

AIR RESOURCES BOARD

1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



July 7, 1989

Air Pollution Control Officers:

ARB-CAPCOA Suggested Control Measure for Architectural Coatings

On May 12, 1989, the Air Resources Board (Board) approved, with amendments, a suggested control measure (SCM) for architectural coatings. The SCM was developed by the Air Resources Board-CAPCOA Technical Review Group (TRG). On May 24, the TRG approved the amended SCM, making it the "ARB-CAPCOA Suggested Control Measure for Architectural Coatings." The TRG is now recommending the SCM to districts for adoption into their regulations.

The SCM is being sent to you for your use in adopting regulations needed for attainment or maintenance of state and federal ambient air quality standards. Adoption of a regulation based on this SCM or amendment of an existing architectural coatings regulation to be consistent with the SCM is appropriate if emission reductions from the use of architectural coatings are needed in your district.

During the development of this SCM, a major concern shared by the TRG and the coatings industry was the uniformity of architectural coatings regulations in California. Non-uniformity among the districts' architectural coatings regulations has created difficulties for both the air pollution control community and the paint industry. In its resolution approving the SCM, the Air Resources Board emphasized the need for substantial uniformity among the districts' architectural coatings rules. To this end, I believe it is important in adopting this SCM as your architectural coatings rule, that you make only those changes absolutely necessary to fit the SCM into the structure of your district's regulations. It is especially important that the definitions, the standards, and the effective dates be uniform.

Attached is a copy of the "ARB-CAPCOA Suggested Control Measure for Architectural Coatings" (Attachment A). The staff report supporting the SCM, including a draft version of the suggested control measure, and public notice of the Air Resources Board's meeting to consider the SCM were mailed to you on April 24, 1989. The technical support document was mailed to you on May 1.

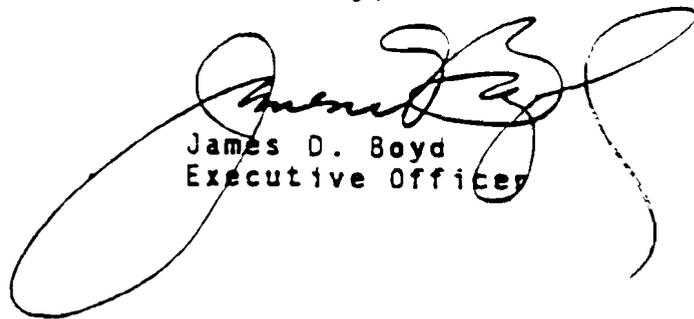
As approved, the suggested control measure is different from the draft version mailed on April 24. The differences reflect changes made by the TRG prior to the Board's meeting on May 12, and changes made by the Board at that meeting. Because of those changes, some of the information in the supporting documentation is now obsolete. Attached is new material to replace such obsolete information (Attachment B), including a table of recalculated emission reductions (Table 6). Also attached is the letter from the TRG endorsing the SCM as approved by the Board and recommending adoption by local districts (Attachment C).

The SCM contains several technology-forcing provisions. That is, it has standards which cannot be met at the present time, but which, based on anticipated technological developments, have future effective dates. We believe, with the TRG, that coating technology will advance sufficiently to meet these standards by the time they go into effect. There remains however, the slight but real possibility that technology will not develop within this time frame and you will want to relax or delay these limits. If the technology forcing provisions have been submitted to EPA and approved as part of the SIP, EPA may not allow a relaxation at the time you wish to make it.

An option available to you to prevent submittal of technology forcing provisions to EPA is to designate these provisions in your rule as applying only to state standards. As such, we will not submit them to EPA and you will retain the flexibility to adjust, if necessary, to a slower than anticipated pace of technology, while at the same time giving notice to the industry that these standards are indeed coming.

I have directed my staff to assist you as needed to ensure the timely adoption of this SCM. If you have any questions on the technical basis for the SCM or other matters related to it, please feel free to call Dean Simeroth, Chief, Criteria Pollutants Branch, at (916) 322-6020.

Sincerely,



James D. Boyd
Executive Officer

Attachments (3)

cc: Dean Simeroth

May 1989

ARB-CAPCOA Suggested Control Measure for Architectural Coatings

RULE _____ ARCHITECTURAL COATINGS

(a) APPLICABILITY

This rule is applicable to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures any architectural coating for use within the District.

(b) DEFINITIONS

(1) Appurtenances: Accessories to an architectural structure, including, but not limited to: hand railings, cabinets, bathroom and kitchen fixtures, fences, rain-gutters and down-spouts, window screens, lamp-posts, heating and air conditioning equipment, other mechanical equipment, large fixed stationary tools and concrete forms.

(2) Architectural Coatings: Coatings applied to stationary structures and their appurtenances, to mobile homes, to pavements, or to curbs.

(3) Below-Ground Wood Preservatives: Coatings formulated to protect below-ground wood from decay or insect attack and which contain a wood preservative chemical registered by the California Department of Food and Agriculture.

(4) Bituminous Coatings: Black or brownish coating materials which are soluble in carbon disulfide, which consist mainly of hydrocarbons, and which are obtained from natural deposits or as residues from the distillation of crude oils or of low grades of coal.

(5) Bond Breakers: Coatings applied between layers of concrete to prevent the freshly poured top layer of concrete from bonding to the layer over which it is poured.

(6) Clear Wood Finishes: Clear and semi-transparent coatings, including lacquers and varnishes, applied to wood substrates to provide a transparent or translucent solid film.

(7) Concrete Curing Compounds: Coatings applied to freshly poured concrete to retard the the evaporation of water.

(8) Dry Fog Coatings (Mill White Coatings): Coatings formulated only for spray application such that overspray droplets dry before subsequent contact with other surfaces.

(9) Exempt Solvents: Compounds identified as exempt under the definition of Volatile Organic Compounds, Subsection (b)(38).

(10) Fire-Retardant Coatings: Coatings which have a flame spread index of less than 25 when tested in accordance with ASTM Designation E-84-87, "Standard Test Method for Surface Burning Characteristics of Building Material," after application to Douglas fir according to the manufacturer's recommendations.

(11) Form-Release Compounds: Coatings applied to a concrete form to prevent the freshly poured concrete from bonding to the form. The form may consist of wood, metal, or some material other than concrete.

(12) Graphic Arts Coatings (Sign Paints): Coatings formulated for and hand-applied by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals, including lettering enamels, poster colors, copy blockers, and bulletin enamels.

(13) High-Temperature Industrial Maintenance Coatings: Industrial Maintenance Coatings formulated for and applied to substrates exposed continuously or intermittently to temperatures above 400 degrees Fahrenheit.

(14) Industrial Maintenance Anti-Graffiti Coatings: Two-component clear industrial maintenance coatings formulated for and applied to exterior walls and murals to resist repeated scrubbing and exposure to harsh solvents.

(15) Industrial Maintenance Coatings: High performance coatings formulated for and applied to substrates in industrial, commercial, or institutional situations that are exposed to one or more of the following extreme environmental conditions:

- (i) immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation;
- (ii) acute or chronic exposure to corrosive, caustic or acidic agents, or to chemicals, chemical fumes, chemical mixtures, or solutions;
- (iii) repeated exposure to temperatures in excess of 250 F;
- (iv) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleansers, or scouring agents; or
- (v) exterior exposure of metal structures.

Industrial Maintenance Coatings are not for residential use or for use in areas of industrial, commercial, or institutional facilities such as office space and meeting rooms.

(16) Lacquers: Clear wood finishes formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction, including clear lacquer sanding sealers.

(17) **Magnesite Cement Coatings:** Coatings formulated for and applied to magnesite cement decking to protect the magnesite cement substrate from erosion by water.

(18) **Mastic Texture Coatings:** Coatings formulated to cover holes and minor cracks and to conceal surface irregularities, and applied in a thickness of at least 10 mils (dry, single coat).

(19) **Metallic Pigmented Coatings:** Coatings containing at least 0.4 pounds of metallic pigment per gallon of coating as applied.

(20) **Multi-Colored Coatings:** Coatings which exhibit more than one color when applied and which are packaged in a single container and applied in a single coat.

(21) **Opaque Stains:** All stains that are not classified as semi-transparent stains.

(22) **Opaque Wood Preservatives:** All wood preservatives not classified as clear or semi-transparent wood preservatives or as below-ground wood preservatives.

(23) **Pre-treatment Wash Primers:** Coatings which contain a minimum of 1/2% acid by weight, applied directly to bare metal surfaces to provide necessary surface etching.

(24) **Primers:** Coatings formulated and applied to substrates to provide a firm bond between the substrate and subsequent coats.

(25) **Residential Use:** Use in areas where people reside or lodge including, but not limited to single and multiple family dwellings, condominiums, mobile homes, apartment complexes, motels, and hotels.

(25) **Roof Coatings:** Coatings formulated for application to exterior roofs and for the primary purpose of preventing penetration of the substrate by water, or reflecting heat and reflecting ultraviolet radiation. Metallic pigmented roof coatings which qualify as metallic pigmented coatings shall not be considered to be in this category, but shall be considered to be in the metallic pigmented coatings category.

(27) **Sanding Sealers:** Clear wood coatings formulated for and applied to bare wood for sanding and to seal the wood for subsequent application of varnish. To be considered a sanding sealer a coating must be clearly labelled as such.

(28) **Sealers:** Coatings formulated for and applied to a substrate to prevent subsequent coatings from being adsorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

(29) **Semi-Transparent Stains:** Coatings formulated to change the color of a surface but not conceal the surface.

(30) Semi-Transparent Wood Preservatives: Wood preservative stains formulated and used to protect exposed wood from decay or insect attack by the addition of a wood preservative chemical registered by the California Department of Food and Agriculture, which change the color of a surface but do not conceal the surface, including clear wood preservatives.

(31) Shellacs: Clear or pigmented coatings formulated solely with the resinous secretions of the lac beetle (*laccifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

(32) Solicit: To require for use or to specify, by written or oral contract.

(33) Swimming Pool Coatings: Coatings formulated and used to coat the interior of swimming pools and to resist swimming pool chemicals.

(34) Swimming Pool Repair Coatings: Chlorinated rubber based coatings used for the repair and maintenance of swimming pools over existing chlorinated rubber based coatings.

(35) Traffic Coatings: Coatings formulated for and applied to public streets, highways, and other surfaces including, but not limited to curbs, berms, driveways, and parking lots.

(36) Undercoaters: Coatings formulated and applied to substrates to provide a smooth surface for subsequent coats.

(37) Varnishes: Clear wood finishes formulated with various resins to dry by chemical reaction on exposure to air.

(38) Volatile Organic Compounds (VOC): Compounds of carbon which may be emitted to the atmosphere during the application of and/or subsequent drying or curing of coatings subject to this rule, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), chlorodifluoromethane (CFC-22), trifluoromethane (CFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), and chloropentafluoroethane (CFC-115).

(39) Waterproofing Sealers: Colorless coatings which are formulated and applied for the sole purpose of protecting porous substrates by preventing the penetration of water and which do not alter surface appearance or texture.

(c) STANDARDS

(1) Except as provided in Subsections (c)(2), (c)(3), and (c)(4), no person shall, within the District, supply, offer for sale, sell, apply, or solicit the application of any architectural coating which, at the time of sale or manufacture, contains more than 250 grams of volatile organic compounds per liter of coating (less water and exempt solvents, and excluding any colorant added to tint bases), or manufacture, blend, or repackage such a coating for use within the District.

(2) Except as provided in Subsections (c)(3) and (c)(4), no person shall, within the District, supply, offer for sale, sell, apply, or solicit the application of any architectural coating listed in the Table of Standards which contains volatile organic compounds (less water and exempt solvents, and excluding any colorant added to tint bases) in excess of the corresponding limit specified in the table, after the corresponding date specified, or manufacture, blend, or repackage such a coating for use within the district.

Table of Standards
(grams of VOC per liter)

	Effective Dates			
	9/1/84	9/1/89	9/1/92	9/1/94
Below-Ground Wood				
Preservatives	--	600	350	
Bond Breakers	--	750	350 (9/1/90)	
Clear Wood Finishes				
Lacquer	--	680		
Sanding Sealers		550	350	
Varnish	500	350		
Concrete Curing Compounds	--	350		
Dry Fog Coatings		400		
Fire-Retardant Coatings				
Clear	--	650		
Pigmented	--	350		
Form-Release Compounds	--	250		
Graphic Arts (Sign) Coatings	--	500		
Industrial Maintenance Coatings	--	420	340	
Industrial Maintenance				
Anti-Graffiti Coatings	--	600	340	
High Temperature Industrial				
Maintenance Coatings	--	650	550	420
Magnesite Cement Coatings	--	600	450	
Mastic Texture Coatings	--	300		
Metallic Pigmented Coatings	--	500		
Multi-Color Coatings	--	580	420	
Opaque Stains	400	350		
Opaque Wood Preservatives	400	350		
Pre-treatment Wash Primers	--	780	780	420
Primers Sealers & Undercoaters	400	350		
Roof Coatings	--	300		
Semi-transparent Stains	--	350		
Semi-transparent and Clear				
Wood Preservatives	--	350		
Shellac				
Clear	--	730		
Pigmented	--	550		
Swimming Pool Coatings	--	650	340 (9/1/92)	
Repair and Maintenance				
Coatings	--	650	340 (9/1/97)	
Traffic Paints				
Public streets & highways	415	250		
Other surfaces	250	250		
Black traffic coatings	--	250		
Waterproofing Sealers	--	400		

(3) If anywhere on the container of any coating listed on the Table of Standards, on any sticker or label affixed thereto, or in any sales or advertising literature, any representation is made that the coating may be used as, or is suitable for use as a coating for which a lower VOC standard is specified in the table or in Subsection (c)(1), then the lowest VOC standard shall apply. This requirement does not apply to the representation of the following coatings in the manner specified:

- (i) High-Temperature Industrial Maintenance Coatings, which may be represented as metallic pigmented coatings for use consistent with the definition of high temperature industrial maintenance coatings;
- (ii) Lacquer Sanding Sealers, which may be recommended for use as sanding sealers in conjunction with clear lacquer topcoats;
- (iii) Metallic Pigmented Coatings, which may be recommended for use as primers, sealers, undercoaters, roof coatings, or industrial maintenance coatings; and
- (iv) Shellacs.

(4) Sale of a coating manufactured prior to the effective date of the corresponding standard in the Table of Standards, and not complying with that standard, shall not constitute a violation of Subsection (c)(2) until three years after the effective date of the standard, nor shall application of such a coating.

(5) All VOC-containing materials shall be stored in closed containers when not in use. In use includes, but is not limited to: being accessed, filled, emptied, maintained or repaired.

(d) ADMINISTRATIVE REQUIREMENTS

(1) Each container of any coating subject to this rule shall display the date on which the contents were manufactured or a code indicating the date of manufacture. Each manufacturer of such coatings shall file with the Air Pollution Control Officer and the Executive Officer of the California Air Resources Board, an explanation of each code.

(2) Each container of any coating subject to this rule shall display a statement of the manufacturer's recommendation regarding thinning of the coating. This recommendation shall not apply to the thinning of architectural coatings with water. The recommendation shall specify that the coating is to be employed without thinning or diluting under normal environmental and application conditions unless any thinning recommended on the label for normal environmental and application conditions does not cause a coating to exceed its applicable standard.

(3) Each container of any coating subject to this rule and manufactured after (one year from the date of adoption) shall display the maximum VOC content of the coating, as applied, and after any thinning as recommended by the manufacturer. VOC content shall be displayed as grams of VOC per liter of coating (less water and exempt solvent, and excluding colorant added to tint bases). VOC content displayed may be calculated using product formulation data, or may be determined using the test method in Subsection (f)(1).

(4) Beginning (one year from the date of adoption), the labels of all industrial maintenance coatings shall include the statement "Not for Residential Use," or "Not for Residential Use in California," prominently displayed.

(e) EXEMPTIONS

The requirements of this rule do not apply to:

(1) Architectural coatings manufactured for use outside of the District or for shipment to other manufacturers for repackaging.

(2) Architectural coatings supplied in and applied from containers having capacities of one liter or less, which were offered in containers of such capacities prior to (the date of adoption of this rule).

(3) Architectural coatings sold in non-refillable aerosol containers having capacities of one liter or less.

(4) Emulsion-type bituminous pavement sealers.

(f) TEST METHODS

(1) Volatile Organic Compounds: Measurement of volatile organic compounds in architectural coatings shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A), or an equivalent method approved by the air pollution control officer.

Attachment 8

Revisions to Technical Support Document

VII.

DISCUSSION OF PROPOSED AMENDMENTS

A. DEFINITIONS / STANDARD PROPOSALS

9. Graphic Arts Coatings (Revised from April 21)

RECOMMENDATION

Revise the graphic arts coating definition as follows:

Graphic Arts Coatings (Sign Paints): Coatings formulated for and hand-applied by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals, including lettering enamels, poster colors, copy blockers, and bulletin enamels.

Proposed VOC Limit: 500 g/l

Current VOC Limit: Exempt (Current level about 500 g/l)

BASIS FOR RECOMMENDATION

Our first proposal was to establish the graphic arts standard at 400 g/l. However, discussions with respondents to the 1984 survey revealed errors in the reported VOC values, particularly with regards to thinning. In light of this new information, we raised the standard from the proposed 400 g/l to 500 g/l to allow artists the latitude necessary for thinning. To improve the clarity and enforceability of the rule, the definition has been expanded to include other applications of graphic arts coatings, including murals and use as copy blockers and specifically exclude those components of a sign that do not require graphic arts coatings.

ISSUES

This is a very small category with limited application and the 1984 survey may reflect usage of graphic arts coatings for non-architectural application. We intend to further investigate the use of graphic arts coatings on architectural structures and revisit this category in three years to investigate further emission reductions.

It was requested consideration be given to restructuring of the coating rules to better address the use of graphic arts coatings. Currently, graphic arts coatings are subject to several rules depending on the district in which it is being applied, what substrate they are applied to and where they are applied. As an example, in districts having metal parts and products rules, a graphic arts coatings applied to a metal sign in a shop situation would be subject to the metal parts and products rule. If the same coating is applied to a wooden sign in a shop it would fall under district wood product rules, or if a plastic sign is painted in a shop situation, a plastic parts and product rule standard would have to be met. On the other hand, if a sign is painted after installation, it is considered an architectural structure and, regardless of the substrate, the graphic arts coating would be subject to an architectural coating rule. As can be seen from this example, suppliers of these coatings, coating users, and air pollution enforcement officials must interpret a myriad of rules when dealing with graphic arts coatings. The Technical Review Group recognizes the above problems but, and has tried to establish a definition which takes into account the needs of the sign-painting industry without allowing wholesale use of high-solvent paints, for jobs which do not legitimately constitute sign painting within the meaning of the rule.

25. Industrial Maintenance Anti-Graffiti Coatings (New)

RECOMMENDATION

Include a special category for anti-graffiti coatings:

Industrial Maintenance Anti-Graffiti Coatings: Two-component clear industrial maintenance coatings formulated for and applied to exterior walls and murals to resist repeated scrubbing and exposure to harsh solvents.

BASIS FOR RECOMMENDATION

The Air Resources Board directed the inclusion of this category at its meeting on May 12, 1989, at which it considered the suggested control measure for architectural coatings.

26. Sanding Sealers (New)

RECOMMENDATION

Include a special category for sanding sealers for use under varnishes, as follows:

Sanding Sealers: Clear wood coatings formulated for and applied to bare wood for sanding and to seal the wood for subsequent application of varnish. To be considered a sanding sealer a coating must be clearly labelled as such.

BASIS FOR RECOMMENDATION

The Air Resources Board directed the inclusion of this category at its meeting on May 12, 1989, at which it considered the suggested control measure for architectural coatings.

B. ADMINISTRATIVE PROPOSALS

4. On-site Coating of Uninstalled Appurtenances

(delete)

Table 6
Estimated Statewide Emission Reductions

Coating Category	VOC Limit, g/l Proposed Rule	1984 Estimated Statewide Emissions Tons/Year	Estimated Emission Reductions Tons/Year	Future Effective VOC Limit, g/l	Additional Emission Reductions Tons/Year
Roof Coatings	300	3,331	318		
Metallic Pigmented Coatings	500	69	2		
Primers, Sealers & Undercoaters	350	2,552	400		
Enamel Undercoaters (Consolidate with P, S & U)	250	890	40		
Quick-Dry Primers, Sealers & Undercoaters (Consolidate with P, S & U)	350	485	165		
Specialty Flat (Consolidate with P, S & U)	350	60	13.8		
Industrial Maintenance (IM)	420	5,695	712	340	813
Clear Wood Finishes - Varnish	350	2,815	550		
- Lacquer	680	5,516	24		
Previously Exempt Categories					
Below Ground Wood Preservatives	350	4	0.2	350	2
Bond Breakers	600	444	0.8	350	185
Dry Fog Coatings	400	116	7.2		
Fire Retardant Coatings	650	14	<0.1		
Graphics Arts	500	92	<0.1		
Mastic Texture Coatings	300	405	16		
Multi-Colored Coatings	580	200	32	420	45
Shellac - Clear	750	104	<0.1		
- Pigmented	550	111	0.9		
Swimming Pool Coatings	650	181	8	340	74
Tile-Like Glaze (Consolidate with IM)	420	41	8	340	4.3
Quick Dry Enamels (Consolidate with Non-Flat)	250	645	280		
Wood Preservatives	350	1,441	150		
Stains	350	5,224	495		
		Total: 29,845	3,223		1,123
		(81 tons/day)	(8.8 tons/day)		(3.1 tons/day)

Notes

Assumes VOC content reduced to, but not below, new standard; does not consider clean-up solvent reductions.

P, S & U = Primers, Sealers and Undercoaters

CAPCOA

CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION

June 13, 1989

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James D. Boyd
Executive Officer
Air Resources Board
P.O. Box 2815
Sacramento, CA 95814

Dear Mr. Boyd:

Subject: Suggested Control Measure for Architectural Coatings

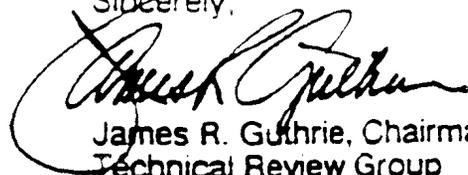
The TRG, as required by the Memorandum of Understanding between the CAPCOA and the ARB, has considered the changes the ARB made to the SCM for Architectural Coatings at the Board's May 12, 1989 public meeting.

The TRG finds the SCM as changed to be acceptable. The TRG also strongly recommends that the SCM be forwarded to appropriate air pollution control districts for their consideration. In reviewing the suggested control measure as revised by the Air Resources Board, individual TRG members expressed concern about two of the revisions. The Board changed the standards proposed for lacquers to remove the future effective standards with a request to review the limits prior to the proposed implementation dates. This will eliminate the reduction of approximately 2 tons per day of volatile organic compound emissions in 1993. The TRG plans to reevaluate this category by 1992 and, if appropriate, will ask the Board to consider establishing new lower standards for lacquers. The other concern expressed by several districts was the change made by the Board to increase the time from two years to three years to clear store shelves of noncomplying products. This change primarily reflects on the enforceability of the rule. The TRG will also review the impact of this change as part of its review to determine the opportunity for additional emission reductions.

The TRG will continue to work with ARB staff to develop information, to refine our emission inventory, and to improve our data base on volatile organic content of coatings. This information will provide the basis for the review of architectural coatings planned for 1992.

If you have any questions, feel free to contact me at (415) 771-6000, ext. 315.

Sincerely,



James R. Guthrie, Chairman
Technical Review Group

JRG:blg

cc: Stew Wilson, CAPCOA

