

FOR PUBLICATION
UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

UNITED STATES OF AMERICA,
Plaintiff-Appellant,

v.

W. R. GRACE; ALAN R. STRINGER;
HENRY A. ESCHENBACH; JACK W.
WOLTER; J. McCAIG; ROBERT J.
BETTACCHI; O. MARIO FAVORITO;
ROBERT C. WALSH,
Defendants-Appellees.

No. 06-30472
D.C. No.
CR-05-00007-DWM

UNITED STATES OF AMERICA,
Plaintiff-Appellant,

v.

W. R. GRACE; ALAN R. STRINGER;
HENRY A. ESCHENBACH; JACK W.
WOLTER; WILLIAM McCAIG;
ROBERT J. BETTACCHI; O. MARIO
FAVORITO; ROBERT C. WALSH,
Defendants-Appellees.

No. 06-30524
D.C. No.
CR-05-00007-DWM
OPINION

Appeal from the United States District Court
for the District of Montana
Donald W. Molloy, District Judge, Presiding

Argued and Submitted
June 4, 2007—Seattle, Washington

Filed September 20, 2007

Before: Betty B. Fletcher, Harry Pregerson, and
Warren J. Ferguson, Circuit Judges.

Opinion by Judge B. Fletcher

COUNSEL

Todd S. Aagaard, Dept. of Justice Environment and Natural Resources Division, Washington, D.C., and Kris A. McLean, Assistant United States Attorney, Missoula, Montana, argued for the government. With them on the briefs were Sue Ellen Wooldridge, Assistant Attorney General; William W. Mercer, United States Attorney; Eric E. Nelson, Linda Kato, Special Assistant United States Attorneys; Kevin M. Cassidy, and Allen M. Brabender, Attorneys, United States Dept. of Justice Environment and Natural Resources Division.

Christopher Landau, Washington, D.C., argued for defendant-appellee W.R. Grace & Co. With him on the brief were Lawrence A. Urgenson, Tyler D. Mace, Michael D. Shumsky, Washington, D.C.; Stephen R. Brown, Charles E. McNeil, Kathleen L. DeSoto, Missoula, Montana, for defendant-appellee W.R. Grace & Co.; Angelo J. Calfo, Seattle, Washington; Michael F. Bailey, Missoula, Montana, for defendant-appellee Alan R. Stringer; Ronald F. Waterman, Helena, Montana; David S. Krakoff, Gary A. Winters, Washington, D.C., for defendant-appellee Henry A. Eschenbach; Mike Milodragovich, W. Adam Duerk, Missoula, Montana; Mark Holscher, Jeremy Maltby, Los Angeles, California, for defendant-appellee Jack W. Wolter; Palmer Hoovestall, Helena, Montana, Elizabeth Van Doren Gray, Columbia, South Carolina, William A. Coates, Greenville, South Carolina, for defendant-appellee William J. McCaig; Brian Gallik, Bozeman, Montana, Thomas C. Frongillo, Boston, Massachusetts, Vernon S. Broderick, New York, New York, for defendant-appellee Robert J. Bettacchi; C.J. Johnson, Missoula, Montana, Stephen A. Jonas, Robert Keefe, Boston, Massachusetts, for defendant-appellee O. Mario Favorito; Catherine A. Laughner, Aimee M. Grmoljez, Helena, Montana, Stephen R. Spivack, Washington, D.C., David E. Roth, Birmingham, Alabama, for defendant-appellee Robert C. Walsh.

OPINION

B. FLETCHER, Circuit Judge:

From 1963 until the early 1990s, W. R. Grace (“W. R. Grace” or “Grace”) mined and processed a rich supply of vermiculite ore outside of Libby, Montana. In response to ongoing serious health problems suffered by Libby residents, the government obtained an indictment charging W. R. Grace and seven of its executives (together “Grace”) with criminal conduct arising from Grace’s vermiculite operation in Libby. The superseding indictment charges defendants-appellees with (1) conspiring knowingly to release asbestos, a hazardous air pollutant, into the ambient air, thereby knowingly placing persons in imminent danger of death or serious bodily injury in violation of 42 U.S.C. § 7413(c)(5)(A) and (2) conspiring to defraud the United States in violation of 18 U.S.C. § 371. In addition to the dual-object conspiracy alleged in Count I, the indictment charged defendants-appellees with three counts of knowing endangerment under the Clean Air Act, 42 U.S.C. § 7413(c)(5)(A), and four counts of obstruction of justice in violation of 18 U.S.C. §§ 1505 and 1515(b).

This interlocutory appeal brought by the government concerns six orders grouped into four sections: the first order dismissed the knowing endangerment object of Count I’s conspiracy charge; the second adopted a particular definition of asbestos and excluded evidence inconsistent with that definition; the third denied a motion to exclude evidence related to an affirmative defense and relied on an emission standard for asbestos contained in certain Environmental Protection Agency (“EPA”) regulations, *see, e.g.*, 40 C.F.R. §§ 61.142-61.149; and the fourth through sixth orders excluded certain evidence and expert testimony. In addition, we rule on defendants-appellees’ motion to strike documents attached to the government’s reply brief. We have jurisdiction to hear this appeal pursuant to 18 U.S.C. § 3131, and we reverse in part, affirm in part, and remand.

I. Dismissal of the Knowing Endangerment Object

1. Background

In the original indictment, filed February 7, 2005, the government charged defendants with participating in a dual-object conspiracy. According to Count I of the indictment, which details the scope of the conspiracy, defendants conspired (1) to knowingly release asbestos, a hazardous air pollutant, and thus knowingly to endanger both EPA employees and members of the Libby community in violation of 42 U.S.C. § 7413(c)(5)(A) (“knowing endangerment object”); and (2) to defraud the United States by impairing, impeding, and frustrating government agency investigations and clean-up operations in violation of 18 U.S.C. § 371 (“defrauding object”). On March 20, 2006, defendants moved to dismiss the knowing endangerment object of the conspiracy, arguing that the government had failed to allege an overt act in furtherance of the alleged conspiracy within the statute of limitations period. *United States v. W. R. Grace*, 434 F. Supp. 2d 879, 883 (D. Mont. 2006).

Defendants’ argument relied primarily on *Yates v. United States*, 354 U.S. 298 (1957) (holding that the statute of limitations must be satisfied as to each object of the conspiracy when the government charges a multi-object conspiracy), *overruled on other grounds by Burks v. United States*, 437 U.S. 1, 2 (1978). Because the government supposedly had failed to allege a requisite overt act before the statute of limitations ran on November 3, 2004, defendants asserted that the knowing endangerment object was time-barred.

The government disputed defendants’ characterization of the indictment, claiming that certain overt acts alleged in the indictment could support both the fraud object and the knowing endangerment object of Count I’s conspiracy charge. Towards this end, the government directed the district court’s attention to paragraphs 143, 149, and 173-184 of the indict-

ment. *W. R. Grace*, 434 F. Supp. 2d at 885-87. The paragraphs cited by the government alleged that defendants had failed to remove asbestos-contaminated material from sites in the Libby community, had misled various individuals regarding current asbestos contamination, and had failed to disclose the existence of numerous asbestos-contaminated sites. What the paragraphs purportedly failed to allege was that defendants released, or conspired to release, asbestos during the relevant time period.

Analyzing both the text of the specified paragraphs and the structure of the indictment, in which the cited paragraphs were listed under the sub-heading “Obstruction of EPA’s Superfund Clean-Up,” the district court concluded that the indictment “more plausibly suggests a completed operation than a conspiracy still at work.” *Id.* at 887. To the extent that overt acts were alleged, the district court found that they were acts of obstruction, not acts of wrongful endangerment. *Id.* Thus, the district court dismissed as time-barred the knowing endangerment object of the Count I conspiracy. *Id.* at 888.

Two weeks after the district court’s first order, dismissing a portion of the indictment, the government obtained a superseding indictment. The new indictment was substantially similar to the original indictment, amending only paragraphs 173-183, which had been the focus of the district court’s previous order. In the superseding indictment, the government changed the section heading under which the disputed paragraphs had been listed from “Obstruction of Superfund Clean-Up” to “Knowing Endangerment of EPA Employees and the Libby Community and Obstruction of the EPA’s Superfund Clean-Up.” It also changed paragraphs 173, 174, 176-80, 182 and 183, by adding at the end of each original paragraph the phrase, “thereby concealing the true hazardous nature of the asbestos contamination, delaying EPA’s investigation and

causing releases of asbestos into the air in the Libby Community.”¹

Defendants then moved to dismiss the “knowing endangerment” object of the superseding indictment, arguing that the government had failed to fix the original indictment because the new indictment alleged no new overt acts, was barred by the previous dismissal “with prejudice,” and was time-barred because the statute of limitations had run. The district court rejected the first two arguments, but agreed with defendants that the new indictment was time-barred. Under the district court’s reading, the superseding indictment was not protected by the savings clause of 18 U.S.C. § 3288. Order at 17, *United States v. W. R. Grace*, 9:05-cr-00007-DWM (“Order Dismissing Indictment”) (July 27, 2006) (Docket # 690). The government now appeals that determination.

2. Standard of Review

We review de novo a district court’s decision to dismiss part of an indictment, *United States v. Barrera-Moreno*, 951 F.2d 1089, 1091 (9th Cir. 1991), as we review, also de novo, the district court’s interpretation of 18 U.S.C. § 3288. *United States v. Gorman*, 314 F.3d 1105, 1110 (9th Cir. 2002).

3. Analysis

[1] If a district court dismisses an indictment (or portion thereof), the savings clause of 18 U.S.C. § 3288 permits the government to return a new indictment after the statute of limitations has expired, as long as it is done within six months of the dismissal. The statute reads as follows:

Whenever an indictment or information charging a felony is dismissed for any reason after the period prescribed by the applicable statute of limitations has

¹Paragraph 175 was changed significantly.

expired, a new indictment may be returned in the appropriate jurisdiction within six calendar months of the date of the dismissal of the indictment or information . . . , which new indictment shall not be barred by any statute of limitations. This section does not permit the filing of a new indictment or information where the reason for the dismissal was the failure to file the indictment or information within the period prescribed by the applicable statute of limitations, or some other reason that would bar a new prosecution.

[2] The dispute in the instant case stems from the parties' divergent interpretations of the final sentence of § 3288. This sentence explains that the savings clause does not extend to indictments initially filed outside of the statute of limitations. The government takes the position that this does not bar the return of the new indictment because the original indictment was obtained before the statute of limitations expired. Thus, the government argues, § 3288 permits amendment by a superseding indictment. Defendants disagree, arguing that the government failed to allege an overt act for the knowing endangerment object of the conspiracy before the statute of limitations expired. The district court agreed with defendants and dismissed the knowing endangerment object as time-barred.

[3] Defendants' argument is premised on a conflation of the terms "time-barred" and "not timely filed." The last sentence of § 3288 refers to indictments that were not timely filed, i.e., indictments that were not filed within the statute of limitations. Here, there is no dispute that the government *filed* its indictment within the statute of limitations period. The district court dismissed the knowing endangerment object in the original indictment as "time-barred" because it failed to allege an overt act within the statute of limitations, not because the indictment was untimely filed. The district court erred. If the indictment is filed within six months of the dismissal order,

§ 3288 does not bar the government from filing a superseding indictment: the savings clause of § 3288 permits amendment when the original was structurally flawed but timely filed. *United States v. Clawson*, 104 F.3d 250 (9th Cir. 1996).

In *Clawson*, the defendant was indicted for mail fraud on June 10, 1993. *Id.* at 251. Defendant immediately moved to dismiss the indictment for failure to allege an overt act within the five-year statute of limitations. *Id.* The indictment alleged overt acts that occurred before the limitation period began on June 10, 1988, or after defendant's withdrawal from the conspiracy on July 5, 1988. *Id.* The district court granted defendant's motion to dismiss the indictment and the government responded by obtaining a First Superseding Indictment, which alleged overt acts occurring in the window between June 10, 1988, and July 5, 1988. *Id.* Defendant then moved to dismiss the new indictment, arguing that the statute had run before the government obtained the First Superseding Indictment and that § 3288 did not extend to indictments dismissed for failure to comply with the statute of limitations. *Id.* The district court denied his motion and we affirmed. *Id.* at 251-52.

Clawson noted that when “[r]ead in its entirety, th[e] last sentence [of § 3288] cuts off the six-month grace period only where the defect — whether it’s a limitations problem ‘or some other’ problem — is not capable of being cured.” *Id.* at 252. In the instant case, the district court held (and defendants now argue) that the defect in the original indictment obtained by the government is not capable of being cured because the original indictment did not allege an overt act for the knowing endangerment object before the statute of limitations expired. This position, however, is precluded by *Clawson*.

In *Clawson* we distinguished between a timely filed, but flawed, indictment, to which the savings clause of § 3288 does apply, and an untimely filed indictment, to which it does not.

“[I]f the original indictment was brought after the limitations period ran on all the alleged criminal conduct, allowing reindictment under section 3288 would obliterate the statute of limitations: A defendant could be indicted two years after the statute had run and, when the court dismissed, the prosecution could simply reindict within six months, free from the limitations bar.” *Id.*

For obvious reasons, reindictment is prohibited by § 3288 in such circumstances. *Id.*

“The matter is much different where the original indictment is brought within the limitations period, but is dismissed for failure to allege the exact elements of the crime, or some other technical reason. In the latter circumstance, a valid indictment could have been brought in a timely fashion; the six-month grace period merely allows the government to do what it had a right to do in the first place.” *Id.*

The latter circumstance describes the facts of both *Clawson* and the instant case. In both cases, the government timely indicted defendants for a particular crime, but originally failed to allege a valid overt act. The government then obtained superseding indictments charging defendants with the exact same crimes, but adding the necessary overt act allegations. Thus, each defendant was charged “with the exact crime for which he could have been prosecuted had there not been a defect in the indictment. Section 3288 was designed to apply in this situation.” *Id.*; see also *United States v. Charnay*, 537 F.2d 341, 354 (9th Cir. 1976) (“[The] underlying concept of § 3288 is that if the defendant was indicted within time, then approximately the same facts may be used for the basis of any new indictment [obtained after the statute has run] . . . , if the earlier indictment runs into legal pitfalls.”).

[4] When discussing “timeliness,” both *Clawson* and *Charnay* refer to the time of the original filing of the indict-

ment. They do not consider whether the original indictment included all of the relevant acts or elements necessary to charge defendants with the crime. As long as the original indictment is filed within the statute of limitations and charges the same crime, based upon approximately the same facts charged in the superseding indictment, § 3288 allows the government to file a superseding indictment within six months. *See* 18 U.S.C. § 3288; *Clawson*, 104 F.3d at 251-52; *Charnay*, 537 F.2d at 354. Here, the parties do not dispute that the original indictment was timely filed. The district court's holding that the indictment was time-barred referred only to its failure to allege the necessary overt acts in the original indictment — a flaw that can be cured through re-indictment under § 3288.

The district court attempted to distinguish *Clawson*, stating that in *Clawson* the government alleged overt acts in the original indictment, which was filed within the limitations period. This distinction is irrelevant. While the government did allege overt acts before the limitations period expired in *Clawson*, it failed to allege an overt act sufficient to support the conspiracy charge since the only overt acts alleged occurred outside the statute of limitations or subsequent to *Clawson*'s withdrawal from the conspiracy. Thus, the government originally failed to allege any relevant overt acts in *Clawson*, just as in the instant case.

Moreover, *Clawson* did not turn on the distinction advanced by the district court: as we have explained, § 3288 applies when an indictment (though defective) is brought within the limitations period, and the superseding indictment charges defendant with the same exact crime with which he was initially charged, based on approximately the same facts. The only addition in the new indictment considered in *Clawson* was the inclusion of new overt acts that the government could have used in the original indictment. The fact that the government had timely alleged inapplicable overt acts was wholly extraneous to the *Clawson* court's decision.

The district court's misapprehension of both *Clawson* and § 3288 is also clear from its statement that “[t]o allow the government a six-month grace period in this case would extend the statute of limitations for the improper purpose of affording the prosecution a second opportunity to do what it failed to do in the beginning.” Order Dismissing Indictment at 16. Yet this is exactly what § 3288 does. It extends the statute of limitations by six months to allow the prosecution a second opportunity to do what it failed to do in the beginning: namely, file an indictment free of legal defects.

This reading of § 3288 does not, as the district court suggests, “require a defendant to remain subject to an indefinite threat of prosecution, held open beyond the statute of limitations period, while he and the court wait for the government to finish tinkering with the indictment.” *Id.* What § 3288 does is twofold: First, it eliminates the incentive for criminal defendants to move for dismissal of an indictment at the end of the statute of limitations, thereby winning dismissal at a time when the government cannot re-indict. And second, it subjects defendants to the threat of prosecution for six months after the dismissal of the original indictment — not an indefinite threat of prosecution as the district court suggests — and only if the government has timely filed an indictment charging the exact same crimes based on approximately the same facts.

[5] For the reasons articulated herein, we reverse the district court's dismissal of the knowing endangerment object of Count I in the superseding indictment and reinstate that portion of the count.

II. Definition of Asbestos

1. Background

We now turn to the question of whether Congress's use of the term “asbestos” to identify a hazardous air pollutant created ambiguity as to what substance was meant by that term.

The parties filed cross motions in limine to exclude evidence that fell outside their respective interpretations of the term. Govt. Mot. in Limine #2 Re: Definition of Asbestos (Docket # 462); Defs' Mot. in Limine Re: Definition of Asbestos (Docket # 474). The district court held that the term “asbestos” has no inherent meaning and therefore its use in the criminal provisions of the Clean Air Act violated the rule of lenity and the Due Process Clause of the Fourteenth Amendment. It interpreted asbestos for purposes of the Clean Air Act’s knowing endangerment provision to mean the six minerals covered by EPA’s civil regulatory scheme. Order at 2 & 20, *United States v. W. R. Grace*, 9:05-cr-00007-DWM (“Order Defining Asbestos”) (Aug. 8, 2006) (Docket # 701). That regulation defines the civilly regulated species of asbestos as “the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.” Definitions for National Emission Standards for Hazardous Air Pollutants (“NESHAPs”), 40 C.F.R. § 61.141 (2007).

The district court imported the civil regulatory definition of “asbestos” into the criminal provisions of the Clean Air Act, and then ruled that evidence of asbestos releases offered at trial would be limited to those relevant to proving releases of the six minerals included in the regulatory definition; evidence of releases of other asbestiform minerals would be excluded. Order Defining Asbestos at 22. This ruling eliminated from trial evidence of releases of 95% of the contaminants in the Libby vermiculite — which are asbestiform minerals but fall outside of the six minerals in the civil regulatory definition — as well as excluding government data that did not differentiate between the six regulated minerals and unregulated asbestiform minerals. The government appeals, asserting that the definition contained in the criminal portion of the statute is the applicable definition.

2. Standards of Review

We review de novo the district court’s construction of the Clean Air Act, as we do rulings on the admissibility of evi-

dence in which issues of law predominate. *See United States v. Mateo-Mendez*, 215 F.3d 1039, 1042 (9th Cir. 2000).

3. Analysis

[6] The Clean Air Act's knowing endangerment provision prohibits the knowing and dangerous release into the ambient air of "any hazardous air pollutant listed pursuant to § 7412." 42 U.S.C. § 7413(c)(5)(A).² Section 7412(b) lists "asbestos," also identified by its Chemical Abstracts Service ("CAS")³ Registry number 1332-21-4, as a hazardous air pollutant. 42 U.S.C. § 7412(b). Thus, § 7412(b) identifies asbestos by name and defines it through reference to CAS Registry # 1332-21-4.

²42 U.S.C. § 7413(c)(5)(A) reads in relevant part:

Any person who knowingly releases into the ambient air any hazardous air pollutant listed pursuant to section 7412 of this title . . . , and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury shall, upon conviction, be punished by a fine under Title 18, or by imprisonment of not more than 15 years, or both. Any person committing such violation which is an organization shall, upon conviction under this paragraph, be subject to a fine of not more than \$1,000,000 for each violation. If a conviction of any person under this paragraph is for a violation committed after a first conviction of such person under this paragraph, the maximum punishment shall be doubled with respect to both the fine and imprisonment. For any air pollutant for which the Administrator has set an emissions standard or for any source for which a permit has been issued under subchapter V of this chapter, a release of such pollutant in accordance with that standard or permit shall not constitute a violation of this paragraph or paragraph (4).

³The Chemical Abstracts Service Registry, maintained by the American Chemical Society, is an authoritative database of chemical information. The Registry assigns each chemical substance a unique numeric identifier. Searches in the Registry require subscription. However, EPA maintains on its website a free "Substance Registry System" containing CAS Registry information, including the CAS definition of asbestos. <http://www.epa.gov/srs/> (search "asbestos"; follow link associated with 1332-21-4) (last visited Aug. 3, 2007).

The government contends that a statute may have two definitions for one term, one definition civil and one criminal. Further, it argues that the definition of asbestos applicable to the Clean Air Act's criminal knowing endangerment provision covers the minerals involved in this case. We agree on both points.

The district court found § 7412(b)'s "one-word definition"⁴ to be "unsatisfactory" as a matter of law. However, Congress need not define every word in a criminal statute for the statute to pass Constitutional muster. When Congress does not define a term in a statute, we construe that term "according to [its] ordinary, contemporary, common meaning[]." *United States v. Cabaccang*, 332 F.3d 622, 626 (9th Cir. 2003) (en banc) (internal quotation marks omitted). It is well known that asbestos has a common meaning; it is a fibrous, non-combustible compound that can be composed of several substances, typically including magnesium. Or, as defined by the CAS Registry, and incorporated by reference into § 7412(b), it is a "grayish non-combustible material" that "consists primarily of impure magnesium silicates." CAS Registry number 1332-21-4, *available at* http://iaspub.epa.gov/srs/srs_proc_qry.navigate?P_SUB_ID=85282. This definition has been established for decades, as was elucidated in the motions in limine. *See* Defs' Mot. in Limine Re: Definition of Asbestos n.4 (Expert Witness Disclosure of Gregory P. Meeker, Appendix A) (May 31, 2006) (noting that asbestos was first defined in 1920).

[7] In addition, defendants had actual notice in this case of the risks from the fibrous content of the asbestiform minerals in their products. Defendants are an industrial chemical company and seven of its top executives. They are all familiar with asbestos. Since at least 1976, defendants have known of the health risks posed by the asbestiform minerals in their products. It is clear that defendants knew or should have

⁴I.e., "1332214 Asbestos"

known that their mining, milling, and distribution activities risked the release of asbestos into the ambient air. In light of the clear statutory language, including § 7412(b)'s incorporation by reference of the CAS Registry asbestos definition, and defendants' knowledge of the industrial chemicals field, the district court erred in misdefining "asbestos" as used in the criminal statute and in invoking the rule of lenity. *See Muscarello v. United States*, 524 U.S. 125, 138 (1998) ("The rule of lenity applies only if, after seizing everything from which aid can be derived, . . . we can make no more than a guess as to what Congress intended.") (alteration in original) (internal quotation marks omitted); *United States v. Lanier*, 520 U.S. 259, 266 (1997) (The "rule of lenity[] ensures fair warning by so resolving ambiguity in a criminal statute as to apply [the statute] only to conduct clearly covered.").

The district court's conclusion that ambiguity exists simply because of the existence of two oversight structures — a civil regulatory structure and a criminal enforcement provision — that use different definitions of the term "asbestos" is erroneous. As we determined in *United States v. Hagberg*, 207 F.3d 569, 573 (9th Cir. 2000), Congress validly may create multiple enforcement mechanisms that each draw on different definitions for the same term or phrase.

In *Hagberg*, defendant was indicted for allegedly dumping sewage along a public road in violation of the Clean Water Act, 33 U.S.C. §§ 1319(c)(2), 1345(e). *Hagberg* at 570. Moving to dismiss the indictment, Hagberg argued that his actions did not fit within the statutory definition of the crime because the material he dumped was not "sewage sludge" as defined by the regulations for permitting waste disposal. *Id.* at 571. Accepting Hagberg's argument, the district court dismissed the indictment. The government appealed. *Id.* We reversed because the district court improperly had conflated the regulatory and direct enforcement provisions of the Clean Water Act, and the relevant definition — supplied by the direct enforcement provision — covered the material dumped by

defendant. *Id.* at 571-72, 575. We explained that “some terms found in the [direct enforcement provision] are defined differently when used in the context of [the civil permitting] regulations.” *Id.* at 572.

Like the Clean Water Act provisions at issue in *Hagberg*, the Clean Air Act creates multiple enforcement mechanisms: a civil regulatory structure and a direct enforcement mechanism. In the instant case, as in *Hagberg*, defendants are charged with violating the directly enforceable provision of the statute that pulls its definitions from a separate provision than does the regulatory provision. The civil regulatory system draws its definition of asbestos from 40 C.F.R. § 61.141, the knowing endangerment provision from 42 U.S.C. § 7412(b). *See* 42 U.S.C. §§ 7412(a)(6); 7413(c)(5)(A). The civil regulatory system regulates major sources of hazardous air pollutants, 42 U.S.C. § 7412(c)-(g), and therefore understandably focuses on a subset of asbestiform minerals deemed to have commercial potential; market forces preclude commercially non-viable species of asbestos from becoming major sources of pollution from asbestos mills and mines and other covered sources. The direct enforcement mechanism created in 42 U.S.C. § 7413 focuses on risks to health. Therefore it provides oversight of release of hazardous pollutants whether or not they come from major sources of pollution. We defer to Congress’s decision to create two enforcement structures and hold the district court’s conflation of the two to be error.

[8] In sum, the district court improperly limited the term “asbestos” to the six minerals covered by the civil regulations. Asbestos is adequately defined as a term and need not include mineral-by-mineral classifications to provide notice of its hazardous nature, particularly to these knowledgeable defendants. Accordingly, we reverse the order limiting evidence to that fitting within the civil regulations.

III. Mandamus

1. Background

[9] The knowing endangerment provision of the Clean Air Act establishes an affirmative defense for hazardous air pollutants released “in accordance with” an applicable National Emissions Standards for Hazardous Air Pollutants (“NESHAP”). *See* 42 U.S.C. § 7413(c)(5)(A). In the proceedings before the district court, the government argued that defendants could not avail themselves of this affirmative defense because no NESHAP applied to W.R. Grace’s operations in Libby; thus, compliance with an “applicable” NESHAP was impossible. The district court rejected this argument, finding that the regulations created an emissions standard of “no visible emissions” for asbestos. Accordingly, the district court ruled that it would allow defendants to introduce evidence at trial to try to prove their affirmative defense. Because the district court did not exclude any of the government’s emissions evidence as a result of this ruling, the government cannot appeal the district court’s decision. Instead, it now seeks a writ of mandamus to overturn the decision.

2. Standard of Review

The writ of mandamus is codified at 28 U.S.C. § 1651(a): “The Supreme Court and all courts established by Act of Congress may issue all writs necessary or appropriate in aid of their respective jurisdictions and agreeable to the usages and principles of law.” This court has developed a five-factor test for determining whether a writ may issue. We must consider whether:

- (1) The party seeking the writ has no other adequate means, such as direct appeal, to attain the relief he or she desires.
- (2) The petitioner will be damaged or prejudiced in a way not correctable on appeal.

- (3) The district court's order is clearly erroneous as a matter of law.
- (4) The district court's order is an oft-repeated error, or manifests a persistent disregard of the federal rules.
- (5) The district court's order raises new and important problems, or issues of law of first impression.

Clemens v. U. S. Dist. Ct., 428 F.3d 1175, 1177-78 (9th Cir. 2005) (quoting *Bauman v. United States Dist. Ct.*, 557 F.2d 650, 654-55 (9th Cir. 1977)). Not every factor must be present to warrant mandamus relief, *see id.* at 1178, and in this case the only disputed issue is whether the district court made a clear error as a matter of law.

3. Analysis

Where, as here, the district court's order involves issues of statutory interpretation, the order is clearly erroneous as a matter of law if the reviewing court is left with "a definite and firm conviction that the district court's interpretation of the statute was incorrect." *DeGeorge v. United States Dist. Court*, 219 F.3d 930, 936 (9th Cir. 2000) (citing *In re Cement Antitrust Litig.*, 688 F.2d 1297, 1306 (9th Cir. 1982)); *see also United States v. Ye*, 436 F.3d 1117, 1123 (9th Cir. 2006). Here, the plain language of the statute makes clear that the affirmative defense is not applicable to defendants' actions.

[10] In relevant part, § 7413(c)(5)(A) states, "[f]or any air pollutant for which the Administrator has set an emissions standard . . . , a release of such pollutant in accordance with that standard . . . shall not constitute a violation of this paragraph." The first clause of the affirmative defense makes it inapplicable to Grace's alleged asbestos releases. Quite simply, asbestos is not an "air pollutant for which the Administrator has set *an* emissions standard." § 7413(c)(5)(A) (emphasis

added). Rather, the Administrator has set *several* emissions standards, each of which is source dependent. Some asbestos emissions standards make no reference at all to “visible emissions.” *See* 40 C.F.R. §§ 61.143, 61.145, & 61.148. Others include additional procedural requirements, above and beyond the “no visible emissions” requirement. *See* 40 C.F.R. §§ 61.142, 61.144, 61.146, 61.149, & 61.150. In short, there is simply no trans-categorical emissions standard for asbestos; neither is there an emissions standard for asbestos releases from mining operations.⁵ Therefore, it is inconceivable that the alleged Grace releases were “in accordance with that standard.” § 7413(c)(5)(A). The plain language of the statute makes clear that the affirmative defense simply doesn’t apply in this case. The district court’s order to the contrary leaves us with a “a definite and firm conviction” that it got the law wrong. *DeGeorge*, 219 F.3d at 936. Consequently, we grant the government’s petition for writ of mandamus, and hold that W.R. Grace can not avail itself at trial of the affirmative defense articulated in 42 U.S.C. § 7413(c)(5)(A).

IV. Evidentiary Rulings

1. Introduction

As stated above, Counts II-IV of the superseding indictment allege violations of 42 U.S.C. § 7413(c)(5)(A), the Clean Air Act’s knowing endangerment provision, which creates criminal penalties for a person who “knowingly releases into the ambient air any hazardous air pollutant listed pursuant to section 7412 of this title . . . and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury.” Defendants filed motions in limine seeking to exclude evidence related to, or

⁵A perusal of the table of contents for 40 C.F.R. § 61 shows that most hazardous pollutants do in fact have a single emissions standard, enumerated in a single code section. *See, e.g.*, §§ 61.22, 61.32, 61.42, 61.52. Asbestos, however, does not. *See* §§ 61.142-151.

testimony based on, certain studies — EPA indoor air studies (“Indoor Air studies”), Grace’s historic testing of its vermiculite products (“Historic Testing”), a report of the Agency for Toxic Substances and Disease Registry based on a medical screening study of residents of Libby, Montana (“ATSDR Report”), and the results of the screening study published as an article in a peer-reviewed journal (“Peipins Publication”). Ruling that these studies were unreliable, irrelevant, or unduly prejudicial, the district court barred government experts from relying on them in forming opinions regarding the knowing endangerment charges, and, as to the indoor air studies, the ATSDR Report, and the Peipins Publication, excluding the studies, report, and publication themselves for most or all purposes. Order, *United States v. W. R. Grace*, 9:05-cr-00007-DWM (Aug. 21, 2006) (“Indoor Air Order”); Order, *United States v. W. R. Grace*, 9:05-cr-00007-DWM (Aug. 28, 2006) (“Historical Testing Order”); Order, *United States v. W. R. Grace*, 9:05-cr-00007-DWM (Aug. 31, 2006) (“ATSDR and Peipins Order”). The government appeals.

2. Standard of Review

This court reviews de novo the district court’s interpretation of the Federal Rules of Evidence. *United States v. Sioux*, 362 F.3d 1241, 1244 n.5 (9th Cir. 2004). In general, this court reviews for abuse of discretion a district court’s decision to admit or exclude scientific evidence and expert testimony. *United States v. Finley*, 301 F.3d 1000, 1007 (9th Cir. 2002). “[A] trial court has ‘broad discretion’ in assessing the relevance and reliability of expert testimony.” *Id.* (quoting *United States v. Murillo*, 255 F.3d 1169, 1178 (9th Cir. 2001)).

3. Relevant Rules

Federal Rule of Evidence 401 defines “relevant evidence” as that which has “any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the

evidence.” Rule 402 provides that relevant evidence is admissible, except as limited by the Constitution, statutes, or other rules of evidence. Rule 403 provides a balancing test for the exclusion of relevant evidence on the grounds of prejudice: relevant evidence may be excluded if “probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury. . . .”⁶

Several rules apply specifically to testimony by experts. Under Rule 702, an expert witness may provide opinion testimony if “the testimony is based upon sufficient facts or data” and “is the product of reliable principles and methods,” which have been “applied . . . reliably to the facts of the case.” The rule “affirms the court’s role as gatekeeper and provides some general standards that the trial court must use to assess the reliability and helpfulness of proffered expert testimony.” Advisory Comm. Notes, Rule 702 (2000).

Under Rule 703, the “facts or data . . . upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted.” However, if the expert relies on facts or data that are otherwise inadmissible, then those facts “shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert’s opinion substantially outweighs their prejudicial effect.”⁷

⁶Advisory committee notes from 1972 discuss the meaning of unfair prejudice — the “undue tendency to suggest decision on an improper basis, commonly . . . an emotional one” — and observe that the “availability of other means of proof may also be an appropriate factor” of determining when there is unfair prejudice.

⁷To the extent that inadmissible evidence is reasonably relied upon by an expert, a limiting instruction typically is needed — i.e., the evidence

4. Analysis

A. Indoor Air Releases

i. Background

On May 31, 2006, Defendants filed a motion in limine to exclude evidence of or derived from indoor asbestos releases. Defendants sought to exclude documents and studies, including EPA's Phase II air sampling charts, as well as expert testimony that relied upon these studies. *See* Defs' Mot. in Limine Re: Indoor Air Releases at 4-6 (Docket # 473).

On August 28, 2006, the district court granted defendants' motion "with respect to evidence of or derived from indoor releases offered for the purpose of proving an 'ambient air' release in violation of 42 U.S.C. § 7413(c)(5)(A)." Indoor Air Order at 11. The district court held that "[i]ndoor sampling performed by EPA in the course of its CERCLA activities, and testimony based upon this sampling, is not relevant [under Fed. R. Evid. 402] to whether Defendants committed a release in violation of the Clean Air Act, and is not admissible for the purpose of proving such a release." *Id.* at 8. The court stated that, under Federal Rules of Evidence 403, "[e]vidence derived from EPA testing and sample collection performed as part of its CERCLA analysis has the potential to be highly confusing and prejudicial," *id.* at 10, and barred the evidence for most purposes related to the Clean Air Act counts. However, the court held that the evidence had probative value with respect to defendants' "knowledge of the dangerousness of the asbestos contaminated vermiculite," *id.* at 8,

is admitted only to help the jury evaluate the expert's evidence. *E.g.*, *United States v. 0.59 Acres of Land*, 109 F.3d 1493, 1496 (9th Cir. 1997) (error to admit hearsay offered as the basis of an expert opinion without a limiting instruction). There is a presumption against disclosure to the jury of inadmissible information used as the basis for expert's opinion. *See* Advisory Comm. Notes, Rule 703 (2000).

relevant to the government's argument that defendants knowingly "place[d] another person in imminent danger of death or serious bodily injury," 42 U.S.C. § 7413(c)(5)(A), by releasing vermiculite into the community. In addition, the district court held the evidence relevant to the defrauding object of Count I's conspiracy charge and to the four counts of obstruction of justice in the superseding indictment. The district court thus denied the motion with respect to establishing knowledge of risk for the Clean Air Act charges and with respect to proving the obstruction and conspiracy counts. The government appeals the exclusion of the Indoor Air studies and expert testimony based upon them with regard to the knowing endangerment counts.

ii. Analysis

[11] The government argues that EPA's Phase II tests show the propensity of the Libby asbestos to release fibers whenever it was disturbed and regardless of the form the vermiculite took and therefore should be admitted to form the basis of expert testimony. The government also makes an argument that the Indoor Air studies should themselves be admitted as relevant. However, although the government makes a valid argument about the friability of Libby asbestos being the same whether indoors or outdoors, the probative value of the EPA studies is possibly outweighed by the danger of unfair prejudice. First, the studies' overall probative value is low because they largely concern the asbestos releases at various indoor locations in Grace's Libby mining and milling operation. There is some information in the studies regarding the friable character of Libby asbestos, but not much. There is a risk of unfair prejudice because the indoor releases may not reflect the level of releases into the ambient air, and there is some language in the studies regarding asbestos-related diseases in Libby that may mislead or confuse the jury into believing that releases into indoor air proves releases into ambient air. Finally, even if this court disagreed with the district court's Rule 403 balancing, "[a]n appellate court will not

reengage in a balancing of the probative value and prejudicial effect.” *Rogers v. Raymark Industries, Inc.*, 922 F.2d 1426, 1430 (9th Cir. 1991). The district court’s decision to bar the use of documents and studies derived from indoor air releases for the purpose of proving a release into the ambient air was within its discretion.

[12] It is a separate question, however, whether the district court abused its discretion in excluding expert testimony based on documents and studies derived from indoor air releases. The district court did not conduct an inquiry under Rule 702⁸ or 703⁹ in its August 28th order. Rule 703 provides, “If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, *the facts or data need not be admissible* in evidence in order for the opinion or inference to be admitted.” (Emphasis added.) The government persuasively argues that the proper remedy for the problems associated with the indoor air studies is to prevent an expert from disclosing the prejudicial facts instead of preventing the expert from relying on them altogether. Allowing expert testimony based on the EPA studies “will assist the trier of fact to understand the evidence or to determine a fact in issue” under Rule 702 because the studies may show the propensity of the asbestos-contaminated ver-

⁸Fed. R. Evid. 702 provides, “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.”

⁹Fed. R. Evid. 703 provides, “The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert’s opinion substantially outweighs their prejudicial effect.”

miculite to release asbestos fibers into the ambient air. While the specific asbestos concentration levels discussed in the studies are not relevant because the studies largely measured indoor air releases and gathered data under conditions different from the ambient air releases relevant to the statute, the government's experts should be permitted to opine generally about the friability of Libby asbestos based in part on the data in the studies. The data from the indoor sampling is relevant to the propensity of Libby asbestos to release fibers upon disturbance. Based on these data, an expert could testify about friability and whether a release of asbestos would occur if asbestos-contaminated vermiculite were exposed or disturbed. Because the district court did not inquire into whether the data provided by the indoor air tests is of the type reasonably relied upon by experts in the field, *see* Fed. R. Evid. 703, or whether the data fits under Rule 702, we remand so that the district court can conduct these inquiries in the first instance.

B. W.R. Grace's Historic Product Testing

i. Background

On May 31, 2006, defendants filed a motion in limine to exclude expert opinions regarding Grace's historical, non-ambient air product and commercial testing. Defendants sought to exclude the testimony of Dr. Richard Lemen,¹⁰ Dr. Vernon Rose,¹¹ Paul Peronard,¹² Dr. Aubrey Miller,¹³ Dr. Chris Weis,¹⁴ and other government witnesses who might "at-tempt to draw unsupportable correlations between Grace's historical product and commercial tests and expected ambient air exposures from disturbances of vermiculite materials

¹⁰Docket # 287.

¹¹Docket # 283.

¹²Docket # 281.

¹³Docket # 279.

¹⁴Docket # 286.

found in the town of Libby.” Defs’ Mot. in Limine Re: Historic Testing at 4 (Docket # 496). On August 29, 2006, the district court granted defendants’ motion to exclude expert testimony based on historic testing offered to prove a release in violation of 42 U.S.C. § 7413(c)(5)(A). Historic Testing Order at 7. The district court denied defendants’ motion with respect to expert testimony based on historic testing offered for the purpose of showing defendants’ knowledge of the dangerousness of the asbestos contaminated vermiculite. *Id.*

ii. Analysis

Rule 702 authorizes expert testimony that “will assist the trier of fact” when the testimony “is based upon sufficient facts or data,” the testimony is produced through “reliable principles and methods,” and the expert witness “has applied the principles and methods reliably to the facts of the case.” Generally, an inquiry under Rule 702 examines the expert’s testimony as a whole. The 702 inquiry typically does not examine the reliability or relevance of particular data sets that underlie the expert testimony, although this approach does no harm where the expert testifies on only one study or where no combination or addition of data could make the data in question a proper, reliable basis for making a given claim. In contrast to Rule 702’s holistic focus on an expert’s testimony, Rule 703 governs the inquiry into the reliability of particular data underlying expert testimony. Fed. R. Evid. 703; *see also Claar v. Burlington Northern R. Co.*, 29 F.3d 499, 501 (9th Cir. 1994).

[13] Here, the district court excluded the historic testing data under Rule 702. This document-based approach creates the problem that one cannot know fully whether or in what ways other information sources are meant to, in combination with the challenged data sources, form the premise for the expert testimony. Each document must be dispositive under the district court’s approach, a requirement we do not impose under Rule 702. On remand, the district court shall conduct

the Rule 702 analysis in light of the expert's reasoning and methodology as a whole.

[14] Faced with this new 702 analysis, defendants presumably will argue, as they do on appeal, that the historic testing evidence fails the "fit" test under *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).¹⁵ In response, the government argues that its experts do not plan to rely on the historic testing data to estimate the fiber concentrations from the charged releases, but only to opine generally on the hazardous characteristics¹⁶ of Libby asbestos contaminated vermiculite. This limited use of the study to inform experts' opinions is permissible, because the propensity of Libby asbestos to release fibers fits the release element of the knowing endangerment provision. The district court did not consider this propensity-to-release inquiry, thus abusing its discretion by excluding this evidence under 702.

Defendants make two additional, ultimately unsupportable arguments. First, they argue that the testimony's exclusion under Rule 702 was proper because the government's experts "do not need" the evidence on historic air releases to testify about the friability of Libby asbestos. This argument misconceives Rule 702's inquiry, which focuses on fitness, relevance, and reliability, not on whether an expert potentially has other evidence on which to base an opinion. Second, defendants argue that the district court properly excluded the testimony under Rule 403 in addition to Rule 702. Contrary to defendants' assertion, however, the district court did not rely on Rule 403 in its historic testing order but discussed the admissibility of expert testimony only under Rule 702. Moreover, an expert reasonably may rely on inadmissible evidence

¹⁵This phrasing of the argument improperly focuses the 702 inquiry on a document-by-document approach that we disapproved *supra*.

¹⁶I.e., the propensity of Libby asbestos to break down and release fibers into the ambient air.

in forming an opinion or delivering testimony. *See* Fed. R. Evid. 703.

[15] The question remains whether data concerning indoor air quality are of the type reasonably relied on by other experts in the field. *See* Fed. R. Evid. 703. Although it appears that the district court never conducted this 703 inquiry, the second step of the Rule 702 analysis — that the study was “the product of reliable principles and methods” — presumably answers this question in the affirmative. *See* Rule 702; *see also* *Claar*, 29 F.3d at 501 (“Rule 703 merely relaxes, for experts, the requirement that witnesses have personal knowledge of the matter to which they testify,” not whether the requirements of 702 are properly met). Although not stated explicitly, the order implicitly found the historic testing reliable in finding it admissible under 702 to show knowledge. Historic Testing Order at 3-4. Thus, the historic testing is admissible for purposes of expert opinion formation and testimony regarding the propensity of Libby vermiculite to release asbestos as relevant to 42 U.S.C. § 7413(c)(5)(A). Accordingly, we reverse the district court order excluding such testimony.

*C. Medical Screening Study: ATSDR and Peipins
Publication*

i. Background

In 2000-2001, the Agency for Toxic Substances and Disease Registry (“ATSDR”) conducted a medical screening study in Libby (the “ATSDR Report”) to detect pleural abnormalities in Libby residents and to inform priority-setting in EPA’s asbestos clean-up operation. The study entailed interviewing and medically testing individuals who had lived, worked, attended school, or participated in other activities in Libby for at least six months before 1990. Questions were asked to identify individuals who had accessed potential “exposure pathways” to asbestos and vermiculite prior to Decem-

ber 31, 1990. For example, “pathways” included employment at W. R. Grace, living with W. R. Grace workers, using vermiculite for gardening, and engaging in recreational activities in certain locations known to contain vermiculite. Information about other basic demographic variables and risk factors was also gathered, e.g., age, sex, smoking status, history of pulmonary disease and various other self-reported health conditions.

ATSDR published an initial report of the study’s findings in February 2001. The complete results of the study (the “Peipins Publication”) were published in November 2003 in *Environmental Medicine*, a peer-reviewed journal. The Peipins Publication analysis used regression modeling to estimate the risk of respiratory abnormalities for each of the exposure pathways while controlling for all other pathways and other established and suggested risk factors.

The study showed that certain factors — including exposure to particular pathways — were associated with respiratory illness and abnormalities. The factors most strongly associated with abnormalities were: being a former W. R. Grace employee, being older, having had household contact with a former W. R. Grace worker, and being male. (The study also demonstrated “a statistically significant increase in the prevalence of pleural abnormalities with an increasing number of exposure pathways.” While “participants reporting more pathways might be expected to have more cumulative exposure than would those reporting fewer pathways,” this was not data gathered by the study; the study identified avenues for exposure but did not quantify the duration or intensity of individuals’ exposures.

Both the interim ATSDR Report and the final Peipins Publication noted that the study had no control group and “no directly comparable Montana or U.S. population studies [were] available.” The researchers were able to compare the data gathered with studies of other groups with substantive work-related asbestos exposure. The levels of pleural abnor-

malities were higher in Libby than in studies of other groups, but the study did not engage in any direct quantitative comparison.¹⁷

On May 31, 2006, defendants filed a motion in limine “to exclude expert evidence relating to the ATSDR Medical Testing Program.” Defs’ Mot. in Limine Re: ATSDR (Docket # 500, 502). The district court characterized the motion as one to exclude “any evidence or expert testimony relating to” the medical screening study conducted in Libby by the Agency for Toxic Substances and Disease Registry. ATSDR Order at 1. The government did not object to the court’s characterization of defendants’ motion. On August 31, 2006, the district court granted defendants’ motion. The court ruled that the ATSDR Report and Peipins Publication, and any expert testimony based thereon, were excluded under Rules 403 and 702 for any purpose relating to the Clean Air Act knowing endangerment counts. *Id.* at 31.

ii. Analysis

[16] The district court acted within its discretion in excluding the ATSDR Report and Peipins Publication themselves under Rule 403 for purposes of the knowing endangerment counts. There are limits to the probative value¹⁸ of the particu-

¹⁷The results of the ATSDR Report were also compared with “control groups or general populations found in other studies.” That comparison showed that the levels of pleural abnormalities were also higher in Libby for those who claimed “no apparent exposure” to particular pathways than subjects in other studies. This supported the study’s conclusion that it was unlikely that there were individuals in Libby who had not been exposed to some degree.

¹⁸The study demonstrated an association between negative health outcomes and an individual’s unquantified exposure to vermiculite via particular “pathways” prior to the statutory period. The existence of association — and not causation — goes to the probative value of the evidence. The reported findings did not indicate that all exposure pathways were significantly associated with lung abnormalities (for example, gardening with

lar correlations the ATSDR Report revealed and potentially prejudicial aspects to the data. Moreover, the government failed to contest the district court's undue prejudice conclusion. Because Rule 403 requires the district court to balance the probative value and the prejudicial effects of a piece of evidence, failure to raise and argue prejudice generally waives the argument. *See United States v. Wilson*, 966 F.2d 243, 245-46 (7th Cir. 1992).

[17] However, in excluding this evidence from informing expert opinion and testimony, the district court erred. The expert is, in the first instance, the judge of what resources would help him to form an opinion, and he can filter out as irrelevant prejudicial information. The trial judge is to assure the reliability of evidence by vetting under Rule 703 the bases underlying the expert's testimony and by examining under Rule 702 the expert's methodology. Here, however, the trial judge misapplied Rule 702 and replaced inappropriately the Rule 703 analysis with one under Rule 403.

To begin, the district court concluded that the ATSDR medical screening program and resulting analyses did not establish a causal link between exposure to Libby's vermiculite and the development of asbestos-related disease. The ATSDR Report acknowledged repeatedly that the testing program was not designed as an epidemiological study to show causality. Notably, there was no internal control group and the participants were self-selected, rather than randomly selected. In light of this, the district court concluded that the data could not provide experts with a reliable basis for opining as to cau-

vermiculite is not one of the factors mentioned as one being associated with such abnormalities). Because the data were gathered before the statutory period, it is questionable how reliable a basis they provide for drawing conclusions about the extent of the dangers posed by ambient releases during the statutory period, i.e., concentration or duration of releases. However, this is more an issue for the expert than the court.

sality (i.e., the danger posed by the releases from Libby vermiculite).

Nonetheless, one of the main objectives of the ATSDR Report was to examine the association between pleural and interstitial abnormalities and participants' exposure histories — measured in broad terms by the participants' overall contact with exposure pathways. As the district court acknowledged, the government's experts did not claim that they intended to use the study to show causation, but rather indicated that they would rely on the evidence to show that there were some associations or correlations between exposure to vermiculite in Libby and pleural abnormalities.

The district court took the view that the jury would be unlikely to distinguish between evidence of an association and evidence of causation and therefore would likely be misled, and would place undue reliance on the evidence. In this respect, the court substantially underestimated the capacity of jury instructions to distinguish these relationships, and the potential efficacy of a limiting instruction.

Further, the fact that a study is associational — rather than an epidemiological study intended to show causation — does not bar it from being used to inform an expert's opinion about the dangers of asbestos releases, assuming the study is “of the type typically relied upon” by experts in the field. Fed. R. Evid. 703. Of course, the expert's opinion testimony must satisfy the requirements of Rule 702—but that requires consideration of the *overall* sufficiency of the underlying facts and data, and the reliability of the methods, as well as the fit of the methods to the facts of the case. Fed. R. Evid. 702.

Here, the district court failed to consider the Rule 702 requirements with regard to causation. Instead, as with the historical testing, the court conducted a document-by-document Rule 702 analysis that deconstructed the experts' testimony in a manner not contemplated by Rule 702. More-

over, the study, which was published in a peer-reviewed journal and relevant to association, is adequate under 702. The study's failure to establish causation goes to the weight it should be accorded, but does not mean that an expert could not rely on it in forming an opinion.

Nor did the district court consider the possibility of expert reliance on the ATSDR Report without disclosure of the study itself to the jury, as provided for by Rule 703 ("If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted."). In fact, the district court generally failed to conduct a 703 analysis, such as considering whether this study was "of the type" relied upon by experts in the field, or whether the ATSDR Report's "probative value . . . substantially outweighs [its] prejudicial effect." Fed. R. Evid. 703.

[18] Instead, the district court excluded expert testimony regarding the ATSDR Report under Rule 403. This ruling improperly replaced 703 balancing with 403 balancing, *cf.* Fed. R. Evid. 703 (providing balancing test applicable to expert testimony), and the exclusion of the ATSDR Report and Peipins Publication as bases for expert testimony or opinion formation was error. While Rule 403 supplies a basis for holding the underlying ATSDR Report inadmissible, it does not contemplate barring an expert from relying on it. *Cf.* Fed. R. Evid. 403. The exclusion of the ATSDR Report and the Peipins Publication from expert consideration and testimony was error, and thus we reverse that part of the ATSDR Order.

V. Motion to Strike

In its reply brief to this court, the government submitted six documents not included in the record below—two excerpts of the federal register (addenda 1 and 3), a report of the National Research Council (addendum 2), published scientific articles

(addenda 5 and 6), and search results presumably from the CAS Registry (addendum 4). Defendants moved to strike four of the documents (addenda 2, 4, 5, and 6) on the grounds that they were not part of the record below, were misleading, and, by virtue of their submission in the reply brief, were presented without giving defendants an opportunity to respond.

[19] In general, we consider only the record that was before the district court. We have made exceptions to this general rule in three situations: (1) to “correct inadvertent omissions from the record,” (2) to “take judicial notice,” and (3) to “exercise inherent authority . . . in extraordinary cases.” *Lowry v. Barnhart*, 329 F.3d 1019, 1024 (9th Cir. 2003). Considerations of institutional expertise and notice support our limitation of these exceptions to “unusual circumstances.” *Id.*

[20] The search results in addendum item 4 fit none of these exceptions. Addendum items 2, 5, and 6 fit within the second exception—we have discretion to take judicial notice under Rule 201 of the existence and content of published articles. See *Bell Atlantic Corp. v. Twombly*, ___ U.S. ___, ___ n.13, 127 S. Ct. 1955, 1973 n.13 (2007); *United States v. Rutgard*, 116 F.3d 1270, 1278 (9th Cir. 1997). However, as we have stated before, the appropriate manner to supplement the record on appeal is “by motion or formal request so that the court and opposing counsel are properly apprised of the status of the documents in question.” *Lowry*, 329 F.3d at 1025. The government failed to so move, and thus we grant defendants’ motion to strike. However, due to the reversal and remand on certain issues, our ruling here does not preclude application to the district court for inclusion in the district court’s record for whatever use is appropriate.

CONCLUSION

We reverse the order dismissing the knowing endangerment object of Count I of the superseding indictment. We reverse the order adopting the regulatory definition of asbes-

tos used for civil regulation and direct that the definition in the criminal statute, i.e., the definition provided in 42 U.S.C. § 7412(b), applies. We grant the government's request for a writ of mandate. We affirm the exclusion of the indoor air studies, the ATSDR Report, and the Peipins Publication themselves. However we reverse their exclusion — and the exclusion of the historic testing — as bases underlying an expert's opinion or testimony. Finally, we grant defendants' motion to strike the documents included with the government's reply brief to this court.

AFFIRMED in part, **REVERSED** in part, and **REMANDED**.

WRIT OF MANDAMUS GRANTED on one issue.