sub>x</sub> or high VOC/NO<sub>x</sub> ratio, the MIR scale will misrepresent real-world conditions and in regulations might be counterproductive. VOC reductions under these conditions can promote rather than inhibit ozone formation due to environmentally-dependent negative incremental reactivity of most VOC solvents, including mineral spirits.

Response: Low NO<sub>x</sub> and high VOC/NO<sub>x</sub> ratios are predominant only in remote, mountainous, sparsely populated California areas. The MIR scale is more appropriate when applied to a wide variety of conditions including investigating population exposure to integrated ozone or ozone over the air quality standard (Carter, Development of Ozone Reactivity Scales for Volatile Organic Compounds, *Journal of the Air and Waste Management Association* 44:881, 1994). Comparison of the MIR scale with the results of three-dimensional gridded models (which include transport and different environmental conditions) shows that the MIR scale correlated well with population-weighted exposure (McNair *et al.*, Airshed Calculation of the Sensitivity of Pollutant Formation to Organic Compound Classes and Oxygenates Associated with Alternative Fuels, *Journal of the Air and Waste Management Association* 42:1740-178, 1992; McNair, *et al.*, Airshed Model Evaluation of Reactivity Adjustment Factors with the Maximum Incremental Reactivity Scale for Transitional-Low Emission Vehicles, *Journal of the Air and Waste Management Association* 44:900-907, 1994; Bergin *et al.*, Quantification of Individual VOC Reactivity Using a Three-Dimensional Photochemical Model, *Environmental Science and Technology* 29:3029-3037, 1995; Bergin, *et al.*,

Effects of Chemical Mechanism Uncertainties on the Reactivity Quantification of Volatile Organic Compounds Using a Three-Dimensional Air Quality Model, *Environmental Science & Technology* 32:694-703, 1998; Kaduwela *et al.*, Photochemical Reactivity of Organic Compounds in Central California: A Grid-Based Modeling Study, *Seventh International Conference in Air Pollution, Advances in Air Pollution Series*, Volume 6, Brebbia, *et al.*, eds, WIT Press, Southampton, pages 893-902, 1999).

- 15-52. Comment: The analysis of impacts and air quality benefits associated with each alternative is technically inaccurate and misleading to decision makers. Table II-1 summarizes CARB survey data which indicates that emissions from architectural coatings have decreased nine tons per day between 1990 - 1996 or 1.25 percent annually in the absence of regulation. Therefore, Table V-3 inaccurately characterizes the No Project Alternative as having no emission reduction potential. This is untrue both because market forces are reducing VOC content in coatings regardless of regulation, and because the National Rule is effective in one-half [*sic*] of all California air districts. Allowing consumer demand for water-based products to continue to drive the market could result in more emission reductions than those expected to be achieved through implementation of the SCM.

Response: As explained in the response to Comment #15-10(b) of the Final Program EIR, the commenter's implication that emissions declined during a period that was absent further regulation is unfounded. California's 17 districts with architectural coating rules in place comprise 96 percent of the State's entire population. The emissions benefit that could result from the National Rule in the remaining 18 districts, which only comprise four percent of the State's population, is negligible. The remaining argument regarding emissions and predicted decline (absent any further regulation) is predicated on an assumption that cannot be proven or guaranteed.

- 15-53. Comment: The Draft EIR rejects product-line averaging as an alternative to the SCM at this time, despite recognizing that it is a feasible alternative which would "improve cost-effectiveness of the rule" (EIR at V-138 to V-139). Product line averaging is viable and necessary to achieve any emission reductions at all from this proposed rulemaking because, without product-line averaging, the proposed emission limits are technologically infeasible.

Response: Although the proposed SCM does not currently include an averaging provision, we are currently working with interested parties to develop such a provision to be presented at the June 22, 2000, Board meeting. Please see the response to Comment #1-2 of the Final Program EIR. ARB staff has concluded that each of the VOC limits in the SCM is independently feasible, and averaging is not necessary to make the SCM feasible. Chapter VI of the Staff Report contains the analysis supporting the conclusion (see also Appendix E of the Final Program EIR).

- 15-54. Comment: The Draft EIR declares that "the existence or absence of averaging does not affect either the ARB's analysis of the technical feasibility of VOC limits in the SCM, or the ARB's environmental analysis for the SCM." Dunn-Edwards strongly disagrees.

The SCM's proposed VOC limits are based on the SCAQMD's May 1999 amendments to Rule 1113. Unlike the SCM, however, Rule 1113 includes an averaging provision. Without a viable averaging provision like that contained in SCAQMD Rule 1113 many of the VOC content limits in the proposed SCM are beyond the scope of technological and economic feasibility and result in adverse environmental effects. Available studies do not support the assumption that the SCM's VOC limits are achievable absent this averaging provision.

Response: Although the proposed SCM does not currently include an averaging provision, we are currently working with interested parties to develop such a provision to be presented at the June 22, 2000, Board meeting. Please see the response to Comments #1-2 and #15-33 of the Final Program EIR.

- 15-55. Comment: According to the Draft EIR, "ARB staff is not considering using SCAQMD Rule 1113 averaging approach in the proposed SCM." Although no averaging provision is including in the SCM currently, ARB staff is apparently considering an alternative averaging program that, in our opinion, would be excessively complex, burdensome, inefficient, and inequitable.

Response: Although the proposed SCM does not currently include an averaging provision, we are currently working with interested parties to develop such a provision to be presented at the June 22, 2000, Board meeting. The averaging provision would be similar to the SCAQMD averaging provision, with the addition of a sunset date. Please see the response to Comment #1-2 of the Final Program EIR.

- 15-56. Comment: Dunn-Edwards urges CARB staff to consider including a provision encouraging local districts to perform Technology Assessments to ensure high quality, durable coatings are available in the future.

Response: This comment is addressed in the response to Comment #4b-9 of the Final Program EIR. As explained in this response, ARB staff and SCAQMD staff will be conducting technology assessments. It is not necessary to include a provision specifying that each district should also conduct a separate assessment.

- 15-57. Comment: The Draft EIR is insufficient to inform the ARB and the public about the potential significant adverse environmental effects of the SCM. ARB should revise and re-submit the Draft EIR for further public comment before finalizing the proposed SCM. The revised Draft EIR should discuss further the effects of VOC reduction in different areas of California, the environmental effect of varying NO<sub>x</sub> levels and NO<sub>x</sub> transport across California, and possible effects on coating usage and VOC emissions from enforcement of the technologically infeasible VOC limits of the SCM.

Response: The commenter is referred to the responses to Comments #15-6, #15-19, #15-24, and #15-39 of the Final Program EIR. The ARB staff disagrees that the Draft Program EIR should be resubmitted for further comment before finalizing the proposed SCM. The commenter has submitted no compelling evidence that the ARB has

inadequately analyzed the issues, and therefore no changes to the conclusions are warranted.

- 15-58. Comment: Dunn-Edwards appreciates ARB's efforts in evaluating innovative and meaningful approaches to dealing with ozone nonattainment, and looks forward to working with ARB on issues of mutual interest, as these are the keys to the viability of the industry and our mutual goal of clean air.

Response: The ARB staff appreciates the comment. We are willing to work with Dunn-Edwards and other members of the architectural coatings industry in developing creative ideas for our mutual benefit.

**COMMENT LETTER #16**  
**Multi-Agency (Metropolitan Water District of Southern California,  
California Department of Water Resources,  
California Department of Transportation)**  
**April 7, 2000**

- 16-1. Comment: The Metropolitan Water District of Southern California (MWD), the California Department of Water Resources (DWR), and the California Department of Transportation (Caltrans) support the efforts to reduce VOCs from architectural and industrial maintenance coatings. The extension of the proposed compliance date to January 1, 2004 for industrial maintenance coatings will be beneficial, although MWD, DWR, and Caltrans (the multi-agencies) view the basis for the extension differently than the ARB.

Response: The comment is noted.

- 16-2. Comment: The ARB has concluded in the DEIR that the proposed VOC limit of 250 g/l for industrial maintenance coatings is technologically and commercially feasible, and that low-VOC coatings perform as well as high-VOC coatings. Information from manufacturers' product data sheets were used. Based on MWD test experience, the multi-agencies continue to have concerns about the performance of low-VOC coatings. Historically, about 80 percent of the coatings tested do not meet MWD's performance standards. Approximately 75 percent of coatings do not meet the physical and performance claims in the manufacturers' product data sheets.

Response: As discussed in the Draft Program EIR and the Final Program EIR, we considered various information in developing the proposed VOC limits. In addition to product data sheets, we considered information from resin manufactures, independent testing, VOC limits from federal and district rules already in effect, industry/trade journals, and discussions and input from various affected groups including essential public service agencies.

- 16-3. Comment: Preliminary results from current testing show that many low-VOC coatings are failing. Out of 75 coating systems (primer coat with intermediate and/or topcoat) tested for high humidity exposure, 16 (21 percent) are performing satisfactorily, while 59 (79 percent) are showing moderate to severe premature degradation and deterioration, after 90 days of testing.

The multi-agencies continue to recommend that sufficient time be provided for testing. The proposed limit of 250 g/l to be effective January 1, 2004 is not in alignment with the South Coast Air Quality Management District's (SCAQMD) limit of 340 g/l effective until 2006, and 100 g/l thereafter, for essential public service agencies. However, the multi-agencies anticipate that substantial test results will be available by 2004, and that ARB staff should review the results. The multi-agencies recommend that the technology assessment being conducted by the essential public service agencies for the SCAQMD be

formally recognized in the draft SCM (or associated Board Resolutions). The Board should consider the results and, if needed, reconsider the VOC limit and effective date.

Response: When the MWD finalizes any of the intermediate or completed test results, we will be available to review and discuss the results. We will conduct a technology assessment one year before the 250 g/l VOC limit goes into effect in 2004. It is our intent to recommend to our Board, at the June 22/23, 2000 meeting, to take action to formally recognize the multi-agency (essential public service agency) test program.

- 16-4. Comment: The DEIR stated that the time extension to January 1, 2004 was provided to allow time for essential public service agencies to complete administrative processes before low-VOC coatings can be used. Although this is the case for contract/bidding processes, the multi-agencies requested the time extension primarily because of concerns regarding coating performance and availability.

Response: We have revised the Final Program EIR and Staff Report to be consistent with the comment.

**COMMENT LETTER #17**  
**McKenna & Cuneo**  
**April 7, 2000**

- 17-1. Comment: The commenter represents RPM, Inc. and is addressing only non-technical aspects of the proposed SCM. The commenter endorses the technical comments of Rust-Oleum and NPCA and urges the ARB to revise the SCM according to their comments as well.

Response: The comment is noted.

- 17-2. Comment: The SCM impermissibly shifts the burden of compliance from California residents to out-of-state manufacturers because the applicability, definition, labeling and reporting sections of the rule compel manufacturers to create coatings specifically for California. The rule particularly economically impacts small and mid-size manufacturers of niche or specialty coatings who rely on California retailers and distributors. The SCM should apply only to in-state users and retailers to conform with the National Rule, and reporting requirements should apply to distributors and retailers.

Response: The SCM does not shift the burden of compliance to out-of-state manufacturers. The SCM (once adopted by a local air district) would apply uniformly to any person who sells, supplies, or offers for sale architectural coatings within the district, regardless of whether the person is an in-state or out-of-state manufacturer. This approach is a not new one; it is the same approach that has been used in local district architectural coatings rules for 20 years (as well as in district rules for many other source categories, and in ARB fuels and consumer products rules). In this respect, the SCM will not change the current situation that already exists in the local districts, and would not require companies to change their business practices.

The commenter suggests that the ARB “should return the focus of the rule to in-state users and retailers.” The current focus of the SCM is on any person who performs certain acts within the district. The ARB believes that this uniform approach is fairer than singling out certain classes of persons for enforcement (*i.e.*, retailers and users) and ignoring other classes (*e.g.*, manufacturers and distributors). Regarding some of the other points made by the commenter, the ARB’s reasons for not using the same approach as the National Architectural Coatings Rule are discussed in the response to Comment #17-8 of the Final Program EIR. The commenter asks that reporting requirements be imposed only on distributors and retailers, and not manufacturers. The ARB believes that reporting requirements are most appropriately placed on manufacturers because in general, they have the most complete knowledge of the volume of coatings sold in California, and the formulations of those coatings (*i.e.*, toxic reporting requirements). Additional discussion of the reporting requirements is contained in the response to Comment #17-11 of the Final Program EIR. The commenter’s remaining issues regarding manufacturers are discussed in the responses to the following two comments.

- 17-3. Comment: The term “manufactured for use” in the SCM is too vague, in that it is unclear how it applies to manufacturers of products that are not intended solely for architectural use, and may be used legally under other coating rules in a district. In addition, it is unclear if a manufacturer will be liable if a product it manufactures is sold by a third party located in California and used by a California consumer in a manner that violates the rule. We request clarification.

Response: Regarding the first issue raised by the commenter, the key issue is whether a coating meets the definition of an “architectural coating”, as that term is defined in the “Definitions” section of the SCM. If a coating meets this definition, then it is subject to the SCM. This is true even if the coating also happens to be subject to some other district rule, in which case the requirements of both rules would apply (unless there was some provision to the contrary in the district rules). To give a hypothetical example, perhaps a manufacturer makes a coating which states on the label that it can be used both to paint houses (*i.e.*, an architectural use) and boats (*i.e.*, a non-architectural use). Such a coating would be subject to the SCM because it is manufactured for use as an architectural coating, and, since it is also represented that the coating can be used to paint boats, it may also be subject to the district’s marine coatings rule. This is one of the reasons why the proposed limit for antifouling coatings is consistent with the district limit for marine coatings. Additional discussion of the “manufactured for use” issue is contained in the response to Comment #17-4 of the Final Program EIR. Regarding the second issue raised by the commenter, no liability would be imposed on a manufacturer solely because the end user of the coating applies the coating in a manner that violates the SCM.

- 17-4. Comment: The SCM is not likely to achieve the expected 11 tons per day VOC reduction because the ARB has failed to account for the shorter life cycle of the coatings mandated. At the March 16, 2000 workshop, several industry technical representatives testified that the VOC levels established under the SCM would result in inferior coatings that will require more frequent maintenance. ARB staff dismissed these comments out of hand, instead deferring to a SCAQMD representative’s example of a railing that was painted with a compliant coating three years ago and allegedly is still serviceable, and submittals of “proprietary data” that ARB staff has received. At the very least, ARB should state on the record the data on which they are relying to prove that coatings meeting the SCM VOC levels will have the same life-cycle as present coatings.

Response: The commenter has not accurately characterized the process used by ARB staff to make technical determinations. Contrary to the commenter’s assertion, ARB staff did not rely on proprietary data or anecdotal information in concluding that low VOC coatings will not result in more frequent recoating. As stated in the Draft Program EIR, ARB staff analyzed the results of the NTS paint study, information comparing the characteristics of water-based acrylic resins and solvent-based alkyd resins, and other factors (see Chapter IV, pages 70-72). The information relied on by ARB staff is contained in the record, as explained in the response to Comment #17-5 of the Final Program EIR.

17-5. Comment: ARB has based technical decisions on “confidential and/or proprietary” data that cannot be scrutinized by the regulated community, and has dismissed the testimony of industry on technical matters. The ARB appears to be relying on SCAQMD staff’s opinion on numerous policy issues, including deferring to SCAQMD to answer questions and contradict industry testimony at the March 16, 2000 workshop. Significant interagency communication on all points relevant to developing the SCM with other governmental agencies should be recorded in the administrative record. ARB staff has had extensive communication with SCAQMD staff and other governmental agencies, and was not interested in the testimony of manufacturers because ARB had already made up its mind based on private conversations. ARB should respond to issues raised by industry, especially on industrial maintenance VOC limits, with objective and well-reasoned explanations on the record. We request that each conversation between ARB and other governmental agency representatives be placed in the administrative record, including parties involved, subject covered, and information provided.

Response: We disagree with the commenter’s characterization that the ARB relied on “off the record” data and communications, and that the ARB staff was not interested in industry testimony during the March 16, 2000 workshop.

The ARB has made publicly available all relevant data that staff is relying on as support for the SCM. There has been an open and public process for more than two years, with eight public workshops. Our workshop announcements, SCM revisions, reports, surveys, workshop summaries, workshop slide presentations, and lists of workshop attendees have been placed on the ARB’s Internet site. We have written responses to all letters received within specified comment periods during the EIR process. All documents referenced in the Draft Program EIR are available for public viewing. In response to industry’s concerns, we have created subcategories with higher VOC limits for industrial maintenance coatings, and are proposing a later effective date for the proposed limit (January 1, 2004 instead of January 1, 2003). We have remained objective and open to new information throughout the process.

Various meetings and conference calls have been held with districts and representatives of the U.S. EPA throughout the past two years to gather their advice and suggestions. The issues discussed with district and U.S. EPA representatives were the same as those discussed with the industry.

The commenter requests that a summary of every conversation between ARB staff and any other governmental employee be placed in the record. This is not a realistic request, because it would be very burdensome to summarize every single conversation. ARB staff has many informal discussions with representatives from both industry and other government agencies. Such discussions help define the issues, and ultimately result in a better rule. But simply engaging in a discussion is not the same as relying on the discussion as support for the SCM. If ARB staff intends to rely on a particular discussion as support for some aspect of the SCM, the discussion is summarized and included in the record.

- 17-6. Comment: The cost analysis is over-simplified and does not consider the high business management costs this rule imposes on out-of-state manufacturers to comply with it. The cost analysis focuses only on the cost of “ingredients” and fails to consider or even to identify the significant on-going costs to manufacturers of implementing sales, distribution, and accounting systems needed to collect data to file reports and sell products in compliance with the proposed rule.

Response: We disagree. The economic impacts survey and the associated cost analysis takes into account all available data on non-recurring costs (*e.g.*, equipment purchases, R&D, packaging changes, *etc.*), recurring costs (raw material changes, on-going administrative and distribution costs, *etc.*), and other ancillary costs resulting directly from implementation of the SCM. As discussed in the responses below, the survey requests that respondents identify any ancillary costs, such as recordkeeping and reporting costs, or any other costs not otherwise identified in the survey form and attach specific information regarding such costs to the survey for ARB staff’s consideration. We reiterated this need for comprehensive data at the March 2000 workshop. However, the cost analysis is dependent on the extent to which respondents provide specific information. If respondents do not provide such information, it would be inappropriate for the analysis to speculate on unreported costs without some other credible basis. Thus, if respondents choose not to provide survey responses or choose not to report some costs, the cost analysis will either reflect this or will rely on reasonable assumptions based on U.S. EPA, SCAQMD, or other credible documentation to estimate these ancillary costs.

- 17-7. Comment: Under the applicability section of the proposed SCM, the terms “for use” and “manufactured for use within the District” are undefined and may be misinterpreted. There is no recognized exemption for coatings that may have legitimate use under other district rules, but may exceed the VOC limits in some architectural applications. The terms “sells” and “offers for sale” are also unclear if a product intended for out of state ends up in California. The SCM should apply only to sales occurring only in California, or out-of-state retail sales directly to end users in California.

Response: The language referred to by the commenter is located in sections 1 and 3 of the SCM. Similar language is contained in district architectural coatings rules currently in effect throughout California, and has been part of these rules for many years. Similar language is also contained in ARB statewide consumer products regulations (see title 17, California Code of Regulations (CCR), sections 94500, 94502, 94507, 94509, 94520, and 94522). Through many years of enforcement experience in California, this language has proven to be workable and fair, and has not given rise to the type of problems suggested by the commenter.

The commenter asks a number of questions about how the SCM would be applied to various fact situations. Such questions can best be resolved on a case-by case basis, when all of the facts surrounding a particular situation are known. However, it is possible to state that the SCM (if adopted by a district) would not impose any restrictions on lawful transactions that occur in other states. Just because a high-VOC noncomplying product ends up in a store in California does not necessarily mean that the manufacturer

of the product is liable. In general, the person who sold or supplied the product into the district would be liable for a violation. But an “upstream” manufacturer or distributor would not generally be liable if they in good faith sold a noncomplying product to a person in another state, without knowledge or intent that the product would ultimately be sold in California, and somehow the product ended up in California as a result of the subsequent actions of a third party. These general principles describe how both district rules and ARB consumer product regulations have been enforced in the past. However, the terms “general” or “generally” have been used as qualifiers in the above discussion, because in any individual situation, there may be particular facts that would alter the conclusions set forth above.

- 17-8. Comment: Some coating category definitions in the proposed SCM differ not only from the National Rule, but also SCAQMD Rule 1113. Thus there will be at least three versions of architectural coating categories in California (SCM, SCAQMD, and National Rule). There is no justification for this industry-fragmenting and costly approach to the SCM. The National Rule should be a model for the SCM, except where significant VOC reductions can be guaranteed with reasonable impact on the regulated community and California consumers.

Response: In developing the SCM, the National Rule definitions were used as a starting point. Where the ARB staff and districts believed changes were needed, we considered the definitions in SCAQMD Rule 1113 and other district rules to establish consistency with existing rules. The same process was used with language in other portions of the SCM. When districts adopt the SCM language, there will be more consistency than currently exists in district rules. Chapter VI of the Staff Report contains information on what National and SCAQMD categories the SCM categories fit into.

The National Rule’s categories and definitions were meant to apply across the U.S., including many areas that are not currently covered by an architectural coating rule. The U.S. EPA recognized that it may be important for states to have separate rules, and has recognized that need especially for California where architectural coatings have been regulated for more than 20 years, and where VOC limits were already far lower than what would have been appropriate nationally. District rules generally cannot be relaxed to conform to the National Rule because they are a part of the California State Implementation Plan, and because districts need the emission reductions that result from the stricter limits.

- 17-9. Comment: Some, but not all, definitions include “be labeled as and formulated for” the “intended use.” This language is unclear and ambiguous, especially in view of other labeling requirements in the SCM, and should be eliminated for the following reasons. (1) The “intent” of the manufacturer determines whether a coating is appropriate for a given use, thus disallowing end-user discretion for desired use. Manufacturers would have to know every district rule, every coating category, and indicate the uses on the label for every district in the state. Manufacturers do not and should not be required to produce coatings for only one purpose or use. (2) The term “label(ed)” is not defined, but apparently means “container label,” whereas other state and federal laws define it as

anything that travels through commerce with the product and not necessarily attached to the container. It would be difficult to indicate the “use” of products for every district on the label. (3) “Formulated for” could be interpreted to mandate a formulation for each district and labeling for each allowable use. Manufacturers market coatings for many purposes with similar performance characteristics. (4) Generic coatings that have uses under several rules could be subject to enforcement action because of the SCM’s requirement to indicate use on the label.

Response: We disagree that the terms “labeled and formulated for” should be eliminated. The term “labeled” does not represent a labeling requirement. It simply expresses the common-sense idea that one should read the product label to determine what the product is designed to be used for, and what category the product falls within. It is not necessary for a manufacturer to list every use that the coating might conceivably be used for. “Formulated for” means simply that the manufacturer provide a general indication of what the product is used for (*e.g.*, interior/exterior stain, exterior semi-gloss, floor coating), not that the manufacturer needs to formulate products specifically for each district.

17-10. Comment: The SCM is not clear whether “labeled as” in the definitions section is satisfied by the information required in the labeling section for specified coatings.

Response: The labeling requirements in the SCM are contained in Section 4. As mentioned in the response to Comment #17-10 of the Final Program EIR, there are no specific labeling requirements imposed by the “Definitions” section of the SCM (Section 1). Most of the definitions for specific coating categories in Section 1 simply set out criteria that a coating must meet in order to fall within the definition.

17-11. Comment: It will be difficult or impossible for out-of-state manufacturers to comply with the reporting requirements because it is unclear what is meant by “California sales.” Reporting should be the responsibility of distributors and retailers.

Response: Manufacturers responding to the 1998 architectural coatings survey provided either California specific sales data, or they estimated sales based on apportioned national or regional sales figures. U.S. Bureau of Census population estimates were provided with the survey to assist manufacturers in estimating the California portion of sales. We expect that most manufacturers will use these population-based methods to comply with the Section 6 reporting requirements. It makes sense that manufacturers should be responsible for the reporting of sales information because the architectural coatings emission inventory is based on both VOC content and sales.

17-12. Comment: ARB should work with industry to establish workable enforcement provisions.

Response: The ARB staff has been working with industry all through the development of the SCM to develop enforceable provisions. For example, the labeling and reporting requirements for the new clear brushing lacquers category were developed to discourage

manufacturers from re-labeling existing lacquers to be subject to the higher VOC limit for brushing lacquers. Also, where possible overlaps in categories exist, *i.e.*, quick dry enamels and high gloss nonflats, both categories have the same proposed limit. The ARB has been very responsive to industry suggestions regarding possible problems with rule language relating to clarity and enforcement.

- 17-13. Comment: At the end of the workshop, ARB made a presentation concerning the method that it will use to perform the economic analysis of the rule. ARB admits that the system they are using emphasizes the increased cost of the raw material needed to make the paint, and minimizes the so-called one-time cost to reformulate, retool and relabel. ARB plans to get the information it needs to perform this analysis by sending industry a questionnaire. Based upon the presentation at the workshop and a quick review of the form, it appears that ARB will be missing a number of significant factors that will yield large cost impacts. For example, the cost of collecting data on California sales may require companies to establish new and perhaps unique record keeping and monitoring systems, if the data are to have any relevance at all. The cost of labeling and ensuring that only the appropriate coatings are sold in each district in the State is also likely to require additional manpower, and administrative systems.

Response: The commenter is incorrect in his assessment of the economic impacts analysis. First, ARB staff did not state that the analysis approach emphasizes the increased cost of the raw materials needed to make compliant products. At the workshop, staff discussed earlier cost analyses conducted for the statewide consumer product VOC regulations to illustrate that, at least for those products, the change in raw material costs tended to dominate the overall cost impacts. However, ARB staff did not suggest that the cost analysis for the SCM would emphasize raw material costs. In fact, much of the workshop presentation focused on the need to get data on non-recurring costs (*e.g.*, equipment purchases, R&D, packaging and labeling changes), as well as recurring cost data (raw material changes, on-going administrative costs, distributional costs, *etc.*). With regard to the second issue, we agree that, in some cases, on-going administrative costs can be significant, which is why we emphasized the need to obtain such data at the March 2000 workshop and in the economic impacts survey. (See the response to Comment #17-14 in the Final Program EIR for additional discussion on the survey's request for information)

- 17-14. Comment: RPM did not return the questionnaire, because we do not yet have adequate information on what it will cost to reformulate our coatings, and because the questionnaire did not ask for the on-going administrative cost of selling products in California and reporting to the ARB.

Response: The comment is noted.

**COMMENT LETTER #18**  
**Wm. Zinsser & Co.**  
**April 7, 2000**

- 18-1. Comment: The commenter, a manufacturer of specialty primers, mentions that proposed 2003 changes to the SCM, with a few changes, can be implemented without drastically negatively affecting the coatings industry and the commenter's business.

Response: The ARB staff agrees that the proposed SCM provides feasible VOC limits and timeframes for the architectural coatings industry.

- 18-2. Comment: The classification for Quick-dry primer, sealer, undercoater should be consolidated into the specialty primer category. The need for quickness of dry time should not be separated from other performance properties required of a primer, sealer, undercoater product. For example, the speed of dry is part of the reason that some alkyd primers are effective in blocking stains. We recommend that the more specific title of specialty primer be adopted over the more general title of quick-dry primer, sealer, and undercoater.

Response: As noted in the Draft Program EIR, a study conducted by Harlan and Associates for the ARB in 1995 analyzed a large number of coatings listed as quick-dry primers, sealers, and undercoaters and concluded that most of the coatings listed as 'quick-dry' did not meet the definitional requirements, and thus should not be classified as such. In addition, the study concluded that some of the water-based technology included in the testing actually met the requirements of a quick-dry coating, but were not necessarily listed as a quick-dry coating.

Accordingly, it is the intent of the proposed SCM to essentially eliminate the quick-dry primer, sealer, undercoater category. This is why the proposed VOC limit for quick-dry primers, sealers, and undercoaters is the same as that for primers, sealers, and undercoaters (200 g/l). This is also consistent with the intent of SCAQMD Rule 1113. However, we keep the category in Table 1 to provide a link from current local air district architectural coatings rules, which have the category, to future rule revisions. We suggest that when districts next amend their architectural coatings rules after January 1, 2003, they remove the quick-dry primer, sealer, undercoater category from their definitions and tables of standards. (This is similar to our suggestions for quick-dry enamel and nonflat high gloss, as well as swimming pool repair and swimming pool coatings.) Thus, current 350 g/l quick dry primer, sealer, and undercoaters that meet the specialty primer definition can still exist under the specialty primer category, without the speed of dry restrictions.

- 18-3. Comment: The definition of specialty primer should be expanded to include additional common problematic conditions requiring a specialty primer:

A quick-dry primer that: seals stains- *e.g.*, fire water, graffiti; tannin, nicotine; AND seals odors- *e.g.*, fire, nicotine, urine\*; AND bonds to glossy surfaces (without abrading

surface)- *e.g.*, glass, ceramic, laminates; AND adheres to chalky painted surfaces. The coating must dry to touch in ½ hour and can be recoatable in 2 hours when tested in accordance with ASTM D1640 – 98.

Response: The suggested specialty primer definition differs from the proposed definition in that it:

- Necessitates that a specialty primer also be quick-dry product;
- Includes examples of the types of stains that are sealed;
- Necessitates that specialty primers seal odors, and cites examples\*;
- Necessitates that specialty primers bond to glossy surfaces, and cites examples;
- Necessitates that specialty primers adhere to chalky painted surfaces;
- Eliminates reference to degree of chalking and to ASTM D 4214-98, which is a standard test method for evaluating the degree of chalking of exterior paint films.

The overall impact of the definition proposed by the commenter would be to create an extremely restrictive product category for specialty primers. The proposed SCM definition allows for products that are formulated to seal fire, *or* smoke, *or* water damage, *or* to condition excessively chalky surfaces, *or* to block stains. A product labeled and formulated for any one of these substrate conditions would be considered a specialty primer under the proposed definition.

The definition put forth by the commenter would necessitate that in order to be considered a specialty primer, a product would need to do all of the following: seal stains, seal odors\*, bond to glossy surfaces, and adhere to chalky painted surfaces. In addition, products would need to be quick-drying in accordance with ASTM D1640-98. Our intent is to create a product category that recognizes the need for products that address issues particular to certain problem substrates, not to create a product category that would allow for only those products that were suitable for application in every situation.

Please see the response to Comment #18-2 of the Final Program EIR for our rationale behind aligning the proposed standards for quick-dry primers, sealers, and undercoaters with that of primer, sealer, undercoater products.

Inclusion of examples of the types of stains that may necessitate the use of specialty primers could create difficulty with definition interpretation. Citing examples may create the impression that these are the only types of stains to which a specialty primer may be applied, and we have therefore not included examples in our definition.

Initial review of product data sheets indicated no specialty primers that made reference to use as an odor blocker, so inclusion of this characteristic in the definition of the product category was not deemed necessary\*. Review of additional product data sheets indicates there are products marketed for use as an interior vapor barrier. However, these products would already be considered either a specialty because they are also marketed as stain blockers, or a shellac. As indicated in the footnote, the request that the specialty primer definition include odor blocking has been withdrawn.

The specialty primer definition does not include those products intended for use on glossy surfaces, as there are primer, sealer, undercoater products available for these substrates. Among those products complying with the proposed limit for primer, sealer, undercoater and marketed as suitable for use on glossy surfaces are: PrepRite® Anchor-Bond Interior/Exterior Adhesion Promoting Primer (Sherwin-Williams Company), Bulls Eye 1-2-3 Primer Sealer (Wm. Zinsser Co., Inc), and Z-Prime II (Zehrun Corporation). Please note that the last two products are marketed as a specialty primer but meet the proposed limit for primers, sealers, and undercoaters).

The definition put forth by the commenter deletes any reference to degree of chalking of the substrate, and eliminates reference to the standard test method for evaluating degree of chalking. The proposed SCM definition includes reference to the degree of chalking because only those substrates that exhibit *excessive* chalking necessitate the use of a specialty primer. Reference to ASTM D-4214 is included as a standardized method to quantifying excessive chalking.

\* Additional communication from Wm. Zinsser & Co. dated 4-19-2000 indicates that review of their original comments dated 4-7-2000 revealed they inadvertently included a recommendation that specialty primers block odors. The intent of the Wm. Zinsser & Co., per their correspondence dated 4-19-2000, was to not include the characteristic of odor blocking in their final recommendation for a specialty primer definition.

- 18-4. Comment: The 350 g/l VOC limit for specialty primers (which should incorporate quick-dry primers, sealers, and undercoaters) should be maintained beyond 1/1/2003. A VOC content limit of 200 g/l for quick-dry primers, sealers, and undercoaters would eliminate solvent-based coatings in this category. The majority of the quick-dry primer, sealer, undercoater coatings are near the current Federal limit of 450 g/l.

Response: In order to attain State and Federal ozone standards we must pursue emission reductions from all sources, including architectural coatings. We may need to obtain further emission reductions from architectural coatings, including specialty primers, through the development of future SCM revisions. Accordingly, we cannot commit at this time to freeze the specialty primer limit at 350 g/l.

Please refer to the response to Comment #18-2 of the Final Program EIR for the rationale behind aligning the proposed VOC limit for quick-dry primers, sealers, and undercoaters with the proposed limit for primers, sealers, and undercoaters.

**COMMENT LETTER #19**  
**Smiland Paint (JHL)**  
**April 11, 2000**

At the March 16, 2000 workshop, the ARB staff distributed the document entitled "Preliminary Complying and Noncomplying Formulations for the Cost Impacts Analysis." The document contained "typical" (generic) coating formulations to be used solely for the purpose of estimating material costs in the ARB's cost analysis. In response to a request by the ARB staff for comments from industry, the following comments on the formulations are provided.

- 19-1. Comment: Regarding floor coatings, would expect typical problems associated with two-component coatings. Also, expect poorer performance on exterior performance than with alkyds.

Response: It is unclear what is meant by "typical problems." There are many two-component coatings, both epoxy and urethane, that claim excellent performance on exterior exposure. The increased recommended limit of 250 g/l also greatly increases the number and type of products available for use in this category.

- 19-2. Comment: Regarding industrial maintenance, would expect two-component coating to have poor gloss retention. The solvent-based noncomplying formulation would be expected to have poorer acid resistance.

Response: We concur. The "typical" complying formulation that was referred to is based on an epoxy resin. Epoxy coatings have the characteristic of "chalking" with exterior exposure (degradation of the resin on the coating surface due to sunlight), so that gloss retention is poor. That is why epoxy coatings are generally not used for exterior topcoats. However, epoxy coatings also have the characteristics of excellent adhesion and excellent chemical resistance. That is why epoxy coatings are used for primer coats (interior and exterior) and for chemical resistance in industrial floor coatings and tank linings. For topcoats, there are two-component polyurethane coatings and single-component acrylic coatings available for exterior use. These coatings have much better gloss retention characteristics.

The "typical" noncomplying formulation that was referred to is based on an alkyd resin. Compared with an epoxy coating, an alkyd coating would be expected to have better gloss retention and poorer chemical resistance, as noted. A general discussion on coating formulations and coating characteristics was included in the Draft Program EIR, Appendix D, Section A-12, pp 53-54.

Because of the broad range of industrial maintenance coating uses and the variety of resin types and formulations available, any single "typical" formulation would be expected to have some better characteristics and some poorer characteristics, compared with other types of formulations.

- 19-3. Comment: The commenter states that complying non-flat formulation would be expected to show poor open time. Also, the complying formulation for quick dry enamels probably would not comply with current quick-dry specifications.

Response: The draft formulations for the non-flat coatings and the quick-dry enamel coatings were derived from a number of actual products on the market made by different manufacturers. We assume that the actual products that are the basis of the draft formulations have acceptable open times (for non-flat coatings) and comply with the quick-dry specifications (for quick-dry enamels). Moreover, in ARB's letter of March 23, 2000, that requested comments on the draft formulations, we asked commenters to specify alternative formulations or to provide suggestions for modifying the formulations if they had concerns with the draft formulations. While the commenter expressed his concerns, he provided no specific alternative formulations or specific suggestions for modifying the formulations.

- 19-4. Comment: Quick-dry primers probably would not work on extremely chalky surfaces.

Response: While there may be quick-dry primer, sealer and undercoater coatings available for use on chalky surfaces, specialty primers are specifically designed for application to substrates with excessive chalking. Please refer to the section on specialty primers for further information on product use.

- 19-5. Comment: Two component swimming pool coatings show blistering and peeling.

Response: Two component epoxies have been used in swimming pools for years, and they are becoming more popular because they last longer than traditional chlorinated rubber coatings. In conversations with manufacturers, there was no mention of blistering and peeling.

**COMMENT LETTER #20**  
**Trinity Coatings Company**  
**April 12, 2000**

20-1. Comment: The cost of reformulated lacquers to meet the 550 grams per liter requirement will vary widely based on the type of lacquer. For the type of products most often used by the contractor, the raw material cost will increase some 65 to 80 cents per gallon. For some of the higher priced products the cost could remain the same or be a little less because of the acetone used to meet the VOC requirement. It should have been clear at our meeting that the major concern is not cost, but the ability to produce a workable product.

Response: No response is required because the commenter has not stated whether he believes the projected raw material cost increase for lacquers will significantly impact his company, the coatings industry, or consumers. With regard to whether the technology is available for manufacturers to make workable products, this issue is addressed in staff's discussion of technological feasibility presented elsewhere in this report.

20-2. Comment: I hope it was made clear at our meeting that the major concern is not cost, but the ability to produce a workable product. The following problems occur when large quantities of acetone are used in a lacquer formulation: loss of transfer efficiencies, loss of proper flow and leveling, increased danger of flash fires (because of low flash point, 0 degrees F and wide flammability range of acetone 2.59 % to 13 % of atmosphere), formula incompatibility from excess ketone solvent, blushing, and increased viscosity at application because of solvent loss during handling.

Response: We have requested data from the industry to support the following claims regarding acetone: loss of transfer efficiency, loss of proper flow and leveling, formula incompatibility from excess ketone solvent, and increased viscosity at application because of solvent loss during handling. To date we have not received any data to demonstrate these problems. Our data shows products that already comply with this limit. In addition, several major manufacturers have supported the South Coast AQMD's 550 g/l lacquer limit for the last 4 years.

However, acetone-based formulations do suffer from blushing problems under high humidity conditions. Therefore, an exemption allowing a maximum addition of 10 percent by volume of a lacquer retarder on days with relative humidity greater than 70 percent and temperatures below 65 degrees Fahrenheit, has been included in the South Coast AQMD's Rule 1113. Several coating formulators feel that addition of the retarder should mitigate any blushing problems. Although the SCM does not currently contain such a provision, we are working with interested parties to develop such a provision for the SCM when it is presented to the Board at the June 22, 2000, meeting.

Although acetone is flammable, our data show that it is not any more flammable than those products already in use. Labels and MSDSs accompanying acetone-borne products

caution the user regarding acetone's flammability and advise the user to keep the container away from heat, sparks, flames, and all other sources of ignition. The labels also normally warn the user that the vapors may cause flash fire or ignite explosively and to use only with adequate ventilation. These warnings are similar to the warnings found on a vast majority of coating products, including the containers for typical lacquer thinners. A perusal of MSDSs for lacquer thinners manufactured by numerous manufacturers indicated the presence of acetone, ranging from 7 percent to 25 percent by volume. These lacquer thinners are recommended and are used widely for reducing coatings, cleaning equipment, and cleaning paint spills. For more information, please see the Final Program EIR pages IV-94 to IV-96.

- 20-3. Comment: Included in this letter are six examples, three lower cost utility lacquers and three higher quality performance lacquers. In these groups two formulas that have VOC limits of 550 g/l in the can using the calculation method used to calculate VOC in low solids coatings. If this method were used lacquers could be formulated with performance properties close to those of more conventional lacquers.

Response: Thank you for your formulation information. Please also see response to Comment #7-2 of the Final Program EIR.

- 20-4. Comment: Nitrocellulose lacquers begin to disappear at a VOC level of around 670 to 700 g/l without use of exempt solvents. Lower VOC coatings using exempt solvents compromise proper solvent balance. Because of the problems stated I would ask that you consider a calculation method using the same procedure to calculate low solid coatings and a VOC limit of 550 g/l as packaged.

Response: Please see the response to Comment #7-2 of the Final Program EIR.

- 20-5. Comment: The proposed VOC limit for industrial maintenance coatings would virtually eliminate alkyd coatings, which are now widely used. The loss of alkyd coatings would cause some maintenance problems, because there are no replacement coatings that perform as well on poorly prepared surfaces. Water-based acrylic coatings may need an acrylic primer to work well. Plural component coatings work well for their intended purpose, but are not suitable as general purpose coatings.

Response: Proper surface preparation of the substrate is crucial to the performance of any coating, and especially so in the case of high-performance industrial maintenance coatings. Low-VOC acrylic coatings are available now for general purpose use, including single-coat "direct to metal" acrylic coatings that do not need a primer coat. We believe that resin and coating manufacturers are making efforts to develop low-VOC alkyd coatings that may, in the future, comply with the proposed VOC limit for industrial maintenance coatings. In general, we also believe that the proposal provides flexibility to resin and coating manufacturers to continue to develop different types of low-VOC coatings to meet the needs of different industrial end-users.

In the meantime, the SCM includes a “rust preventative” coatings category that is specifically intended to allow limited use of current alkyd coatings. The category is for non-industrial users (*i.e.* residential, commercial, and institutional users) with minimal skill, such as “do-it-yourselfers” and general painting contractors for houses, businesses, and institutions. Most of the current alkyd coatings in the “rust preventative” category are in the range of 300 to 400 g/l. The VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect for that category. Historically, district rules (except the current South Coast AQMD rule), have generally considered the rust preventative coatings as industrial maintenance coatings.

- 20-6. Comment: The VOC limit in the National Rule would allow the manufacture of quality industrial maintenance coatings. If one VOC limit applies to all types of industrial maintenance coatings, a more realistic limit other than 250 g/l would be necessary. An alternative is to provide a separate category for alkyd primers and enamels with a VOC limit that would allow these coatings to exist.

Response: The National Rule is intended to be minimum national requirements. Because California has the most severe ozone air quality problem in the nation, California needs to adopt lower VOC limits that are technologically and commercially feasible. Dividing the industrial maintenance category into subcategories would make the proposed SCM provisions more difficult for districts to enforce and create more confusion to the regulated community. We believe that efforts are underway to develop low-VOC alkyd coatings that may, in the future, comply with the proposed limit for industrial maintenance coatings.

The SCM includes a “rust preventative” coatings category that is specifically intended to allow limited use of current alkyd coatings. The category is for non-industrial users (*i.e.* residential, commercial, and institutional users). The VOC limit in the SCM is 400 g/l and is the same as the national limit already in effect for that category. Historically, district rules (except the current South Coast AQMD rule), have considered the rust preventative coatings as industrial maintenance coatings.

- 20-7. Comment: A VOC content of over 200 g/l is needed to produce a high quality water-based acrylic non-flat coating. Water-based alkyds may run over 300 g/l.

Response: See response to Comments #1-3 and #15-13 of the Final Program EIR. The most common district limit for non-flat coatings is currently 250 g/l, so those coatings above 300 g/l do not currently comply with California district rules.

- 20-8. Comment: The proposed SCM will result in the loss of many coating systems and could be very damaging. Coatings that have worked well will be lost. In most cases the replacement products will have no history of performance.

Response: The SCM contains proposed VOC limits for over 40 categories of coatings in order to accommodate the variety of different types of architectural coatings. Each of these proposed VOC limits is technologically and commercially feasible as explained in

detail in the Draft Program EIR. In fact, there are generally numerous examples of the products that already comply with the proposed VOC limits. It is true, of course, that higher VOC coatings will need to be reformulated, and will no longer be available as they currently exist if the districts in California choose to implement the proposed VOC limits in the SCM. Regarding the performance of the lower VOC products, ARB staff reviewed that results of testing performed by independent contractors and found that overall, the performance of the lower VOC products was comparable to the performance of the higher VOC products.

**COMMENT LETTER #21**  
**Tropical Asphalt**  
**April 11, 2000**

- 21-1. Comment: We want to express our concern at your proposal to take the VOC level of bituminous coatings to 250 grams per liter, from the current 300 standard. This change will drastically reduce the workability of our coatings, especially at cold temperatures. The lower VOC will cause an increase in viscosity and will make the products much more difficult to use. It will severely alter our formulations and threaten our existence.

In summary we believe that the standard should remain where it currently is and that instituting your proposed new reduced standard would severely damage our industry.

Response: We are proposing a limit of 300 g/l for bituminous roof coatings. Please see the response to Comment #8b-1 of the Final Program EIR.

- 21-2. Comment: An even more oppressive proposal is your intention to reduce bituminous primers to 200 grams per liter. A requirement of 200 grams per liter would be the end of solvent-based primers. Exempt solvents are not workable. Only water based or acrylic primers would be possible and they have restrictions. Water-based primers do not penetrate or wet surfaces properly. In addition, our industry ASTM standards would be destroyed. We believe the roofing community would either stop using primer, or blend their "own materials" on the job site which could potentially create a larger VOC problem.

In summary we believe that the standard should remain where it currently is and that instituting your proposed new reduced standard would severely damage our industry.

Response: Bituminous primers were previously regulated under the primers sealers and undercoaters category. We are now proposing a VOC content limit of 350 g/l. This is the most common district limit for primers, sealers, and undercoaters, and has been in existence for about ten years. There are products that meet the proposed standards as well as the ASTM standards. Lower limits are possible, however, for areas with climates similar to that in the South Coast Air Basin. For further information, please see the response to Comment #8a-1 of the Final Program EIR.

**Public Workshop Comments**  
**March 16, 2000**

1. Comment: The SCM should build consensus. If technical issues are not resolved in the SCM, industry will take up each issue with each district, and will fight to keep adequate coatings.

Response: The commenter is referred to the response to Comment #15-42 of the Final Program EIR. We have done our best to arrive at consensus on the SCM's provisions. Some decisions were reached only after manufacturers' convincing arguments and data were received between the publication of the Draft Program EIR and the Final Program EIR. While it is industry's right to go to individual districts to argue their case, that potentially results in district-to-district variability in VOC limits, which makes it confusing for manufacturers to comply. The place to bring up and resolve issues is during the development of the SCM.

2. Comment: Manufacturers don't get the same respect as a public agency like Caltrans.

Response: We disagree. As an example, the SCM does not contain an essential public services category, as in SCAQMD Rule 1113, which gives a higher industrial maintenance coatings limit to essential public service agencies to allow more time for testing and certification of coatings. The SCM gives everyone an additional year to comply with the 250 g/l limit for industrial maintenance coatings. Also, public agencies such as Caltrans, the Metropolitan Water District, Los Angeles Department of Water and Power, and the California Department of Water Resources have been quite free with testing data and have met with us several times to work out issues.

3. Comment: The burden of proof should be on regulators, not manufacturers. You shouldn't expect manufacturers to do your work.

Response: We believe that it is the job of both regulators and manufacturers to research the issues and come up with reasonable responses. Regulators perform research on categories using all available information, then publish a proposal based on their conclusions. It then becomes the responsibility of the manufacturers to respond with reasonable arguments and data showing why the conclusions are incorrect. It is only with an honest exchange of information that compromises are reached that are the best for air quality, while maintaining the interests of the industry.

4. Comment: ARB shouldn't take enforcement issues into consideration as part of rulemaking.

Response: We disagree. Enforcement is an essential part of the rulemaking process for both the ARB and the districts. A rule that is not enforceable is not a rule.

5. Comment: Lower VOC flats and nonflats need specific primer/sealer/undercoaters which are higher VOC. Need to look at primers recommended on data sheets (*e.g.*, water-based topcoat assumes a solvent--based primer is available). Need to determine if topcoat will be useful if primer is eliminated by the lower VOC limit.

Response: Please see the response to Comment #9b-10 of the Final Program EIR.

6. Comment: Acetone has serious safety concerns. Three accidents with fires and deaths have occurred, two homes and one light industrial. Have had successes in factory applications.

Response: As we explained in the response to comments on lacquers in Appendix D of the Draft Program EIR, many of the solvents used in solvent-based lacquers or other coatings are also flammable and must be handled with care. Acetone's flashpoint temperature, flammability classification and lower explosive limit are similar to other solvents (*e.g.*, MEK, toluene, xylene) found in solvent-based coatings. Flammability classifications by the Fire Department are the same for acetone, MEK, toluene, and xylene. Using operating guidelines for working with flammable coatings under well-ventilated areas, as prescribed by fire department codes, will avoid the concentration of acetone vapors required to cause an explosion. Our understanding of the incidents mentioned is that proper ventilation and other common use guidelines were not followed.

7. Comment: ARB staff should be truthful to the Board and explain that a 150 g/l VOC limit for high gloss paints will result in some sacrifices in performance. The market dictates this to a degree, but the proposed 150 g/l VOC limit amounts to the government dictating a decrement in performance. It is not right to pretend that performance won't be affected by the limit.

Response: We identified several high gloss exterior (including interior/exterior) coatings on the market with VOC levels less than 150 g/l that are classified as premium quality by their manufacturers. However, as discussed in the response to Comment #1-3 of the Final Program EIR, we have modified the proposed SCM to include a separate subcategory for high gloss coatings with a VOC limit of 250 g/l, primarily due to enforcement concerns.

8. Comment: The EIR should state sacrifices in performance and cost. ARB needs to tell the Board that there will be a loss in performance and increase in cost. Also, consumers will stop buying coating products.

Response: We disagree that there will be a loss in performance and that consumers will stop buying coating products. We have conducted technology assessments and cost analyses for the coating categories for which we are proposing to lower the VOC limits. Based on these analyses, ARB staff has found that the performance of the low VOC coatings is similar to that of higher VOC coatings. We have also determined that the potential cost increases are within the range of similar regulations adopted by the ARB

and districts. There is no evidence that consumers will stop buying coatings because of performance and cost.

9. Comment: Low VOC interior paints may cause an indoor air quality problem, especially with the elimination of mercury as an additive. Glycols act as preservatives, and if you reduce the glycol concentrations in paints, you might see increased health hazards due to microbial growth inside buildings.

Response: Microbial growth on paint after it is applied to the substrate is primarily caused by moisture in the environment and to a lesser degree by warm temperatures. Thus, mildew growth on paint is fairly common in tropical climates. There are numerous non-mercury additives in common use in the coatings industry, including the pigment zinc oxide, that suppress the growth of mildew. Moreover, glycols evaporate after the paint is applied to the substrate and would thus not be retained in the paint over the long term. Further, the SCAQMD reports that independent testing by NTS shows no difference in mildew resistance in the high VOC vs. the low-to-zero-VOC non-flat coatings tested (Naveen Berry, communication with ARB staff, January, 2000).