United States Court of Appeals for the Federal Circuit

MAGĒMĀ TECHNOLOGY LLC,
Plaintiff-Appellant

v.

PHILLIPS 66, PHILLIPS 66 CO., WRB REFINING LP,
Defendants-Appellees

2024-1342

Appeal from the United States District Court for the Southern District of Texas in No. 4:20-cv-02444, Senior Judge Simeon Timothy Lake, III.

Decided: September 8, 2025

JAMIE HERBERT MCDOLE, Winstead PC, Dallas, TX, argued for plaintiff-appellant. Also represented by MIRANDA Y. JONES, MICHAEL KARSON; ROBERT L. GREEN, JOHN R. KEVILLE, Sheppard, Mullin, Richter & Hampton LLP, Houston, TX.

DENISE DRAKE, Gibbs & Bruns, Houston, TX, argued for defendants-appellees. Also represented by CHARLES ROSSON; REAGAN M. BROWN, CHARLES BRUCE WALKER, JR., Norton Rose Fulbright US LLP, Houston, TX.

Before MOORE, *Chief Judge*, STOLL, *Circuit Judge*, and BUMB, *Chief District Judge*.[1]

BUMB, *Chief District Judge*.

On the eve of trial, Plaintiff Magēmā Technology LLC ("Magēmā") learned that Defendants Phillips 66, Phillips 66 Co., and WRB Refining LP (together, "Phillips") intended to introduce a new theory of noninfringement. Phillips' new theory was that Magēmā could not prove infringement without access to certain of Phillips' test results. But Magēmā did not have access to those test results because Phillips had successfully argued during discovery that it would be too dangerous to obtain those test results. Magēmā cried foul.

The District Court overruled Magēmā's objection to the introduction of Phillips' noninfringement theory and the jury returned a verdict of noninfringement on Claims 1 and 5 of U.S. Patent No. 10,308,884. The District Court denied Magēmā's motion for a new trial but found that the introduction of Phillips' noninfringement theory was both "improper and prejudicial." Nonetheless, it determined that Phillips' persistent injection of its noninfringement theory throughout the trial was harmless.

We disagree. Because we cannot discern the basis for the jury's noninfringement verdict and are not satisfied that the verdict was uninfected by Phillips' improper and prejudicial noninfringement theory, we reverse the District Court's order denying Magēmā a new trial and remand for a new trial. We also reject Phillips' alternative grounds for affirmance and adopt the District Court's claim construction.

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[1] Honorable Renée Marie Bumb, Chief Judge, United States District Court for the District of New Jersey, sitting by designation.

BACKGROUND

I

Residual heavy marine fuel oil ("HMFO") is used to power large, ocean-going cargo ships and must meet an internationally recognized standard known as International Organization for Standardization 8217:2017 ("ISO 8217"). Table 2 of ISO 8217 sets forth limits for certain physical properties of HMFOs.[2]

Two physical properties of ISO 8217 Table 2 are relevant here. First, ISO 8217 Table 2 requires the flashpoint for HMFOs to be at least 60 degrees Celsius (140 degrees Fahrenheit). Second, the sulfur content for ISO 8217 Table 2 HMFOs cannot exceed the specified maximum imposed by Annex VI to the International Maritime Organization's ("IMO") International Convention for the Prevention of Pollution from Ships.[3]

Before 2016, the IMO-imposed sulfur cap on HMFOs was 3.50 % sulfur content by weight. But in late 2016—concerned about high sulfur dioxide emissions from ocean-going ships powered on HMFOs—the IMO announced that it would be reducing the sulfur cap to a more ambitious 0.50 % sulfur content by weight (the "IMO Sulfur Cap").

Enter Magēmā (pronounced "Maggie Mae," like the Beatles song), a company that patented a solution to desulfurize HMFO to bring it into compliance with the IMO

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[2] ISO 8217 Table 1 sets forth limits for certain physical properties of a different, lighter kind of marine fuel called distillate marine fuel.

[3] Congress codified Annex VI in the Act to Prevent Pollution from Ships ("APPS"). 33 U.S.C. §§ 1905–1915. The U.S. Environmental Protection Agency promulgated regulations to APPS, which incorporate by reference the full text of Annex VI. *See* 40 C.F.R. § 1043.100(b)(1).

Sulfur Cap. Its patented technology, U.S. Patent No. 10,308,884 ("the '884 Patent") teaches first formulating a high-sulfur HMFO compliant with ISO 8217 with a sulfur content by weight greater than 0.50 %—in other words, an HMFO with a sulfur content higher than the IMO Sulfur Cap but otherwise compliant with ISO 8217 Table 2 properties. The '884 Patent then teaches exposing *that* fuel to hydrogen at elevated temperatures and pressures in the presence of a catalyst to promote the chemical change of the high-sulfur HMFO into a low-sulfur HMFO that would comply with the IMO Sulfur Cap. This process of desulfurizing through hydrogen exposure is called hydroprocessing or hydrotreating.

Specifically, Claims 1 and 5 of the '884 Patent teach:

> 1. A low sulfur heavy marine fuel oil, consisting essentially of a 100% hydroprocessed high sulfur heavy marine fuel oil, wherein *prior to hydroprocessing* the high sulfur heavy marine fuel oil *is compliant with ISO 8217:2017* and is of *merchantable quality* as a residual marine fuel oil but has a sulfur content (ISO 14596 or ISO 8754) greater than 0.5% wt. and wherein the low sulfur heavy marine fuel oil is compliant with ISO 8217:2017 and is of merchantable quality as a residual marine fuel oil and has a sulfur content (ISO 14596 or ISO 8754) less than 0.5 wt %.
>
> 5. A low sulfur hydrocarbon fuel composition consisting essentially of: a majority by volume of a 100 % hydroprocessed high sulfur residual marine fuel oil and a minority by volume of Diluent Materials, wherein *prior to hydroprocessing* the high sulfur heavy marine fuel oil is *compliant with ISO 8217:2017* but has a sulfur content (ISO 14596 or ISO8754) greater than 0.5 wt %; and wherein the low sulfur heavy marine fuel composition is compliant with ISO 8217:2017 and has a sulfur content

> (ISO 14596 or ISO 8754) less than 0.5 wt %; and wherein the Diluent Materials are selected from the group consisting of: hydrocarbon materials; non–hydrocarbon materials; and, solid materials and combinations thereof.

'884 Patent, col. 25, ll. 27–36, col. 25–26, ll. 56–7 (emphases added).

Claim 1 of the '884 Patent imposes claim limitations that, "prior to hydroprocessing," the high sulfur HMFO must be "compliant" with the physical property limitations set forth in ISO 8217 and must be of "merchantable" quality. Claim 5 requires the same, but the fuel need not be of "merchantable" quality.

After filing a provisional patent application, Magēmā began to market its technology to different refineries, including Phillips. Magēmā and Phillips met in 2017 and 2018 to discuss implementing Magēmā's invention. The parties never reached a licensing agreement. Unbeknownst to Magēmā, however, Phillips was hard at work making changes to the hydrotreater reactors at its Bayway Refinery in New Jersey and its Wood River Refinery in Illinois to formulate a low-sulfur HMFO from a high-sulfur HMFO. Later, Phillips publicly announced plans in its investment materials to improve its hydrotreater reactors to formulate low-sulfur HMFO from high-sulfur HMFO to satisfy the IMO Sulfur Cap.

Convinced that Phillips copied its invention, Magēmā sued Phillips for infringement in the United States District Court for the Southern District of Texas alleging that Phillips' products and processes at its Wood River and Bayway Refineries infringed Claims 1 and 5 of the '884 Patent, Claims 1 and 4 of U.S. Patent No. 10,604,709 ("the '709

Patent"), as well as claims of U.S. Patent Nos. 10,584,287 and 10,533,141.[4]

II

A

At claim construction, the parties agreed that the term "compliant with ISO 8217:2017" should be construed to mean "meets the bulk physical properties of any of a RMA, RMB, RMD, RME, RMG, or RMK residual marine fuel as set forth in Table 2 of the ISO 8217:2017 standard."

The parties, however, disputed the proper construction for the term "HMFO." The District Court adopted Magēmā's proposed construction and construed the term, consistent with its express definition in the '844 Patent, to mean "a petroleum product fuel compliant with the ISO 8217:2017 standards for the bulk properties of residual marine fuels except for the concentration levels of the Environmental Contaminates [(*i.e.*, sulfur)]." J.A. 239 (citing '844 Patent, col. 7, ll. 51–54). Phillips urged the District Court to adopt a construction limiting HMFO to mean a fuel containing "process residues" that "do[] not boil or vaporize even at vacuum conditions." J.A. 234; '884 Patent, col. 1, ll. 28–30 ("HMFO comprises a mixture of process residues—the fractions that don't boil or vaporize even under vacuum conditions[.]"). It urged that construction because the refineries at issue process *distillate* (as opposed to residual) marine fuels that have been fully vaporized before they reach the hydrotreater reactor.[5]

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[4] The jury trial involved alleged infringement of only the '884 and '709 patents.

[5] Phillips' witness, however, testified at trial that Phillips sells its finished, low-sulfur, hydrotreated product as a residual marine fuel oil.

But the District Court concluded that Magēmā properly acted as its own lexicographer by clearly and consistently defining HMFO as an ISO 8217 Table 2 residual marine fuel, which nowhere requires the fuel to contain any amount of process residues.

The parties never requested a construction of the terms "prior to hydroprocessing" and "of merchantable quality."

B

As noted, ISO 8217 Table 2 requires the flashpoint of an HMFO to be at least 140 degrees Fahrenheit. And the '844 Patent contains express claim limitations that the high-sulfur HMFO must be "compliant with ISO 8217" "prior to hydroprocessing." '884 Patent, col. 25, ll. 29–30, 59–61. That meant that if the flashpoint of the crude oil feed used to make the high-sulfur HMFO was lower than 140 degrees "prior to hydroprocessing," Phillips would not infringe on Magēma's invention because its refinery feeds would not be "compliant with ISO 8217."

So, the parties had to test the feed flashpoint "prior to hydroprocessing" to determine compliance with ISO 8217. But the parties hotly disputed where exactly to test flashpoint temperature at Phillips' Bayway Refinery. Phillips believed that the proper testing location was somewhere outside the battery limits ("OSBL") of the DSU-1 hydrotreater reactor at Bayway. It produced testing samples from that location to Magēmā. But Magēmā wanted to test flashpoint from a location inside the battery limits ("ISBL") of the Bayway DSU-1 hydrotreater reactor, but before the feed hit the hydrotreater reactor.

Magēmā moved to compel Phillips to produce flashpoint testing data from that location. At the motion to compel hearing before the Magistrate Judge, Phillips argued that it would be too dangerous to test and produce flashpoint samples ISBL. Besides, Phillips argued, Magēmā did not need actual testing samples ISBL. That was because,

Phillips suggested, Magēmā could simply use a generally accepted formula—the Riazi Formula—to estimate flashpoint temperature ISBL at Bayway using otherwise available data.

The Magistrate Judge was "not keen on ordering sampling" that was unsafe but acknowledged that Magēmā needed some way of estimating flashpoint ISBL to meet its burden of proof. And because Phillips represented that Magēmā could rely on Riazi Formula estimates to calculate flashpoint ISBL, the Magistrate Judge denied Magēmā's motion to compel.

After the close of discovery and after briefing cross-motions for summary judgment, it became clear that Phillips, in fact, had the capability of testing flashpoint ISBL. Remarkably, and notwithstanding Phillips' representations to the Magistrate Judge that it would be too dangerous to test flashpoint temperature ISBL, Phillips moved to supplement the summary judgment record with evidence of flashpoint testing from a new sample station it built ISBL.

The District Court denied Phillips' motion to supplement the summary judgment record. It found that Phillips "failed to provide a reasonable explanation for [its] failure to sample" the ISBL feed before the discovery cut-off and were on notice that Magēmā wanted testing samples from that location after Magēmā filed its motion to compel. J.A. 25. And it found that belatedly supplementing the summary judgment record with the newly produced samples would be "unduly prejudicial" given Phillips' representations in opposition to Magēmā's motion to compel that Magēmā did not need actual testing samples to prove infringement and could instead use the Riazi Formula to estimate flashpoint.

The District Court also denied the remainder of the cross-motions, in relevant part. It denied Phillips' motion for partial summary judgment "declin[ing] [Phillips'] invitation to revise the construction of HMFO to include

fractions that do not boil or vaporize even under vacuum conditions." J.A. 61. And it denied Magēmā's motion for partial summary judgment concluding that there was a genuine issue of disputed fact whether the "Bayway [h]ydrotreater's feed is a Table 2 compliant HMFO," that is, whether its flashpoint exceeded 140 degrees Fahrenheit prior to hydroprocessing. J.A. 77. At trial, the jury would have to decide whether the Riazi Formula estimates calculated by Magēmā's expert reliably showed that the flashpoint of the Bayway feed was hotter than 140 degrees Fahrenheit "prior to hydroprocessing."

C

Right before jury selection, Magēmā learned that Phillips planned to use a demonstrative slide during opening statements to show the jury that—despite Phillips' pretrial representations to the contrary—Riazi Formula estimates of flashpoint were *insufficient* to prove infringement. Instead, Phillips planned to argue that ISO 8217 requires *actual testing* data of Table 2 properties like flashpoint. Magēmā did not have that testing data because Phillips said gathering such samples would be too dangerous and unnecessary given that Magēmā could estimate flashpoint temperature using the Riazi Formula. And, so, because Magēmā had no actual testing samples to show that flashpoint ISBL exceeded 140 degrees Fahrenheit, Phillips planned to argue that Magēmā could not meet its burden of demonstrating that the Bayway Refinery feedstock was compliant with ISO 8217.

On the record, Magēmā objected. It recounted the discovery proceedings that took place before the Magistrate Judge and the District Court's denial of Phillips' motion to supplement the summary judgment record with the late-produced ISBL testing data. Even as the District Court reviewed its summary judgment opinion denying Phillips' motion to supplement the record with ISBL flashpoint samples, it overruled the objection stating that it did not

"understand [Magēmā's] argument" and that it was "not going to exclude" Phillips from presenting its actual-testing theory to the jury during opening statements. J.A. 846 (7:14–17).

Mischief ensued. Despite its earlier assurances to the Magistrate Judge and to Magēmā that the Riazi Formula was a sufficient substitute in the absence of actual testing data, Phillips reneged and told the jury during opening statements that ISO 8217 "*requires* the use of *actual* specified ISO test procedures to prove compliance with the ISO 8217 specifications" and that the jury would "not find anything" in ISO 8217 "stating, suggesting, or implying that you can use an estimate to show compliance" and that "[i]f there's no compliance, there's no infringement." J.A. 855 (99:9–18) (emphases added).

Phillips elicited the same testimony cross-examining three Magēmā witnesses:

> Q. There is nothing in ISO 8217 that says, "Oh, you can just use an estimate[.]" That's not in ISO 8217, is it?
>
> A. There's no discussion of estimates in ISO 8217 that I'm aware of.
>
> …
>
> Q. There is nothing in ISO 8217 that says it's okay to use an estimate as a substitute for [actual testing data]. We're not going to see that in [ISO 8217], are we?
>
> A. Well, no, but Phillips told us it was okay to use–
>
> Q. You are not going to see that in ISO 8217, are you?
>
> A. No, you're not.

J.A. 894. (147:18–22, 148:8–17) (Cross-Examination of Michael Moore).

> Q. It's true, Mr. Klussmann, that there is nothing in ISO 8217 or these test methods or reference … that say that estimates are permitted to determine compliance [with ISO 8217], right?
>
> …
>
> A. Nothing in the spec says that estimates to be used.

J.A. 953 (134:4–14) (Cross-Examination of Bert Klussmann).

> Q. But you now know that ISO 8217 does not allow for any estimates for flash point to meet the spec, correct?
>
> A. That's incorrect.
>
> …
>
> Q. Is there anything … in [ISO 8217] that says you can use estimates of flash point?
>
> …
>
> A. No.

J.A. 1010 (114:7–9, 115:12–24) (Cross-Examination of Dr. James Speight).

Eventually, Magēmā filed a motion for a curative instruction, pleading with the District Court to instruct the jury that the Riazi Formla could, in fact, be used to calculate flashpoint in the absence of testing samples which Phillips said were too dangerous to collect. And it asked the District Court to admonish Phillips to refrain from arguing to the jury that Magēmā failed to obtain or analyze actual testing samples when it was Phillips who told Magēmā and the Magistrate Judge that obtaining those very same samples would be both dangerous and unnecessary.

Although the District Court appeared to not "understand [Magēmā's] argument" before opening statements,

J.A. 846 (7:14–17), it did after Magēmā briefed its motion for a curative instruction. In response to Phillips confirming its position that the ISO 8217 standard requires actual testing rather than estimates, the District Court questioned "how in the world" Magēmā could possibly satisfy that burden when it was Phillips who "didn't produce tests or provide a test method that could be used by Magēmā before the discovery cutoff." J.A. 1065 (241:15–22).

Nevertheless, the District Court denied Magēmā's motion for a curative instruction. It suggested that the "problem" could be "solve[d]" by Magēmā arguing to the jury that no actual testing was done at its preferred ISBL location, and in response, Phillips could argue that the Riazi Formula estimates prepared by Magēmā's expert were unreliable. J.A. 1065 (242:17–23). And it determined that the jury did not need a curative instruction because it was unlikely to remember "a three-minute discussion" about ISO 8217 requiring actual testing. J.A. 1065 (243:1–4). The District Court also denied Magēmā the opportunity to put in context for the jury why it was using the Riazi Formula instead of actual testing data. J.A. 1064 (239:23–25) ("I don't want to hear the words 'Phillips has not produced test results[.]'"). The District Court warned Phillips, however, that it would be "attuned [to any] attempt from any creative lawyer to get around" its instructions not to argue to the jury that the ISO 8217 standard requires actual testing. J.A. 1065 (243:5–9).

Mischief persisted. Flouting the District Court's explicit warning, Phillips argued to the jury at closing arguments that it should find no infringement because there was "no actual test data that shows compliance" with the ISO 8217 standard. J.A. 1086 (108:12–15) ("[F]olks, you don't get to Question 3 or Question 4 [regarding amount of damages] when you answer 'no' to Questions 1 and 2 [regarding infringement]. And you answer 'no' because that's consistent with there's no actual test data that shows compliance, none.").

On a general verdict form that asked the jury to answer "yes" or no" to whether Magēmā proved infringement by a preponderance of the evidence, the jury returned a noninfringement verdict on all claims of both the '884 Patent and '709 Patent. The general verdict form did not specify the basis of the jury's noninfringement finding or ask special interrogatories requiring the jury to find whether Magēmā satisfied each claim limitation.

Magēmā moved for a new trial which the District Court denied. The District Court acknowledged that Phillips' actual-testing arguments were both "improper and prejudicial." J.A. 111. It explained that it was Phillips who argued that it was too dangerous to gather actual testing data and that, in any event, Magēmā did not need flashpoint testing samples because it could meet its infringement burden by using Riazi Formula estimates calculated from otherwise available data.

But the District Court determined Phillips' "improper and prejudicial" actual-testing theory argued to the jury to be harmless error that did not affect the outcome of the trial. That was so, according to the District Court, because the jury could have found that the other two remaining claim limitations—that the high-sulfur fuel being treated had to be compliant with ISO 8217 "prior to hydroprocessing" and that the fuel had to be "merchantable"—were not satisfied. With respect to the "prior to hydroprocessing" limitation, the District Court found that Phillips impeached Magēmā's expert regarding the correct place to determine the Bayway feedstock's compliance with ISO 8217. And with respect to the "merchantability" limitation, the District Court found that Phillips "presented undisputed evidence that the Bayway feed was not merchantable because its viscosity was too low." J.A. 112–13.

Magēmā filed the instant appeal, which pertains only to the Bayway refinery and the '884 patent. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I

Magēmā asks us to overturn the District Court's post-trial order denying its motion for a new trial related to the jury's noninfringement verdict at Phillips' Bayway Refinery on Claims 1 and 5 of the '844 Patent. We review the denial of a motion for a new trial under regional circuit precedent. *Freshub, Inc. v. Amazon.com, Inc.*, 93 F.4th 1244, 1249 (Fed. Cir. 2024). Under Fifth Circuit law, we review the denial of a motion for a new trial for an abuse of discretion. *Encompass Off. Sols., Inc. v. Louisiana Health Serv. & Indem. Co.*, 919 F.3d 266, 273 (5th Cir. 2019).

A

Phillips argues that Magēmā did not timely object to Phillips' "improper and prejudicial" actual-testing arguments.

We disagree. The District Court made a factual finding in its post-trial opinion denying Magēmā's motion for a new trial that Magēmā sufficiently preserved its objection to Phillips' actual-testing noninfringement theory. J.A. 111 ("Magēmā objected to Defendants' argument that 'compliant with ISO 8217:2017' could only be shown by testing of actual samples throughout the course of this litigation."). Phillips fails to address or show any error in the District Court's finding. Nor can it.

On the first day of trial, prior to the start of jury selection, Magēmā objected to Phillips laying the seed for its actual-testing noninfringement theory during opening arguments. The District Court stated that it was "not going to exclude" Phillips from making such statements during opening arguments. J.A. 846 (7:14–17). Having overruled Magēmā's objection, Phillips was free to ring the actual-testing bell to the jury at opening arguments, which it did. *See* J.A. 855 (99:9–12) ("[ISO 8217] requires the use of actual specified [] test procedures to prove compliance with

the ISO 8217 specifications."); *id.* (99:13–18) ("You will not find anything in [ISO 8217] stating, suggesting, or implying that you can use an estimate to show compliance. If there's no compliance, there's no infringement."). There would be no point in objecting again.

Magēmā tried to unring the actual-testing bell by filing a motion for a curative instruction at the District Court's invitation. J.A. 957 (150:4–151:6) (inviting Magēmā to "file something tomorrow morning" opposing Phillips' actual-testing arguments). The District Court denied that motion as well as Magēmā's motion for a new trial, finding no issue with the preservation of Magēmā's objection that it made "throughout … this litigation." J.A. 111.

So, Magēmā's objection was properly preserved, and we will review it under an abuse of discretion standard.[6]

B

A district court abuses its discretion in denying a motion for a new trial if it is "reasonably clear that prejudicial error has crept into the record or that substantial justice has not been done[.]" *Streber v. Hunter*, 221 F.3d 701, 736 (5th Cir. 2000). That burden "rests on the party seeking the new trial." *Id.* An error is prejudicial, rather than harmless, if it affects a party's substantial rights, in other words, if it affects the outcome of the proceeding. *Harris v. FedEx Corp. Servs., Inc.*, 92 F.4th 286, 303 (5th Cir. 2024), *cert. denied*, 145 S. Ct. 168 (2024). "'If the court is sure, after reviewing the entire record, that the error did not influence

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[6] Phillips also argues that Magēmā waived its objection by "eliciting actual-testing testimony" from its own witness. Response Br. at 21. But having objected to the actual testing-theory, which was overruled by the District Court, Magēmā was merely playing by the rules. It was not required to leave Phillips' argument unaddressed or unanswered in order to preserve its objection.

the jury or had but a very slight effect on its verdict,' then a party's substantial rights have not been affected." *Id.* (quoting *Kelly v. Boeing Petroleum Servs., Inc.*, 61 F.3d 350, 361 (5th Cir. 1995)).

1

Phillips does not meaningfully dispute that its actual-testing arguments were, in the words of the District Court, both "improper and prejudicial." J.A. 111. How could it? Phillips sandbagged Magēmā right before trial with a bait-and-switch, announcing that it intended to present evidence and argue to the jury that compliance with ISO 8217 requires actual testing data. Magēmā did not have the testing data from the location ISBL it argued compliance with ISO 8217 should be determined because Phillips had represented that it was too dangerous to collect test samples from that location and, besides, those samples were unnecessary to prove infringement because Magēmā could use Riazi Formula estimates.

Therefore, we agree with the District Court that Phillips' argument to the jury that Magēmā needed actual test samples to prove infringement was both "improper and prejudicial." It should have never been argued to the jury. But it was.

"[W]hen a case is submitted to the jury on a general verdict, the failure of evidence or a legal mistake under one theory of the case generally requires reversal for a new trial because the reviewing court cannot determine whether the jury based its verdict on a sound or unsound theory." *Muth v. Ford Motor Co.*, 461 F.3d 557, 564 (5th Cir. 2006) (quoting *Pan Eastern Exploration Co. v. Hufo Oils*, 855 F.2d 1106, 1123 (5th Cir. 1988)); *Jamison Co., Inc. v. Westvaco Corp.*, 530 F.2d 34, 37 (5th Cir. 1976); *see also Network-1 Techs., Inc. v. Hewlett-Packard Co.*, 981 F.3d 1015, 1025 (Fed. Cir. 2020) (applying Fifth Circuit law and finding that because the general verdict form did not indicate a basis for the jury's decision and evidence showed

defendant relied on an erroneous claim construction to argue noninfringement, plaintiff was prejudiced by the erroneous claim construction). We may only uphold a jury's general verdict with an erroneously submitted theory under a "harmless error gloss" if we are "totally satisfied" or "reasonably certain" that the verdict was not based on the erroneously submitted theory. *Muth*, 461 F.3d at 564–65 (quoting *Baun v. Flynt*, 731 F.2d 1205, 1206 (5th Cir. 1984)).

Here, the jury verdict form read:

> **QUESTION 1: Bayway Refinery Infringement**
>
> Did Magēmā prove by a preponderance of the evidence that the Bayway DSU-1 hydrotreater process or the DSU-1 product infringed any of the following claims[?]
>
> **Answer "Yes" or "No" for each of the listed claims in the spaced provided below.**
>
> **"Yes" is a finding for Magēmā. "No" is a finding for Phillips 66.**
>
> **'844 Patent**
>
> Claim 1 _____
>
> Claim 5 _____

J.A. 80. The jury wrote "no" in both blank spaces.

And therein lies the problem. We cannot tell why the jury answered "no." *See Jamison*, 530 F.2d at 37 (remand is required when the reviewing court "cannot discover the exact basis" of the jury's verdict because "the verdict is capable of comprehending any one of a number of theories of liability").

The jury could have permissibly found that Magēmā did not meet its infringement burden because the feed was not merchantable prior to hydroprocessing. The jury could

have also permissibly found that Magēmā did not meet its infringement burden because compliance with ISO 8217 requires actual testing *but* that the proper place to test compliance with ISO 8217 prior to hydroprocessing was *OSBL of the hydrotreater* reactor and, so, it did not matter that Magēmā never received actual testing samples from the location prior to hydroprocessing *ISBL* that it argued was the relevant location to measure flashpoint.

But the jury could have also *impermissibly* found that Magēmā did not meet its infringement burden because it believed that compliance with ISO 8217 required actual testing as Phillips repeatedly urged. Thus, Phillips' improper actual-testing theory may have tainted the jury's verdict.

And given how many times Phillips urged its "improper and prejudicial" actual-testing arguments, we have little confidence that those arguments did not affect the outcome of the trial. Phillips argues that its actual-testing theory was a "small part of the trial." Response Br. at 40; *see also* J.A. 1065 (243:1–4) (District Court denying Magēmā's motion for curative instruction in part because jury was not going to "remember a three-minute discussion" about actual testing). Far from it. Instead, Phillips repeatedly and continuously urged its improper and prejudicial actual-testing theory throughout trial. It raised that theory during opening statements over Magēmā's objection. It raised it on three cross-examinations of Magēmā's witnesses. And most potently—after the District Court explicitly told Phillips not to raise it again—Phillips urged the jury at closing arguments to simply answer "no" to Question 1 of the verdict sheet because Magēmā had "no actual test data that shows compliance" with the ISO 8217 standard. J.A. 1086 (108:12–15).

Because we cannot be sure the error did not influence the jury, we believe that "manifest injustice [would] result

from letting the verdict stand." *Learmonth v. Sears, Roebuck & Co.*, 631 F.3d 724, 731 (5th Cir. 2011).[7]

2

For its part, the District Court was satisfied that the jury must have adopted either of the two permissible noninfringement theories identified above related to the "merchantability" and "prior to hydroprocessing" claim limitations such that submission of the actual-testing theory to the jury was harmless error.

But neither the "merchantability" nor "prior to hydroprocessing" claim limitations totally satisfy us that the jury's verdict was free from prejudicial error affecting Magēmā's substantial rights.

With respect to merchantability, the District Court found that Phillips "presented undisputed evidence that the Bayway feed was not merchantable because its

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[7] We briefly address two arguments made by Phillips in support of the verdict. Phillips argues both that the District Court mitigated any prejudice by permitting Magēmā to argue to the jury that it never received the ISBL flashpoint samples and instructing the jury that the "statements of counsel are not evidence." Neither argument is persuasive. Magēmā was unable to explain to the jury *why* it did not have test samples because the District Court instructed Magēmā that it could not tell the jury that "Phillips has not produced [the flashpoint] test results." J.A. 1064 (239:23–25). And the customary jury instruction that "statements of counsel are not evidence" did little to reduce the prejudice resulting from Phillips' gamesmanship, having represented to Magēmā before trial that Magēmā could rely on Riazi Formula estimates without actual testing data and then, at trial, presenting a theory of noninfringement to the jury that Magēmā needed precisely that testing data.

viscosity was too low." J.A. 112–13. But there was disputed evidence. *See, e.g.*, J.A. 1080 (49:3–13) (Phillips' employee, John Allen, admitting on cross-examination that "[f]or the majority of time, [the viscosity on the feed and product] meet [IMO] spec"). And only Claim 1 of the '844 Patent included the merchantability limitation. Therefore, as Magēmā notes, some other theory must explain the jury's finding of noninfringement at least with respect to Claim 5.

And with respect to "prior to hydroprocessing," the District Court found that Phillips impeached Magēmā's hydroprocessing expert, Dr. James Speight, on the proper location to test flashpoint. Even if true, that was a credibility determination that the jury could have made but we cannot be sure it did, in fact, make. Indeed, and as the District Court noted, the parties "vigorously disputed" the location where compliance should be determined and presented "conflicting evidence on [the] issue," sufficient to get to the jury. J.A. 103–04.

* * *

In short, we are not certain or even "reasonably certain" that the jury's verdict was free from error affecting Magēmā's substantial rights. *Muth*, 461 F.3d at 565 (citation omitted). The District Court therefore abused its discretion in determining the actual-testing argument was harmless error. So, we reverse its order denying Magēmā's motion for a new trial and remand for a new trial.[8] At that

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[8] Magēmā also argues that the District Court improperly submitted disputes over the scope of two claim terms to the jury in violation of our decision in *O2 Micro International Ltd. v. Beyond Innovation Technology Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008). Opening Br. at 53–71. Magēmā never asked the District Court to construe

re-trial, Phillips is not to argue that the ISO 8217 standard requires actual testing data.

II

Presenting an alternative ground for affirmance, Phillips argues that if the District Court had properly construed the term "HMFO" at the claim construction stage and again at summary judgment, no reasonable jury could have found that Phillips infringed the '884 Patent at the Bayway Refinery.[9]

We review a district court's claim construction based on intrinsic evidence de novo, and review any findings of fact regarding extrinsic evidence for clear error. *Speed-Track, Inc. v. Amazon.com*, 998 F.3d 1373, 1378 (Fed. Cir. 2021). Claim terms are generally given their plain and ordinary meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313–14 (Fed. Cir. 2005) (en banc). But the plain and ordinary meaning of claim terms can be overridden when the patentee acts as his own lexicographer. *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). "To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning" and must

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either term, however, and it now argues for the first time that these are claim construction disputes. Because Magēmā failed to properly raise *O2 Micro* issues with the District Court below, these issues are waived. *LifeNet Health v. LifeCell Corp.*, 837 F.3d 1316, 1322 (Fed. Cir. 2016).

[9] Phillips' alternative ground for affirmance is properly before us on appeal without having taken a cross-appeal. *Elan Corp. v. Andrx Pharms., Inc.*, 366 F.3d 1336, 1340 (Fed. Cir. 2004) (cross-appeal improper where it merely raises an alternative ground for affirmance).

"clearly express an intent to redefine the term." *Id.* (internal quotation marks and citation omitted).

We agree with the District Court that Magēmā properly acted as its own lexicographer with respect to the term HMFO. Column 7 of the '844 Patent provides that certain terms, including HMFO, are utilized throughout the Patent as "having a specific intended meaning." '844 Patent, col. 7, l. 49. And the '844 Patent explicitly "define[s]" HMFO to mean "a petroleum product fuel compliant with the ISO 8217:2017 standards for the bulk properties of residual marine fuels except for the concentration levels of the Environmental Contaminates." '844 Patent, col. 7, ll. 50–54. Thus, the term HMFO is clearly and expressly defined in the specification. That definition controls. *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) ("When a patentee explicitly defines a claim term in the patent specification, the patentee's definition controls.").

Pointing to Column 1 of the '844 Patent, Phillips reurges its *Markman* and summary judgment arguments that the '844 Patent requires HMFO to contain process residues—that is, "fractions that don't boil or vaporize." Response Br. at 65 (citing '844 Patent, col. 1, ll. 28–30)). While it is true that Column 1 provides that "[r]esidual based fuels oils or Heavy Marine Fuel Oil (HMFO) comprises a mixture of process residues—the fractions that don't boil or vaporize even under vacuum conditions," that is a background description of the art in the section of the '844 Patent which does not override the express definition given to the term HMFO in Column 7 of the '844 Patent's specification. *Compare* '844 Patent, col. 1, ll. 28–30, *with id.* col. 7, ll. 47–54.

The District Court's construction is also sound when read against the requirements of ISO 8217 Table 2. ISO 8217 Table 2 does not require HMFO to contain "fractions that do not boil or vaporize even under vacuum conditions."

Rather, Table 2 defines residual-based HMFOs by objective, minimum and maximum physical characteristics.

Accordingly, we adopt the District Court's claim construction, as set out in its claim construction order and its order denying Phillips' motion for partial summary judgment seeking reconsideration of the District Court's claim construction.[10]

CONCLUSION

For the foregoing reasons, we reverse the District Court's order denying Magēmā's motion for a new trial and remand for a new trial. We adopt the District Court's claim construction.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED

COSTS

To Magēmā.

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[10] We have considered Phillips' remaining argument that the District Court's erroneously denied its motion to supplement the summary judgment record with evidence of flashpoint testing data ISBL and find it unpersuasive.