12-1-1977

Public Health Endangerment and Standards of Proof: *Ethyl Corp. v. EPA*

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I. INTRODUCTION

The Clean Air Act authorizes the Environmental Protection Agency (EPA) to regulate automobile air pollutants in two ways. Section 202(a) allows the EPA to regulate the ultimate exhaust products of automobile engines regardless of the fuel used. Section 211(c)(1)(A), on the other hand, permits regulation of the types of fuel and fuel additives available for autos.

In January, 1971, the EPA announced its intention to consider regulation of the lead content of retail gasoline under § 211. In December, 1973, the EPA promulgated regulations which required a reduction of the average lead concentration in gasoline from 1.7 to .5 grams/gallon. Several manufacturers of lead additives challenged the regulations in the United States Court of Appeals for the District of Columbia, and in January, 1975, a three-judge panel set

* Staff Member, ENVIRONMENTAL AFFAIRS.

2 Id. § 1857f-1(a).
3 Section 211(c)(1) provides:

The Administrator may . . . by regulation, control or prohibit the manufacture, introduction into commerce, offering for sale, or sale of any fuel or fuel additive for use in a motor vehicle or motor vehicle engine (A) if any emission products of such fuel or fuel additive will endanger the public health or welfare, or (B) if emission products of such fuel or fuel additive will impair to a significant degree the performance of any emission control device or system which is in general use, or which the Administrator finds has been developed to a point where in a reasonable time it would be in general use were such regulation to be promulgated.


The EPA moved for a rehearing by the full court. The motion was granted and on March 19, 1976, a sharply split court reversed the three-judge panel and upheld the EPA lead regulations in *Ethyl Corp. v. EPA.*

The decision in *Ethyl* is significant for two reasons. First, it is the initial interpretation of § 211(c)(1)(A). Second, it announces the standard of review the court will apply to EPA scientific fact decisions. The case will control future judicial review of EPA fuel and fuel additive regulations by the Court of Appeals for the District of Columbia Circuit, the only court with jurisdiction to review such regulations.

Although *Ethyl* poses a number of legal questions, this article will discuss and analyze its three major issues: the statutory requirement for regulation under § 211(c)(1)(A); the standard of judicial review to be applied to the EPA regulations; and the court’s application of the standard to the EPA decision to regulate lead additives in automobile fuels.

II. THE STATUTORY DECISION TO REGULATE

The *Ethyl* court’s first determination was whether the EPA had correctly interpreted the statutory requirement for regulation of fuel additives. Section 211(c)(1)(A) provides that the EPA may regulate or prohibit a fuel or fuel additive only if “any emission products of such fuel or fuel additive will endanger the public health or welfare.” The major controversy disputes the standard for the type and amount of evidence required to meet the “will endanger” test.

The EPA interpreted “will endanger” as requiring evidence sufficient to establish that leaded gas emissions present a “significant risk of harm” to the public health. The EPA found that auto lead emissions did constitute a “significant risk of harm” by assessing

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* 541 F.2d 1 (D.C. Cir. 1976). The court upheld the regulations in a 5 to 4 decision.
* Regulations promulgated under § 211(c)(1)(A), 42 U.S.C. § 1857f-6(c)(1)(A) (1970), are reviewable only by the Court of Appeals for the District of Columbia Circuit. Id. § 1857h-5(b)(1).
* The opinion contained a discussion of several other issues: (1) the sufficiency of the number of comment periods, 541 F.2d at 48; (2) the practical availability for comment of some of the evidence relied upon by the EPA, id. at 49 n.102; and (3) the basis of the rule-making decision upon legislative type policy judgments as opposed to the facts alone.
* 541 F.2d at 12.
the probability of harm to the public from lead and the severity of that harm. Both factors were determined in light of the cumulative health impact of auto lead emissions combined with other lead sources. According to this sliding scale test, the public health may be endangered by a low probability of a very severe harm, or a high probability of a less severe harm.

Manufacturers of lead additives disagreed with the EPA's definition of "will endanger" and, relying in part on their view of Congress' intent, argued that a high quantum of proof of actual harm, as opposed to a significant risk of harm, was required by the statute. In addition, the manufacturers claimed that the EPA erred by considering the cumulative health impact of auto lead emissions and other lead sources, asserting that EPA regulation is appropriate only if auto lead emissions endanger in and of themselves.

The majority accepted the EPA's interpretation of the amount of evidence required to meet the "will endanger" standard and then held, based upon an analysis of legislative intent, that this standard "does not require proof of actual harm before regulation is appropriate." The majority explained that a requirement of proof of actual harm would reduce the preventive effectiveness of regulations, a result inconsistent with the precautionary purpose of the statute.

The court also upheld the EPA's reliance on the cumulative health impact of auto lead emissions. The court reasoned that the effect of one lead source is "meaningful only in cumulative terms" and that "determining the effect of lead automobile emissions, by themselves, on human health is of no more practical value than finding the incremental effect on health of the fifteenth sleeping pill"
swallowed by a would-be suicide." The majority rejected the manufacturers' contention that Congress intended, in § 211(c)(1)(A), a stricter standard than those established by other sections of the Clean Air Act. Rather, the court found the "will endanger" standard mild in comparison to the threshold standards of other public health statutes.

Although the dissent agreed with the cumulative impact method of assessing endangerment, it disagreed with the type and amount of proof required to meet the statutory "will endanger" test. Judge Wilkey, in dissent, defined the amount of evidence required as enough to demonstrate a "significant health hazard to a substantial portion of the general population." This standard contrasts somewhat with the EPA's "significant risk of harm" standard. The dissent also criticized the majority's failure to require proof of actual harm, stating that the only way to prove potential harm is through past actual harm or occurrences, either by experience or by experiment. Judge Wilkey asserted, "for the court's opinion to hold that the Administrator can dispense with proof of actual harm, i.e., what has occurred in the past, and can nevertheless somehow determine potential harm, is to grant the plainest license for wildest speculation." After setting forth "will endanger" proof requirements, Judge Wilkey never applied the requirements to the EPA's lead regulation.

Both the majority and dissenting opinions in Ethyl discuss the type of evidence required to meet the statutory "will endanger" test in terms of "actual harm." Actual harm, however, may be inter-

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22 Id. at 31.
28 541 F.2d at 94.
29 Id.
30 See text at note 41, infra.
31 541 F.2d at 95.
32 Id.
interpreted two ways. First, and more narrowly, actual harm may mean previous harm from the substance in question, of the same magnitude, to the same life forms, and from the same source of that substance. On the other hand, and more broadly, actual harm may imply previous harm from the substance in question, either experimentally or naturally observed, in any magnitude, to any comparable life form, from any source. The narrow interpretation requires that the past harm be identical in every way with that anticipated, while the broad interpretation simply requires that the harmful substances be identical. The persuasiveness of the majority's treatment of the evidentiary requirement turns upon the interpretation of actual harm.

The cases which have defined "will endanger" set forth what is not required, as opposed to what is required, to prove public health endangerment. Cases interpreting statutory standards similar to § 211(c)(1)(A)30 do not require a high quantum of proof of a causal link between the harm feared and the substance emitted.31 Nor do these cases require proof that the harm anticipated has already occurred.32 Reserve Mining Co. v. EPA33 and Environmental Defense Fund, Inc. v. EPA,34 held that past actual harm from the substance to be restricted justified regulation. However, these cases also held that past actual harm need not be of the same magnitude, to the same life forms, or from the same source of the substance as that anticipated by the regulations. In Reserve Mining, for example, the court held that evidence of past harm to workers inhaling airborne asbestos was sufficient to show endangerment to the general public from ingestion of asbestos in the water supply.35

If actual harm is read in the narrow sense, the Ethyl majority's statement that actual harm is not required to meet the "will endanger" test36 is consistent with the case law.37 Consequently, the dis-

31 Reserve Mining Co. v. EPA, 514 F.2d 492, 529 (8th Cir. 1975). Note that this opinion is the major decision in a series of cases by the same title. The controversy over where and how to dump the asbestos, etc. continues; Environmental Defense Fund, Inc. v. EPA, 510 F.2d 1292, 1297 (D.C. Cir. 1975).
32 514 F.2d at 519; 510 F.2d at 1299.
33 514 F.2d 492 (8th Cir. 1975).
34 510 F.2d 1292 (D. C. Cir. 1975).
35 514 F.2d at 516.
36 Ethyl Corp. v. EPA, 541 F.2d 1, 17 (D.C. Cir. 1976).
37 See notes 29, 31 supra.
sent, which would require proof of past actual harm for regulation, stands in direct opposition to precedent if actual harm is interpreted narrowly. If, however, actual harm is interpreted in the broad sense, requiring only proof of some past harm from any source of the substance, the Ethyl majority opinion does not conform to prior case law. Based on the broad definition, the dissent, in requiring proof of past actual harm, would be consistent with the case law.

The question remains as to which interpretation of actual harm, broad or narrow, was intended by the Ethyl court; arguments support either interpretation. On one hand, the dissent, while adopting a threshold requirement of proof of actual harm, never holds that its requirement is unsatisfied in the case of lead.\(^{38}\) The dissent simply criticizes the majority's statement that proof of actual harm is not required in the § 211(c)(1)(A) “will endanger” conclusion. Past actual harm exists in the broad\(^{39}\) but not the narrow sense in the case of airborne lead. Since the dissent’s requirement of proof of actual harm was fulfilled, the dissent probably interpreted actual harm and its use by the majority in the broad sense. On the other hand, the majority arguably would not reject an actual harm requirement unless it was necessary to do so in deciding the case. This reasoning suggests that the majority interpreted actual harm narrowly. Thus, although the dissent’s broad interpretation of the majority’s use of actual harm is debatable, it clearly indicates that the majority’s rejection of an actual harm requirement is subject to at least two possibly confusing interpretations.

The majority’s interpretation of “will endanger” does not provide an affirmative evidentiary requirement and leaves the interpretation of actual harm open to question. The broad definition would be a more satisfactory threshold standard for the type of evidence required to meet the “will endanger” test. First, it is an affirmative standard which indicates what type of evidence is required to show public health endangerment, whereas the majority’s vague rejection of the actual harm requirement provides no specific guidance. Sec-

\(^{38}\) In dissent, Judge Wilkey criticized the affirmance of the regulation on other grounds, while impliedly concurring that lead met the threshold “will endanger” standard. 541 F.2d at 110.

\(^{39}\) Proof of actual harm from lead in the broad sense (harm of any magnitude, from any source of the substance, etc.) exists in Ethyl inasmuch as children have died in the past from ingestion of leaded paint. Id. at 8. No proof of actual harm exists in the narrow sense, however, since there is no evidence that any human has suffered harm attributable to inhalation of airborne lead.
ond, the proposed standard conforms to existing case law because proof sufficient to meet the standard is present in each of the cases which consider the issue. The majority stated that no proof of actual harm is required without stating whether actual harm was used in the narrow sense or the broad sense. Thus the EPA might interpret the majority standard to allow regulation based on suspicion, with no attempt to show harm experimentally or to investigate the past history of a substance. The proposed standard would state clearly that proof of harm in the broad sense is required and would only allow future regulations based upon harm substantiated by experiment or past occurrence.

After determining the type of evidence sufficient to meet the "will endanger" test, the amount of evidence required by the statute must be considered. The Ethyl majority and the EPA require a "significant risk of harm" to meet the statutory standard, while Judge Wilkey's dissent would require a "significant health hazard to a substantial portion of the general population." The majority's sliding scale, either a high probability of a less severe harm or a lesser probability of a more severe harm, is far more flexible than the dissent's requirement. The Wilkey dissent, in requiring a "significant health hazard," sets a minimum severity below which regulation would be precluded. The sliding scale test allows regulation of a very severe harm that is extremely likely to occur, even though the number of people affected will be small. The dissent's standard, however, would require that a "substantial" number of people be affected, and again would not allow regulation where many people are very likely to be mildly harmed. Thus, the EPA's sliding scale would allow regulation in some desirable situations when the dissent's standard would not.

See notes 29-34 and accompanying text, supra.

541 F.2d at 12. In Reserve Mining Co. the court adopted the same sliding scale, relying on Judge Wright's dissent in the panel decision in Ethyl. 514 F.2d at 520.


541 F.2d at 18. Actually three major factors are to be considered on this scale: first, the number of individuals that will be affected by the anticipated harm; second, the likelihood that the harm will occur; and third, the severity of the harm to each individual. A fourth factor of "ability to monitor symptoms" may also be desirable. In some cases, the harm anticipated may not be sudden, drastic, or irreversible and thus accurate symptomatic monitoring may be necessary. In such cases, progressive reduction of the dangerous substance may safely be attempted while measuring the results on a test group, although such a procedure may not be feasible in the case of lead absorption.
In determining if the correct type and amount of evidence exists to fulfill the "will endanger" standard, it must be decided whether to consider the health impact of airborne lead alone, or to consider the cumulative health impact of airborne lead combined with other lead sources. The majority, the dissent, and the EPA adoption of the cumulative impact method of assessing endangerment clearly conforms with the methods used by the EPA in promulgating past regulations. Many harmful substances emanate from both natural and man-made sources. The natural sources are generally uncontrollable. The EPA focused on the total level of human exposure, and established cumulative ambient air standards from undifferentiated sources. The EPA has, for example, set an ambient carbon monoxide standard, although scientists estimate that man-made sources produce only 10% of the carbon monoxide found in the air. Man-made carbon monoxide may present a hazard only when added to uncontrollable natural carbon monoxide. Thus, the total from both sources may exceed the ambient health hazard, justifying control of the man-made source. The largest source of lead exposure is the diet, a natural and largely uncontrollable source. Lead emissions from automobiles may not endanger in and of themselves, but, as in the case of carbon monoxide, regulation is necessary if, combined with uncontrollable sources, the emissions "will endanger the public health."

III. Standard of Review

Having determined that the EPA correctly interpreted § 211(c) (1)(A) and properly promulgated the lead regulations thereunder within its statutory authority, the court reviewed the factual merits of the regulation. Section 706(2)(A) of the Administrative Procedure Act states that a reviewing court shall overturn agency regulations if they are found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." The major-

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Another example is EPA regulation of particulate matter, 40 C.F.R. § 50.6 (1976). Scientists estimate that approximately 10% of the total mass of particulate emitted are of man-made, controllable origin. J. Seinfeld, Air Pollution Physical and Chemical Fundamentals 83 (1975).
541 F.2d at 8.
ity and dissenting opinions in Ethyl agree as to the standard of review, while Judge Bazelon, in a concurring opinion, proposes a somewhat different standard.

The Ethyl majority and dissent rely upon recent Supreme Court decisions for two general propositions: first, a reviewing court, under the § 706(2)(A) standard, must delve into the evidence and educate itself thoroughly in order to determine the reasonableness of an agency decision; second, the rational basis must be articulated by the agency, not by the court. The majority and the dissent also agree that technical cases require a reviewing court to examine the record thoroughly in order to understand fully the agency decision. The majority and the dissent both cite the "consideration of all relevant factors" and the "clear error of judgment" tests, expressed by the Supreme Court in Citizens to Preserve Overton Park, Inc. v. Volpe. These tests were used by the Supreme Court in reviewing an agency decision under the § 706(2)(A) standard.

Judge Bazelon, in a concurring opinion, disagrees with both the majority and the dissent. He suggests that in highly technical cases such as Ethyl, reviewing courts must exercise restraint in reviewing evidentiary support for decisions.

I doubt judges contribute much to improving the quality of the difficult decisions which must be made in highly technical areas when they take it upon themselves to decide as did the panel in this case that in assessing the scientific and medical data the Administrator made clear errors of judgment. The process of making a de novo evaluation of the scientific evidence inevitably invites judges of opposing views to make plausible-sounding, but simplistic, judgments of the relative weight to be afforded various pieces of technical data.

The Supreme Court interpreted and discussed the standard of review set out in § 706(2)(A) in two recent opinions. In Overton Park, the Secretary of Transportation appropriated funds for high-
way construction through a public park under a statute which required a prior consideration of alternate routes. The Court reversed, holding that a mere statement by the Secretary that he had considered all relevant factors was an inadequate basis for review under § 706(2)(A). In *Bowman Transportation, Inc. v. Arkansas-Best Freight System, Inc.*, the Interstate Commerce Commission granted licenses to three motor carriers found to be fit and able to serve the public conveniently. The Court affirmed, ruling that the Commission had supplied a reasoned basis for its choices among the conflicting evidence.

*Overton Park* and *Bowman Transportation* establish general criteria to apply in reviewing agency decisions under the § 706(2)(A) standard. First, the court must examine the agency’s record carefully to determine if the agency considered all relevant factors and supplied a reasoned, rational basis for its decision. Second, the agency record must supply more than a simple statement that all relevant factors were considered; an explanation of which factors were relied upon and why must be set forth. Third, when conflicting evidence exists and the agency rejects a reasonable argument, the agency, not the reviewing court, must supply a rational, direct response in explanation of its choice. If these criteria are satisfied, there is a presumption in favor of regularity of the agency decision, and the reviewing court should affirm.

The Ethyl majority and dissent accurately adopted and articulated the definition of the standard of review expressed by the Supreme Court. The majority discussed the significance of the “clear error of judgment” language in *Overton Park*, finding that “clear error of judgment” should not be confused with the “clearly erroneous” standard used to review factual findings of a trial court.
sitting without a jury.88 The majority says that the latter standard permits an appellate court to substitute its judgment for that of the trial court, the type of intrusive review which Overton Park prohibits.89 The majority concludes that the Supreme Court's use of "clear error of judgment" is "best read as no more than an affirmation of the traditional [more passive] standard of review."70 The dissent agrees with the majority on this point.71

Although one court appears to read Overton Park for approval of the clearly erroneous standard of review,72 other courts, without discussing the issue, appear to agree with the majority's interpretation, and use "clear error of judgment" interchangeably with "arbitrary and capricious."73 The majority interpretation is sound. The Supreme Court in Overton Park expressly prohibited the reviewing court from substituting its judgment for that of the agency.74 The Supreme Court reaffirmed this conclusion by treating the "clear error of judgment" language as identical to the "arbitrary and capricious" test in a later case.75

Judge Bazelon stands virtually alone in contending that courts should exercise extraordinary restraint in reviewing highly technical agency decisions.76 Overton Park requires a "searching and careful" inquiry into the facts77 and the Supreme Court has articulated no exception for technical cases.78

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88 Ethyl Corp. v. EPA, 541 F.2d 1, 34 n.74. See Fed. R. Civ. P. 52(a).
89 401 U.S. at 416.
70 541 F.2d at 34-35 n.74.
71 The dissent adopts the "clear error of judgment" language, id. at 97, and supports its application of the standard, id. at 99, with reference to South Terminal Corp. v. EPA, 504 F.2d 646 (1st Cir. 1974), in which the First Circuit used "clear error of judgment" interchangeably with "arbitrary and capricious." Id. at 655. As will be seen in Section IV, infra, the dissent never substitutes its judgment for that of the agency but attacks the rationality and basis for the EPA conclusions.
73 American Meat Inst. v. EPA, 526 F.2d 442, 453, 456, 462 (7th Cir. 1975); Duquesne Light Co. v. EPA, 522 F.2d 1186, 1193, 1196 (3d Cir. 1975); cf. American Petroleum Inst. v. EPA, 540 F.2d 1023, 1028 (10th Cir. 1976).
74 401 U.S. at 416.
75 In Bowman Transportation the Court used the "clear error of judgment" language interchangeably with "arbitrary and capricious." Compare 419 U.S. at 285 with id. at 290.
76 Ethyl Corp. v. EPA, 541 F.2d 1, 66 (D.C. Cir. 1976) (Bazelon, J., concurring).
77 401 U.S. at 416.
78 See 541 F.2d at 68 (statement of Levanthal, J.). A number of courts have undertaken in-depth reviews of EPA regulations. See, e.g., South Terminal Corp. v. EPA, 504 F.2d 646, 662 (1st Cir. 1974); American Meat Inst. v. EPA, 526 F.2d 442, 447 (7th Cir. 1975); American Iron & Steel Inst. v. EPA, 526 F.2d 1027, 1045 (3d Cir. 1975); American Petroleum Inst. v. EPA, 540 F.2d 1023, 1029 (10th Cir. 1976); CPC Int'l v. Train, 540 F.2d 1329 (8th Cir. 1976).
Comparison between the Bazelon concurrence in *Ethyl* and Bazelon's opinion for the majority in *Environmental Defense Fund (EDF) v. Ruckelshaus,* reveals the judge's own inconsistency on review. In *EDF v. Ruckelshaus,* the refusal by the Secretary of Agriculture to ban DDT pending formal cancellation proceedings was remanded for full clarification of the Secretary's failure to articulate the factors considered in his decision. The opinion stated that reviewing courts must insist on "strict judicial scrutiny of administrative action," where that action touches on interests in health, life, and liberty. Concurring in *Ethyl,* however, Judge Bazelon stated that the court should avoid substantive review and confine itself to procedural matters.

Judge Bazelon may be proposing two standards of judicial review: when the agency decides to regulate, the court must confine itself to a review of agency procedures; but when the decision is not to regulate, as in *EDF v. Ruckelshaus,* the court will strictly review the substantive record. This approach would create a presumption in favor of regulations, and such a presumption may be necessary to protect the public health. However, the Supreme Court specifically stated in *Overton Park* that any agency decision is entitled to a "presumption of regularity."

**IV. Application of the Standard of Review: Majority and Dissent**

Once it is determined that the EPA correctly interpreted the statutory "will endanger" test, the court must review the announced basis for the EPA conclusion that lead, in fact, presents a "significant risk of harm" to the general public. Although the majority and the dissent generally agree on the standard of review, they differ significantly in their application of the standard to the evidence. The evidentiary controversies in *Ethyl* center on three major EPA findings: first, that human blood lead levels in a significant number of adults and children are elevated above the precautionary danger level of 40 ug/100 gms; second, that a significant correlation
exists between auto lead emissions and human blood levels; third, that lead exposure from dustfall threatens the health of children.

The EPA was confronted with conflicting evidence of whether blood lead levels are elevated among a significant portion of the public. The EPA apparently relied upon studies of occupational groups who had been exposed to unusually high airborne lead levels and who exhibited elevated blood lead levels. However, one study of the general urban population, the Seven Cities Study, found only a minute number of subjects (0.15%) with blood lead levels higher than 40 ug/100 gms. The EPA rejected the Seven Cities Study on the methodological ground that the study failed to account for sources of lead other than air, such as diet.

The Ethyl majority affirmed the first EPA conclusion, stating that the various occupational studies could reasonably outweigh the results of the Seven Cities Study and other similar studies. Relying on a textbook, Preventive Medicine, and Reserve Mining Co. v. EPA, the court concluded that occupational group studies can be used as early warnings of the long term effects of exposure to the general public, and that the EPA’s evaluation of the evidence was not arbitrary or capricious.

“Ug” represents the number of micrograms of lead and “100 gms.” represents 100 grams of blood. The danger level is reached when there are 40 micrograms of lead found in every 100 gram sample of blood tested.

The Seven Cities Study was an attempt to correlate atmospheric and body lead levels in seven American cities. No statistically significant correlation was found. Residents of New York City had lower average blood lead levels than residents of Philadelphia, despite higher airborne lead levels in New York City. The data also showed consistent differences between the blood lead levels of urban and suburban dwellers within the same metropolitan area. Urban residents who were exposed to higher air lead concentrations invariably showed higher blood lead levels. However, the authors of the study concluded that urban/suburban comparisons ignored the influence of diet and climate. The most probable interpretation was that airborne lead contributes to the relatively higher blood lead concentrations in center-city populations. However, less than 3 out of 1,935 subjects (.15%) were found to have blood lead levels greater than 40 ug/100 gms. See Ethyl Corp. v. EPA, 541 F.2d at 57 (App. A); 38 Fed. Reg. 33735 (1973).

541 F.2d at 102.


D. Clark & B. MacMahon, Preventive Medicine (1967).

514 F.2d 492 (8th Cir. 1975).

Ethyl Corp. v. EPA, 541 F.2d 1, 41 (D.C. Cir. 1976).
The Wilkey dissent expresses four criticisms of the EPA and majority conclusions on this point. First, the dissent asserts that the Administrator:

*chose among the available data without any explanation as to why - why he was relying upon certain studies and rejecting others... The court concludes that ‘the problem here is one of choosing among the items of evidence.’ We respectfully disagree. The problem here is one of choosing among the items of evidence and explaining why.*

Second, the dissent states that with respect to the first conclusion, the EPA did not specifically explain its rejection of the Seven Cities Study, a major study of general adult urban populations. The EPA explained that it rejected the Seven Cities Study for failure to control dietary lead. The dissent reasoned that while that explanation is relevant to the second EPA conclusion that a direct correlation exists between airborne lead and blood lead, it is not relevant to the first EPA conclusion that a significant number of adults have elevated blood lead levels. The third criticism is that the Ethyl majority and not the EPA provided an explanation for the use of occupational studies and supported that explanation with a source from outside the record. The dissent terms the majority explanation a “post hoc rationalization” of the EPA decision, and criticizes the majority’s use of *Preventive Medicine*, which was not mentioned in the agency record. Fourth, the dissent objects to the majority’s use of *Reserve Mining Co. v. EPA* for support of the use of occupational studies. The dissent asserts that in *Reserve*, unlike *Ethyl*, a careful analysis was made of the parallels between general and occupational asbestos exposure to ensure the validity of the conclusions.

The EPA’s second conclusion was that a direct correlation exists between airborne auto lead emissions and blood lead levels. In drawing this conclusion, the EPA accepted data from the Seven Cities Study to show that urban residents had higher blood lead levels than suburban residents of the same metropolitan area (intrametropolitan data). However, the EPA rejected Seven Cities data

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* Id. at 104 (footnote omitted).
* Id. at 103.
* Id. at 104.
* See note 92 and accompanying text, *supra*.
* 514 F.2d 492 (8th Cir. 1975).
* 541 F.2d at 105.
which indicated that residents of some cities had lower blood lead levels than residents of cities with higher ambient air lead levels (intermetropolitan data). The EPA reasoned that the intrametropolitan data was more accurate than the intermetropolitan data because the dietary lead content, which would tend to distort any airborne lead/blood lead correlation, was less likely to vary within the same geographical area. The EPA also relied upon several other epidemiological studies as well as some persuasive clinical studies in drawing its conclusion. The Ethyl majority held that the EPA had considered all relevant factors and had rationally concluded that a positive correlation exists between airborne lead and blood lead levels.

The dissent claims that the EPA abused its discretion by relying upon epidemiological studies with no more dietary control than the rejected intermetropolitan Seven Cities data. The dissent asserts that the lack of dietary control in the EPA-rejected intermetropolitan portion of Seven Cities is no greater than the lack of dietary control in the EPA-accepted intrametropolitan portion. The dissent concludes that since dietary control was absent in all of the epidemiological studies, the rejection of some of the studies for a lack of control was arbitrary.

The EPA's third conclusion, that young children are threatened by lead dustfall, rests completely upon a scientific hypothesis. The EPA hypothesized that dust and dirt contain a high concentration of settled airborne lead in urban areas and that children prone to eating dust (ages 1-3) can thus be expected to absorb lead. In support, the EPA cited a study in which children in urban areas free of peeling lead paint, exhibited excessive blood lead levels. The Ethyl majority cited Reserve Mining Co. v. EPA for general support of the use of hypotheses as scientific evidence, and approved

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100 Id. at 42; see 38 Fed. Reg. 33375 (1973).
101 See 541 F.2d at 57 (App. A).
102 Two clinical studies established a correlation between airborne lead and blood lead. These were studies of human subjects with controlled diets and fixed exposure levels in a laboratory environment. Id. at 61.
103 Id. at 43.
104 Id. at 106.
105 Id.
106 Id. at 105.
107 Id. at 43.
108 Id. at 63 n.2 (App. B).
109 514 F.2d 492 (8th Cir. 1975).
the EPA hypothesis as reasonable, valid proof under the “will endanger” test.\textsuperscript{110}

The dissent criticizes the EPA’s third conclusion on two grounds: because the dissent could not find any evidentiary support for the hypothesis;\textsuperscript{111} and because children of the age group prone to eating dust do not play in areas such as busy streets, where airborne lead is likely to settle.\textsuperscript{112}

The dissent’s first criticism of the EPA, that it failed to explain why it relied upon specific items of evidence in making factual conclusions to support its decision to regulate automobile fuel lead additives, is a valid one. The Supreme Court requires such an explanation as a prerequisite to meaningful judicial review under the § 706(2)(A) standard.\textsuperscript{113} Moreover, recent environmental cases have acknowledged judicial lack of technical expertise, by requiring that the explanation be comprehensible to laymen,\textsuperscript{114} or by requiring that agency action be “presented and supported in a manner capable of judicial understanding.”\textsuperscript{115}

\textit{South Terminal Corp. v. EPA}\textsuperscript{116} illustrates how most circuits treat the EPA’s failure to explain its reliance on particular evidence. In \textit{South Terminal}, the First Circuit remanded EPA regulations that were based upon air quality levels calculated from conflicting data. The court held that data, unaccompanied by an explanation for its selection, was insufficient to support the regulations, and ruled that the EPA must produce answers “demonstrating careful agency consideration” of objections made during the agency proceedings.\textsuperscript{117} Other courts have remanded EPA regulations for the agency’s failure to specify and explain its evidentiary reliance.\textsuperscript{118} Some courts have remanded where the supporting evidence, without further explanation, was insufficient to justify regulation.\textsuperscript{119} The burden is on the EPA fully to explain its actions, but once that burden is met

\textsuperscript{110} 541 F.2d at 46.
\textsuperscript{111} \textit{Id.} at 108.
\textsuperscript{112} \textit{Id.} at 109.
\textsuperscript{114} American Meat Inst. v. EPA, 526 F.2d 442, 466 (7th Cir. 1975).
\textsuperscript{115} DuPont v. Train, 541 F.2d 1018, 1038 (4th Cir. 1976), \textit{cert. granted}, 426 U.S. 947 (1976).
\textsuperscript{116} 504 F.2d 646 (1st Cir. 1974).
\textsuperscript{117} \textit{Id.} at 665.
\textsuperscript{118} See American Petroleum Inst. v. EPA, 540 F.2d 1023, 1038 (10th Cir. 1976); American Iron & Steel Inst. v. EPA, 526 F.2d 1027, 1063 (3d Cir. 1975); Hooker Chem. & Plastics Corp. v. Train, 537 F.2d 620, 633-37 (2d Cir. 1976).
\textsuperscript{119} See CPC Int’l v. Train, 540 F.2d 1329, 1340 (8th Cir. 1976).
there is a presumption in favor of the reasonableness of the EPA action.120

The Ethyl majority's method of reviewing the factual basis for an EPA decision differs markedly from that set out in Overton Park and subsequent cases. In Ethyl, the majority apparently examined the record itself and concluded that the occupational studies could have outweighed the other evidence. The fact that the majority felt compelled to go outside the record and cite Preventive Medicine121 to support its conclusion clearly indicates that the agency never explained its reliance upon occupational studies. The holdings in Overton Park, Bowman Transportation, and South Terminal require that the agency itself explain its choices among the evidence,122 and that the agency itself answer serious objections to its choices or methodology.123 The Ethyl court searched for any reasonable evidence to support the EPA conclusion. Other courts have interpreted Overton Park to require remand to the agency for a more complete record if the agency's reliance upon certain evidence is unexplained.124 Thus, the dissent's contention that a remand is appropriate for an EPA failure to explain its reliance upon occupational studies, finds considerable support in the case law. While a reviewing court should determine the rationality of an agency's technical decision, it should stop short of finding and presenting evidence supporting a rational basis itself.125

The dissent's second criticism was that the EPA failed to explain why it rejected items of evidence directly relevant to a particular conclusion. The EPA must explain its rejection of relevant evidence. The Supreme Court in Bowman Transportation128 required that serious objections to agency conclusions be answered in the record.127

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121 Compare 541 F.2d at 41 with id. at 104. The text cited was not relied upon by the EPA in the Third Health Document. The majority thus introduced an outside source to support its conclusion.

122 Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. at 419-20; South Terminal Corp. v. EPA, 504 F.2d 646, 666 (1st Cir. 1974).


124 See cases cited in notes 112-13, 116, supra.

125 419 U.S. at 285-86.


127 Id. at 290.
Other courts, which demand that the EPA explain why it relied upon certain evidence, also require that the EPA explain why the chosen evidence outweighs the rejected evidence.\textsuperscript{128}

The dissent correctly observes that the EPA failed to explain rationally why it rejected the Seven Cities Study in concluding that a significant portion of the population have elevated blood lead levels. The EPA based its rejection of Seven Cities on a lack of dietary control.\textsuperscript{129} Lack of dietary control is relevant to the conclusion that a correlation exists between blood lead and airborne lead levels. However, at least to a non-expert, lack of dietary control does not logically bear upon whether a significant number of adults have elevated blood lead levels. But the majority took the EPA’s explanation of the airborne lead/blood lead correlation conclusion and used it to justify the elevated blood lead level conclusion. The court cannot adequately judge the rationality of the elevated blood lead level conclusion without an explanation of why the Seven Cities Study was rejected in that conclusion. Such a failure of explanation warrants a remand to the agency.

The dissent’s third criticism, that the explanations that were provided for reliance on particular evidence were arbitrary and unreasonable, would not seem to warrant a remand. In drawing the conclusion that a direct correlation exists between airborne lead levels and blood lead levels, the EPA explained that it had rejected portions of the Seven Cities Study because of geographical dietary lead variations, and that it had accepted studies which it felt ensured the highest degree of dietary lead regularity.\textsuperscript{130} The dissent’s disagreement with this explanation should not be a basis for remand. In addition to the fact that strong clinical studies, which the dissent did not criticize, were available to rebut the rejected portions of Seven Cities, the EPA explained the rejection in a reasonable manner as required.

The dissent’s fourth criticism of the EPA is that the conclusion concerning the effect of lead dustfall was based solely on hypothesis and was insufficient, by itself, to support lead additive regulation. However, the EPA relied upon two independent factual conclusions, in addition to the lead dustfall hypothesis: the airborne lead/blood

\textsuperscript{128} See South Terminal Corp. v. EPA, 504 F.2d 646, 665 (1st Cir. 1974); Duquesne Light Co. v. EPA, 522 F.2d 1186, 1196 (3d Cir. 1975); Hooker Chem. & Plastics Corp. v. Train, 537 F.2d 620, 636 (2d Cir. 1976).


\textsuperscript{130} Id.
lead correlation conclusion, and the conclusion that a significant portion of the population has elevated blood lead levels. 131 Although it seems clear that the EPA cannot use an unsubstantiated hypothesis as the sole basis for a given regulation, it did not attempt to do so in this case. 132 The two independent factual conclusions could have justified regulation of lead even without the reliance on hypothesis.

The Ethyl dissent criticized the majority for providing an explanation of the EPA's conclusion that a significant portion of the population has elevated blood lead levels. The majority's reliance on Preventive Medicine, 133 a text not relied upon by the EPA, to support the agency's use of occupational studies was improper. Reviewing courts may not supply an explanation for an agency decision that the agency itself has not provided. 134 This prohibition against judicial "post hoc" explanation serves two purposes: it ensures that courts will limit themselves to reviewing the rationality of decisions made by expert agencies, rather than providing the basis for technical agency decisions; and it ensures that the court will not present and use evidence which was unavailable to petitioners for comment.

The majority clearly engaged in "post hoc" rationalization by explaining the EPA's use of occupational studies, and by supporting the explanation with reference to Preventive Medicine, an authority which the manufacturers had no opportunity to challenge. Therefore the majority committed an error which the doctrine prescribing "post hoc" explanation would prevent.

The principle which the majority cited from Preventive Medicine has limited applicability in Ethyl. The court simply states that occupational studies are useful in predicting future health effects on the general public; it does not say that such studies are applicable in the case of lead poisoning. Reserve Mining, cited by the majority, 135 reaffirms the general usefulness of occupational studies. Such studies were found useful in that case, however, only after a careful analysis of the parallels between particular occupational studies.

131 Ethyl Corp. v. EPA, 541 F.2d 1, 43 (D.C. Cir. 1976).
132 See Reserve Mining Co. v. EPA, 514 F.2d 492, 514, 516 (8th Cir. 1975). Note that the Ethyl dissent's criticism of the hypothesis turns on its premise that it "cannot avoid deciding whether the . . . hypothesis is sufficient by itself to support the regulations." 514 F.2d at 109 (emphasis in original).
133 See note 121, supra.
135 541 F.2d at 41.
and the exposure of the general populace. The EPA, not the court, was obligated to produce a similar analysis for lead before it relied on occupational studies in Ethyl.

Applying the § 706(2)(A) standard of review to the evidence in Ethyl demonstrates that the EPA was justified in finding a direct correlation between airborne lead levels and blood lead levels. However, its conclusion that a significant portion of the general population has blood lead levels above the precautionary mark is doubtful, for the EPA did not provide a reasoned basis for this conclusion. Accordingly, the court should have remanded the regulations either for further explanation by the EPA, or for a substantiated conclusion that the correlation between air lead and blood lead alone is sufficient to warrant regulation.

V. CONCLUSION

Congress may have erred in limiting jurisdiction on appeal from regulations promulgated under certain sections of the Clean Air Act to the Court of Appeals for the District of Columbia Circuit. In the future, this court will undoubtedly continue to rely upon the Ethyl precedent with respect to § 211(c)(l)(A) interpretation. Yet several basic flaws exist in the Ethyl majority’s analysis. Perhaps it would be more advantageous to have such cases arise in the various circuits as they would normally, thus allowing several judicial bodies to decide independently whether or not they agree with the District of Columbia Court of Appeals. This system assures open debate between the circuits which may identify a controversy appropriate for resolution by the Supreme Court.

The precedential significance of Ethyl may increase if Congress directs the EPA to consider regulation of high sulfur auto fuel. Such an amendment to the Clean Air Act was recently proposed in Congress, but failed to pass before the October 1976 adjournment. With the potential economic consequences of such restrictions, the EPA must carefully investigate and explain promulgation of regulations as necessary to protect the public health. A careful analysis

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136 514 F.2d at 511-12.
of the environmental cases in which regulations were overturned reveals that a lack of clear explanation or response on the part of the EPA is not an uncommon failing. Unfortunately, the *Ethyl* decision, by adopting an overly permissive evidentiary standard and by upholding regulations in the absence of clear support in the record, is not a step in the right direction.