United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued April 28, 2022 Decided July 8, 2022

No. 20-1479

DAIKIN APPLIED AMERICAS INC. AND SUPER RADIATOR COILS LP,
PETITIONERS

v.

ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENT

On Petition for Review of a Final Rule
of the Environmental Protection Agency

Charles B. Rogers argued the cause for petitioners. With him on the briefs were *M. Annie Santos*, *Harvey M. Sheldon*, and *Nancy Q. Burke*.

Martin F. McDermott, Attorney, U.S. Department of Justice, argued the cause for respondent. With him on the brief were *Todd Kim*, Assistant Attorney General, and *Erik Swenson*, Attorney, U.S. Environmental Protection Agency.

Before: SRINIVASAN, *Chief Judge*, HENDERSON and PILLARD, *Circuit Judges*.

Opinion for the Court filed by *Circuit Judge* HENDERSON.

KAREN LECRAFT HENDERSON, *Circuit Judge*: Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §§ 9601–9675, the Environmental Protection Agency (EPA) maintains the National Priorities List (NPL), a list of hazardous waste sites that are high priorities for long-term federal remedial evaluation and response. *See id.* § 9605(a)(8)(B); 40 C.F.R. § 300.5. To determine whether to list a given site, the EPA primarily uses the Hazard Ranking System (HRS), a set of comprehensive scoring points for evaluating the potential damage from hazardous waste releases. *See* 40 C.F.R. pt. 300, App. A (HRS). If a release exceeds a certain threshold score, the EPA is authorized to include the site on the NPL, beginning a process that may include Superfund-financed remedial action. *Id.* § 300.425(c)(1).

After performing an HRS analysis of a site of groundwater contamination southwest of Minneapolis, Minnesota, the EPA determined that the HRS site score exceeded the required threshold for NPL listing. In its analysis, the EPA found observed releases of the same contaminants across a series of overlapping underground aquifers, the deepest of which is a drinking water aquifer used by residents in two cities. Two parts of the HRS analysis are particularly relevant to the petitioners' claims. First, because several possible sources of contamination existed, the EPA scored the site as a "ground water plume with no identified source," enabling the EPA to treat the plume, rather than a particular facility, as the source. HRS § 1.1. Second, the EPA concluded that adequate evidence of "aquifer interconnections" existed, allowing it to evaluate the aquifers as one unit. *See id.* §§ 3.0.1.2, 3.0.1.2.1. After considering and responding to comments on the HRS analysis, the EPA listed the site as the Highway 100 and County Road 3 Groundwater Plume (Site). National Priorities List, 85 Fed.

Reg. 54,931, 51,934 (Sept. 3, 2020) (Site Listing Rule), *reprinted in* Joint Appendix (J.A.) 1–6.

Petitioners Daikin Applied Americas Inc. and Super Radiator Coils LP, former owners of a metal fabricating facility that is a possible source of the contaminants, challenge the listing as arbitrary and capricious and unsupported by substantial evidence. The petitioners contend that the EPA arbitrarily ignored other possible sources of contamination in determining the site and that the EPA both ignored evidence disproving, and failed to provide adequate evidence of, aquifer interconnectivity. Because the EPA was not required to attribute the contamination to a specific source and adequately supported aquifer interconnectivity, we reject the petitioners' claims and deny the petition for review. They also move to supplement the record with evidence the EPA allegedly failed to consider, which motion we deny.

I. BACKGROUND

A. STATUTORY AND REGULATORY BACKGROUND

1. CERCLA and the National Priorities List

Enacted by the Congress to address the "growing problem of inactive hazardous waste sites throughout the United States," *Eagle-Picher Indus., Inc. v. EPA (Eagle-Picher II)*, 759 F.2d 922, 925 (D.C. Cir. 1985), CERCLA authorizes the EPA "to establish and revise annually a National Priorities List of known hazardous waste sites considered high priorities for environmental remediation," *Genuine Parts Co. v. EPA*, 890 F.3d 304, 308 (D.C. Cir. 2018) (citing 42 U.S.C. § 9605(a)(8)(A)). Once a site is listed on the NPL, the EPA

may use Superfund[1] moneys to fund remedial[2] actions. 40 C.F.R. § 300.425(b)(1).

"The EPA's listing a site on the NPL, however, does not necessarily mean it will order remedial action at that site; rather, it guarantees only more detailed study." *Carus Chem. Co. v. EPA*, 395 F.3d 434, 437 (D.C. Cir. 2005) (internal citations omitted). Listing can "have significant adverse consequences for the owner of a listed property," *id.* (consequences may include damage to business reputation or

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[1] CERCLA is "also known as the Superfund statute," *Atl. Richfield Co. v. Christian*, 140 S. Ct. 1335, 1345 (2020), because "it establishes a fund, the 'Superfund', to finance EPA remedial action on contaminated sites," *Apache Powder Co. v. United States*, 968 F.2d 66, 68 (D.C. Cir. 1992) (citing 42 U.S.C. § 9611). Initially financed through excise taxes on the chemical and petroleum industries, the Superfund is now financed by, *inter alia*, transfers from the U.S. Treasury's General Fund and cost recovery actions against potentially responsible parties. Anthony A. Cilluffo and David M. Bearden, Cong. Rsch. Serv., IF11982, *Superfund Tax Legislation in the 117th Congress* 1 (Nov. 29, 2021). Because inclusion on the NPL establishes eligibility for Superfund-financed remedial action, 40 C.F.R. § 300.425(b)(1), NPL sites are "commonly known as Superfund sites." *Atl. Richfield*, 140 S. Ct. at 1346.

[2] CERCLA provides for removal actions and remedial actions. *See* 42 U.S.C. §§ 9601(23), 9601(24). Removal actions are generally interim measures involving the "cleanup or removal of released hazardous substances from the environment." *See id.* § 9601(23). "Remedial action" is a "permanent remedy" and is employed "in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment." *Id.* § 9601(24).

lower property values), and it can take decades for a site to be removed from the NPL. Indeed, it has been almost forty years since the EPA first listed the Reilly Tar & Chemical Site (Reilly Tar Site), an NPL site largely northwest of the plume at issue. *See* Amendment to National Oil and Hazardous Substance Contingency Plan; National Priorities List, 48 Fed. Reg. 40,658, 40,670 (Sept. 8, 1983). In essence, "the NPL is simply the first step in a process—nothing more, nothing less." *Eagle-Picher II*, 759 F.2d at 932. Listing serves as "a tool for identifying quickly and inexpensively those sites meriting closer environmental scrutiny," *Wash. State Dep't of Transp. v. EPA*, 917 F.2d 1309, 1310 (D.C. Cir. 1990), and "does not determine any party's liability for the cost of cleanup at the site," *Kent County v. EPA*, 963 F.2d 391, 394 (D.C. Cir. 1992).

2. The Hazard Ranking System

CERCLA required the EPA to develop "criteria for determining priorities among releases or threatened releases [of hazardous substances] throughout the United States for the purpose of taking remedial action." 42 U.S.C. § 9605(a)(8)(A). Pursuant to that mandate, the EPA promulgated the HRS regulation to screen the sites that make the NPL. *See* 40 C.F.R. § 300.425(c)(1); *see also* HRS § 1.0 ("The [HRS] is the principal mechanism the [EPA] uses to place sites on the [NPL]."). The HRS lays out a "comprehensive methodology and mathematical model" that "quantif[ies] the environmental risks a site poses." *Carus Chem.*, 395 F.3d at 437 (quoting in second quotation *Tex Tin Corp. v. EPA*, 992 F.2d 353, 353 (D.C. Cir. 1993)).

Because the HRS scoring procedures are central to the petitioners' claims, it is necessary to march through important

aspects of the HRS analysis regarding a groundwater[3] contamination site. The first is the relevance of classifying the site as a groundwater plume with no identified source.

a. Observed Release, Site and Source

According to the HRS, a "[s]ite" is an "[a]rea[] where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources and may include the area between sources." HRS § 1.1. The scope of the site may expand or contract after listing if additional study reveals more (or less) expansive contamination, *see Wash. State Dep't of Transp.*, 917 F.2d at 1310 n.1, and as the EPA explained in the listing at issue, "[t]he NPL does not describe releases in precise geographical terms. . . . Indeed, the precise nature and extent of the site are typically not known at the time of listing." Site Listing Rule, 85 Fed. Reg. at 54,932.

For each site, the HRS allows the EPA to assess a site's "relative degree of risk to human health and the environment," 42 U.S.C. § 9605(c)(1), by examining possible migration pathways of hazardous substances, *see* HRS § 2.1 (listing air, soil, surface water and groundwater as pathways). The EPA calculates a numerical score for each potentially affected pathway based on three factors: the (1) "likelihood of release," meaning the risk that a hazardous substance "has been or will be released," *id.* § 2.3; (2) "waste characteristics," including

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[3] "'Ground water' and 'groundwater' are synonymous; the spelling is . . . due to 'ground water' being codified as part of the HRS, while 'groundwater' is the modern spelling." HRS Revised Documentation Record, Highway 100 and County Road 3 Groundwater Plume, at 1 n.1 (Sept. 2020) (Revised Documentation Record), *reprinted in* J.A. 296–356.

the substance's mobility and toxicity, *id.* § 2.4; and (3) "targets" (*e.g.*, humans or environments) of the contamination associated with that pathway, *id.* § 2.5. Based on the evidence for each pathway, the EPA then "plug[s] the resulting individual pathway scores into a formula to obtain the site score." *US Magnesium, LLC v. EPA*, 630 F.3d 188, 189–90 (D.C. Cir. 2011). The site score ranges from 0 to 100, HRS § 2.1.1, and a site is eligible for NPL listing if the score is over 28.50, National Priorities List, Final Rule No. 53, 77 Fed. Reg. 15,276, 15,278 (Mar. 15, 2012).

When analyzing a groundwater pathway, the EPA assesses various factors for each aquifer. *See* HRS § 3.0 (Table 3-1). The likelihood of release factor for an individual aquifer[4] "is assigned the maximum value . . . whenever the criteria for an *observed release* are met." *Id.* § 2.3 (emphasis added). The EPA assigns an observed release to an aquifer "by demonstrating that the site has released a hazardous substance to the aquifer," based on either "[d]irect observation" or "[c]hemical analysis." *Id.* § 3.1.1. The EPA shows an observed release through chemical analysis by comparing groundwater samples. If a sample has a hazardous substance concentration that is "significantly above" that of a background sample, the EPA has established an observed release. *See id.*

Similar to a "site," a "[s]ource" is "[a]ny area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance." *Id.* § 1.1. With one exception, a source does not "include those volumes

[4] An aquifer is a layer "of rock or sediment that is saturated and sufficiently permeable to yield economically significant quantities of water to wells or springs." EPA, *HRS Guidance Manual* 116 (1992) (*HRS Manual*), *reprinted in* J.A. 546–92.

of . . . ground water . . . that have become contaminated by migration." *Id.* The exception is crucial to this case: "In the case of . . . a ground water plume with no identified source . . . , the plume . . . may be considered a source." *Id.* According to longstanding EPA guidance, "a contaminated ground water plume can only be evaluated as a source for HRS scoring purposes when the original source of hazardous substances contributing to the plume cannot be reasonably identified." EPA, Publication 9320.8-01FS, *Evaluating Ground Water Plumes Under the Hazard Ranking System* 1 (1998).

Connecting a "source" to an observed release that was established using chemical analysis, the EPA typically must show attribution—that the "significant increase" of contaminants comes from the site—to establish an observed release through chemical analysis. HRS § 3.1.1. But "when the source itself consists of a ground water plume with no identified source, no separate attribution is required." *Id.* Accordingly, if the EPA cannot reasonably identify an original source of contamination, the observed releases—not a specific source or boundaries—define the site.

b. Aquifer Interconnections

The second relevant aspect of the HRS analysis is aquifer interconnections. *Id.* § 3.0.1.2.1. An individual aquifer is ordinarily scored by treating it as separate from surrounding aquifers. *See id.* The EPA may, however, "[c]ombine multiple aquifers into a single hydrologic unit for scoring purposes if aquifer interconnections can be established for these aquifers." *Id.* § 3.0.1.2. To assess interconnection, the HRS directs as follows:

> Evaluate whether aquifer interconnections occur within 2 miles of the sources at the site. If they occur within this 2-mile distance, combine

> the aquifers having interconnections in scoring the site. In addition, if observed ground water contamination attributable to the sources at the site extends beyond 2 miles from the sources, use any locations within the limits of this observed ground water contamination in evaluating aquifer interconnections.

Id. § 3.0.1.2.1. The EPA's guidance manual for HRS scoring provides examples of evidence that usually establish interconnectivity. *See generally* EPA, *HRS Guidance Manual* (1992) (*HRS Manual*), *reprinted in* J.A. 546–92. Relevant examples include: well logs[5] showing there is "no continuous, significantly lower hydraulic conductivity layer" separating the aquifers; pump tests showing that withdrawing water from one aquifer affects water levels in another; and observed contamination across an aquifer boundary separating the aquifers within the two-mile radius. *Id.* at 127. Importantly, for the last example, "the mechanism of vertical migration does not have to be defined, and the [contaminants] do not have to be attributable to the site being evaluated." Hazard Ranking System, 55 Fed. Reg. 51,532, 51,553 (Dec. 14, 1990).

After the EPA has adequate evidence of aquifer interconnections, it then must consider whether there are aquifer discontinuities. "An aquifer discontinuity occurs for scoring purposes only when a geologic, topographic, or other structure or feature entirely transects an aquifer within the

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[5] A well log is a "record of geologic materials with depth based on data obtained beneath a point on the land surface and representative of types, depths, and thicknesses of materials beneath that point. The data may represent visual observations, physical/chemical characterizations, and/or geophysical properties." *HRS Manual*, *supra*, at 117.

4-mile *target distance limit*, thereby creating a continuous boundary to ground water flow within this limit." HRS § 3.0.1.2.2 (emphasis added). A boundary preventing the migration of groundwater is also known as an "aquitard" or "confining layer." And the "target distance limit" for a groundwater plume with no identified source is measured from the center of the plume. *Id.* § 3.0.1.1. The HRS directs, however, that "if hazardous substances have migrated across an apparent discontinuity within the 4-mile target distance limit, do not consider this to be a discontinuity in scoring the site." *Id.* § 3.0.1.2.2.

In sum, "[a]quifer interconnections cannot be assumed, but must be supported by evidence." *HRS Manual*, *supra*, at 135. And if the EPA shows observed releases of hazardous substances on both sides of an apparent aquifer boundary, sufficient evidence for aquifer interconnection exists notwithstanding the boundary is an "apparent discontinuity," HRS § 3.0.1.2.2, or the lack of an established migration mechanism between the aquifers, Hazard Ranking System, 55 Fed. Reg. at 51,553.

B. FACTUAL AND PROCEDURAL BACKGROUND

1. History of the Site

The Site covers two Minnesota cities, St. Louis Park and Edina, both cities with a history of groundwater contamination. In 1983, the EPA added the previously mentioned Reilly Tar Site in St. Louis Park to the NPL because it was a documented source of a hazardous chemical, namely, polynuclear aromatic hydrocarbon (PAH). J.A. 94. Through well samples, the Minnesota Department of Health later detected other hazardous chemicals, chlorinated volatile organic compounds (CVOCs), in Edina's groundwater as early as 1993 and St. Louis Park's groundwater as early as 1994. *See* HRS Revised

Documentation Record, Highway 100 and County Road 3 Groundwater Plume, at 13–14 (Sept. 2020) (Revised Documentation Record), *reprinted in* J.A. 296–356. The relevant CVOCs are 1,1-dichloroethene (DCE); cis-1,2-DCE; trans-1,2-DCE; trichloroethene (TCE); and vinyl chloride—all of which are breakdown products of tetrachloroethene (PCE), a chemical used in certain industrial and cleaning processes. Revised Documentation Record at 14, 33. The Minnesota Pollution Control Agency (MPCA) became involved in 2004 when Edina requested assistance to determine the source of CVOCs in one of its municipal drinking water wells, E7. *Id*. As the investigation expanded farther north, CVOCs were detected in four aquifers: the Quaternary Drift Aquifer (Drift Aquifer), which is generally 0 to 90 feet below ground surface (bgs); the Platteville-Glenwood Aquifer, which is generally 90 to 122 feet bgs; the St. Peter Aquifer, which is generally 135 to 290 feet bgs; and the Prairie du Chien-Jordan Aquifer, which is generally 290 to 417 feet bgs. Revised Documentation Record at 15; *see also* J.A. 361 (cross-section and geological descriptions), 368–69 (cross-sectional maps).

In 2007, the MPCA sought the EPA's assistance in testing soil in the area for CVOCs. Revised Documentation Record at 15. In 2016, the MPCA prepared a preliminary assessment of the Site. *Id.* Subsequently, under a cooperation agreement with the EPA, the MPCA conducted a site inspection, which included extensive data from groundwater samples collected from monitoring and municipal wells intersecting the four aquifers at varying depths. *Id.* at 15, 18. The data showed CVOC contamination in all of the aquifers. *Id.* at 15. The inspection focused on evaluating contamination of the Prairie du Chien-Jordan Aquifer because Edina and St. Louis Park

municipal drinking water wells draw from that aquifer.[6] *Id.* at 16.

The site inspection recommended further investigation to establish whether a contaminant pathway interconnected the aquifers. *Id.* at 18. Accordingly, the MPCA conducted an Expanded Site Inspection Report (ESI), which included a hydrogeologic investigation. *Id.*; *see generally* J.A. 357–97 (relevant portions of the ESI). The ESI concluded that the four aquifers were "laterally continuous and . . . hydraulically interconnected between St. Louis Park and Edina" based on "aquifer pump tests that showed drawdown in the test wells, and analytical results that document[ed] the migration of [CVOCs] from the Quaternary Drift, Platteville-Glenwood, St. Peter, and Prairie du Chien-Jordan aquifers." Revised Documentation Record at 18.

2. NPL Listing

Following the ESI, the EPA issued a proposed rule listing the Site as a groundwater plume contaminating multiple aquifers. *See* National Priorities List, 84 Fed. Reg. 60,357, 60,358 (Nov. 8, 2019), *reprinted in* J.A. 7–13. To explain its HRS analysis, the EPA provided a lengthy HRS Documentation Record, in which the EPA defined the groundwater plume "by documented observed releases [of CVOCs] in groundwater monitoring and municipal water wells in Edina and St. Louis Park." Revised Documentation Record

[6] Due to treatment systems set up by city and state authorities after discovering the CVOCs, "drinking water provided by both the cities of Edina and St. Louis Park currently [is] in compliance with . . . the Safe Drinking Water Act." Narrative Summary, Highway 100 and County Road 3 Groundwater Plume (Nov. 2019), *reprinted in* J.A. 14.

at 13. The wells with observed releases thus defined the amorphous boundaries of the plume.[7] The EPA explained that the observed releases "cannot reasonably be attributed to one or more specific sources" because of "the comingled [sic.] nature of the releases" from multiple sources, "including dry cleaners, print shops, metals fabricators, . . . heat treating operations, [and] other commercial and industrial facilities." *Id.* at 19. The EPA then scored the Site as a "groundwater plume with no identified source." *Id.* at 20.

The EPA evaluated the Site using the standard three factors. *See id.* at 3 (likelihood of release, waste characteristics and targets). For the likelihood of release factor, the EPA relied on groundwater samples from release and background wells in all four aquifers to establish observed releases of CVOCs through chemical analysis. *See id.* at 33–54. The EPA then concluded that the aquifers were interconnected based on (1) pump tests of wells showing "no significant difference in hydraulic conductivity" across all aquifers, (2) well log data from "municipal wells indicat[ing] the same stratigraphic units" and (3) "groundwater contamination . . . in St. Louis Park and Edina municipal wells, as well as monitoring wells that withdraw water from" all the aquifers. *Id.* at 55. Given the interconnectivity and observed, not potential, releases, the likelihood of release factor for the interconnected aquifers received the maximum score. *See id.* After calculating the scores for waste characteristics and targets, the EPA calculated a site score of 50, *id.* at 2–3, well above the 28.5 threshold for NPL designation.

The petitioners submitted extensive comments on the HRS analysis, primarily challenging aquifer interconnectivity. *See*

[7] For a map of the relevant wells, see attached Appendix A, which can be found at Revised Documentation Record at 6.

generally J.A. 17–295. First, they took particular issue with the EPA's purported use of a "natural migration pathway" between the Drift Aquifer and the Prairie du Chien-Jordan Aquifer. J.A. 24. Drawing on the placement of the wells used to define the plume, they argued that the EPA's asserted pathway was scientifically impossible because it required assuming that CVOCs migrated upgradient—against the general, east-southeast flow of the groundwater. J.A. 266–67. Next, they contended that the EPA omitted evidence of a confining layer, the St. Peter confining layer, that would prevent permeation to the Prairie du Chien-Jordan Aquifer. J.A. 266–67, 269. In a final interconnectivity challenge, they argued that the pump tests were inadequate because they covered only the Prairie du Chien-Jordan Aquifer. J.A. 268–69.[8]

The EPA responded at length to the petitioners' comments. *See* Support Document for the Revised National Priorities List Final Rule, Highway 100 and County Road 3 Groundwater Plume (Sept. 2020) (Support Document), *reprinted in* J.A. 398–545. Acknowledging the interconnectivity challenges and standing by its interconnectivity findings, the EPA "identified

[8] The petitioners also made two other challenges of note. Again assuming that the EPA had to show attribution through a "plausible migration pathway," J.A. 266, and maintaining that the EPA had identified a "source area," J.A. 265, they asserted that the EPA erred by ignoring possible migration pathways and sources of the CVOCs in the Prairie du Chien-Jordan Aquifer, including the Reilly Tar Site and multi-aquifer wells, J.A. 270, 275. As the name suggests, multi-aquifer wells are wells that go deep enough to intersect multiple aquifers, thus providing possible paths for contaminants to migrate between aquifers. *See* Support Document for the Revised National Priorities List Final Rule, Highway 100 and County Road 3 Groundwater Plume, at 52 (Sept. 2020) (Support Document). In addition, they argued that the EPA improperly excluded certain documents from the administrative record. J.A. 279–80.

multiple lines of evidence documenting aquifer interconnections." *Id.* at 48. Responding to the natural migration pathway argument, the EPA noted that "the mechanism of vertical migration does not have to be defined" because it had documented observed releases in both the shallower aquifers and the Prairie du Chien-Jordan Aquifer. *Id.* at 48, 50. It explained that it did "not identify specific migration paths through the aquifer layers as [the petitioners] suggest[;] rather, . . . the EPA evaluated each aquifer layer and all plausible mechanisms and evidence (natural migration in some aquifers, joints, fractures, solution channels, multi-aquifer wells, and observed contamination migration) to determine that the aquifers are interconnected for HRS purposes." *Id.* at 50.

Next, the EPA noted that, although it had inadvertently excluded a portion of a confining layer from one of the figures demonstrating interconnectivity, there were no continuously present confining layers because the St. Peter confining layer "is locally absent due to erosion." *Id.* at 45. It also noted that the St. Peter confining layer is "[a]bsent in well HS-1 about 1.55 miles east of municipal well SLP4." *Id.* at 46. Accordingly, the EPA asserted there were no aquifer discontinuities at the site. *Id.* at 49. It responded to the pump test challenge by disclaiming reliance on the pump test data to show interconnectivity. *Id.* at 51.

In response to the petitioners' arguments involving allegedly ignored possible sources, the EPA iterated that consistent with the classification of the Site as a groundwater plume with no identified source, it need not and did not "attribute the release to a specific source or sources." *Id.* at 83. It then affirmed its definition of the Site as consistent with the HRS procedures, which permit the plume to be defined by observed releases from wells. *Id.* at 88. It emphasized that

> [t]he HRS is a screening model that uses limited resources to determine whether a site should be placed on the NPL for possible Superfund response. As necessary, additional investigations to determine definitive sources at a particular site are performed at the [Remedial Investigation/Feasibility Study] stage of the Superfund process at which time site conditions and hazards are characterized more comprehensively.

Id. at 87. The EPA also iterated that "the fact that [it] initially identifies and lists the [site] based on a review of contamination at a certain location—in this case a contaminated groundwater plume with no identified source—does not necessarily mean that the site boundaries are limited to that location." *Id.* at 11. In response to the petitioners' contention that it had ignored multi-aquifer wells as a contributor to contaminant migration, the EPA pointed out that multi-aquifer wells do "influence . . . contaminant migration" and therefore "[t]he presence of multi-aquifer wells at this Site only provides additional documentation of hydrological interconnections between the aquifer layers at the Site." *Id.* at 52.

Replying to the petitioners' claim that it had improperly excluded from the administrative record adverse evidence provided by them, the EPA acknowledged that it "must include all pertinent information in the administrative record, both favorable and unfavorable to [its] final decision." *Id.* at 14. It then stated it had "included all the relevant information it considered to support the HRS score in this case and all such information has been placed in the listing docket that makes up the administrative record." *Id.* It also noted that the petitioners "ha[d] not explained how the submitted documents impact the HRS score." *Id.*

The EPA issued the final rule adding the Site to the NPL on September 3, 2020. Site Listing Rule, 85 Fed. Reg. at 54,933. The petitioners filed a timely petition for review. On May 4, 2021, they filed a Motion for the Court to Review and Consider Extra-Record Evidence.

Under CERCLA, we have jurisdiction to review the petition. *See* 42 U.S.C. § 9613(a).

II. ANALYSIS

Echoing their comments to the agency, the petitioners mount two challenges to the NPL listing. We begin with their claim that the EPA arbitrarily and capriciously defined the site by ignoring possible sources of contamination. We then address their substantial-evidence and arbitrary-and-capricious aquifer interconnectivity challenges. Because the EPA properly followed the HRS scoring procedures, supported its conclusions with substantial evidence and adequately addressed the petitioners' comments, we conclude that their claims are without merit. Finally, we deny their motion to supplement the record with extra-record evidence.

A. STANDARD OF REVIEW

We review the EPA's NPL listing decisions under the Administrative Procedure Act's (APA) arbitrary and capricious and substantial evidence standards. *See Genuine Parts*, 890 F.3d at 311 (citations omitted). Given "the 'highly technical issues involved' [in an NPL listing] and because the NPL serves merely as a 'rough list of priorities, assembled quickly and inexpensively,'" we afford the EPA "significant deference" in NPL listing decisions. *Carus Chem.*, 395 F.3d at 441 (quoting *Bradley Mining Co. v. EPA*, 972 F.2d 1356, 1359 (D.C. Cir. 1992)).

If an agency has "entirely failed to consider an important aspect of the problem [or] offered an explanation for its decision that runs counter to the evidence before the agency," *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983), we will vacate its decision as arbitrary and capricious. We will, however, "uphold a decision of less than ideal clarity if the agency's path may reasonably be discerned." *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 286 (1974). Substantial evidence review requires that we "consider the whole record upon which an agency's factual findings are based," *Genuine Parts*, 890 F.3d at 312, to determine if the agency "ignore[d] evidence contradicting its position," *Butte County v. Hogen*, 613 F.3d 190, 194 (D.C. Cir. 2010), or "minimize[d] such evidence without adequate explanation," *Genuine Parts*, 890 F.3d at 312 (citation omitted). "[I]n their application to the requirement of factual support[,] the substantial evidence test and the arbitrary or capricious test are one and the same." *Butte County*, 613 F.3d at 194 (citation omitted).

B. SITE DEFINITION CHALLENGES

We first address the petitioners' claim that the "EPA arbitrarily included the Drift Aquifer Area in the Site definition while ignoring relevant evidence of other known areas of contamination." Pet'rs Br. 59. As a preliminary matter, the petitioners coin the term "Drift Aquifer Area" and employ it to refer to a triangular area surrounding the three release wells in the Drift Aquifer.[9] *See id.* at 6–8. They contend that the EPA

[9] For a depiction of the general area of the petitioners' Drift Aquifer Area, see Appendix B, which is available at Petitioners Brief 8. This map also includes the layout of the release wells but

did not "holistically evaluate[]" the Site and should "eliminate the arbitrarily exclusive Drift Aquifer Area from the Site definition." *Id.* at 12. The Site definition is arbitrarily exclusive, they argue, because even after determining the aquifers were interconnected, the EPA "failed to include additional, contaminated Drift [Aquifer] wells or locations in the Site definition." *Id.* at 60. They point out that their comments directed the EPA toward a number of possible sources of the contaminants—including the Reilly Tar Site, other industrial facilities and multi-aquifer wells—but that the EPA nevertheless arbitrarily excluded these other contaminated areas from the Drift Aquifer Area. *See id.* at 59–63.

The petitioners are mistaken for three reasons. First, and most fundamentally, the EPA did not arbitrarily exclude any sources because it properly defined the Site as a groundwater plume with no identified source. *See* Revised Documentation Record at 20; *see also* HRS §§ 1.1, 3.1.1. Pursuant to the HRS procedures, *see supra*, at 6–8, the EPA defined the site by using chemical analysis to show that observed releases had occurred across the four aquifers. Revised Documentation Record at 33–53. Then, after considering "several likely sources and/or potential contributors," the EPA reasonably determined that because of the "comingled [sic.] nature of the releases" likely resulting from one or more sources, it could not attribute the observed releases to a specific source.[10] *Id.* at 19; *see also id.* at 54–55; Support Document at 26, 84.

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was created for this litigation and may not depict precise boundaries of the groundwater plume.

[10] As the petitioners note, the *HRS Manual* states that "efforts should be undertaken to identify the original source(s) of contamination" prior to scoring a site as a groundwater plume

Second, to define a site under the HRS procedures, the EPA need not "evaluate all known releases," Pet'rs Br. 12, or "include additional, contaminated Drift [Aquifer] wells," *id.* at 60. The petitioners point to no HRS requirement that the EPA must sample every well with a potential release. Such a requirement would be inconsistent with the "narrowly focused" purpose of the NPL and the HRS: "identify[ing], quickly and inexpensively, sites that may warrant further action under CERCLA." *Eagle-Picher Indus., Inc. v. EPA (Eagle-Picher I)*, 759 F.2d 905, 911 (D.C. Cir. 1985). Listing does not set the Site boundaries in stone. As more information becomes available in the remedial investigation/feasibility study stage, the EPA may expand (or contract) the Site. *See* Revised Documentation Record at 1; *Wash. State Dep't of Transp.*, 917 F.2d at 1310 n.1.

Third, the EPA did not arbitrarily ignore the petitioners' comments on other plausible sources of contamination, including the Reilly Tar Site and multi-aquifer wells.[11] Indeed, the EPA acknowledged their comments regarding the possibility that other sources may contribute to contamination,

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without an identifiable source. *HRS Manual*, *supra*, at 46. But those efforts need only be "equivalent to those of an expanded [site inspection]." *Id.* The EPA met that standard by relying on the MPCA's Expanded Site Inspection Report, which documented the latter's efforts to identify a single source of the groundwater contamination. *See* Revised Documentation Record at 13–14.

[11] The petitioners assert that other possible sources are: a previous Schloff Chemical release of PCE, a former Flame Metals facility, a former Control Data Corporation site, a Lindberg Heat Treating Facility, a former Reynolds Welding site, Pet'rs Br. 60–62; *see also* J.A. 274–76, and "the area near the intersection of Highway 7 and Louisiana Avenue," Pet'rs Br. 42 (quoting J.A. 387). *See also id.* at 66 (map of petitioners' asserted possible sources).

Support Document at 27, 31–33, and noted that "additional characterization is necessary to delineate the plume and attribute the release to a facility," *id.* at 31. "Moreover," the EPA explained, CVOC contamination associated with other facilities like the Reilly Tar Site "supports the evaluation of the site as a contaminated groundwater plume without an identified source because the significant increase in the plume could not be attributed to a *specific* source." *Id.* (emphasis added). The EPA also acknowledged and even agreed that contamination can migrate through multi-aquifer wells.[12] *Id.* at 51–52.

C. INTERCONNECTIVITY CHALLENGES

Largely renewing arguments included in their comments, the petitioners argue that the aquifer interconnections in the HRS analysis were not supported by substantial evidence and that the EPA acted arbitrarily and capriciously by concluding that the aquifers were interconnected. Pet'rs Br. 17–48. Their arguments founder because the EPA properly established

[12] To support their multi-aquifer-well pathway argument, the petitioners point to radioisotope studies showing "that the groundwater in the contaminated portion of the Prairie du Chien-Jordan Aquifer is 'newer' than the contaminated groundwater in the St. Peter Aquifer above it," Pet'rs Br. 46, and to evidence that the St. Peter Aquifer is "cleane[r]" than the Prairie du Chien-Jordan Aquifer, *id.* at 43–44. They claim that these data suggest a contaminated groundwater is migrating not through descending aquifers but through multi-aquifer wells. *Id.* at 44, 46–47. But the EPA reasonably established interconnectivity without relying on any specific migration mechanism. *See* Hazard Ranking System, 55 Fed. Reg. at 51,553. Moreover, the EPA recognizes that multi-aquifer wells may be contributing to contaminant migration, *see* Revised Documentation Record at 14, 31; Support Document at 52, and that subsequent investigations may reveal more information regarding specific contaminant sources, *see* Support Document at 41.

aquifer interconnectivity by showing observed contaminant migration through observed releases in each of the aquifers. *See* Support Document at 48; *HRS Manual*, *supra*, at 127.

As already described, the HRS regulations and accompanying guidance provide the structure for establishing aquifer interconnections. *See supra*, at 8–10. And one method to establish interconnectivity is by observed contamination across aquifers. *See* Hazard Ranking System, 55 Fed. Reg. at 51,553; *HRS Manual*, *supra*, at 127, 131. Here, the EPA provided copious documentation of observed releases across all four aquifers through chemical analysis. *See* Revised Documentation Record at 33–53. Relying on the HRS procedures and the observed releases within two miles of the Site, the EPA reasonably concluded that "contamination has migrated through the aquifer layers into the Prairie du Chien [A]quifer." Support Document at 48. The EPA then considered whether there were any qualifying aquifer discontinuities and concluded that although confining layers existed in portions of the Platteville-Glenwood formation and the St. Peter formation, these layers were "documented to either not be present at locations in the [target distance limit] or *are documented to allow contamination to migrate through*" the formations. *Id.* at 49 (emphasis added). Because the "apparent discontinuit[ies]" allowed hazardous substances to migrate, the EPA properly found that there were no qualifying discontinuities, HRS § 3.0.1.2.2, and reasonably concluded that the aquifers were interconnected based on observed contamination, *see id.* § 3.0.1.2.1.

Challenging the EPA's use of the observed-contamination method of proving interconnectivity, the petitioners argue that the EPA did not adequately establish observed releases. Pet'rs Br. 35–39. In particular, they contend that the EPA's chemical analysis was flawed. *Id.* at 35–36. Recall that showing an

observed release by chemical analysis requires comparing a sample from a background well to a sample from a release well and determining whether the concentration in the release well is "significantly above the background concentration." *See* HRS § 3.1.1. The petitioners first argue that the EPA improperly listed five Prairie du Chien-Jordan wells as "release wells" because they failed to exceed the requisite threshold of one contaminant, TCE, to qualify as an observed release relative to the background concentration. Pet'rs Br. 36. They then briefly argue that EPA "cherry-picked" well data and background wells, specifically asserting that the EPA should have picked more wells farther north and west to better capture its theory of contamination migration. *Id.* at 38.

None of these arguments is persuasive. First, the EPA did not improperly list five wells as "release wells." The petitioners misread the chart listing the wells and the hazardous substances exceeding the release threshold. *See* Revised Documentation Record at 39. The EPA lists six wells that qualified as "release wells" based on releases of different hazardous substances but, as the petitioners point out, only one exceeded the threshold limit for TCE. *See id.* The EPA accordingly did not include TCE in the list of qualifying releases for all six release wells and instead listed five of the wells as release wells for other CVOCs detected in the aquifers. *Id.* Second, the EPA did not arbitrarily select well data. "The HRS does not identify requirements or define conditions for establishing background levels," nor for selecting background wells. Support Document at 62. Here, the EPA provided adequate evidence of observed releases across numerous wells and over four years, *see* Revised Documentation Record at 33–53, and sufficiently responded to comments about the selection of well data, *see* Support Document at 11–12, 66–68. In any listing decision, the EPA balances "the need for certainty before action with the need for inexpensive, expeditious procedures to identify

potentially hazardous sites." *Eagle-Picher I*, 759 F.2d at 921. Its reliance on previously compiled well data that comprehensively demonstrated observed releases was anything but arbitrary and capricious.

The petitioners next challenge the EPA's purported "natural migration pathway" theory of interconnectivity.[13] Pet'rs Br. 17, 43. They first argue that the EPA's conclusion on the lack of continuous confining layers was not supported by substantial evidence. *Id.* at 18–32. In particular, they point to errors in one figure that the EPA used to illustrate that the St. Peter confining layer was not continuous. *See id.* at 23. In this figure, the EPA allegedly inaccurately depicted the continuity of the St. Peter confining layer at certain wells. *See id.* The petitioners reproduced maps and geological figures from the U.S. Geological Survey (USGS) to show the presence of the same confining layer. *Id.* at 26–27. Although one of the figures shows that the confining layer is absent east of the Site—as shown in well log data for well HS-1, *see* Support Document at 45—they contend that absence is "almost two miles outside of EPA's alleged plume area" and that "interconnectedness at HS-1 has no bearing on [the] EPA's allegation that a 'plume' is migrating from the Drift Aquifer Area to the Prairie du Chien-Jordan Aquifer." Pet'rs Br. 40.

For its part, the EPA indeed maintained that the St. Peter confining layer is "locally absent due to erosion," relying on the same USGS study. *See* Revised Documentation Record at 27. It also noted that well HS-1 is located about 1.55 miles east of municipal well SLP4, an observed-release well. *Id.* Citing

[13] The petitioners also challenge the use of pump test data to establish interconnectivity. Pet'rs Br. 33–34. That challenge is meritless because the EPA disclaimed reliance on the pump tests to establish interconnectivity. *See* Support Document at 51.

the HRS regulation that identifies "well logs indicating that a . . . confining layer separating the aquifers is not continuous through the two-mile radius" as one "of the types of information useful in identifying aquifer interconnections," Hazard Ranking System, 55 Fed. Reg. at 51,553, the EPA concluded that in addition to the observed-contamination method of proving interconnectivity, the lack of a continuous confining layer also supported interconnectivity. Support Document at 48.

We need not resolve this conflict because the petitioners' migration-pathway argument is not responsive to the observed-release method of establishing interconnectivity. *See* Hazard Ranking System, 55 Fed. Reg. at 51,553 ("For [the observed-contamination method], the mechanism of vertical migration does not have to be defined."); *accord Genuine Parts*, 890 F.3d at 316 (noting irrelevance of groundwater flow to HRS analysis when assessing targets). Further, the EPA correctly noted that "at this stage of the listing, groundwater modeling, 3D or otherwise, to predict migration pathways [is] not required as part of an HRS evaluation." Revised Documentation Record at 40. Accordingly, even if they are correct about the continuity of the St. Peter confining layer, the EPA's error was harmless because it established interconnectivity via observed releases across the aquifers and did not rely on a specific migration pathway. *See Jicarilla Apache Nation v. U.S. Dep't of Interior*, 613 F.3d 1112, 1121 (D.C. Cir. 2010) (harmless error applies to agency action because "if the agency's mistake did not affect the outcome, if it did not prejudice the petitioner, it would be senseless to vacate and remand for reconsideration." (alteration omitted) (quoting *PDK Laby's., Inc. v. DEA*, 362 F.3d 786, 799 (D.C. Cir. 2004)).[14]

[14] *Tex Tin* and *Genuine Parts* do not help the petitioners. Pet'rs Br. 30–31 (citing *Genuine Parts*, 890 F.3d at 307, 310–11, 315), 48

D. EXTRA-RECORD EVIDENCE

The petitioners ask us to review and consider extra-record evidence and to supplement the administrative record with numerous documents, including a (1) post-final rule declaration by Melinda Hahn (Hahn Declaration), J.A. 593–

(citing *Tex Tin*, 992 F.2d at 356). In *Tex Tin*, we vacated the NPL listing of a tin manufacturing facility because the EPA had failed to comply with our remand directing the agency to explain how a tin-production byproduct deposited arsenic in soil adjacent to the facility. 992 F.2d at 356. We concluded that the agency's explanation was arbitrary because the facility's smokestack, which annually emitted large quantities of arsenic, was a more likely source of the arsenic in the soil "in the absence of any chemical analysis linking the arsenic found in the soil to the tin [byproduct]." *Id.* The petitioners argue that here the EPA failed to explain its "natural migration pathway[]" and arbitrarily ignored more likely pathways of contaminants into the Prairie du Chien-Jordan Aquifer. Pet'rs Br. 48. But *Tex Tin* is inapposite because here the EPA established a chemical connection between numerous potential sources and the contaminants defining the observed releases. *See* Revised Documentation Record at 54. More broadly, the petitioners' argument again incorrectly assumes the EPA attributed the release to a specific source or pathway. *See* Support Document at 85.

The petitioners assert that, as in *Genuine Parts*, the EPA was arbitrary and capricious in failing to consider credible evidence of a confining layer. *See* 890 F.3d at 315. *Genuine Parts*, however, is distinguishable as there the EPA did not rely on evidence of observed contamination in the deeper aquifer to establish interconnection. *Id.* at 309. Rather than showing interconnectivity through observed releases, the EPA relied on a migration-pathway theory. *See id.* at 309–10. Accordingly, the EPA had to show that a confining layer was not continuous within two miles of the site, *see id.* at 313, and could not disregard an apparent discontinuity, *see* HRS § 3.0.1.2.2. Not so here.

626; (2) sources that the petitioners relied on at the agency level and that the EPA allegedly ignored, *see* J.A. 641–45 (listing sources); and (3) two documents that existed before the Site's NPL listing: the Record of Decision for the Reilly Tar Superfund Site, J.A. 646–676, and a 2009 groundwater study by AECOM, a firm retained by the MPCA, J.A. 677–95. We deny the motion.

"[W]e do not allow parties to supplement the record 'unless they can demonstrate the unusual circumstances justifying departure from this general rule.'" *City of Dania Beach v. FAA*, 628 F.3d 581, 590 (D.C. Cir. 2010) (quoting *Texas Rural Legal Aid, Inc. v. Legal Servs. Corp.*, 940 F.2d 685, 698 (D.C. Cir. 1991)). "Exceptions to that rule are quite narrow and rarely invoked. They are primarily limited to cases where the procedural validity of the agency's action remains in serious question, or the agency affirmatively excluded relevant evidence." *CTS Corp. v. EPA*, 759 F.3d 52, 64 (D.C. Cir. 2014) (internal quotation marks and citations omitted). The petitioners rely on two exceptions to the general rule: we have supplemented the record if "background information [is] needed 'to determine whether the agency considered all the relevant factors,'" *City of Dania Beach*, 628 F.3d at 590 (quoting *Am. Wildlands v. Kempthorne*, 530 F.3d 991, 1002 (D.C. Cir. 2008)), or if "the agency affirmatively exclude[s] relevant evidence," *CTS Corp.*, 759 F.3d at 64.

We easily deny the motion with respect to the Hahn Declaration. Although it provides background, the petitioners make the same arguments in their briefs to us and previously made them at the agency level. *Compare* Hahn Decl. ¶ 19 (arguing it is "not hydraulically possible" that W23 contamination originates from downgradient), *with* Pet'rs Br. 43 (arguing that EPA's asserted migration pathway is "scientifically unsupportable"), *and* J.A. 266 (same).

Moreover, Hahn had an opportunity to comment at the agency level, including a meeting at the EPA. We decline to make an exception for a declaration that could have been included in the record earlier. *See Kent County*, 963 F.2d at 396 (declining to supplement record with document created after EPA decision at issue).

As to the sources the petitioners relied on before the agency, J.A. 641–45, they argue we should consider these allegedly adverse sources because the EPA improperly excluded them from the record. Pet'rs Br. 58. (citing *Kent County*, 963 F.2d at 395–96). As in *City of Dania Beach*, however, Hahn's general explanations of the source documents "hardly suppl[y] the requisite 'unusual circumstances' to justify" our consideration of the thousands of pages of expert reports and their relation to the NPL listing. *See* 628 F.3d at 590 (quoting *Texas Rural Legal Aid*, 940 F.2d at 698).

Finally, the petitioners cite extra-record evidence to buttress their migration-pathway argument that there exist more plausible sources of contamination than the Drift Aquifer Area. Pet'rs Br. 52–56, 60. In particular, they urge us to consider the EPA Record of Decision on Remedial Action Alternative Selection for the Reilly Tar Site, J.A. 646–76, and a 2009 report by AECOM, a firm retained by the MPCA, J.A. 677–95. The petitioners contend that these documents show that multi-aquifer wells and coal tar from the Reilly Tar Site are the "primary pathways of contamination of the Prairie du Chien-Jordan aquifer," J.A. 665, and that the source of the "bulk of . . . contamination" of St. Louis Park and Edina is upgradient of the Drift Aquifer Area and "near the intersection of Highway 7 and Louisiana Ave," J.A. 684.

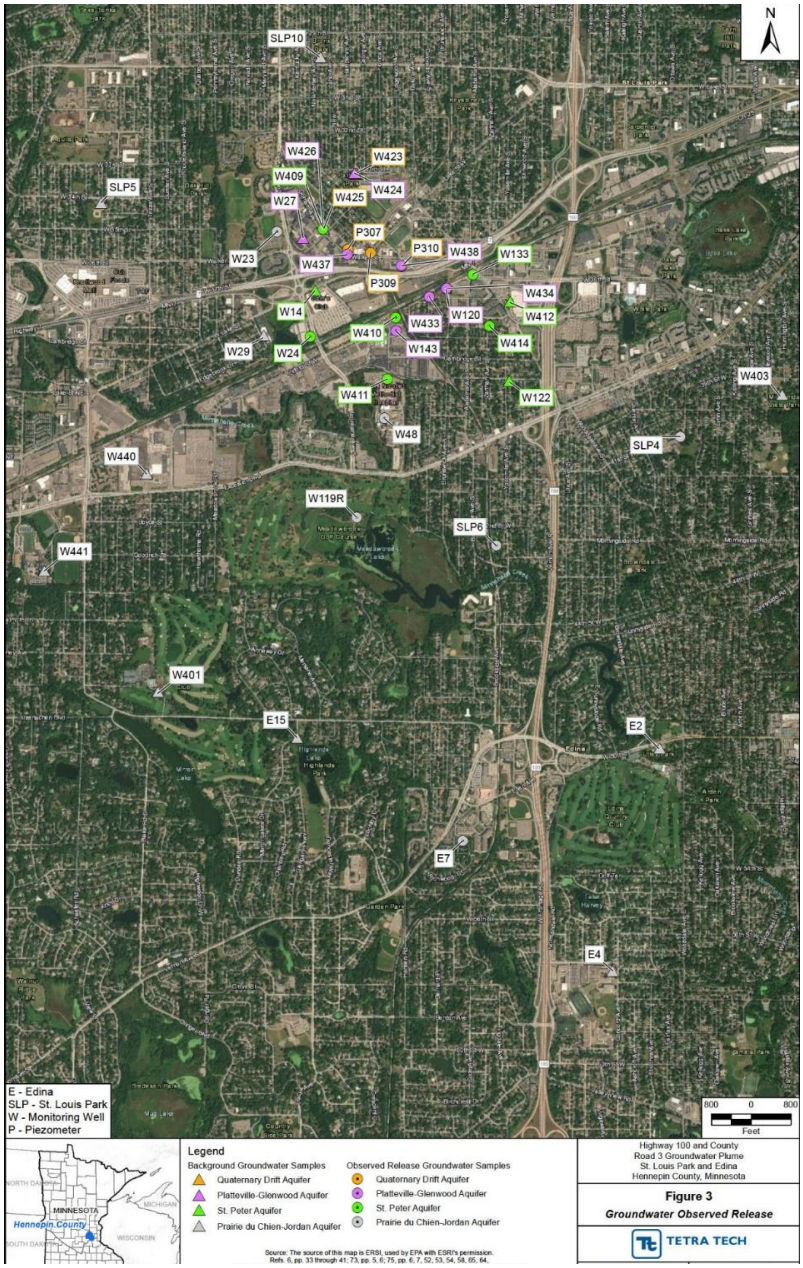
Granted, the EPA did not include the AECOM report or the Reilly Tar Record of Decision in the administrative record.

But exclusion was harmless error, if error at all, because the EPA's arguments on source attribution still apply: concerns about the most plausible pathways and sources are inapplicable because "no separate attribution is necessary when the source at the site is a groundwater plume." Support Document at 83. Accordingly, we see no "unusual circumstances" to warrant supplementing the record with these two sources. *See City of Dania Beach*, 628 F.3d at 590 (citation omitted).

For the foregoing reasons, we deny both the petition for review and the motion to consider extra-record evidence.

So ordered.

APPENDIX A


N
SLP10
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W423
W409
W424
SLP5
W27
W425
P307
P310
W438
W133
W23
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W120
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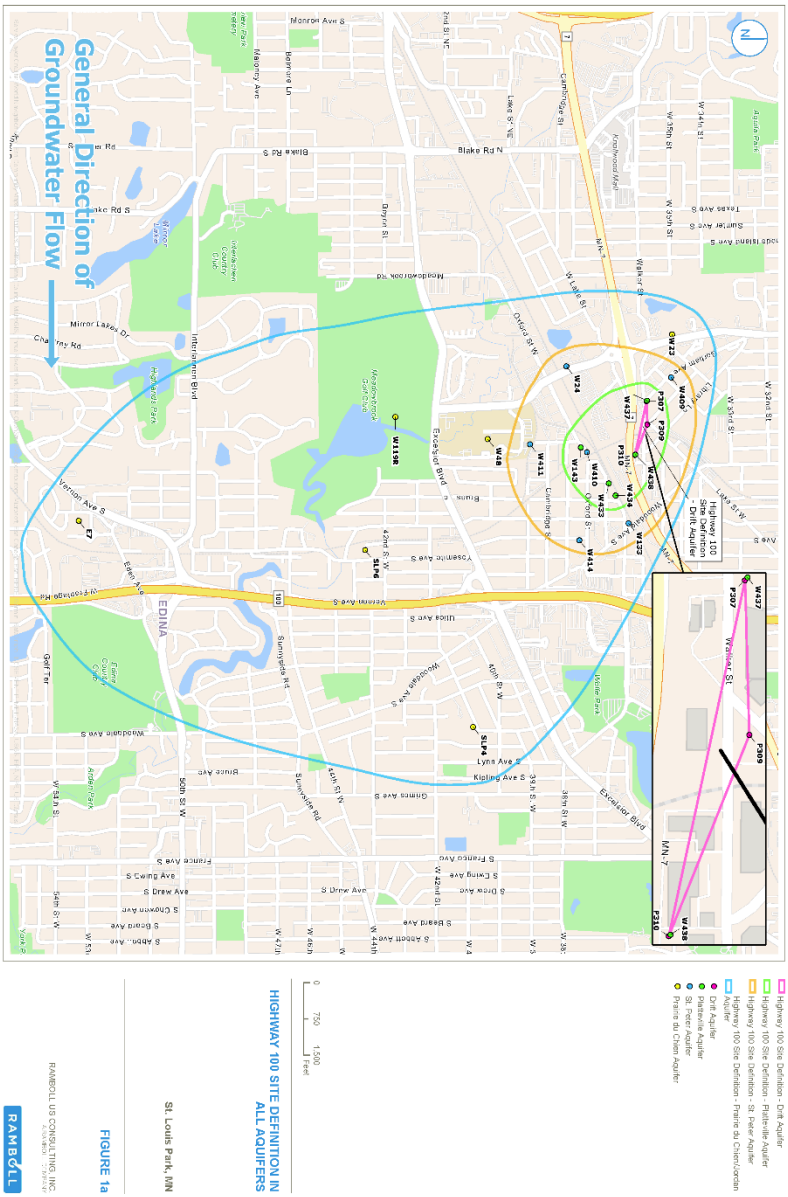
W410
W414
W29
W24
W143
W403
W411
W122
W48
SLP4
W440
W119R
SLP6
W441
W401
E15
E2
E7
E4
E - Edina
SLP - St. Louis Park
W - Monitoring Well
P - Piezometer
800 0 800
Feet
Legend
Background Groundwater Samples
Quaternary Drift Aquifer
Platteville-Glenwood Aquifer
St. Peter Aquifer
Prairie du Chien-Jordan Aquifer
Observed Release Groundwater Samples
Quaternary Drift Aquifer
Platteville-Glenwood Aquifer
St. Peter Aquifer
Prairie du Chien-Jordan Aquifer
MINNESOTA
Hennepin County
Source: The source of this map is ERSI, used by EPA with ESRI's permission.
Refs. 6, pp. 33 through 41; 73, pp. 5, 6; 75, pp. 6, 7, 52, 53, 54, 58, 65, 64.
Highway 100 and County
Road 3 Groundwater Plume
St. Louis Park and Edina
Hennepin County, Minnesota
Figure 3
Groundwater Observed Release
TETRA TECH

APPENDIX B


General Direction of Groundwater Flow
Highway 100 Site Definition - Drift Aquifer
Highway 100 Site Definition - Platteville Aquifer
Highway 100 Site Definition - St. Peter Aquifer
Highway 100 Site Definition - Prairie du Chien/Jordan Aquifer
Drift Aquifer
Platteville Aquifer
St. Peter Aquifer
Prairie du Chien Aquifer
0
750
1,500
Feet
HIGHWAY 100 SITE DEFINITION IN ALL AQUIFERS
St. Louis Park, MN
FIGURE 1a
RAMBOLL US CONSULTING, INC.
RAMBØLL