United States Court of Appeals for the Fifth Circuit

United States Court of Appeals
Fifth Circuit
FILED
July 30, 2024
Lyle W. Cayce
Clerk

No. 24-60230

MCR Oil Tools, L.L.C.,

Petitioner,

versus

United States Department of Transportation;
Pete Buttigieg, *Secretary, U.S. Department of Transportation*;
Pipeline and Hazardous Materials Safety Administration;
William S. Schoonover,
in his official capacity as Associate Administrator of
Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration,

Respondents.

Petition for Review of an Order of
the Department of Transportation, NTSB
Agency No. 49 CFR 171–80

Before Smith, Engelhardt, and Ramirez, *Circuit Judges*.

Jerry E. Smith, *Circuit Judge*:

MCR Oil Tools ("MCR") petitions for review of an action of the Pipeline and Hazardous Materials Safety Administration ("PHMSA" or the "agency") that determined that MCR lacked the requisite approval to trans-

port, and therefore sell, a product accounting for most of its revenue.

That determination is arbitrary and capricious thrice over. For starters, it misinterprets the law. Additionally, its reasoning lacks adequate substantiation. Finally, the agency reached a conclusion that was directly contradicted by the evidence.

We grant the petition for review, vacate the challenged action, and remand.

I.

The Hazardous Materials Transportation Uniform Safety Act ("HMTA") regulates the transportation of hazardous materials. Among other things, HMTA delegates to the Secretary of Transportation the duty to "prescribe regulations for the safe transportation . . . of hazardous material in intrastate, interstate, and foreign commerce." 49 U.S.C. § 5103(b)(1).

PHMSA,[1] acting per that authority,[2] promulgated a set of rules known as the Hazardous Materials Regulations ("HMR"). 49 C.F.R. §§ 171.1–180.605. Part 173 of the HMR defines "hazardous materials for transportation purposes" and specifies requirements for "preparing hazardous materials for shipment by air, highway, rail, or water, or any combination thereof." 49 C.F.R. § 173.1(a). "In general," its provisions are "based on UN Recommendations" and "consistent with international regulations issued by the International Civil Aviation Organization [("ICAO")]." *Id.* § 173.1(c).

Section 173.50(a) defines, for purposes of the HMR, an "explosive"

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[1] PHMSA is an operating administration within the Department of Transportation ("DOT").

[2] "The Secretary delegated authority to issue regulations for the safe and secure transportation of hazardous materials in commerce to [PHMSA]." 49 C.F.R. § 171.1; *see* 49 C.F.R. § 1.53 (delegation).

as

> any substance or article, including a device, which is designed to function by explosion (*i.e.*, an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion, unless the substance or article is otherwise classed under the provisions of this subchapter. The term includes a pyrotechnic substance or article, unless the substance or article is otherwise classed under the provisions of this subchapter.

As relevant here, an "explosive" is a "new explosive" when it is "produced by a person who . . . [h]as previously produced that explosive but has made a change in the formulation, design or process so as to alter any of the properties of the explosive." 49 C.F.R. § 173.56(a)(2).[3] A new explosive may not be transported "unless it has been tested and classed and approved" by PHMSA. *Id.* § 173.51(a). Under that process, a "new explosive must be examined and assigned a recommended shipping description, division and compatibility group, based on the tests and criteria prescribed in 49 C.F.R. §§ 173.52, 173.57 and 173.58." *Id.* § 173.56(b)(1); *see also id.* § 173.2. Two classes—namely, Class 1 and Class 4—are relevant to this petition for review.

Explosives classified as Class 1 can belong to one of six Divisions—from Division 1.1, which "consists of explosives that have a mass explosion hazard," *id.* § 173.50(b)(1)—to Division 1.6, which "is comprised of articles which predominately contain extremely insensitive substances and that demonstrate a negligible probability of accidental initiation or propagation," *id.* § 173.50(b)(6). *See id.* § 173.50(b).

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[3] A new explosive can also be "an explosive produced by a person who . . . [h]as not previously produced that explosive." 49 C.F.R. § 173.56(a)(1).

Class 4 materials can belong to one of three divisions—the first of which is relevant here. *See id.* § 173.124. Division 4.1 "flammable solids" includes, *inter alia*, certain "[d]esensitized explosives," "self-reactive materials," "readily combustible solids," and "[p]olymerizing materials." *Id.* § 173.124(a).

The packaging requirements that apply to a Division 4.1 material are determined by that material's packing group, as assigned "in column (5) of the § 172.101 table." *Id.* § 173.125(a); *see also id.* § 172.101.[4] As relevant here, inner packaging approved for Division 4.1, Packing Group II materials includes "[m]etal receptacles." *Id.* § 173.212(b).

II.

MCR is a manufacturer of advanced cutting systems for the pipe-recovery industry. Since 1993, it has produced the Radial Cutting Torch ("RCT") "family of tools that safely cut and perforate drill pipe, tubing, casing, and coiled tubing in 'downhole' conditions." Ex.2 ¶ 2 (cleaned up).[5] As the company's flagship product, the RCT is MCR's "primary generator of revenue"—accounting for about 75% of its sales. Ex.2 ¶ 3.

RCTs are primarily used in the oil and natural gas industry to remove "stuck pipes." The tool functions by converting B15 mix—a proprietary thermite mixture—into highly energetic and focused plasma. Pipe-recovery operators channel that stream of plasma, much like a laser, to slice through below-grade pipe cleanly. RCTs are therefore a replacement for legacy

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[4] If multiple packaging groups are designed for a particular hazardous material, "the packing group shall be determined on the basis of test results following test methods given in the UN Manual of Tests and Criteria." *Id.* § 173.125(a); *see also id.* § 173.125(b) (defining criteria).

[5] Citations prepended with "Ex." refer to exhibits submitted for the stay pending appeal.

detonation-based tools, which rupture stuck pipes with explosive charges. *See* Ex.2 ¶¶ 15–19.

III.

The petition for review concerns PHMSA's determination (the "RCT Action") that MCR's RCT is "an unapproved explosive that 'shall not be offered for transportation or transported.'" AR.22:5. The RCT Action, however, relies on an earlier, independent PHMSA action (the "B15 Action") that classified MCR's B15 thermite mixture. So we briefly detail the agency's determination in the B15 Action.

A. The B15 Action

In February 2022, PHMSA notified MCR that it had deemed B15 mix an "explosive" subject to regulation as a Division 4.1 flammable solid.[6] AR.3:1. Then, in March 2022, PHMSA issued a revised determination. AR.4:1. As relevant here, the revision altered the February determination by adding B15 mix to Packing Group (PG) II. AR.4:1.

After unsuccessfully requesting reconsideration of the March determination, MCR appealed to the Deputy Administrator. *See generally* AR.7. PHMSA denied MCR's appeal. *See* AR.8:9–10.

But that was not all. In noticing the denial, PHMSA also accused MCR of knowingly shipping RCTs without the requisite "classification approval for the torch." AR.8:8. Specifically, PHMSA warned that

> [b]ased on MCR's appeal, it appears its device, the [RCT], has not been approved for transportation . . . even though MCR

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[6] PHMSA claims it classified B15 mix "[b]ased on a request by MCR." AR.3:1. MCR, however, contends that it "made no such request." AR.7:4. Additionally, the February 2022 determination noted that the "[i]ncorporation of this substance in an article shall require reexamination and approval under 49 CFR 173.56." AR.3:1.

> knows that a separate classification approval . . . is required . . . . Consequently, MCR should understand that it must take appropriate action, consistent with this decision, to ensure its [RCT] is offered for transportation in full compliance with the HMR.

AR.8:8.

B. The RCT Action

After receiving PHMSA's warning in the B15 Action, MCR corresponded with the agency for approximately ten months—seeking to confirm, *inter alia*, that, absent separate approval by PHMSA, B15 mix could be shipped inside components of disassembled RCTs. *See, e.g.*, AR.21:4. In MCR's view, disassembled RCT components should be classified as "unrated," or, in the alternative, as "a [Division] 4.1 flammable solid, packing group II." AR.9:1–2.

PHMSA disagreed. In May 2024, it concluded that the RCT is "an article and a new explosive requiring its own approval." AR.22:2. Further, it found that "the RCT . . . is appropriately classified as a Class 1 explosive." AR.22:5. PHMSA ultimately determined that "the RCT [is] an unapproved explosive that 'shall not be offered for transportation or transported' pursuant to 49 CFR § 173.54(a)." AR.22:6.

C. The Petition for Review

MCR sought judicial review of, as relevant here, the RCT Action.[7] An administrative panel of this court granted its motion for expedited review. *See generally* Doc. 24-1. That panel ordered MCR's motions for stay pending

[7] MCR separately challenged the B15 Action. That matter is before a different panel of this court and, as of May 30, 2024, has been held in abeyance pending resolution of the instant petition for review. *See MCR Oil Tools, LLC v. U.S. DOT*, No. 23-60458, Doc. 46-2 at 1 (5th Cir. May 30, 2024).

review and for administrative stay be carried with the case, *see id.* at 2, the latter of which was granted by the merits panel, *see* Doc. 27-2 at 1. The merits panel then granted MCR's motion for stay pending review. *See generally* Doc. 46-1.

IV.

The Administrative Procedure Act ("APA") requires us to "set aside" agency actions that are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." *Calumet Shreveport Refin., L.L.C. v. EPA*, 86 F.4th 1121, 1133 (5th Cir. 2023) (quoting 5 U.S.C. § 706(2)(A)). So we must "scrutinize the record to determine whether the agency has 'examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made.'" *Id.* (quoting *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983) (cleaned up)). But we "may not supply a reasoned basis for the agency's decision that the agency itself has not given." *Id.* (cleaned up). Agency action that is "premised on reasoning that fails to account for relevant factors or evinces a clear error of judgment" must be set aside "as arbitrary and capricious." *Id.* (cleaned up).

V.

PHMSA raises two threshold objections to this panel's considering the merits of MCR's petition for review, contending that the RCT Action is (A) non-final action and (B) administratively unexhausted. Neither threshold objection is meritorious.

A. Finality

1. Defining "Final Action"

In the order granting a stay pending appeal, we held that MCR was likely to succeed on the merits after we concluded, *inter alia*, that the RCT

Action qualified as "final agency action" as that term is understood for purposes of petitions proceeding under the APA's default cause of action. *See* Doc. 46-1 at 6 n.3; *see also* 5 U.S.C. § 704. PHMSA disagrees, asserting that the default APA-finality principles are inapplicable because MCR's petition arises under 49 U.S.C. § 5127—an HMTA-specific provision for judicial review.

True enough, § 5127 provides the cause of action underlying the instant dispute. That much is evident from MCR's petition for review. *See* Doc. 1-2, at 1 ("[p]ursuant to 49 U.S.C. § 5127 . . ."). Equally evident, though, is that the plain text of § 5127 establishes a threshold for finality *identical* to that required by the APA.

To ascertain the meaning of a statutory provision, we begin—where we must—with the text. Section 5127 does not independently define "final action." Nor does the remainder of the HMTA. *See* 49 U.S.C. § 5102. But "final action" carries a specific meaning in the context of judicial review of agency action.[8] And that meaning had long been settled by the time that Congress passed the HMTA.[9]

Thus, the inclusion of "final action" in the HMTA "carries the implication that Congress intended [it] to be construed in accordance with pre-existing . . . interpretations." *Bragdon v. Abbott*, 524 U.S. 624, 631 (1998). Nothing in the text of the HMTA suggests otherwise. So there is no reason to believe that Congress intended for § 5127(a)'s use of "final action" to mean anything different from its general definition in the field of administra-

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[8] *See, e.g.*, *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 478 (2001); *FTC v. Stand. Oil Co.*, 449 U.S. 232, 239 (1980) (collecting cases); *Abbott Lab'ys v. Gardner*, 387 U.S. 136, 149–50 (1967), *abrogated by Califano v. Sanders*, 430 U.S. 99 (1977).

[9] *See* Hazardous Materials Transportation Act, Pub. L. No. 93-633 (1975).

tive law.[10]

That comports with the approach taken by the Supreme Court and our sister circuits. In *Whitman*, the Court "ha[d] little trouble concluding that . . . final agency action under § 307 [of the Clean Air Act] . . . bears the same meaning . . . that it does under the [APA]." *Id.* Similarly, in *John Doe, Inc. v. DEA*, 484 F.3d 561 (D.C. Cir. 2007), the court relied on "case[law] applying the finality aspect of the APA" in interpreting the meaning of "final decision" in § 877 of the Controlled Substances Act, *id.* at 566 n.4. APA caselaw was no less applicable, explained the *John Doe* court, since there was "no reason . . . that the word 'final' in § 877 should be interpreted differently than the word 'final' in the APA." *Id.* Indeed, that is why "courts usually . . . look[] to the APA's finality requirement when construing federal statutes that condition judicial review on the finality of agency action but that do not independently define what counts as final action." *Glob. Tower Assets, LLC v. Town of Rome*, 810 F.3d 77, 83 (1st Cir. 2016).

Following the lead of the Supreme Court and our sister circuits, we construe "final action" in § 5127 of the HMTA to "bear the same meaning . . . that it does under the [APA]." *Whitman*, 531 U.S. at 478. Consequently, we apply ordinary finality principles consonant with review under the APA.[11]

Resisting that conclusion, PHMSA points to 49 C.F.R. § 107.717(c)—an HMR provision relating to appeals of requests for reconsideration—claiming that the RCT Action is (*i*) not a "final action" and (*ii*) not an action

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[10] *See* ANTONIN SCALIA & BRYAN A. GARNER, READING LAW: THE INTERPRETATION OF LEGAL TEXTS 322–27 (2012) (prior-construction canon).

[11] *Loper Bright Enters. v. Raimondo*, 144 S. Ct. 2244, 2261 (2024) ("[T]he APA delineates the basic contours of judicial review of [agency] action."); *see also, e.g.*, *Holistic Candlers & Consumers Ass'n v. FDA*, 664 F.3d 940, 943 (D.C. Cir. 2012).

"of the Secretary."

(*i*) Section 107.717(c) states that "[t]he Administrator's decision on appeal is the final administrative action." From that, PHMSA reasons that anything less[12] is not a "final action" for purposes of § 5127(a) of the HMTA.

Effectively, PHMSA is asserting that its own *ipse dixit* defines "final action." That position falters at the starting line, for PHMSA fails even to explain how a provision of the HMR can alter the meaning of a statutory term in § 5127 of the HMTA.

"It is axiomatic that administrative agencies may issue regulations only pursuant to authority delegated to them by Congress." *Am. Libr. Ass'n v. FCC*, 406 F.3d 689, 691 (D.C. Cir. 2005). The HMTA does not delegate to the Secretary or PHMSA the power to determine what constitutes "final action" for purposes of § 5127(a). Indeed, § 5103, which vests the Secretary with "[g]eneral regulatory authority," contains no such delegation. Ditto for the remainder of the HMTA.

PHMSA therefore lacks the delegated authority to promulgate rules with the force of law that determine what does or does not constitute "final action" under § 5127 of the HMTA. So 49 C.F.R. § 107.717(c) has no bearing whatsoever on the meaning of that statutory term.

(*ii*) In a similar vein, PHMSA contends that anything short of a decision on appeal from reconsideration is not "final action *of the Secretary*." 49 U.S.C. § 5127(a) (emphasis added). It observes that the "Administrator" decides appeals from reconsideration, 49 C.F.R. § 107.717(c), whereas initial decisions and requests for reconsideration are handled by the "Associate

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[12] *E.g.*, the denial of an application, *see* 49 C.F.R. § 107.709, or of a request for reconsideration, *see id.* § 107.715(c).

Administrator," *id.* §§ 107.709(c), 107.713(d). Given that the Secretary delegated his power specifically to the Administrator, *id.* §§ 1.81, 1.97(b), PHMSA posits that an appeal from reconsideration is the only way to get an action "of the Secretary," 49 U.S.C. § 5127(a).

PHMSA's second contention is no more meritorious than its first. At bottom, it relies on a flawed understanding of administrative law—specifically, one that allows agencies broadly to usurp power neither vested nor delegated. That's because PHMSA's contention relies on the premise that the Associate Administrators have a source of authority *separate from* that of the Administrator (and, in turn, that of the Secretary).

But that premise is plainly incorrect, as the Secretary is the exclusive source of PHMSA's authority. Only he or she is vested with regulatory authority under the HMTA. *See id.* § 5103. The Secretary then, in turn, delegates that power to the PHMSA Administrator. 49 C.F.R. §§ 1.81, 1.97(b). Absent the Secretary's delegation to the Administrator, PHMSA has no authority to act at all. *See Am. Libr. Ass'n*, 406 F.3d at 691.

That includes the actions of Associate Administrators in resolving initial application decisions, *see* 49 C.F.R. § 107.709, and in deciding requests for reconsideration, *see id.* § 107.713. With no separate basis of authority, their ability to act is derived exclusively from that of the Administrator. *Cf. id.* § 1.81a (authorizing successive redelegations of Administrator's delegated authority). Therefore, *any* final action by PHMSA is necessarily a final action of the Administrator and, consequently, a "final action of the Secretary" for purposes of § 5127(a).

Moreover, PHMSA's contention is fatally undercut by the text of the HMR. Under its theory, § 107.717(c) is distinct precisely because of the identity of the person it specifies (*i.e.*, the "Administrator"). But the HMR expressly defines "Administrator" as including "the Administrator . . . *or his*

or her delegate." *Id.* § 107.1 (emphasis added). So, contrary to PHMSA's theory, appeals from reconsideration under § 107.717(c) need not be decided by the Administrator himself or herself.

And that's all but confirmed by the record. In the B15 Action, MCR requested reconsideration and appealed from reconsideration—the latter of which was decided by a "Deputy Administrator." AR.8:10.

2. The RCT Action Is Final

For agency action to be final, it must (*i*) mark the consummation of the agency's decisionmaking process and (*ii*) be one from which legal rights and consequences flow. *See Holistic Candlers*, 664 F.3d at 943.

A challenged action fails prong (*i*) if it is "of a merely tentative or interlocutory nature." *Id.* Such a tentative or interlocutory determination is one that does not express an agency's "unequivocal position." *Id.* (quotation omitted). Instead, it contemplates further administrative consideration or modification *prior* to the agency's adjudication of rights or imposition of obligations. *See id.* at 945; *see also Texas v. Becerra*, 89 F.4th 529, 538 (5th Cir. 2024).

Prong (*ii*) is not satisfied if a challenged action is devoid of legal consequence. Non-final action "compels action by neither the recipient nor the agency." *Holistic Candlers*, 664 F.3d at 944. By contrast, prototypical examples of final agency action, *inter alia*, "expect regulated entities to alter their primary conduct to conform to the agency's position" or "restrict the agency's discretion to adopt a different view of the law." *Texas*, 89 F.4th at 538 (cleaned up).

The RCT Action satisfies both finality requirements. It (*i*) marked the consummation of the agency's decision-making process because it "denied MCR's application for a classification approval for the RCT." AR.22:5.

Furthermore, it (*ii*) made a determination from which legal consequences flowed when it established that the "RCT [is] an unapproved explosive that 'shall not be offered for transportation or transported.'" AR.22:5. Indeed, as PHMSA's counsel acknowledged at oral argument, "the letter itself does come with legal consequences." Oral Argument at 12:28–12:35.

Despite that acknowledgement, PHMSA nonetheless insists that the RCT Action is not final for purposes of judicial review because "MCR could have been subject to enforcement penalties even before the agency issued the decision." Oral Argument at 12:48–12:55. But that is merely the same theory that PHMSA relied on when it claimed that granting a stay pending appeal would not alleviate any of MCR's alleged harms—*i.e.*, the assertion that the "regulatory scheme," and not PHMSA, is to blame for MCR's injuries. *See* Doc. 46-1 at 12–13. We rejected that contention in the order granting stay pending appeal. *See* Doc. 46-1 at 13. Now, we reject it once again.

PHMSA's claim fails because it relies on the premise that, absent the RCT Action, separate approval was required before MCR could ship B15 mix inside disassembled RCT components. That premise, however, assumes the validity of PHMSA's determining that MCR's shipment is a "new explosive"—the precise issue that MCR is challenging on the merits.

Without the RCT Action, MCR would not have to secure PHMSA's approval *at all*, since the B15 Action classified B15 mix as a "Division 4.1, PG-II" substance. *See* AR.4:1. Indeed, as is generally true with other Class 4 materials, B15 mix can be shipped in a metal receptacle without prior agency approval.[13] Thus, the RCT Action, by determining that such a shipping con-

[13] *See* 49 C.F.R. § 173.212(b) (authorizing "metal receptacles"); *cf. id.* § 173.22(a) (requiring, *inter alia*, the shipper to "determine that the packaging or container is an authorized packaging").

figuration created a "new explosive," impresses upon MCR new legal obligations in the form of compliance with HMR Class 1 regulations.[14] It is therefore final agency action. *See* 5 U.S.C. § 704.

B. Exhaustion

Lack of exhaustion does not preclude judicial review unless "(a) administrative appeal is expressly required by statute or (b) the agency requires it by rule and provides that the action meanwhile is inoperative." *Amin v. Mayorkas*, 24 F.4th 383, 389 (5th Cir. 2022) (cleaned up).

1. Statutorily Mandated Exhaustion

Section 704 of the APA "carefully 'limits the availability of the doctrine of exhaustion in APA cases to that which the statute or rule clearly mandates.'" *Id.* at 390 (quoting *Darby v. Cisneros*, 509 U.S. 137, 146 (1993)) (cleaned up). Again, PHMSA asserts that the APA default is overridden by 49 U.S.C. § 5127. PHMSA is incorrect.

Per § 5127(c), "[t]he court has exclusive jurisdiction, as provided in subchapter II of chapter 5 of title 5, to affirm or set aside any part of the Secretary's final action." For two reasons, that provision doesn't alter § 704's requisite threshold for review.

First, § 5127(c) never once mentions exhaustion. *A fortiori*, it does not mandate the same.[15]

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[14] *See Bennett v. Spear*, 520 U.S. 154, 170–71 (1997) (concluding action is final where it "alters the legal regime to which [the regulated entity] is subject").

[15] *See Premiere Network Servs., Inc. v. SBC Commc'ns, Inc.*, 440 F.3d 683, 686 n.5 (5th Cir. 2006); *see also Taylor v. U.S. Treasury Dep't*, 127 F.3d 470, 475 (5th Cir. 1997) (explaining that statutorily mandated exhaustion is jurisdictional and must therefore be express, since only "the []prudential doctrine of exhaustion controls" where "a statute does not textually require exhaustion").

Second, § 5127(c) explicitly cross-references "subchapter II of chapter 5 of title 5" in defining the court's jurisdiction. That cross-reference points to nothing other than the APA. And included within its scope is 5 U.S.C. § 559, which expressly cross-references the APA's chapter on judicial review. Surely it is bizarre for § 5127(c)—a provision that, per PHMSA, purportedly departs from the APA's default rule—expressly to define the court's jurisdiction by *referring* to that same act.[16] Consequently, the HMTA does not require MCR to exhaust administrative remedies before seeking judicial review of the RCT Action.

2. Prudential Exhaustion

"[W]here a statute does not textually require exhaustion, only the []prudential doctrine of exhaustion controls, which is not jurisdictional in nature." *Taylor*, 127 F.3d at 475. So exhaustion requirements can arise from administrative rulemaking.[17]

Under the HMR, "[a]n applicant . . . *may request* that the Associate Administrator reconsider a decision . . . ." 49 C.F.R. § 107.715(a) (emphasis added).[18] By using the term "may"—a permissive verb—that provision is best understood as "permitting but not requiring applicants to seek further agency review before undergoing the delay and expense of a federal lawsuit." *Amin*, 24 F.4th at 390.[19] Thus, the HMR does not contain an exhaustion

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[16] *See* 5 U.S.C. § 704 (providing that final agency action "is final . . . whether or not there has been presented or determined an application . . . for any form of reconsideration[] or, unless the agency otherwise requires by rule and provides that the action meanwhile is inoperative, for an appeal to superior agency authority").

[17] *See, e.g.*, *Dresser v. Meba Med. & Benefits Plan*, 628 F.3d 705, 710 (5th Cir. 2010) (finding regulation created exhaustion requirement); *Amin*, 24 F.4th at 389 (same).

[18] Regulated parties who avail themselves of that option are then allowed to seek further administrative appeal. 49 C.F.R. § 107.717(a).

[19] *See also May*, Garner's Dictionary of Legal Usage, Oxford

requirement.

Nor does PHMSA explain why administratively mandated exhaustion would be advantageous as a prudential matter. Unavailing is its pontificating about the *ex-ante* effects of mandatory exhaustion.

First, PHMSA's policy-based rationale is neither here nor there. That's especially so where, as here, those interests have been considered and accounted for in the passage of the HMTA and promulgation of the HMR—neither of which require parties to exhaust administrative remedies. *See Amin*, 24 F.4th at 390. It is not our job to determine how properly to balance the benefits of judicial review with follow-on effects to regulated entities' rates of self-compliance.

Second, PHMSA's instant position on exhaustion contravenes the plain text of its own regulations. Squaring mandatory exhaustion with § 107.715 requires us, at minimum, to interpret "may" as meaning "must." Patently unacceptable is such a reading that "change[s] the essential meanings of basic words." *See May*, *supra* note 19.

Third, our circuit has long recognized that prudential exhaustion requirements are untenable so long as the regulated entity remains subject to the legal rights and obligations flowing from the challenged agency action during the pendency of the administrative appeals process. *Amin*, 24 F.4th at 389 (citations omitted). In other words, the challenged action must remain inoperative while the regulated entity exhausts any requisite administrative remedies. *See id.*

PHMSA plainly fails to satisfy that requirement, as the agency denied

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UNIV. PRESS. (3d ed. 2011), tinyurl.com/3yw49dm8 ("has discretion to; is permitted to").

MCR's repeated requests to stay the RCT Action. Indeed, when asked whether MCR would be able to ship its RCTs during the reconsideration and administrative appeals process, PHMSA's counsel candidly answered in the negative. Oral Argument at 15:33–42.

Any non-jurisdictional basis for mandatory exhaustion is therefore incapable of pretermitting review of the merits of MCR's petition.

VI.

The stated basis for PHMSA's denying MCR's request to transport B15 mix within dissembled parts of RCTs was the company's failing to provide "test reports from a PHMSA-approved explosives testing laboratory that provide the hazard classification recommendation for the article, as required by 49 CFR § 173.56(b)(1)." AR.22:5. To get there, PHMSA relied on its determination that B15 mix, once again, became a "new explosive"—requiring separate agency approval—when it was placed inside a disassembled RCT component. Absent that, no reclassification would be necessary, given that PHMSA had previously classified the B15 mix as a "Division 4.1, PG-II" substance that can be transported *without* separate approval. *See* 49 C.F.R. § 173.22(a) (requiring self-classification).[20]

The RCT Action is thrice arbitrary and capricious. It relies on a misin-

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[20] MCR contends, for the first time in its reply brief, that B15 mix is not an explosive substance because it was classified as a Division 4.1 "flammable solid." That assertion fails, notwithstanding its untimely nature, as "[d]esensitized explosives" can be "flammable solid[s]." 49 C.F.R. § 173.124(a)(i)–(ii).

A substance that otherwise meets § 173.50(a)'s definition of "explosive" is not considered to be an explosive if "the substance . . . is otherwise classed under the provisions of this subchapter." *Id.* § 173.50(a). But a substance can be an "explosive" without also being an "[e]xplosive[] in Class 1." *Id.* § 173.50(b). Thus, merely that B15 mix is classified as a Division 4.1 substance does not necessarily make it an explosive substance that is "otherwise classed under the provisions of this subchapter." *Id.* § 173.50(a).

terpretation of binding HMR regulations, *see infra* part VI.A, lacks adequate factual substantiation, *see infra* part VI.B.1, and runs counter to the record evidence, *see infra* part VI.B.2.

A. Mistake of Law

MCR claims that PHMSA misinterpreted the HMR when it found that MCR's shipping configuration "changed" the B15 mix into a "new explosive"—despite the agency's admission that the "unconfined B15 thermite mixture [that] would likely burn in place[is] *the same mix* confined within the [RCT component]." EM.Red.17 (emphasis added). We agree with MCR.

Section 173.56(a)(2) of the HMR defines what counts as a "new explosive." It includes, as relevant here, "an explosive produced by a person who . . . [h]as previously produced that explosive but has made a change in the formulation, design or process so as to alter any of the properties of the explosive." 49 C.F.R. § 173.56(a)(2).

"Confinement" is the only "change" that PHMSA identified in the RCT Action. Specifically, the agency reasoned that the RCT component confines the B15 mix, thereby altering the mix's "detonation or deflagration behavior"—*i.e.*, "the risk of reactivity in a fire." AR.22:3. PHMSA explains, by way of example, that an "unconfined B15 [mix] would likely burn in place." AR.22:3. But PHMSA predicts that the same B15 mix, if confined within a disassembled RCT component, "could produce a focused stream of plasma" and cause "rocketing" and "grenading" effects. AR.22:3.

Contrary to PHMSA's reasoning, a previously approved explosive does not automatically become a "new explosive" whenever any one of its properties differs. Section 173.56(a)(2)'s plain meaning requires both (1) that the change concern *the explosive's* "formulation, design or process" and (2) that the altered property be an *intentional effect* of that change.

1. Change

Two textual features constrain § 173.56(a)(2)'s purview to changes in the "formulation, design[,] or process" of the B15 mix substance itself. 49 C.F.R. § 173.56(a)(2).

First, § 173.56(a)(2) mentions the term "explosive" three times. Observe, though, that each is accompanied by a *different* article—the provision first uses "an explosive," then "that explosive," and finally "the explosive." *Id.* We cannot ignore that variation in usage, as "[w]ords are to be given the meaning that proper grammar and usage would assign them."[21]

Proper grammar and usage establish that "an" is an indefinite article that "points to a nonspecific . . . thing . . . that is not distinguished from the other members of a class"[22] and is "used when referring to . . . something for the first time in a text."[23] By contrast, "that" is a deictic term—*i.e.*, a pointing word—used in "[r]eferring to a specific thing previously mentioned."[24] "The," by further contrast, "indicat[es] that a following noun or noun equivalent is definite or has been previously specified by context."[25]

The provision at hand starts with "an explosive," which signals that

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[21] *See* SCALIA & GARNER, *supra* note 10 at 140.

[22] *United States v. Uriarte*, 975 F.3d 596, 608 (7th Cir. 2020) (quoting BRYAN A. GARNER, GARNER'S MODERN AM. USAGE 991 (4th ed. 2016)) (Barrett, J., dissenting) (internal quotation marks omitted).

[23] *A*, OXFORD ENGLISH DICTIONARY, Oxford Univ. Press, tinyurl.com/ymm32bwr.

[24] *That*, OXFORD ENGLISH DICTIONARY, Oxford Univ. Press, tinyurl.com/mryakn5p.

[25] *Nielsen v. Preap*, 586 U.S. 392, 408 (2019) (quoting MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 1294 (11th ed. 2005)) (cleaned up).

it "is broad enough to refer to *any* [explosive]."[26] So § 173.56(a)(2)'s theoretical sweep is coextensive with the HMR's definition of "explosive", *see* 49 C.F.R. § 173.50(a)—*i.e.*, any "explosive" can become a "new explosive," provided that § 173.56(a)(2)'s other requirements are met.

Next up is the provision's use of the phrase "that explosive." By including a deictic term, the provision instructs us to look for "a specific [explosive] previously mentioned." *Supra* note 24. Following that instruction requires us to identify a particular explosive—to the exclusion of all other explosives subject to § 173.56(a)(2)'s theoretical sweep. Thus, when § 173.56(a)(2) asks about a person's having "previously produced *that explosive*," the only relevant responses are those concerning that person's prior production of that *one particular* explosive.

That one particular explosive, for the matter at hand, is the substance known as B15 mix. Accordingly, the plain text of § 173.56(a)(2) constrains the scope of our inquiry to MCR's having "previously produced" the B15 mix—and not some other explosive.

Lastly, § 173.56(a)(2) uses the phrase "the explosive" in relation to "alter[ed] . . . properties." By including a definite article, this part specifies that the explosive at issue is one that has been "previously specified," thereby carrying forward the constraint first established by the phrase "that explosive." Put another way, this part of § 173.56(a)(2) refers to the one particular explosive that the producer had "previously produced." Thus, only alterations in the properties of that "previously specified" explosive are relevant for purposes of § 173.56(a)(2).

Second, consider § 173.56(a)(2)'s use of the conjunction "but." That

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[26] *United States v. Duffey*, 92 F.4th 304, 311 (5th Cir. 2024) (cleaned up).

is a conjunction—what is its function?[27] To indicate that the subsequent expression operates *in negation to* those that precede.[28] The prior expression therefore defines the universe of ideas that can be negated by the subsequent expression.[29]

Per § 173.56(a)(2), "a person who . . . [h]as previously produced that explosive" is the prior expression. And "a person who . . . has made a change in the formulation, design or process so as to alter any of the properties of the explosive" is the subsequent expression.

Since the prior expression speaks solely to the production of "that explosive," there is nothing about other explosives for the subsequent expression to negate. Therefore, the subsequent expression must be limited to changes to just "that explosive"—and not some other explosive.

Given those two textual indicators, § 173.56(a)(2) considers only changes made to the formulation, design, or process of one particular explosive that was identified as "that explosive." Changes to *any other* explosive—be it another explosive substance or an explosive article—will not satisfy the provision's "change" requirement.

The explosive that MCR previously produced is the B15 mix—an explosive substance. Thus, PHMSA must show that there has been a change to the formulation, design, or process of that particular substance (*i.e.*, B15

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[27] *Conjunction Junction* (Scholastic Rock, Inc., Nov. 17, 1973), tinyurl.com/mvbkjmpu.

[28] *See But*, OXFORD ENGLISH DICTIONARY, OXFORD UNIV. PRESS, tinyurl.com/5n87ndrt ("Used to introduce a phrase or clause contrasting with what has already been mentioned").

[29] The subsequent expression would otherwise be rendered non-sensical, as it would be attempting to negate a *non-existent* expression.

mix) *itself*.

So what change does PHMSA purport to identify? A "change[to] the design of B15 mix," an *explosive substance*, because it claims (but has yet to determine) that a disassembled RCT component containing B15 mix is an *explosive article* possessing different explosive properties due to changes in confinement.[30] In other words, PHMSA's proffered change concerns *not* the B15 mix itself—but, instead, the expected behavior of some other thing entirely (that the agency asserts is an explosive article).

PHMSA has therefore failed to identify a change to the formulation, design, or process of the B15 mix *itself*. It does not identify any changes to the formulation of B15 mix's proprietary thermite blend, the design specifications of B15 mix, or the process by which it manufactures that substance.[31] Nor is there any record evidence suggesting that MCR had otherwise changed the B15 mix. Consequently, the purported change underlying the RCT Action is not one capable of transforming B15 mix into a "new explosive" under § 173.56(a)(2).

Though PHMSA pushes back against that conclusion, it declines to grapple with the text of § 173.56(a)(2). Instead, the agency responds merely by claiming that changes external to an explosive substance "may fundamentally alter the explosive's behavior" and by pointing to its previously issued letters of interpretation. Neither response is meritorious.

PHMSA's first response just restates the obvious—it comes as no

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[30] Red.Br.39 (citation omitted) ("[a]n explosive substance that is placed into another object would . . . constitute . . . an explosive 'article' under § 173.50(a)").

[31] Indeed, PHMSA's motions-stage brief expressly admitted that the "unconfined B15 thermite mixture [that] would likely burn in place[is] *the same mix* confined within the [RCT component]." EM.Red.17 (emphasis added).

surprise that an explosive article might differ from an explosive substance. They are, after all, *different* explosives. So the unique behavior of one is not a change in the other.[32]

PHMSA's second response offers no basis to affirm. The cited interpretive letters are "not final agency action" from which legal consequences flow. That's because they merely offer the agency's non-binding opinions to regulated-entities' hypotheticals and therefore "impose[] no obligations, prohibitions, or restrictions." *Sierra Club v. EPA*, 955 F.3d 56, 63–64 (D.C. Cir. 2020).

2. Intent

Section 173.56(a)(2)'s "intent" requirement harkens from its using the phrase "so as to": Much like "in order to," "so as to" connotes purpose or intentionality; it specifies the relationship between the act (the change) and the outcome (the altered property).[33] Thus, for purposes of § 173.56(a)(2), a change must be one that is made "[w]ith the purpose or intention of" altering the explosive's properties.[34] In other words, changes that accidentally or inadvertently alter the explosive's properties will not suffice.

The RCT Action plainly fails § 173.56(a)(2)'s "intent" requirement.

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[32] Consider PHMSA's example of "gunpowder in a shotgun shell." Take as given that a shotgun shell is an explosive article and that loose gunpowder is an explosive substance. True, only the shotgun shells can bust clays. Even so, the gunpowder contained within those shells is identical to the loose gunpowder.

[33] *See So . . . so as*, BRYAN A. GARNER, GARNER'S DICTIONARY OF LEGAL USAGE (3d ed. 2011), tinyurl.com/ya4vjjwy.

[34] *In order to do something*, OXFORD ENGLISH DICTIONARY, OXFORD UNIV. PRESS, tinyurl.com/5n74myvy ("[w]ith the purpose or intention of doing something"); *see also So as to do something*, OXFORD ENGLISH DICTIONARY, OXFORD UNIV. PRESS, tinyurl.com/yp3kfhv3.

PHMSA cannot identify any changes that were intended to alter the B15 mix's properties, given its inability to identify any changes in the first place. *See supra* part VI.A.

PHMSA disagrees with that interpretation and asserts that "nothing in the regulation's text or purpose limits PHMSA's authority over 'new explosives' to those intentionally created." But, again, it refuses to engage with the text, offering no alternate interpretation that honors the meaning of the words and phrases chosen.

Instead, PHMSA warns that the intent requirement would "allow[] careless or unplanned alterations to existing explosives to evade PHMSA's safety review" and "permit hazardous-materials manufacturers and shippers to evade regulatory oversight by simply disclaiming any intent to 'alter' an explosive's properties when putting the explosive in an article." PHMSA's concerns appear exaggerated.

First, the intent requirement does not allow producers to evade PHMSA's safety review or regulatory oversight.

Consider PHMSA's firework hypothetical, where a producer "put more of an explosive substance . . . in a firework than PHMSA had approved for that firework's design." According to PHMSA, requiring intentionality would allow that producer "to escape the new-explosive definition just because [he] wrongly thought the change was immaterial to the firework's explosive properties and had not intended to change those properties." Incorrect.

In the pre-existing approval, PHMSA allowed the producer to make a particular design of firework that contains no more than a certain amount of explosive substance (say, no more than 50 grams). So the pre-existing approval is an approval of an *explosive article*.

But, when the producer also starts producing a firework containing 75 grams of the explosive substance, he has begun to produce a *different explosive article* entirely.[35] The 75-gram firework is a "new explosive" requiring separate PHMSA approval under 49 C.F.R. § 173.56(a)(1), as it is an explosive article "produced by a person who . . . [h]as not previously produced that explosive."

So, contrary to PHMSA's assertion, the intent requirement does not allow its hypothetical firework producer to "escape the new-explosive definition." Enforcement just comes from a different part of the regulatory scheme—namely, 49 C.F.R. § 173.56(a)(1).

Second, PHMSA's hypothetical is wholly inapposite to the RCT Action. Unlike the firework hypothetical, the matter at hand concerns a pre-existing approval that allows MCR to produce and transport the B15 mix—*i.e.*, an approval of an *explosive substance*. Per that pre-existing approval, MCR can transport the B15 mix using "[m]etal receptacles" as "[i]nner packaging[]." 49 C.F.R. 173.212(b).

When MCR ships its B15 mix inside a disassembled RCT component—*i.e.*, a steel "containment vessel for receiving and holding substances or articles, including any means of closing," UN Model Regs. 1.2.1—it is merely transporting a previously-approved explosive substance pursuant to HMR packaging regulations.[36] So what MCR is doing is com-

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[35] We assume, *arguendo*, that the 75-gram firework is an explosive article, given that PHMSA's hypothetical presumes the same for the 50-gram firework.

[36] Even assuming, *arguendo*, that disassembled RCT components fail to qualify as packaging approved for an explosive substance classified as "Division 4.1 flammable solid, packing group II," PHMSA can take enforcement action for non-compliant packaging. *See* 49 C.F.R. pt. 107, subpt. D, app. A ("Offering a hazardous material for transportation in an unauthorized non-UN standard or non-specification packaging").

pletely dissimilar to the hypothetical firework producer, which, by producing a 75-gram firework, created a different explosive article that was not covered by the pre-existing firework approval.

For MCR's actions to be comparable to the firework producer's, we would have to assume that placing B15 mix inside a disassembled RCT component makes B15 mix a "new explosive" substance. But that assumption is identical to the determination underlying the RCT Action.[37] In other words, it is tantamount to assuming that the RCT Action is *not* arbitrary and capricious. Such an assumption is misguided, given the question presented.

Third, it is PHMSA that has an unrealistic view of the HMR's regulatory scheme. Eliminating the intent requirement from § 173.56(a)(2) would wreak havoc on any producer with a manufacturing yield rate below 100% (*i.e.*, every producer).

Consider again PHMSA's hypothetical fireworks producer. This time, however, stipulate that the producer inadvertently overfilled its 50-gram fireworks with 75 grams of the explosive substance.[38] Under PHMSA's interpretation of § 173.56(a)(2), the producer would need to seek reapproval because the explosive article "changed" from a 50-gram firework to a 75-gram firework.

So, to continue making the 50-gram fireworks, the producer would have to start from square one. That is, he would have to retest, reclassify, and seek reapproval of a firework that PHMSA *had already approved* for transportation. *See* 49 C.F.R. § 173.56(b). Moreover, since an explosive

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[37] *See, e.g.*, Red.Br.44 ("PHMSA[] determin[ed] that filling the torch components with B15-mix would be a new explosive article").

[38] That is consistent with PHMSA's hypothetical, which assumes that the producer "had not intended to change [the fireworks'] properties."

cannot be transported "unless it *has been* tested and classed and approved," 49 C.F.R. § 173.51(a) (emphasis added), the producer may well lose his ability to transport his previously approved, 50-gram fireworks while he waits for reapproval from PHMSA.[39]

Such a scenario would make negative sense. And, unlike PHMSA's position, the HMR recognizes that a producer may inadvertently produce a defective unit of an article that fails to conform to a pre-existing approval. That defective unit—though itself an unapproved "new explosive" per § 173.56(a)(1)—does not render every conforming unit of that article a "new explosive" subject to retesting, reclassification, and reapproval.

Indeed, that is why the HMR provides PHMSA with mechanisms—*other than* the reapproval process triggered by § 173.56(a)(2)—to ensure regulatory compliance. For example, § 173.56(a)(1) provides a pathway for regulating explosives resulting from unintentional changes—all without affecting the validity of a pre-existing approval. It defines a "new explosive" as "an explosive produced by a person who . . . [h]as not previously produced that explosive," and does not require a showing of "change" or "intent." 49 C.F.R. § 173.56(a)(1).

That empowers PHMSA to pursue, *inter alia*, civil penalties on a per-violation scale for the transportation of unapproved explosives, *see id.* § 107.329.[40] So § 173.56(a)(1), coupled with per-violation enforcement proceedings, guards against unintentional or inadvertent changes that create

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[39] *See* 49 C.F.R. 107.713(b)(1) (providing for "terminat[ion of] an approval . . . on finding that . . . [b]ecause of a change in circumstances, the approval is no longer needed").

[40] Indeed, among the "[f]requently [c]ited [v]iolations" that PHMSA finds in enforcement cases is the "[o]ffering [of] an unapproved explosive for transportation." 49 C.F.R. pt. 107, subpt. D, app. A.

unapproved explosives.

By contrast, § 173.56(a)(2)'s reapproval process targets changes that intentionally (and, therefore, durably) alter the properties of a previously approved explosive. After all, it does neither the producer nor PHMSA any good to incur costs retesting, reclassifying, and reapproving an explosive that has already been approved.

Consequently, PHMSA's claim that § 173.56(a)(2)'s intent requirement hamstrings its ability to provide regulatory oversight is unavailing.

B. Findings of Fact

PHMSA's finding an increase in the B15 mix's reactivity in a fire relies on two differences in "detonation or deflagration behavior." Namely, (*i*) that the B15 mix, "once confined within the RCT[,] . . . [could] produce a focused stream of plasma that is forceful enough to operate at pressures of 10,000 psi" and (*ii*) that its confinement "could cause directional effects (rocketing) or rupture effects (grenading)" which "would hinder actions of first responders in a transportation incident." AR.22:3.

That finding "is not the product of reasoned decisionmaking,"[41] as it (1) is inadequately substantiated and (2) runs counter to the record evidence.

1. Inadequately Substantiated

Neither proffered difference is adequately substantiated. The RCT Action's discussion of difference (*i*) includes just one record citation—to MCR's CEO's declaration, no less. Worse, the cited language speaks *only* to the capabilities of a fully-assembled, operational RCT—*not* the capabilities

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[41] *Chamber of Com. of U.S. v. SEC*, 85 F.4th 760, 779 (5th Cir. 2023); *see also id.* at 774 n.14 (requiring "a rational connection between the facts found and the choice made" (citing *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1214 (5th Cir. 1991) (cleaned up)).

of a disassembled, non-functional RCT component.[42] With nothing more, PHMSA lacks a rational basis to attribute the RCT's operational capabilities to the B15 mix's confinement.

Worse still, the RCT Action's discussion of difference (*ii*) is bereft of *any* supporting citations. PHMSA "expects" that confinement could cause "directional effects" or "rupture effects." AR.22:3. But nowhere to be found is any explanation *why or how* the agency formed that expectation.

Thus, the proffered differences fail to provide a reasoned basis for PHMSA's finding that the B15 mix's placement in a disassembled RCT component increases its reactivity in a fire. It is PHMSA's job to "articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made." *Calumet*, 86 F.4th at 1133 (cleaned up). The agency provided no such explanation. So its finding is arbitrary and capricious.

2. Contrary to the Record Evidence

Had PHMSA carefully reviewed the record evidence, it would have realized that its findings were flatly and overwhelmingly contradicted by that evidence.

For starters, MCR submitted laboratory results showing that MCR's specific method of shipping the RCT—with the B15 mix placed within disassembled RCT components—*satisfies* the applicable UN Series 6 tests. *See generally* AR.9-3. That lab result directly rebuts PHMSA's finding, given the

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[42] *See, e.g.*, its statement that "MCR's CEO stated that the company's radial-cutting torch 'uses a proprietary thermite mixture . . . safely [to] cut all grades of drill pipe'" (quoting AR.21:App'x A, ¶ 3), and that "when the B15 mix is used in the torch, it creates a high velocity plasma that is ejected through slits or nozzle holes in the nozzle head in a controlled line to cut adjacent pipe." (quoting Ex.2 ¶ 10) (internal quotation marks omitted)).

agency's admission that its rocketing and grenading concerns "form the basis of UN . . . test series 6." AR.22:3. Not once did PHMSA address MCR's lab report.

Also ignored were the results of the studies in PHMSA's *own report* that uniformly found that increasing the confinement of thermites *decreases* the probability and severity of explosions.[43] We need say no more, for the studies speak for themselves:

- "[C]onfinement does not appear to increase the burn rate of thermites; rather, it appears to contain and suppress the explosion." AR.15:11.
- "All tested thermites trended towards decreased reaction violence when placed in further confinement. This is consistent with previous test results and general thermite behavior." AR.15:1726–27; *see also* AR.15:1761.
- "[F]or a thermite, confinement suppresses the explosive properties." AR.15:1726–27; *see also* AR.15:1761.

PHMSA's consideration of the evidence in the RCT Action is plainly deficient. The agency does not get to bury its head in the sand and ignore "data it did not want to consider." *Chamber of Com.*, 85 F.4th at 776. That is especially so where, as here, the agency has ignored *directly contradictory* evidence that thoroughly forecloses its chosen position.

Nonetheless, PHMSA's briefing claims that the report tells a different story. First, it asserts that the report's "studies had found that some thermites displayed a 'violent effect' when heated 'under confinement,'" (citing AR.15:131–32; AR.15:180–81), and therefore support the RCT Action. Then, attempting to diminish the results of the report, PHMSA characterizes

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[43] *See* PHMSA, DOT1-6265i, THERMITE RES. REPORT (Sept. 28, 2023), tinyurl.com/2p9ts99p [hereinafter AR.15].

the report's "studies' findings a[s] far from conclusive, having found that different thermites react differently under various conditions" (citations omitted). Not so.

First, PHMSA's brief's mostly quotes parts of the report that are irrelevant to proving or disproving the effect of confinement on reactivity.

Consider the structure of the Thermite Research Report. At its conclusion, the report presented overall "findings, recommendations[,] and adopted suggestions for the characterization and classification of thermites." AR.15:5; *see also* AR.15:1–44. Those findings and conclusions were sourced from a series of fifteen studies conducted from November 2019 to September 2023. AR.15:5.

Each of those studies examined different aspects of thermite reactivity and classification. *Id.* The "Task 3" study, for example, investigated the effects of varying "particle size combinations" on thermite "impact sensitivity," "friction sensitivity," and "sensitiv[ity] to ESD." AR.15:732. And the "Task 15" study considered the effect of thermite additive formulations on reactivity. *See* AR.15:1985–87.

Since confinement was the only basis that PHMSA used to find increased reactivity in the RCT Action, *see* AR.22:3–4, the only parts of the Thermite Research Report that are relevant are those that considered reactivity as a function of confinement. Those parts are (1) the report's overall findings and conclusions, *see* AR.15:1–44, and (2) the "Task 7" study, which examined the effect of confinement on the reactivity of exploding thermites, *see* AR.15:1720–72.

All but two of the PHMSA's merits-stage brief's citations fall outside those page ranges. So its brief merely quotes language from studies examining, at best, thermite reactivity as a function of factors *other than confinement*. In other words, PHMSA is relying on studies that *did not* consider con-

finement, *did not* test confinement, and *did not* make any conclusions regarding confinement's effect on reactivity.

For example, PHMSA's briefing states that "a September 2023 study still found that six different thermite formulations 'displayed explosive behavior when ignited under confinement,' such that those formulations should be classified as Class 1 explosives" (quoting AR.15:2004). But that "September 2023 study" didn't make findings about confinement—all it examined was the effect of *additive formulations* on thermite reactivity. *See* AR.15:1985–87.

Thus, PHMSA's briefing's quotations neither prove nor disprove the effect of confinement on thermite reactivity. Therefore, they are incapable of supporting the RCT Action.[44]

Second, PHMSA's merits-stage brief's remaining two citations, though relevant, *cut against* its position.

Its first quotation states that "the strength of the confining media has a significant influence on reaction severity during a confined ignition of an exploding thermite" (quoting AR.15:1726–27, 1761). Its second characterizes the confinement study as finding that "thermites trend[] towards decreased reaction violence when placed in further confinement" (quoting AR.15:1726, 1761).

In other words, not only does confinement negatively affect reaction violence—but significantly so. Thus, PHMSA's response brief's own citations to the confinement study, alone, already undermine the agency's rea-

[44] Even assuming, *arguendo*, that those out-of-range studies are relevant, the report's overall conclusion still remains: "[C]onfinement does not appear to increase the burn rate of thermites; rather, it appears to contain and suppress the explosion." AR15:11.

soning in the RCT Action.

And that's underselling it. PHMSA's brief's second quotation, shorn of alterations, unequivocally states, "*All tested thermites* trended towards *decreased* reaction violence when placed in *further* confinement. This is consistent with previous test results and general thermite behavior." AR.15:1726–27, 1761 (emphasis added).

Put another way, there was not a single thermite in PHMSA's study that increased in reactivity when placed under increased confinement. *See* AR.15:1726–27, 1761. That undermines PHMSA's position.[45]

Thus, PHMSA's finding—that putting B15 mix into disassembled RCT components increases the mix's reactivity in a fire—"is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Sw. Elec. Power Co. v. EPA*, 920 F.3d at 1013 (quoting *State Farm*, 463 U.S. at 43) (cleaned up). As a "clear error of judgment," and as the product of illogic, the RCT Action is arbitrary and capricious. *See Calumet*, 86 F.4th at 11.

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The petition for review is GRANTED. The RCT Action is VACATED and REMANDED for further consideration.

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[45] So there is no need to entertain PHMSA's request for deference or MCR's claim, first raised in reply, that the report is a *post-hoc* rationalization. No amount of deference could overcome the complete lack of support for PHMSA's position.