VII.

ENVIRONMENTAL IMPACTS

A. SUMMARY OF ENVIRONMENTAL IMPACTS

Both the California Environmental Quality Act (CEQA) and ARB policy require the ARB to evaluate the potential adverse environmental impacts of proposed projects. For the proposed architectural coatings SCM, we prepared a formal environmental impact report (EIR)(ARB, 2000). The EIR includes an analysis of environmental impacts that could potentially result from the implementation throughout California (excluding the South Coast Air Quality Management District (South Coast AQMD)) of architectural coatings rules based on the proposed SCM. The South Coast AQMD has already adopted the same or more stringent limits for most of the categories in the proposed SCM in its architectural coatings rule. Staff investigated in detail the potential for environmental impacts in six main areas: air quality; water demand and quality; public services; transportation and circulation; solid and hazardous waste; and health hazards. The analysis concluded that implementing the proposed SCM would have no significant adverse impacts in any of those areas, but would have a net air quality benefit. The findings of the EIR are summarized in more detail below.

Air Quality Impacts

The adoption and implementation of the proposed SCM on a statewide basis (excluding the South Coast AQMD) is expected to produce substantial, long-term, VOC emission reductions. VOCs are regulated because they contribute to the formation of both ozone and PM_{10}. Numerous VOCs have also been identified as toxic air contaminants and are regulated through the ARB's Toxic Air Contaminant Control Program. Implementation of the proposed VOC content limits in the SCM will result in VOC emission reductions of approximately 10 tons per day statewide (excluding the South Coast AQMD) beginning in 2003, a net air quality benefit.

Some companies in the architectural coatings industry have claimed that lowering the VOC content of coatings results in increased VOC emissions for a variety of reasons: increased coating thickness; more thinning; more topcoats; more touch-ups; more priming; more frequent recoating; more substitution with higher VOC coatings; and greater reactivity. Basically, these companies claim that new formulations result in more coating use, resulting in an overall increase in VOC emissions for a specific area covered, or over time. Industry also asserts that more reactive solvents will be used in compliant formulations than those used in existing coatings, thus contributing to increased ozone formation. All of these assertions were analyzed in depth in the EIR. The analysis reveals that overall, the SCM will achieve significant VOC emission reductions and that the claimed adverse impacts will not occur.

Another claim made by some companies is that increased application of acetone-based coatings has the potential to increase objectionable odors. However, acetone used as a replacement for other traditional solvents may have fewer odor impacts because it has a higher

odor threshold than many other solvents currently used in coatings. Given that the SCM allows sufficient time for manufacturers to develop compliant coatings and solve any odor problems associated with reformulated coatings, no significant adverse odor impacts are expected from lowering the VOC content limits.

Impacts on Water Resources

Impacts on water resources are divided into two categories – water demand and water quality. The potential for increased water demand from the manufacturing and use of compliant water-based coatings was evaluated in the EIR. The analysis concluded that water demand impacts associated with the SCM will be insignificant. The analysis revealed that while there is insufficient capacity in some hydrologic regions of California to meet current and projected water demand, the increased water demand associated with implementation of the SCM is *de minimis*. Furthermore, the various water providers throughout the State are currently exploring various strategies for increasing water supplies and maximizing the use of existing supplies. Options include storage of water from existing sources, use or storage of water unused by other states or agricultural agencies, and advance delivery of water to irrigation districts.

The SCM is also not expected to adversely impact water quality. First, use of exempt solvents (solvents not considered to be VOCs, such as acetone and Oxsol 100) is expected to result in equivalent or fewer water quality impacts than currently used solvents (such as toluene, xylenes, mineral spirits, and methyl ethyl ketone), since the exempt solvents are less toxic. Second, because currently available compliant coatings are already using water-based technology, no additional water quality impacts from future compliant water-based coatings are expected. The current manufacturing and clean-up practices associated with water-based coatings are not expected to change as a result of the SCM. Lastly, the SCM is not expected to promote the use of compliant coatings formulated with hazardous solvents that could create adverse water quality impacts.

Impacts on Public Services

The EIR examined the potential for increased maintenance at public facilities due to implementing the SCM. Infrastructure needs at public facilities are not expected to be impacted due to more frequent touchups to maintain facility appearance, equipment, or safety. Implementation of the SCM is also not expected to result in the need for new or altered public facilities.

The increased use of exempt solvents or other replacement solvents as a result of implementing the SCM will not result in any significant increased need for fire protection. Although acetone, which is flammable, is expected to be used to reformulate a limited number of coatings (e.g., lacquers), it is unlikely that implementation of the SCM will substantially increase the future use of acetone throughout California. Many conventional solvents are as flammable as acetone, so there would be no net change or possibly a reduction in the hazard consequences from replacing some conventional solvents with acetone. Furthermore, future compliant coatings

materials are expected to be less hazardous than some currently used materials, so accidental releases would be expected to pose a lower risk to responding firefighters.

Impacts on Transportation/Circulation

The potential additional vehicle trips caused by the increased disposal of compliant coatings due to the possibility of shorter shelf or pot lives or lesser freeze-thaw capabilities were evaluated in the EIR. The analysis concluded that transportation/circulation impacts associated with the SCM will be insignificant.

Impacts on Solid Waste/Hazardous Waste

The solid waste/hazardous waste analysis examined increased disposal of compliant coatings due to the possibility of shorter shelf or pot lives or lesser freeze-thaw capabilities. The analysis concluded that solid waste/hazardous waste impacts associated with the SCM will be insignificant.

Hazards

Any increase in accidental releases of future compliant coatings materials would be expected to result in a concurrent reduction in the number of accidental releases of existing coatings materials. Further, it is anticipated that resin manufacturers and coatings formulators will continue the trend of using less hazardous solvents such as Texanol, Oxsol 100, and propylene glycol in their compliant coatings. It is expected that future compliant coatings will contain less hazardous materials, or nonhazardous materials, as compared to conventional coatings, resulting in a net benefit. Therefore, hazard impacts associated with the proposed SCM will be insignificant.

The human health impacts analysis examined the potential increased long-term (carcinogenic and chronic) and short-term (acute) human health impacts associated with the use of various replacement solvents in compliant coating formulations. The analysis concluded that the general public would not be exposed to long-term health risks due to the application of compliant coatings. Furthermore, long-term exposures of professional coating applicators to more toxic replacement solvents such as diisocyanates are reduced by following the coatings manufacturers', Occupational Safety and Health Administration's (OSHA), and American Conference of Governmental Industrial Hygienists' (ACGIH) required and recommended safety procedures. Additionally, many resin manufacturers and coating formulators are replacing more toxic solvents such as monomeric diisocyanates, ethylene glycol monobutyl ether, etc., with less toxic solvents such as polymeric diisocyanates, Texanol, and propylene glycol, further reducing the long-term human health risks from the use of compliant coatings.

Staff also evaluated the use of low- or zero-VOC, two-component, industrial maintenance (IM) systems containing diisocyanate compounds. Based on actual field monitoring data and the chemistry of the two-component systems, staff has determined their use would not expose the public at large to significant acute human health impacts. Test data show that the concentrations

of diisocyanate compounds emitted during the application of these IM systems are below established health protective thresholds. For acute exposure to applicators, the use of the same safety procedures to reduce long-term health effects will also reduce short-term health effects associated with the use of replacement solvents. Although toluene diisocyanate (TDI), which is classified as a carcinogen, could be used in low-VOC, two-component IM coatings, adverse impacts are not expected because application of IM coatings occurs primarily in industrial settings where sufficient safety equipment and procedures are in place to prevent significant exposures. Also, the application of these coating systems will be for maintenance (touch-up and repair) or repaint purposes, lasting only a few days to weeks, and occurring on an intermittent basis (once every two years to every 10 years or more). Based on these intermittent exposures, increased cancer risks are negligible. Furthermore, the coatings industry is moving away from using TDI to using noncarcinogens such as hexamethylene diisocyanate (HDI) and methylene bisphenyl diisocyanate (MDI) to formulate low-VOC, two-component coatings.

Lastly, staff evaluated the potential for exposure to crystalline silica as a result of increased sandblasting of surfaces prior to application of low-VOC coatings. Implementation of the SCM is not anticipated to result in the need for increased sandblasting or other surface preparation techniques. Moreover, State law restricts outdoor abrasive blasting throughout California. Under title 17, CCR, abrasive blasting may not be performed outdoors unless specified techniques and/or materials are used. Those techniques and materials minimize the emission of fine particulate matter from blasting operations, and thus minimize public exposure to inhalable particles.

The EIR concluded that the general public as well as coating applicators will not be exposed to significant long-term or short-term human health risks as a result of implementation of the SCM.

Other Environmental Impacts

ARB staff has reaffirmed that there will be no significant impacts to the following environmental resources in California as a result of implementing the SCM:

- Land Use and Planning
- Population and Housing
- Geophysical
- Biological Resources
- Energy and Mineral Resources
- Noise
- Aesthetics
- Cultural Resources
- Recreation

CEQA requires Program EIRs to address the potential for irreversible environmental changes, growth-inducing impacts, and inconsistencies with regional plans. Consistent with CEQA, additional analysis of the proposed project confirms that it will not result in irreversible

environmental changes or the irretrievable commitment of resources, foster economic or population growth or the construction of new housing, or overall be inconsistent with regional plans.

REFERENCES

Air Resources Board (ARB). “Final Program Environmental Impact Report – Suggested Control Measure for Architectural Coatings.” May 2000 (ARB, 2000).