

ILLINOIS POLLUTION CONTROL BOARD
November 25, 1987

IN THE MATTER OF:)
)
AMENDMENTS TO 35 ILL.) R86-36
ADM. CODE 215.204, 215.211,)
AND 215.212: HEAVY OFF-HIGHWAY)
VEHICLE PRODUCTS.)

ADOPTED RULE. FINAL ORDER.

OPINION AND ORDER OF THE BOARD (By R.C. Flemal):

This matter comes before the Board upon proposals from the Illinois Environmental Protection Agency ("Agency") and General Motors Corporation, Electro-Motive Division ("EMD") to amend certain portions of 35 Ill. Adm. Code 215 pertaining to emissions of volatile organic materials ("VOM") from facilities manufacturing heavy off-highway vehicle ("HOHV") products. Today the Board adopts the amendments.

BACKGROUND

The origin of this proceeding is rooted in the requirements of the Clean Air Act ("CAA") (42 U.S.C.A. Section 7401 et. seq.). Pursuant to Section 109 of the CAA, the USEPA adopted a National Ambient Air Quality Standard ("NAAQS") for ozone. Attainment of this NAAQS was to have been demonstrated for all areas of the State by December 31, 1982, according to the provisions of Section 172(a)(1) of the CAA. However, Illinois was unable to make such a demonstration. It therefore applied for and received an extension of this deadline until December 31, 1987 (pursuant to the provisions of Section 172(a)(2) of the CAA). As a prerequisite to obtaining this extension, Illinois was required in the interim to include in its State Implementation Plan ("SIP") for areas which are nonattainment for ozone "such reduction in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology" (Section 172(b)(3) of CAA).

"Reasonably available control technology" ("RACT") is not defined in the CAA. However, USEPA has promulgated industry-specific "Control Technology Guidelines" ("CTGs") that are intended to describe RACT for a given industry and assist states in determining RACT. USEPA has published three groups of CTGs.

On December 30, 1982, In the Matter of RACT II Rules, R80-5, the Board adopted rules intended to satisfy the RACT requirements

as specified in the second group of CTGs.¹ However, on July 11, 1985, the USEPA at 50 Fed. Reg. 28224 proposed to disapprove certain of the rules adopted by the Board in R80-5.

Included in the proposed disapproval are provisions relating to coatings applied to HOHV products. Specifically, the rule adopted in R80-5 allows a maximum of 4.3 lbs VOM/gallon of coating for air-dried extreme performance top coat and 4.8 lbs VOM/gallon for air-dried final repair coating. USEPA asserts that the presumptive norm for both of these categories is 3.5 lbs/gal², and hence that the current Illinois limitations do not represent RACT.

The basis for the conclusion that the presumptive norm for the coatings in question is 3.5 lbs/gal derives from the CTG for coating of miscellaneous metal parts and products (Ex. 3). Although HOHV products are not identified by that name within the CTG, they are presumed to be included within the "other"³ category identified in Figure 4.1 of the CTG (Ex. 3 at 4-3). Figure 4.1 states in part that the presumptive norm of 3.5 lbs/gal applies to "other" parts and products which are:

Air or forced air-dried items: Parts too large or too heavy for practical size ovens and/or sensitive heat requirements. Parts to which heat sensitive materials are attached. Equipment assembled prior to top coating for specific performance or quality standards.

Ex. 3 at 4-3

¹ The second group of CTGs covered the following source categories: factory surface coating of flatwood paneling; petroleum refinery fugitive emissions; pharmaceutical manufacturing; rubber tire manufacturing; surface coating of miscellaneous metal parts and products; graphic arts (printing); dry cleaning perchloroethylene; leak prevention from gasoline tank trucks and vapor collection systems; petroleum liquid storage in external floating roof tanks.

² Unless otherwise indicated, 3.5 lbs/gal coatings are hereinafter assumed to refer to the VOM content of air-dried extreme performance top coats and air-dried final repair coats.

³ Categories listed within the miscellaneous metal parts and products CTG are can, coil, wire, auto and light duty truck, metal furniture, large appliance, and "other".

R86-36 PROCEDURAL HISTORY

The Agency filed its proposal on September 2, 1986. The original Agency proposal addresses amendments to 35 Ill. Adm. Code 215.204 plus conforming amendments to 215.211. On March 30, 1987, the Agency filed an amended proposal in which it also proposed technical amendments to Section 215.212 to bring this section into conformity with the amendments proposed to Sections 215.204 and 215.211.

Concurrently with the action, EMD on December 8, 1986, filed what it characterized as a site-specific⁴ exception to the Agency's proposed rule. This proposal was docketed as R86-51. EMD's proposal creates a new subsection within Section 215.204 with VOM limitations specific to diesel-electric locomotive manufacturing plants. On the same date EMD also filed a motion to consolidate the site-specific exception with the present proceeding. By Order of December 18, 1987, the Board determined that the EMD "site-specific" proposal can most reasonably be construed as an amendment to the Agency's original proposal. Accordingly, the Board on the same date ordered that docket R86-51 be closed and the record of that proceeding be incorporated into the instant proceeding.

On January 12, 1987, the Agency filed a motion requesting that the Board reconsider its incorporation of the EMD "site-specific" proposal. That motion was denied by Board Order of January 22, 1987. The Agency renewed the motion by filing of May 13, 1987. The Board again denied the motion in the first notice Opinion and Order, June 25, 1987.

Merit hearings were held on December 9, 1986, in Springfield, Illinois, and on February 26, 1987, in Romeoville, Illinois. Testimony was presented by the Agency and by EMD at both hearings, and by Caterpillar, Inc. ("Caterpillar") at the February 26 hearing.

On May 7, 1987, the Illinois Department of Energy and Natural Resources issued a "negative declaration" of economic impact in this proceeding. The Economic and Technical Advisory Committee concurred in that determination on June 4, 1987.

The Agency filed post-hearing comments on April 6, 1987, and on May 13, 1987 (hereinafter "Agency Comment"). A post-hearing

⁴ As proposed, the rule is properly characterized as a rule of general applicability, in that it would apply to all manufacturing facilities of the type identified. However, as a practical matter, there is only one such facility in Illinois, and to this end it would function as a site-specific rule.

comment was also filed on May 11, 1987, by EMD (hereinafter "EMD Comment").

On June 25, 1987, the Board adopted a combination of the Agency's and EMD's proposals for first notice. Publication occurred at 11 Ill. Reg. 12546, July 31, 1987. Two public comments (hereinafter "PC") were filed on the last day of the first notice comment period. These were from EMD (PC #1) and Caterpillar (PC #2).

On October 1, 1987, the Board adopted the amendments for second notice. The second notice proposal contained a slight modification of the treatment of high-temperature ("Hi-Temp") aluminum coatings in response to EMD's first-notice comment (see following), but otherwise was unaltered from the proposal as presented at first notice.

On November 19, 1987, the Joint Committee on Administrative Rules ("JCAR") issued a certification of no objection provided that the Board accept certain changes recommended by JCAR. These changes concern treatment of the EMD Hi-Temp aluminum coating exception and the specification of a date for submission of compliance plans (see following), neither of which substantively alters the rule as sent to JCAR. The Board accepts both changes.

PRIOR RULE AND ADOPTED AMENDMENTS

The principal previous regulations relating to VOM emissions from HOHV facilities are found at 35 Ill. Adm. Code Subpart F, Coating Operations, Section 215.204(k). These rules are applicable throughout the State.

The adopted amendments retain the present rule for the majority of the State, but lower the maximum allowable limitations in two coating categories, extreme performance topcoat air-dried and final repair coat air-dried from current limitations to 3.5 lbs/gal in a ten-county area. The ten counties are Cook, DuPage, Kane, Lake, Macoupin, Madison, McHenry, Monroe, St. Clair, and Will.

The original Agency proposal is as follows⁵:

Section 215.204 Emission Limitations for Manufacturing Plants

⁵ As presented here, the Agency's original proposal has been slightly modified by the Board. All of these changes conform the proposal to the proper format for regulatory amendments and language. No substantive changes are included.

No owner or operator of a coating line shall cause or allow the emission of volatile organic material to exceed the following limitations on coating materials, excluding water, delivered to the coating applicator:

kg/l (lbs/gal)

k) Heavy Off-Highway Vehicle Products

1) In Cook, DuPage, Kane, Lake, Macoupin, Madison, McHenry, Monroe, St. Clair and Will Counties

Extreme performance prime coat 0.42 (3.5)

Extreme performance top coat-air dried 0.42 (3.5)

Final repair coat-air dried 0.42 (3.5)

2) In the remaining counties

1+ Extreme performance prime coat 0.42 (3.5)

2+ Extreme performance top coat-air dried 0.52 (4.3)

3+ Final repair coat-air dried 0.58 (4.8)

Section 215.211 Compliance Dates and Geographic Areas

a) Except as otherwise stated in subsection (b), every major owner or operator of an emission source subject to Section 215.204(j), (k), and (l) shall comply with those sections in accordance with the following dates:

1) For Section 215.204(j) and (k)(2) Extreme performance prime coat and Final repair coat - air dried, by December 31, 1983.

2) For Section 215.204(k)(1), by December 31, 1987.

23) For Section 215.204(k)(2) Extreme performance top coat - air dried, in accordance with Section 215.210.

34) For Section 215.204(l), by December 31, 1985.

Section 215.212 Compliance Plan

a) The owner or operator of an emission source subject to Section 215.211(a)(1) or (23) shall submit to the Agency a compliance plan on or before August 19, 1983.

- b) The owner or operator of an emission source subject to Section 215.211(a)(34) shall submit to the Agency a compliance plan on or before October 31, 1985.
- c) The owner or operator of an emission source subject to Section 215.211(a)(2) shall submit to the Agency a compliance plan no later than August 19, 1987.
- ed) The owner or operator of an emission source subject to Section 215.211(b) shall submit to the Agency a compliance plan no later than December 31, 1986.
- de) The owner or operator of an emission source subject to Section 215.211(c) shall submit a compliance plan within 90 days after the redesignation, but in no case later than December 31, 1986.
- ef) The owner or operator of an emission source subject to Section 215.211(c) shall not be required to submit a compliance plan if redesignation occurs after December 31, 1986.
- fg) The Plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201.

The EMD proposal, as adopted by the Board at first notice, contained modifications from that originally offered by EMD. The modifications consisted of change in the suggested placement of the EMD rule within Section 215.204, change in the title of the subsection, and the inclusion of a limitation of 3.0 lbs/gal for "all other coatings". These changes were made partially on the recommendation of the Agency (Agency Comment at 9-10) and partially on Board initiative. The Board additionally requested that the appropriateness of these changes be addressed during the first notice comment period; EMD objected to the modification in the title (PC #1), for the reasons discussed below.

The EMD proposal, modified as noted above and as adopted at first notice, would have added the following subsection to Section 215.204:

- m) Existing Diesel-Electric Locomotive Coating Lines in Cook County
 - 1) Extreme performance prime coat 0.42 (3.5)
 - 2) Extreme performance top coat-air dried 0.52 (4.3)
 - 3) Final repair coat-air dried 0.58 (4.8)

4)	<u>High-temperature aluminum coating</u>	<u>0.72</u>	<u>(6.0)</u>
5)	<u>All other coatings</u>	<u>0.36</u>	<u>(3.0)</u>

The Board also noted at first notice that adoption of the EMD proposal would require a conforming modification to Section 215.211, similar to that proposed as an accompaniment to the Agency's proposal. That change was made in the first notice Order. A parallel modification to Section 215.212 was not required given the structure of the Agency's proposed modifications to Section 215.211 and 215.212.

At second notice the Board determined that the higher VOM limitation applied to the Hi-Temp aluminum coating used by EMD should apply to all EMD products, not just the EMD locomotive products (see following). To accomodate this determination, the Board at second notice eliminated Section 215.204(m)(4) as proposed at first notice and modified Section 215.204(k)(1) as follows:

		kg/l	(lbs/gal)
k)	Heavy Off-Highway Vehicle Products		
1)	<u>In Cook, DuPage, Kane, Lake, Macoupin, Madison, McHenry, Monroe, St. Clair and Will Counties</u>		
	<u>Extreme performance prime coat</u>	<u>0.42</u>	<u>(3.5)</u>
	<u>Extreme performance top coat-air dried</u>	<u>0.42</u>	<u>(3.5)</u>
	<u>Final repair coat-air dried</u>	<u>0.42</u>	<u>(3.5)</u>
	<u>High-temperature aluminum coating used at existing diesel-electric locomotive manufacturing plants</u>	<u>0.72</u>	<u>(6.0)</u>

This alteration also required a conforming alteration to the final item in Section 215.204(m) to delineate that "all other coatings" does not include the Hi-Temp aluminum coating; this alteration was also made at second notice.

The final alterations in the proposed amendments, which produces the amendments adopted today, are occasioned by the JCAR comments. First, JCAR noted that proposed Section 215.212(c), which specifies the time by which owners or operators of a emission source shall submit a compliance plan contains a date now past. JCAR recommended that Section 215.212(c) accordingly be deleted. The Agency, in a comment filed October 26, 1987, concurred in this recommendation. The Board accepts this recommendation, the net affect of which to eliminate all proposed amendments to Section 215.212 other than for two minor changes

which conform Section 215.212 with Section 215.211. This change is incorporated within the adopted rule.

The second JCAR recommendation is that the Board adopt Section 215.204(m) in the form exactly as proposed at first notice, rather than as modified at second notice. Thus, the Hi-Temp aluminum exception would remain as item 215.204(m)(4) and "all other coatings" would remain as item 215.204(m)(5). The recommendation does not alter the intent of the Board's second notice action of allowing the Hi-Temp aluminum exception to apply to all of EMD's products, because the Board's inclusion of the Hi-Temp aluminum exception in Section 215.204(k) would not be altered. The Board accepts this JCAR recommendation and incorporates it within the adopted rule.

RATIONALE FOR AMENDMENTS

Overview

As noted above, the purpose of the adopted amendments is to overcome the objections of the USEPA to certain rules promulgated by the Board in the original RACT II proceeding, R80-5. The basis of the USEPA's objection is that the existing limitations for coatings in the HOHV category do not represent RACT in that coatings meeting 3.5 lb/gal are presently available and in commercial use (R. at 43).

In order for Illinois to overcome the USEPA's objection without changing the present rule, it would be necessary to demonstrate to the USEPA that 3.5 lbs/gal coatings are not reasonably available to HOHV manufacturers. However, the Board does not believe that this demonstration can be made. Ample evidence exists that 3.5 lbs/gal coatings are available, and that at least some fraction of the HOHV industry can and does use them (see following). For this reason the Board today adopts those amendments proposed by the Agency which would limit HOHV air-dried extreme performance top coatings and final repair coatings to 3.5 lbs/gal.

This is not to say, however, that the Board believes that 3.5 lbs/gal coating are necessarily available for all HOHV products or for all facilities within the HOHV category. The miscellaneous metals parts and products CTG in fact contemplates this circumstance, noting:

It must be cautioned that the limits reported in [this report] are necessarily based on a general consideration of the capabilities and problems of the hundreds of industries which coat their products. It (sic) will not be applicable to every plant or even every industry within the many industries which coat.

For example, the level of control which is herein recommended for a particular source may be based on a type of coating which cannot meet the specifications required of another product from a similar source.

Ex. 3 at iv (emphasis added)

The CTG further notes:

Current technology does not provide low-polluting coatings which can successfully replace conventional coatings for all the specialty items coated by the many industrial categories covered by [this CTG]... There will be ... situations where low-polluting coatings may never be applicable...

Ex. 3 at 4-2

The CTG thus allows that the State may demonstrate that 3.5 lbs/gal coatings are not reasonably available for some portion of the industries, plants, or products included within the HOHV category. The Board believes that EMD has made a satisfactory demonstration that 3.5 lbs/gal coatings are not reasonably available for certain of its products (see following), and accordingly, the Board will adopt special limitations for EMD's locomotive coating line.

Finally, the Board believes that the present amendments need be applied only to those areas within which there is a demonstrated need for further reductions in VOM. Accordingly, the Board will adopt the proposal of the Agency that the amendments apply only in a ten-county area (see following).

Availability of Coatings to the HOHV Industry in General

A central issue in the instant matter is whether 3.5 lbs/gal coatings constitute RACT for the HOHV industry. A coating is RACT if it is reasonably available to a manufacturer. Reasonable availability apparently means not only that formulations which meet the 3.5 lbs/gal limitation exist, but also that the formulations (1) are commercially available, (2) are not prohibitively expensive, and (3) are capable of meeting the specifications for particular jobs and products.

In addition to the documentation provided in the CTG, the Agency has provided independent documentation that 3.5 lbs/gal coatings are RACT for the HOHV industry in general. The principal portion of this evidence is provided in a study jointly commissioned by the USEPA and the Agency and conducted by Pacific

Environmental Services (Ex 2; hereinafter "PES" Study)⁶. The PES Study consists principally of surveys of coatings suppliers and of HOHV manufacturing facilities. The conclusion of the study is that 3.5 lbs/gal coatings are both available to and are being used by segments of the Illinois HOHV industry (Id. at 6-1).

As evidence of availability, the PES Study cites a variety of 3.5 lbs/gal coatings which are commercially available from eight different suppliers (Id. at 3-2). The Study also cites 27 coating suppliers who are "investigating low-VOC coatings" (Id. at 3-3), as apparent evidence of suppliers' interest in developing additional compliant coatings.

As evidence of use, the PES Study cites six HOHV facilities that currently use 3.5 lbs/gal top coatings⁷ (Id. at 3-5). These include some Illinois facilities which would not be required to use 3.5 lbs/gal coatings because they are not located in the ten-county area within which the amendments are proposed to be applicable. However, of the five active⁸ facilities located within the ten-county area, 3.5 lbs/gal coatings are reported to be in use by two and in partial use by a third (R. at 52, 135, 140). This information is summarized in the following table, which includes the facilities and their location, compliance status relative to the 3.5 lbs/gal limit as purported to by the Agency, and types of products:

⁶ The PES study was commissioned in September 1985. A draft copy of the study was submitted to the Agency in October 1985. This draft was reviewed by and comment solicited from the USEPA, the Agency, coating suppliers, and members of the regulated community (R. at 44; Ex. 4 to 8; Ex 13b to 13h; Ex. 15, attachment 4). A final draft was then composed by PES and submitted to the Agency in January 1986 under the title "Study of Low-VOC Coatings Available for Use in the Illinois Heavy-Duty Off-Highway Vehicle Manufacturing Industry" (Ex. 2).

⁷ It is not clear from the PES Study that 3.5 lbs/gal final repair coatings are also available to and used by these facilities. Additionally, one of the six facilities was later indicated to have given up use of 3.5 lbs/gal top coatings (R. at 46; Ex. 5).

⁸ The PES Study identified a sixth facility within the ten-county area, Allis-Chalmers Engine Division, Harvey and Phoenix (Cook County). The record indicates that this facility subsequently ceased operations in May 1986 (R. at 50, 67; Ex. 11).

<u>Facility/Location</u>	<u>"Compliance" with 3.5 lbs/ gal limitation</u>	<u>Types of Products</u>
Allis-Chalmers Industrial Truck Division Matteson (Cook County)	In Compliance	Industrial forklifts
International Harvester Melrose Park (Cook Co)	In Compliance	6-cylinder diesel engines for agricul- tural and construction equipment and trucks
Dresser Industries Libertyville (Lake Co)	Partial Compliance	Heavy-duty tractors & construction equipment
Caterpillar, Inc. Joliet (Will Co)	Not in Compliance	Components to heavy- duty equipment; e.g., hydraulic valves, bulldozer blades, push arms, and scrapers
General Motors, Electro- Motive Div LaGrange (Cook County)	Not in Compliance	Electro-motive engines and locomotives

Modified⁹ from Ex. 2

Of the five facilities, testimony was presented in the instant record on behalf of only the latter two, Caterpillar and EMD. The Agency asserts that Dresser, which did not appear at hearing, currently uses some 3.5 lbs/gal coatings (R. at 48, 140), but that the Dresser facility "is not now in daily compliance with the present regulation and that this non-compliance status will certainly not improve if the facility uses

⁹ This table was originally presented at 2-4 of the PES Study (Ex. 2). A modified version was presented during the testimony of Dr. John Reed of the Agency (R. at 47) as Ex. 15, Attachment 1. The version presented here is modified further based on information present in the record. The latter modifications include change in ownership of the Dresser Industries facility, which was previously owned by International Harvester (R. at 47, 67; Ex. 4); change in "compliance status" of the Dresser Industries facility from "in compliance" to "partial compliance" (R. at 135); change in name of the Caterpillar facility from Caterpillar Tractor Company to Caterpillar, Inc. (R. at 218); and addition of "scrapers" to the list of Caterpillar products (Ex. 5 at 2).

... paints that are above the 3.5 pounds per VOC gallon limit" (R. at 49). The Agency opines that Dresser's failure to present opposition to the Agency's proposal signifies that Dresser has the ability to comply and is not presently complying simply because it is not required to comply (Agency Comment at 7-8).

On the basis of the above, the Board concludes that there are generally available, although not necessarily universally available, 3.5 lbs/gal coatings for use in the HOHV industry. For this reason, 3.5 lbs/gal coatings constitute the general RACT for HOHV facilities.

Special rules for EMD's Locomotive Coating Line

As noted above, the CTG allows that 3.5 lbs/gal RACT coatings may not exist for all miscellaneous metals parts and products. The Board believes that EMD has successfully demonstrated that this is the case for the diesel locomotives produced at its facility. EMD produces products other than diesel locomotives at its LaGrange facility, including non-locomotive engines and generators (R. at 268; EMD Comment at 5). However, the discussion in this section, unless otherwise noted, as well as the rule proposed for the EMD facility, goes specifically to just the diesel locomotive operations. Discussion of the non-locomotive engines and generators follows this section.

The EMD position that 3.5 lbs/gal coatings do not constitute RACT is based on several characteristics associated with its product, method of production, production specifications, and coating availability. Major elements include the large size and complex configuration of the locomotives, difficulty of access to painted surfaces, and complex paint patterns and large variety of colors which are required.

Locomotives are fully assembled when they are painted (R. at 194). This occurs because each locomotive must be painted according to the color and logo specifications of the individual railroad which has purchased it (R. at 190; Ex. C2 to C4, C36-40). Purchasers include both domestic and foreign railroads (R. at 189-192), each of which has special color and pattern specifications.

Because locomotives are fully assembled when they are painted, a large variety of surfaces are encountered (R. at 194), including cut-ins, doors, hinges, grilles, fans, ducts, etc. (R. at 202, 212). This, in combination with the complex paint pattern required by the purchasers, additionally requires that all locomotives be painted manually. Painters wearing protective "moon suits" (R. at 201) must stand on and move around the locomotive or special scaffolding during the painting operation (R. at 194-5); some surfaces must be sprayed from distances of six to eight feet (R. at 195).

All painting occurs in one of two confined paint booths (R. at 200). To assist drying, heated air enters through filters at the top of the paint booth and flows down along the sides of the locomotive and is exhausted through filters at the lower walls (R. at 200). The velocity of air flow is maintained at approximately 150 feet per minute, pursuant to OSHA regulations, which results in a total exhaust volume of one million cubic feet per minute (R. at 195). The breezes thus created in the paint booths present further difficulties in spray painting to specification. The complexity of painting patterns also requires that portions of the locomotive be masked before additional coatings and colors can be applied (R. at 205). This in turn requires that previously applied coatings be dry so that they are not damaged by the masking (R. at 205).

A further facet of the requirement upon EMD of painting each locomotive individually to the color specifications of the purchaser is that there be available a broad range of colors (R. at 187). EMD presently uses six different prime coatings and fourteen top coats in approximately 75 colors (R. at 194, 216). EMD contends that paint suppliers are reluctant to attempt to develop compliant formulations in this broad range of required colors given the small usage of the paints (R. at 264).

EMD has achieved compliance with existing Section 215.204(k) for all of the top and final repair coatings (R. at 184-5). EMD has also converted all of its prime coatings to 3.5 lbs/gal paints, pursuant to existing Section 215.204(k) (R. at 201). EMD contends, however, that the latter change has presented problems, including increase in film thickness from 1 to 2 mils to 2 to 4 mils on flat surfaces and to as much as 6 mils on non-flat surfaces (R. at 202). Moreover, prime coating usage has increased by a factor of 1.5, so that the expected reduction in VOM emissions has not occurred (R. at 202).

EMD concedes that 3.5 lbs/gal coatings are available, in the sense that they can be purchased (R. at 203). However, EMD contends that they are not "available" to locomotive manufacturers because the existing coatings can not be successfully applied (Id.). As evidence thereto, EMD draws on experience from "extensive tests of 3.5 pound coatings both on test panels and fully assembled locomotives" (Id.).

EMD contends that the tests have shown that there are four primary reasons why high-solids coatings can not be used on locomotives. These are (1) film builds are excessive, (2) finish appearance is unsatisfactory, (3) dry-to-tape times are unacceptably long, and (4) sprayable pot life is too short to enable painting an entire locomotive (R. at 203-13). These problems remain in spite of EMD's efforts to modify application methods to accommodate high-solids coatings (R. at 217-20).

EMD also contends that it has explored waterbourne coatings, but opines that the only available waterbourne coatings durable enough for use on a locomotive require baking rather than air-drying (R. at 216). However, a fully assembled locomotive can not be baked both because of its size and because the presence of electrical wiring and rubber parts which can not withstand extremely high temperatures (R. at 216-7).

Finally, EMD has explored achieving compliance via add-on controls (R. at 225-35). The principal problem is that the amount of reduction in VOM emissions required from EMD is small¹⁰ so that even a moderately costly control system produces a very large cost per ton of reduction. Costs for various possible add-on systems as cited by EMD range upward from \$89,000 per ton (R. at 233-4), based on its own estimates that its required reduction is 16 tons per year (R. at 233).

EMD-LaGrange is the only diesel locomotive manufacturer in Illinois, and is one of only two in the United States (R. at 187, 245). The second is the General Electric facility in Erie County, Pennsylvania (Id.). Erie County is nonattainment for ozone (EMD Comment at 2). The Pennsylvania RACT rules provide for a 4.3 lbs/gal limit on top coats for locomotives (Ex. E at 129.52), the same limitation here requested by EMD. The Pennsylvania SIP has been approved by the USEPA (R. at 246; EMD Comment at 3).

The preceding discussion has focused on the top coatings and final repair coatings available to EMD. EMD also raises the issue of a specialty coating used in small quantity. That is the Hi-Temp aluminum coating used to paint the turbo exhaust duct and adapter screen assembly used on the locomotives (R. at 199). Both components must withstand temperatures up to 1,000 degrees Fahrenheit. EMD contends that because use of the Hi-Temp aluminum coatings is small, 65 gallons or less per year, suppliers have no interest in developing a compliant coating (R. at 214). EMD further contends that it has been unable to obtain a Hi-Temp aluminum coating with a VOM content below 6.0 lbs/gal, and that this situation is not expected to change (Id.). The Agency itself accedes that EMD has "made the necessary case for the higher VOM level in its Hi-Temp aluminum coating" (Agency Comment at 9).

¹⁰ The Agency estimates the required reduction to be 5.62 tons per year (R. at 111). At the time of the hearing EMD estimated it be 16 tons per year (Ex. H), which was later corrected to 34 tons per year (EMD Comment at 5).

The Board has faced the matter of use of Hi-Temp aluminum coatings at EMD's facility before. This occurred in the proceeding PCB 86-195, in which EMD sought and the Board granted a variance for use of the 6.0 lbs/gal Hi-Temp aluminum coating until December 31, 1987, or until the Board makes a final determination in the instant rulemaking, whichever occurs first (General Motors Corporation (Electro-Motive Division) v. IEPA, PCB 86-195, February 19, 1987). The record of the PCB 86-195 proceeding has been incorporated into that of the instant matter (R. at 214).

In PCB 86-195 the Board was impressed with the arbitrariness which would be associated with requiring EMD to comply with existing regulations given the unavailability of a compliant Hi-Temp aluminum coating, and the de minimus environmental impact associated with continued use by EMD of the existing 6.0 lbs/gal Hi-Temp aluminum coating. As regards the latter, the Board notes that the total VOM emissions related to EMD's Hi-Temp aluminum coating operation in 1986 was 0.195 tons or 391 pounds, and that the anticipated 1987 emissions are 0.12 tons or 240 pounds (PCB 86-195, February 19, 1987, at 5). The Board believes that the instant record continues to support special consideration of the use of Hi-Temp aluminum coatings by EMD.

For all the reasons discussed above, the Board believes that EMD has successfully demonstrated that RACT for its locomotive operations consists of the rule as adopted herein.

RACT for EMD's Non-locomotive Engines and Generators

As the final matter relating to the EMD proposal, EMD has contended throughout this proceeding that the non-locomotive engines and generators which it produces should, along with its locomotives, be excluded from the 3.5 lbs/gal coating limitation (e.g., EMD Comment at 5-6). However, at first notice the Board proposed exception only for the locomotive coating line. This was effected by titling the section containing the EMD exception "Existing Diesel-Electric Locomotive Coating lines in Cook County" (emphasis added; see p. 6 herein), as was recommended by the Agency (Agency Comment at 9). The Board based its first notice decision on the following analysis:

EMD contends that its engines and generators, like its locomotives, have complex configurations which makes them difficult to coat evenly, that they are painted in a "job shop" mode, that their appearance is important to customers, and that they require extreme performance coatings [EMD Comment at 5-6]. However, the Board does not believe that these features alone are sufficient for a finding that 3.5 lbs/gal coatings do not constitute RACT for the engines and generators. Clearly, difficulty of

coating evenly, complexity of configuration, appearance, and the need for extreme performance coating are not attributes peculiar to EMD's engines and generators, but rather attributes held by many miscellaneous metal parts and products for which compliant coatings are demonstratively available. Similarly, EMD has made no demonstration that the job shopping of products is by itself sufficient to determine RACT. Conversely, some of the elements that the Board finds compelling for excepting the locomotive line, including the complexity of painting patterns and surfaces, dry-to-tape times (R. at 278), and the lack of available coatings, have not been demonstrated here. The Board accordingly believes that there is insufficient justification for exception other than for the locomotive line.

First Notice Opinion and Order, June 25, 1987, at 17

In its first notice comment (PC #1) EMD contests parts of this analysis. EMD opines that:

EMD's special RACT limitations thus seems to be based on the following assumptions: 1) EMD's engines and generators, as opposed to its painted locomotive body surfaces, are not different from other heavy off-highway vehicle products, and 2) compliant coatings, i.e., coatings with a VOC content of 3.5 lbs./gallon are "demonstratively available" for these other products.

PC. #1, at 2

EMD thereafter attempts to show that its non-locomotive engines and generators are different from other off-highway vehicle products, that compliant coatings are not demonstratively available for non-locomotive products, and that all EMD products -- locomotive and non-locomotive -- are painted with the same painting process (PC #1).

The Board finds much of EMD's public comment argument misplaced. The Board has not premised any of its decisions in this matter on the assumption that all HOHV products are the same. Quite to the contrary, the Board has diligently attempted to sort out the distinctions among the many different products covered in the HOHV category. It is only due to this action that the Board has been able to distinguish the particular characteristics of EMD's locomotives which cause the Board to propose special RACT rules for the locomotives. Moreover, as the above citation from the first notice Opinion and Order clearly indicates, the Board placed weight on EMD's own failure to make the same compelling argument for the unique character of the non-locomotive engines and generators that it did for its

locomotives. The Board notes that EMD still does not contend that its non-locomotive engines require the large number of different coatings, the extensive masking and complexity of painting patterns, the long dry-to-tape times, nor the need to paint within the existing paint tunnel that constitute compelling arguments for alternative RACT for the locomotive line.

The Board is aware that compelling arguments, should they exist, for excepting the non-locomotive engines and generators may not be the same arguments upon which a locomotive exception is justifiable. However, the Board notes that EMD presented very limited testimony regarding the non-locomotive engines and generators, preferring instead to concentrate its testimony on its locomotive coating problems. EMD would apparently wish the Board to presume that the non-locomotive engines and generators have the same coating limitations as do the locomotives, and thus have the demonstration made for the locomotives also suffice for the other products. This is a presumption which the Board can not make, and one which seemingly flies in the face of EMD's own admissions regarding the differences between coatings of locomotives and its other products. In fact, the Board is at a loss to understand EMD's contention that "[a]ll EMD's products -- locomotive and non-locomotive -- are painted with the same painting process" (PC #1 at 5), when EMD also admits that coating of the non-locomotive products occurs outside the paint tunnel and that there, among other differences, the dry-to-tape and short pot life problems do not exist.

The critical matter, therefore, is not whether the non-locomotive engines and generators are different from other HOHV products, but rather whether the differences are such as to support an alternative RACT. The Board does not believe that EMD has made this demonstration.

On the matter of the availability of compliant coatings, EMD contends that 3.5 lbs/gal top coatings are not available to several manufacturers of particular products, or in one cited case of availability, that the product so differs from EMD's as to be make the availability of this coating irrelevant (PC #1 at 2-5). The Board also finds this argument misplaced. EMD is reminded that 3.5 lbs/gal top coatings are the USEPA's presumptive norm for the HOHV category. It is therefore incumbent upon the Board to find, and upon EMD to show before the Board, that EMD's product can not be coated with 3.5 lbs/gal top coating if an alternative RACT is to be successfully demonstrated. To this end it is irrelevant that compliant coatings may be unavailable to some other manufacturing plants and products, or that one specifically available coating will not suffice for EMD's non-locomotive engines and generators.

As a final argument for excepting non-locomotive engines and generators, EMD points out that, the Board having found that RACT

for Hi-Temp Aluminum coatings is 6.0 lbs/gal, it would be illogical to have the exception apply only to parts destined for locomotive use and not also for EMD's other products. This point is well taken to the extent that the amendments as previously proposed are inconsistent with respect to Hi-Temp Aluminum coatings. However, the Board fails to see how this matter is in any way relevant to the issue of RACT for top coats and final repair coats. The appropriate resolution is to provide that the Hi-Temp Aluminum exception applies to all EMD products, rather than that the top coat and final repair coat exceptions be extended to all EMD products. This is accomplished by specifying the Hi-Temp aluminum limitation in both Section 215.204(m)(4) and Section 215.204(k)(1), as noted above.

RACT for Caterpillar - Joliet

Caterpillar also contends that 3.5 lbs/gal coatings do not constitute RACT for its Joliet facility¹¹. The Agency contends that it has explored with Caterpillar the grounds upon which the Agency might support Caterpillar's contention (R. at 51; Ex. 12d, 12e, 12i, 12j, 17), but that it has received only "very limited information" from Caterpillar (R. at 51). On this basis the Agency believes that Caterpillar has not made a demonstration sufficient to meet the test of alternative RACT (R. at 137, 155-6; Ex. 17).

The Caterpillar situation differs in one critical regard from that faced by EMD, in that Caterpillar currently uses only one coating which does not meet the 3.5 lb/gal limitation (R. at 357). Thus, Caterpillar would seemingly need to identify only one compliant coating to meet the requirements of the adopted amendments.

The Agency's principal observation relative to Caterpillar is an alleged admission by Caterpillar that it has in fact been supplied with a 3.5 lbs/gal compliant coating that meets Caterpillar's specifications (R. at 317) and that various other compliant coatings are undergoing tests (R. at 317). The Agency therefore contends that the question of whether 3.5 lbs/gal coatings constitute RACT for Caterpillar is moot (Agency Comment at 6). The Agency further contends that Caterpillar's testimony regarding the cost of add-on control equipment is irrelevant "in light of the fact that Caterpillar has located a compliant coating, obviating the need for add-on control" (Id. at 7). Caterpillar, conversely, contends that 3.5 lbs/gal coatings are not actually available to it (R. at 340-50), given that it requires up to two years to test and to obtain approval for use of a paint after it has been supplied (R. at 313).

¹¹ Unless otherwise indicated, discussion of the Caterpillar facility refers to the Caterpillar plant at Joliet.

The Board believes that the principal shortcoming in Caterpillar's argument is that it has not countered the observation that other HOHV manufacturers which produce products similar to those of Caterpillar are currently using compliant coatings (see PES Study; R. at 391-3). Therefore, the Board does not believe that Caterpillar has successfully demonstrated that compliant RACT coatings for its facility and products are other than 3.5 lbs/gal coatings. In the context, the Board notes that Caterpillar argues that it made such a demonstration as part of the record developed in the R80-5 proceeding. However, such earlier demonstration is irrelevant to the matter at hand, since it is the current availability of 3.5 lbs/gal coatings which is at issue.

Geographic Applicability

The Agency proposal has the amended VOM limitations apply within a specified ten counties. These consist of one county (Macoupin) which is included solely because of its nonattainment status, and nine counties which are included because they are nonattainment on their own account and/or are part of major urbanized areas which are nonattainment. The latter includes the six counties which comprise the Chicago urban area (Cook, DuPage, Kane, Lake, McHenry, and Will) and the three counties which comprise the Illinois portion of the St. Louis urban area (Madison, Monroe, and St. Clair).

The Board believes that the Agency proposal represents an appropriate scope of geographic applicability. The Board so concludes fully mindful of the questions that have been raised regarding why Will County¹², an attainment county, should be included within the scope of the amendments (R. at 294-301, 304-6, 335-7).

It is required, at a minimum, that RACT rules be applied within counties which are nonattainment for ozone. However, there are compelling reasons that the rules also apply in some counties in addition to those which are classified as nonattainment. The Board believes that the most important of these is that emissions in certain attainment counties can impact on ozone air quality in adjacent nonattainment counties due to atmospheric transport of VOM into nonattainment areas. The significance of the transport phenomenon has been extensively developed in the instant record (R. at 16, 29-40, 45; Agency Comment, April 6, 1987), as well as in prior Board RACT

¹² McHenry County is a second attainment county in which the currently proposed rules would apply. There are no affected facilities within McHenry County. The Caterpillar facility is located in Will County.

proceedings. The Board does not see that anything new has been presented in the instant record which would justify a change in the Board's prior determinations regarding the significance of transport.

This notwithstanding, the Agency advances several additional reasons for including Will County within the list of counties to which the amendments apply. These are that Will County is a part of the Chicago urbanized area (R. at 13-15; 21-22; 45); that emissions reductions from Will County have already been included in previous SIP analyses and are necessary to demonstrate ozone attainment (R. at 16; 23-26; 45); that controls as proposed are necessary to maintain Will County's attainment status (R. at 19); and that exclusion of Will County would place an even greater burden on the adjacent nonattainment counties to reduce VOM emissions in order to reach attainment of the ozone NAASQ (Agency Comment, April 6, at 2).

ENVIRONMENTAL BENEFIT

The first-order environmental benefit which follows from adoption of these amendments is a reduction in atmospheric loading of VOM. However, it is difficult to exactly quantify the amount of reduction which is to be expected. This occurs for several reasons, including uncertainty as to how many gallons of coating will be required by a given facility in its future production, the degree to which coating use will be affected by a change in coating availability, and the possibility that a given facility will achieve compliance by a method other than use of low-VOM coatings.

To the best judgement of the Agency emission reductions expected from Caterpillar amount to approximately 29 tons per year (R. at 111); Caterpillar estimates this reduction to be 17.9 tons per year (R. at 308; PC #2). Reductions to be expected from Dresser are significantly less certain. The Agency estimates that for various days in September 1986 Dresser's emissions exceeded that allowable under the proposed rule at rates from 33 to 98 tons per year (Ex. 15, Attachment 6). However, these emissions apparently include some exceedances of the present rule (R. at 49), so that their elimination can not be fully attributed to adoption of the proposed rule.

Promulgation of the amendments also provides a safeguard against those facilities which currently use 3.5 lbs/gal coatings from reverting to higher-VOM coatings. However, there is nothing in the record which allows the Board to estimate what atmospheric loadings would thus be prevented.

ORDER

The Clerk of the Pollution Control Board is directed to submit the following adopted rule to the Secretary of State for final notice:

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER 1: POLLUTION CONTROL BOARD
SUBCHAPTER c: EMISSION STANDARDS AND LIMITATIONS
FOR STATIONARY SOURCES

PART 215
ORGANIC MATERIAL EMISSION STANDARDS AND LIMITATIONS

SUBPART F: COATING OPERATIONS

Section 215.204 Emission Limitations for Manufacturing Plants

No owner or operator of a coating line shall cause or allow the emission of volatile organic material to exceed the following limitations on coating materials, excluding water, delivered to the coating applicator:

		kg/l	(lbs/gal)
k)	Heavy Off-Highway Vehicle Products		
1)	<u>In Cook, DuPage, Kane, Lake, Macoupin, Madison, McHenry, Monroe, St. Clair and Will Counties</u>		
	<u>Extreme performance prime coat</u>	<u>0.42</u>	<u>(3.5)</u>
	<u>Extreme performance top coat-air dried</u>	<u>0.42</u>	<u>(3.5)</u>
	<u>Final repair coat-air dried</u>	<u>0.42</u>	<u>(3.5)</u>
	<u>High-temperature aluminum coating used at existing diesel-electric locomotive manufacturing plants</u>	<u>0.72</u>	<u>(6.0)</u>
2)	<u>In the remaining counties</u>		
1)	Extreme performance prime coat	0.42	(3.5)
2)	Extreme performance top coat-air dried	0.52	(4.3)
3)	Final repair coat-air dried	0.58	(4.8)

m) Existing Diesel-Electric Locomotive Coating Lines in Cook County

<u>1)</u>	<u>Extreme performance prime coat</u>	<u>0.42</u>	<u>(3.5)</u>
<u>2)</u>	<u>Extreme performance top coat-air dried</u>	<u>0.52</u>	<u>(4.3)</u>
<u>3)</u>	<u>Final repair coat-air dried</u>	<u>0.58</u>	<u>(4.8)</u>
<u>4)</u>	<u>High-temperature aluminum coating</u>	<u>0.72</u>	<u>(6.0)</u>
<u>5)</u>	<u>All other coatings</u>	<u>0.36</u>	<u>(3.0)</u>

Section 215.211 Compliance Dates and Geographic Areas

- a) Except as otherwise stated in subsection (b), every major owner or operator of an emission source subject to Section 215.204(j), (k), ~~and (l)~~, and (m) shall comply with those sections in accordance with the following dates:

- 1) For Section 215.204(j) and (k) (2) Extreme performance prime coat and Final repair coat - air dried, by December 31, 1983.
- 2) For Section 215.204(k)(1) and (m), by December 31, 1987.
- 23) For Section 215.204(k)(2) Extreme performance top coat - air dried, in accordance with Section 215.210.
- 34) For Section 215.204(l), by December 31, 1985.

Section 215.212 Compliance Plan

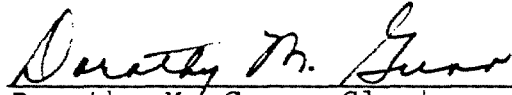
- a) The owner or operator of an emission source subject to Section 215.211(a)(1) or (23) shall submit to the Agency a compliance plan on or before August 19, 1983.
- b) The owner or operator of an emission source subject to Section 215.211(a)(34) shall submit to the Agency a compliance plan on or before October 31, 1985.
- c) The owner or operator of an emission source subject to Section 215.211(b) shall submit to the Agency a compliance plan no later than December 31, 1986.
- d) The owner or operator of an emission source subject to Section 215.211(c) shall submit a compliance plan within 90 days after the redesignation, but in no case later than December 31, 1986.

- e) The owner or operator of an emission source subject to Section 215.211(c) shall not be required to submit a compliance plan if redesignation occurs after December 31, 1986.
- f) The Plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201.

IT IS SO ORDERED.

Board Member Jacob D. Dumelle dissented.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 25th day of November, 1987, by a vote of 5-1.


Dorothy M. Gunn, Clerk
Illinois Pollution Control Board