

Chevron, State Farm and the EPA in the Courts of Appeals during the 1990s ©

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*** Robert W. Wagstaff Professor of Law, University of Kansas School of Law. The authors thank Robert Drumm, University of Kansas School of Law, Class of 2002, and Charles Larsen, Nicole Wilson, Duke University School of Law, Class of 2001, Ryan Vogt-Lowell, Greg Caplan, Duke Class of 2001, for their valuable research assistance.

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CHEVRON, STATE FARM AND THE EPA IN THE COURTS OF APPEALS DURING THE 1990S

I. INTRODUCTION

Ten years ago, we analyzed how environmental policy, primarily as formulated by the Environmental Protection Agency (EPA), had fared in federal court during the first two decades of the Environmental Era.¹ Our primary interest then was to determine how emerging environmental values were being accommodated by federal courts when those courts reviewed administrative actions by EPA and other agencies charged with new environmental responsibilities. This Article updates, extends and refines our earlier work using a different methodology and with related, but also different, objectives.

In this Article we analyze how EPA and the federal courts interact under two broad aspects of judicial review. First, we study EPA's and the courts' interpretations of the agency's statutory authority, with special emphasis on how the agency has fared under the *Chevron*² doctrine. Second, we study how well EPA's rulemaking satisfies the requirements of "reasoned decisionmaking" as set forth in *Overton Park*,³ *State Farm*⁴ and other decisions. The Article thus focuses on how the Environmental Protection Agency has fared under judicial review, rather than on how environmental values have been treated by the federal courts. In subsequent work, we plan to use these same data to return to this question, which was the subject of our earlier work, an effort that will include examining the ways in which political preferences of the judges affect their decisions.⁵

II. OVERALL CHARACTERISTICS OF THE DATA SET

We have reviewed all of the cases in the federal appellate courts in which EPA or its

¹ Robert L. Glicksman and Christopher H. Schroeder, "EPA and the Courts: Twenty Years of Law and Politics," 54 *Law & Contemp. Prob.* 249 (Autumn 1991).

² *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984).

³ *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402 (1971).

⁴ *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983).

⁵ *See infra* n. 56 for some citations to this growing literature.

Administrator appeared as a party, and which were decided between January 1, 1991 and August 1, 1999.⁶ Our initial Westlaw search produced 377 appellate decisions during the study period in which the EPA was a named party. Some of these decisions provide little or no information other than the parties and the disposition of the matter.⁷ Where indicated below, we retained these decisions when calculating disposition rates, although they necessarily drop out of the analysis when we turn to studying substantive or procedural decisions made by EPA in the course of conducting primary agency business. Still other decisions resolved disputes that we viewed as entirely internal to the litigation process, such as decisions on motions to consolidate appeals, motions to stay mandates temporarily, motions for rehearing en banc, consensual motions to dismiss as moot and the like. Because we were interested in the interaction between EPA and the courts when some element of agency decisionmaking on environmental issues was being challenged, we excluded these decisions from any further analysis. Excluding these litigation-related dispositions left us with 336 decisions.

In addition to analyzing these cases from the 1990s, we also sampled cases from the 1980s by identifying all the cases in the federal appellate courts in which EPA or its Administrator appeared as a party, and which were decided between January 1, 1986 and January 1, 1988. This is not a random sample of 1980s cases, but it does capture the entirety of two years relatively soon after *State Farm* and *Chevron* had been decided. This sample provides us with one measure of whether the interaction between the EPA and the appellate courts under the *Chevron* and reasoned decision making doctrines has changed over time. Following the same procedures for our 1980s period as we did for the 1990s search produced a set of 80 decisions after winnowing. Table 1 presents the overall comparison.

⁶ The beginning date was the cut off date of our earlier study. The end date was simply the time at which we had to cease collecting cases in order to begin analyzing them. While the statistical measures in this Article are all drawn from this data set, in discussing different issues we occasionally will refer to significant decisions outside of these time boundaries, such as *Michigan v. EPA*, 213 F.3d 663 (D.C. Cir. 2000).

⁷ Many of these are issued as unpublished Table Decisions. During our study period, the appellate courts decided 77 of the cases involving EPA via Table Decisions.

Outcomes of Challenges to EPA in the Courts of Appeals

	EPA Prevails	Reversed & Remanded	Remanded
1986-87	48	28	4
1990s	227	70	39

df = 2, $\chi^2 = 8.7922$, P-value = 0.0123

Table 1

Several characteristics of the entire data set of 1990s cases merit some consideration before we turn to more detailed analysis. First, the reversal rates in our cases from the nineties and the eighties show that EPA has fared somewhat better in the nineties, and that these differences are statistically significant at the 95% confidence level. In our two-year sample of 1986-87 cases, EPA prevailed 60% of the time, it was reversed and remanded 35% of the time, and just remanded 5% of the time. In the 1990s, the comparable figures are 67%, 21%, and 12%. These figures suggest that the “*Chevron* effect” – an increase in affirmances due to more deference to agency determinations – which some thought might decline as the passage of time reduced the impact of the opinion – has in fact persisted into the 1990s, at least as regards EPA.⁸

Second, the increased percentages of remand-only decisions are consistent with the observations of administrative law scholars that the D.C. Circuit in particular has increased its use of the technique of remanding without reversing, a procedure that can permit EPA to correct errors while much of the challenged rule remains in effect.

If we disaggregate these figures, which include both adjudications and rulemakings, to focus exclusively on rulemaking challenges, they also indicate that EPA is distinctive among federal administrative agencies. Of the 336 cases in the nineties, 33% of the total (111) consisted of challenges to rulemaking. This is almost identical to the proportion of rules in our 1986-87 sample, in which 34% (27/80), were rulemaking challenges. One source for comparing these figures with other agencies is the Schuck and Elliott study of the effect of the *Chevron* decision

⁸ Schuck & Elliott raised this as a possibility in 1990. See Peter H. Schuck & E. Donald Elliott, “To the *Chevron* Station: An Empirical Study of Administrative Law,” 1990 *Duke L.J.* 984 (1990). Cf. Sidney A. Shapiro & Richard E. Levy, “Judicial Incentives and Indeterminacy in Substantive Review of Administrative Decisions,” 44 *Duke L.J.* 1051, 1069-70 (1995) (citing figures showing declining rates of deference in Supreme Court and in the courts of appeals).

on the courts of appeals.⁹ In the course of their analysis, Schuck and Elliott estimated the overall distribution of challenges to rules and to adjudications in the periods they sampled. Summing across all administrative agencies, they found that rulemaking challenges comprised just 1% of the challenges to agency action in 1965, 12.3% of the total in 1975, and 9.4% of all challenges in 1984-85.¹⁰ Thus, challenges to EPA rules in the eighties and nineties were a much larger proportion of total appellate decisions involving the agency than was the case with respect to agencies overall during any period that Schuck and Elliott examined. This difference is quite likely due to the relatively greater amount of rulemaking activity undertaken by EPA compared to other federal agencies.

A check of all final rules issued by EPA in the 1990s shows that rulemaking activity by EPA increased in the 1990s compared to the 1980s.¹¹ At first glance, this seems inconsistent with the so-called ossification effect, about which much has been written in recent years.¹² The ossification effect is hypothesized as a consequence of aggressive judicial review, which prompts agencies to go through increasingly burdensome procedures in preparing final rules in order to guard against judicial reversal. As a result, scholars have hypothesized, agencies will tend to shift their emphasis from rulemaking to other forms of administrative action whenever those alternatives impose fewer costs on the agency and hold more promise for being sustained against legal challenges. The leading study of this effect is the Harfst and Mashaw work on the National Highway Transportation Safety Agency (NHTSA).¹³ Harfst and Mashaw concluded that the result of a series of reversals of NHTSA auto safety rules has been to move the agency away from rulemaking and toward adjudicative recall proceedings.

EPA certainly does undertake a considerable amount of adjudication, in addition to issuing an appreciable number of documents that have not gone through the notice-and-comment

⁹ Schuck & Elliott, note 8, above.

¹⁰ Unfortunately, the Schuck and Elliott data do not break out EPA separately, so no direct comparison of our EPA-specific findings with their data has been possible.

¹¹ Estimates of the gross number of rules issued by EPA also bear out the hypothesis that EPA has not responded to the ossification problem by appreciably shifting away from rulemaking. A simple Westlaw search in the Federal Register database for all final rules issued by the EPA in the eighties and nineties returned a total of 2761 rules in the eighties and 3553 in the nineties.

¹² E.g., Thomas O. McGarity, "Some Thoughts on 'Deossifying' the Rulemaking Process," 41 *Duke L.J.* 1385 (1992); Richard J. Pierce, "Two Problems in Administrative Law: Political Polarity on the District of Columbia Circuit and Judicial Deterrence of Agency Rulemaking," 1988 *Duke L.J.* 300.

¹³ Jerry L. Mashaw & David L. Harfst, *The Struggle for Auto Safety* (1990).

rulemaking process and yet contain important policy guidance,¹⁴ but our summary statistics indicate that EPA continues to issue a substantial number of rules as well. The nature of the statutory responsibilities that have been imposed on EPA often mean that rulemaking is unavoidable, regardless of how burdensome it may be. In most of the statutes that EPA administers, Congress has established basic environmental policy with respect to air, water, solid waste and other pollutants, sometimes in great detail, but almost always in ways that are incomplete until EPA has enacted rules and regulations translating that policy into administrable instructions. Congress, for instance, has declared that automobiles must meet certain emissions limitations before they can be marketed in the United States by means of a statute providing that “The Administrator shall by regulation prescribe ... standards applicable to the emission of any air pollutant from ... new motor vehicles.”¹⁵ For the prohibitions on the sale of non-conforming motor vehicles under the Clean Air Act to be effective, the EPA must first issue such regulations.¹⁶ In the Air Act as in the other statutes EPA administers, Congress has laid out the framework for regulation, but regulation remains incomplete until EPA has supplied further details and implementing instructions. Overall, the statutes EPA administers are laced with responsibilities and actions that EPA cannot exercise except through issuing rules.

The next Part addresses issues regarding EPA’s interpretations of its statutory authority, while Part IV addresses issues regarding the fact finding, inference drawing, and policy decisions made in the course of implementing that authority.

III. EPA AND *CHEVRON*

Interestingly, the Supreme Court frequently renders statutory interpretation decisions without expressly invoking the *Chevron* doctrine.¹⁷ Be that as it may, the early suggestion by Professor Merrill and others that the lower courts might also begin to disregard *Chevron* once they became cognizant of the high court’s uneven use of the doctrine appears not to have been borne out over time.¹⁸ Instead, Judge Wald offered sound advice ten years ago when she told

¹⁴ See James T. Hamilton & Christopher H. Schroeder, “Strategic Regulators and the Choice of Rulemaking Procedures: The Selection of Formal vs. Informal Rules in Regulating Hazardous Waste,” 57 *L. & Contemp. Prob.* 111 (1994).

¹⁵ 42 U.S.C. § 7521(a).

¹⁶ 42 U.S.C. § 7522(a).

¹⁷ Thomas Merrill, “Judicial Deference to Executive Precedent,” 101 *Yale L.J.* 969 (1992).

¹⁸ Merrill, note 17, at 984; accord, Paul Caron, “Tax Myopia, or Mamas Don’t Let Your Babies Grow up to be Tax Lawyers,” 13 *Va. Tax Rev.* 517, 562 (1994).

administrative lawyers preparing briefs to her court to “think Chevron.”¹⁹

Our study confirms that the courts of appeals view *Chevron* as the authoritative template for conducting judicial review of statutory interpretation. Explicit invocation of the *Chevron* framework was nearly universal in cases involving challenges to statutory interpretations. In 119 separate decisions raising such challenges, *Chevron* was cited in 102, or 86% of them. Of the seventeen cases in our study not citing *Chevron*, only 3 were cases in which *Chevron* deference was clearly appropriate. As for the rest, half (8) were decisions interpreting statutes governing the availability of judicial review.²⁰ One involved a question of the retroactivity of a statute,²¹ another involved EPA’s interpretation of CERCLA’s civil liability standards,²² and in a third the court conducted a limited review of EPA’s authority to act under the *Leedom v. Kyne* doctrine.²³ These are all situations in which it is either settled that *Chevron* deference is not appropriate, or at least strongly arguable that it is not. In one case resolved on Step Two grounds, the court did not cite *Chevron* itself, but did cite a leading Supreme Court opinion elaborating on the content of Step Two, an opinion in which the Supreme Court itself explicitly employed the *Chevron* framework.²⁴ Finally, two involved statutory interpretation in only a pickwickian sense, with the court doing little more than reciting statutory language to dispose of a challenge.²⁵ The remaining three decisions are thus the only ones we found in which the *Chevron* methodology was clearly called for and yet not explicitly invoked - and each of these employed reasoning entirely

¹⁹ Peter L. Strauss et al., *Gellhorn & Byse's Administrative Law: Cases and Comments* 620 (9th ed. 1995) (quoting Judge Wald's advice in a 1994 speech to practitioners: "Now for you agency case lawyers. Chevron is the password. In every case involving statutory interpretation, think Chevron.").

²⁰ *Boise Cascade v. EPA*, 942 F.2d 1427 (9th Cir. 1991); *Clinton County Comm'rs v. EPA*, 116 F.3d 1018 (3rd Cir. 1997); *Laguna Gatuna v. Browner*, 58 F.3d 564 (10th Cir. 1995); *Montrose Chem. v. EPA*, 132 F.3d 90 (D.C. Cir. 1998); *North Shore Gas v. EPA*, 930 F.2d 1239 (7th Cir. 1991); *Razore v. Tulalip Tribes of Washington*, 66 F.3d 236 (9th Cir. 1995); *South Holland Metal Finishing Co. v. Browner*, 97 F.3d 932 (7th Cir. 1996); *PEACH v. Army Corps of Engineers*, 87 F.3d 1242 (11th Cir. 1996).

²¹ *U.S. v. Olin Corp.*, 107 F.3d 1506 (11th Cir. 1997).

²² *Matter of Bell Petroleum*, 3 F.3d 889 (5th Cir. 1993).

²³ *West Virginia Coal Ass'n v. Reilly*, 932 F.2d 964 (4th Cir. 1991).

²⁴ *ALM Corp. v. EPA*, 974 F.2d 380 (3rd Cir. 1992) (citing *National R.R. Passenger Corp. v. Boston & Maine Corp.*, 505 U.S. 407 (1992)).

²⁵ *Hobbs v. U.S.*, 947 F.2d 941 (4th Cir. 1991); *Pennsylvania Dep't. of Env'tl. Resources v. EPA*, 932 F.2d 269 (3rd Cir. 1991).

consistent with *Chevron*.²⁶ So *Chevron* provided the explicit template of analysis in 98% of the cases in our study in which it was clearly applicable.

A. EPA's Overall Performance as an Interpreter of Statutes

In recent years, EPA has suffered some notable setbacks in the courts of appeals. After engaging in time-consuming and elaborate rulemaking, EPA has lost cases in court involving its proposed national ambient air quality standards (NAAQS) for ozone and particulate matter,²⁷ its decision not to adjust the NAAQS for sulfur dioxide,²⁸ its call for adjustments in the state implementation plans in 22 Northeastern states which would have required adoption of California auto standards,²⁹ its decision not to grant a waiver for the fuel additive MMT,³⁰ its decision to allow highway projects from previously approved regional transportation plans to satisfy the Clean Air Act's "conforming plans" requirement,³¹ its standards for the discharge of sewage sludge under the Clean Water Act,³² and its decision permitting Indian tribes to implement a waste management permit program under the Resource Conservation and Recovery Act (RCRA).³³ In these and other agency setbacks, the courts of appeals have found that EPA erred in its interpretation of statutory authority.

A recent study sharply criticizes EPA's low success rate in defending its interpretations of statutes in court.³⁴ In an analysis of decisions involving EPA rules in the D.C. Circuit Court of Appeals for the years 1993-2000, this study found that of these 69 cases, EPA won only 33% of

²⁶ *James County v. EPA*, 12 F.3d 1330 (4th Cir. 1993); *Navistar Int'l Transp. Corp. v. EPA*, 941 F.2d 1339 (6th Cir. 1991); *Systech Env'tl. Corp. v. EPA*, 55 F.3d 1466 (9th Cir. 1995).

²⁷ *American Trucking Ass'n v. Browner*, 175 F.3d 1027 (D.C. Cir.), *reh'g. granted in part, denied in part*, 194 F.3d 5 (D.C. Cir. 1999), *cert. granted*, 120 S. Ct. 2003 (2000).

²⁸ *American Lung Ass'n v. EPA*, 134 F.3d 388 (D.C. Cir. 1998), *reh'g. en banc denied*, – F.3d. – (D.C. Cir. 1999).

²⁹ *Virginia v. EPA*, 108 F.3d 1397 (D.C. Cir.), *modified on reh'g.*, 116 F.3d 499 (D.C. Cir. 1997).

³⁰ *Ethyl Corp. v. EPA*, 51 F.3d 1053 (D.C. Cir. 1995)

³¹ *EDF v. EPA*, 167 F.3d 841 (D.C. Cir. 1999).

³² *Leather Indus. of America v. EPA*, 40 F.3d 392 (D.C. Cir. 1994).

³³ *Backcountry Against Dumps v. EPA*, 100 F.3d 147 (D.C. Cir. 1996).

³⁴ Jonathan Adler, *Environmental Performance at the Bench: The EPA's Record in Federal Court* 11 (2000).

them.³⁵ In addition, it found that in the 44 cases in which a *Chevron* question was litigated, EPA won just 41% of the time.³⁶ These results led the study author to conclude that EPA acts “with little regard for the limits or obligations of its statutory authority.”³⁷

Our findings are more generous to EPA. Nonetheless, they still show EPA’s rules being completely sustained in only 53% of the 111 rulemaking cases during our study period. Looking just at the 83 rulemaking challenges in which a *Chevron* question was raised, EPA is also sustained in 53% of the decisions in our data set (44/83). Whichever figures are chosen, it has been suggested that they show that EPA regularly ignores the laws that Congress has written, choosing instead to pursue its own “political goals and policy expediency.”³⁸

Figures such as these cannot support that conclusion. Studies of EPA’s success in litigated cases cannot generate any reliable inferences regarding EPA’s overall fidelity to statutory authority because they suffer from selection bias.³⁹ The litigated cases are not the entire universe of instances in which EPA interprets environmental statutes, because many of the rules that EPA writes and other actions that it takes include include statutory interpretations that are never challenged. From the entire universe of challenged and unchallenged instances of statutory interpretation, the challenged cases alone constitute a biased sample.

One reason some interpretations are not challenged is that no potential litigant believes that EPA has erred in those interpretations. These are instances, then, of EPA’s apparently staying faithful to its statutory authority, but they are excluded from any analysis that isolates on the litigated actions alone. On the other hand, the decision to litigate an EPA interpretation typically reflects a judgment that the interpretation is wrong. To be sure, this is not always the case. If litigants are economically rational actors, they will make litigation decisions on the basis of expected returns, so that a slight chance of achieving an extremely valuable victory could justify the effort. Likewise, a calculation that the value of the compliance cost savings for the period of time during which the challenged rule is suspended exceeds the costs of litigation could also do so, even if ultimate victory is quite unlikely. Litigants might first decide to challenge a rule on the basis of other mistakes they believe EPA to have made, and then add a statutory interpretation challenge, which they would not otherwise have brought forward, because the

³⁵ Id. at 8, Figure 1.

³⁶ Id. at 9, Figure 2.

³⁷ Id. at 11.

³⁸ Id. at 16.

³⁹ Selection bias involves “choosing observations in a manner that systematically distorts the population from which they were drawn.” Gary King, Robert O. Keohane, & Sidney Verba, *Designing Social Inquiry* 28 (1994).

marginal costs of the additional challenge are low. These complexities notwithstanding, it remains the case that statutory interpretations that are actually challenged in litigation are more likely to be wrong than are statutory interpretations that are never challenged in court. Therefore the set of reported decisions involving *Chevron* challenges to EPA rules presents a biased sample of all EPA statutory interpretations.

In an effort to reduce the problem of selection bias and to gain a better understanding of EPA's fidelity to statutory instructions, we studied all of the rules that could have been challenged during our study period for which the agency prepared a regulatory impact analysis. The vast majority of these RIAs were prepared because the rule was classified as major under the applicable executive order. There were 75 such rules, of which 25 resulted in one or more court challenges. In other words, 33% of all such rules were challenged. This is a much higher percentage than the percentage of EPA's total rules that were challenged.⁴⁰ This set of rules with RIA's cannot not be considered representative of the entire population of EPA rules because it is not a random sample. If anything, EPA's success in defending statutory interpretations in these high visibility rules should continue to overstate EPA's error rate, but less so than does a sample limited to the rules that have been challenged in court.

After identifying these 75 rules, we studied the explanatory preamble in the Federal Register of each rule to determine the total number of statutory interpretations made by the agency. Initially, this presented a specification problem that we needed to resolve. At one extreme, one could take the position that each and every time EPA promulgates any operationally distinct subpart of any rule, it has *implicitly* interpreted its statutory authority to authorize that subpart. If such implicit interpretations were counted, the number of statutory interpretations EPA has made in these 75 rules would be enormous. We concluded, however, that our attention could appropriately be narrowed by excluding instances in which EPA's authority was taken for granted, because the important issue is the fidelity of the deliberate choices EPA made in interpreting its law, and most implicit interpretations seem more compelled by a settled or non-controversial construction of the relevant statute than the result of a deliberate choice. Therefore, we tried to isolate those parts of rules in which EPA deliberated about a question of statutory authority, whether because a question had been raised by a commenter or because someone within the agency decisionmaking process had raised it. Operationally, we looked for passages in the preambles in which EPA explicitly referenced and discussed the issue of statutory authority. We have probably undercounted the number of distinct interpretations of statutes with this methodology, because it would miss any interpretations that were not self-identified by the agency.

We identified 132 different occasions of conscious statutory interpretation in the 75 rules. In the court decisions reviewing the 25 rules of the 75 that were subject to court challenge, the courts found eight *Chevron* errors. This is an error rate of 8 out of 132, or 6%. EPA's

⁴⁰ Of 3553 total rules issued in the 1990s, 111 of them, or 3%, resulted in decisions in the courts of appeals.

interpretations of its authority either were not challenged or else were sustained 94% of the time. This is not equivalent to establishing that EPA was faithful to its statutory authority 94% of the time, because some of the unchallenged interpretations may have been mistaken. Most of these 75 rules, however, were ones with appreciable economic impact, and it seems probable that the vast majority of erroneous interpretations were flushed out through litigation, because the amounts at stake in these rules provide the kinds of incentives to challenge them mentioned earlier. In any event, this subset gives us a less biased estimate of EPA's fidelity than does the all-too-common focus on just litigated rules, and it shows a much smaller percentage of statutory interpretation errors than do studies limited to litigated cases.

B. *Chevron* Review of EPA's Statutory Interpretations

While not being a good basis for inferences about EPA's overall fidelity to statutes, the litigated cases are worthy of study for what they reveal about the interaction between EPA and the courts under the *Chevron* doctrine. In this section, in which we examine that interaction more closely, we continue to employ an individual statutory interpretation challenge as our unit of analysis, not an individual court decision. Simply totalling the cases in which EPA wins and loses *Chevron* challenges fails to illuminate EPA's overall performance as a statutory interpreter. If EPA had made eight or nine contestable interpretations of statutes and been sustained on all but one of them, an approach that totals case victories and defeats would misleadingly treat that case as a defeat for EPA.

*Engine Manufacturers Ass'n v. EPA*⁴¹ illustrates the problem. The case involved at least six challenges to EPA's interpretation of provisions of the Clean Air Act giving it authority to regulate emissions from nonroad engines and vehicles, and also, according to EPA, impliedly preempting certain state regulations of those engines and vehicles. The court granted one of the petitions for review, but only as to a single element of EPA's rule, the scope of the implied preemption of state regulation. The effect of this decision was to broaden the scope of preempted state regulations, leaving in place the ability of states other than California to choose whether to adopt California's standards or the federal standards. It left the main structure of the federal regulatory scheme intact. The environmental effects of this decision are unpredictable, but probably negligible, as they depend upon whether states other than California would have adopted standards tougher than California's or the federal government's, which seems unlikely. The case ought to be counted as a substantial vindication of EPA's rule, despite the single issue reversal. Examining such cases issue by issue gives a much more respectable picture of EPA's performance.

In order to conduct our examination, we first identified the cases in which *Chevron* challenges had been brought, and then separately analyzed each distinct challenge to an EPA interpretation of a statute. Because EPA engages in statutory interpretation in adjudications as well as rules, this analysis was not limited to judicial review of rules. In all we identified 102

⁴¹ 88 F.3d 1075 (D.C. Cir. 1996).

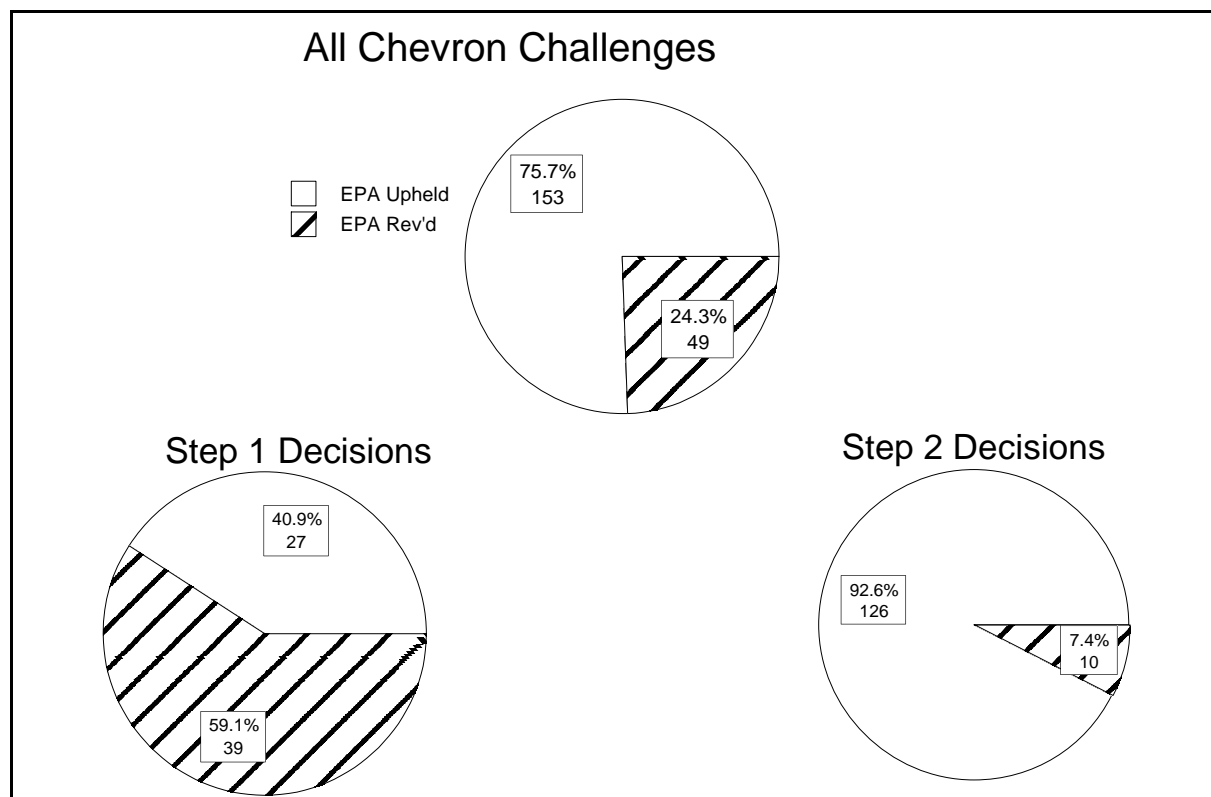


Figure 1

cases in which one or more statutory interpretations of EPA were challenged, 83 of which were rulemaking proceedings.⁴² In these, we identified 202 separate *Chevron* challenges, or an average of 2 per decision. The aggregate results are in Figure 1.

As is well known, Step One of *Chevron* requires the court to decide independently whether or not Congress “has spoken to the precise question at issue.”⁴³ Whenever the court is unable to conclude that Congress has precisely spoken, it is to defer to any “permissible” or “reasonable” interpretation of the agency. From the day it was decided, one of the ongoing interpretational disputes over *Chevron* itself is whether or not the Supreme Court, in announcing this schematic approach to the judicial review of agency interpretations, intended to signal lower courts to be more deferential to agency interpretations.⁴⁴ Since *Chevron*, some of the court’s

⁴² In all, we found *Chevron* cited in 109 separate decisions. Two of these were cases in which EPA was interpreting its own regulations, and five others were decided on procedural grounds without reaching the *Chevron* questions.

⁴³ 467 U.S. 837, 842 (1984).

⁴⁴ See, e.g., Shapiro & Levy, note 8 above, at 1069 (“The language in *Chevron* appeared to order courts to go to step two if there was any ambiguity concerning Congress’ intent about the

subsequent formulations of Step Two have attempted to add further gloss on the question of how much deference is due. For instance, in the *National R.R.* decision, the Court wrote:

If the agency interpretation is not in conflict with the plain language of the statute, deference is due. In ascertaining whether the agency's interpretation is a permissible construction of the language, a court must look to the structure and language of the statute as a whole. If the text is ambiguous and so open to interpretation in some respects, a degree of deference is granted to the agency, though a reviewing court need not accept an interpretation which is unreasonable.⁴⁵

However the Court has described the appropriate amount of deference, it has turned out that once an agency succeeds in convincing the court that the statute is ambiguous, Step Two has given the agency very considerable latitude. Indeed, Judge Stephen Williams of the D.C. Circuit once stated that Step Two asks whether the agency's interpretation could be presented with a straight face to a Kennedy School seminar.⁴⁶ The truly contentious issue in applying *Chevron* has not been how much deference is due but rather when deference is due. The question, in other words, is what determines the boundary line between a statute that is clear and has a meaning discernible by the court without deference to the agency versus when it is ambiguous and results in the court according the agency a degree of deference.

meaning of a statutory term. Since few statutes are absolutely clear, this approach appeared to create a presumption of statutory ambiguity that would be difficult to rebut"); Schuck & Elliott, note 8, above, at 1023 ("Most commentators agreed that in [*Chevron* and *Chemical Manufacturers*] the Court strongly signaled its intention that reviewing courts defer more to agency interpretations of their statutory authority."); Ronald Levin, "The Anatomy of *Chevron*: Step Two Reconsidered," 72 *Chi-Kent. L. Rev.* 1253, 1256-60 (1997). Some of the early commentary interpreting *Chevron* as a signal to lower courts to accord agencies more deference, while disagreeing over the desirability of that signal, include Richard J. Pierce, "Chevron and Its Aftermath: Judicial Review of Agency Interpretations of Statutory Provisions," 41 *Vand. L. Rev.* 301 (1988) (favorable to expanded deference); Peter L. Strauss, "One Hundred Fifty Cases Per Year: Some Implications of the Supreme Court's Limited Resources for Judicial Review of Agency Action," 87 *Colum. L. Rev.* 1093 (1987); Kenneth Starr, "Judicial Review in the Post-Chevron Era," 3 *Yale J. Reg.* 283, 284 (1986); Cynthia R. Farina, "Statutory Interpretation and the Balance of Power in the Administrative State," 89 *Colum. L. Rev.* 452 (1989) (critical of expanded deference).

⁴⁵ *National R.R. Passenger Corp. v. Boston & Maine Corp.*, 112 S. Ct. 1394, 1401-02 (1992) (citations omitted).

⁴⁶ Panel Discussion, "Developments in Judicial Review with Emphasis on the Concepts of Standing and Deference to the Agency," 4 *Admin. L.J.* 113, 124 (1990) (comments of Judge Stephen Williams).

To the untutored, it might seem that very few questions of statutory interpretation will be clear. Regardless of how detailed a statute Congress writes, implementation always raises issues and controversies that have not been squarely anticipated by the statutory text, and it is these that will give the agency and the parties the most difficulty.⁴⁷ *Chevron* itself was an example, raising the question of whether the Clean Air Act's definition of "source" must be read only to mean each discrete piece of industrial equipment emitting the requisite volume of air pollutants, or whether it could also be read to include the facility taken as a whole. The distinction carried implications for a number of significant regulatory judgments, such as deciding whether through modifications a "source" had increased emissions sufficiently to require those modifications to obtain regulatory approval. If the entire facility were a source, plant operators could add new emitting equipment while closing down older equipment without triggering the approval requirement, whereas if each discrete emission point were a source, it could not offset additions with withdrawals in this way. Despite the significance of the issue and the detailed complexity of the Air Act, the statute did not resolve the issue, and the Court deferred to EPA's reasonable decision to use the reading more generous to industry.

Not only should few questions of statutory interpretation be clear, but when they are clear, one might expect that we will see very little litigation over them. A fundamental assumption of the ossification debate is that EPA has strong incentives to avoid reversal of its rules, an aversion which produces cautious behavior by the agency in constructing a defensible record.⁴⁸ If the statute is clear, EPA would know that it could be successfully challenged if it adopted an interpretation that belies the clear text, and thus would have strong reasons to base agency action on a different interpretation, just as it has incentives to invest in extensive procedures above and beyond bare notice-and-comment requirements in order to avoid judicial reversal or, when possible, to eschew rulemaking altogether.

Looking to the 1990s cases, our data on *Chevron* challenges to EPA in the nineties confirm Judge Williams' opinion that Step Two review is very generous to agency interpretations. Even among the interpretations thought questionable enough to challenge in court, once EPA got beyond Step One, it was upheld 92% of the time. There has not been much movement in this result over time. In our sample of two years of cases from the eighties, EPA was upheld 89% of the time in cases that reached Step Two.

⁴⁷ *E.g.*, Thomas W. Merrill, "Judicial Deference to Executive Precedent," 101 *Yale L.J.* 969, 991 (1992) ("[I]f the inquiry at step one is formulated in terms of whether the statutory text discloses that Congress has spoken to the precise question at issue, this results in *even greater* deference to agency views, because Congress has undoubtedly 'spoken to' fewer issues in text than it has through some combination of textual and nontextual sources.")

⁴⁸ *E.g.*, Daniel Farber, *Eco-pragmatism* 189 (1999) ("Because agencies are never sure just how 'hard' the hard look will be, they strive to protect themselves against the most unsympathetic judges.").

1. *The Puzzles of Step One*

Our cases also show that success at Step One is quite a different matter. At Step One, EPA loses 59% of the time. Clearly the courts are actively patrolling the boundary line between the two steps, because they are finding 1/3 of the challenges to EPA interpretations to fall on the Step One side of the line, most of them resulting in EPA losses. According to the courts, in the litigated cases when the statute is clear, EPA gets it wrong more often than right.⁴⁹

Turning from the agency's incentives to those of potential challengers provides a partial explanation for these data. As already noted, some potential challengers place value on delaying the effective date of onerous regulations.⁵⁰ In addition, petitioners may add statutory interpretation challenges to cases brought on other grounds because the marginal costs of bringing a statutory challenge are relatively small. Either impetus can produce statutory challenges even though EPA has interpreted the statute soundly.

Were this a full description of EPA's and petitioners' behavior, we would expect to see some litigated statutory interpretations, as we do -- 202 litigated interpretations in the nineties. In addition, however, we would still expect very few Step One challenges that EPA would lose, because the agency's interpretation is something that it alone controls, and its incentive structure suggests that it would try to avoid making costly mistakes. So the data still require further explanation.

Before proceeding further, we can supply a larger context by comparing EPA's performance to other agencies'. Comparison of our results with those of another study indicate that EPA's success rate at Step One is hardly unusual among regulatory agencies. A study of all cases in the courts of appeals in the years 1995-96 found that in *Chevron* cases resolved at Step One, the agencies lost 58% of the time, a figure essentially identical to EPA's.⁵¹ Overall, the success under *Chevron* of all agencies during the same period was 73%, again nearly identical to

⁴⁹ In addition to analyzing overall performance in the 1990s, we analyzed three different two year periods in the 1990s – 1991-92, 1994-95, 1997-98 – to see if there were any significant variations with the decade. We did find some variations. EPA did less well in the middle period (63% overall success rate) than in the other two (76% and 79%, respectively), but these results are not statistically significant. Thus the shift from litigating Bush-era rules in the 1991-92 period to Clinton-era rules in the rest of the decade did not have a significant impact on EPA's success rate.

⁵⁰ See TAN 39, above.

⁵¹ Orin S. Kerr, "Shedding Light on Chevron: An Empirical Study of the Chevron Doctrine in the U.S. Courts of Appeals," 15 *Yale J. on Reg.* 1, 31 (1998). As with us, Kerr used a single *Chevron* interpretation or application, not a single judicial decision, as his unit of analysis.

EPA's 75.7% success rate during the 1990s.⁵²

EPA, then, does not appear to be out of step with its brother and sister agencies. This raises the possibility that some of the conclusions we draw about EPA's success and failures under *Chevron* may be amenable to extrapolation to federal agencies more generally, although at this point we make no claims in that regard.

Returning to EPA's Step One losses, one possible explanation for them is that our earlier assumptions about EPA's incentives were incomplete. EPA may have incentives to proceed with some interpretations of statutes even when it believes them to be erroneous. A particular interpretation may be necessary to satisfy an important constituency, for example. Adopting a rule utilizing a particular interpretation may enable the agency to take credit for a measure; later on, the courts can take the blame for striking it down. Alternatively, EPA may have such strong policy preferences for its course of action that it is willing to run the litigation risk of reversal. (For this to be true, the *expected* gains from being able to pursue its chosen course – gains discounted by the probability of litigation success – must be larger than the expected gains from pursuing a policy less vulnerable to legal challenge.) Thus, although our aggregate statistics show that EPA does not deviate outside its statutory authority very often, in various ways the pursuit of “political goals and policy expediency”⁵³ may still provide an explanation for some of the Step One reversals that EPA does suffer.

Another distinct possibility for Step One reversals is that EPA and the courts systematically and in good faith disagree over the boundary between the two steps. This hypothesis has not been explored in the existing *Chevron* literature. That literature has noted that the determination of a clear meaning under Step One is hardly a mechanical task. The task often more closely resembles constructing a statutory meaning than it does finding one.⁵⁴ The combination of the many different tools of construction available at Step One and the fluidity of how these tools are to be used together implies that different interpreters can reasonably reach different results.⁵⁵

⁵² *Id.* Our data on Step Two are harder to compare with Kerr's. He found that a considerable number of cases citing *Chevron* ultimately collapsed Step One and Step Two into a single “reasonableness” analysis, and he tabulated these separately from Step Two cases. *Id.* In our review of decisions involving EPA, we found almost no such cases. We cannot explain the divergence between Kerr's results and ours. If, however, his “reasonableness” cases plus his Step Two cases are treated as equivalent to our Step Two cases, then he finds the agency prevailed 84.7% of the time, compared to our figure for EPA of 92.6%.

⁵³ Adler, note 34, above, at 16.

⁵⁴ Merrill, note 17, above at 372.

⁵⁵ Shapiro & Levy, note 8, above.

Some work has been done seeking to discover whether sources of systematic disagreement among interpreters can be found. For example, a number of commentators have explored whether the political ideology or the substantive environmental policy preferences of individual judges affect judicial votes in environmental cases.⁵⁶ Little thought has been given to the possibility that the differences between agency and courts as *institutions* might produce systematic and good faith disagreements resulting in statutory interpretation. Before examining the Step One cases, we develop the reasoning behind this possibility.

The boundary line question, as Justice Scalia has posed it, is the question of “how clear is clear?”⁵⁷ After posing it, he made a much quoted observation about the answer to it:

In my experience, there is a fairly close correlation between the degree to which a person is (for want of a better word) a "strict constructionist" of statutes, and the degree to which that person favors Chevron and is willing to give it broad scope. The reason is obvious. One who finds more often (as I do) that the meaning of a statute is apparent from its text and from its relationship with other laws, thereby finds less often that the triggering requirement for Chevron deference exists. It is thus relatively rare that Chevron will require me to accept an interpretation which, though reasonable, I would not personally adopt. Contrariwise, one who abhors a "plain meaning" rule, and is willing to permit the apparent meaning of a statute to be impeached by the legislative history, will more frequently find agency-liberating ambiguity, and will discern a much broader range of "reasonable" interpretation that the agency may adopt and to which the courts must pay deference.⁵⁸

This passage joins two of Justice Scalia’s passions -- his belief that he will be capable of deciding many of the *Chevron* cases brought before him at Step One and his rejection of legislative history as a source of statutory meaning -- in a puzzling way.⁵⁹ By rejecting legislative

⁵⁶ E.g., Richard J. Pierce, Jr., “Is Standing Law or Politics,” 77 *N.C. L. Rev.* 1741 (1999); Emerson H. Tillier & Frank B. Cross, “A Modest Proposal for Improving American Justice,” 99 *Colum. L. Rev.* 215 (1999); Gregory C. Sisk, Michael Heise, & Andrew P. Morriss, “Charting the Influences on the Judicial Mind: An Empirical Study of Judicial Reasoning,” 73 *N.Y.U.L. Rev.* 1377 (1999); Harry T. Edwards, “Collegiality and Decisionmaking on the D.C. Circuit,” 84 *Va. L. Rev.* 1335 (1998); Richard L. Revesz, “Environmental Regulation, Ideology, and the D.C. Circuit,” 83 *Va. L. Rev.* 1717 (1997).

⁵⁷ Antonin Scalia, “Judicial Deference to Administrative Interpretations of Law,” 1989 *Duke L.J.* 511, 521 (1989).

⁵⁸ *Id.* at 521.

⁵⁹ See especially the discussion in Thomas W. Merrill, “Textualism and the Future of the Chevron Doctrine,” 72 *Wash. U. L.Q.* 351, 366-73 (1994).

history as generative of “agency-liberating ambiguity,” he in effect adopts Judge Leventhal’s view of delving into legislative history, as the equivalent of going to a cocktail party and scanning the crowd to pick out your friends.⁶⁰ While Judge Leventhal more often picked out his friends in the course of reaching an independent judicial judgment of the statute’s meaning, Justice Scalia sees that if legislative history contains numerous statements of varying import from which to choose, a judge under *Chevron* could just as easily use statements from the legislative history selectively to find an ambiguity in statutory meaning which would lead to deference to agency interpretations.⁶¹

Rejecting the use of legislative history to avoid that pitfall, though, creates problems of its own in determining statutory meaning. Legislative history can resolve ambiguities as well as create them, so that excluding resort to legislative history risks lessening one’s ability to find meaning.⁶² Statutes can say just so many things, regardless of how detailed they are, and interpretative disputes can in any event arise near the margins of what they do say. *Chevron* itself is illustrative. If, contrary to fact, the legislative history of the Air Act had compellingly pointed to a definition, a strict constructionist would not be able to resolve the matter at Step One, whereas a judge using legislative history would. Thus, legislative history seems to have a meaning-generating capability as well as an ambiguity-generating one. It therefore seems odd that Justice Scalia could be so confident that a strict constructionist judge will be able to find meaning more often without its use.⁶³ In advance of knowing what particular statutory interpretation problems one will face, and what the legislative history says, it is hard to see how a person could confidently be “one who finds more often ... that the meaning of a statute is apparent from its text and from its relationship with other laws.”⁶⁴

⁶⁰ Patricia M. Wald, “Some Observations on the Use of Legislative History in the 1981 Supreme Court Term,” 68 *Iowa. L. Rev.* 195, 214 (1983).

⁶¹ Justice Scalia has argued that the use of legislative history “has facilitated rather than deterred decisions that are based upon the courts’ policy preferences, rather than neutral principles of law.” Antonin Scalia, *A Matter of Interpretation* 35 (1997).

⁶² See Merrill, note 59, above, at 366-67 (defenders of the use of legislative history “point out that statutory language is often vague or ambiguous and that it is often necessary to determine the purpose of the statute in order to particularize the meaning ...”).

⁶³ Justice Scalia has separation of powers reasons to limit the use of legislative history as well as the functional reasoning that it is ambiguity-creating. Here, we are only interested in the implications of legislative history on the question of whether more disputes could be resolved at Step One with or without its use, not whether its use is proper, all things considered.

⁶⁴ See Merrill, note 59, above, at 370 (“Justice Scalia’s explanation for why the rise of textualism would produce a decline in *Chevron* deference ... is at best unproven.”) See also *id.* at 368-70, for suggestions on how the question of whether legislative history increases ambiguity or

To a considerable degree, this puzzle dissolves if the activity of statutory interpretation is an activity in which thinking a statute is clear (or ambiguous) helps make it so. We think a good deal of light can be shed on Justice Scalia's remarks concerning strict constructionism and on the low success rate for the EPA at Step One, by adopting this hypothesis. The EPA has an institutional interest in finding ambiguity, while Scalian judges have an incentive to discern clarity, and these differences produce differences in the arguments that each finds persuasive when confronting the task of statutory interpretation. The next section amplifies on this hypothesis, beginning by examining statutory interpretation from the agency's perspective.

2. *Institutional Incentives and Motivated Reasoning*

When Congress creates an administrative agency such as EPA, it inevitably vests the agency with a mandate that extends well beyond any strict and narrow implementation of the regulatory components of the statutes it administers. The numerous statutes that contain those regulatory components also give EPA the responsibility to conduct ongoing research and inquiry into the vast array of environmental issues that the country faces.

These inquiries are very often conducted in service of some regulatory objective. EPA analyzes studies of the impact of air pollution on human health and welfare, for example, in order to establish the scientific basis for ambient air quality criteria and standards under §§ 108, 109 of the Clean Air Act. Much of the knowledge EPA gathers regarding environmental problems does not get immediately put to work in implementing regulatory obligations, however. EPA staff monitor emerging environmental research well before it might be put to such task-oriented purposes so that they will be somewhat up the learning curve when rulemaking begins. In addition, EPA studies problems not immediately addressed by a regulatory statute so that it can be in a position to recommend legislation to the President and the Congress, and also to assist in United States participation in multi-lateral or international discussions of transnational environmental problems prior to the existence of any domestic regulatory regime for addressing the issues raised in such fora. For example, EPA has studied global warming for years.

These ongoing activities aimed at building general knowledge and expertise with respect to issues within or bordering on EPA's specific regulatory responsibilities are fundamental to one of the basic purposes for which administrative agencies have been created. In order better to promote the general public health and welfare, Congress and the President must have access to reliable expert knowledge on a continual basis. Even after the progressive administrative ideal of agencies' *administering* social policy on an expert apolitical basis, has atrophied, acquiring and maintaining the knowledge necessary to develop, implement and evaluate social policy still counts as a fundamental justification for such agencies as EPA.

Another fundamental and obvious purpose of agencies such as EPA is to fill in the details in statutory frameworks, to implement these statutes through the issuance of rules and

increases certainty might be tested.

instructions more specific than the statutes themselves, as well as through the enforcement of those rules, to cope with unforeseen circumstances, and to resolve questions of detail that the statutes have not addressed. These functions demand their own brands of knowledge, including knowledge of how the targets of regulation operate and of the environments they face when asked to carry out responsibilities that laws and regulations may impose on them. They also inevitably entail knowledge of the art and science of administration, insofar as executing national regulatory programs requires a bureaucratic structure.

To acquire the necessary intellectual resources, EPA hires professionals with the requisite training and skills to analyze incoming information, to define research problems and to formulate possible responses. These professionals, whether they be economists, lawyers, ecologists, toxicologists, biologists, administrators or members of other professions, come to their work prepared to employ specialized orientations to problem definition, methodologies for analysis and norms for appropriate solutions.

As a consequence of these circumstances and the responsibilities they impose on the agency, individuals and divisions within EPA develop perspectives on the nature of environmental problems as well as the appropriateness of different solutions and implementation structures that stand in a semi-autonomous relationship to the implementation of specific statutory provisions. We will refer to the ideas, recommendations, conclusions and courses of action that internal agency deliberation would generate independently of any Congressional instructions as the autonomous views of the agency.

It is important to see that these autonomous views emerge as a legitimate consequence of the institutional structure, statutory responsibilities and professional training of the agency and its personnel. They are continually relied upon and legitimated by the very laws that Congress enacts, because insofar as Congress vests any administrative discretion and any implementation responsibility in the agency, it does so with the expectation of drawing upon those very expert views. If the agency did not have an independent perspective on better or worse ways to define problems, to approach problem-solving, and to implement programs, Congress would have a highly unattractive agent in whom to repose that discretion and those responsibilities.

At the same time as these autonomous views are necessary, however, they set up a situation of potential tension between the instructions that Congress does give to the agency with respect to problem definition, problem-solving and implementation and those views. Points of tension arise whenever the statutes that emerge from the political environment contain stipulations or requirements that are inconsistent with the judgments that the agency would make if it were operating independently of those statutory strictures. Sometimes these tensions can be very large and long-lasting. For example, EPA for years resisted the Delaney Clause applicable to food additives under the FDCA.⁶⁵ Applying the clause to those substances would have had the effect of prohibiting the use of many pesticides on processed foods, because small residues of

⁶⁵ 21 U.S.C. §348(c)(3)(A).

pesticides often remained after processing. EPA believed that de minimis quantities of such pesticides were acceptable from a public health perspective, that banning pesticides to comply with Delaney would impose substantial costs on farmers and consumers, and that the application of Delaney to processed foods was in any event irrational, in light of the absence of a Delaney Clause applicable to raw agricultural products.⁶⁶ For many years, EPA struggled to find ways around the seemingly absolute instructions of Delaney, so that it could justify the de minimis exception that it employed in setting tolerances under FIFRA. When EPA's position was ultimately challenged in court, EPA lost. The court found the mandatory language in Delaney to be "clear and mandatory: ... Congress intended to ban all carcinogenic food additives."⁶⁷

The tension between EPA's autonomous views and statutory command can also be relatively obscure, apparent only to those mindful of the details of bureaucratic implementation. At issue in *EDF v. EPA*,⁶⁸ for instance, was EPA's attempt to comply with provisions of the Clean Air Act and the Urban Mass Transportation Act regulating any transportation project requiring the approval of a metropolitan planning organization, a regional body set up under the UMTA as a condition for receiving federal funding. Those provisions prohibit any MPO from approving a specific project unless it comes from a "conforming" plan, meaning a transportation plan that assists in the attainment or maintenance of ambient air quality standards.⁶⁹ In their entirety, EPA found the conformity provisions added by the 1990 Amendments, including this one, to be "astonishingly confusing," and capable of "frustrat[ing] the process of state and federal cooperation and the integrated planning of transportation projects that [these provisions were] created to foster."⁷⁰ EPA attempted to ameliorate some of the disruption by providing that for transportation projects not receiving federal funds, the statute was satisfied if the project came from a plan that had at one time been conforming, even if changes in the SIP requirements had subsequently made the plan non-conforming.⁷¹ In EPA's judgment, the "grandfathering" of non-federally funded projects in this way (federally funded projects were not grandfathered at all)

⁶⁶ See Robert Percival, et. al, *Environmental Regulation: Law, Science and Policy* 494-505 (3d ed. 2000).

⁶⁷ *Les v. Reilly*, 968 F.2d 985, 988-89 (9th Cir. 1992). FDA had likewise tried to circumvent Delaney for years. See Richard Merrill, "FDA's Implementation of the Delaney Clause: Repudiation of Congressional Choice or Reasoned Adaptation to Scientific Progress?" 5 *Yale J. on Reg.* 1 (1988). Its efforts also proved unsuccessful. *Public Citizen v. Young*, 831 F.2d 1108 (D.C. Cir. 1987).

⁶⁸ 167 F.3d 614 (D.C. Cir. 1999).

⁶⁹ *Id.* at 643-44.

⁷⁰ *EDF v. EPA*, 82 F.3d 451, 468 (D.C. Cir. 1996).

⁷¹ 167 F.3d at 646.

instilled a desirable flexibility, and hence made the integration of air policy and transportation planning more administrable, than effectively placing a moratorium on all transportation projects until new conforming plans had been written and approved.

Over a dissent by Judge Stephen Williams, a panel of the D.C. Circuit found that the grandfather provision violated clear instructions of the Congress. The majority concluded that authorizing grandfathered projects could result in authorizing projects that might not be assured of not “caus[ing] or contribut[ing] to any new violation of any standard in the area,” as required by 42 U.S.C. § 7506(c)(1)(A). Because the out-of-conformity old plan had not been approved for conformity to currently existing requirements, it might authorize projects inconsistent with new modeling or new ambient requirements, and thereby end up contributing to new violations.⁷²

These tensions will arise whenever the legislature creates an administrative bureaucracy to implement complex regulatory regimes requiring the acquisition of expertise and the exercise of discretionary judgment. The chances for such clashes have only increased in the modern era of American administrative government, in which the President and the Executive Branch have become recognized organs of national policy creation. In this environment, a President is expected to have independent positions on issues of national significance. Especially when environmental policy has been among the issues separating the presidential candidates, as it regularly has since President Carter ran against Governor Reagan in 1980, the victorious President feels entitled to seek to implement his positions, and the public expects him to do so. Even when those positions are at odds with existing statutes, Presidents legitimately seek to exercise what discretion the laws afford them in order to implement those positions, even while they attempt to change those laws.

The *Chevron* decision provides the Supreme Court’s current understanding of the way to resolve conflicts between the autonomous views of the agency and the statutory commands of the Congress. Insofar as a statute clearly speaks to the precise question in dispute, the statute prevails. If the statute does not speak clearly, the agency can legitimately and lawfully implement its autonomous views through the exercise of its administrative discretion, so long as its action is consistent with a reasonable construction of the statute. *Chevron* amounts to a lexical ordering: first satisfy Congress’s clear instructions, then exercise reasonable discretion.

Although written as a template for judicial review, *Chevron* speaks in the first instance to the agency itself, because it is the agency that must first determine whether there are clear instructions to be followed or, on the other hand, room for discretion to be exercised.⁷³ If the agency finds itself in the first category, the tension between its views and the Congress’ is

⁷² Id. at 646-47.

⁷³ The interpretive responsibilities of the administrative agency are closely analyzed in Peter Strauss, “When the Judge Is Not the Primary Official with Responsibility to Read: Agency Interpretation and the Problem of Legislative History,” 66 *Chi.-Kent L. Rev.* 321 (1990).

resolved by Congress' prevailing. If instead it finds itself in the second category, the tension is resolved by the agency's views prevailing. Crucially, then, it is the agency who in the first instance determines the boundary of its own discretion, not someone acting through processes external to the very institution whose structure, responsibilities and professionalism produce the tension in the first place.

Because the agency has views about the appropriate ways to proceed with respect to the policy or administrative question at issue, the endogeneity of the *Chevron* determination means that the boundary is initially located by an actor with incentives to reduce the territory controlled by Congress and increase the territory that it controls. In *Chevron* terms, the agency has a predisposition to find ambiguity. This predisposition does not operate exclusively of others, however. The agency also has strong incentives to make decisions that are acceptable to Congress, and for several reasons. For one thing, Congressional actions such as budgetary decisions and oversight pressures can affect the agency's ability to accomplish its objectives. If it believes that Congress will monitor its statutory interpretations, this can provide a counterforce to pursuing its own preferences. In addition, the judiciary creates incentives as well – the incentives that contribute to the ossification effect – by signaling what it will take to survive judicial review.

A final institutional element that functions as a counterweight to agency pursuit of its autonomous views is the professionalism of its staff attorneys, who by training are supposed to be committed to pursuit of the rule of law.

While we do not doubt the general tendency of agency lawyers to be respectful of Congress' instructions, these attorneys are still operating within the institution of the agency itself, and so are themselves immersed in the distinctive norms of the institution.⁷⁴ To the extent that these norms are internalized by the lawyers, they produce a desire to see the agency's views effectuated. Even if such norms are not internalized, staff attorneys have self-interested incentives to find ways to enable their superiors to give effect to agency preferences, rather than to thwart them. So the shape of professional norms does not persist unaffected by the institutional setting – indeed, the concern of an attorney to advance rather than retard her client's interests is itself a significant aspect in the norms of the legal profession. In short, agency lawyers are relatively poor candidates to follow unerringly in the tradition of Oliver Wendell Holmes' self-description. Holmes once wrote to Harold Laski about a case involving a federal statute. "I hope and believe," he wrote, "that I am not influenced by my opinion that it is a foolish law. I have little doubt that the country likes it and as I always say, as you know, that if

⁷⁴ By focusing on lawyer's professionalism, we should not be taken to suggest that non-lawyer policy makers are easily prone to ignore the law. In our experience, the vast majority of appointed officials take the rule of law very seriously, too. As the text indicates, we think both lawyers and non lawyers within the agency experience cross-cutting desires. A lawyer's training may, we believe, lead her to experience the rule-of-law desires more intensely than a non-lawyer, but that is just a central tendency, not an inevitability.

my fellow citizens want to go to Hell I will help them. It's my job."⁷⁵ While this disposition might be applicable to some Scalian judges, it is less so to most agency attorneys.

The existence of potentially countervailing preferences does not erase the agency disposition to resolve the boundary question in its favor. Those countervailing preferences simply provide a check on it which may or may not be sufficient to blunt its effect. The agency's autonomous views still motivate it to find statutory ambiguity.

In other contexts, cognitive psychologists have found some evidence that motivations such as these can influence the very process of reasoning itself. They have developed a theory of motivated reasoning to explain these results, which hypothesizes that when someone has "a wish, desire, or preference that concerns the outcome of a given reasoning task," then this motivation "may affect reasoning through reliance on a biased set of cognitive processes: strategies for accessing, constructing, and evaluating beliefs."⁷⁶ In other words, in reasoning through a problem, individuals will tend to be persuaded by arguments that take them to conclusions that they prefer.

The model of the reasoning process lying behind the theory posits that when confronted with a reasoning problem we access an existing supply of beliefs, inference rules, evaluation techniques and arguments. A considerable body of work shows that "people access different beliefs and rules on different occasions: They endorse different attitudes ... express different self-concepts ... make different social judgments ... and use different statistical rules."⁷⁷ The theory of motivated reasoning adds to this general result by positing that "directional goals" regarding the outcome of the reasoning process are among the conditions that can influence the beliefs and rules and the evaluations that people preferentially access, employ and find persuasive. For instance, in one study women who were also heavy caffeine consumers were less convinced by the evidence in an article claiming that caffeine posed risks for women than were women who were low consumers of caffeine. Each group evaluated aspects of the article in different ways, finding evidence or inferences stronger or weaker according to the result that accorded best with their personal habits. Men showed no such differential effects.⁷⁸ Similarly, persons who endorsed the thesis that capital punishment deters crime were more likely to criticize a disconfirming study on the basis of such reasons as "insufficient sample size, nonrandom sample selection, or absence of control for important variables" than were those who already believed

⁷⁵ Letter from Oliver W. Holmes to Harold J. Laski (Mar. 4, 1920), in 1 *Holmes-Laski Letters 1916-1935*, 248-49 (Mark D. Howe ed., 1953).

⁷⁶ Ziva Kunda, "The Case for Motivated Reasoning," 108 *Psych. Bull.* 480, 480 (1990).

⁷⁷ *Id.* at 483.

⁷⁸ Ziva Kunda, "Motivation and Inference: Self-serving Generation and Evaluation of Evidence," 53 *J. of Personality & Soc. Psych.* 636 (1987).

that capital punishment was not a deterrent.⁷⁹ In short, “people are more likely to arrive at those conclusions that they want to arrive at.”⁸⁰

Motivated reasoning does not mean that anything goes so long as it leads to the desired conclusion. “People are not at liberty to believe anything they like; they are constrained by their prior beliefs about the acceptability of various procedures.”⁸¹ The motivation to employ acceptable reasoning methods seems to be stimulated by the expectation that the results of the reasoning process will be evaluated by others. Research has confirmed that subjects who expected to be evaluated, or expected their judgments to be made public, reduced their tendency to rely upon cognitive biases thought to lead to less defensible judgments, such as the use of ethnic stereotypes, anchoring when making probability judgments, or excessively attributing causality to individuals when their choices were constrained by their environment (the fundamental attribution error).⁸²

Unfortunately, we do not know of any empirical studies testing the theory of motivated reasoning directly on lawyers or judges. We believe, however, that any lawyer who has litigated a case has at some time had experiences consistent with the theory. Lawyers are trained to advocate vigorously for their clients, including presenting the best legal arguments to advance their client’s interest, when called upon to do so. Finding the best argument for a client does not mean, however, that one has found the best argument for the outcome of the case. The best argument of the other side might be better. This is not, however, how lawyers many times experience the process of analyzing facts, researching arguments, testing theories and developing their eventual legal position. More often than not, lawyers become convinced not only that they have found the best arguments for their side, but that their arguments are superior to the other side’s. Having the strong motivation to find persuasive arguments to support their client’s position, they will find persuasive those argument types, evaluative techniques and other elements in the reasoning process so as to lead to the vindication of their client’s position, just as the theory of motivated reasoning suggests.⁸³

⁷⁹ Kunda, note 76, above, at 490 (citing C.G. Lord, L. Ross & M.R. Lepper, “Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence,” 37 *J. of Personality & Soc. Psych.* 2098 (1979)).

⁸⁰ *Id.* at 495.

⁸¹ *Id.* at 490.

⁸² *Id.* at 481 (citing studies).

⁸³ This hypothesis could in theory be tested. Through some appropriate screening, we ought to be able to construct a sample of litigated cases in which the ex ante probabilities of prevailing were approximately .5 for each side. We could then question the lawyers for each side to find out if they believed that they had better legal arguments than their opponents. If the

If the results of this research can be extrapolated to the context of statutory interpretation, it leads us to expect an agency like EPA would find ambiguity more often than would someone either disinterested or less interested in the outcome or by someone motivated to prefer Congress' views. Thus, the average judge would seem less likely than EPA to find ambiguity in statutes. Adding the incentives of a Scalian judge would only enlarge this gap. By precommitting himself to the position that texts quite often have clear meaning, a Scalian judge has further incentives to find clarity where others might find ambiguity. Under the theory of motivated reasoning, the differences in predispositions between the agency and the judiciary operate within the process of reasoning itself by affecting the inferences, arguments and conclusions that each finds persuasive. The theory of motivated reasoning thus provides one way to explain why a strict constructionist judge who believes that statutes usually have clear meanings will in fact and in good faith find them to have clear meanings more often than someone disposed to find ambiguity will in fact and in good faith find clarity in them.

If this hypothesis is valid, we should find two features in examining statutory interpretation by courts and EPA. First, we should be able to find pairs of professionally acceptable argument-types that might appropriately be called upon at a particular point in a statutory analysis, one of which would aid the conclusion that the statute is ambiguous, the other of which would aid the conclusion that the statute is clear.⁸⁴ Second, we ought to find EPA availing itself more often of the former, and the judiciary more often employing the latter. A significant number of EPA's Step One losses meet these two requirements. Those that do not illustrate further features of the process of statutory interpretation that are also consistent with the hypothesis. We begin with the group of cases exhibiting the two features just noted.

3. *The Sounds of Silence*

Whenever a statutory challenge raises a question as to which the statute does not speak *expressly*, inferences from various sources of meaning will have to be employed to determine whether the statute nevertheless speaks *clearly*. According to the theory of motivated reasoning, agency lawyers will find inference rules that tend to produce ambiguity more persuasive than Scalian judges do. Our set of Step One cases provides one clear confirmation of this effect: the government's reliance on, and the judiciary's skepticism toward, the principle that failure of a statute to prohibit EPA consideration of particular factors or considerations in developing regulations gives the agency the discretion to consider them – in short, the principle that failure

motivated reasoning hypothesis is correct, the percentage of both winning and losing attorneys responding affirmatively ought to be greater than 50%.

⁸⁴ Of course, the overall enterprise of statutory interpretation is notorious for exhibiting such paired argument-types. Karl N. Llewellyn, "Remarks on the Theory of Appellate Decision and the Rules or Canons About How Statutes Are to Be Construed," 3 *Vand. L. Rev.* 395, 401-06 (1950) (listing canons and counter canons).

to exclude equals ambiguity.⁸⁵

In defending EPA rules, the government repeatedly relies upon a version of this argument – and the courts regularly reject it. In *American Forest and Paper Ass’n v. EPA*,⁸⁶ for example, petitioners challenged an EPA decision to delegate discharge permit issuing authority under the Clean Water Act to Louisiana, but only on the condition that the state continue to consult with the federal Fish and Wildlife Service and the National Marine Fisheries Service to ensure that endangered species would not be threatened by discharges contemplated by the permit. The CWA provides that EPA “shall” delegate permitting authority to a state program that meets nine specified requirements.⁸⁷ None of these stated requirements could be construed to encompass the consultation requirement. EPA argued that it was authorized under the statute to add conditions above and beyond the nine, because the statute did not expressly say that the stated requirements were exclusive.⁸⁸ The court rejected this interpretation, finding under Step One that the nine stipulated requirements were exclusive.

*American Petroleum Institute v. EPA*⁸⁹ involved a challenge to an EPA rule requiring standards for reformulated gasoline under the Clean Air Act mandating that 30% of the oxygen in reformulated gasoline be derived from renewable sources. The requirement had the effect of guaranteeing a market for ethanol, at that time the leading source of renewable oxygenate. The government relied upon EPA’s statutory authorization to issue “requirements for reformulated gasoline.... Such regulations shall require the greatest reduction in emissions of ozone forming volatile organic compounds ... achievable through the reformulation of conventional gasoline, taking into consideration the cost of achieving such emissions reductions, any nonair-quality and other air-quality related health and environmental impacts and energy requirements.”⁹⁰ EPA asserted that the second sentence did not expressly limit the “requirements” that EPA could issue to those that achieved emissions reductions, and that the term was broad and undefined in the

⁸⁵ We refer to the government’s use of this argument in order to highlight the fact that once EPA rules end up in court, litigation decisions, including what arguments to advance, are controlled by the Department of Justice.

⁸⁶ 137 F.3d 291 (5th Cir. 1998).

⁸⁷ 33 U.S.C. § 1342(b).

⁸⁸ In part, it relied upon another section of the CWA instructing EPA to promulgate “guidelines for the purpose of establishing uniform application forms and other minimum requirements for the acquisition of information,” as well as “the minimum procedural and other requirements of any State program.” 33 U.S.C. § 1314(i).

⁸⁹ 52 F.3d 1113 (D.C. Cir. 1995).

⁹⁰ 42 U.S.C. § 7545k(1).

statute. This gave EPA the discretion, it claimed, to issue reformulated gasoline regulations designed to preserve the financial viability of renewables and to shift some portion of the additives used to comply with the content requirements of reformulated gasoline to renewables, which EPA viewed as environmentally advantageous.⁹¹ The court rejected this argument, finding that the second sentence of the provisions authorizing EPA's regulations stated their "sole purpose." Because EPA conceded that adding the renewables requirement was not expected to achieve greater emissions reductions, and might even lessen them, its rule was vacated as inconsistent with the statute, as the court interpreted it at Step One.

*Friends of Crystal River v. EPA*⁹² involved an objection the agency had lodged against a dredge and fill permit application filed with Michigan's Department of Natural Resources. Acting under statutory authority and pursuant to regulations previously issued, EPA announced that it was transferring the further processing of the permit to the Army Corps of Engineers. Roughly one and one-half years later, EPA withdrew its objection and stated that it was appropriate for State processing to proceed. Petitioners argued that EPA lacked the authority to rescind the objection. EPA asserted that it did possess such authority, "because § 1344(j) [of the Clean Water Act] does not specifically preclude the EPA's withdrawal of its objections."⁹³ The court agreed with the petitioners. The Clean Water Act provided a time limit within which the state must comply with EPA's objections, after which the Corps "may" issue the permit. Despite the use of the permissive qualifier, the court held that EPA lacked authority to pull its objection back after the state's time limit had elapsed.

In *Mead Corp. v. EPA*,⁹⁴ EPA had aggregated two non-contiguous sites under its Aggregation Policy, giving them a single Hazard Ranking System number, and placing the aggregated site on the National Priority List compiled under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), even though one site was more than a mile from the other, and would not have qualified if treated separately. As part of its defense of its Aggregation Policy, EPA noted that §105 of CERCLA, which governs placing sites on the NPL, was silent on the issue of aggregation, meaning that EPA had discretion to aggregate in the way it had. In an analysis that blended the two steps of *Chevron*, the court disagreed. It analyzed CERCLA's text as a whole, as well as the purposes of its various provisions to find no basis for this kind of aggregation. Without squarely holding that EPA's interpretation violated Step One, the court also noted that even if EPA had discretion under § 105, permitting the aggregation of low-risk and high-risk sites for listing purposes was unreasonable.

⁹¹ 52 F.3d at 1118.

⁹² 33 F.3d 1073 (6th Cir. 1994).

⁹³ *Id.* at 1080.

⁹⁴ 100 F.3d 152 (D.C. Cir. 1996).

The conflict between EPA and the courts over the sounds of silence is the most evident pattern in the Step One reversals. In all we found a dozen cases in which EPA unsuccessfully advanced some version of the silence is ambiguity argument, only to be met by the court's counterthrust that the statutory conditions were exclusive.⁹⁵

In *Ethyl Corp. v. EPA*,⁹⁶ the D.C. Circuit supplied an extended analysis of the reasons for this disagreement. The case was brought by Ethyl Corporation after EPA had denied its application for a waiver from the Clean Air Act's ban on new fuel additives.⁹⁷ The Air Act provides that EPA "may waive" that ban if it "determines that the applicant has established that such ... additive ... will not cause or contribute to a failure of any emission control device or system ... to achieve compliance [with the Act's emissions standards]."⁹⁸ After multiple applications and litigation, EPA determined that Ethyl's MMT, an anti-knock additive, satisfied this condition. Nonetheless, EPA refused to issue the waiver, because it had concerns about the public health impact of MMT in the environment. It claimed that because the waiver provisions did not state that they were exclusive, the agency had discretion to consider "whether granting the waiver was consistent with the objectives of the Clean Air Act."⁹⁹ Despite the presence of the permissive verb, "may," the court rejected EPA's position, finding at Step One that Congress had limited the factors that EPA may consider to those stated in the statute. Because Ethyl Corp. had satisfied these, the waiver must issue.¹⁰⁰

In the court's judgment, "implicit in EPA's argument was the notion that if Congress has not mentioned public health in section [7545(f)(4)], then the statute was "silent or ambiguous" as to that issue," thereby triggering Step Two instead of Step One review.¹⁰¹ Failure to state a condition or to declare expressly that the terms used were exclusive, however, was not going to be enough to satisfy the court that Congress had "explicitly or implicitly delegated discretionary authority" to the agency.

⁹⁵ In addition to the cases reviewed in the text, *see* *Backcountry Against Dumps v. EPA*, 100 F.3d 147, 150-51 (D.C. Cir. 1996); *Davis County Solid Waste Management v. EPA*, 101 F.3d 1395, 1404-05 (D.C. Cir. 1996); *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1088 (D.C. Cir. 1996); *Fertilizer Inst. v. EPA*, 935 F.2d 1303, 1310 (D.C. Cir. 1991); *Leaf Environmental Assistance Found. v. EPA*, 118 F.3d 1467, 1474 (11th Cir. 1997).

⁹⁶ 51 F.3d 1053 (D.C. Cir. 1995).

⁹⁷ 42 U.S.C. § 7545f(1).

⁹⁸ 42 U.S.C. § 7545f(4).

⁹⁹ 51 F.3d at 1054.

¹⁰⁰ *Id.* at __.

¹⁰¹ *Id.* at 1060.

To suggest, as the [agency] effectively does, that *Chevron* step two is implicated any time a statute does not expressly negate the existence of a claimed administrative power ... is ... flatly unfaithful to principles of administrative law.... Were courts to presume a delegation of power absent an express withholding of such power, agencies would enjoy virtually limitless hegemony, a result plainly out of keeping with *Chevron* and quite likely with the Constitution as well. We refuse, once again, to presume a delegation of power merely because Congress has not expressly withheld such power.¹⁰²

When *Chevron* was first decided, though, it was far from clear that EPA's argument would produce results "plainly out of keeping" with that decision, because the implications of the decision were hardly apparent on the face of the decision itself – the Court itself had not precisely spoken to the precedential import of *Chevron*.¹⁰³ *Ethyl Corp* reads a "strict constructionist" meaning into *Chevron*. In rejecting EPA's argument, *Ethyl Corp*. reins in the hegemony of the agencies by establishing the hegemony of the Scalian judge. Strict constructionist judges "do not start from the premise that the [statutory] language is imprecise. Instead, [they] assume that in drafting legislation, Congress said what it meant."¹⁰⁴ Judges with such a disposition are going to find EPA's argument unpersuasive. Statutes are much more precise if, as a general rule, they are taken to exclude that which they do not expressly allow rather than, as EPA would have it, allowing what they do not expressly exclude.

Silence can be heard many different places in federal statutes, though, and it would be highly unlikely that courts could adhere unequivocally to such a strict interpretive rule. As often as EPA fails to prevail in claiming an expansive interpretation of silence, it prevails in enough other circumstances so that it has legitimate reasons to continue to believe in and to press its approach notwithstanding the defeats it has suffered. For example, on several occasions the D.C. Circuit has permitted EPA to exercise discretion to weigh costs against benefits or to consider compliance costs in determining how to proceed under statutory language where such considerations are at best an awkward fit. One of these, for example, involved a rule issued by EPA to implement interstate pollution transport restrictions added to the Air Act by the 1990 Amendments. Under these requirements, state implementation plans must prohibit any source from "contribut[ing] significantly" to nonattainment of the ambient air quality standards by any other state.¹⁰⁵ In the challenged rule, EPA had issued a SIP-call requiring 22 states and the District of Columbia to require "highly cost-effective controls" on NO_x emitters, defined as

¹⁰² Id. (internal quotations and citations omitted).

¹⁰³ See, e.g., Levin, note 44, above.

¹⁰⁴ United States v. LaBonte, 520 U.S. 751 (1997) (Thomas, J.).

¹⁰⁵ 42 U.S.C. § 7410(a)(2)(D)(i)(I).

controls capable of removing NOx at a cost of \$2000 or less per ton.¹⁰⁶

Within the overall structure of the Air Act, using costs as a determinant of “significant” for purposes of attaining the NAAQS in this way appears quite out of place. In constructing their SIPs, states are required under the Air Act to assure compliance with the NAAQS by statutorily established deadlines and, once in attainment, are to assure that the NAAQS will be maintained, regardless of the cost.¹⁰⁷ Under EPA’s interpretation of the cross-boundary responsibilities of states, a downwind state could be forced to impose controls on intrastate NOx generators at control costs considerably in excess of \$2000 per ton while upwind sources continue to produce emissions that materially hamper downwind state compliance and which could be abated less expensively.

Nonetheless, the court granted EPA the discretion to take costs into account in determining what amounts to a significant contribution to downwind air quality.¹⁰⁸ In doing so, the court relied in part upon a rule followed in several prior D.C. Circuit decisions that only “clear congressional intent to preclude consideration of cost” will prevent an agency from doing so.¹⁰⁹

It is beyond the purposes of this current paper to debate the merits of the court’s clear statement rule regarding costs.¹¹⁰ What is relevant is this: such a clear statement rule points in just the opposite direction from the court’s rulings that reject EPA’s arguments that failure to exclude amounts to permission. In its own sphere of application, the clear statement rule adopts a position indistinguishable from EPA’s: failure to exclude the consideration of costs is to permit them.

The clear statement cases are not flatly in conflict with the outcomes adverse to EPA which we have reviewed in this section, none of which addressed an agency attempt to invoke cost considerations not provided for by the clear text of the statute. Nonetheless, rulings like these clear statement holdings do establish a jurisprudence of judicial review that can give

¹⁰⁶ Michigan v. EPA, 213 F.3d 663, 669 (D.C. Cir. 2000).

¹⁰⁷ Union Elec. Co. v. EPA, 427 U.S. 246 (1976).

¹⁰⁸ Michigan v. EPA, 213 F.3d at 677-678.

¹⁰⁹ *Id.* See also George E. Warren Corp. v. EPA, 159 F.3d 616, 622-24 (D.C. Cir 1998), *rehrg. granted*, 164 F.3d 676 (D.C. Cir. 1999); Grand Canyon Air Tour Coalition v. FAA, 154 F.3d 455, 475 (D.C. Cir. 1998), *cert. denied*, 526 U.S. 1158 (1999).

¹¹⁰ This clear statement rule has been invoked by industry cross-petitioners and their amici in the *American Trucking Ass’n v. Browner* case currently pending in the Supreme Court. The eventual Supreme Court decision in the matter could give further guidance on its use.

agency lawyers some justification for continuing to invoke the ambiguity-generating norm regarding silence, because they indicate that in *some contexts* the court will be more receptive to the argument than in others. Whether the court will accept or reject the ambiguity-generating norm thus turns out to be a matter of case-by-case decision making, rather than a blanket rule. Because each statutory context can be distinguished from others, usually for a multitude of reasons, there will be plenty of contextual material to mine in search of potentially distinguishing characteristics that will take the next interpretive question out of the realm of the court's certainty-generating rule and into the realm in which it grants EPA the discretion to proceed. In *Ethyl Corp.*, for example, the court held that a statute saying that EPA "may waive" a prohibition on new fuel additives for gasoline if EPA made certain determinations precluded EPA from considering the public health and welfare in deciding whether or not to exercise that authority.¹¹¹ The use of the permissive phrasology provided EPA a reasonable ground on which to distinguish that statutory context from others using mandatory phrasology. It was not successful in that case, but *ex ante* it was a reasonable position to take.

4. *Hard Cases*

A number of decisions illustrate that the project of finding a statute's plain meaning can be a very complex task, whether or not one looks to legislative history as a legitimate interpretive tool. Even the most widely accepted tools of construction can be deployed in complex ways. One layer of complexity stems from arguments based on the "text and structure of the statute taken as a whole" as an aid in that process, and many also avail themselves of other provisions of the United State Code for assistance. In the case of other provisions of the statute itself, judges employ the principle that "a court must ... interpret the statute as a symmetrical and coherent regulatory scheme," and "fit, if possible, all parts into an harmonious whole."¹¹² While the specific uses of the "text and structure" vary, they take on several general forms. Beginning with the statutory provision or provisions that are the textual focus of the interpretive dispute, the court tentatively inserts one of the candidate interpretations and then traces out the implications of that interpretation for the operation of other parts of the statute, or sometimes for other statutes. Alternatively, judges can invoke other statutory provisions that define a term similar or identical to a term in controversy in other contexts. Both techniques were on display in the recent *Brown & Williamson*¹¹³ decision holding that the FDA lacked statutory authority to regulate tobacco. The Supreme Court analyzed the portions of the FDCA instructing FDA as to what regulatory options it possessed once it asserted jurisdiction over a drug or a drug delivery device. The majority concluded that the remedial parts of the FDCA would require banning tobacco products, because they could not be shown to satisfy the statutory criterion of safety.

¹¹¹ See TAN 95-100, above.

¹¹² *FDA v. Brown & Williamson Tobacco Corp.*, 120 S.Ct. 1291, 1301 (2000) (citations omitted).

¹¹³ *FDA v. Brown & Williamson Tobacco Corp.*, 120 S.Ct. 1291 (2000).

This result, it further concluded, was contrary to Congressional pronouncements in other statutes, which the Court read to preclude prohibiting the sale of tobacco products.

Use of text and structure and comparisons with other statutes can require tracing the implications of a contested provision through multiple steps, especially in fields as statutorily dense as environmental, health and safety legislation. Each step introduces the possibility of disagreement over the interpretation of other statutory provisions. As significant as any other factor capable of producing good faith disagreement, what counts as a “coherent” and “harmonious” reading of the statute admits of no unique answer.

No better example of the possibility of conflicting harmonizations of a statute exists than in the litigation recently viewed by millions of Americans as it was being presented to the Florida Supreme Court. Florida election law has long provided that the Secretary of State “shall” certify the votes received from each of Florida’s 67 counties seven days after an election.¹¹⁴ Returns from counties not certifying votes to the Secretary by that time “shall” be ignored. The state’s election statutes also provide a procedure to conduct a manual recount of votes originally tabulated by machine,¹¹⁵ and in large counties this is not a task that can be finished in seven days, especially if a candidate waits until near the end of her statutorily provided window after the election for making such a request.¹¹⁶ A recent addition to the Florida election law provides that returns from counties filed after the seven day deadlines “may” be ignored and the election “may” be certified.¹¹⁷ Finally, Florida election law provides that “write-in, absentee and manually counted results shall constitute the official return of the election.”¹¹⁸

Secretary of State Harris “harmonized” these statutory provisions by concluding that the mandatory “shall” language imposed an obligation on her which the permissive “may” language did not negate, meaning that she was required by law to ignore manual recounts filed after the 7th day. In her view, manual recounts were harmoniously accommodated under the certification process to the extent they could be completed within seven days. The statutory procedures existing to contest an election after certification were adequate to accommodate justifiable recounts after that. Alternatively, the Palm Beach County Canvassing Board “harmonized” these statutory provisions by concluding that the more recently enacted permissive “may” language took precedence over the mandatory “shall,” that the importance of counting every Floridian’s

¹¹⁴ § 102.111(1) Fla. Stat. (2000).

¹¹⁵ § 102.166(5)(c) Fla. Stat. (2000).

¹¹⁶ Candidates have until the county certifies its votes, or until 72 hours after the election, whichever comes later, to file a request. § 102.166(4)(b) Fla. Stat. (2000).

¹¹⁷ §102.112 Fla. Stat. (2000).

¹¹⁸ §101.5614(8) Fla. Stat. (2000).

vote argued for the statutorily authorized manual recounts to count in the final certification and that this reading was most consistent with the language including manually recounted votes in the “official return” for the election. Without invoking outside-the-statute values, such as the paramount importance of counting every Floridian’s vote, each of these harmonizations does a sensible job in fitting together the pieces of Florida’s election laws.¹¹⁹

Uses of the tools of “text and structure” and additional statutes often seem to be most persuasive when they are cumulative, as when one can show that the opposition’s suggested interpretation creates anomalies or inconsistencies in several different parts of the statute or when compared to usages in the provisions of other statutes. In other words, the more statutory material that can affirmatively be harmonized, or the more statutory glitches or rough edges that can be revealed, the more persuasive the argument for, or against, a particular reading. In the *American Trucking Ass’ns* case, for instance, the government’s brief before the Supreme Court traces the implications of their opponents’ proffered interpretation of § 110 of the Clean Air Act through seven other distinct provisions of the Act to show that the interpretation proffered by the industry petitioners creates tensions or inconsistencies with these other provisions and that the government’s reading best harmonizes the statute.¹²⁰

The other tools of statutory construction also produce strands of argument that contribute cumulatively to the court’s ultimate conclusion. Appeals to statutory purposes and goals, to punctuation, to dictionaries, and to the drafting history of enactments all can play roles,

¹¹⁹ Relying on this value, which it derived from the state Constitution, the Florida Supreme Court sided with Palm Beach County’s interpretation. *Palm Beach Cty. Canvassing Bd. v. Harris*, Nos. SC00-2346, -2348 and -2349 (Fla. Sup. Ct., November 21, 2000), *vacated*, *Bush v. Palm Beach County Canvassing Bd.*, 121 S.Ct. 471 (2000).

Brown and Williamson also involved dueling statutory harmonizations. Contrary to the majority, the dissent concluded that the remedial sections of the FDCA provided the FDA with options other than prohibiting the sale of tobacco products, so that there was no conflict between the FDA asserting jurisdiction and permitting the continued sale of tobacco products, conditioned on compliance with FDA regulations. 120 S.Ct. at 1322-25 (Breyer, J., dissenting). Even if it were the case that jurisdiction over tobacco implied prohibition of tobacco sales, though, this hardly put the two portions of the FDCA into disharmony, according to the dissent. The dissent, who did not read the ancillary statutes invoked by the majority to preclude a ban on sales, found it just as harmonious to read the statute so as to ban tobacco as it was to read it so as to deny the FDA jurisdiction. *Id.* at 1322.

¹²⁰ Brief for Federal Respondents, *American Trucking Ass’ns v. Browner*, U.S. Supreme Court, No. 99-1426, pp. 32-44. The government also argues that other statutes, such as the Unfunded Mandates Reform Act, are compatible with the government’s reading, thus negating the affirmative use to which their opposition seeks to put those statutes.

depending upon the statutory provision at issue and the larger statutory context in which that provision is found. Furthermore, there does not seem to be any complete hierarchical ranking of these tools. Rather, each type of argument seems to gain strength, and thus be harder to negate with countervailing arguments, to the extent it is clear and decisive, measured against arguments of its type. A dictionary based argument in which all consulted dictionaries agree is stronger than one in which there is variance among them, for example. No case addresses how to compare a strong dictionary argument to a competing purposes and goals argument, though.

Overall, then, statutory interpretation often seems to involve the building of a cable of interwoven strands, rather than the construction of a continuous chain of deductive reasoning.¹²¹ This way of reasoning, familiar to pragmatists,¹²² can entail numerous junctures at which presumptions, biases or other intellectual tools that assist in drawing inferences must be employed. It also means that, at the end of the day, the overall strength of the cable must be assessed, because disproving or rejecting any single strand does not itself invalidate the ultimate conclusion reached. Each of these junctures presents occasions at which persons motivated to find ambiguity and persons motivated to find settled meaning can diverge.

We found a group of decisions in which a dense statutory thicket necessitated complex reasoning of this sort, and in which the courts ended up finding plain meaning where the agency had found ambiguity. After a careful analysis of the competing arguments, it is hard for us to fault EPA for asserting the interpretation that it did.

In *Coalition for Clean Air*,¹²³ EPA tried unsuccessfully to avoid producing a federal implementation plan for the Los Angeles air basin, as it had been ordered to do in a prior ruling after years of agency foot dragging. Los Angeles has some of the most intractable air quality problems in the United States, and EPA has been extremely reluctant over the years to exercise effective federal authority to impose a federal implementation plan (FIP).

Its statutory argument for avoiding the effect of the earlier court order was based on the 1990 Amendments to the Air Act, passed shortly after the original order mandating a FIP. EPA effectively argued that by virtue of the new SIP standards and requirements contained in the 1990 Amendments, the state of California had by statute been given the opportunity to produce a compliant SIP before EPA had authority to impose a FIP. The structure of the Air Act has always given primacy to state implementation, and giving California the first opportunity to meet the

¹²¹ Deductive reasoning can play a role within each strand, of course.

¹²² The cable-chain metaphor is Charles Peirce's. 5 *Charles S. Peirce Collected Papers* ¶ 264 (Charles Hartshome & Paul Weiss eds., 1960).

¹²³ *Coalition for Clean Air v. Southern Cal. Edison Co.*, 971 F.2d 219 (9th Cir. 1992).

new 1990 standards was consistent with that structure.¹²⁴ Either the FIP would have to be written against the old, pre-1990 requirements, or it would have to be written against the new 1990 requirements. It would seem counterproductive to proceed under the first assumption, because doing so would put in place a FIP that was outmoded and subject to supercedence even before it was finished; and the second approach would deny California the first opportunity to address the 1990 requirements. The statutory triggering mechanism for FIPs contained in the 1990 Amendments, states that EPA “shall promulgate a [FIP] within 2 years after the Administrator ... disapproves a State implementation plan,”¹²⁵ language suggesting an event that could occur only after the 1990 Amendments were enacted (as compared to, for example, “has disapproved”). The 1990 Amendments also make available some compliance flexibility not granted under the prior law which would not be available to the EPA in drafting a FIP, and it seems inconsistent with the statutory scheme to deny California access to that flexibility.¹²⁶

Thus, EPA sought to build an interpretive cable with multiple strands of argument, based on (1) the words used in a specific provision of the Act; (2) the text and structure of the entire Act; (3) the effect of an interpretation of the triggering provision on other specific sections of the Act; (4) the purposes of the Act. It was not strong enough to persuade the court. Interestingly, the court found *none* of EPA’s arguments persuasive within its own argument-category, and ended up drafting an opinion in which it used the same argument types as EPA, except that in its cable of argument all the strands reinforced its conclusion.

We found this a recurring pattern in the cases involving complex reasoning, one that we believe tends to give the written decisions of courts in these complex cases a greater sense of inevitability – and hence cast a stronger shadow of illegitimacy on EPA’s interpretation – than they deserve. Notwithstanding the widely varying statutory contexts in which they arise, and regardless of how complex the set of arguments made, opinions resolving questions of statutory interpretation exhibit a common general pattern: all of the individual argument strands almost always line up in support of the court’s conclusion. Very seldom does the court acknowledge that the relevant considerations are somewhat in conflict, but that the weight of the evidence supports its interpretation. Given that statutes and pieces of statutes can be written at different times, by different committees, this pattern of unanimity is counter-intuitive.

The style of reasoning in the cases we examined can also be captured by the pragmatist’s “web of beliefs” metaphor. Pragmatists use this metaphor, which is related but not identical to the cable-chain metaphor, to depict reasoning as a process in which we compare with one another different values and propositions related to our reasoning project, going back and forth among

¹²⁴ This concept is codified by 42 U.S.C. § 7401(a)(3), which states that the control of air pollution is “the primary responsibility of States and local governments.”

¹²⁵ 42 U.S.C. § 7401(c)(1).

¹²⁶ 42 U.S.C. § 7511(a)(e)(5); *see* 971 F.2d at 226.

them until we reach an overall judgment that has the strongest web of support.¹²⁷ Within this construct, through the effects of motivated reasoning, the separate argument strands tend eventually to line up in the same direction. As we begin to reach a judgment, which may be based on one or several particularly strong argument-types, we begin to privilege or find persuasive arguments in the other categories that reinforce that judgment. In the end, for example, arguments based on text and structure that support our conclusion become more persuasive than arguments setting up a conflict with that conclusion; this reinforces the persuasiveness of arguments based on purpose and goals that support our conclusion; and so on.¹²⁸

Coalition for Clean Air seems to be both a complex case and a close one, despite its seriatim dismissal of each and every one of EPA's arguments. Although the court never says so, the conclusion of the majority may be influenced by the judges' frustration in EPA's continual refusal to carry out direct orders of the court in a timely fashion, such that it would have required something close to explicit language in the 1990 Amendments to convince them that EPA was going to be able to slip out of those responsibilities via a legislative bail out. EPA, of course, had equally strong policy preferences for reading the statute as it did. It had been trying to avoid writing a FIP for the Los Angeles Basin for nearly two decades, due to the intractable nature of the air quality problems in that region of the country.

5. *Easy Cases, Strong Policy Preferences*

We found a small group of cases which seem most readily explained as instances in which EPA had strong policy preferences that it chose to pursue even though the arguments that its authorizing statute could be interpreted to allow that pursuit were extremely weak. Because under the theory of motivated reasoning "people are not at liberty to believe anything they like

¹²⁷ See, e.g., W.V. Quine & J.S. Ullian, *The Web of Belief* (1970); Steven J. Burton, *An Introduction to Law and Legal Reasoning* 132-36 (1985); Eskridge & Frickey, "Statutory Interpretation as Practical Reasoning," 42 *Stan. L. Rev.* 321, 348 (1990).

¹²⁸ Others with whom we are basically in agreement regarding the pragmatic nature of reasoning in statutory interpretation cases have highlighted cases in which the most convincing arguments in different categories seem to point in opposite directions, but we did not find any *Chevron* Step One cases in our data set that fit that description. See, e.g., Eskridge & Frickey, note 124, above, at 352 (describing the *Bob Jones* and *Weber* decisions as ones in which "an apparently clear text" yielded to strong arguments in other categories.) *But see id.* at 355-56 (arguing that in *Weber* several different interpretations were "textually justifiable," and that interpreters who initially believe that a statute is clear, but who then find other arguments "strongly cut against the apparent meaning," "might reevaluate her belief that the text is really all that clear.")

[and] are constrained by their prior beliefs about the acceptability of various procedures,”¹²⁹ these cases do not square with the hypothesis that EPA lost the case because of a good faith disagreement with the courts over statutory interpretation. Instead, it seems likely that EPA’s lawyers knew they were advancing weak arguments.

In *Backcountry Against Dumps*,¹³⁰ petitioners challenged a decision by EPA to approve a solid waste management program authored by the Campo Band of Mission Indians under § 6945(c) of RCRA. The approval gave the Campos authority to regulate sanitary landfills within its jurisdiction -- and specifically the landfill that it wanted to operate itself -- with more flexibility than permitted had their program not received § 6945(c) approval. This section authorized “states” to seek approval for such plans. The definitional sections of RCRA defined a “state” as “any of the Several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.”¹³¹ A separate section defined “municipality” to include “an Indian tribe of authorized tribal organization.”¹³²

The court agreed with petitioners that EPA lacked authority to grant program approval to the Campos, because that section applied to states, and RCRA defined tribes to be municipalities, not states. While it probably would have found the plain language of the statute enough to justify its decision, the court also thought it significant that “when Congress wants to treat Indian tribes as states, it does so in clear and precise language,” as in several other environmental statutes.¹³³

The agency had plausible policy preferences for bringing Indian tribes within the category of governmental entities eligible for the more flexible permitting authority, some fairly weak ones specific to RCRA itself, and a strong one of more general applicability. Its RCRA-specific objective was to avoid the “regulatory gap” that would exist if the government entity with jurisdiction over the use of tribal land was unable to operate a permitting program for its sanitary landfills that contained the full statutory authorities provided to states. When pushed at oral argument, however, the agency admitted that any such gap was minor in light of the conceded ability of the Campos to seek approval of a site-specific regulation for its landfill that would contain all the flexibility granted under § 6945(c).¹³⁴ In all likelihood, the reason pushing EPA

¹²⁹ *Id.* at 490.

¹³⁰ *Backcountry Against Dumps v. EPA*, 100 F.3d 147 (D.C. Cir. 1996).

¹³¹ 42 U.S.C. § 6903(31).

¹³² 42 U.S.C. § 6903(13).

¹³³ 100 F.3d at 150.

¹³⁴ *Id.* at 152.

to take the position that it had taken was left unstated: One hallmark of the Clinton administration was to accord American Indians heightened respect. The very fact that Indians tribes were treated as states under some environmental statutes but not RCRA was undoubtedly galling to Indian organizations, as well as unappealing to the administration. It seems likely that EPA decided to treat Indian tribes as having the same status as states under RCRA because of a strong general policy toward that issue – even though the particular statute under which the question was raised in this instance seemed quite clearly to prohibit doing so.

Easy cases do not have to be simple ones. *Davis County Solid Waste Management v. EPA*¹³⁵ involved complex statutory analysis. After EPA had issued proposed emission control standards for municipal waste combustors (MWCs) pursuant to its § 111 Clean Air Act authority, Congress enacted the 1990 Amendments to that Act. The Amendments added a new § 129 dealing specifically with the regulation of MWCs. EPA therefore was required to incorporate the new § 129 provisions into its approach to MWC regulation.

Under its original approach, EPA had proposed to regulate MWCs on the basis, inter alia, of the total per day processing capacity of all the MWCs at a single facility. One consequence of this was that a relatively small single unit might be required to meet stringent standards along with much larger units, because each was part of a large facility. Section 129 did not say in so many words what were permissible categories of units for regulatory purposes, but § 129(a)(1) did provide a timetable for issuing emission standards for different categories of MWCs. Two of these categories were defined by the size of the MWC – those with capacities greater and those lesser than 250 tons/year that were combusting municipal solid wastes (MSW). Two other categories were defined by the type of waste being processed – those combusting hospital or medical waste, and those combusting commercial or industrial waste. Section 129(a)(2) also authorized EPA to “distinguish among classes, types ... and sizes of units within a category in establishing such standards.” After EPA proceeded with a regulatory approach that continued to divide MWCs into categories according to the capacity of the entire facility, it was challenged by petitioners claiming that § 129 required that all MWCs that combusted MSW and had less than 250 tons/year capacity be put in the same category. As discussed below, the issue was consequential for petitioners. The issue was consequential because the stringency of the standards applicable to existing MWCs depended upon the category in which they were classified.

EPA believed that Congress did not intend radically to revise the approach the agency had taken to MWC regulation in its already commenced rulemaking, as would be the result if the petitioners’ challenge were correct. On its face, the statute reflected Congress’ awareness of the already in progress rulemaking proceeding, for it contained an express provision stating that nothing in § 129 altered schedules for issuing standards established pursuant to settlement or consent decrees, as EPA’s schedules had been. At the same time as Congress was aware of the ongoing proceedings, nothing in the text of the statute nor in the legislative history expressed

¹³⁵ 101 F.3d 1395 (D.C. Cir. 1996).

disapproval of the basic structure of the approach EPA was taking; the sole informative references to EPA's ongoing rulemaking in the legislative history suggested that the statutory approach was "building upon" EPA's, and that the statutory language was intended to tighten emissions controls compared to EPA's proposals. As an agency that had deliberated prior to issuing its notice of proposed rulemaking regarding the best way to proceed, EPA had every reason to want to continue with that basic approach unless persuaded otherwise by adverse comments received during the notice-and-comment period, or unless instructed otherwise by the Congress. EPA concluded that it had not been instructed otherwise.

EPA's problem was that the statutory scheme enacted by Congress proved very difficult to square with the agency's original approach. Section 129(a)(1)(A)-(D) identifies the four groups of incinerators named earlier; (E) gives EPA authority to designate "*other* categories," indicating quite plainly that Congress considered MWC's of less than 250 ton/year, MWC's of greater than 250 tons/year capacity, medical waste incinerators, and commercial incinerators each to be a "category" of MWC. Section 129(a)(2) then establishes a methodology for determining the minimum control level for existing units in each category that is dependent upon the membership of each category, by being set in the statute equal to "the average emissions limitation achieved by the best performing 12 percent of units in the category."¹³⁶ The effect of following Congress' apparent scheme is to group all existing MWC's of less than 250 tons/year capacity together, while the effect of following EPA's original rule groups these smaller MWCs together with larger ones, if each is found within a facility that has a capacity greater than 2,200 tons/year.

The court's analysis of the text and structure of the Act invoked ten different sections or subsections of the Act, through which it constructed a compelling case in support of petitioners' challenge. Ultimately, EPA was left to arguing that Congress in effect misspoke, or miswrote, and that its references to *unit* capacities of various types in § 129 actually were references to total *facility* capacities of various types.¹³⁷ Were legislative history given heavy weight by the court, EPA arguments might have moved the court, because along with the legislative history discussed above, EPA did adduce some additional legislative historical evidence suggesting a drafting mistake. However, whatever weight such considerations might have were negated in the court's view by what may have proved to be the most damaging statutory subsection of all: § 129(g)(1) explicitly defines an MWC "unit" to be "a distinct operating unit of any facility." That definition is impossible to square with EPA's contention that when Congress wrote "unit" elsewhere in the statute that it really meant "facility." The court was unwilling to contradict the statute's own definitional section.

In *Davis County Solid Waste Management* EPA ended up having very little going for it in terms of arguments based on the text and structure of the 1990 Amendments. Its only arguments

¹³⁶ 42 U.S.C. § 7429(a)(2).

¹³⁷ 101 F.3d at 1409.

emanated from legislative history. Whatever else may be in dispute about the manner in which courts analyze statutes to determine their meaning, this much stands out: when the textual and structural strands of argument support a particular meaning, arguments based on legislative history are not going to change that result. *Davis County Solid Waste Management* thus stands as a counter-*Holy Trinity* for the post *Chevron* era.¹³⁸ Whereas the Court in *Holy Trinity* was willing to work around plain statutory language in order to achieve a result suggested by the legislative history, the *Davis County* court declined to do so.¹³⁹

6. Conclusions Regarding Step One Reversals

Many of the Step One cases in our data set are consistent with the hypothesis that EPA personnel and the judiciary have systematic and good faith disagreements about the question of when deference is due – the how clear is clear question. The only group that cannot easily be reconciled with this hypothesis is the group of easy case but strong policy preferences.¹⁴⁰ Admittedly, it is contestable whether the cases we find easy should be classified that way, but if that classification be granted, then these cases represent situations in which EPA’s defense of its interpretation was beyond the bounds of plausibility. Because motivated reasoning posits that individuals are checked by norms of acceptability in constructing arguments, motivated reasoning cannot explain these outcomes.

A much more common approach in the growing literature on the relationship between agencies and the courts explains disagreements between the two as some combination of conscious decisionmaking that trades off policy preferences and rule of law or other values. Both sets of individuals are modeled as people who maximize utility, making trade-offs when preferences conflict. Judges may choose between “craft” and “policy,” for instance, and agency personnel may choose between maximizing budgets (by keeping relations good with Congress) and policy.¹⁴¹ Whatever the trade offs involved, individuals are seen as making conscious

¹³⁸ *Holy Trinity Church v. United States*, 143 U.S. 457 (1892). The case raised the question of whether an act making it unlawful to assist the immigration of aliens under contract to perform “labor or services of any kind” applied to the Church, which had contracted with an English cleric to become its rector. Concluding that the legislative history indicated the statute was not meant to apply to “brain toilers,” the Court held in favor of the church.

¹³⁹ For a recent argument that the Court in *Holy Trinity* actually failed to give effect to Congress’ intentions as expressed in the best reading of the legislative history, see Adrian Vermeule, “Legislative History and the Limits of Judicial Competence: The Untold Story of Holy Trinity Church,” 50 *Stan. L. Rev.* 1833 (1998).

¹⁴⁰ See TAN 128-38, above.

¹⁴¹ See Shapiro & Levy, note 8, above, for a model of judges as trading off craft and policy. Jonathan Adler treats EPA as if it consciously ignores what it knows to be the law in

choices between obeying the law or pursuing policy goals, so that the legal arguments they assert are regularly taken to be strategic, not the product of conviction.¹⁴²

Except for this last group of decisions, however, the good faith disagreement hypothesis we have sketched here leads to similar predictions about behavior as the strategic approach does. The mechanisms through which policy influences choice under our approach, however, are internal to the legal reasoning process itself. Arguments and analyses are experienced as more persuasive because they produce decisions that individuals otherwise are motivated to reach. Under this approach, when individuals make choices that favor their policy preferences, they may not be trading off compliance with the rule of law versus those preferences. Their processes of legal reasoning may have inclined them to conclude that the rule of law is consistent with those policy preferences.

There is no reason why the internal process and the strategic process cannot each contribute to human decision making. Indeed, we think that some combination of these two mechanisms might well provide a better description of many legal decision making processes than either one in isolation.

7. *Step Two and the Reluctance of the Courts to Resolve Questions of Degree*

The Step Two cases raise some distinct issues. So far, we have argued that agencies and judges may have systematically different motivations toward finding certainty in statutory interpretation, and that this motivation helps explain why judges find statutes to have clear meanings more often than the agency does. This only partially helps us understand the 67% of *Chevron* decisions in which the court agrees with the agency that the statute is ambiguous, nor why EPA is so overwhelmingly successful at this stage of *Chevron* analysis (over 92% success rate in the nineties).

preference for policy goals and political expediency. *See* Adler, note 34, above. The examples in the text are illustrative only; we are not ourselves proposing a complete model of judicial or agency behavior.

¹⁴² Thus, while we agree with a great deal of the perceptive analysis of Thomas Merrill, we part company insofar as he seems to attribute Justice Scalia's efforts to find meaning via textualist approaches entirely to the product of a conscious decision on Justice Scalia's part. *See, e.g.,* Merrill, note 59 above, at 371 (Justice Scalia has lectured widely that textualism does provide more certainty while the use of legislative history creates more ambiguity, thus "[i]t would hardly be surprising that, whatever the validity of the assumptions underlying these positions, Justice Scalia would be loath to expose his positions too often to a contrary demonstration from a committed intentionalist."). Our suggestion is that Justice Scalia's precommitments make the assumption that textualism produces certainty true for him, because in disputes over meaning, they influence what arguments Justice Scalia will find persuasive.

The number of times courts agree with the agency that a statute is ambiguous suggests that norms of the interpretive judicial craft do indeed impose some constraints on the courts, as Shapiro and Levy, along with others, have postulated.¹⁴³ Within those constraints, not every statute can be read to have a plain meaning. It is a separate question, though, why EPA is so overwhelmingly successful at Step Two.

One possible explanation for the agency's high success rate emerges from a deeper inquiry into what count as acceptable craft norms. Step Two evaluations, by definition, are made once the court has verified that the statute is susceptible to being given more than one meaning. The reasons that an agency has for choosing between the legitimate meanings emanate from the same set of autonomous views that motivated it to find ambiguity in the first place. Those autonomous views reflect agency resolution of conflicting choices based on its own all-things-considered policy considerations, mixed undoubtedly with considerations of political expediency as well. At Step Two, however, the agency's pursuit of "policy goals and political expediency" ceases to be anathema, as it was at Step One. Now this is precisely what our system of government expects and anticipates the agency will and should do. "The power of an administrative agency to administer a congressionally created ... program necessarily requires the formulation of policy and the making of rules to fill any gap left, implicitly or explicitly, by Congress."¹⁴⁴

The rationale of *Chevron* itself depends heavily on the idea that agencies have been appropriately tasked by Congress to reconcile conflicting policy goals and interests. Not only have the agencies been given this responsibility, the courts have emphatically not been given that responsibility. In the key theoretical passage in *Chevron*, the Court wrote:

Judges are not experts in the field, and are not part of either political branch of the Government. Courts must, in some cases, reconcile competing political interests, but not on the basis of the judges' personal policy preferences. In contrast, an agency to which Congress has delegated policy-making responsibilities may, within the limits of that delegation, properly rely upon the incumbent administration's views of wise policy to inform its judgments. While agencies are not directly accountable to the people, the Chief Executive is, and it is entirely appropriate for this political branch of the Government to make such policy choices--resolving the competing interests which Congress itself either inadvertently did not resolve, or intentionally left to be resolved by the agency charged with the administration of the statute in light of everyday realities.¹⁴⁵

This is the language upon which were based many of the predictions that *Chevron* meant great

¹⁴³ Shapiro & Levy, note 8, above.

¹⁴⁴ *Morton v. Ruiz*, 415 U.S. 199, 231 (1974).

¹⁴⁵ 467 U.S. at 836-37.

deference. The agency's choice among the different options that an ambiguous statute makes available will typically involve a decision that one meaning advances a mix of competing policy interests, to a better degree than another – the very kind of choice that courts are ill-equipped to make.¹⁴⁶ If appellate courts are faithful to this aspect of *Chevron*, they will adopt a very deferential attitude toward the agency's choice at Step Two.

In contemporary times, the judiciary's aversion to conducting policy analysis that has initially been assigned to federal agencies constitutes a continuing reaction to *Lochner*.¹⁴⁷ Courts do not wish to be charged with imposing their own policy views on the elected branches of government. At a minimum, some argument anchoring such action in the text of the Constitution is required before the courts will take that step, and there is no such anchor available to judges assessing the validity of agency decisions that by the Court's own characterization only involve the weighing of competing policy interests under constitutionally valid delegations by Congress. After *Lochner*, no ordinary constitutional anchor will suffice, either. *Lochner*, after all, was itself crafted as a decision based on the Constitution. The only conceivable constitutional anchor for second-guessing an agency balance appears to be the Due Process Clause's protection against irrational government action, but this has been given such an undemanding interpretation that it could not easily support intrusive review.

Lochner-phobia fairly compels courts to give agencies a wide berth at Step Two. In contrast to Step Two, Step One finds courts on much firmer ground. Agencies have no comparative or democratic advantage in determining what Congress said. Here, courts may even have pride of place, because by superintending the action of agencies they ensure that the laws that Congress writes will not be lost in the halls of the bureaucracies. So their democratic pedigree is much more solid at Step One. So, too, is the style of reasoning to be employed. If Step Two were to be a serious check on agency decisions, courts would have to weigh competing policies themselves. The third noticeable dimension of the jurisprudence of Justice Scalia that has an effect on the judiciary has been his antipathy toward judicial analyses that requires weighing or balancing of values.¹⁴⁸ Vigorous Step Two review would run square up against the argument that weighing or balancing of competing policy interests is highly inappropriate judicial activity.

In its place, Justice Scalia advocates what Thomas Grey has aptly named a “new

¹⁴⁶ See also text at notes 189 - 192, below, discussing Justice Scalia's views on questions of degree as expressed in the *Mistretta* decision.

¹⁴⁷ *Lochner v. New York*, 198 U.S. 45 (1905).

¹⁴⁸ For further discussion, see pages – to –, below.

formalism.”¹⁴⁹ In fact, in Professor Grey’s typology, textualism is subsumed as a part of formalist thinking.¹⁵⁰ One value that the new formalism denies should play any role in legal reasoning is the kind of consequentialist policies that agencies routinely consider, which Grey terms “acceptability.”¹⁵¹ Acceptability comes into play only as a tie-breaker in rare cases, or in extreme cases where formal reasoning leads to outrageously unacceptable results, or in a justification of the formalist system as a whole. The new formalism is not a stiff-legged mechanical jurisprudence. To the contrary, Grey argues that it turns out to be “moderate and pragmatic” formalism.¹⁵² This suggests that the new formalism can comfortably subscribe to the cable vs. chain understanding of the reasoning process, so long as the ultimate object of that thought process is to ascertain determinate meaning, and so long as one of the strands in the cable does not involve a weighing of policy values. The new formalism, in a word, is very much at home with Step One as we have described it, and very much averse to infusing Step Two with much content.

Our inquiry into the judicial treatment of EPA’s use of science when challenged in litigation reflects, we believe, another manifestation of the judicial tendency toward formalism and categorical distinctions and aversion to answering questions of more or less. There the contrast shows up in a striking reluctance to second-guess EPA when the challenge requires an evaluation of degree, such as whether EPA’s selection of data upon which to rely was better or worse than another possible data set, compared to a greater willingness to overrule EPA when the nature of the challenge is categorical, such as whether a conclusion drawn by EPA was without any factual support, or whether EPA had completely failed to explain a link in its chain of reasoning.¹⁵³ We examine the science cases in detail in the next Part.

Finally, we report on our statistical findings concerning the tools that the courts in the 1990s employed to assist them in statutory interpretation. Our results show that the tools associated with textualist interpretive approaches predominated.

Figure 2 presents the percentages of statutory interpretation decisions in which the court made reference to various common tools of interpretation. The most clearly text-based arguments are heavily dominant, with arguments centering on the meaning of discrete provisions being

¹⁴⁹ Thomas C. Grey, “The New Formalism” Stanford Public Law and Legal Theory Working Paper No. 4, 9/6/1999.

¹⁵⁰ *Id.* at 2.

¹⁵¹ *Id.* at 26.

¹⁵² “[A]t its theoretical core, the new formalism is just the old legal pragmatism.” *Id.* at 29.

¹⁵³ See TAN 188 to 193, below.

made in 88% of the cases, and harmonization arguments being made in 68% of them.¹⁵⁴

There is also good evidence that non-text based arguments are not heavily relied upon in cases involving EPA. The rejection of legislative history has been part and parcel of the textualist movement in statutory interpretation, and we find strong evidence that legislative history is not playing a significant role in determining the outcomes of EPA cases. In our data collection, we first coded “legislative history cited” any time legislative history was identified in the opinion of the court in connection with an argument regarding the meaning of the statute. This excludes references to legislative material to establish some procedural fact about the legislation at issue. This coding protocol is consistent with some previous studies of legislative

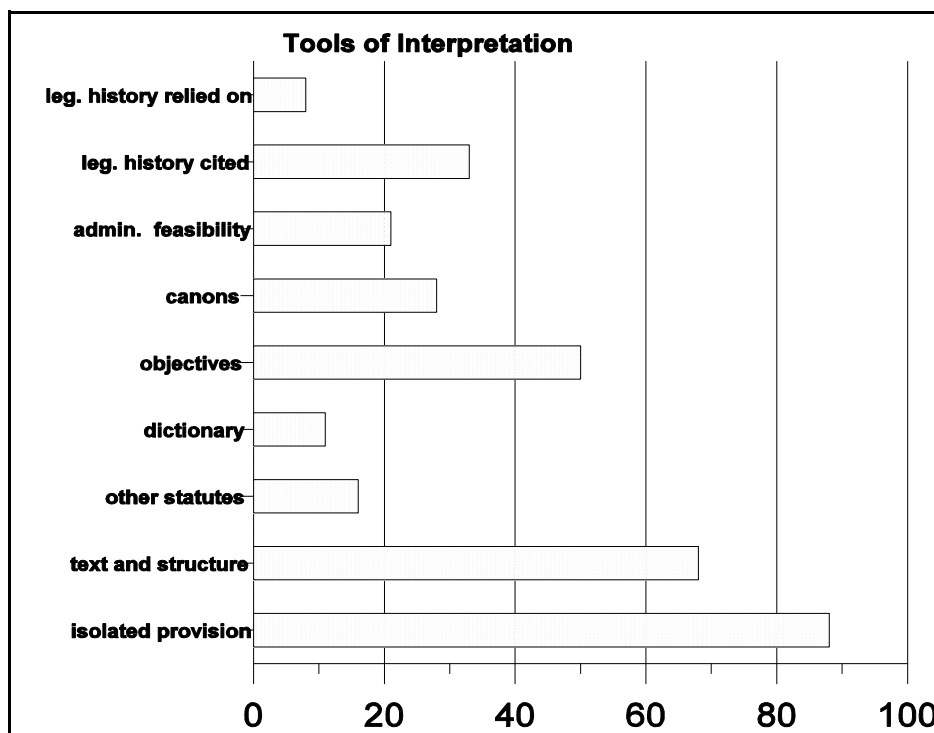


Figure 2

history used in the Supreme Court.¹⁵⁵ We found legislative history cited in this fashion in 33%

¹⁵⁴ Arguments based on statutory objectives may also be considered text-based, insofar as they rely upon objectives articulated in the statutory text. Unfortunately, we failed to code so as to distinguish such text-based objectives arguments from non-text-based ones. We suspect that most of the objectives-based arguments fall into the first category, but we would need to go back through the data set to confirm this, and as yet we have not.

¹⁵⁵ Jane Schacter, “The Confounding Common Law Originalism in Recent Supreme Court Statutory Interpretation: Implications for the Legislative History Debate and Beyond,” 51

of our *Chevron* cases. This figure is midway between the 18% rate Professor Merrill found in the statutory interpretation cases of the Supreme Court during the 1992 Term and the 49% rate Professor Schacter found in such cases decided during the 1996 Term.

We think this 33% figure may overstate the role that legislative history is playing in the courts of appeals. Admittedly, in our data set opinions are often written so that it is difficult to tell the precise role that legislative history plays in the court's overall opinion. One consequence of the "web of belief" or "strands of the cable" style of argument referred to earlier,¹⁵⁶ is that the opinion does not indicate on way or the other whether the result would have been different if legislative history had been strongly contrary to the meaning suggested by text-based tools alone. A judge could respond to a legislative history argument because it had been vigorously argued by a party, not because the judge viewed the argument as dispositive. On the other hand, a judge for whom legislative history was material to her conclusion could write an opinion without relying upon it in order to bring along a colleague who was skeptical about its use.

Legislative history also functions differently at Step One than it does at Step Two. At Step Two, even judges who eschew legislative history at Step One may refer to legislative history for information about what policies and objectives seem relevant to the interpretation of the statute, so that they can pass judgment on whether or not the agency interpretation constitutes a reasonable accommodation of conflicting policy interests. Because policies do not have to have the status of law, such sources are more legitimate for such information than they are to a textualist trying to answer the Step One question.

Notwithstanding the interpretive difficulties, we did code legislative history arguments separately when the language of the opinion itself suggested that such history was doing more than providing optional affirmation of a decision reached on other grounds. In coding for the "legislative history relied upon" variable, we excluded cases in which the decision takes the legislative history to be itself ambiguous or otherwise unhelpful, we excluded cases in which a party's arguments based on legislative history are rejected,¹⁵⁷ and we excluded cases in which the structure of the opinion strongly suggests that a conclusion would have been reached even if the legislative history cited did not exist. Those limitations reduce to 8% the percentage of cases in which legislative history was relied upon, in the sense just defined, rather than simply cited.¹⁵⁸

Stan. L. Rev. 1, 12-13 (1998).

¹⁵⁶ See TAN 120-21, 126-27, above.

¹⁵⁷ If the court rejected one party's legislative history arguments but elsewhere used legislative history arguments affirmatively, we counted the case.

¹⁵⁸ The use of legislative history in the 1990s cases involving review of EPA scientific determinations was even rarer, even though part of the task of a court engaging in review under the arbitrary and capricious test is determining "whether the [agency] acted within the scope of

IV. JUDICIAL REVIEW OF EPA SCIENTIFIC DETERMINATIONS

A. EPA's Overall Performance in Making Scientific Judgments

The manner in which the courts review statutory interpretations of agencies such as EPA has attracted considerable attention in the academic literature, particularly since the Supreme Court's 1984 decision in *Chevron*. It is not only EPA's interpretations of its enabling statutes that have been the frequent focus of judicial review, however. Litigants also routinely challenge the manner in which EPA implements these statutes, *i.e.*, the manner in which EPA applies those statutes to the facts before it in a given situation. This aspect of the relationship between EPA and the courts has attracted relatively less academic attention, despite its obvious importance to the fate of the agency's efforts to fulfill its statutory mandates. In this Part we examine the relationship between the courts and EPA with respect to this aspect of EPA's activities, with special emphasis on challenges that have been brought against EPA's use of science.

During the 1990s, litigants with pro-industrial or pro-development agendas were responsible for initiating 79% of the challenges to the validity of EPA's scientific determinations, which was up from 70% in the 1980s. During the period 1986-87, EPA lost 15% of challenges brought against its scientific determinations. During the 1990s, that figure rose to 22%. Pro-environmental litigants succeeded on 32% of their challenges to EPA's science in the 1990s, compared to 40% in 1986-87. The figures for pro-industry litigants moved in the opposite direction. During the period 1986-87, pro-industry litigants prevailed in only four percent of their challenges to EPA's scientific determinations. In the next decade, they prevailed 19% of the time. The nearly five-fold increase in the pro-industry success rate is statistically significant at the 90% level.¹⁵⁹

These figures raise some intriguing questions. First, why were more than three out of every four challenges during the 1990s industry-based? One possibility, of course, is that EPA sides more frequently with pro-environment interests. If pro-environmental interests are satisfied

its authority," *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971), and whether the agency's decision was based on consideration of factors made relevant by the statute. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). Of the scientific review cases we discuss in the next part, the courts relied on legislative history as part of their substantive analysis in only three cases (*BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784 (6th Cir. 1996); *NRDC v. EPA*, 966 F.2d 1292 (9th Cir. 1992); *Solite Corp. v. EPA*, 952 F.2d 473 (D.C. Cir. 1991)), and in one of those cases (*BP Exploration*, 66 F.3d at 796), the court used the legislative history only to confirm its interpretation of the statutory text.

¹⁵⁹ P-value = 0.0673, using Fisher's Exact test. This is the only change between the EPA's 80s track record and the 90s identified in this paragraph that is statistically significant at the 90% level.

more frequently with the outcome of EPA's scientific determinations than are affected industries, they will have less impetus to challenge those decisions than will disgruntled industrial concerns.

A tilt by EPA toward environmentally protective scientific determinations is not the only possible explanation, however, for the predominance of industry-based challenges to EPA science. Environmental groups may be more selective in raising challenges in court to EPA's scientific determinations, even if the agency reaches results unacceptable to those groups just as often as it reaches results unacceptable to industry. Science challenges are expensive to pursue. A challenger typically must hire experts to assess the validity of the process by which EPA reached the disputed conclusions, and in some instances may want those experts to perform their own assessments to compare the results with EPA's. If environmental groups lack the financial resources available to regulated industries, they may simply be unable to initiate as many science-based challenges as does industry. In a related vein, environmental groups may prefer to allocate the bulk of their resources to law-based as opposed to fact-based challenges because of a perception that law-based challenges are likely to have a wider impact than will a challenge to resolution of a particular scientific issue.¹⁶⁰ If so, environmental groups may prefer to confine their scientific challenges to high impact proceedings such as broad-based rulemaking proceedings in which EPA's resolution of scientific issues yielded regulations deemed by these groups to be insufficiently protective.

Another possible related explanation is that industrial interests may pursue challenges that have lower prospects for success than environmental interests do. If a judicial challenge results in a stay of a new regulation pending court disposition, industry can benefit from that delay, whether or not it ultimately prevails on the merits.¹⁶¹ Environmental groups are less likely to face situations in which they benefit from delay. They could so benefit if the agency adopts a less stringent regulation in place of a more stringent one, and they are able to convince a court to stay the new rule pending the outcome of the challenge. They will not benefit, however, from the stay of a regulation that affects an industry or a problem for the first time or that tightens a regulation already in place. Thus, in deciding whether to challenge the regulation based on the validity of the science upon which it is based, environmental groups face different strategic options and as a result may have a higher threshold for anticipated success on the merits than do potential industrial challengers.

A second interesting question relates to EPA's overall success rate in these challenges. While we cannot rule out the possibility that the increase from 15% losses to 22% losses was due to chance, there are several reasons to think that this increase might be due to systemic features

¹⁶⁰ By comparison, industry and environmental *Chevron* challenges are more evenly balanced. Industry brought 59% of the *Chevron* challenges in the 1990s; environmental organizations and individuals representing environmental positions brought 41%.

¹⁶¹ See TAN __ to __, above.

of the EPA-court interaction. One is that the courts might have been somewhat more aggressive and less deferential in their review of EPA's scientific determinations in the 1990s. Commentators have noted a possible tension between the D.C. Circuit, on which conservative judges predominate, and the Clinton administration, which might manifest itself in this way. Another possibility is that the tenor of judicial review remained constant but that EPA was willing to regulate on the basis of evidence that it would not have been willing to rely upon at an earlier time. Some have suggested that EPA has relied less on science – and used less credible science – in the Clinton Administration.¹⁶² Even if the threshold of judicial acceptability remained the same, EPA may not have been able to convince the courts to approve of its actions on the basis of evidence that appeared relatively weak.

Alternatively, it may be that the problems EPA tackled in the 1990s were more difficult and intransigent than the ones that the courts reviewed in the earlier period. If the problems were less susceptible to easy resolution, it is perhaps not surprising that EPA reached the “wrong” result, from the courts’ perspective, or at least was not able to convince the courts that it reached a defensible result, in a greater percentage of cases than during the earlier period. This explanation is consistent with the conventional wisdom that EPA was able to “cherry pick” the easiest problems during the early years of its existence and that the solutions to problems subsequently became less obvious. It is also consistent with the perception that some of the problems EPA has tackled in the last decade are more controversial than were earlier subjects of the agency’s attention. There could be little dispute that the Cuyahoga River, when it caught fire, was polluted and in need of cleanup. It was not as obvious during the late 1980s and early 1990s that acid rain was a phenomenon in need of a regulatory fix or that global warming was attributable to pollution from human sources.

Finally, why has the success rate for industrial challenges but not environmental group challengers risen during the last decade? One possibility is that any tilt EPA has experienced in favor of more pro-environment scientific decisions has resulted in an increased percentage of the decisions that are harder for EPA to defend. Another explanation may be that the courts have not only become more aggressive in their willingness to review EPA's scientific determinations, but that they have also become more skeptical of the value of pro-environment decisions and are therefore more inclined to reverse them (and less likely to reverse EPA's pro-industry determinations) than they were during the 1980s. This thesis presents the possibility that the judges have become more pro-industry at precisely the time that EPA has inclined more heavily toward pro-environmental scientific determinations. Such a combination, not surprisingly, would yield a higher percentage of reversals in scientific challenges filed by industry and a lower percentage of reversals in challenges advanced by environmental groups.

It is difficult to assess some of the factors that are relevant to answering these questions. Direct evidence that EPA has slanted its scientific determinations increasingly toward a pro-

¹⁶² Remarks made by several commentators at the “EPA at 30” conference, Duke University School of Law, December 7-8, 2000.

environment agenda would be difficult to come by, for example. Likewise, the judges on the Courts of Appeals are not likely to admit to being more skeptical of, no less antagonistic towards, environmental protection endeavors than judges in days of yore may have been. It is possible, however, to scrutinize closely the cases in which litigants have challenged EPA's scientific determinations to ascertain whether the cases present any patterns, such that one can identify the kinds of issues on which EPA was likely to lose during the 1990s and those on which it was likely to win. Those patterns, in turn, may shed some light on the approach that the courts have taken in recent years to the judicial review of the manner in which EPA implements its statutory mandates and, in particular, the manner in which the agency resolves scientific disputes before it.

B. Judicial Review of EPA's Scientific Determinations

1. The Analytical Framework for Judicial Review of EPA's Scientific Determinations

As we have indicated above, the Supreme Court's decision in the *Chevron* case has become the nearly universal template for judicial review of the validity of EPA's statutory interpretations by the Courts of Appeals. In determining whether those courts had applied a similarly broad-based analytical framework for the review of EPA's scientific determinations, we identified two obvious candidates: the *Overton Park*¹⁶³ and *State Farm*¹⁶⁴ cases.¹⁶⁵ These are the seminal Supreme Court decisions setting forth the "reasoned decisionmaking" requirement for judicial review of questions of fact and policy raised against agency rulemaking.

¹⁶³Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971).

¹⁶⁴Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29 (1983).

¹⁶⁵Another possibility was *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87 (1983). Only five cases in our sample cited that case, and among those five, three also cited *State Farm* (*Southwestern Pennsylvania Growth Alliance v. Browner*, 121 F.3d 106, 111 (3d Cir. 1997); *American Iron and Steel Inst. v. EPA*, 115 F.3d 979, 992 (D.C. Cir. 1997); and *Central Arizona Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1540 n.8 (9th Cir. 1993)) and another also cited *Overton Park* (*BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 792 (6th Cir. 1995)). EPA prevailed in all of those cases (except on one issue in *American Iron and Steel Inst.*), regardless of whether the challenge was brought by pro-industry or pro-environmental groups. The only case in which a court cited *Baltimore Gas & Elec.* without also citing *State Farm* or *Overton Park*, was an unpublished decision, *Alaska Miners Ass'n v. EPA*, 931 F.2d 896 (Table), 1991 WL 67869 (9th Cir. 1991), in which the court denied an industry petition to overturn EPA's decision not to modify effluent limitations for gold placer mines. The courts did not rely on *Baltimore Gas & Elec.* as the principal source of the framework for analyzing science challenges. Where the courts cited that case, however, either alone or in combination with *State Farm* or *Overton Park*, judicial review was deferential and EPA almost invariably prevailed.

Overton Park involved a challenge by a series of local and national conservation groups to the decision of the Secretary of Transportation under two federal highway statutes to authorize the construction of a six-lane interstate highway through a public park in Memphis, Tennessee. The statutes barred the use of federal funds to finance the construction of highways through public parks if a “feasible and prudent” alternative route existed.¹⁶⁶ Further, construction was appropriate only if the project included all possible planning to minimize harm to the park.¹⁶⁷ The Court determined that the APA’s arbitrary and capricious test¹⁶⁸ provided the applicable standard of review and that the essential inquiry under that test was

whether the [agency’s] decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment. Although this inquiry into the facts is to be searching and careful, the ultimate standard of review is a narrow one. The court is not empowered to substitute its judgment for that of the agency.¹⁶⁹

Applying that standard, the Court remanded the case back to the district court “for plenary review of the Secretary’s decision”¹⁷⁰ because the absence of the administrative record prevented the Court from determining whether the Secretary based his decision on the appropriate statutory factors.¹⁷¹

State Farm involved judicial review of the National Highway Traffic Safety Administration’s rescission during the first year of the Reagan Administration of a requirement adopted by the agency during the Carter Administration. The standard mandated that new motor vehicles be equipped with passive restraints (such as airbags and automatic seatbelts) to protect vehicle occupants in the event of a collision. Citing *Overton Park*, the Court deemed the arbitrary and capricious test to be the applicable standard of judicial review.¹⁷² The Court refused

¹⁶⁶*Overton Park*, 401 U.S. at 404 (citing 23 U.S.C. § 138 (1964); 49 U.S.C. § 1653(f) (1964)).

¹⁶⁷*Id.* at 411.

¹⁶⁸5 U.S.C. § 706(2)(A) (1964).

¹⁶⁹401 U.S. at 416 (citations omitted). The Court also indicated that an inquiry into whether the agency complied with applicable procedural requirements was appropriate. *Id.* at 417.

¹⁷⁰*Id.* at 420.

¹⁷¹The lower courts based their review entirely on litigation affidavits, which the Court characterized as “post hoc” rationalizations. *Id.* at 419.

¹⁷²*State Farm*, 463 U.S. at 41.

to sanction the application of a more deferential standard to the rescission of a rule than to the promulgation of a rule.¹⁷³ An agency rescinding “a rule is obligated to supply a reasoned analysis for the change beyond that which may be required when an agency does not act in the first instance.”¹⁷⁴ Citing *Overton Park* again, the Court indicated that a court reviewing agency action under the arbitrary and capricious standard must ascertain whether the decision was based on consideration of the relevant factors and whether there has been a clear error of judgment.¹⁷⁵ It then elaborated upon this test as follows:

Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.¹⁷⁶

Applying that standard, the Court held that the rescission of the passive restraint requirement was arbitrary and capricious because, among other things, the agency failed to consider modifying the standard to require the use of airbags¹⁷⁷ and there was no direct evidence to support the agency’s finding that detachable automatic seatbelts could not be predicted to yield a substantial increase in usage of belts by vehicle occupants.¹⁷⁸

Our review of the decisions by the Courts of Appeals during the period covered by our survey indicates that the courts are just as likely to cite neither *State Farm* nor *Overton Park* as they are to cite either one or both of those cases. As table 1 below indicates, the courts cited *State Farm* but not *Overton Park* in 20 of the 66 cases in which EPA’s scientific determinations were challenged. They cited *Overton Park* but not *State Farm* in five cases, and they cited both decisions in nine cases. In 33 cases, however, the Courts of Appeals cited neither *State Farm* nor *Overton Park* in the portions of their decisions reviewing challenges to EPA’s scientific determinations. Clearly, then, neither of those two cases has achieved the exalted status that *Chevron* has in the context of judicial review of statutory interpretation, and the appellate courts failed to settle upon either as a universally applicable precedent in science challenges.

¹⁷³*Id.*

¹⁷⁴*Id.* at 42.

¹⁷⁵*Id.* at 43.

¹⁷⁶*Id.*

¹⁷⁷*Id.* at 46.

¹⁷⁸*Id.* at 52-53.

The reasons why neither *Overton Park* nor *State Farm* has achieved the iconic status of *Chevron* among the Courts of Appeals are not entirely clear. Several possibilities present themselves. First, the lower courts may simply be following the lead of the Supreme Court, which has not transformed *State Farm* into a definitive template for application of the APA's arbitrary and capricious standard of review. One study of Supreme Court decisions between 1983 and 1993 revealed that the Court cited *State Farm* in just less than 27% of the cases in which it applied the arbitrary and capricious standard to an agency's adjudicatory or rulemaking decision.¹⁷⁹ The Court mentioned the *State Farm* criteria in just four of those 56 cases. During the same period, the circuit courts cited *State Farm* in 38% of the cases in which they applied the arbitrary and capricious standard to federal agency adjudicatory or rulemaking decisions, and they mentioned the *State Farm* criteria in just eleven percent of the cases.¹⁸⁰ In our sample, the Courts of Appeals cited *State Farm*, either alone or in combination with *Overton Park*, in just under 44% of the cases involving review of EPA scientific determinations.¹⁸¹

Second, neither *State Farm* nor *Overton Park* contains a crisp articulation of all the elements of reasoned decisionmaking comparable to the *Chevron* two-step review. Third, the courts may tend to view the task of applying the arbitrary and capricious standard to an agency rule or other action as more context-specific than they do the task of reviewing an agency's statutory interpretation. The requirement of reasoned decisionmaking contains many subcomponents, such as the obligation to consider reasonable alternatives, to articulate a rational connection between facts and conclusion, to respond to significant comments, and to consider only relevant factors. Thus, arbitrary and capricious review requires the court to analyze the agency's application of law and policy judgments to specific facts. That kind of inquiry may lead courts to seek out as precedent situations in which the agency was faced with a similar set of facts or policy judgments. It is common for Court of Appeals decisions to cite more specific prior authorities on a specific subcomponent from that circuit, especially when there is no Supreme Court decision on point, rather than invoke the general authority of *State Farm* or *Overton Park*.¹⁸²

¹⁷⁹Shapiro & Levy, note 8, above, at 1067.

¹⁸⁰*Id.*

¹⁸¹These figures may indicate that reliance on *State Farm* is growing or just that cases involving review of EPA determinations are more likely to cite the precedent than cases involving review of the decisions of agencies lacking a health, safety, or environmental protection mandate.

¹⁸²The cases confirm that, in certain contexts, the courts tend to cite their own context-specific precedents on judicial review of statutory implementation rather than either *Overton Park* or *State Farm*. The cases in which litigants attacked the validity of EPA's placement of contaminated properties on the National Priorities List under CERCLA, many of which are discussed below, provide an example of a set of cases in which the D.C. Circuit consistently

A fourth factor also relates to context. *Overton Park* involved judicial review of the Department of Transportation’s decision, made with virtually no record, in an informal adjudication. The courts may not view the case as particularly apt when they are reviewing the validity of a rulemaking decision based on an extensive record. *State Farm* involved repeal of a previously issued rule. Perhaps the courts do not perceive the case to provide a generic analytical framework for judicial review of the validity of newly issued rules.¹⁸³ Finally, the courts may not cite either of the two cases as frequently as they do *Chevron* in statutory interpretation cases because the government may have less incentive to cite them routinely as governing precedent. *Chevron* provides a powerful weapon for an agency seeking judicial deference to its statutory interpretation. Whether one views *Overton Park* and *State Farm* as authorizing relatively deferential or rigorous review, the agencies lost in both cases.

Cases Cited	EPA Won				EPA Lost			
	Pro-Industry Challenge	Pro-Environment Challenge	Both	Other	Pro-Industry Challenge	Pro-Environment Challenge	Both	Other
<i>State Farm</i>	8	1	1	2	10	1	-	1
<i>Overton Park</i>	3	1	1	-	-	-	-	-
Both	5	2	-	-	2	1	-	-
Neither	15	4	1	2	12	1	-	1

Table 2
Courts of Appeals Reliance on *State Farm* and *Overton Park*

Given the small size of the database involved, it is impossible to draw definitive conclusions from the data in Table 2 about the impact of a court’s decision to cite one or the other or both of these cases on the outcome of the case. The numbers are nonetheless interesting. In the five cases in which the courts cited *Overton Park* but not *State Farm*, EPA prevailed in

followed this practice.

¹⁸³The Court in *State Farm* rejected the argument that judicial review of the rescission of an agency rule should be judged by the same standard a court would use to assess the validity of an agency’s refusal to issue a rule in the first place. 463 U.S. at 42-43. The court emphasized that the case involved changes in previous policy. Of course, so did *Chevron*.

every one (three of which involved challenges by pro-industry forces, one of which involved a challenge by a pro-environmental group, and one of which involved challenges by both sides). In the twenty cases in which the courts cited *State Farm* but not *Overton Park*, EPA prevailed at least in part in twelve and lost on at least one issue in another twelve.¹⁸⁴ In cases in which the courts cited both Supreme Court opinions, challengers lost in more than twice as many (seven) as they won (three). In the 33 cases in which the courts cited neither precedent, EPA prevailed at least in part in 22 cases and lost at least in part in 14 others. Thus, EPA's record appears to have been better when the courts cited neither precedent than when they cited *State Farm* alone, but not as good as when the courts cited only *Overton Park* or both *Overton Park* and *State Farm*.¹⁸⁵

¹⁸⁴In some cases, EPA lost on one or more issues and won on one or more others in the same case. We have entered such cases in the tables in this section under both the headings "EPA won" and "EPA lost." As a result, the numbers entered in the charts may add up to more than the total number of cases we surveyed.

¹⁸⁵We were initially surprised that the cases citing *Overton Park* may reflect more deferential review than the cases citing *State Farm*. After all, the agency lost in *Overton Park* as well as *State Farm*. It is true that *Overton Park* characterizes the APA's arbitrary and capricious test as "a narrow one," and warns reviewing courts not to "substitute [their] judgment for that of the agency." *Overton Park*, 401 U.S. at 416. The case also mandates a "searching and careful" review, however. *Id.* It is possible that courts seeking a deferential analytical framework have latched onto the initial characterization and warning. But the *State Farm* Court repeated precisely that language. *State Farm*, 463 U.S. at 43. Thus, a court seeking a deferential framework could just as easily cite *State Farm* as *Overton Park*. Perhaps the explanation lies elsewhere. Two of our colleagues have posited that a key difference between the two cases is that *Overton Park* invites judges not only "to establish their own standards of what an agency should consider in order to produce an adequately reasoned decision," but also "to consider the *result* reached by the agency, rather than its reasons." Sidney A. Shapiro & Richard E. Levy, "Heightened Scrutiny of the Fourth Branch: Separation of Powers and the Requirement of Adequate Reasons for Agency Decisions," 1987 *Duke L.J.* 387, 437. *State Farm*, on the other hand, "makes clear that the proper focus is not the *result* reached by an agency, but rather the *reasons* given to support that result." *Id.* If, as we argue below, judges during our survey period appeared to be more comfortable identifying gaps in agency reasoning processes than second-guessing agencies on policy-based results and on agency resolution of questions of degree, then *State Farm* might afford a more inviting precedent to cite when a court decides to reverse the agency in a case involving an attack on EPA scientific determinations.

Cases Cited	EPA Won				EPA Lost			
	Pro-Industry Challenge	Pro-Environment Challenge	Both	Other	Pro-Industry Challenge	Pro-Environment Challenge	Both	Other
<i>State Farm</i>	7	-	1	-	7	1	-	1
<i>Overton Park</i>	-	-	-	-	-	-	-	-
Both	1	-	-	-	2	-	-	-
Neither	14	1	1	1	10	1	-	1

Table 3
The D.C. Circuit’s Reliance on *State Farm* and *Overton Park*

As Table 3 indicates, our figures also reveal that the D.C. Circuit was more inclined than the Courts of Appeals as a whole were to cite *State Farm* than to cite the *Overton Park* precedent. In the 40 cases we reviewed, the D.C. Circuit never cited *Overton Park* alone, whereas it cited *State Farm* alone in 12 cases involving 17 sets of issues.

As we have indicated above, the Court in *State Farm* quoted from and relied on its previous decision in *Overton Park* in describing the content of the arbitrary and capricious standard as applied to judicial review of the manner in which an agency applies its substantive enabling authority. Moreover, the versions of the standard enunciated in both cases have at least one factor in common – whether the agency based its decision on a consideration of the factors made relevant by the statute.¹⁸⁶ It appears that the Courts of Appeals engage in the same kind of inquiry, and consider the same factors, whether or not they invoke *State Farm* or *Overton Park*, even if their review tends to be more deferential under the *Overton Park* rubric. Table 4 breaks down the percentage of the cases involving EPA science challenges in which the attacks on EPA’s determinations reflected each of the factors set forth in the two cases.

¹⁸⁶Analysis of whether the agency considered relevant factors may involve inquiries into two separate but related factors listed in *State Farm* – whether the agency failed to consider relevant factors and whether it considered irrelevant factors.

Factor	Pro-Environment			Pro-Industry			Totals	
	# of cases raising this challenge	% of total	# of cases in which argument prevailed	# of cases raising this challenge	% of total	# of cases in which argument prevailed	# of cases raising this challenge	# of cases in which plaintiff prevailed
Failed to consider relevant factors	11	24	0	25	32	5	36	5
Considered irrelevant factors	5	11	0	5	6	0	10	0
Failed to consider alternatives	5	11	0	5	6	1	10	1
Insufficient factual basis	10	22	3	25	32	11	35	14
Inadequate explanation	8	18	7	14	18	13	22	20
Inadequate Notice	7	16	5	17	22	7	24	12
Failed to respond to comments	2	4	0	14	18	3	16	3

**Table 4
Basis for and Outcome of EPA Science Challenges**

Table 4 reveals that pro-industry litigants brought more challenges in five of the seven identified categories than did their pro-environment counterparts and an equal number of challenges in the remaining two categories (considered irrelevant factors and failed to consider alternatives). For both categories of challengers, the least successful attack involved the charge that the agency considered irrelevant factors. The agency never lost on that ground. The claim that the agency failed to consider alternatives was little more successful. Pro-environment litigants never won on that ground, and only one pro-industry litigant prevailed on that ground. Both categories of claimants had considerable success in arguing that EPA provided inadequate notice. Pro-environment groups prevailed in five of the seven cases in which they leveled that charge, while industry litigants won in seven of the 17 cases in which they grounded their attack on inadequate notice. Both categories of litigants were notably less successful on the other purely procedural ground – that EPA failed to respond to comments. Environmental groups never won on that ground, while industry challengers won in three of fourteen cases in which the issue was raised.¹⁸⁷

¹⁸⁷Industry litigants raised a failure to respond argument in a much higher percentage of cases than did pro-environment litigants.

Of the more substantive factors, the one demonstrating the greatest discrepancy in pro-environment and pro-industry success rates was failure to consider relevant factors. Environmental groups never prevailed on this ground, while industry challengers won 20% of the time. This difference may indicate that while EPA is rarely if ever susceptible to the charge that it completely ignored its principal mandate by failing to consider the extent to which its contemplated action would protect health and the environment, it was more susceptible to charges that it ignored factors likely to be the focus of industrial concern, such as cost and technological feasibility.

At least two other points jump out from the numbers in Table 4. First, both pro-environment and pro-industry litigants had remarkable success arguing that EPA provided an inadequate explanation for its actions. The environmental groups won in seven of the eight cases in which the courts addressed that concern, while pro-industry groups won in thirteen of fourteen cases. This was the argument that had by far the highest success rates of the arguments on which the Courts of Appeals ruled in the science cases. Perhaps this success rate is attributable to the catch-all nature of the category. Courts unsatisfied with the agency's reasoning process may have been more inclined to strike down action on the ground of inadequate explanation, regardless of the nature of the specific defects. Second, pro-industry groups were more successful (eleven out of 22 cases) than were pro-environment groups (three out of ten cases) in arguing that EPA provided an inadequate factual basis for its decision.

The figures in Table 4 seem to raise more questions than they answer. For one thing, as noted above, the inadequate explanation factor is so amorphous that it is difficult to determine what kinds of defects in agency explanations were the most likely to prove fatal to the validity of the action being challenged. The insufficient factual basis factor raises a similar problem. The figures in Table 4 do not make it possible to identify what kinds of factual gaps most troubled the courts or why pro-industry litigants were relatively more successful at convincing the courts that such gaps existed. The raw numbers also fail to provide much enlightenment on the question of whether the cases verify or refute the notion that EPA has engaged in "bad science" in a significant percentage of the cases in which its scientific reasoning has been challenged.

The next section explores the science cases in more detail with the aim of digging deeper into the resolution of science challenges by the Courts of Appeals to determine if any more useful patterns emerge. The discussion focuses first on the cases in which the Courts of Appeals upheld EPA's decisions in the face of attacks on the agency's science either by pro-environment or pro-industry groups and then proceeds to analyze the cases in which the courts struck down EPA's decisions based on the ground that it implemented its statutory mandate improperly. Within each group of cases, we have created two categories of decisions: those in which the attacks on EPA's science focused upon flaws in the agency's data collection and interpretation and those in which litigants attacked the persuasiveness or consistency of the agency's reasoning process. In other words, the first category focuses on the adequacy of the agency's factual basis (the fourth factor

in Table 4), while the second hones in on the adequacy of its explanation (the fifth factor).¹⁸⁸

We determined in our review of the statutory interpretation cases that the Courts of Appeals during our survey period tended to be leery of second-guessing the political branches on questions that required it to evaluate whether one policy judgment was better or worse than another, because deciding such questions of degree, or weighing conflicting policy interests, is peculiarly the province of the agency, while they were more comfortable making the formalistic or linguistic judgments required to determine whether the statute was clear. The divergence manifested itself in a greater rate of reversal at Step One than at Step two of the *Chevron* process. We were interested in determining whether a similar pattern would emerge from a study of the cases involving judicial review of EPA's scientific determinations, and if so, why. We also tested in Part II above the hypothesis that the mindset of what we called a "Scalian judge" could well explain a systematic disagreement between agency decisionmakers and judges on the clarity of statutory text. We wondered whether a similar mindset might explain some of the results in the statutory implementation cases.

One possible starting point in the search for an answer to these questions is in Justice Scalia's dissenting opinion in the *Mistretta* case,¹⁸⁹ where the majority upheld the constitutionality of the U.S. Sentencing Commission and the Sentencing Guidelines it issued. Although Justice Scalia dissented from the Court's conclusion that the Guidelines did not contravene the separation of powers, he agreed with its holding that Congress did not engage in an excessive delegation of legislative power to the Commission. Justice Scalia found judicial enforcement of the nondelegation doctrine to be problematic:

Once it is conceded, as it must be, that no statute can be entirely precise, and that some judgments, even some judgments involving policy considerations, must be left to the officers executing the law and to the judges applying it, the debate over unconstitutional delegation becomes a debate not over a point of principle but over a question of degree.¹⁹⁰

Because Congress is "better equipped to inform itself of the 'necessities' of government" and since the factors bearing upon those necessities are multifarious and highly political, "it is small wonder that we have almost never felt qualified to second-guess Congress regarding the

¹⁸⁸An attack on the adequacy of the agency's explanation could conceivably entail the charge that the agency failed to consider relevant factors, considered irrelevant factors, or failed to consider alternatives. Thus, there is the potential for overlap between the fifth factor and each of the first three.

¹⁸⁹*Mistretta v. United States*, 488 U.S. 361 (1989).

¹⁹⁰*Id.* at 415-16 (Scalia, J., dissenting).

permissible degree of policy judgment that can be left to those executing or applying the law.”¹⁹¹ By contrast, in Justice Scalia’s view, the courts are perfectly well equipped to enforce the structural provisions of the Constitution by characterizing, for example, the nature of a power executed by an administrative entity. In that case, Justice Scalia concluded that the Commission was improperly exercising legislative as opposed to executive or judicial functions.¹⁹²

It is possible that a Scalian judge would draw a similar distinction judging attacks on EPA scientific determinations. Such a judge would be reluctant to become embroiled in assessments of questions of degree, and would be more willing to assess whether EPA had committed some more categorical failure to discharge statutory or administrative responsibilities at all. Such either-or determinations include assessing whether the agency had reached a conclusion without any factual support, failed completely to explain a link in its reasoning process, failed completely to take into account a relevant consideration, or engaged in inconsistent reasoning.¹⁹³ None of these bases for reversal turns on a question of degree and none entails review of questions over which agency policymakers possess an obvious advantage over judges in institutional competence. As the analysis below indicates, our review of the cases that involve attacks on EPA’s scientific reasoning indicates that the case results are consistent with such a judicial inclination to avoid immersing the judiciary in the adjudication of questions of degree.

2. *Cases in which the Courts Upheld the Validity of EPA’s Scientific Reasoning*

a. Attacks on EPA’s Data Collection and Interpretation

(1) Data Collection

Attacks based on the nature of the evidence upon which EPA relied in making its scientific determinations were uniformly unsuccessful during the survey period. We could not identify any cases in which EPA lost because of the data selection choices it made. Instead, the courts always deferred to these choices. In one case, for example, the D.C. Circuit deferred to EPA’s decision to rely on sixty-day instead of four-day studies of the bioaccumulation of toxic

¹⁹¹*Id.* at 416.

¹⁹²*Id.* at 420.

¹⁹³*See* Mark Seidenfeld, “Demystifying Deossification: Rethinking Recent Proposals to Modify Judicial Review of Notice and Comment Rulemaking,” 75 *Tex. L. Rev.* 483, 510 (1997) (“Lawyers thrive on applying critical reasoning skills to cases and judges, who usually come from the ranks of successful lawyers, are therefore well qualified to spot logical weaknesses in arguments and gaps in reasoning.”).

chemicals in trout in deciding to list a substance as a hazardous waste under RCRA.¹⁹⁴ In another case, the same court concluded that EPA reasonably decided to include data from commercial Subtitle C waste management facilities wastes in defining the scope of an exemption from RCRA regulation for hazardous wastes. It also held that the agency acted reasonably in applying the low hazard criterion used to determine eligibility for the exemption to data from only two lead processing facilities because those facilities represented forty percent of the plants in the industry.¹⁹⁵ In other cases, the courts rejected contentions that the data EPA relied on were too old.¹⁹⁶

EPA's decisions to reject data or studies based on flaws identified by the agency were similarly immune from successful attack. The D.C. Circuit upheld EPA's decision not to rely on short-term animal studies that failed to address pulmonary irritation in assessing a chemical's toxicity for purposes of the toxic release inventory compiled under the Emergency Planning and Community Right-to-Know Act (EPCRA).¹⁹⁷ In another case, that court remarked that EPA could, "within reasonable bounds, specify what data is [sic] necessary for it to determine how many allowances [to emit sulfur dioxide] a facility should receive [under the acid deposition control program of the Clean Air Act]. . . . The EPA may then refuse to act if the data submitted is of uncertain authenticity."¹⁹⁸

The courts firmly agreed with the principle that EPA need not base its regulatory decisions on perfect evidence. The Fifth Circuit concluded, for example, that EPA did not act arbitrarily in proceeding on the basis of imperfect information in issuing zero discharge levels under the Clean Water Act for produced water, produced sand, and drilling wastes from oil and

¹⁹⁴*Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1403 (D.C. Cir. 1996).

¹⁹⁵*Solite Corp. v. EPA*, 952 F.2d 473, 487, 498 (D.C. Cir. 1991). *See also* *Appalachian Power Co. v. EPA*, 135 F.3d 791, 814 (D.C. Cir. 1998) (rejecting assertion that EPA artificially inflated the costs of emission control by failing to exclude from its database a few extraordinarily high cost plants).

¹⁹⁶*Sierra Club v. EPA*, 107 F.3d 923 (Table), 1996 WL 678511, at *2 (D.C. Cir. 1996) (unpublished); *Pennsylvania v. United States EPA*, 932 F.2d 269, 272 (3d Cir. 1991) (EPA did not act arbitrarily in refusing to consider updated information submitted by state that EPA deemed incomplete). *See also* *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 804 (6th Cir. 1995).

¹⁹⁷*Troy Corp. v. Browner*, 120 F.3d 277, 289 (D.C. Cir. 1997).

¹⁹⁸*Texas Mun. Power Agency v. EPA*, 89 F.3d 858, 870 (D.C. Cir. 1996). For other unsuccessful attacks on EPA's decisions to reject data, see *Edison Elec. Inst. v. EPA*, 2 F.3d 438, 449 (D.C. Cir. 1993); *International Fabricare Inst. v. EPA*, 972 F.2d 384, 393, 395 (D.C. Cir. 1992).

gas producing point sources.¹⁹⁹ In rejecting an attack on the adequacy of EPA’s database, the D.C. Circuit explained pithily that “[i]nadequate data, however, do not mean inadequate science.”²⁰⁰ At least two different circuits repeated the language from the D.C. Circuit’s highly deferential, landmark 1976 Clean Air Act decision in *Ethyl Corporation*²⁰¹ to the effect that EPA is authorized to rely on “suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as ‘fact,’ and the like.”²⁰²

The appellate courts also routinely rejected challenges to EPA’s scientific determinations if they regarded them as unsupported by any relevant evidence or as based on conclusory assertions or speculation. In one case, the court refused to take EPA to task for ignoring “new scientific evidence” proffered by industry on the issue of the existence of safe threshold levels of exposure to known or probable human carcinogens because the evidence was limited to the opinions of a few scientists that were concededly at odds with generally accepted views.²⁰³ In another, an industrial litigant claiming that its product was a recyclable material rather than a solid waste under RCRA failed to field test any of the products that its experts testified “might possibly be manufactured” from its slag material.²⁰⁴ A truck manufacturing and assembly plant that sought review of EPA’s disapproval of a state implementation plan revision under the Clean Air Act that would have afforded it additional time to comply lost because it was unable to cite

¹⁹⁹Texas Oil & Gas Ass’n v. EPA, 161 F.3d 923, 935 (5th Cir. 1998). *See also* B & B Tritech, Inc. v. EPA, 957 F.2d 882, 885 (EPA could estimate potential exposed population).

²⁰⁰American Iron and Steel Corp. v. EPA, 115 F.3d 979, 992 (D.C. Cir. 1997). *See also* Solite Corp v. EPA, 952 F.2d 473, 490 (D.C. Cir. 1991) (endorsing EPA’s use of particular test for assessing whether a mineral processing waste was “low hazard” for purposes of RCRA hazardous waste exemption even though its evaluation of the test was not yet complete because the court does “not ‘demand certainty where there is none’”).

²⁰¹Ethyl Corp. v. EPA, 541 F.2d 1, 28 (D.C. Cir. 1976).

²⁰²Central Arizona Water Conservation Dist., 990 F.2d 1531, 1543 (9th Cir. 1993). *See also* Horsehead Resource Dev. Co. v. Browner, 16 F.3d 1246, 1269 (D.C. Cir. 1994); Solite Corp v. EPA, 952 F.2d 473, 490 (D.C. Cir. 1991).

²⁰³International Fabricare Inst. v. EPA, 972 F.2d 384, 391 (D.C. Cir. 1992). The court seemed to regard industry’s attack on EPA’s science as an effort to relitigate issues it had lost in the past (whether there are safe threshold levels of exposure to known or probable human carcinogens and whether animal tests are valid predictors of human cancer risk) despite the absence of any “new scientific evidence” on those questions. *Id.*

²⁰⁴Marine Shale Processors, Inc. v. EPA, 81 F.3d 1371, 1384 (5th Cir. 1996).

any evidence at all that it could not comply on time.²⁰⁵

The courts were similarly unreceptive to challenges filed by litigants who failed to supply information requested by EPA during the course of its decisionmaking process. In one case, the D.C. Circuit noted that the utilities did not comply with an EPA notice describing the information the agency needed to allocate allowances, and on this basis turned aside the contention that EPA acted arbitrarily and capriciously in calculating the number of emission allowances to dole out to electric utilities under the Clean Air Act's acid deposition control program.²⁰⁶ A truck manufacturing and assembly plant lost its attack on EPA's disapproval of a state implementation plan revision in part because both it and the state failed to submit a survey requested by EPA and because the plant failed to demonstrate that it proceeded expeditiously to develop and implement compliance plans, as requested by EPA.²⁰⁷ The producer of a substance deemed unacceptable by EPA as a substitute for banned ozone-depleting substances also lost its bid to invalidate the designation because its failure to supply requested information precluded EPA from ruling on the basis of a complete record. The court stated that even though the company "may at times have felt stonewalled by EPA, [it] had only itself to blame for not pursuing leads offered by EPA officials and the outside consultant."²⁰⁸

The cases in which the courts were called upon to determine whether EPA erred in its data selection process thus reveal an unwillingness on the part of the judges to assess whether EPA went far enough in collecting data or whether the data it collected were adequate or recent enough to support the agency's scientific determinations. The judges seemed unwilling to set themselves up as arbiters of the propriety or extent of EPA's information collection and

²⁰⁵Navistar Int'l Transp. Corp. v. EPA, 941 F.2d 1339, 1357 (6th Cir. 1991). *See also* BP Exploration & Oil, Inc. v. EPA, 66 F.3d 784, 801 (6th Cir. 1995) (refusing to "engage in pure speculation" to determine whether environmental group properly charged that EPA underestimated landfill capacity); Adams v. EPA, 38 F.3d 43, 55 (1st Cir. 1994) (request by opponent of Clean Water Act discharge permit for evidentiary hearing was "completely bereft of any references to facts in the record that would create a 'genuine' issue that a discharge" would create unreasonable environmental degradation); Citizens for Clean Air v. EPA, 959 F.2d 839, 847 (9th Cir. 1992) (finding that environmental group offered "no hard evidence" of the effectiveness of pollution control technique).

²⁰⁶Texas Mun. Power Agency v. EPA, 89 F.3d 858, 870 (D.C. Cir. 1996).

²⁰⁷Navistar Int'l Transp. Corp. v. EPA, 941 F.2d 1339, 1356 (6th Cir. 1991).

²⁰⁸Oz Tech. Inc. v. EPA, 129 F.3d 631, 636 (D.C. Cir. 1997). *See also* Engine Mfrs. Ass'n v. EPA, 88 F.3d 1075, 1098 (D.C. Cir. 1996).

winnowing processes.²⁰⁹ They rejected challenges on the ground that the challenges were based entirely on speculation and were without any evidentiary support, and they relied on litigants' failure to cooperate with EPA's information-gathering efforts as a justification for turning aside attacks on EPA's science.

(2) Data Interpretation

The judges' reluctance to draw lines in determining whether the agency made appropriate judgments in selecting the information base for its scientific determinations extended to judicial review of the manner in which EPA interpreted the data it had collected. When both EPA and the petitioners produced evidence to support their positions, the courts typically deferred to EPA's interpretation of the weight of the evidence rather than deciding that the challengers' evidence was stronger than the evidence relied on by EPA. This deferential posture even appeared in cases in which the courts otherwise took EPA to task. In the *American Trucking* case, for example, the D.C. Circuit remanded to EPA its revisions to both the ozone and particulate matter national ambient air quality standards (NAAQS).²¹⁰ Yet the panel majority that remanded the standards rejected industry's argument that EPA lacked any basis for regulating coarse particulate matter. The court found that the record contained adequate evidence to justify a decision to regulate coarse particulate pollution. The relationship between coarse particulates and adverse health effects was well established when EPA set the initial particulate matter standard. Further, studies in the record suggested that the portion of coarse particulate unaccounted for by the pre-existing standard for finer particles explained some of the observed adverse health effects. Some of the particulate problem therefore seemed independently attributable to coarse particles. The industry challengers pointed to some evidence to the contrary, but the court refused to conclude that EPA's reading of the evidence was unreasonable.²¹¹

The courts have similarly refused to second guess EPA in its selection of the technology that qualified as the best available under the Clean Water Act,²¹² in its selection of the

²⁰⁹This should be good news to agencies because, according to one observer, “[j]udicial reversals that require agencies to collect more data and perform more studies are perhaps the major contributors to agency fears about judicial review.” Seidenfeld, *supra* note 193, at 522. Professor Seidenfeld supports deference in most cases to agency determinations that collection of additional data would be counterproductive.

²¹⁰*American Trucking Ass'ns, Inc. v. EPA*, 175 F.3d 1027 (D.C. Cir.), *modified on rehearing*, 195 F.3d 4 (D.C. Cir. 1999), *cert. granted*, 120 S. Ct. 2003 (2000).

²¹¹*Id.* at 1053-54.

²¹²*BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 794 (6th Cir. 1995) (noting that studies by EPA demonstrated that improved gas flotation technology established as BAT under the

appropriate target cancer risk range for hazardous substance cleanups under CERCLA,²¹³ or in its selection of the appropriate cutoff point for determining which wastes met the high volume criterion for special wastes subject to exclusion from hazardous waste regulation under RCRA.²¹⁴ The Fourth Circuit refused to overturn EPA's approval of state water quality standards for dioxin under the Clean Water Act on the basis of EPA's selection of a bioconcentration factor of 5000 instead of the higher level supported by the environmental group challengers. According to the court, the "best course of action is to leave this debate to the world of science to ultimately be resolved by those with specialized training in this field."²¹⁵ In cases such as these, as long as EPA's choices fell within what was often a rather ill-defined "zone of reasonableness,"²¹⁶ EPA prevailed.

Thus, the courts seemed disinclined to wade too deeply into the resolution of questions of degree. If the courts detected conflicting evidence, some of which supported EPA's position and some of which did not, they tended to endorse the agency's position as reasonable,²¹⁷ even if the courts could not always "fully grasp" the agency's technical explanation.²¹⁸ In the *Leather*

CWA is capable of removing dissolved oil from produced water generated by offshore oil and gas producers, even though studies supplied by industry supported the conclusion that it was not capable of doing so).

²¹³Ohio v. EPA, 997 F.3d 1520, 1533 (D.C. Cir. 1993).

²¹⁴Solite Corp. v. EPA, 952 F.3d 473, 486 (D.C. Cir. 1991). *See also id.* at 487-88 (holding that "EPA properly exercised its discretion in selecting the 95th percentile as the statistical cutoff to define the numerical high volume standards" for deciding which wastes are excluded from regulation under the Bevill Amendment; environmental groups had suggested a 99% figure, while industry had suggested a 90% figure).

²¹⁵NRDC v. EPA, 16 F.3d 1395, 1404 (4th Cir. 1993).

²¹⁶*E.g.*, Solite Corp. v. EPA, 952 F.2d 473, 488 (D.C. Cir. 1993).

²¹⁷*See, e.g.*, Dioxin/Organochlorine Ctr. v. Clarke, 57 F.3d 1517, 1523 n.8 (9th Cir. 1995) (evidence in the record was "divergent"; EPA's choice was supported by substantial evidence).

²¹⁸American Iron & Steel Inst. v. EPA, 115 F.3d 979, 992 (D.C. Cir. 1997) (concerning EPA's methodology for converting narrative criteria for aquatic life into numerical values in water quality guidance for the Great Lakes system). The court was much harder on the litigants that challenged EPA's science for failing to explain their technical positions with some degree of clarity. According to the court, the iron and steel association that initiated the attack "never bother[ed] to tell the court exactly what [EPA's] methodology is. Everything is presented in the most abstract form. . . . Too bad [the association] did not take the trouble to educate the court. The first rule of advocacy is to make your argument understandable." *Id.* at 990. *See also id.* at 1007, where the court warned that in cases involving complex scientific evidence, "the parties

Industries case, for example, the court acknowledged the “genuine scientific debate” concerning the extent to which trivalent chromium poses environmental risks on the basis of its potential to oxidize into hexavalent chromium, a known toxic substance. The court concluded that EPA did not abuse its discretion in deciding to regulate trivalent chromium in sewage sludge destined for land application.²¹⁹ Perhaps the best summary of this trend was expressed by the D.C. Circuit, which seemed relieved that, “happily, it is not for the judicial branch to undertake comparative evaluation of conflicting evidence.”²²⁰

A few notable counterexamples stand out against these general tendencies. In the *Corrosion Proof Fittings* case,²²¹ the Fifth Circuit panel that struck down EPA’s rules phasing out the use of asbestos-containing products under the Toxic Substances Control Act (TSCA) characterized as arbitrary EPA’s choice of a period for discounting its cost and benefit calculations.²²² The court also concluded that EPA’s willingness to spend \$23.7 million to save less than one-third of a life “reveals that its economic review of its regulations, as required by TSCA, was meaningless,” and that EPA engaged in “cavalier treatment of its duty to consider the economic effects of its decisions,” even as the court protested that “we do not sit as a regulatory agency that must make the difficult decision as to what an appropriate expenditure is to prevent someone from incurring the risk of an asbestos-related death.”²²³ In the *American Trucking* case, the court did not itself draw a line as to the appropriate level at which to set the disputed Clean Air Act NAAQS, but it took EPA to task for failing to provide an intelligible principle against which to measure the point at which EPA drew the line.²²⁴ EPA’s decision not to pick either a higher or lower level than it did was plagued with indeterminacy. “Thus, the agency rightly recognizes that the question is one of degree, but offers no intelligible principle by which to

should ensure that enough background explanation is provided so that non-specialists can understand the significance of the points that are made.”

²¹⁹*Leather Indus. of Am., Inc. v. EPA*, 40 F.3d 392, 406 (D.C. Cir. 1994). *Cf. id.* at 409 (refusing to interfere with agency’s discretion in “line-drawing,” especially where the only identified consequence was potential public disfavor of dedicated beneficial use sites as dumping grounds).

²²⁰*Edison Elec. Inst. v. EPA*, 2 F.3d 438, 451 (D.C. Cir. 1993) (quoting *NRDC v. Thomas*, 824 F.2d 1211, 1216 (D.C. Cir. 1987)). *See also* *International Fabricare Inst. v. EPA*, 972 F.2d 384, 398 (D.C. Cir. 1992) (quoting the same language and rejecting argument that studies did not support finding that contaminant was probable human carcinogen).

²²¹*Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991).

²²²*Id.* at 1219.

²²³*Id.* at 1223.

²²⁴*American Trucking*, 175 F.3d at 1034.

identify a stopping point.”²²⁵ In another case, the Ninth Circuit decided that it owed no deference to EPA’s line-drawing because the agency lacked data to support exempting construction sites of less than five acres from the Clean Water Act’s stormwater permit requirement.²²⁶

Just as judges are disinclined to make comparative evaluations of the quality of the data EPA employs, they are also disinclined to decide whether petitioners’ interpretation of the data is superior to the agency’s. The Ninth Circuit, for example, rejected claims that EPA misinterpreted the data contained in a study prepared by the National Park Service on the sources of visibility impairment at the Grand Canyon.²²⁷ The D.C. Circuit endorsed EPA’s reliance on lake bottom sediments as evidence that mercury levels were attributable to mining operations rather than naturally occurring, even though industry contended that the agency lacked evidence of a direct causal connection to those operations.²²⁸ It also deferred to EPA’s decision to use data that aggregated the volumes of individual waste streams to calculate waste stream-specific volume thresholds for exempting mineral processing wastes from regulation as hazardous wastes under RCRA.²²⁹

²²⁵*Id.* at 1036-37.

²²⁶*NRDC v. EPA*, 966 F.2d 1292, 1306 (9th Cir. 1992).

²²⁷*Central Arizona Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1543 (9th Cir. 1993).

²²⁸*Bradley Mining Co. v. EPA*, 972 F.2d 1356, 1359-60 (D.C. Cir. 1992). The courts in more than one context refused to require that EPA provide evidence that a particular regulated activity had caused the problem at which its regulatory efforts were targeted. *See, e.g., American Trucking*, 175 F.3d at 1055; *American Iron and Steel Inst. v. EPA*, 115 F.3d 979, 1000 (D.C. Cir. 1997) (evidence of reasonable probability of contribution to the problem suffices). The existence (or absence) of a statistically significant relationship between the regulated conduct and the evidence of adverse effects to the public health or the environment typically was enough to justify EPA’s decisions to regulate (or not to regulate). *See, e.g., American Trucking*, 175 F.3d at 1056 (epidemiological studies supplied ample evidence of statistically significant relationship between airborne particulates and adverse health effects so as to justify decision to adopt fine particle standard); *American Iron and Steel*, 115 F.3d at 993 (EPA’s methodology for converting narrative criteria to numerical concentration limits on water pollutants, “by scaling the uncertainty factors to reflect existing data, properly correlates risk with knowledge”). *See also Ethyl Corp. v. EPA*, 51 F.3d 1053, 1065 (D.C. Cir. 1995) (concluding that EPA’s analysis of data submitted by waiver applicant was “careful and searching” and that agency properly concluded that the fuel additive for which the waiver was sought caused no statistically significant increase in emissions from automobiles). *But cf. Tex Tin Corp. v. EPA*, 992 F.2d 353, 356 (D.C. Cir. 1993) (chastising EPA for “confus[ing] correlation with causation”).

²²⁹*Solite Corp. v. EPA*, 952 F.2d 473, 487 & n.9 (D.C. Cir. 1991). *See also Apache Powder Co. v. United States*, 968 F.2d 66, 71 (D.C. Cir. 1992).

The disinclination to judge competing interpretations shows up clearly in the courts' reluctance to endorse the opinions of petitioners' experts over EPA's experts. In one case, the D.C. Circuit held that EPA did not act arbitrarily in giving greater weight to mainstream scientists who supported the position that there are no known safe threshold levels of exposure to known and probable human carcinogens than to opposing views of "a few scientists."²³⁰ In another case, the Fifth Circuit endorsed as reasonable EPA's decision to rely on the view of its experts that a process burned instead of recovered metal-bearing wastes or their metallic constituents, despite the contrary views of industry's experts. "The choice of which experts to credit," the court opined, "belongs to the EPA permitting staff."²³¹

Instead of, or in addition to, offering competing interpretations of data, petitioners frequently challenge the legitimacy of EPA's methods for extrapolating existing data into areas in which it lacked information. The courts give EPA leeway here, too. In one case, the D.C. Circuit held that EPA reasonably relied on animal test data to extrapolate the risk of exposure to a chemical it classified as an extremely hazardous substance under EPCRA and deferred to EPA's decision to extrapolate across physical states (from exposure in aerosol form to exposure in vapor form).²³² In another, the same court condoned EPA's decision under the same statute to include on the toxic release inventory polychlorinated alkanes derived from an olefin based on their structural similarity to polychlorinated alkanes derived from a paraffin.²³³ The Fifth Circuit allowed EPA to justify not collecting data on the performance of older oil and gas wells before establishing effluent limitations for them under the Clean Water Act by relying upon extrapolations from data collected concerning newer wells.²³⁴

This trend extends to cases in which EPA has employed admittedly imperfect scientific or statistical models. EPA was able to defend the application of regression analysis to predict emission levels of oxides of nitrogen from electric utilities in the face of the contention that its analysis was arbitrary, even though some actual data points did not correspond exactly with the line described by the regression equation.²³⁵ According to one court, EPA need only provide

²³⁰International Fabricare Inst. v. EPA, 972 F.2d 384, 391 (D.C. Cir. 1992).

²³¹Marine Shale Processors, Inc. v. EPA, 81 F.3d 1371, 1382 (5th Cir. 1996).

²³²Huls Am., Inc. v. Browner, 83 F.3d 445, 452-53 (D.C. Cir. 1996).

²³³Troy Corp. v. Browner, 120 F.3d 277, 290 (D.C. Cir. 1997). *See also American Trucking*, 175 F.3d at 1055-56 (quoting *NRDC v. Thomas*, 805 F.2d 410, 432 (D.C. Cir. 1986)) (endorsing the principle that "EPA's decision to adopt and set air quality standards need only be based on 'reasonable extrapolations from some reliable evidence'").

²³⁴Texas Oil & Gas Ass'n v. EPA, 161 F.3d 923, 935 (5th Cir. 1998).

²³⁵Appalachian Power Co. v. EPA, 135 F.3d 791, 805-06 (D.C. Cir. 1998).

evidence of a rational relationship between the model and the situation to which it applied.²³⁶ The D.C. Circuit concluded that EPA's explanation for adding a site to CERCLA's NPL passed muster even though EPA based the listing on the threat the site posed to groundwater, the evidence indicated that contamination was confined to the upper portion of the aquifer, drinking water supplies had been drawn exclusively from the clean lower portion, and the aquifer was no longer used as a drinking water source.²³⁷ The court remarked on "the seemingly unfair effects of the overly formalistic approach followed by EPA," but felt constrained to deny the petition because case law had endorsed EPA's use of formulas in applying the hazard ranking system used to assess potential NPL sites.²³⁸ In other situations, as we indicate below, the fit between the model and the situation to which it was applied was so flawed that challenges to EPA's scientific determinations succeeded.²³⁹

In some cases, EPA succeeded in defending its policy decisions by claiming that it lacked sufficient information to take the steps or adopt the position sought by a litigant or that it was engaged in ongoing efforts to accumulate additional information. The general principle seemed to be that "where existing methodology or research in a new area of regulation is deficient, the agency necessarily enjoys broad discretion to attempt to formulate a solution to the best of its ability on the basis of available information."²⁴⁰ The courts relied on some variant of that sentiment to reject attacks on EPA's science lodged by pro-environment and pro-industry forces

²³⁶American Iron and Steel Inst. v. EPA, 115 F.3d 979, 1005 (D.C. Cir. 1997).

²³⁷B & B Trittech, Inc. v. EPA, 957 F.2d 882, 884 (D.C. Cir. 1992).

²³⁸*Id.* The court did characterize EPA's decision as "a troubling one" because it did not address the question of whether the site posed any real risk to the public.

²³⁹*See infra* notes 282-87 and accompanying text.

²⁴⁰Ethyl Corp. v. EPA, 51 F.3d 1053, 1065 n.12 (D.C. Cir. 1995) (quoting Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 474 n.18 (D.C. Cir. 1974)). The court in *Ethyl* concluded that EPA properly responded to information submitted to it at the last minute by indicating it would study it and initiate appropriate regulatory action if warranted. 51 F.3d at 1065. *See also* BP Exploration & Oil, Inc. v. EPA, 66 F.3d 784, 804 (6th Cir. 1995). *But cf.* Chemical Waste Management, Inc. v. EPA, 976 F.2d 2, 18-19 (D.C. Cir. 1992) (EPA's promise to address certain unresolved problems in future rulemakings did not save rule where rule had to be issued in accordance with strict statutory deadlines; the court was obliged to treat the rule as the final response to its statutory obligation). The courts took cognizance of the practical difficulties EPA faces in keeping up with advances in scientific knowledge in other ways as well. In *Board of Regents v. EPA*, 86 F.3d 1214, 1220-21 (D.C. Cir. 1996), for example, the court noted that as EPA imposes more and more demanding requirements on its laboratory contractors, it is more and more likely that a lab will fail to comply with all of them. Laboratory errors are not necessarily "fatally defective" for that reason.

alike. In a case in which environmental groups challenged EPA's establishment of total maximum daily loads for dioxin under the Clean Water Act, the Ninth Circuit held that EPA did not act improperly by failing to consider the presence of other chemicals in the water, because information concerning the ability of other compounds to bioconcentrate to toxic levels was not as available as was information on dioxin.²⁴¹ The D.C. Circuit upheld EPA's decision not to issue numeric limits for safe levels of toxic substances in sludge co-disposed in municipal solid waste landfills on related grounds. It deferred to EPA's explanation that it could not measure chemical interactions between pollutants in sewage sludge and solid waste and had insufficient data about the chemical composition of debris in landfills.²⁴² The same court held that EPA did not have to consider whether pollution prevention measures were achievable means of limiting medical waste incinerator emissions under the Clean Air Act when the record contained no quantification of the costs or benefits of complying with such measures.²⁴³ An industry litigant could not convince the D.C. Circuit that EPA improperly failed to account for biodegradation of chloroform in its subsurface transport model for applying the toxicity characteristic leaching procedure test under RCRA.²⁴⁴ The data submitted by industry failed to account for pH and temperature variations in different subsurface environments about which EPA lacked sufficient information to accurately model anaerobic degradation in the subsurface.²⁴⁵

The cases decided during our survey period in which pro-environment or pro-industry litigants attacked the validity of EPA's scientific determinations on the ground that EPA erred in its data selection choices or that EPA interpreted the data improperly thus reflect a disinclination on the part of the reviewing courts to make judgments about the merits of particular pieces of evidence or about whether, on balance, the evidence provided by the challengers was stronger than that provided by EPA.²⁴⁶ The courts also seemed unwilling to wade into the middle of a

²⁴¹Dioxin/Organochlorine Ctr. v. Clarke, 57 F.3d 1517, 1524-25 (9th Cir. 1995). Similarly, the Fourth Circuit rejected environmental groups' claim that EPA improperly failed to protect sensitive subpopulations in approving state water quality standards for dioxin based on an estimate that an individual eats 6.5 grams of fish per day. The fish consumption of these subpopulations was speculative at best and there was no evidence that the fish they consume were contaminated. NRDC v. EPA, 16 F.3d 1395 (4th Cir. 1993).

²⁴²Sierra Club v. EPA, 992 F.2d 337 (D.C. Cir. 1993).

²⁴³Sierra Club v. EPA, 167 F.3d 658, 666 (D.C. Cir. 1999).

²⁴⁴Edison Elec. Inst. v. EPA, 2 F.3d 438, 448 (D.C. Cir. 1993).

²⁴⁵*Id.*

²⁴⁶When the judges became convinced that the challengers affirmatively mischaracterized the nature of the decision made by EPA or of the challenge being raised to that decision, they typically reacted by dismissing the challenge. *See, e.g.,* Appalachian Power Co. v. EPA, 135

battle of the experts, tending to defer to the views of the experts relied on by EPA when both sides of a scientific challenge presented plausible opinions. Finally, the courts afforded EPA considerable leeway in accommodating gaps in information by endorsing EPA's extrapolations and modeling exercises in situations in which those techniques were not obviously flawed.

b. Attacks on EPA's Reasoning Process

The analysis EPA performs in a rulemaking determination typically involves three distinct components, each of which may include multiple steps. The agency must select the evidence upon which it will rely, it must interpret that evidence to answer questions relevant to the rulemaking, and it must exercise policy judgment in selecting an appropriate response to the evidence, as interpreted. In each of these stages, EPA must make choices: as to which evidence is most reliable, as to which inferences to draw from the evidence, and as to which action to take. The *State Farm* requirement that the agency engage in "reasoned decisionmaking" in this analysis can be understood as a two-step process similar to *Chevron's*, although it is not often formulated this way. First, like a high school math instructor explaining to students how to take an algebra quiz, *State Farm* says that you must "show your work." The agency cannot simply state its bottom line conclusion. It must articulate the reasoning process it went through to reach that conclusion. Second, just as the steps in the student's proof must be logically correct, *State Farm* says that the reasoning the agency employs must be "satisfactory." The court asks whether EPA "examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" ²⁴⁷

The analogy between an algebra quiz and a rulemaking is only suggestive, though, as the distinction between "logically correct" and "satisfactory" intimates. In working through to a rulemaking decision, the agency must make judgments along the way that cannot be derived logically from the preceding steps. Determining the "weight of the evidence," selecting a model to use in extrapolating from the evidence to factual conclusions relevant to the rulemaking, deciding what inferences to draw from evidence or prior inferences, and weighing conflicting policy objectives in fashioning appropriate administrative agency all are operations that cannot

F.3d 791, 813 (D.C. Cir. 1998) (industry claimed its challenge was based on cost/ton removed calculation, while it was in fact based on cost/kwh, which industry had previously argued unsuccessfully to the court was required by the statute); *Central Arizona Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1544 (9th Cir. 1993) (author of report relied on by challengers stated that challengers misrepresented content of report). Loss of credibility therefore did not stand these litigants in good stead with the courts.

²⁴⁷ *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (citations omitted).

be based on logically correct axioms or scientifically validated.²⁴⁸ The court's review of the agency's reasoning will therefore always involve some possibility of subjective differences between the agency and the court with regard to whether or not each of the links in the agency's chain of reasoning was satisfactory.

In our earlier consideration of *Chevron*, we argued that judges generally leery of second-guessing the political branches regarding questions of degree, such as whether one policy consideration outweighed another, would be more likely to reverse an agency on Step One grounds than on Step Two grounds, and that is what we found to be the case. The prior section of this part, which reviewed the cases in which litigants attacked the data collection and interpretation steps of EPA's scientific determinations, was also consistent with this hypothesis, because in the decisions we reviewed, the courts were highly reluctant to second-guess the agency regarding which evidence was more or less convincing. If this reluctance extends to "reasoned decisionmaking" review (review of the agency's policy response to the evidence it has collected and interpreted during the first two steps of the process), we would expect that courts would be more willing to reverse EPA on the basis of a missing link, a gap in the chain of reasoning, than it would be to reverse on the basis of its conclusion that an articulated inference was an unsatisfactory one. In the former situation, the court informs the agency that the agency simply has not shown its work, so that the court does not know what the agency's reasoning process was, rather than informing the agency that the court understands the agency's reasoning, a good portion of which is policy-driven, and rejects it.

Under this hypothesis, the more common grounds for finding that the agency has not "articulate[d] a satisfactory explanation for its action, including a rational connection between the facts found and the choice made," ought to be: (1) a move from one step in the agency's thinking to another was completely unexplained; (2) how the agency dealt with a highly relevant consideration was completely unarticulated; (3) a conclusion that ought to be based on evidence lacked any basis in fact or any supporting evidence; (4) the agency's reasoning was internally inconsistent without explanation as to why, either within that specific rule or when compared to past practice. In addition, because the court will be judging this reasoning process within a specific statutory context that sets boundaries on agency action, a court might find that (5) the reasoning or the conclusion of the agency was incompatible with statutory criteria. Each of these grounds for reversal is a variation on the conclusion that the chain of the agency's reasoning contains a gap, or a missing link – something lacking any explanation – rather than the conclusion that the court finds the link to be there but to be too weak to bear its weight. The first kind of judgment can be cast in categorical, absolute terms, without relying upon a disagreement between the court and the agency with respect to a question of degree. Our review of the cases

²⁴⁸ For instance, the National Research Council has estimated that the risk assessment process common to many EPA rules involves approximately fifty inferential bridges - points in reaching the ultimate risk assessment conclusion at which a choice must be made "among several scientifically plausible options." NRC, *Risk Assessment in the Federal Government, Managing the Process* 8 (1983).

confirms that these are precisely the grounds upon which the Courts of Appeals in the 1990s tended to find EPA's scientific determinations to be unsupported by reasoned decisionmaking.

The following section addresses judicial review by the Courts of Appeals during our survey period of the third component of the typical rulemaking determination, the point in the process at which EPA selects an appropriate, policy-based response to the evidence it has accumulated and interpreted. We divide the cases both in this section, in which we discuss unsuccessful attacks on EPA's reasoning process, and the next, in which we discuss successful attacks, into two categories. The first encompasses challenges to the persuasiveness of EPA's policy-based reasoning, or its logical coherence. The second includes cases in which litigants objected to EPA's reasoning on the ground that it was inconsistent with applicable statutory mandates.

(1) Persuasiveness of EPA's Reasoning

It is perhaps not as easy for a reviewing court asked to review the persuasiveness of an agency's reasoning process to avoid making comparative judgments as it is when it is asked to review the validity of that agency's data selection and interpretation choices. The persuasiveness of the reasoning used to support a particular outcome is largely a subjective matter. Nevertheless, an agency's reasoning could be deemed faulty if the agency completely fails to consider a relevant consideration or if one or more steps in a logical chain of inference are completely missing. If the judges during the survey period were as wary of making comparative judgments about EPA's reasoning processes in cases involving the application of scientific expertise as they were in assessing the agency's data selection and interpretation choices, one would expect most of the judicial reversals of EPA reasoning in the science cases to involve the identification of this kind of fault. To a certain extent, the cases discussed in this section and the next bear out that hypothesis.

The courts on occasion concluded that EPA did not entirely fail to consider an important aspect of the problem at hand. In a case that arose under the Clean Air Act, for example, the Third Circuit held that EPA considered data indicating that transported ozone contributed to exceedances of the NAAQS.²⁴⁹ Another ground upon which a court could find that an agency acted arbitrarily without engaging in a weighing of the cogency of its reasoning process would be to reverse on the basis of the agency's failure to consider or respond to objections raised by interested parties. In several cases during the survey period, the Courts of Appeals refused to invalidate EPA's decisions on these grounds. In one case, an industry litigant claimed that EPA erred in banning the use of certain substances as substitutes for ozone-depleting chemicals banned by the 1990 amendments to the Clean Air Act. The D.C. Circuit rejected the attack, noting "the comprehensive scope of EPA's responses to OZ's submissions and OZ's utter lack of

²⁴⁹Southwestern Pennsylvania Growth Alliance v. Browner, 121 F.3d 106, 117 (3d Cir. 1997).

explanation as to how EPA's responses might be inaccurate or unfounded."²⁵⁰ In another case, the same court concluded that EPA had not failed to respond to the charge that some animal carcinogenicity experiments it relied on were conducted at excessively high doses.²⁵¹ In yet another, the Ninth Circuit determined that a miners association challenging EPA's refusal to modify its Clean Water Act effluent limitations for gold placer mines failed to provide "unanswerable criticism" of EPA's reasoning in that, contrary to the association's assertion, EPA considered and rejected a compliance cost estimate that differed from its own.²⁵² The Fourth Circuit overturned a district court decision invalidating EPA's decision to veto a dredge and fill permit for a dam under the Clean Water Act because, the district court's finding to the contrary notwithstanding, EPA did consider whether environmentally destructive development would be worse if the dam were not built than if it were.²⁵³

Some courts were able to avoid making comparative judgments by rejecting attacks on EPA's methodology where the alleged defect was irrelevant to the reasoning process engaged in by the agency. In a Clean Water Act case brought before the Fifth Circuit,²⁵⁴ industry attacked the validity of a study EPA supposedly relied on in issuing effluent limitation guidelines that included zero discharge levels for produced water, produced sand, and drilling wastes discharged by coastal oil and gas producers. The court refused to address criticisms of the study because the study was used by EPA to estimate pollution reduction benefits that would result from the zero discharge limit and, in issuing BAT effluent limitations, EPA is not required to compare cost and effluent reduction benefits. So "even serious flaws could not provide grounds for remanding the zero discharge limit."²⁵⁵ In another Clean Water Act case, the D.C. Circuit rejected the contention that EPA improperly relied on pot instead of field studies in setting a cap for the concentration of chromium in sewage sludge. Industry claimed that these studies were inadequate to model plant uptake, but EPA used the studies to measure risk to plants once chromium is in plant tissue (phytotoxicity), not to measure uptake from soil.²⁵⁶

²⁵⁰Oz Tech. Inc. v. EPA, 129 F.3d 631, 636 (D.C. Cir. 1997).

²⁵¹International Fabricare Inst. v. EPA, 972 F.2d 384, 393 (D.C. Cir. 1992).

²⁵²Alaska Miners Ass'n v. EPA, 931 F.2d 896 (Table), 1991 WL 67869, at *2 (9th Cir. 1991).

²⁵³James City County v. EPA, 12 F.3d 1330, 1339 (4th Cir. 1993).

²⁵⁴Texas Oil & Gas Ass'n v. EPA, 161 F.3d 923 (5th Cir. 1998).

²⁵⁵*Id.* at 936.

²⁵⁶Leather Indus. of Am., Inc. v. EPA, 40 F.3d 392, 407 (D.C. Cir. 1994). In another case, the court rejected an attack on EPA's scientific reasoning not because the alleged flaw in the agency's methodology was irrelevant to the reasoning process in which it engaged, but because the challenge focused exclusively on one justification for EPA's action, whereas that justification

Two other bases for upholding EPA's decisions in the face of attacks on its reasoning process are noteworthy. First, it helped EPA to fend off attacks on its scientific reasoning to be able to assert that it had provided for individual adjustment mechanisms to deal with the unintended, anomalous consequences of applying the scientific approach or technical model it had developed. In the 1997 *American Iron and Steel Institute* case, for example, an iron and steel association petitioned the D.C. Circuit for review of water quality guidance EPA had issued for the Great Lakes system. The association challenged as arbitrary the requirement in the guidance that a mixing zone encompass no more than 25% of the design flow of the receiving water.²⁵⁷ The court held that EPA adequately justified its decision to establish uniform default dimensions for mixing zones in part because the guidance authorized permitting authorities to make adjustments in individual permit proceedings upon a showing that 25% of river flow did not correspond to 25% of cross-sectional area or that EPA's assumptions concerning the scope of the areas in which discharge-induced mixing normally occurs were inappropriate.²⁵⁸ Along the same lines, the D.C. Circuit swept aside an attack on EPA's regulations setting limits for NO_x emissions from electric utility boilers under the Clean Air Act. The regulations were not arbitrary simply because EPA did not build a compliance margin into the limits; both the statute and EPA's implementing regulations provided alternative emission limitations and averaging options.²⁵⁹

Second, the courts sometimes looked askance at attacks on EPA's scientific methodology when the attacking entity failed to provide a workable alternative approach. In one case, the D.C. Circuit upheld EPA's methodology for setting emission limits under the Clean Air Act for oxides of nitrogen emitted by electric utilities, noting that the challenging utility "does not propose an alternative to the methodology EPA employed."²⁶⁰ The same court turned aside industry's attack on the Great Lakes water quality guidance, remarking in the process that while industry listed alternatives for converting narrative criteria into numerical values, "it has not even attempted to convince us that these are superior to EPA's methodology."²⁶¹ The operator of an industrial furnace leveled an unsuccessful attack on EPA's scientific methodology under RCRA when it failed to supply any alternative set of standards to replace EPA's reliance on state Department of

was only one of several EPA relied on. *See Navistar Int'l Transp. Corp. v. EPA*, 941 F.2d 1339, 1358 (6th Cir. 1991).

²⁵⁷ *American Iron and Steel Inst. v. EPA*, 115 F.3d 979 (D.C. Cir. 1997).

²⁵⁸ *Id.* at 998. *See also id.* at 1005 (noting that the guidance allowed permitting authorities to modify mercury criteria to account for local conditions).

²⁵⁹ *Appalachian Power Co. v. EPA*, 135 F.3d 791, 806 (D.C. Cir. 1998).

²⁶⁰ *Id.* at 813.

²⁶¹ *American Iron and Steel Inst. v. EPA*, 115 F.3d 979, 993 (D.C. Cir. 1997).

Transportation specifications for purchases of aggregate.²⁶²

The absence of a workable alternative approach to the one selected by EPA also doomed a chemical marketer's attack on EPA's denial of a petition to remove one of its chemicals from the list of extremely hazardous substances under EPCRA.²⁶³ The marketer alleged that EPA acted arbitrarily in choosing to assess the risk posed to animals through exposure to a chemical called IPDI in its aerosol instead of its vapor form because the latter was arguably more representative of likely human exposure. The court concluded that the chemical's toxicity could only be measured by using high concentrations of the chemical, and the substance's low vapor pressure therefore necessitated the use of aerosol tests. EPA therefore did not err in relying on aerosol tests to assess the toxicity of exposure through inhalation, "even though these tests utilize artificially high concentrations of IPDI and involve aerosol IPDI instead of IPDI vapor."²⁶⁴

(2) Consistency of EPA's Reasoning with the Statute

One would expect judges as a general proposition to be more comfortable engaging in an assessment of the consistency of an agency's reasoning process with statutory criteria or objectives than they would be making judgments about technical matters such as the propriety of the agency's decision to rely more heavily on one kind of data or one expert opinion than another. In cases in which pro-environment or pro-industry litigants attacked the validity of EPA's reasoning process on the basis of inconsistency with the agency's statutory authorization, the courts in some cases nevertheless adopted a relatively deferential review posture.

At least one court refused to endorse an attack on EPA's reasoning when doing so would have prevented EPA from fulfilling its statutory environmental protection mandate. In the *American Trucking* case, the non-state petitioners argued that the fine particle standard established by EPA was flawed because EPA failed to explain the biological mechanism through which particulate pollution causes adverse health effects. They claimed that the absence of proof of causation (how particles actually interact with cells and organs to cause sickness and death) was a fatal mistake. The court disagreed, because the statute²⁶⁵ does not require that kind of

²⁶²*Marine Shale Processors, Inc. v. EPA*, 81 F.3d 1371, 1384 (5th Cir. 1996). A group of states that challenged EPA's failure to include a materials separation mandate for waste incinerators fell prey to the same problem in *New York v. Reilly*, 969 F.2d 1147 (D.C. Cir. 1992). EPA was concerned about the costs of such a requirement, but the petitioning states failed to provide (either to EPA in rulemaking comments or to the court) a "genuine cost saving alternative." *Id.* at 1152.

²⁶³*Huls Am., Inc. v. Browner*, 83 F.3d 445 (D.C. Cir. 1996).

²⁶⁴*Id.* at 453.

²⁶⁵42 U.S.C. § 7408(a)(1).

proof, and the court had previously endorsed “reasonable extrapolations from some reliable evidence.”²⁶⁶ Moreover, if the petitioners’ argument were correct, “EPA (or any agency for that matter) would be powerless to act whenever it first recognizes clear trends of mortality or morbidity in areas dominated by a particular pathogen.”²⁶⁷ Accordingly, the court upheld EPA’s decision to establish a fine particle standard in a situation in which accepting the petitioners’ challenge to that decision would essentially have made it impossible (given the current state of knowledge – or lack of knowledge) to fulfill EPA’s statutory mandate to protect the public health and the environment from air pollution. Similarly, the D.C. Circuit refused in another case to require EPA to include in its regression analysis for calculating percentage reductions in oxides of nitrogen emissions variables for which no data existed because to do so would either have hamstrung the agency or invited it to act arbitrarily by proceeding on the basis of a non-existent database.²⁶⁸

The courts in some of the cases covered in our survey explicitly approved of EPA’s reliance on conservative assumptions as a methodology that is consistent with the thrust of the agency’s enabling statutes. The Ninth Circuit, for example, rejected an attack on EPA’s establishment of total maximum daily loads for dioxin under the Clean Water Act. In doing so, it noted that “EPA consistently took a conservative approach with a reasonably wide margin of safety.”²⁶⁹ The courts may have been particularly likely to endorse the use of conservative assumptions in one context if EPA balanced them with less conservative approaches elsewhere in the decisionmaking process.²⁷⁰

²⁶⁶*American Trucking*, 175 F.3d at 1055 (quoting *NRDC v. Thomas*, 805 F.2d 410, 432 (D.C. Cir. 1986)).

²⁶⁷*Id.* at 1056.

²⁶⁸*Appalachian Power Co. v. EPA*, 135 F.3d 791, 805 (D.C. Cir. 1998). One court deferred to EPA’s choice of scientific methodology (the use of unfiltered instead of filtered water samples to estimate the health risks posed by exposure to hazardous substances at a potential NPL site) because all of the available choices posed risks of error, and the conservative choice EPA made created a relatively low risk of overestimation. *Board of Regents v. EPA*, 86 F.3d 1214, 1218 (D.C. Cir. 1996).

²⁶⁹*Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517, 1525 (9th Cir. 1995). *See also* *American Iron and Steel Inst. v. EPA*, 115 F.3d 979, 998 (D.C. Cir. 1997). *But cf.* *Leather Indus. of Am., Inc. v. EPA*, 40 F.3d 392, 402-05 (D.C. Cir. 1994) (finding that EPA did not adequately justify assumed rate and duration of land application of heat-dried sludge and that EPA failed to demonstrate a rational relationship between its “highly conservative exposure assumptions and the actual usage regulated by those assumptions”).

²⁷⁰*E.g.*, *Board of Regents v. EPA*, 86 F.3d 1214, 1219 (D.C. Cir. 1996).

3. *Cases in which the Courts Struck Down EPA Decisions Based on Inadequate Scientific Reasoning*

If the courts abjure a review of EPA scientific determinations that requires a weighing or balancing of the evidence before the agency or of competing policy considerations, then one would expect the cases in which the courts overturned EPA's scientific determinations to have been decided on a more absolute basis. Thus, the courts might be willing to invalidate EPA action in a case involving an attack on the agency's scientific reasoning in the absence of any supporting evidence, if EPA completely failed to explain its position, if EPA's reasoning process is marred by an obvious gap in logic, or if that process is internally inconsistent or inconsistent with past practice. The cases we reviewed seem to bear out that expectation.

a. Attacks on EPA's Data Collection and Interpretation

(1) Data Collection

We did not find a single case during the survey period in which the Courts of Appeals invalidated an EPA decision based on the agency's data collection or selection choices. The courts seemed unwilling to interfere with this aspect of EPA's technical expertise.

(2) Data Interpretation

Even though the courts deferred to EPA's interpretation of the evidence when they found plausible evidence on both sides of an issue,²⁷¹ they did not shy away from invalidating EPA scientific determinations when they were not supported by any evidence at all.²⁷² As the D.C. Circuit indicated, EPA is not permitted to rely on "sheer guesswork."²⁷³ Thus, when the manufacturer of a chemical EPA listed as a high risk hazardous air pollutant pointed out that EPA's generic dispersion model assumed that the chemical acted as a gas, whereas its chemical

²⁷¹See *supra* notes 210-20 and accompanying text.

²⁷²A judicial determination that EPA mischaracterized the facts did not place EPA in a better posture before the reviewing court. See, e.g., *Monsanto Co. v. EPA*, 19 F.3d 1201 (7th Cir. 1994). In support of its decision denying Monsanto's application for additional time to comply with national emission standards for hazardous air pollutants under the Clean Air Act, EPA argued that Monsanto acknowledged that carbon adsorption technology was capable of achieving more than 95% consistent removal. Monsanto actually stated, however, that its total system, using water scrubbing as the primary system and carbon adsorption as an additional control, achieved that level of performance. The court found that EPA arbitrarily assumed that carbon adsorption on its own would have achieved the same level of performance. *Id.* at 1207-08.

²⁷³*Leather Indus. of Am., Inc. v. EPA*, 40 F.3d 392, 408 (D.C. Cir. 1994) (quoting *American Petroleum Inst. v. Costle*, 665 F.2d 1176, 1186-87 (D.C. Cir. 1981)).

was released as a solid, EPA responded with a “speculative factual assertion” that it was “likely” that the chemical is emitted at temperatures higher than ambient so that it would disperse like a gas. The D.C. Circuit disparaged that response because “it bespeaks a ‘let them eat cake’ attitude that ill becomes an administrative agency whose obligation to the public it serves is discharged if only it avoids being arbitrary and capricious.”²⁷⁴ In another case, that court held that EPA’s adoption of a performance standard under RCRA for boilers and industrial furnaces burning toxic organics as fuel was arbitrary and capricious because there was “no information” in the record on the issue of whether it was feasible to comply with a standard requiring simultaneous measurement of CO and THC. EPA “was relying on pure speculation when it decided that a standard of no increase of CO and THC over quantifiable CO and THC baselines was achievable.”²⁷⁵ In yet another case, the D.C. Circuit concluded that EPA’s justification for applying the general waste mismanagement scenario upon which RCRA’s toxicity characteristic leaching procedure test for assessing a chemical’s toxicity to mineral processing wastes is based depended on speculative factual assertions. EPA took the position that small volume mineral processing wastes could plausibly be disposed of in municipal landfills, but there was no evidence that they ever had been. EPA also asserted that mineral processing wastes not disposed of in municipal landfills would come into contact with some form of acidic leaching medium or otherwise encounter environments which could cause them to leach comparable levels of toxic constituents, but there was no evidence that they ever do come into contact with any form of acidic leaching medium.²⁷⁶ Other courts were also willing to take issue with EPA’s science under circumstances in which they concluded that the agency relied on speculation, guesswork, or unsupported assumptions rather than on solid evidence.²⁷⁷

²⁷⁴Chemical Mfrs. Ass’n v. EPA, 28 F.3d 1259, 1266 (D.C. Cir. 1994).

²⁷⁵Horsehead Resource Dev. Co. v. Browner, 16 F.3d 1246, 1269 (D.C. Cir. 1994). *See also* Chemical Waste Management, Inc. v. EPA, , 976 F.2d 2, 17-18 (D.C. Cir. 1992) (remanding portion of land disposal restrictions for hazardous wastes that allowed dilution of corrosive wastes because EPA’s assertion that these wastes pose no problem other than those presented by the corrosivity characteristic was not backed by any evidence).

²⁷⁶Edison Elec. Inst. v. EPA, 2 F.3d 438, 446 (D.C. Cir. 1993). *See also* Tex Tin Corp. v. EPA, 992 F.2d 353, 355 (D.C. Cir. 1993) (refusing to allow EPA to base NPL listing on “unsupported assumptions to back up its conclusion that arsenic-laden dust particles are likely to come from the tin slag”).

²⁷⁷*See, e.g.,* Hoffman Homes, Inc. v. Administrator, United States EPA, 999 F.2d 256, 262 (7th Cir. 1993) (finding that EPA’s conclusion that wetland area was suitable or potential habitat for migratory birds, and therefore that developer violated the CWA by filling it without a permit under CWA § 404, was based merely on speculation that regulated area was similar to area that did provide such habitat); NRDC v. EPA, 966 F.2d 1292, 1306 (9th Cir. 1992) (overturning EPA’s decision to exempt construction sites of less than five acres from CWA’s stormwater permit requirement because EPA cited “no information to support its perception that

EPA was also vulnerable in situations in which the evidence in the record supplied by the agency's own staff and experts contradicted its technical explanations.²⁷⁸ In one case, the D.C. Circuit vacated an NPL listing that was based on one unfiltered groundwater sample in part because EPA's own experts recommended the use of both filtered and unfiltered tests and EPA offered no explanation as to why it would have been infeasible to use both in this case.²⁷⁹ In another, the Seventh Circuit invalidated a penalty EPA had imposed for violation of the Clean Water Act's dredge and fill permit requirements because statements by an EPA water quality expert and a FWS biologist contradicted the conclusion that the wetland area in question was suitable migratory bird habitat.²⁸⁰

We noted earlier that the Court of Appeals allowed EPA considerable leeway in choosing and applying technical models for interpreting the evidence before it that were in some sense imperfect.²⁸¹ In other cases, however, the court determined that EPA's extrapolating or modeling choice was so ill-suited to assessing the impact of the regulated activity on health or the environment that the conclusions EPA reached were unsupported. The *Columbia Falls* case²⁸² is illustrative. In that case, the D.C. Circuit vacated a treatment standard for hazardous waste adopted by EPA under RCRA because EPA continued to use the toxicity characteristic leaching procedure test to measure compliance with the standard even after it knew that the test was not an accurate predictor of the mobility of toxic constituents in the actual leachate. The court characterized the treatment standard as a model intended to predict the degree to which toxic constituents will leach following disposal. It found that, "as EPA admitted, . . . the model does not work" because the leachate generated from actual disposal of the treatment residues is more

construction activities on less than five acres are non-industrial in nature").

²⁷⁸In one case, the court deferred to an administrative law judge's factual findings where those findings conflicted with those of the chief judicial officer in an administrative penalty proceeding. *Hoffman Homes, Inc. v. Administrator, United States EPA*, 999 F.2d 256, 262 (7th Cir. 1993).

²⁷⁹*Kent County v. EPA*, 963 F.2d 391, 398 (D.C. Cir. 1992). *See also American Trucking*, 175 F.3d at 1054 (invalidating EPA's decision to regulate the coarse fraction of PM₁₀ indirectly by using PM₁₀ as a surrogate for coarse fraction particles in part because EPA's own staff paper suggested PM₁₀ was inherently confounded by the presence of PM_{2.5} particles, so that the regulation of PM₁₀ pollution will include both coarse and fine particles).

²⁸⁰*Hoffman Homes, Inc. v. Administrator, United States EPA*, 999 F.2d 256, 262 (7th Cir. 1993).

²⁸¹*See supra* notes 235-38 and accompanying text.

²⁸²*Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914 (D.C. Cir. 1996).

hazardous than initially anticipated.²⁸³ The test was premised on a generic mismanagement scenario in which hazardous waste is deposited in a municipal solid waste landfill where other wastes act as buffer agents. The waste to which EPA applied the test in that case, however, spent potliner waste, was deposited in a monofill, which received only that waste, and where the high pH level remained undiluted.²⁸⁴ In other cases, the appellate courts concluded that EPA improperly classified drill cuttings as total suspended solids under the Clean Water Act by using a measurement test designed to include much smaller particles,²⁸⁵ based its listing of a hazardous air pollutant as high risk on the use of a generic air dispersion model that included assumptions that EPA conceded were not accurate for the particular pollutant listed,²⁸⁶ and failed to demonstrate a rational relationship between the toxicity characteristic leaching procedure test and its application to mineral processing wastes.²⁸⁷

b. Attacks on EPA's Reasoning Process

(1) Gaps in EPA's Reasoning

As indicated above,²⁸⁸ pro-environment and pro-industry litigants in some cases were unable to convince the courts that EPA's scientific reasoning process lacked logic on the ground that the agency entirely failed to consider an important aspect of a problem. In other cases, however, the courts took issue with EPA's scientific determinations when EPA offered no explanation at all of an apparently illogical conclusion (i.e., one that appeared to conflict with common sense or with EPA's own characterization of the facts). One of the highest profile cases during the 1990s in which the appellate courts overturned important EPA regulatory initiatives fell into this category of reversal based on a failure to explain a decision that appeared to fly in the face of common sense and ordinary logic. In *American Trucking*, EPA decided to regulate the coarse fraction of particulate matter indirectly, using PM₁₀, which includes both coarse and fine PM, as a surrogate for coarse fraction particles. EPA justified its decision by arguing that the PM₁₀ standard would work in conjunction with a PM_{2.5} standard. The court concluded that EPA provided "no explanation" as to why use of both indicators would not lead to "double regulation" of the PM_{2.5} component of PM₁₀ and potential underregulation of the PM_{10-2.5} component "since the amount of PM_{10-2.5} permitted will always depend on the amount of PM_{2.5} in

²⁸³*Id.* at 922.

²⁸⁴*Id.*

²⁸⁵*BP Exploration & Oil, Inc.*, 66 F.3d 784, 799 (6th Cir. 1995).

²⁸⁶*Chemical Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1264 (D.C. Cir. 1994).

²⁸⁷*Edison Elec. Inst. v. EPA*, 2 F.3d 438, 446 (D.C. Cir. 1993).

²⁸⁸*See supra* notes 249-53 and accompanying text.

the air.”²⁸⁹

The courts also were confounded by EPA’s logic in other less prominent cases. In one case, environmental groups challenged regulations in which EPA established floors for the control of emissions by medical waste incinerators under the Clean Air Act. The D.C. Circuit remanded the regulations for a better explanation. The court concluded that, “[e]ven under the most deferential standard, it is difficult to accept a method under which the emissions of the best-performing 12% of units are hypothesized to pollute nearly twice as badly as the worst of test units that lacked any emissions controls.”²⁹⁰ EPA also failed to explain why it assumed that unregulated emission units were uncontrolled, when data submitted by the American Hospital Association seemed to indicate that many of these units used scrubbers.

The D.C. Circuit also found fault with EPA’s logic in a case in which industry challenged EPA’s designation of a chemical as a high risk hazardous air pollutant. When the manufacturer pointed out that the chemical it emitted would likely take the form of a rapidly settling aerosol, rather than a gas (as EPA’s model assumed), “EPA replied in an unsupported and conclusory fashion that it ‘still believes that the dispersion model used [is] appropriate for [assessment of the chemical’s risk].’ This response added nothing to the agency’s defense of its thesis except perhaps the implication that it was committed to its position regardless of any facts to the contrary.”²⁹¹ Finally, in a case in which a potentially responsible party challenged the remedial action selected by EPA under CERCLA for the cleanup of hazardous substance contamination, the reviewing court could make no sense of EPA’s decision to require the provision of alternative water supplies despite the absence of any evidence that anyone was drinking contaminated water, or even that EPA tried to learn whether anyone was doing so.²⁹²

On more than one occasion, EPA was unable to defend the reasoning process by which it decided to place sites on CERCLA’s NPL. In *Kent County*,²⁹³ for example, EPA tried to justify relying on only one unfiltered groundwater sample to score and list an NPL site by claiming that the arsenic level in the sample was significantly higher than the arsenic level taken from an unfiltered sample taken from a background well. But the court concluded that the explanation “ignores the possibility that the monitoring well contained turbid water (i.e., water with soil particles containing naturally occurring arsenic) while the background well did not. We find

²⁸⁹*American Trucking*, 175 F.3d at 1054.

²⁹⁰*Sierra Club v. EPA*, 167 F.3d 658, 664 (D.C. Cir. 1999).

²⁹¹*Chemical Mfrs. Ass’n v. EPA*, 28 F.3d 1259, 1266 (D.C. Cir. 1994).

²⁹²*In re Bell Petroleum Serv., Inc.*, 3 F.3d 889, 905 (5th Cir. 1993).

²⁹³*Kent County v. EPA*, 963 F.2d 391 (D.C. Cir. 1992).

nothing in the EPA's response that refutes this possibility."²⁹⁴ The court vacated the listing. Similarly, in *National Gypsum*,²⁹⁵ EPA acknowledged that the only kind of boron found at a site listed on the NPL was boron oxide, which has relatively low toxicity. The agency nevertheless assumed, with "no support for its conclusion," that the boron identified in groundwater at the site was of a highly toxic form simply because boron oxide is only slightly soluble in water; EPA never even identified the type of more toxic boron compounds it presumed were formed by the boron oxide deposited at the quarry.²⁹⁶ The court again vacated the listing.

Another high profile case illustrates the courts' willingness to reverse EPA based on its failure to provide an explanation of a conclusion that seems contradicted by EPA's own characterization of the evidence. In *Corrosion Proof Fittings*, the Fifth Circuit invalidated EPA's effort to phase in a ban on the use of asbestos-containing products for a plethora of reasons. One of the flaws detected by the court related to EPA's failure to refute a seemingly illogical conclusion related to the comparative dangers of the banned products and their available substitutes:

Despite this credible record evidence, by a study specifically commissioned by the EPA, that substitute products actually might cause more deaths than those asbestos deaths predicted by the EPA, the agency did not evaluate the dangers posed by the substitutes, including cancer deaths from the other fibers used and highway deaths occasioned by less effective, non-asbestos brakes. This failure to examine the likely consequence of the EPA's regulation renders the ban of asbestos friction products unreasonable.²⁹⁷

The court also concluded that EPA's assertion that estimates of cancer risk posed by exposure to non-asbestos pipe substitutes were likely too high, despite data showing that the number of cancers associated with the production of asbestos and non-asbestos pipe was similar, was based on speculation.²⁹⁸

EPA's own factual determinations proved fatal to its efforts to defend its science-based

²⁹⁴*Id.* at 398.

²⁹⁵*National Gypsum Co. v. EPA*, 968 F.2d 40 (D.C. Cir. 1992).

²⁹⁶*Id.* at 43. *See also* *Tex Tin Corp. v. EPA*, 935 F.3d 1321, 1323-24 (D.C. Cir. 1991) (remanding NPL listing because "the record is silent on why the lack of containment leads EPA reasonably to expect that the arsenic will be transported via the airway path").

²⁹⁷*Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1224 (5th Cir. 1991).

²⁹⁸*Id.* at 1227.

reasoning in other cases, such as the *American Lung Association* case.²⁹⁹ A series of environmental groups attacked EPA's decision not to issue NAAQS for short-term, high-level bursts of sulfur dioxide, even though EPA stated that these "documented adverse health effects . . . should be regarded as significant from a public health standpoint" and that exposure poses "a health threat to sensitive exposed populations."³⁰⁰ In a Ninth Circuit case involving an environmental group challenge to EPA's issuance of stormwater discharge rules under the Clean Water Act, the court found arbitrary EPA's decision to exempt construction sites of less than five acres from the stormwater permit requirement on the basis of their alleged de minimis adverse effects. EPA itself admitted that even small construction sites can have a significant impact on local water quality.³⁰¹

In a related series of cases, the courts struck down EPA decisions because the agency failed to provide any contemporaneous response in the record to a key question that had been raised about the validity of a position it had adopted or had supplied to the court only a post hoc rationalization. The D.C. Circuit vacated EPA's decision to list certain carbamate-based products and waste streams as hazardous wastes under RCRA because EPA's explanation ignored one of the factors listed in its own regulations as a mandatory consideration "without a word as to why it is irrelevant or unimportant."³⁰² Although its own regulations required EPA to consider mismanagement of waste, it never responded to the charge that listing a chemical as a hazardous waste under RCRA might actually lead to less careful treatment because listing creates a stigma, leading some to engage in "subterfuge of regulation."³⁰³ The court indicated that "[w]here EPA is confronted with evidence challenging its classification, it must respond, either by altering the class or by reasonably defending its choices."³⁰⁴

²⁹⁹*American Lung Ass'n v. EPA*, 134 F.3d 388 (D.C. Cir. 1998).

³⁰⁰*Id.* at 393.

³⁰¹*NRDC v. EPA*, 966 F.2d 1292, 1306 (9th Cir. 1992). *Cf.* *Horsehead Resource Dev. Co. v. Browner*, 16 F.3d 1246, 1269 (D.C. Cir. 1994) (holding promulgation of performance standard adopted under RCRA for boilers and industrial furnaces burning toxic organics to be arbitrary and capricious in part because study EPA initially relied upon revealed flaw in agency's reasoning and because EPA ultimately conceded the flaw and disavowed reliance on the study)

³⁰²*Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1399 (D.C. Cir. 1996).

³⁰³*Id.* at 1401.

³⁰⁴*Id.* at 1402. *See also id.* at 1405 (concluding that EPA erroneously listed certain wastes because it never responded to regulated entity's claims that its wastes differed in relevant respects from other members of the class of wastes whose mismanagement EPA used as a justification for listing). *Compare id.* at 1404 (holding that although EPA's responses to challenges were vague, "they are not responses that – without more ammunition from the

The same kind of failure to respond to key challenges to its reasoning subverted EPA's ability to defend its regulatory choices in other cases, too. In one D.C. Circuit case, the court remanded portions of EPA's risk-based caps on the concentrations of metals in sewage sludge destined for land application that the court found to be arbitrary and capricious.³⁰⁵ Part of the problem identified by the court was that "EPA chose not to respond" to the claim that the assumptions about the rate and duration of sludge application that it relied on in calculating the caps were irrational with respect to heat-dried sludge, which is applied at lower rates for shorter durations than other kinds of sludge. EPA's only explanation was that its assumptions were "conservative."³⁰⁶ In a later case, another panel of that court remanded regulations issued by EPA under the Clean Air Act to control emissions of hazardous air pollutants from medical waste incinerators. According to the court, EPA failed to explain why it interpreted the "best controlled similar unit" under the statute to encompass all units using the same technology as the unit with the best performance instead of just that unit itself. The court also took issue with EPA's failure to explain why it rounded numbers on observed emission levels up, "often in ways that seem contrary to ordinary principles of rounding."³⁰⁷ In a NPL listing case, the D.C. Circuit found fault with EPA's failure to explain the basis for its conclusion that metalloids deserved the same persistence score under the hazard ranking system as metals do. EPA could not simply assume, without supporting explanation, that metalloids should be treated the same as metals for that purpose.³⁰⁸ In another NPL listing case, the court ordered EPA to remove a site from the list because the missing explanation the agency gave was provided for the first time in the course of litigation. "It [was] too late for the Agency [in the course of litigation] to base a listing on a new theory for the source of arsenic" that might be transported away from the facility by air.³⁰⁹

In the section in which we analyzed the cases in which EPA prevailed against attacks on its scientific reasoning, we found that EPA's decisions passed muster if the courts found the alleged defects in the agency's explanations to be irrelevant to the reasoning process engaged in

petitioners – we can call arbitrary or capricious. Accordingly, with a good deal of hesitation, we must uphold the listing of K61" as a hazardous waste under RCRA).

³⁰⁵Leather Indus. of Am., Inc. v. EPA, 40 F.3d 392 (D.C. Cir. 1994).

³⁰⁶*Id.* at 402.

³⁰⁷Sierra Club v. EPA, 167 F.3d 658, 665 (D.C. Cir. 1999).

³⁰⁸National Gypsum Co. v. EPA, 968 F.2d 40, 44-45 (D.C. Cir. 1992).

³⁰⁹Tex Tin Corp. v. EPA, 992 F.2d 353, 355 (D.C. Cir. 1995). *See also* Appalachian power Co. v. EPA, 135 F.3d 791, 821 n.44 (D.C. Cir. 1998). *Cf.* National Gypsum Co. v. EPA, 968 F.2d 40, 43 (D.C. Cir. 1992) (EPA shifted during litigation from argument that boron oxide broke down into more toxic boron compounds to argument that other boron compounds may have been deposited at the site).

by the agency.³¹⁰ EPA had a much more difficult time foisting off such attacks when the courts detected internal inconsistencies in its reasoning process. In *American Trucking*, for example, EPA sought to defend its decision to regulate the coarse fraction of PM₁₀ indirectly on a pragmatic basis. It claimed that PM₁₀ is a better indicator than PM_{2.5} for coarse particulate pollution because a nationwide monitoring program for PM₁₀ already existed. As EPA acknowledged elsewhere in its brief, however, previous cases barred the agency from considering factors (such as technological feasibility) unrelated to public health in setting air quality standards. “The administrative convenience of using PM₁₀ cannot justify choosing an indicator poorly matched to the relevant pollution agent.”³¹¹ In another case, EPA was unable to convince the D.C. Circuit to sustain a hazardous waste listing. EPA ignored a regulated entity’s decision to use lined landfills to dispose of waste, and assumed wastes would be dumped in unlined landfills, even though it had considered as a factor that mitigated against the risk of exposure in another aspect of the same rulemaking another entity’s decision to make considerable investments in certain kinds of treatment systems.³¹² Another panel of that court vacated an NPL listing partly because it found EPA’s argument that boron oxide deposited at the site broke down into more toxic boron compounds to be inconsistent with its assertion that boron oxide is only slightly soluble in water.³¹³

We detected at least two kinds of “wild cards” in the cases in which EPA defended itself against attacks on its scientific reasoning. When EPA could demonstrate that it provided individual adjustment mechanisms to accommodate unique circumstances and unintended anomalies, EPA’s chances of prevailing increased.³¹⁴ Conversely, when a challenger attacked an EPA solution without suggesting to the court a workable alternative approach, the challenger’s likelihood of success diminished.³¹⁵ A couple of additional factors seemed to enhance the prospects of a successful attack on EPA’s scientific reasoning. First, EPA sometimes found itself in trouble when the courts reached the conclusion that the agency had taken unwarranted short cuts in an effort to facilitate reaching its chosen objective. In the *Leather Industries* case,³¹⁶ the D.C. Circuit acknowledged that “[a]n agency has discretion to design rules that can be broadly applied, sacrificing some measure of ‘fit’ for administratability. At the same time, however, an agency must justify its failure to take account of circumstances that appear to warrant different

³¹⁰See *supra* notes 254-56 and accompanying text.

³¹¹*American Trucking*, 175 F.3d at 1055.

³¹²*Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1404 (D.C. Cir. 1996).

³¹³*National Gypsum Co. v. EPA*, 968 F.2d 40, 43 (D.C. Cir. 1992).

³¹⁴See *supra* notes 257-59 and accompanying text.

³¹⁵See *supra* notes 260-64 and accompanying text.

³¹⁶*Leather Indus of Am., Inc. v. EPA*, 40 F.3d 392 (D.C. Cir. 1994).

treatment for different parties.”³¹⁷ In that case, EPA crossed the line into the realm of an unjustified short cut by failing to provide any justification for applying its assumptions concerning the rate and duration of land application of sewage sludge to heat-dried sludge, when it had information in the record regarding the actual rate and duration of the use of that kind of sludge. “Given that the EPA had at hand the information necessary accurately to prevent the known risks, it must provide some explanation for ignoring it in favor of blanket, highly conservative assumptions.”³¹⁸ The court also remanded the risk-based caps EPA had set for selenium based on EPA’s reliance on highly conservative exposure assumptions. EPA based its calculations on the assumption that a highly exposed individual would be a child ingesting sewage sludge daily for up to five years. But it applied this assumption to public contact sites to which children would not have access, such as highway medians, industrial parks, and roadside cemeteries. “If, as [the challenger’s] practices suggest, a significant proportion of sewage sludge application involves sites with low potential for public and child contact, then it is irrational, at least without further explanation, to sweep these applications willy-nilly into a category based on a high-child-exposure model.”³¹⁹ Similarly, the D.C. Circuit had opined in an earlier case that

The regulatory world is replete with imperfect distinctions; the Agency’s task is to apply them rationally in light of their imperfections. The Agency’s choice between two less than perfect alternatives cannot be accepted by the court uncritically, merely because the Agency acknowledges that each category is indeed an imperfect fit for the activity in question. Rather, EPA must articulate a reasonable justification for its choice on the basis of some policy ground or other. It simply has not done so.³²⁰

In *Corrosion Proof Fittings*, when industry challenged EPA’s figures as presenting a risk estimate that was too high, EPA conceded the validity of the criticism. Instead of recalculating the figure, however, EPA changed an unrelated figure “to yield the same result. . . . Allowing such behavior would require us only to focus on the final numbers provided by an agency, and to ignore how it arrives at that number. Because a conclusion is no better than the methodology

³¹⁷*Id.* at 403.

³¹⁸*Id.*

³¹⁹*Id.* at 405. *See also American Trucking*, 175 F.3d at 1055 (“The administrative convenience of using PM₁₀ cannot justify choosing an indicator poorly matched to the relevant pollution agent.”); *Chemical Mfrs. Ass’n v. EPA*, 28 F.3d 1259, 1265-66 (D. C. Cir. 1994) (involving EPA’s refusal to modify the application of a generic air dispersion model to a situation that did not fit the model’s assumptions).

³²⁰*Solite Corp. v. EPA*, 952 F.2d 473, 495 (D.C. Cir. 1991).

used to reach it, such a result cannot survive the substantial evidence test.”³²¹ The court obviously was not impressed by what it regarded as result-oriented behavior.

The NPL listing cases again provide evidence of a judicial distaste for avoidable short-cutting endeavors by EPA. In *Tex Tin*,³²² EPA placed a site on the NPL on the basis of a risk that arsenic present in tin slag piles at the site could escape into the air and be transported away from the site. To justify that analysis, it sampled the piles and found that entrainable dust particles were present in the slag.

The problem is that the Agency never conducted any chemical analysis to confirm that the particles came from the tin slag. It is as if dust accumulated on an automobile’s windshield; one could not simply infer that the dust came from the window rather than the air. So here. *Tex Tin* claims — entirely plausibly, it seems to us — that the small particles blew onto the uncovered piles from elsewhere. The fact remains that the Agency has never documented a single speck of dust with a chemical composition associating it with *Tex Tin*’s slag. Given this gaping evidentiary hole, the Agency was not entitled merely to assume that the untested dust particles on the tin slag pile were produced by the slag.³²³

In another NPL listing case,³²⁴ the D.C. Circuit found EPA’s assumption that highly toxic forms of boron may have been deposited at the site to be

particularly frustrating because [EPA] acknowledges that tests are available to determine the precise form of boron contained in the Salford Quarry’s groundwater. While we do not suggest that the EPA must perform the additional tests, we do think that if the Agency refuses to do so it must at least give a reasoned explanation for its assumption that other boron compounds exist at the

³²¹*Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1227 (5th Cor. 1991). When EPA admitted that it had made computational or related errors, but had not taken steps to correct them, it also found itself fighting an uphill battle. *See, e.g., Columbia Falls Aluminum Co. v. EPA*, 139 F.2d 914, 922-23 (D.C. Cir. 1998) (vacating RCRA hazardous waste treatment standards in part because EPA admitted that it failed to take into account the effect of alkaline disposal conditions on spent potliners and potliner treatment residues, but continued to require use of an inappropriate model anyway); *Chemical Waste Management, Inc. v. EPA*, 976 F.2d 2, 32 (rejecting EPA’s claim that errors were harmless and that it did not rely on the erroneous computations).

³²²*Tex Tin Corp. v. EPA*, 992 F.2d 353 (D.C. Cir. 1993).

³²³*Id.* at 355-56.

³²⁴*National Gypsum Co. v. EPA*, 968 F.2d 40 (D.C. Cir. 1992).

site. If the EPA cannot offer a satisfactory explanation for its inference that compounds other than boron oxide exist at the site, then it must offer substantial evidence upon which it could conclude that the highly toxic boron compounds are present there. Because the Agency failed to do either, we are persuaded that its decision to assign the Salford Quarry a toxicity value of 3 was arbitrary and capricious.³²⁵

The NPL listing cases also illustrate the second wild card. The courts tended to be less favorably inclined (and less deferential) toward EPA's scientific determinations if they became convinced that EPA had developed a pattern of repeating the same mistakes. In the second *Tex Tin* case, the D.C. Circuit found itself "confronted with a state of affairs reminiscent of *Tex Tin I*. Then, as now, we had only the Agency's 'conclusory statements' to weigh against specific scientific evidence *Tex Tin* provided."³²⁶ In the *National Gypsum* case decided the previous year, the court deemed EPA to be "unwilling to support its decisions with the necessary scientific findings. In yet another case involving the EPA and its National Priorities List (NPL), we have before us a petition for review challenging the agency's decision to list . . . a waste site located in Pennsylvania. As we have had to do in several recent cases, . . . we vacate the listing decision and remand to the EPA. . . ."³²⁷ Essentially, the D.C. Circuit in cases like these got fed up with chastising the agency for employing the same indefensible methodologies.

(2) Consistency of EPA's Reasoning with the Statute

The final category of cases in which the courts invalidated EPA's decisions based on inadequacies in the agency's reasoning involved situations in which EPA's reasoning conflicted with its own stated intentions or with its interpretation of the applicable authorizing legislation, represented an unexplained departure from past practice or from established agency policy, or resulted in what the courts regarded as unfair treatment of regulated entities.

The *Monsanto* case³²⁸ provides an illustration of both the first and third of these three situations. The court found EPA's denial of the company's request for additional time to comply with the Clean Air Act's national emission standards for hazardous air pollutants to be arbitrary and capricious. The need for additional time was caused by the company's initial attempt to use an approach to emission control that would have maximized the recycling and reuse of benzene instead of a more conventional end-of-pipe technology. Monsanto applied for the extension only after it discovered that the technology initially chosen (and endorsed by EPA) did not work as

³²⁵*Id.* at 44.

³²⁶*Tex Tin Corp. v. EPA*, 992 F.2d 353, 354 (D.C. Cir. 1993).

³²⁷*National Gypsum Co. v. EPA*, 968 F.2d 40, 41 (D.C. Cir. 1992).

³²⁸*Monsanto Co. v. EPA*, 19 F.3d 1201 (7th Cir. 1994).

well as predicted. EPA denied the extension even though Monsanto chose the initial water scrubber technology to comply with EPA's own pollution prevention policy. The issue, as the court saw it, was "whether the EPA should follow its pollution prevention policy by allowing Monsanto to choose the control strategy that was designed to meet the benzene standard in the most environmentally sound manner or whether Monsanto was required to use the carbon adsorption strategy" to which it eventually turned as a backup. EPA essentially was trying, unfairly in the court's view, to punish Monsanto for trying (unsuccessfully) what had appeared to both regulated entity and agency to be an environmentally superior alternative.³²⁹ And the agency's approach offended the court's conception of good environmental policy to boot.

EPA seems to be saying that if a "quick fix" is available, sources are required to employ that "quick fix" without regard to the adverse environmental ramifications. This viewpoint is short-sighted and bad environmental policy. Instead of eliminating an environmental problem, the EPA's "quick fix" would merely change the form of the problem — i.e., it would remove the environmental hazard from the air but create a hazardous waste disposal problem.³³⁰

EPA was taken to task in other cases for engaging in reasoning that conflicted with its own stated intentions or with its interpretation of applicable authorizing legislation. In a case in which industry attacked a hazardous waste listing under RCRA, for example, EPA regulations required EPA to consider the effects of mismanagement in determining whether to list a waste. EPA assumed open-tank disposal of a particular waste, even though it conceded that the regulated entity invariably used a closed process, because there was a possibility it would change its practices. According to the D.C. Circuit, "EPA seems to have turned mismanagement factors upside down, from an inquiry into whether dangerous mismanagement practices are 'plausible, as [the regulation] says, into an inquiry into whether they have been ruled out absolutely. This is simply disregard of the agency's own rule."³³¹ In another RCRA case, EPA subjected some ignitable hazardous wastes to the deactivation standard, even though it had interpreted the statute as requiring removal of a waste's characteristic and the reduction of other hazardous constituents, and even though it conceded that hazardous constituents remained present in some ignitable wastes it had subjected to the deactivation standard.³³² In a Clean Air Act case, EPA had committed to designating as a high risk pollutant only those substances associated with a serious health effect. The agency nevertheless proceeded to list MDI, a pollutant whose only known

³²⁹*Id.* at 1206.

³³⁰*Id.*

³³¹*Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1405 (D.C. Cir. 1996).

³³²*Chemical Waste Management, Inc. v. EPA*, 976 F.2d 2, 16-17 (D.C. Cir. 1992).

health effect was non-serious.³³³

Unexplained departures by EPA from its own past practice proved just as hazardous to EPA's litigation success rate as did conflicts with the agency's stated intentions or with applicable authorizing legislation. In one case, for example, the D.C. Circuit remanded for further consideration EPA's placement of a chemical on the toxic release inventory under EPCRA because the studies EPA relied on as indicative of chronic adverse health effects did not satisfy EPA's own guidelines for acceptable standard protocol for laboratory tests.³³⁴ The ubiquitous NPL listing cases provide further examples of this point.³³⁵

The *Monsanto* case discussed above³³⁶ illustrates the willingness of the courts to use equity-based considerations to trump EPA's technical explanations. In another case, the First Circuit deemed irrational and "manifestly arbitrary and capricious" EPA's refusal to defer the issuance of a Clean Water Act permit that did not contain a mixing zone analysis when the state agency had just issued a new mixing zone policy, failed to include it in its state certification, but requested that EPA defer its ruling so that it could amend the certification to conform to the new policy. The court accused EPA of "an element of apparent irrational discrimination."³³⁷

V. CONCLUSION

In the article we wrote upon the occasion of the twentieth anniversary of EPA's creation, we found that the courts had responded to conflicting signals from the Supreme Court as to the appropriate degree of deference to be afforded in the course of judicial review of agency statutory implementation decisions by striking a balance between removing themselves from policy decisions and retaining a meaningful role in overseeing agency implementation decisions.³³⁸ The cases decided during the 1990s reveal that the Courts of Appeals still appear to be trying to maintain that rather precarious balance.

With respect to questions of statutory interpretation, the Courts of Appeals have not implemented the *Chevron* doctrine as if it were an instruction to grant agencies almost complete

³³³Chemical Mfrs. Ass'n v EPA, 28 F.3d 1259, 1267-68 (D.C. Cir. 1994).

³³⁴Troy Corp. v. Browner, 120 F.3d 277, 293 (D.C. Cir. 1997).

³³⁵See, e.g, Anne Arundel County v. EPA, 963 F.2d 412, 416 (D.C. Cir. 1992) (vacating an NPL listing); Kent County v. EPA, 963 F.2d 391, 397-98 (D.C. Cir. 1992) (same).

³³⁶See *supra* notes 328-30 and accompanying text.

³³⁷Puerto Rico Sun Oil Co. v. EPA, 8 F.3d 73, 78 (1st Cir. 1993).

³³⁸Glicksman & Schroeder, *supra* note 1, at 295-96.

freedom to determine the direction of policy, checked only in the rare cases in which Congress has enacted statutory language directly contrary to the agency choice. So the view of *Chevron* as sending a strong deference signal has not been borne out in its implementation. Unwilling to capitulate to the “virtually limitless hegemony”³³⁹ such an approach would bestow on agencies, courts read statutes, often with the assistance of clarity-producing tools of construction, so as to provide a check on agency freedom. At the same time, judicial reluctance to second-guess agency policy choices, or to resolve disputes involving questions of degree, practically ensures that such judicial superintendence as occurs will take place at Step One of the *Chevron* analysis, and not at Step Two.

Within the Step One cases, the decisions we have examined here also show evidence of the further overlay of the contending views concerning the use and usefulness of legislative history as an interpretive aid. Justice Scalia’s contention that a textualist judge can find meaning in the text “more often” than one might suppose requires the use of rules of interpretation that lead to clarity-producing results. The cases we have examined reveal a pattern of such results. In contrast, EPA’s interest in finding ambiguity in statutes where that is necessary to give effect to its autonomous views – views which we have argued are an inevitable and a legitimate consequence of implementing policy through administrative agencies – suggests that the agency and the courts will continue to clash on questions of interpretation.

Turning to the challenges to EPA’s science, attacks on EPA’s scientific methodologies or reasoning process succeed in what is perhaps a surprisingly high percentage of the cases, given the judges’ protestations of scientific illiteracy and relative incompetence. In case after case, the courts continue to make statements to the effect that they may not substitute their judgment for that of EPA when the agency’s “expertise is heavily implicated,”³⁴⁰ that an “extra measure of deference” is due to the agency when it resolves factual questions involving scientific matters within its area of expertise,³⁴¹ or that “the complex nature of environmental statutes and regulations” invokes the need for “specialized knowledge” on the part of EPA.³⁴²

³³⁹ *Ethyl Corp. v. EPA*, 51 F.3d 1053, 1060 (D.C. Cir. 1995).

³⁴⁰ *Pan Am. Grain Mfg. Co. v. EPA*, 95 F.3d 101, 105 (1st Cir. 1996) (citing *Mission Industrial, Inc. v. EPA*, 547 F.2d 123, 129 (1st Cir. 1979)).

³⁴¹ *Puerto Rico Aqueduct and Sewer Auth. v. EPA*, 35 F.3d 600, 604 (1st Cir. 1994).

³⁴² *Beazer East, Inc. v. EPA*, 963 F.2d 603, 607 (3d Cir. 1992). *See also* *OZ Tech. Inc. v. EPA*, 129 F.3d 631, 635 (D.C. Cir. 1997); *Southwestern Pennsylvania Growth Alliance v. Browner*, 121 F.3d 106, 117 (3d Cir. 1997); *Troy Corp. v. Browner*, 120 F.3d 277, 283 (D.C. Cir. 1997); *Board of Regents v. EPA*, 86 F.3d 1214, 1218 (D.C. Cir. 1996) (citing *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87 (1983)); *General Elec. Co. v. EPA*, 53 F.3d 1324, 1327 (D.C. Cir. 1995); *Employers Ins. of Wausau v. Browner*, 52 F.3d 656, 666 (7th Cir. 1995); *Central Arizona Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1540 (9th Cir. 1993); *New York v.*

On the other hand, industry prevailed in nearly half of the cases in which it charged that EPA provided an inadequate explanation for its decision and both pro-industry and pro-environmental litigants succeeded in a remarkably high percentage of the cases in which they leveled attacks on EPA's science based on defects in the agency's explanations for its decisions.³⁴³ The key to reconciling the sentiments with the case results may lie in a pair of statements made by the D.C. Circuit. The court in a 1992 decision stated that “[h]appily, it is not for the judicial branch to undertake *comparative evaluations* of conflicting scientific evidence. Our review aims only to discern whether the agency's evaluation was rational.”³⁴⁴ The cases we reviewed in this section reveal that the Courts of Appeals during the 1990s have indeed been wary about making comparative judgments and for that reason do not typically question EPA's evidentiary choices or second-guess the agency in its readings of the weight of the scientific evidence.

A second panel of the D.C. Circuit also stated, however, that, despite their lack of expertise, the courts “cannot defer to agency expertise that was never explained.”³⁴⁵ For that reason, the courts have not been hesitant during the past decade to inflict defeat upon EPA when the agency provides no evidence at all to support its technical determinations, relies on evidence that conflicts with the stated views of its own experts, employs technical models or methodologies that are obviously ill-suited to assessing the impact of the regulated activity on the environment, fails to explain in any way an apparently illogical conclusion, is silent in the face of a pointed and relevant question about the logic of its reasoning, or engages in internally inconsistent reasoning or reasoning that for unstated reasons conflicts with the agency's own previous practice. None of these tasks involves the kind of comparative evaluation that the courts feel ill-equipped to perform and consequently have foresworn.

Reilly, 969 F.2d 1147, 1152-53 (D.C. Cir. 1992); *Pennsylvania v. EPA*, 932 F.2d 269, 272 (3d Cir. 1991).

³⁴³*See supra* Table 4.

³⁴⁴*International Fabricare Inst. v. EPA*, 972 F.2d 384, 398 (D.C. Cir. 1992) (quoting *NRDC v. Thomas*, 824 F.2d 1211, 1216 (D.C. Cir. 1987)) (emphasis added).

³⁴⁵*Tex Tin Corp. v. EPA*, 935 F.2d 1321, 1324 (D.C. Cir. 1991).