United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued October 25, 1999 Decided April 21, 2000

No. 98-1368

Association of Battery Recyclers, Inc., et al.,
Petitioners

v.

U.S. Environmental Protection Agency and
Carol M. Browner, Administrator,
U.S. Environmental Protection Agency,
Respondents

Consolidated with
Nos. 98-1381, 98-1392 & 98-1394

On Petitions for Review of an Order of the
Environmental Protection Agency

Donald J. Patterson, Jr. argued the cause for petitioners on the RCRA classification issues. With him on the joint

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briefs were Harold P. Quinn, Jr., Roderick T. Dwyer, Karl S. Bourdeau, Michael W. Steinberg, Joshua D. Sarnoff, David F. Zoll, Ronald A. Shipley, William R. Weissman and Steven J. Groseclose. Michael B. Wigmore and Robert N. Steinwurtzel entered appearances.

William R. Weissman argued the cause for petitioners on the LDR treatment standards issues. With him on the briefs was Steven J. Groseclose.

Michele L. Walter, Attorney, U.S. Department of Justice, and Steven Silverman, Attorney, Office of General Counsel, U.S. Environmental Protection Agency, argued the causes for respondents. With them on the brief was Cecilia Kim, Attorney, U.S. Department of Justice.

David R. Case argued the cause for intervenors Environmental Defense Fund, Environmental Technology Council and National Mining Association. With him on the brief were Karen Florini, Donald J. Patterson, Jr., Harold P. Quinn, Jr., and Roderick T. Dwyer.

Before: Silberman, Ginsburg, and Randolph, Circuit Judges.

Opinion for the Court by Circuit Judge Randolph.

Opinion for the Court by Circuit Judge Ginsburg.

Opinion dissenting in part by Circuit Judge Randolph.

Randolph, Circuit Judge: These are consolidated petitions for judicial review of Environmental Protection Agency regulations promulgated on May 26, 1998, under the Resource Conservation and Recovery Act of 1976 ("RCRA"), Pub. L. No. 94-580, 90 Stat. 2795. The regulations--known collectively as the "Land Disposal Restrictions Phase IV" Rule--deal with residual or secondary materials generated in mining and mineral processing operations and EPA's classification of these materials as "solid waste"; with the treatment standards for a specific category of hazardous waste; and with EPA's test for determining whether certain wastes are hazardous. Our opinion is in three parts. The first part decides whether EPA properly defined "solid waste." We are unanimous that it did not. The second part decides, again unanimously, that EPA's treatment standards for a particular category of hazardous waste are lawful. The third part, written by Judge Ginsburg and joined by Judge Silberman, decides that EPA's test for determining toxicity is valid for certain wastes but not for others. I disagree with their conclusion for the reasons stated in my dissenting opinion.

I. Definition of Solid Waste

Two petitioners--the National Mining Association and the American Iron and Steel Institute--and an intervenor-the Chemical Manufacturers Association--challenge the portion of EPA's Phase IV Rule defining a "solid waste" in terms of how materials "generated and reclaimed within the primary mineral processing industry" are stored. 40 C.F.R.

s 261.2(e)(iii). The question is of substantial importance to these petitioners because, together, they represent most of the nation's producers of coal, metals, and industrial and agricultural minerals; two thirds of the nation's steel production; and more than ninety percent of the nation's productive capacity of basic industrial chemicals.

RCRA defines "solid waste" as "any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material...." 42 U.S.C. s 6903(27). Solid wastes are "considered hazardous if they possess one of four characteristics (ignitability, corrosivity, reactivity, and toxicity) or if EPA lists them as hazardous following a rulemaking." Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914, 915 (D.C. Cir. 1998) (citing 42 U.S.C. s 6921(a), 40 C.F.R. pt. 261). Disposal of hazardous waste is forbidden unless the waste is treated to reduce its hazardous constituents or stored in a manner ensuring that the hazardous constituents will not migrate from the disposal unit. See id. (citing 42 U.S.C. s 6924(g)(5), (m)).

To understand the contentions of the parties, it will be helpful to outline the current solid waste classification system (most of which predates the Phase IV Rule and is not being challenged). EPA's general regulation defining "solid waste" begins by repeating a portion of the statutory definition: "a

solid waste is any discarded material." 40 C.F.R. s 261.2(a)(1). It then defines "discarded material" to mean "any material which is Abandoned ... or Recycled, as explained in paragraph (c) of this section...." Id. s 261.2(a)(2). Paragraph (c) identifies four situations in which "recycled" materials will be considered "solid waste": when the materials are "used in a manner constituting disposal"; when the materials are "burn[ed] for energy recovery"; when the materials are "reclaimed"; and when the materials are "accumulated speculatively." 40 C.F.R. s 261.2(c)(1)-(4).

The Phase IV Rule revised only the reclamation provision. Before the revision, EPA classified reclaimed spent materials and scrap metal as solid waste. See 40 C.F.R. s 261.2(c)(3) & tbl.1 (1996). Reclaimed sludges and by-products were classified as solid waste only if they had been specifically listed in 40 C.F.R. pt. 261 as a hazardous waste following an EPA rulemaking. See 40 C.F.R. s 261.2(c)(3) & tbl.1 (1996). Reclaimed sludges and by-products exhibiting a characteristic of hazardous waste, but not specifically listed as hazardous wastes, were not classified as solid waste. See id. This classification system applied without regard to the industry that produced the materials.

The Phase IV Rule purported to take materials reclaimed by the mineral processing industry outside this framework and to subject these secondary materials to a new test for determining whether they constituted "solid waste." See 40 C.F.R. s 261.2(c)(3) & tbl.1. We say "purported" because it is not clear to us that EPA accomplished its objective. The relevant part of the new recycling-reclamation provision reads:

> Materials [listed in a table] are not solid wastes when reclaimed (except as provided under 40 CFR 261.4(a)(17)).[1]

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1 The final rule published in the Federal Register incorrectly cited s 261.4(a)(15). See 63 Fed. Reg. 28,556, 28,636 (1998). EPA later corrected its mistake. See 64 Fed. Reg. 25,408, 25,408 (1999).

Id. The new s 261.4(a)(17) gave a so-called "conditional exclusion": if the provision's criteria were met, reclaimed mineral processing secondary materials would not be classified as solid waste. We have trouble making sense of these two provisions. The first provision (s 261.2(c)(3)) broadly describes what is not a solid waste, unless it complies with the other provision. But the other provision--s 261.4(a)(17)--is an exclusion, and the consequence of not complying with the provision is, of course, loss of exclusion. In other words, read together, the provisions seem to say that something is not a solid waste unless it is not excluded from being a solid waste. Lewis Carroll would be proud. But petitioners make nothing of the point and we shall therefore assume that if secondary material of this sort--derived from mineral processing--does not meet the conditions specified in s 261.4(a)(17), EPA will consider the material "solid waste" potentially subject to full RCRA Subtitle C regulation.

As to the conditions set forth in s 261.4(a)(17), EPA's dividing line between "waste" and nonwaste is the manner of storage. If the mineral processor stores secondary material destined for recycling in tanks, containers, buildings, or on properly maintained pads, the materials are not considered "solid waste." See id. s 261.4(a)(17)(iii), (iv). Given our assumption (and that of the parties), if by-products and sludges exhibiting a characteristic of hazardous waste are not stored in such a manner prior to being recycled, they may be regulated as hazardous "waste."

How long the materials are stored is of no consequence according to the regulation. See Fed. Reg. 28,556, 28,582-83 (1998). They could be placed on the ground for only a few minutes before being put back into the production process, yet they would still be subject to RCRA if not stored in accord with s 261.4(a)(17). Petitioners say this rule extends EPA's authority far beyond the statute. They ask how secondary material held for recycling in production could possibly qualify as "waste" when the statute defines "waste" as "discarded materials"? 42 U.S.C. s 6903(27).

The question is not a new one. It was asked and answered in American Mining Congress v. EPA, 824 F.2d 1177 (D.C. Cir. 1987) ("AMC I"). The court began by referring to the "ordinary, plain-English meaning" of "discarded"--" 'disposed of,' 'thrown away,' or 'abandoned.' " Id. at 1184. Secondary materials destined for recycling are obviously not of that sort. Rather than throwing these materials away, the producer saves them; rather than abandoning them, the producer reuses them. After examining the structure and history of RCRA, see id. at 1184-92, the AMC I court concluded: "Congress clearly and unambiguously expressed its intent that 'solid waste' (and therefore EPA's regulatory authority) be limited to materials that are 'discarded' by virtue of being disposed of, abandoned, or thrown away." Id. at 1190. The court therefore set aside an EPA rule regulating secondary "materials reused within an ongoing industrial process," id. at 1182, because the materials were "neither disposed of nor abandoned," id. at 1193.

The holding in AMC I thus appears to answer the question we have before us. See Chevron U.S.A. Inc. vs. Natural Resources Defense Council, Inc., 467 U.S. 837 (1984). The Supreme Court has a rule: "Once we have determined a statute's clear meaning, we adhere to that determination under the doctrine of stare decisis, and we judge an agency's later interpretation of the statute against our prior determination of the statute's meaning." Maislin Indus., U.S., Inc. v. Primary Steel, Inc., 497 U.S. 116, 131 (1990); see also Lechmere, Inc. v. NLRB, 502 U.S. 527, 536-37 (1992). We too follow stare decisis. The complication, for an administrative agency, of conflicting interpretations of the same statute from different circuits is not present. The D.C. Circuit is the exclusive venue for pre-enforcement judicial review of RCRA regulations. See 42 U.S.C. s 6976(a)(1). And so, our interpretation of RCRA binds not only this court but also EPA.

EPA nevertheless insists that RCRA may be applied to materials that are not disposed of, abandoned, or thrown away, but are destined for reuse in an on-going industrial process. The argument is that AMC I was a narrow decision, and that "subsequent judicial opinions have sharply limited

the scope of AMC I." 63 Fed. Reg. at 28,580. These later decisions, according to EPA, absolutely bar the agency from treating secondary materials as "discarded" (42 U.S.C. s 6903(27)) if and only if "reclamation is continuous in the sense that there is no interdiction in time--i.e. materials moving from one step of a recovery process to another without a break in the process, as for storage." 63 Fed. Reg. at 28,581. We believe EPA misapprehends the law of the circuit.

As to AMC I, EPA supports its interpretation of the decision on the basis that the court twice used the phrase "immediate reuse":

> Here, Congress defined "solid waste" as "discarded material." The ordinary, plain-English meaning of the word "discarded" is "disposed of," "thrown away" or "abandoned." Encompassing materials retained for immediate reuse within the scope of "discarded" strains, to say the least, the everyday usage of that term.
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> The question we face, then, is whether ... Congress was using the term "discarded" in its ordinary sense--"disposed of" or "abandoned"--or whether Congress was using it in a much more open-ended way, so as to encompass materials no longer useful in their original capacity though destined for immediate reuse in another phase of the industry's ongoing production process.

824 F.2d at 1183-84, 1185. EPA reads, or rather misreads, these passages to mean that it may treat secondary materials as "discarded" whenever they leave the production process and are stored for any length of time.

For one thing, "the language of an opinion is not always to be parsed as though we were dealing with language of a statute," Reiter v. Sonotone Corp., 442 U.S. 330, 341 (1979)--an admonition the AMC I court itself repeated. See 824 F.2d at 1183 n.6 (quoting Reiter, 442 U.S. at 341); see also St. Mary's Honor Ctr. v. Hicks, 509 U.S. 502, 515 (1993) ("[W]e

think it generally undesirable, where holdings of the Court are not at issue, to dissect the sentences of the United States Reports as though they were the United States Code."). Yet EPA treats "immediate reuse" as if these were statutory terms in need of a regulatory definition. See, e.g., 63 Fed. Reg. at 28,582-83. EPA supplies the definition: immediate reuse is "continuous recirculation of secondary materials back into recovery processes without prior storage" unless the storage for later recycling complies with the conditions EPA sets forth in the new s 261.4(a)(17) of its regulations. 63 Fed. Reg. at 28,580-83. Of course, this thoroughly ignores the AMC I court's holding that, under RCRA, material must be thrown away or abandoned before EPA may consider it to be "waste." As we have said, material stored for recycling is plainly not in that category.

For another thing, in the two passages quoted above, the word "immediate" cannot mean what EPA thinks. The court wrote of secondary material "retained"--held for a time--and "destined"--denoting the future--for "immediate reuse." This more than suggests that the court had in mind materials that were being held or stored for later recycling or reuse. EPA assumes, without saying why, that when the AMC I court wrote "immediate" in these sentences it meant "at once." But the word "immediate" has another common meaning--"direct," as in "my immediate superior" or "the immediate cause of the accident." It is clear to us that this is what the AMC I court intended. It is clear because retaining signifies holding onto, keeping, storing. And so retaining, on the one hand, and reusing at once, on the other hand, sounds like a physical impossibility. It is clear because the AMC I court stressed, again and again, that it was interpreting "discarded" to mean what it ordinarily means. To say that when something is saved it is thrown away is an extraordinary distortion of the English language. Yet that is where EPA's definition leads. It is also clear that the AMC I court intended "direct" when it wrote "immediate" because EPA never even argued that materials sent back into the production process, with no intermediate storage, were "waste." EPA never made the argument because its rule at the time

did not consider such secondary materials to be discarded (and thus "solid waste" under RCRA). EPA's AMC I brief stated: "when secondary materials are recycled by being returned directly (without undergoing significant reprocessing) for use as feedstock to the process which generated them, the activity often is like an on-going production process. Secondary materials being recycled in this way--referred to as a 'closed-loop' process--therefore are not defined as solid wastes." Brief for Respondent at 11 (citing 40 C.F.R. s 261.2(e)(iii)(1986)), AMC I.

That the "immediate reuse" phrase was not mentioned in the critical portions of the AMC I opinion containing the court's holding is still another reason for rejecting EPA's position. The court stated: "In sum, our analysis of the statute reveals clear Congressional intent to extend EPA's authority only to materials that are truly discarded, disposed of, thrown away, or abandoned," 824 F.2d at 1190; and "[t]hese materials have not yet become part of the waste disposal problem; rather, they are destined for beneficial reuse or recycling in a continuous process by the generating industry itself," id. at 1186 (italics in original); and "we are persuaded that by regulating in-process secondary materials, EPA has acted in contravention of Congress' intent," id. at 1193. Nothing here about saved materials being transformed into discarded materials unless they are placed back into the production process forthwith.

Still further, the AMC I court thought that EPA's final rule illegally regulated the following: "valuable metal-bearing and mineral-bearing dusts are often released in processing a particular metal. The mining facility typically recaptures, recycles, and reuses these dusts, frequently in production processes different from the one from which the dusts were originally emitted." Id. at 1181. The court must have been referring to the following illustration provided in the mining industry's brief:

> If, for example, "an emission control dust from a primary zinc smelting furnace" is not returned to the zinc produc-

> tion process but instead to on-site "cadmium recovery operations," it is classified as solid waste.

Brief for Petitioner American Mining Congress at 20 (citing 50 Fed. Reg. 614, 640 (1985)), AMC I. In this example, the dust is not placed back into the production process at once, and yet the AMC I court held that EPA had no authority to regulate the dust as solid waste because it had not been thrown away or otherwise discarded. To state the matter more generally, the court in AMC I set aside EPA's rule because secondary materials which are treated prior to recycling cannot be considered discarded if they are "reused within an ongoing industrial process." 824 F. 2d at 1182.2

We have written enough to explain why we disagree with EPA's reading of AMC I and why the Phase IV Rule contradicts that decision. Later cases in this court do not limit AMC I, as EPA supposes. American Petroleum Institute v. EPA, 906 F.2d 729 (D.C. Cir. 1990) ("API"), was, as

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2 An example from the rulemaking record in this case illustrates how temporary storage can be a necessary phase of reclaiming mineral processing secondary material. The Cyprus Amax Minerals Company commented on EPA's proposed 48 hour rule, which would have defined any such secondary material stored for more than 48 hours as solid waste, see 62 Fed. Reg. 26,041, 26,051 (1997)--a more limited assertion of authority than the current rule, which requires no minimum time period of storage. See Comments of Cyprus Amax Minerals Company: Land Disposal Restrictions Phase IV, at J.A. 839. At its Miami smelter, Cyprus recycles reverts, a mixture of "converter slag and matte which has frozen to the wall and bottom of a transfer ladle." Id. at 864. To accomplish this, the reverts must be removed from the production process. "This frozen layer of material (reverts) is physically knocked loose from the ladle once it reaches a thickness that significantly reduces the ladle transfer capacity. The freshly removed revert's temperature may still be as much as 1800-1900øF, and the large mass of material will require many hours to cool sufficiently to allow equipment to move it to the crushing and sizing operations. The reverts inventory is constantly in process of being reused." Id. The inventory is not always equal to demand, so some reverts, after the crushing and sizing, remain in that area before reentering the furnaces. See id.

EPA acknowledged in the Phase IV rulemaking, at "the end of the [jurisdictional] continuum ... where EPA's authority is most certain." 63 Fed. Reg. at 28,580. In that case, the Natural Resources Defense Council challenged EPA's decision not to regulate K061 slag. It was "undisputed" that K061, an individually listed, zinc-bearing hazardous waste generated from air pollution control equipment in steel industry electric furnaces, see 906 F.2d at 734, was "a 'solid waste' when it le[ft] the electric furnace in which it [was] produced." Id. at 740. But EPA, citing AMC I, disavowed authority over K061 after it had been transported to a metals reclamation facility. Hence, slag produced when K061 went through a smelting furnace at the reclamation facility was not automatically classified as a solid waste.3 See id. at 738-39; 53 Fed. Reg. 11,742, 11,753 (1988).

The court rejected EPA's view that AMC I precluded classifying K061 slag as solid waste. The material was sent to reclamation facilities not as part of an " 'ongoing manufacturing or industrial process' within 'the generating industry,' but as part of a mandatory waste treatment plan prescribed by EPA." 906 F.2d at 741. API thus involved the taking of solid waste from the steel industry and reclaiming it within another industry, typically primary zinc smelting or some other type of secondary metal recovery. See 53 Fed. Reg. at 11,752. The API decision is entirely consistent with AMC I. In fact the AMC I court recognized EPA's authority over comparable secondary materials: "Oil recyclers typically collect discarded used oils, distill them, and sell the resulting material for use as fuel in boilers. Regulation of those activities is likewise consistent with an everyday reading of the term 'discarded.' It is only when EPA attempts to extend the scope of that provision to include the recycling of undiscarded oils at petroleum refineries that conflict occurs." 824 F.2d at 1187 n.14, cited in API, 906 F.2d at 741 n.16.

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3 Under the "derived from" rule, "once EPA determines that a particular substance is a hazardous waste, the agency continues to treat as a hazardous waste any product 'derived from' that substance in the course of waste treatment." 906 F.2d at 738 (citing 40 C.F.R. s 261.3(c)(2)).

American Mining Congress v. EPA, 907 F.2d 1179 (D.C. Cir. 1990) ("AMC II"), the other case featured in EPA's argument, did not disturb AMC I's interpretation of "discarded." Industry groups contested EPA's authority to regulate three specifically listed hazardous wastes--K064 (acid plant blowdown sludge from primary copper production); K065 (surface impoundment solids from primary lead smelting); and K066 (wastewater treatment sludge from primary zinc production). See 907 F.2d at 1183, 1185. The court explained that copper, lead and zinc smelting operations "produce large volumes of wastewater that the smelting company must treat before discharging it. Many smelting operations use surface impoundments to collect, treat, and dispose of the wastewater." Id. at 1185-86. Solids in the wastewater settle. Petitioners claimed that the resulting sludge "may at some time in the future be reclaimed" and therefore could not be considered solid waste because they had not discarded it. Id. at 1186. The key word in the passage just quoted is "may." Could EPA consider this secondary material--material that may in the future be reclaimed--to be discarded? The AMC II court thought the answer to this "precise question" was not clear from RCRA and so it deferred to EPA's interpretation. Id.

EPA regulates the speculative accumulation of secondary materials through 40 C.F.R. s 261.2(c)(4), a provision not challenged in this case, and not challenged in AMC II. This regulation, in itself, supported EPA's viewing the three types of sludge in AMC II as waste. EPA, however, dismissed the language in the AMC II opinion indicating that the court had before it speculative accumulation. According to EPA, AMC II did not involve speculative accumulation because each sludge "was actually recycled 100 percent, not stored with the expectation of recycling. 50 FR at 40292, 40296; Brief of Petitioner American Mining Congress in AMC II (filed March 30, 1990) pp. 18, 29." 63 Fed. Reg. at 28,581. EPA is flatly wrong about this. As to K064 (acid plant blowdown sludge from primary copper production), only 31 percent was eventually recycled throughout the industry, as the AMC II petitioners conceded. See 50 Fed. Reg. at 40,296; Final Brief of

Consolidated Petitioners at 26, AMC II. As to K066 (waste-water treatment sludge from primary zinc production), recycling totaled 69 percent nationwide. See 50 Fed. Reg. at 40,296; Final Brief of Consolidated Petitioners at 13 n.15, AMC II. As to K066 (surface impoundment solids from primary lead smelting), EPA reported 100 percent recycling in the past but--and the "but" is critical--lead smelting plants were now storing this material for years and "due to declining lead demands, there is a strong potential that these sludges may not be recycled." 50 Fed. Reg. at 40,297.

Even if we credited EPA's mistaken notion about AMC II, the court's decision there was not at odds with AMC I. The best authority for this is EPA itself. In defense of its listing of the materials in AMC II, the agency argued that it had acted consistently with AMC I's holding that "discarded," as used in RCRA, carries its ordinary, everyday meaning.4 Here is the heart of EPA's argument in AMC II:

> The record demonstrates that the sludges in question are managed in wastewater treatment surface impoundments, which are within the definition of solid waste. Moreover, the sludges exhibit sufficient elements of discard to be solid wastes, even if they may be, in part, later reclaimed.
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> EPA acted consistently with AMC in assessing whether each specific sludge at issue here was, considering all facts and indicia, discarded....
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> Wastewater treatment surface impoundments are not part of an ongoing, continuous primary smelting production process. The impoundments receive process wastewater, from which sludges settle or precipitate out.

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4 RCRA jurisdiction over these types of sludge may have existed even without resort to the "discarded material" term in the solid waste definition. Congress defined solid waste to include "any ... sludge from a waste treatment plant," 42 U.S.C. s 6903(27), a point EPA made in its AMC II brief. See Brief for Respondent at 15, AMC II.

Brief for Respondent at 12, 19-20 (footnotes omitted), AMC II. The AMC II court agreed with this argument: "Nothing in AMC prevents the agency from treating as 'discarded' the wastes at issue in this case, which are managed in land disposal units that are part of waste treatment systems." 907 F.2d at 1186 (italics in original). The point of AMC II, and for that matter API, is that once material qualifies as "solid waste,"5 something derived from it retains that designation even if it might be reclaimed and reused at some future time. In contrast, the Phase IV Rule seeks to regulate materials that are not a by-product of solid waste, but a direct by-product of industrial processes.

EPA thinks that in light of API and AMC II, "discarded" is now ambiguous and thus we should defer to its interpretation. To accept EPA's contention would be to conclude that two

later panels of this court overruled the decision in AMC I that "discarded" was not ambiguous. See AMC I, 824 F.2d at 1193. We think nothing of the sort occurred. A term may be ambiguous as applied to some situations, but not as applied to others. The AMC II court said as much: nothing in RCRA "shows the term 'discarded' to be any less ambiguous regarding sludges stored in surface impoundments than it was regarding the materials at issue in API." 907 F.2d at 1186.6

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5 The "solid waste" to which we refer is the wastewater. Under RCRA a "solid" waste may be liquid. See 42 U.S.C. s 6903(27).

6 It is true that the AMC II court quoted the "immediate reuse" language from AMC I we mentioned earlier. It is also true that the AMC II court quoted a good deal more of AMC I, for instance: "We held [in AMC I] that the agency could not treat such materials as solid wastes, because they 'have not yet become part of the waste disposal problem; rather, they are destined for beneficial reuse or recycling in a continuous process by the generating industry itself.' [824 F.2d at 1186]." 907 F.2d at 1186 (italics in original). While the AMC II court said that AMC I "concerned only materials that are 'destined for immediate reuse in another phase of the industry's ongoing production process,' " id. (quoting 824 F.2d at 1185, and adding italics), we have already explained why the italicized language cannot carry the meaning EPA ascribes to it. See pp. 6-10, supra.

Some mineral processing secondary materials covered under the Phase IV Rule may not proceed directly to an ongoing recycling process and may be analogous to the sludge in AMC II. The parties have presented this aspect of the case in broad abstraction, providing little detail about the many processes throughout the industry that generate residual material of the sort EPA is attempting to regulate under RCRA.7 At this stage, all we can say with certainty is that at least some of the secondary material EPA seeks to regulate as solid waste is destined for reuse as part of a continuous industrial process and thus is not abandoned or thrown away. Once again, "by regulating in-process secondary materials, EPA has acted in contravention of Congress' intent," 824 F.2d at 1193, because it has based its regulation on an improper interpretation of "discarded" and an incorrect reading of our AMC I decision.

II. Alternative Treatment Standards

A.

Once it is determined that materials are hazardous waste and thus subject to RCRA, EPA is required to take several steps, one of which is to promulgate regulations prohibiting land disposal of certain hazardous wastes. See 42 U.S.C. s 6924(d), (e) & (g). If a waste falls under this disposal restriction, it cannot be disposed of "unless the waste is treated so as to minimize the short-term and long-term threats to human health and the environment posed by toxic and hazardous constituents ... or unless the EPA finds that no migration of hazardous constituents from the facility will occur after disposal." Chemical Waste Management, Inc. v. EPA, 976 F.2d 2, 8 (D.C. Cir. 1992) (citing 42 U.S.C. s 6924 (g)(5), (m)). We are concerned in this portion of the opinion

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7 The Phase IV Rule encompasses recycling activities in "all primary mineral processing sectors" of which EPA has identified at least 41. 63 Fed. Reg. at 28,580 (citing EPA, Identification and Description of Mineral Processing Sectors and Waste Streams (1996)).

with the first option--the land disposal restriction ("LDR") treatment standards.

EPA originally promulgated technology-based LDR treatment standards, see Hazardous Waste Treatment Council v. EPA, 886 F.2d 355, 361-66 (D.C. Cir. 1989), usually examining the available treatment data and requiring use of the "best demonstrated available technology" ("BDAT"), see 61 Fed. Reg. 18,780, 18,807 (1996). Beginning in 1991, see 56 Fed. Reg. 55,160, 55,172-77 (1991),8 EPA began to rethink whether BDAT standards should apply to all soils containing hazardous wastes. While continuing to believe that BDAT standards are best for newly-generated wastes, the agency doubted that this was also true for wastes generated during remediation of contaminated soils. See 61 Fed. Reg. 18,780, 18,808 (1996). BDAT standards "create an incentive to generate less of the affected waste in the first instance." Id. This incentive is what EPA desires in the context of newly-generated wastes, but in the remediation context it serves as a barrier to desirable cleanup efforts. See id.

EPA thus proposed, and promulgated in the rule before us, alternative treatment standards for soils. Rather than requiring BDAT, the alternative standards allow any treatment that results in a ninety percent reduction in the concentration of hazardous constituents, unless the ninety percent reduction would result in a concentration less than ten times the Universal Treatment Standard (based on BDAT) for that constituent. See 40 C.F.R. s 268.49(c)(1). In that case, the concentrations can be reduced only to ten times the Universal Treatment Standard. See id. s 268.49(c)(1)(C).

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8 This first mention of alternative standards was during part of the Phase II LDR rulemaking. See 56 Fed. Reg. 55,160, 55,172-77 (1991); 58 Fed. Reg. 48,092, 48,122-33 (1993). The development of the alternative standards continued in the Hazardous Waste Identification Rule for Contaminated Media, see 61 Fed. Reg. 18,780, 18,783-85, 18,803-13 (1996) and in the Phase IV rule currently before this court, see 63 Fed. Reg. 28,556, 28,571-52, 28,609-10 (1998).

The final rule applies solely to soils that are placed "into a land disposal unit." See id. s 268.49(a). Four industry groups representing electric and gas utilities challenge the regulation because it departed from the proposed rules, which petitioners contend applied to any "land disposal" of soils. The practical effect of this difference is that the alternative standards do not apply to soils that are recycled into products placed on land. See 63 Fed. Reg. at 28,609. These petitioners prefer the proposed rule because in their efforts to clean up manufactured gas plant sites, they often recycle contaminated soils into asphalt, brick, or cement--products that are placed on land. Petitioners voice procedural objections to the final rule, claiming it violated the notice and comment provisions of the APA, see 5 U.S.C. s 533, and the public participation requirements of RCRA, see 42 U.S.C. s 6974(b)(1). They also argue that the final rule should be set aside as "arbitrary and capricious." See 5 U.S.C. s 706(2)(A).

B.

There is a jurisdictional hurdle to get over. Intervenors Environmental Defense Fund and Environmental Technology Council, but not EPA, question whether we may hear petitioners' challenge to the Phase IV Rule for something it did not do--that is, its failure to apply the alternative treatment standards to soils that are recycled into products placed on land. RCRA gives this court jurisdiction over "a petition for review of action of the Administrator in promulgating any regulation...." 42 U.S.C. s 6976(a)(1). Our court lacks jurisdiction under this provision to hear petitions complaining that the "EPA should have promulgated a rule which, up until now, it has not promulgated." United Technologies Corp. v. EPA, 821 F.2d 714, 720-21 (D.C. Cir. 1987); see also Hazardous Waste Treatment Council v. EPA, 861 F.2d 277, 287 (D.C. Cir. 1988). In United Technologies, a petitioner challenged an EPA regulation because it did not promulgate groundwater monitoring regulations for solid (but not hazardous) waste management units. See 821 F.2d at 721. EPA

had not yet acted either to adopt or to reject proposed regulations. See id.

In the Phase IV final rule, however, EPA acted. It "studied carefully" whether to apply alternative LDR standards to soils that are recycled into products placed on land. 63 Fed. Reg. at 28,575. While the new regulations do not apply to soils that are recycled into products placed on land, the jurisdictional provision does not limit review to the actual regulations. It allows for review "of action of the Administrator in promulgating any regulation," 42 U.S.C. s 6976(a)(1) (italics added). When EPA considers and rejects a proposed regulation it has acted. Unlike the United Technologies situation, there are standards by which to judge EPA's action because the agency selected what, in its view, is the "appropriate method of ascertaining compliance with statutory and regulatory norms." 821 F.2d at 721.

C.

The Administrative Procedure Act requires that a "[g]eneral notice of proposed rule making shall be published in the Federal Register" and "[t]he notice shall include ... either the terms or substance of the proposed rule or a description of the subjects and issues involved." 5 U.S.C. s 553(b).9 This notice then allows interested persons to comment on the proposed rules. See id. s 553(c). EPA published notices of proposed rulemaking on alternative LDR standards for soil in 1991, 1993, and 1996. See 56 Fed. Reg. 55,160, 55,172-77 (1991); 58 Fed. Reg. 48,092 (1993); 61 Fed. Reg. at 18,813. Affected industries thus had numerous opportunities to comment about whether the alternative LDR standards should, or

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9 Petitioners also rely on the public participation provisions of RCRA. See 42 U.S.C. s 6974(b)(1). They note, however, that the APA provides "greater specificity" of notice requirements, see Brief of Petitioners Edison Electric Institute et al. on LDR Treatment Standard Issues at 14, and support their argument only with reference to APA case law. They do not explain how the RCRA provision creates additional notice requirements relevant to this petition.

should not, apply to their processes. Petitioners did just that. But they now contend that they were not given proper notice of the final rule, which, as discussed above, applied only to soils placed in land disposal units.

Petitioners are correct that the final Phase IV Rule is not exactly the same as the proposed rules. But notice requirements do not require that the final rule be an exact replication of the proposed rule. If that rigidity were required, the purpose of notice and comment--to allow an agency to reconsider, and sometimes change, its proposal based on the comments of affected persons--would be undermined. Agencies would either refuse to make changes in response to comments or be forced into perpetual cycles of new notice and comment periods. Recognizing this, we hold that notice and comment requirements are met when an agency issues rules "that do not exactly coincide with the proposed rule so long as the final rule is the 'logical outgrowth' of the proposed rule." Fertilizer Inst. v. EPA, 935 F.2d 1303, 1311 (D.C. Cir. 1991). "[T]he key focus is on whether the purposes of notice and comment have been adequately served.... [A] final rule will be deemed to be the logical outgrowth of a proposed rule if a new round of notice and comment would not provide commenters with 'their first occasion to offer new and different criticisms which the agency might find convincing.' " Id. (quoting United Steelworkers of America v. Marshall, 647 F.2d 1189, 1225 (D.C. Cir. 1980) (quoting BASF Wyandotte Corp. v. Costle, 598 F.2d 637, 642 (1st Cir. 1979))).

The Phase IV final rule on alternative LDR treatment standards is a logical outgrowth of the proposed rules. EPA proposed allowing alternative standards for remediated soils. The proposal was just that--a proposal. One would logically conclude that EPA could have ended up allowing alternative standards for all soils as the proposal suggested, for no soils, or--as it turned out--for some soils. Petitioners submitted comments on why remediation activities involving soils recycled into products placed on land should be subject to the alternative standards. EPA responded to those comments. Petitioners say that they "would have submitted comments demonstrating that utility companies have engaged in such

recycling under regulatory oversight...." Brief of Petitioner Edison Electric et al. on LDR Treatment Standard Issues at 21. They think this would have been convincing because "[w]hat ultimately seemed to be dispositive was EPA's belief that recycling is not subject to regulatory supervision." Id. (citing 63 Fed. Reg. at 28,610). Not so. In 1996, EPA suggested that it might limit the alternative treatment standards to remediation activities subject to regulatory oversight: "[S]hould the Agency adopt soil treatment standards that are adjusted to account for the lack of State or Agency oversight over how they are administered?" See 61 Fed. Reg. at 18,813. This notified affected persons that they should submit information discussing the regulatory oversight of any remediation activities at issue.

The short of the matter is that petitioners have identified no relevant information they might have supplied had they anticipated EPA's final rule. We therefore hold that EPA complied with the notice and comment requirements.

D.

This brings us to the arbitrary and capricious challenge. EPA concluded that soils recycled into products placed on land should continue to be treated with the "best treatment available" because these products "can be placed virtually anywhere, compounding potential release mechanisms, exposure pathways, and human and environmental receptors." 63 Fed. Reg. at 28,610. The agency stressed the "uncertainties posed by this method of land disposal" in refusing to apply the alternative LDR standards. See id. at 28,609-10.

Petitioners claim this "uncertainty" is not a rational basis for agency decisionmaking and that EPA did not adequately support its environmental concerns with recycled soils placed on land. There is nothing to this. EPA decided not to apply alternative standards unless it was certain the new standards would result in safe disposal. "[N]othing [in RCRA] requires the Administrator to determine that a method of land disposal is not safe before prohibiting it. Rather, the statute commands the Administrator to promulgate prohibitory regula-

tions unless he has made an affirmative determination of safety." Natural Resources Defense Council, Inc. v. EPA, 907 F.2d 1146, 1153 (D.C. Cir. 1990). EPA applies a similar presumption in granting variances from treatment standards. See 40 C.F.R. s 268.44. EPA also sufficiently supported its view that environmental risks exist when soils are recycled into products placed on land. See 63 Fed. Reg. at 28,610 (citing 53 Fed. Reg. at 31,197-98); J.A. 2131-32. It engaged in reasoned decisionmaking in finding that contaminated soils placed on the ground as asphalt or cement pose greater environmental risks than similar soils placed in land disposal units.

* * *

EPA must define "solid waste" in accordance with this opinion. The parenthetical--"(except as provided under 40 CFR 261.4(a)(17))"--to the second sentence of 40 C.F.R. s 261.2(c)(3), through which EPA purportedly expanded its regulation of mineral processing secondary materials, is therefore set aside.

The petitions challenging the alternative treatment standards for soils are denied.

So ordered.

Ginsburg, Circuit Judge: A solid waste not specifically listed as "hazardous" by the EPA is nonetheless deemed "hazardous" if it exhibits one or more of four characteristics: ignitability, corrosivity, reactivity, or toxicity. 40 C.F.R. ss 261.20, 261.21, 261.22, 261.23 & 261.24. In order to determine whether a solid waste is toxic, the EPA has adopted a test called the Toxicity Characteristic Leaching Procedure (TCLP). 40 C.F.R. s 261.24. The EPA created the TCLP, and its predecessor the Extraction Procedure (EP), as part of its response to the command of the Congress to "promulgate regulations identifying the characteristics of hazardous waste." 42 U.S.C. s 6921(b)(1); see also 51 Fed. Reg. 21,653 (describing evolution of EP and TCLP). Because the Congress had defined hazardous waste to include any solid waste that may "pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed," 42 U.S.C. s 6903(5)(B), the EPA set out to design a test that would determine whether a solid waste would pose a risk to human health or the environment if it was mismanaged. See 55 Fed. Reg. 11,806/1. Rejecting as impractical an approach in which the test for toxicity would vary depending upon the manner in which a waste was actually disposed of, see 55 Fed. Reg. 11,807, the EPA instead decided to adopt a test designed to simulate the disposal practice that is the most dangerous to human health and the environment and yet still plausible. See id. Although the EPA included in the TCLP several refinements the EP lacked, both tests model essentially the same worst-case mismanagement scenario. See 51 Fed. Reg. 21,653; Edison Electric Institute v. EPA, 2 F.3d 438, 442 (D.C. Cir. 1993).

That scenario assumes the "co-disposal of toxic wastes in an actively decomposing municipal landfill which overlies a groundwater aquifer," 45 Fed. Reg. 33,110/3; this hypothetical landfill is composed of "5 percent industrial solid waste and 95 percent municipal waste," 51 Fed. Reg. 21,653/3; the toxic waste leaches unattenuated to the groundwater strata, see 45 Fed. Reg. 33,111/2; and the closest well for drinking water is 500 feet down gradient from the landfill. See id.

In order to conduct the TCLP, the EPA first determines the composition of the waste sample. If the sample contains less than 0.5% dry solid matter, called the "solid phase," then the waste is filtered; the liquid passing through the filter is considered the TCLP extract and is analyzed to determine the concentrations of various chemicals. See Office of Solid Waste, EPA, Method 1311, in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, ss 2.1, 7.3.15, 7.3.16 (3d ed. 1998) (EPA Publication SW-846). After applying a dilution and attenuation factor to simulate the diminution in concentration "expected to occur between the point of leachate generation and the point of human or environmental exposure," Edison Electric, 2 F.3d at 441, the EPA determines whether any of the resulting concentrations of certain chemicals are equal to or greater than the concentrations listed in 40 C.F.R. s 261.24, tbl. 1. If they are, then the waste is considered toxic and, consequently, hazardous. 40 C.F.R. s 261.24(a).

If the waste contains more than 0.5% solid phase, then the solid phase is separated from the "liquid phase," see EPA Publication SW-846 at s 2.2, if any, and reduced to particle size in order to simulate the various processes that break down large solids in a landfill. See id. at s 7.1.3; Edison Electric, 2 F.3d at 444. An "extraction fluid" is then mixed with the solid phase and the resulting leachate, called the "liquid extract," is filtered through a glass fiber filter. EPA Publication SW-846 at ss 2.2, 7.1.4. The liquid phase and the liquid extract, treated collectively as the TCLP extract, are then analyzed to determine the concentration of various chemicals, see id. at s 2.3; again, the dilution and attenuation factor is applied and the resulting concentrations compared with those listed in the table at 40 C.F.R. s 261.24.

In Edison Electric we held that the EPA's decision to use one test based upon a single, hypothetical mismanagement scenario was authorized under a permissible construction of the RCRA and entitled to our deference pursuant to Chevron U.S.A. Inc. v. Natural Res. Def. Council, 467 U.S. 837 (1984). See Edison Electric, 2 F.3d at 446. Applying the Administrative Procedure Act, however, we rejected as arbitrary and

capricious the EPA's attempt to apply the TCLP to mineral processing wastes in general and in particular to those mineral processing wastes known as manufactured gas plant (MGP) waste. See id. at 446-47. Specifically, we held that although the "EPA need not demonstrate that mineral wastes [including MGP waste] are typically or commonly deposited in [municipal solid waste] landfills ... the Agency must at least provide some factual support for its conclusion that such a mismanagement scenario is plausible." Id. at 446. The EPA could alternatively justify the application of the TCLP to mineral processing and MGP wastes if it could demonstrate "on the record that [these] wastes were exposed to conditions similar to those simulated by the TCLP." Id. at 447. Recently, we reaffirmed our holding that the EPA must demonstrate a rational relationship between the hypothetical mismanagement scenario underlying the TCLP and the actual way in which the wastes tested by the TCLP are discarded. See Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914 (1998).

In the Phase IV Rule the EPA once again has used the TCLP as the test for determining the toxicity of mineral processing wastes, including MGP waste. See 63 Fed. Reg. 28,574, 28,599. The National Mining Association, the American Iron and Steel Institute, the Edison Electric Institute, and the Chemical Manufacturers Association (collectively the Associations) argue that the EPA has failed to demonstrate that the mismanagement scenario underlying the TCLP bears a rational relationship to the way in which mineral processing and MGP wastes are disposed of in fact; they therefore ask this court once again to strike down the EPA's application of the TCLP to these wastes as arbitrary and capricious. Additionally, the Associations argue that the EPA failed to consider or to respond to significant comments the Associations submitted suggesting the use of both the TCLP and another test, known as the Synthetic Precipitation Leaching Procedure (SPLP). Although we hold that the EPA has justified its use of the TCLP alone to determine the toxicity of mineral processing wastes generally, and that the EPA did respond to the Associations' comments, we nonetheless find that the

EPA has failed to justify application of the TCLP to MGP waste. Accordingly, we grant the petition for review in part and vacate the Phase IV Rule insofar as it provides for use of the TCLP to determine whether MGP waste exhibits the characteristic of toxicity.

A. Mineral Processing Wastes (Other than MGP waste)

Paralleling our holding in Edison Electric, the EPA attempts to justify its application of the TCLP to mineral processing wastes on two grounds: (1) It is likely that mineral processing wastes have been disposed of in municipal landfills; and (2) mineral processing wastes have been "exposed to conditions similar to those simulated by the TCLP." Because we find that evidence in the record supports the first proposition, we do not address the EPA's alternative justification.

In response to this court's remand in Edison Electric, the EPA prepared a document entitled Applicability of the [TCLP] to Mineral Processing Wastes. There the EPA collected an impressive amount of evidence that mineral processing wastes may have been disposed of as hypothesized in the mismanagement scenario modeled by the TCLP. First, the EPA catalogued evidence that many facilities generating mineral processing wastes are located near population centers with municipal landfills and that a substantial portion of mineral processing facilities generate mineral processing wastes in quantities small enough to be deposited in a municipal landfill. Second, the EPA collected 14 cases of either "likely," "possible," or "potential" disposal of mineral processing wastes in municipal landfills. In one of the two "likely" cases an eyewitness saw waste taken from A&W Smelters and Refiners, a mineral processing facility, being dumped in a municipal landfill. In the other "likely" case, a landfill located on an abandoned "strip mine" was closed after having accepted industrial wastes without a permit; an unidentified slag was among the laundry list of wastes found at the site. In the "possible" cases, "materials such as 'slag,' 'dusts,' and 'ash' [were disposed of] in various landfills"; the materials involved are not precisely described and because "these

wastes often become indistinguishable from the soil and debris in municipal landfills," it is difficult to determine whether mineral processing wastes were actually involved. The "potential" cases typically "involve mineral processing and municipal solid wastes being disposed of in close proximity to each other (e.g., in two separate on-site disposal areas)." Finally, the EPA collected ten instances in which mineral processing wastes had been stored at mineral processing facilities along with materials commonly found in municipal landfills. For example, one facility had a landfill on site that contained 98% plant trash and two percent "spent catalyst," while another facility operated a landfill on site composed of 90% plant trash and 10% "mercury contaminated soil."

The Associations argue that this evidence is insufficient to meet the standard announced in Edison Electric, although they do not dispute the facts concerning the location of mineral processing facilities and the volume of waste they produce. Rather, the Associations maintain that all the EPA's evidence does not establish that mineral processing wastes are plausibly disposed of in the manner modeled by the TCLP. For example, they claim that there is no evidence that the material the eyewitness saw moved from A&W Smelters and Refiners originated at that facility or, alternatively, that the material was subject to regulation under the RCRA as hazardous waste. See 42 U.S.C. s 6921(b)(3)(A)(ii) (Bevill exclusion, as implemented by EPA, exempts from regulation under Subtitle C of RCRA solid wastes from extraction and beneficiation of ores and minerals and 20 mineral processing wastes); Solite Corp. v. EPA, 952 F.2d 473, 479 n.4, 481-82 & n.6 (D.C. Cir. 1991). Finally, the Associations contend that the EPA's examples of landfills located at mineral processing facilities are inadequate because most of those sites did not contain the mixture of 95% municipal waste and 5% industrial waste that the TCLP simulates and the two sites that did have a similar ratio did not contain mineral processing wastes.

We hold that the evidence the EPA has marshaled in support of applying the TCLP to mineral processing wastes is sufficient to meet the standard announced in Edison Electric.

In that case we did not demand that the EPA demonstrate that the TCLP exactly reflects actual disposal practices, but only that the mismanagement scenario underlying the TCLP bears some "rational relationship" to those practices. See Edison Electric, 2 F.3d at 446. Therefore, to the extent the Associations seek to exploit factual uncertainties in the EPA's account--such as whether the waste the eyewitness saw taken from A&W was actually a mineral processing waste subject to Subtitle C of the RCRA--we can agree that the evidence is not conclusive and nonetheless hold that it is sufficient to make application of the TCLP "rational" or "plausible." Especially with respect to on-site landfills, the Associations' objections amount to nothing more than repeated observations that the EPA's evidence about actual disposal does not precisely match the conditions the agency models in the TCLP. Such complaints are of little moment, for they merely point up an inherent feature of the TCLP, and indeed of any model. As we have previously explained, because "a model is meant to simplify reality in order to make it tractable," it is no criticism of a model "[t]hat [it] does not fit every application perfectly." Chemical Manufacturers Ass'n v. EPA, 28 F.3d 1259, 1264 (1994).

B. MGP Waste

The Associations also argue that the EPA has not justified applying the TCLP to MGP waste because the MGP industry stopped producing waste about 40 years ago and there is no evidence that MGP waste is currently being disposed of in municipal landfills. In response, the EPA makes two points. First, the EPA notes that, prior to the demise of the MGP industry, MGP waste was deposited in landfills and at industry facilities, many of which are currently being remediated. Second, the EPA argues that some of the MGP waste from the sites being remediated could be sent to municipal landfills, as evidenced by the following passage in a handbook issued by the Edison Electric Institute advising utilities on how to clean up contaminated sites:

> Landfilling is the most common and simplest of the disposal methods. If the wastes are hazardous then they

> must be disposed of in a properly licensed secure landfill. The nearest such landfill may be hundreds of miles from the site, which results in high transportation costs. If the wastes are non-hazardous, disposal may be at a local commercial municipal landfill. It is therefore important to determine if the wastes are hazardous or non-hazardous both for different transportation costs and for the extreme difference in disposal costs, with secure landfill costs being much higher.

On the basis of this publication, the EPA concludes that "the utilities' own characterization of its disposal practices demonstrates that MGP wastes that do not display the toxicity characteristic are commonly disposed in municipal solid waste landfills, evidently because it is cheaper to do so."

The Associations contend that because the EPA has not provided any evidence indicating that any remediation waste has ever found its way into any municipal landfill--or is for some particular reason likely to do so--the agency has failed to carry its burden, as set out in Edison Electric, of "provid[ing] some factual support for its conclusion that such a mismanagement scenario is plausible." Although the Associations do not dispute that there are many sites, including municipal landfills, that contain MGP waste, they point out that the EPA has not provided any evidence linking the waste at those sites to waste generated during the remediation of sites contaminated with MGP. Further, the Associations argue that the handbook issued by the Edison Electric Institute simply canvasses the available options for waste disposal without advocating any practice and without indicating that remediation wastes were or should be deposited in municipal landfills. Indeed, the handbook specifically warns against disposing of hazardous MGP waste in a municipal landfill. As the Associations see it, the EPA's evidence establishes, at most, that it is possible for MGP waste from a remediation site to be deposited in a municipal landfill.

As we have said, the EPA must show that the mismanagement scenario the TCLP simulates bears "some rational relationship" to how wastes subject to that test are actually

managed. See Edison Electric, 2 F.3d at 446. Here, the EPA has demonstrated the possibility that MGP waste from remediation sites could be disposed of in a municipal landfill, but has not produced a shred of evidence indicating that has happened or is likely to happen. Upon the current record, therefore, we must conclude that the EPA has not justified its application of the TCLP to MGP waste.

Judge Randolph, post, expresses dismay that the Court rejects the EPA's application of the TCLP to MGP waste--for which he would find there is at least some record support--while approving the agency's application of the TCLP to the other "350 or so wastes in this rulemaking for which the agency uses TCLP," Diss. op. at 1, and about which the record is silent. Suffice to say, we do not require the EPA to present evidence justifying application of the TCLP to any other specific mineral processing waste because no party challenges the TCLP with respect to any other specific waste.

The Associations have pointed out that MGP waste differs in one very real respect from other mineral processing wastes: MGP waste is no longer produced and therefore will not be disposed of in municipal landfills unless that happens in the course of a remediation effort. Evidence that mineral processing wastes that are still being produced have been disposed of in municipal landfills offers no support for the different proposition that MGP waste from a remediation effort has been or will be so disposed.

Furthermore, the incomplete and vague evidence in the record relating to MGP waste is far less persuasive than the evidence the EPA produced for mineral processing wastes generally. For instance, even in the two examples singled out by Judge Randolph--by far the strongest in the record--there is no evidence that the "coal tar, kerosene, and other wastes typically produced at MGP sites," Diss. op. at 2, and found at the landfills actually originate from an MGP site at all, let alone evidence that they came to the landfill from a remediation effort. Nor, contrary to Judge Randolph's suggestion, see Diss. op. at 2, does evidence that the MGP industry disposed of its waste in municipal landfills--when

that industry was actively producing waste--support the inference that remediation waste containing MGP waste will now be deposited in landfills. For these reasons, we do not think the EPA's evidence supporting application of the TCLP to mineral processing wastes justifies its application to MGP waste.

C. Significant Comments

The Associations also argue that the EPA failed to consider and respond to their comments suggesting the use of both the SPLP and the TCLP to determine toxicity. This argument is without merit. During the rulemaking, the EPA responded to the Associations' comments by highlighting evidence that the SPLP is no more accurate than the TCLP and by reiterating its decision to use a single test to determine toxicity instead of using different tests depending upon how the waste is actually managed. The EPA therefore adequately considered and responded to the Associations's comments.

* * *

For the foregoing reasons we grant the petition for review in part and vacate the Phase IV Rule insofar as it provides for the use of the TCLP to determine whether MGP waste exhibits the characteristic of toxicity.

So ordered.

Randolph, Circuit Judge, dissenting in part: I respectfully dissent from Judge Ginsburg's conclusion, for himself and Judge Silberman, that EPA failed to justify "its application of TCLP to MGP wastes." Maj. op. at 22.

Edison Electric Institute v. EPA, 2 F.3d 438, 446 (D.C. Cir. 1993), and Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914, 922-23 (D.C. Cir. 1998), require EPA to show a rational relationship between its chosen toxicity test--TCLP--and the wastes to which the test is applied. (TCLP simulates what would occur if waste were dumped in a landfill.) The case before us involves the application of TCLP to 358 different types of mineral processing wastes generated by 41 different sectors of the mineral processing industry. Has EPA satisfied the "rational relationship" test with respect to all 358 types of waste? Yes, my colleagues decide, because there are 2 cases of "likely" disposal of mineral processing wastes in municipal landfills and 12 such "possible" cases. Quite obviously, this "proof" says nothing whatever about hundreds of types of waste thrown off by this industry. The majority's inference must be that if some types of mineral processing waste may be dumped in a landfill, it is plausible to suppose that all types may wind up there.

I have no quarrel with this reasoning, although I wish it had been made more explicit. But I cannot comprehend why the reasoning does not apply equally to one other type of mineral processing waste--"manufactured gas plant" (MGP) waste. See 63 Fed. Reg. at 28,574; Edison Elec., 2 F.3d at 443, 446-47 (treating MGP waste no differently than other mineral processing wastes). Put another way, why is it that of the 350 or so wastes in this rulemaking for which the agency uses TCLP, my colleagues reach in and pluck out this one--MGP--to place under the judicial microscope? Odder still, the record contains more support for using the test on MGP wastes than for using it on the hundreds of other unnamed mineral processing wastes, which the court sustains.

My colleagues share EPA's conjecture that because mineral processing operations are often located near urban areas, their wastes are likely to be disposed in municipal landfills. See maj. op. at 25. But MGP plants too were located in such spots, producing gas for municipalities. While EPA identified

only 14 examples of "likely" or "possible" landfill disposal for all 358 mineral processing wastes, the agency listed 14 examples of codisposal for MGP wastes alone. See Office of Solid Waste, EPA, Applicability of the Toxicity Characteristic Leaching Procedure to Mineral Processing Wastes at 14 (1998). The record is a bit hazy regarding some of these instances. For two of them, though, there is sufficient evidence to make it likely that MGP waste was disposed in municipal landfills. In both the New Lyme (Ohio) Landfill, see id. app. D, and the Schilling Landfill in Ironton, Ohio, see id., there were significant concentrations of coal tar, kerosene, and other wastes typically produced at MGP sites.

The majority's concern seems to be that these two examples did not involve "remediation waste," that is, waste from clean up operations after the MGP plants ceased functioning. Maj. op. at 27-28. How can my colleagues know that? No findings to this effect appear in the record. Besides, I believe they are mistaken. The New Lyme landfill, for example, did not begin operation until 1969, see Applicability of the Toxicity Characteristic Leaching Procedure to Mineral Processing Wastes app. D, yet MGPs "stopped producing waste about 40 years ago," maj. op. at 27; see also Petitioners' Reply Brief on RCRA Classification Issues at 17 (stating that MGP industry defunct for 40 years). If not from remediation, how did this MPG waste wind up in the landfill? At any rate, the same factors that led to disposing of MPG waste in landfills in the past--proximity to landfills, size of the waste, cost--are with us today and should have been enough to sustain EPA's rule.

I again ask why the special judicial treatment of MGP waste? Of the other 350 or so types of mineral processing wastes, how many of these are (1) from abandoned plants; (2) near city dumps; and (3) have in the past wound up in those dumps? The majority does not say because it does not know. Yet it sustains application of TCLP to these wastes, for which there is no evidence, and strikes down TCLP for manufactured gas plant wastes, despite abundant evidence showing a rational relationship. I therefore dissent.