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The Emergency Planning and Community Right-to-Know Act (EPCRA) requires that facilities disclose routine emissions of chemicals listed on the Toxics Release Inventory (TRI) by the Environmental Protection Agency (EPA). EPA may add a chemical to the TRI if the chemical meets one of three listing criteria, which all focus on the "adverse effects" the chemical causes. EPA has long maintained that it can list chemicals whose adverse effects are felt indirectly, such as by helping to form another chemical that has adverse effects. In American Chemistry Council v. Johnson, the D.C. Circuit held that EPA had no such authority. Under its holding, a chemical can only be listed if it causes harm through direct exposure. This holding, however, is of questionable validity. The court reached this result by reading a "toxicity" requirement into the listing criteria and by refusing to honor either the statutory definition or EPA's definition of "toxicity." Moreover, the court's singular focus on exposure is too simplistic given the myriad ways manufactured chemicals adversely affect human health and the environment. Indeed, the court's holding in theory would require that EPA remove chemicals from the TRI that fit traditional notions of "toxicity," many of which Congress placed on the list when it wrote the statute.

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INTRODUCTION

The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) requires that facilities report routine emissions of certain harmful chemicals designated by the Environmental Protection Agency (EPA).\(^1\) EPA compiles the emissions reports and makes them available to the public as the Toxic Release Inventory (TRI), which is a powerful source of information for citizens and communities who wish to learn about the manufactured chemicals in their environment. While EPCRA’s net environmental effect is debatable,\(^2\) the law has the potential to bring scrutiny to polluters’ conduct, and “has enabled the Federal government, State governments, industry, environmental groups, and the general public to participate in an informed dialogue about the environmental

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impact of toxic chemicals, in order to assess the need to reduce and... eliminate chemical releases.”

Led by the American Chemistry Council, which represents nearly 200 major chemical producers, the chemical industry has been “pressuring Congress to repeal EPCRA or limit its scope.” Currently, industry is supporting an EPA rulemaking that would eliminate information gathering in almost a thousand communities throughout the country.

The Council has also sought to narrow EPCRA’s scope by bringing lawsuits to compel EPA to delist chemicals currently on the TRI. In American Chemistry Council (ACC) v. Johnson, it achieved a significant victory in its campaign by convincing the D.C. Circuit that methyl ethyl ketone (MEK) should be delisted because it does not cause health or environmental harm through direct exposure. The court rejected EPA’s contention that a chemical may be listed even if it causes harm only indirectly. The D.C. Circuit’s new rule, if allowed to stand, may require delisting of chemicals that Congress very likely wanted to keep on the list, and will severely restrict EPA’s ability to utilize its scientific expertise in determining which causal mechanisms fall within EPCRA’s purview.

Congress established an initial list of chemicals subject to EPCRA reporting requirements, and authorized EPA to add or delete a chemical from this list based on three statutory listing criteria. In ACC v. Johnson, the D.C. Circuit held (1) that all three listing criteria contain a “toxicity” requirement, even though only one of the criteria explicitly mentions that word, and (2) that a chemical is toxic only if it causes harm through exposure. This Note argues that such a narrow view of “toxicity” is not supported by the text of the statutory listing requirements, the legislative history, or the purposes of EPCRA, and that the court should have instead deferred to EPA’s position, which was based on a more nuanced and realistic approach to determining what is and what is not “toxic” within the meaning of the statute.

After providing background information on the statute and on the case in Part I, the Note summarizes the district court and appeals court decisions in Part II. Next, in Part III, the Note evaluates the court’s holding that the “chronic effects” listing criteria contains an implied toxicity requirement, and argues that the text of EPCRA does not

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7. EPCRA § 313(c)–(d); 42 U.S.C. § 11023(c)–(d) (2006)
8. 406 F.3d at 743.
compel such a reading. Assuming *arguendo* that Congress did in fact intend a "toxicity" requirement, Part III then goes on to analyze what meaning Congress attached to the word "toxic," and concludes that the term was not meant to be limited to exposure-based harm. Finally, the Note considers the ramifications of the D.C. Circuit's decision on the TRI, concluding that many other chemicals may be at risk of delisting. Ultimately, this Note aims to show that the court forced its interpretation of the ambiguous listing criteria onto EPA, even though the agency is in a better position to make this interpretation, given its greater scientific expertise. In the process, the court imposed a definition of "toxicity" that is unworkable given the complexity of toxicological evaluations.

I. BACKGROUND

This section introduces the relevant statutory listing requirements, sections 313(d)(2)(A)–(C), which cover acute, chronic and environmental effects, respectively. This Note focuses on sections (d)(2)(B) and (C), the chronic and environmental effects prongs, because these were EPA's bases for denying ACC's petition to delist methyl ethyl ketone (MEK). Key textual differences among these three listing criteria suggest that the chronic effects and the environmental effects prongs were not meant to be limited to exposure-based harm only. Next, this section describes the scientific basis for EPA's listing of MEK—the relationship between MEK and tropospheric ozone formation. Finally, the section gives a general overview of the relevant case law. While these cases were not controlling authority on the D.C. Circuit, they do provide guidance on how to interpret the three listing criteria given their textual differences.

A. Statutory Background

Two chemical disasters in the mid-1980s, one in Bhopal, India and another in Institute, West Virginia, both caused by releases from chemical plants, thrust the health and environmental dangers of manufactured chemicals into the spotlight.\(^9\) Relatively quickly, Congress passed the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA),\(^10\) which imposed emergency planning requirements on facilities, and required that they complete an annual release form describing the nature and amount of emissions of certain listed chemicals.\(^11\) According to the statute, the release forms are intended to provide information to governmental agencies and citizens, to assist and

\(^9\) GRAY, *supra* note 2, at 1.
inform researchers and data gatherers, and to aid in the development of appropriate regulations and standards.\textsuperscript{12}

The statute established an initial list of chemicals subject to EPCRA.\textsuperscript{13} Methyl ethyl ketone, the chemical at issue in ACC, was included on this original list.\textsuperscript{14} Congress also granted EPA the power to modify this list: a chemical may be added if it causes or is reasonably anticipated to cause acute\textsuperscript{15} or chronic\textsuperscript{16} health effects, or environmental\textsuperscript{17} effects, and may be deleted from the list if it is found not to meet any of these criteria.\textsuperscript{18} Any person may petition the Administrator to have a chemical added or deleted from the list,\textsuperscript{19} and EPA must either initiate a rulemaking to add or delete the chemical, or publish an explanation of why the petition is denied.\textsuperscript{20}

Specifically, the Administrator may add or delete a chemical if it meets or does not meet any of the following criteria:

(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.

(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—

(i) cancer or teratogenic effects, or

(ii) serious or irreversible—

(I) reproductive dysfunctions,

(II) neurological disorders,

(III) heritable genetic mutations, or

(IV) other chronic health effects.

(C) The chemical is known to cause or can reasonably be anticipated to cause, because of—

(i) its toxicity,

\textsuperscript{12} EPCRA § 313(h), 42 U.S.C. § 11023(h).

\textsuperscript{13} EPCRA § 313(c), 42 U.S.C. § 11023(c).

\textsuperscript{14} S. COMM. ON ENVIRONMENT & PUBLIC WORKS, 99TH CONG., LIST OF TOXIC CHEMICALS SUBJECT TO THE PROVISIONS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT OF 1986, at 1 (Comm. Print 1986).


\textsuperscript{17} EPCRA § 313(d)(2)(C), 42 U.S.C. § 11023(d)(2)(C).

\textsuperscript{18} EPCRA § 313(d)(3), 42 U.S.C. § 11023(d)(3).

\textsuperscript{19} EPCRA § 313(e)(1), 42 U.S.C. § 11023(e)(1). Interestingly, section (e) allows delisting only if the chemical is not found to meet the criteria in subparts (A) or (B), but courts have uniformly treated subpart (C) as a part of this analysis.

\textsuperscript{20} EPCRA § 313(e)(1)(A)–(B), 42 U.S.C. § 11023(e)(1)(A)–(B).
(ii) its toxicity and persistence in the environment, or
(iii) its toxicity and tendency to bioaccumulate in the environment,
a significant adverse effect on the environment of sufficient
seriousness, in the judgment of the Administrator, to warrant
reporting under this section . . . .21

Thus, section (A) focuses on acute effects, section (B) on chronic effects
and section (C) on environmental effects. Two textual differences are
noteworthy. First, the word "toxicity" only appears in section (C), which
addresses harm to the environment rather than harm to human health.
Second, section (A), the "acute effects" prong, allows listing only if the
chemical causes acute effects at concentration levels that are "reasonably
likely to exist beyond facility boundaries." Sections (B) and (C) do not
contain a similar provision. As discussed in Part I.C., infra, courts,
including the district court in this case, have found these textual
differences to be meaningful.

The statute also defines a "toxic chemical" as a "substance on the list
described in section 313(c)."22 Section (c), in turn, refers to the listing
criteria reproduced above.23 The terms "acute effect" and "chronic
effect" are left undefined. Typically however, the former refers to health
effects apparent relatively quickly upon exposure, and the latter refers to
effects that manifest over longer periods of time.24

B. Factual Background: Methyl Ethyl Ketone and Ozone Production

As EPA conceded in its denial of ACC's delisting petition, MEK
does not pose health risks through exposure—that is, EPA did not find
that a person who inhales or otherwise absorbs MEK into her body is at
risk of suffering adverse health effects.25 Nevertheless, EPA denied
ACC's petition to delist MEK because it contributes to the "formation of
tropospheric ozone, which is known to cause significant adverse effects to
human health and the environment."26 Thus, EPA's rationale for denying
the petition was that MEK contributed to the formation of another
chemical that causes adverse environmental effects and adverse human
health effects in exposed individuals.

23. EPCRA § 313(c), 42 U.S.C. § 11023(c).
Apr. 17, 2006).
25. Methyl Ethyl Ketone; Toxic Chemical Release Reporting; Community Right-to-Know,
63 Fed. Reg. 15,195, 15,197 (Mar. 30, 1998) (MEK has "low acute toxicity" and "low chronic
toxicity").
26. Id. at 15,199.
Ozone, or \( \text{O}_3 \), is a molecule consisting of three oxygen atoms.\(^{27}\) It exists naturally in the stratosphere, where it neutralizes harmful ultraviolet radiation emitted by the sun.\(^{28}\) By contrast, man-made ozone forms in the troposphere and is present in the air we breathe. This “ground level” ozone is produced by a complex photochemical reaction wherein oxygen molecules, \( \text{O}_3 \), combine with individual oxygen atoms, \( \text{O} \) (\( \text{O}_2 + \text{O} \cdot \text{O}_3 \)). These individual oxygen atoms are produced when sunlight reacts with nitrogen oxides (NOx), a pollutant commonly released by industrial facilities and vehicles.\(^{29}\) Volatile organic compounds (VOCs) such as MEK play a central role in tropospheric ozone formation by “accelerat[ing] and enhanc[ing] the accumulation of ozone.”\(^{30}\) In the absence of VOCs, newly formed ozone molecules would quickly react with a specific form of nitrogen oxide and convert back to ordinary oxygen molecules. VOCs inhibit this reversion because they react with this same species of nitrogen oxide, reducing the number of these molecules available to react with ozone. The result is a rapid build-up of ozone in the breathable air.\(^{31}\)

Thus, for ozone to form at concentration levels that pose chronic health threats, the following ingredients must be present: oxygen, sunlight, NOx, and VOCs. The absence of any one of these elements will prevent significant ozone formation. Ozone’s health effects are undisputed. When inhaled at even low concentration levels, it can cause irritation of breathing passages and serious damage to the lungs.\(^{32}\)

\[\text{C. Case Law}\]

\( \text{ACC} \) is the first judicial opinion concerning a chemical listed under section (d)(2)(B) that causes only indirect adverse health effects. Prior cases did not address the exact issues raised by \( \text{ACC} \), but do provide some insight into (1) the significance of the textual differences between the three listing criteria, and (2) whether the statute as a whole allows EPA to consider “indirect toxicity,” putting aside the meaning of the word “toxicity” for now.

\(^{27}\) Oxygen usually exists in the atmosphere its diatomic state (\( \text{O}_2 \)).


\(^{29}\) Id. at 17; see also University of Bristol School of Chemistry, Low Level Ozone, http://www.chm.bris.ac.uk/motm/ozone/Low.htm (last visited Sept. 3, 2006).

\(^{30}\) Allen & Shonnard, supra note 28, at 17; see also Low Level Ozone, supra note 29. Whereas newly-formed ozone would typically react quickly with a NOx molecule and thus be converted back to a normal oxygen molecule, the presence of VOCs eliminates the availability of the necessary reactive NOx molecules, thereby leaving the produced ozone in the air for significantly longer periods of time, causing it to accumulate to dangerous levels.

\(^{31}\) See Low Level Ozone, supra note 29.

\(^{32}\) Allen & Shonnard, supra note 28, at 12, 17.
In *Troy Corp. v. Browner*, the D.C. Circuit upheld, almost in its entirety, EPA’s first major addition of chemicals to the TRI in 1994.\(^3\) In order to decide the case, the court needed to construe the section (d)(2) criteria. It held that under sections (d)(2)(B) and (C), EPA is not required to consider the likelihood of human exposure of a chemical due to a release, but rather can list a chemical based solely on its potential to cause health or environmental effects.\(^4\) According to the court, the statute’s phrase “cause or reasonably be anticipate to cause” did not unambiguously require EPA to consider the “likelihood of contact between the chemical and humans,” and EPA’s decision not to do so was reasonable and “well justified.”\(^5\) The court found support for its holding in the textual difference between section (d)(2)(A) and sections (d)(2)(B) and (C). The former section requires EPA to consider the health effects of chemicals at concentration levels that are likely to exist beyond facility boundaries, whereas the latter two sections contain no such language.\(^6\)

Similarly, in *Fertilizer Institute v. Browner*, the Third Circuit deferred to EPA’s interpretation of EPCRA, holding that “EPA was free to exercise its discretion and expert judgment in relying on a definition of other chronic effects that does not require long-term exposure.”\(^7\) The chemicals at issue, nitrate compounds, were found to cause methemoglobinemia, or “blue baby” syndrome, in human infants, a condition that prevents proper oxygen transfer throughout the body, inevitably leading to severe damage to vital organs.\(^8\) According to the court, EPA permissibly premised its listing not on the long-term exposure effects of nitrates, but on the long-term consequences of the disease, regardless of how quickly symptoms due to chemical exposure developed. This was a reasonable interpretation of “other chronic health effects.”\(^9\)

These two circuit court decisions appear to provide at least some guidance for the issue in *ACC*, since both cases assumed that the harm caused will be via exposure and only the likelihood of exposure and the duration of the exposure were up for debate. Surprisingly, the *ACC* court did not draw on this assumption for support, and neither did the American Chemistry Council in its appellate brief.\(^10\) However, the argument would have been somewhat disingenuous. The earlier opinions by the D.C. and Third Circuits involved chemicals that did cause harm

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33. 120 F.3d 277, 281 (D.C. Cir. 1997).
34. *Id.* at 286.
35. *Id.* at 285.
36. *Id.* at 286.
37. 163 F.3d 774, 778 (3d Cir. 1998)
38. *Id.* at 776.
39. *Id.*
through exposure, and therefore came to no conclusions about EPA’s ability to include indirect harms in its analysis.

Only one prior case squarely addressed “indirect” toxicity, but it did so in the context of section (d)(2)(C), the environmental effects prong. In *Fertilizer Institute v. Browner*, hereafter “*Phosphoric Acid,*” the Fertilizer Institute argued that EPA should not be permitted to list phosphoric acid under the environmental effects prong, because it only caused harm indirectly by contributing to eutrophication.41 Though the D.C. district court ultimately agreed with the Fertilizer Institute regarding phosphoric acid specifically, it held that EPA could consider indirect harms in making its listing and delisting decisions. The court held that a chemical could permissibly be listed if its “toxic effects are felt . . . because of its inherent characteristics . . . through a well-established chain of events rather than a direct, one-step process.”42 In the court’s estimation, phosphoric acid did not meet this definition.43

The *Phosphoric Acid* decision provided the first full analysis of “indirect toxicity,” and is worth discussing in more detail, particularly since the district court in *ACC* cited to it for support. Phosphoric acid is a source of phosphorous, which when combined with sunlight and nitrogen in aquatic systems, causes eutrophication, a process of rapid algae growth that quickly depletes the oxygen content in fresh water sources, leading to significant harm to aquatic ecosystems, most dramatically fish kills.44 While this process generates significant, adverse environmental effects, the D.C. district court found that these effects were not due to an “inherent” property of phosphoric acid, since lack of sunlight, lack of nitrogen or even turbid waters could prevent eutrophication.45 The court contrasted phosphoric acid with what it considered permissible section (d)(2)(C) listings: ozone-depleting chemicals such as chlorofluorocarbons (CFCs) and VOCs.46 For these chemicals, the toxic effect “is caused by chemicals that are by-products of the original chemical [a CFC or a VOC]”; no “variables” or “intervening” causes affected the “inevitable” result of ozone depletion.47

*Phosphoric Acid* takes a questionable middle ground on the issue of indirect toxicity, by accepting it as a general matter but severely limiting its ambit. In essence, the court held that if natural variations in

42. Id.
43. Id.
44. Id.
45. Id. at *4–5.
46. Id. at *5.
47. Id.
environmental conditions—such as the intensity of sunlight or water turbidity—prevent the "indirect" harm caused by the released chemical, then the chemical may not be listed. The holding is questionable because it considers naturally-existing conditions and man-made chemicals as equal causal factors contributing to the ultimate harm. While this may be true in a technical sense, it seems disingenuous to use already-existing natural conditions as a way of avoiding the demands of the statute. On those inevitable days when sunlight is present and nitrogen levels are above a certain threshold, eutrophication is likely to occur if phosphoric acid is released.

The weakness of the court's holding is borne out in its distinction between phosphoric acid and ozone-depleting chemicals. The court agreed in dicta that VOCs that destroy stratospheric ozone meet the environmental effects criteria. Yet, as the court recognized, CFC's do not directly destroy ozone, they release chlorine ions upon reacting with sunlight, and these ions then destroy ozone. Similarly, eutrophication requires other ingredients to go forward, many of which exist in the natural environment independent of human activity. It is not guaranteed that eutrophication will always occur when phosphoric acid is released, but as discussed above, it is guaranteed that it will occur at least some of the time, if not quite regularly.

These three cases, Troy Corp., Fertilizer Institute (Third Circuit) and Fertilizer Institute (D.D.C.), were the only relevant cases to the ACC decision. While they are not controlling of the outcome in ACC, they do provide guidance on interpreting the section (d) listing criteria, both relative to each other and with respect to the concept of "indirect toxicity."

II. DESCRIPTION OF THE CASE

ACC rose through the courts against this virtual blank slate of case law. The district court found for EPA, holding that the agency's interpretation of the statute's ambiguous phrase "cause or reasonably anticipated to cause [adverse effects]" was reasonable. The court of appeals found this line of reasoning unnecessary because it read into the statute a new implied "toxicity" requirement, a word that in its view could carry only one meaning.

48. Id.
49. Id.; see also ALLEN & SHONNARD, supra note 28, at 12.
A. District Court Found for EPA

Pursuant to section (d)(3), which allows any person to request the addition or deletion of a chemical from the list of regulated substances, the American Chemistry Council (ACC) petitioned EPA to have MEK removed from the list.\textsuperscript{51} EPA denied this petition, determining that MEK met the listing requirements of sections (d)(2)(B) and (C), "due to its contribution to the formation of ozone in the environment, which causes adverse human health and environmental effects."\textsuperscript{52} The ACC then brought suit challenging EPA’s denial of its petition. The district court granted summary judgment for the EPA, holding that MEK fell within the scope of the chronic effects prong, section (d)(2)(B), and declining to rule on ACC’s argument under the environmental effects prong, section (d)(2)(C).\textsuperscript{53}

The district court’s opinion is fundamentally about causation. Invoking \textit{Chevron U.S.A., Inc. v. NRDC, Inc.},\textsuperscript{54} the court determined that the phrase “cause or can be reasonably anticipated to cause” was ambiguous, and that the statute “provides no guidance as to what degree of causation is necessary to satisfy the causal element of §11023(d)(2)(B).”\textsuperscript{55} The agency’s interpretation in the face of this ambiguity, in turn, was reasonable. First, the court credited EPA’s description of MEK as a “necessary antecedent” to the production of ground level ozone,\textsuperscript{56} an assertion that the ACC did not dispute.\textsuperscript{57} Building on this idea, EPA asserted, and the court accepted, that the concept of indirect toxicity fell within the scope of section (d)(2)(B).\textsuperscript{58} The court noted that for VOCs such as MEK, “the toxic effect is caused by chemicals that are by-products of the original chemical.”\textsuperscript{59} In this way, it distinguished \textit{Fertilizer Institute v. Browner}, which ordered delisting of phosphoric acid, since the acid’s environmental effects stem from “more attenuated” lines of causation than do the effects caused by MEK.\textsuperscript{60}

The court also looked favorably on EPA’s longstanding position that indirect effects can and should be considered when deciding to list a

\textsuperscript{52} Id.
\textsuperscript{55} ACC, 309 F. Supp. 2d at 113.
\textsuperscript{56} Id. at 114.
\textsuperscript{57} \textit{See} Final Brief of Appellant, \textit{supra} note 40.
\textsuperscript{58} ACC, 309 F. Supp. 2d at 114–15.
\textsuperscript{59} Id. at 115 (quoting Fertilizer Inst. v. Browner, No. CIV.A. 98-1067(GK), 1999 WL 33521297 (D.D.C. Apr. 15, 1999)).
\textsuperscript{60} Id.
chemical, as well as the consistent application of this policy to VOCs.  

The court noted repeatedly that Congress, not EPA, included MEK in the list, stating that "Congress must have known what it meant when it included MEK on its list in the first place."  

Ironically, the district court spent the least space addressing the argument that the appeals court seized on in overturning the lower court's decision. Specifically, ACC argued that including MEK as a section (d)(2)(B) chemical would render the term "toxic" in EPCRA superfluous, since MEK did not cause any direct, exposure-based harm. Clearly, this argument assumes (1) that section (d)(2)(B) (chronic health effects) contains a "toxicity" requirement, and (2) that "toxicity" refers only to exposure. The district court rejected ACC's argument by rejecting this first assumption based on the plain meaning of the statute: "toxicity is the subject of [section] (d)(2)(C), not [section] (d)(2)(B)." Thus, it did not matter what MEK's exposure effects were, or even what ACC thought "toxic" meant, because EPCRA does not require a chemical to be toxic to warrant listing under the chronic health effects prong.

B. Court of Appeals Reversed and Ordered Delisting

On appeal, the D.C. Circuit reversed and ordered MEK delisted, holding that sections 313(d)(2)(B) and (C) allow only for listing of "toxic" chemicals, which means that "[a]t a minimum, the chemical must cause harm via exposure." The appeals court did not even address the crux of the district court opinion, which dealt with EPA's reasonableness in considering a chemical's indirect harms. "Before reaching the question of what notion of causation is permissible... we must address whether there is a prerequisite that a chemical be toxic, and if so, what that term means." Having found that the statute clearly contemplated a toxicity prerequisite for all three listing criteria, the D.C. Circuit did not reach the causation issue.

Relying on the plain meaning argument that persuaded the district court, EPA argued that section (d)(2)(B) did not require a finding of toxicity, since that word appears only in section (d)(2)(C). While granting that variations in language among subsections of a statute are often suggestive of congressional intent, the court rejected that principle.

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61. Id. at 116
62. Id.; see also id. at 115 ("nor did EPA place MEK on the list: Congress did").
63. Id. at 115-16.
64. Id. at 116.
66. Id. at 741.
67. Id. at 743. Of course, by requiring that the chemical cause harm only through exposure, the court has in a sense interpreted the causation clause.
68. Id. at 741.
in this instance, where "the overall scope of a statute is clearly limited by a requirement that is not explicitly mentioned in every subsection," namely, that the chemical be "toxic." For example, the court noted that the statute uses the term "toxicity" or "toxic chemical" thirty-eight times. Similarly, the court found support in the structure of section (d)(2), stating that each subsection "seems to address a different form of toxicity." According to the court, the legislative history also supported this view of the listing criteria.

Even if section (B) carries an implicit toxicity requirement, EPA argued (1) that the statute defines "toxic chemical" to include the list described in section (c), and (2) that even absent the statutory definition, EPA was not required to adopt the ACC's definition of toxicity. The court rejected both of these arguments. As to the first contention, the court conceded EPA's point that when a statutory definition is provided, the courts are bound to it, even if it is contrary to ordinary meaning. In this case, the statutory definition of "toxic chemical" is circular—it refers to section (c), which itself refers to the original list as modified by the EPA pursuant to the section (d) criteria. Thus, a literal construction of the statute would mean that a "toxic chemical" is anything that meets the listing criteria. The court would not accept this reasoning, because "this argument is simply a repetition of the argument that [section] 313(d)(2)'s [causation clause] dispenses with any requirement of toxicity."

The court also rejected EPA's contention that under settled statutory construction law it need not accept the ACC's definition of "toxicity," and instead could rely on any permissible interpretation of the word. The court maintained that "virtually all" definitions of "toxicity" require exposure-based harm, quoting two dictionaries for support. Moreover, EPA's proposed definition, which would easily incorporate "indirect" effects of a chemical, was absurdly broad in the court's opinion, and would apparently allow listing of all VOCs, orange juice, and water. For example, extremely large amounts of water could cause

69. Id.
70. Id.
71. Id.
72. Id. at 741-42 (specifically, the court found that the legislative history showed that Congress intended section (A) to cover acute toxicity, (B) to cover chronic toxicity, and (C) to cover chemicals that "through their toxicity" have severe environmental effects).
73. Id. at 742.
74. Id. (citing Stenberg v. Carhart, 530 U.S. 914, 942 (2000)).
75. Id.
76. Id. (citing HAWLEY'S CONDENSED CHEMICAL DICTIONARY 1117, 1043, 1415 (13th ed. 1997) and WEBSTERS' NEW WORLD DICTIONARY (3d college ed., 4th prtg. 1988)).
77. Id. at 742-43.
flooding or drowning, which the court argued could be viewed as indirect effects.\textsuperscript{78}

Nor did the court agree that the statute’s purpose would be furthered by expanding its scope to include a chemical that, “when mixed with other chemicals thousands of feet above the point of release, tends to generate a third chemical, which in turn may result in adverse effects on humans . . . hundreds of miles” away.\textsuperscript{79} Finally, based on its newly adopted definition of “toxicity,” the court also rejected EPA’s section (C) argument, holding that EPA could not consider “indirect” toxicity under that criterion either.\textsuperscript{80}

III. ANALYSIS: THE IMPLIED TOXICITY AND EXPOSURE REQUIREMENTS

The D.C. Circuit decision requires that in order to be listed, a chemical must be found to cause harm through direct exposure. This rule is imposed even though the word “exposure” never appears in the statute, let alone in section (d), which contains the listing criteria. Instead, as discussed briefly above, the court held that the exposure requirement flows directly from the implied toxicity requirement, since according to the court a chemical can be “toxic” only if it causes harm via direct exposure. Thus, while the implied “toxicity” requirement for section (d)(2)(B) is itself quite significant, it is the court’s definition of “toxicity” that promises to have the greatest limiting impact on the list of chemicals subject to EPCRA’s reporting requirements. This Note illustrates how this holding has the potential to instigate a great deal of litigation aimed at delisting additional chemicals. The following analysis will focus largely on section (d)(2)(B), the chronic effects section, given that both the district court and appeals court centered their analyses on this section. However, the court’s definition of “toxicity” also has the potential to limit the reach of section (d)(2)(C), since that section explicitly incorporates the term. Thus, the section concludes with a brief discussion of (d)(2)(C), the environmental effects prong.

A. Legal Framework

This case is fundamentally about statutory interpretation and is therefore governed by \textit{Chevron} and its progeny. In that seminal case, the Supreme Court held that when reviewing an agency’s interpretation of a statute, a court must first determine whether the statute is clear and unambiguous; if it is, then the court must effectuate this clearly expressed intent.\textsuperscript{81} If it is ambiguous, however, then the court must uphold any

\textsuperscript{78} Id. at 742.
\textsuperscript{79} Id. at 743.
\textsuperscript{80} Id.
agency interpretation that "is based on a permissible construction of the statute." 82

For the district court, the causation clause contained in section (d)(2) was inherently ambiguous, and EPA's construction incorporating "indirect toxicity" was permissible. 83 As discussed above, the appeals court decided an antecedent question—whether the statute required that any listed chemical be "toxic." 84 It framed its inquiry as whether "the overall text, structure, and purpose of the statute allow EPA to list non-toxic chemicals," and after answering in the negative, proceeded to define "toxic" as requiring harm through exposure. 85 Thus, the appeals court decided the case at step one of Chevron.

Of the two opinions, the appeals court's raises more intriguing statutory interpretation issues because it seems to go to great lengths to avoid finding ambiguity in the statute. One is inclined to agree with the district court that the causation clause is ambiguous, since the concept of causation is itself ambiguous, and perhaps even more so in the context of evaluating the effects of manufactured chemicals on the environment and on human health. The appeals court could only avoid this thorny issue by finding both that section (d)(2)(B) unambiguously, though silently, incorporated the word "toxic," and that the word "toxic" had an unambiguous definition. The following sections explore in depth the validity of these conclusions, but I discuss them briefly here within the context of statutory interpretation law.

The appeals court approach takes the Chevron step one analysis too far. First, in deciding whether Congress has spoken directly to an issue under dispute, courts typically rely on statutory text, canons of construction, or on especially clear legislative history. 86 Congress did not place the word "toxic" in section (d)(2)(B); moreover, by using it in (d)(2)(C), one can make a strong argument that it purposefully omitted it from section (B). Even if "toxic" is read into section (d)(2)(B), the statute already contains a definition of "toxic chemical." This definition may be vague and somewhat circular, but under well-settled statutory

82. Id.
85. Id. at 741.
86. See Food & Drug Admin. v. Brown & Williamson Tobacco Corp., 529 U.S. 120, 133–38 (2000) (surveying legislative history of relevant statute to "[place] in context" the statutory provision at issue); Pension Benefit Guar. Corp. v. LTV Corp., 496 U.S. 633, 649–50 (1990) (looking to legislative history of ERISA during its Chevron step 1 analysis); Aid Ass'n for Lutherans v. U.S. Postal Serv., 321 F.3d 1166, 1178 (D.C. Cir. 2003) (concluding that "[t]he agency's statutory interpretation and its effect cannot survive Chevron Step One because the statutory language and legislative history unambiguously indicate an intent for nonprofits to continue to mail insurance-related material at reduced rates.").
interpretation principles, this ambiguity should trigger *Chevron* deference, rather than an attempt to impose a definition upon EPA. In addition, toxicity is a scientific concept, and one questions whether a court should force a particular interpretation of a scientific concept onto an agency with far greater expertise. This is one lesson of *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, in which the Supreme Court held that the words “harm” and “take,” in the context of the relatively complex Endangered Species Act, were ambiguous, thus requiring the Court to move on to step two of *Chevron*. The D.C. Circuit should have taken a similar approach in this case. Finally, the legislative history does not clearly state that (d)(2)(B) was to be limited to “toxic” chemicals, and does not elaborate on the definition of “toxic.” Thus, it is inappropriate to conclude that Congress spoke directly to the issue under *Chevron* step one.

Had the court moved past step one, it is likely that under *United States v. Mead Corp.*, EPA was entitled to *Chevron* deference. In *Mead*, the Court held that the deferential standard articulated as step two of *Chevron* applies only when Congress “delegated authority to the agency generally to make rules carrying the force of law,” and the agency interpretation claiming deference was promulgated in the exercise of that authority. Here, Congress has delegated authority to EPA to act with the force of law, and EPA used that authority in denying the delisting petition. The statute states that the EPA Administrator “may” add or delete a chemical from the list pursuant to the section (d)(2) criteria, and it authorizes EPA to initiate rulemakings or publish denial explanations in response to petitions to add or delete a chemical. In this case, pursuant to section 313(e)(1)(B), EPA published an explanation of its denial of ACC's petition. EPA was therefore entitled to *Chevron* deference, meaning that any permissible reading of the statute should have been upheld. Thus, apart from the analytical and scientific flaws in the court's holding, it appears to have incorrectly applied *Chevron*.

These statutory interpretation principles provide a useful framework for evaluating the court's decision. The following sections will evaluate whether the statute (1) unambiguously requires that the chemical listed be “toxic,” and if so, (2) unambiguously defines “toxic” as encompassing only exposure-based harm, and if not, (3) what “toxic” means in the context of the EPCRA. This Note concludes that there is some merit to the court's finding of an implied toxicity requirement for section

89. EPCRA § 313(e), 42 U.S.C. § 11023(e) (2006).
(d)(2)(B), but that the statute does not limit the definition of "toxic" as the the court concludes. Rather, the statute's text and legislative history are at best ambiguous, and EPA reasonably exercised its interpretive power by refusing to delist MEK in the face of this ambiguity.

B. Implied Toxicity Requirement

The court held that section (d)(2)(B) has an implied toxicity requirement.\(^92\) Considering the text and structure of section (d)(2), this holding is problematic. First, as the D.C. Circuit acknowledged, it is significant that section (d)(2)(C) explicitly mentions toxicity, but section (d)(2)(B) does not. Indeed, the term appears three times in section (d)(2)(C), suggesting that its omission in sections (A) and (B) was purposeful. This is a common canon of statutory interpretation.\(^93\)

The similarity in structure of sections (B) and (C) supports this presumption of purposeful omission. Both require that "[t]he chemical is known to cause or can reasonably be anticipated to cause," but the latter adds that the chemical's effect must be "because of its toxicity."\(^94\) Given this near identical language, it certainly would not have been difficult or awkward to add this "toxicity" phrase to section (d)(2)(B) if Congress so desired.

The word "toxic" is also noticeably absent from the remainder of section (d), which contains four subsections.\(^95\) Each of these subsections refers to "chemicals," but never to "toxic chemicals." Thus, section (d) of the statute, which lays out the listing criteria, contains no support for the court's holding regarding the implied toxicity requirement of section (d)(2)(B).

In contrast to section 313(d), however, the remainder of section 313 seems to assume that the resulting list will cover only "toxic" chemicals. Most persuasive is section (c), "Toxic chemicals covered," which refers to Committee Print Number 99-169, titled "Toxic Chemicals Subject to Section 313 of the [EPCRA]."\(^96\) Other parts of section 313 are similar.\(^97\) Section (f) sets threshold reporting limits for the listed "toxic

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93. See, e.g., Chicago v. Envtl. Def. Fund, 511 U.S. 328, 338 (1994) ("[I]t is generally presumed that Congress acts intentionally and purposely when it includes particular language in one section of a statute but omits it in another.") (internal quotation marks omitted).
96. EPCRA § 313 (d), 42 U.S.C. § 11023(d). Section (d)(1) authorizes modification, (d)(2) lays out the criteria for additions, (d)(3) authorizes deletions under these same criteria, and (d)(4) addresses the effective date of modifications.
97. EPCRA § 313 (c), 42 U.S.C. § 11023(c).
98. See EPCRA § 313(b), (f), (g), (i); 42 U.S.C. § 11023(b), (f), (g), (i) (referring repeatedly to "toxic chemical[s]").
chemicals."99 Sections (g) and (i), which set out additional reporting standards, also refer to "toxic chemicals."100 In light of these other sections, the omission of the word "toxic" in section (d) appears less dispositive. It would be odd for Congress to repeatedly refer to the listed materials as "toxic chemicals," if Congress did not in fact think it was requiring that listed chemicals be "toxic." One can draw similar conclusions from language used in the legislative history. The conference report, for example, describes the conference amendment as allowing listing of "toxic chemicals" that meet the section (d)(2) criteria.101

Thus, section 313 as a whole and some portions of the legislative history suggest that Congress intended only "toxic" chemicals be included on the list. While the conclusion is far from unassailable, the court's holding is at least supported by the text of the surrounding provisions, and also somewhat by the legislative history. For the sake of argument, this Note will assume that Congress did in fact intend a "toxicity" requirement for all three criteria, rather than just the environmental effects criterion, which is the only one to incorporate that term explicitly.

C. Does "Toxic" Require Harm Through Exposure?

Granting arguendo that the chronic effects prong requires that a chemical be "toxic," the key issue becomes what Congress meant by "toxic chemical." While the court held that a "toxic chemical" creates harm only through exposure, the statute and legislative history present a far more ambiguous answer. This section analyzes the text, structure and legislative history of the statute to determine what meaning, if any, Congress attached to the word "toxic." A close analysis shows that Congress had no specific meaning in mind, and in fact was likely contemplating a far broader definition than that adopted by the D.C. Circuit.

1. Textual and Structural Analysis

The statute itself sets up a somewhat circular definition for the term: "'toxic chemical' means a substance on the list described in section 313(c)."102 Section (c), in turn, refers to the list as modified by the Administrator's additions or deletions pursuant to section (d).103 Thus, because according to the statute a "toxic chemical" is anything that fits within the section (d)(2) criteria, any discussion in section (d)(2) of

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99. EPCRA § 313(f); 42 U.S.C. § 11023(f).
100. EPCRA § 313(g), (i); 42 U.S.C. § 11023(g), (i).
103. EPCRA § 313(c); 42 U.S.C. § 11023(c).
exposure to the released chemical would help illuminate Congress’ intent, even if indirectly.

In this regard, the acute effects prong, section (d)(2)(A), is noteworthy, because it explicitly requires the Administrator to consider the harm that could result from “concentration levels that are reasonably likely to exist beyond facility site boundaries.” Given this language, it is reasonable to conclude that for section (d)(2)(A), Congress may have been primarily considering harm through exposure—such as what happened in Bhopal and West Virginia. This is in contrast with sections (d)(2)(B) and (C), which do not require similar inquiries for evaluating chronic health effects or environmental effects, respectively. In Troy Corp., discussed in Part I.C., supra, the D.C. Circuit drew on this textual distinction to support its conclusion that sections (B) and (C) do not require EPA to consider the likelihood of exposure.

This textual difference from section (d)(2)(A) does not necessarily mean that section (d)(2)(B) encompasses chronic health harms other than those caused by exposure, but this inference is natural. If, in fact, section (d)(2)(B) was meant to cover only chronic health effects from direct exposure to a chemical, then it would make sense for Congress to have placed a similar likelihood-of-exposure limitation on it as it did on section (A). A reasonable explanation for Congress’ decision not to do so is that sections (d)(2)(B) and (C) were meant to capture a wider variety of effects, limited only by the “cause or reasonably anticipated to cause” language, whereas section (A) was meant to cover specifically acute health risks associated with exposure. This reasoning best explains the textual difference between sections (d)(2)(A) and (B), and indeed may provide the only rational explanation.

To review, section (d)(2) makes no reference to “exposure,” nor does the statutory definition of “toxic” suggest that exposure is required. The wording of section (d)(2)(A) suggests indirectly that Congress contemplated only exposure-based harm for that prong. The text of sections (d)(2)(B) and (C) however, do not contain similar language. This textual difference supports EPA’s long-standing position that it is free to consider broader effects under these sections. Moreover, EPA’s view flows naturally from the D.C. Circuit’s earlier Troy Corp. decision, as discussed above.

104. EPCRA § 313 (d)(2)(A); 42 U.S.C. § 11023(d)(2)(A); H.R. Conf. Rep. 99-962, at 5110 (listing under section (A) requires “consideration of factors in addition to the chemical toxicity and other properties of a substance,” in particular, the potential concentration levels of the chemical beyond the facility).
2. Legislative History and Ordinary Meaning

Arguably, both the statutory definition of "toxic chemical" and the structure of section (d)(2) support EPA's position. However, assuming that one reads the statute as silent on the definition of "toxicity," as the appeals court did, one must turn to external sources to resolve the ambiguity.\textsuperscript{105} Legislative history is a customary source for discerning congressional intent. The court argued that by repeatedly using the words "toxics" and "toxic chemicals" in the statute, Congress effectively imported the dictionary definition of "toxic" into the statute.\textsuperscript{106} Using this novel argument to substitute the "ordinary" meaning of "toxic chemical" for the statutory definition, the court then determined that the undisputed definition of "toxic" is a substance that causes harm only through exposure, and cited two dictionaries for support.\textsuperscript{107} This line of reasoning is flawed in three significant respects. First, the fact that members of Congress repeatedly used a word in the statute, and even in floor debates and committee reports, does not necessarily say anything about what meaning they attached to that word. It certainly should not provide grounds for ignoring the statutory definition. Second, an equally common definition of "toxic" is "capable of causing injury or death, especially by chemical means,"\textsuperscript{108} a broader concept than direct exposure. Third, and most importantly, it is not at all clear that Congress was using "toxic" to mean only exposure-based harm, rather than more broadly as "harmful" or "dangerous," as many people use the word in ordinary parlance. Records of the House and Senate floor debates suggest the latter. Senator Jorlang referred to the statute as informing the public of "routine releases" of "toxic and hazardous" chemicals into "the air and the water and the land."\textsuperscript{109} The statute, according to a House member, created "a guarantee that communities will know exactly what kind and exactly how much dangerous chemical waste is released into their air, water, and land."\textsuperscript{110} The public has the right to know "what

\begin{thebibliography}{110}
\footnotesize
\item \textsuperscript{105} \textit{See} Fertilizer Inst. v. Browner, No. CIV.A. 98-1067(GK), 1999 WL 33521297 at *4 (D.D.C. Apr. 15, 1999) ("It is undisputed that the statute contains no definition of "toxicity.".")
\item \textsuperscript{106} Am. Chemistry Council (ACC) v. Johnson, 406 F.3d 738, 741-42 (D.C. Cir. 2005).
\item \textsuperscript{107} \textit{See} supra note 76 and accompanying text.
\end{thebibliography}
chemicals threaten public safety," for "[i]f we have to live in a society where hazardous chemicals are routinely manufactured and transported, we should all be apprised of the risks those chemicals may pose." Similarly, the statute enabled dissemination of information on "chemical threats," and "provides citizens with information on the routine release of chemicals in their neighborhoods which may pose long-term health threats."

This language indicates congressional concern with the broader environmental and health risks posed by manufactured chemicals, and not a narrow focus on exposure. To be sure, there is also discussion in the legislative history about the threat of exposure to released chemicals. Representative Edgar, a key architect of an amendment that added the chronic effects prong to section (d)(2), often referred to "toxic chemical exposures" and the "Nation's exposure." However, these references to exposure do not limit the ambit of the statute, especially since even Representative Edgar also often used broader language, for example, referring to "the hazards of toxic chemicals." During the floor debate preceding the adoption of his amendment, he referred to "hazardous chemicals" posing "long-term threats." His allies during this debate also discussed "harmful substances," "chronic hazards," and "chronic contaminant[s]." At no point in the legislative history does any member of Congress set out to explicitly define "toxic," although legislators repeatedly conflated the term with "hazardous" and "dangerous." None of this forecloses the D.C. Circuit's interpretation, but it certainly does not compel it either. If anything, it casts serious doubt on the ability of a court to determine definitively Congress' intent and meaning in using the term "toxic."

Thus, while the court may be justified in its holding regarding the implied toxicity requirement, its holding that a chemical is "toxic" only if it causes harm through exposure is not justified either by the text of the statute or the legislative history. The court defines that term too narrowly, despite a complete lack of guidance from Congress on the

111. Id. (emphasis added) (statement of Rep. Miller).
112. Id. (emphasis added) (statement of Rep. Strangeland).
116. Id.
118. Id. (statement of Rep. Florio).
meaning of "toxic chemical." In the face of this ambiguity, it was well within EPA’s province to adopt a definition of the term that comported with its scientific understanding of the "hazards" and "dangers" of manufactured chemicals.

IV. RAMIFICATIONS

This section considers the effect that this new rule, if allowed to stand, could have on other chemicals currently listed on the TRI. A close review of the current list reveals that the ACC decision could require delisting of many chemicals that seem to fall squarely within the statute’s ambit. The decision also vitiates a reasonable and carefully deliberated policy for dealing with VOCs under the statute.

A. Delistings to Come

Though there is currently no evidence of additional delisting petitions, this new rule could be applied to other chemicals currently listed in the Toxic Release Inventory. Most obviously, chemicals on the list because of their contribution to tropospheric ozone will no longer have adequate bases to be listed under (d)(2)(B) or (C). These chemicals include cyclohexane, methyl isobutyl ketone, and ethylene and propylene.\textsuperscript{119}

Other chemicals released into the environment have the opposite effect of MEK: they destroy the naturally-existing stratospheric ozone that shields all living things from dangerous radiation from the sun.\textsuperscript{120} The EPA, in an important 1993 rulemaking, decided to require reporting of chemicals that contribute to stratospheric ozone destruction.\textsuperscript{121} Because the harm to human health does not result from exposure to the released chemicals, and because the released chemical does not itself destroy ozone, the court’s holding effectively eliminates these chemicals from the list—no matter the direct link between release of these chemicals and ozone depletion, links the courts themselves have recognized.\textsuperscript{122}


\textsuperscript{120} Ozone Depleting Chemicals; Toxic Chemical Release Reporting; Community Right-to-Know, 58 Fed. Reg. 63,496 (Dec. 1, 1993).

\textsuperscript{121} \textit{Id.} EPA’s concern was not “direct toxicity, but rather on the depleting effect \[\text{hydrochlorofluorocarbons or HCFCs}\] have on stratospheric ozone and the resulting increase in penetration of ultraviolet-B (UV-B) radiation.” As an interesting side note, the increase in UV-B radiation brought on by the release of HCFCs “may increase the rate of tropospheric ozone formation.” \textit{Id.} at 63,497.

\textsuperscript{122} See Fertilizer Inst. v. Browner, No. CIV.A. 98-1067(GK), 1999 WL 33521297 at *5 (D.D.C. Apr. 15, 1999). Nor is there any way of knowing how this would play out under the environmental effects prong, as discussed at section V(C), \textit{infra}. 
Similar problems arise with metals that are harmful when converted to their ionic states or when bonded with other chemicals. One example is chromium. The original list designated by Congress included “chromium and compounds.” Thus, the release of chromium in any form should be reported. However, EPA has not argued that elemental chromium causes harm via exposure; rather, it is hexavalent chromium, the chemical culprit in the hit movie *Erin Brockovich*, that is classified as a known human carcinogen. Before chromium becomes hexavalent chromium, it goes through a two-step oxidization process—two chemical reactions with other chemicals in the environment. It is only after this reaction that “nonhazardous” chromium or chromium (III) becomes the “hazardous” chromium (VI) waste-soil combination. Thus, chromium released in its elemental form or in its intermediate ionic state arguably need not be reported, even though both forms can reasonably be expected to oxidize into hexavalent chromium when they come into contact with soil and water.

This result is suspect given the close and direct relationship between the release of chromium and the creation of a carcinogenic chemical in the environment. At the same time, this example seems to have little in common with the MEK-ozone relationship at issue in *ACC v. Johnson*. Hexavalent chromium forms after the loss of six electrons from the outer orbitals of elemental chromium; MEK, by contrast, never turns into ozone, but only helps foster its production in the troposphere. Yet, strict application of the rule laid out in *ACC* would seem to compel an identical result for the hypothetical chromium case, where elemental or trivalent chromium is released but hexavalent chromium causes the harm.

One way to avoid this inconsistent result is to carve out an exception for chromium. But creating an exception would substantially vitiate the D.C. Circuit’s new and ambitious rule. If, in certain situations, a chemical need not cause harm through exposure in order to be declared toxic and listed on the TRI, how is the distinction between situations where

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124. The “elemental” form of a chemical refers to its atomic structure without the loss or addition of any of its electrons. A chemical is in its ionic form once it has gained or lost electrons. Metals, including chromium, lose electrons and form positively charged ions, or cations.

125. Hexavalent chromium is also known as chromium VI.


127. 58 Fed. Reg. at 34,739.

“direct” harm is required and where it is not to be made? Given its greater expertise, EPA, not a court, should be the initial arbiter of this determination, a scientific decision that courts may review for abuse of discretion or general arbitrariness.

Between chromium and MEK are a host of intermediate cases. During its early rulemakings that added a number of chemicals to the TRI, EPA asserted that certain “degradation products,” chemicals present in the environment as a result of the release of precursor chemicals, would not be listed, but that the precursor chemicals would be listed if the degradation product met the statutory listing requirements. The listing status of any of these precursor chemicals is now open to challenge.

Examples of precursor chemicals include ethylene and propylene, which are VOCs that have the same effect as MEK in fostering the production of tropospheric ozone. In addition, they can be transformed into a degradation product and suspected carcinogen, formaldehyde. If one accepts the exception illustrated by the chromium example, and rejects the MEK-ozone example, how should ethylene and propylene be treated? It is best to leave this decision to the EPA, and there is little reason to supplant its judgment on these issues with a bright line rule derived from vague hints in the statute and legislative history.

Other metals raise even more complicated issues than does chromium. Zinc oxide, for example, is recognized as safe for use as a dietary supplement, a nutrient, and a skin ointment, and is often used as a polymeric coating, so the threat from exposure is clearly not a concern. Still, EPA denied a delisting petition for the chemical, because “zinc ion [Zn\(^{2+}\)] may cause environmental toxicity,” and “zinc ion can become available in the environment from zinc oxide.” The zinc ion is one half of the zinc oxide molecule, and can form in a variety of ways. For example, zinc ion is produced when zinc oxide is dissolved in an aqueous solution, or through the dissociation of intermediate chemicals created by the reaction of zinc oxide with other chemicals in the environment. Whether or not zinc ion forms depends on a host of factors, including the probability that the newly-produced ion will react with other metals to

129. Addition of Certain Chemicals; Toxic Chemical Release Reporting; Community Right-to-Know, 59 Fed. Reg. 1788, 1791 (Jan. 12, 1994) (“If the degradation product meets the toxicity criteria of EPCRA section 313, the precursor chemical may be considered for listing on EPCRA section 313.”).
130. See supra note 119.
132. Zinc Oxide; Toxic Chemical Reporting; Community Right-to-Know, 60 Fed. Reg. 47,334, 47,335 (Sept. 12, 1995).
133. Id.
134. Id.
form stable salts, whether the ion will eventually attach to sediment, and whether the ion will move through sediment mixtures. These qualities, in turn, depend on characteristics of the sediment and water, such as the pH. Evaluating all of these factors, EPA concluded that the threat of zinc ions forming from the release of zinc oxide was sufficiently serious to justify listing of zinc oxide.

The ACC court’s analysis does not provide a coherent heuristic for evaluating EPA’s decision in the case of zinc oxide. It is undisputed that zinc ion will cause serious damage, but whether zinc oxide “causes” this damage by providing the zinc ion is a complicated question. The technical complexities, even behind what appears to be a simple reaction breaking up a diatomic molecule, require considerable scientific expertise.

A similar example concerns EPA’s evaluation of various copper compounds. The agency refused to delist copper metal, because it concluded that the toxic copper ion is readily available from this metal, but it did delist copper phthalocyanine compounds, because copper ion was not reasonably expected to form from these molecules. In neither case would the released chemical directly cause the harm, but EPA was principled and consistent in applying the causation clause to decide which chemicals might be reasonably expected to cause an adverse effect.

Finally, consider the classification of chemicals that have multiple toxic pathways. For example, EPA refused to delist monosodium methanearsonate (MSMA) and disodium methanearsonate (DSMA) for a variety of reasons. The chemicals themselves have serious acute and chronic effects in animals. The chemicals’ un-ionized form, methanearsonic acid (MAA), also has these effects on animals, which is important because both MSMA and DSMA are expected to convert to this un-ionized form in acidic environments, such as the gastrointestinal tract.

Furthermore, “anthropogenic releases of MSMA or DSMA may indirectly lead to increased arsenic concentrations in areas where direct anthropogenic releases of these substances do not occur” due to extremely complex reaction and transfer mechanisms. Chemical and biochemical transformations controlled by various environmental

135. Id. at 47,336–37.
136. Id.
140. Id.
141. Id.
142. Id. at 19,706.
conditions ultimately lead to the formation of arsenate, an inorganic form of arsenic suspected of causing skin, urinary bladder, kidney, liver and colon cancer in humans. A metabolite of MSMA, cacodylic acid, is also a probable human carcinogen. Denying petitioners' request to delist these chemicals, EPA concluded that "releases of MSMA or DSMA into the environment will lead to the formation of arsenate and cacodylic acid, which have been categorized by the National Toxicology Program and EPA as carcinogens."

Given this information, how would the ACC court characterize the toxicity of MSMA and DSMA? The court's focus purely on exposure to the released chemical seems extremely simplistic and inapposite to the types of inquiries the EPA routinely undertakes in evaluating the toxicity of a given chemical.

B. Formulating a Sensible VOC Policy under the EPCRA

The chemicals surveyed above arguably fit more traditional lay understandings of "toxicity." Yet, the toxic pathways associated with those chemicals are often as attenuated and complicated as those associated with VOCs and ozone formation. Viewed in this light, the court's confident statements dismissing the "toxicity" of VOCs seem misguided. This unwarranted confidence may explain the court's rather limited scientific analysis and its suspicion of EPA's position and asserted expertise. Thus, the court focused on EPA's admission at oral argument that it could list all VOCs under its interpretation of EPCRA, and on EPA's concession that even water and orange juice might be justifiably listed.

What the court failed to do was credit EPA's long history of exercising sound judgment in implementing EPCRA with respect to VOCs. First, EPA has yet to add a VOC on the list, it has only refused to delete the VOCs that Congress originally listed. Over the last decade, EPA has established fairly strict guidelines as to when it will refuse to

143. Id.
144. Id. at 19,705.
145. Id. at 19,706.
146. ACC v. Johnson, 406 F.3d 738, 743 (D.C. Cir. 2005). As to the VOC argument, the district court referred to the ACC's position as the "Chicken Little" assertion. ACC v. Whitman, 309 F. Supp. 2d 111, 115 (D.D.C. 2004), vacated, 406 F.3d 738. The water and orange juice example was particularly confusing and truly unnecessary for the court's opinion. It noted that they could cause "indirect" harm by causing death by drowning or flooding. To play out the appellate court's attempt at *reductio ad absurdum*, drowning is an *acute* health effect, which would justify listing only if the liquids could be anticipated to exist beyond the facility boundaries at the necessary concentration levels, which of course is highly unlikely. As to the environmental effect of flooding, no doubt an attempt to list any liquid on that basis, absent a showing of sufficient volumetric flow in a given plant to create that effect, could easily be struck down as arbitrary and capricious.
delist a VOC. In the MEK ruling, EPA explained that it would retain on the list "those VOCs whose volume of use or emissions are large enough to raise substantial VOC concerns," and noted that "MEK is a VOC with both a high production volume and high air emissions." The agency has been able to draw this same conclusion for every other ozone-forming VOC it has left on the TRI.

Given this history, the district court was convinced that EPA would not list all VOCs merely because the statute allows consideration of indirect harms. More importantly however, EPA could have argued that the causation language in the statute affirmatively limited it to the position it had taken in these rulemakings and petition denials. Because a VOC released in relatively minor amounts cannot "be reasonably anticipated" to help form ozone in any significant amount, a fair reading of the causation clause is that it limits listing to only those VOCs released in the largest amounts. In this way EPA would be listing those VOCs that by virtue of their relatively greater presence in the atmosphere would most likely be involved in ozone production. Even if this conclusion stretches the causation clause somewhat, it does so in a way compatible with the concept of causation generally. Thus, EPA need not have conceded at oral argument that all VOCs could be listed merely by employing a definition of toxicity that encompassed indirect harms.

Furthermore, EPA has been forthright about its interpretation of the statute as allowing consideration of "indirect" toxicity, yet Congress has not disapproved the agency's statements, as it might have were they obviously contrary to congressional intent. In EPA's first major rulemaking in 1994, which evaluated hundreds of chemicals and led to the addition of 286 chemicals and chemical categories, it unambiguously stated its position: "EPA believes it is within its authority to consider both the direct and indirect adverse human health and environmental..."
effects of a chemical in making a listing determination."^152 Noting the "absence of specific congressional intent," EPA believed it would be furthering the purpose of the statute by listing "chemicals that, albeit, indirectly cause a wide range of adverse health and environmental effects."^153 As early as 1990 EPA used this theory to add ozone-depleting hydrochlorofluorocarbons,^154 and before that to deny VOC delisting petitions.^155 All of these fell within the purview of section (d)(2)(B) or (d)(2)(C), the chronic and environmental effects prongs at issue in ACC.

In other words, EPA has maintained a consistent policy regarding VOCs, and more broadly regarding indirect toxicity under the statute. There does not appear to have been any congressional outcry over this policy. Nor has Congress attempted to amend EPCRA to disallow agency consideration of indirect effects either in defining toxicity or determining eligibility for TRI listing. Legislative inaction is often the only clue to discerning congressional intent. The silences in EPCRA's pre- and post-enactment legislative history suggest that Congress likely did not and does not embrace the D.C. Circuit's limited understanding of the statute.

By narrowing the scope of EPCRA's chronic effects prong, ACC has the potential to compel delisting of chemicals few would doubt should appear on the list and to vitiate substantially a reasonable and well-supported VOC listing policy. These developments would hinder the fulfillment of EPCRA's purpose by leaving communities uninformed of hazardous chemicals in their environments—an indication that the court misinterpreted the statute in this case.

**C. Brief Note on the Environmental Effects Prong, Section (C)^156**

The ramifications for section (d)(2)(C), which covers environmental effects, will likely be even more far-reaching if the decision is allowed to stand. Indeed, the legislative history for this section seems to reveal Congress' intent that EPA consider indirect harms. As the conference report discusses, Congress instructed EPA to consider the chemical's ability to cause:

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153. Id.
156. Given the appeals court's short treatment of this section, and the conceptual similarities in considering "indirect" effects under sections (B) and (C), the effects on section (C) will be discussed very briefly here.
(1) Gradual or sudden changes in the composition of animal life or plant life, including fungal or microbial organisms in an area.
(2) Abnormal number of deaths of organisms (e.g. fish kills).
(3) Reduction of the reproductive success or the vigor of a species.
(4) Reduction in agricultural productivity, whether crops or livestock.
(5) Alterations in the behavior or distribution of a species.
(6) Long lasting or irreversible contamination of components of the physical environment, especially in the case of groundwater, and surface water and soil resources that have limited self-cleansing capability.  

It seems highly unlikely that these environmental harms will always be the result of direct exposure of various plants or animals to a specific chemical, and there is little evidence that Congress was unconcerned about released chemicals contributing indirectly to such serious effects.

An interesting test case would be CFCs, the ozone-depleting chemicals that the *Phosphoric Acid* court referred to as an exemplar of chemicals whose indirect effects warranted listing under the environmental effects prong. Under the ACC analysis, EPA would be required to delist CFCs, because these chemicals do not directly deplete ozone—they release chlorine ions upon being exposed to sunlight, and these ions destroy ozone. As with the examples explored above, and as the *Fertilizer Institute* court noted, these intermediate steps hardly provide reason to keep CFCs off the TRI, contrary to the reasoning of the ACC opinion.

**CONCLUSION**

Adequate implementation of environmental statutes invariably requires significant technical expertise. Even for a relatively simple reporting statute such as EPCRA the antecedent determinations regarding the scope and probability of the harm are principally scientific in nature. While application of the statute may appear to a judge to turn on a binary system of “common-sense” delineations between “toxic” and “non-toxic,” to agency experts the statute is likely to raise far more complex questions requiring careful thought and a realistic understanding of the many ways by which manufactured chemicals affect our health and environment. Moreover, although the statute may only make sense to a lay person or a judge if limited to a particular understanding of “toxic,”

159. ALLEN & SHONNARD, supra note 28, at 12.
ultimately this limitation must be grounded in the text of the statute or in
eminently clear legislative history.

In this case there is neither. Whatever a court's personal reaction to
sanctioning a reading of a statute with broader scope than suits it,
Chevron requires that such a reading must stand if reasonable. EPA met
that burden in this case. As the Supreme Court said in another context,
"statutory prohibitions often go beyond the principal evil to cover
reasonably comparable evils, and it is ultimately the provisions of our
laws . . . by which we are governed."160 Methyl ethyl ketone plays a
central role in creating a chemical that destroys lung tissue. If the courts
believe that role is too attenuated to meet the causation clause of the
EPCRA, then so be it; but the chemical should not be removed from the
list on the basis of a questionable implied "toxicity" requirement that
removes congressionally granted discretion from EPA and renders
irrelevant its technical expertise.