

PUBLISHED

**UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT**

No. 19-1019

JOYCE MCKIVER; DELOIS LEWIS; DAPHNE MCKOY; ALEXANDRIA MCKOY; ANTONIO KEVIN MCKOY; ARCHIE WRIGHT, JR.; TAMMY LLOYD; DEBORAH JOHNSON; ETHEL DAVIS; PRISCILLA DUNHAM,

Plaintiffs - Appellees,

and

DENNIS MCKIVER, JR.; LAJUNE JESSUP; DON LLOYD, Administrator of the Estate of Fred Lloyd; TERESA LLOYD; TANECHIA LLOYD; CARL LEWIS; ANNETTE MCKIVER; KAREN MCKIVER; BRIONNA MCKIVER; EDWARD OWENS; DAISY LLOYD; A. (DAUGHTER); A. (SON),

Plaintiffs,

v.

MURPHY-BROWN, LLC, d/b/a Smithfield Hog Production Division,

Defendant – Appellant.

AMERICAN FARM BUREAU FEDERATION; NATIONAL PORK PRODUCERS COUNCIL; NORTH CAROLINA FARM BUREAU FEDERATION; NORTH CAROLINA PORK COUNCIL; NORTH AMERICAN MEAT INSTITUTE; NATIONAL ASSOCIATION OF MANUFACTURERS; GROCERY MANUFACTURERS ASSOCIATION; CHAMBER OF COMMERCE OF THE UNITED STATES OF AMERICA; NATIONAL TURKEY FEDERATION; NATIONAL CHICKEN COUNCIL; JOEY D. CARTER; JOEY CARTER FARMS; WILLIAM R. KINLAW; KINLAW FARMS, LLC; PAUL STANLEY; PAGLE CORP.; GREENWOOD LIVESTOCK, LLC,

Amici Supporting Appellant.

LAW PROFESSORS WITH EXPERTISE IN TORT AND REGULATORY LAW; AMERICAN ASSOCIATION FOR JUSTICE; NORTH CAROLINA JUSTICE CENTER; HUMANE SOCIETY OF THE UNITED STATES; PUBLIC JUSTICE, P.C.; FOOD & WATER WATCH; WATERKEEPER ALLIANCE, INC.; NORTH CAROLINA ENVIRONMENTAL JUSTICE NETWORK; RURAL EMPOWERMENT ASSOCIATION FOR COMMUNITY HELP; DR. LAWRENCE CAHOON; ELIZABETH CHRISTENSON; DR. BRETT DOHERTY; MIKE DOLAN FLISS; DR. JILL JOHNSTON; BOB MARTIN; DR. SARAH RHODES; DR. ANA MARIA RULE; DR. SACOBY WILSON; DR. COURTNEY WOODS,

Amici Supporting Appellee.

Appeal from the United States District Court for the Eastern District of North Carolina, at Wilmington. W. Earl Britt, Senior District Judge. (7:14-cv-00180-BR; 5:15-cv-00013.BR)

Argued: January 31, 2020

Decided: November 19, 2020

Before WILKINSON, AGEE and THACKER, Circuit Judges.

Affirmed in part, vacated and remanded in part by published opinion. Judge Thacker wrote the opinion, in which Judge Wilkinson concurred. Judge Wilkinson wrote a concurring opinion. Judge Agee wrote an opinion concurring in part and dissenting in part.

ARGUED: Stuart Alan Raphael, HUNTON ANDREW KURTH, LLP, Washington, D.C., for Appellant. Tillman J. Breckenridge, PIERCE BAINBRIDGE BECK PRICE & HECHT, LLP, Washington, D.C., for Appellee. **ON BRIEF:** Robert M. Tata, Washington, D.C., Trevor S. Cox, Kevin S. Elliker, David M. Parker, HUNTON ANDREWS KURTH LLP, Richmond, Virginia, for Appellant. Mona Lisa Wallace, John Hughes, WALLACE AND GRAHAM, P.A., Salisbury, North Carolina; Tanya Fridland, PIERCE BAINBRIDGE BECK PRICE & HECHT, LLP, Washington, D.C., for Appellees. Michael B. Kimberly, Washington, D.C., Timothy S. Bishop, Brett E. Legner, Jed Glickstein, Chicago, Illinois, Michael B. Kimberly, MAYER BROWN LLP, Washington, D.C.; Ellen Steen, Travis Cushman, AMERICAN FARM BUREAU FEDERATION, Washington, D.C.; Phillip Jacob Parker Jr., NORTH CAROLINA FARM

BUREAU FEDERATION, Raleigh, North Carolina; Michael C. Formica, NATIONAL PORK PRODUCERS COUNCIL, Washington, D.C., for Amici The American Farm Bureau Federation, National Pork Producers Council, North Carolina Farm Bureau Federation, and North Carolina Pork Council. Daryl L. Joseffer, Michael B. Schon, UNITED STATES CHAMBER LITIGATION CENTER, Washington, D.C., for Amicus Chamber of Commerce of the United States of America. Sean Marotta, HOGAN LOVELLS US LLP, Washington, D.C., for Amici Chamber of Commerce of the United States of America, North American Meat Institute, National Association of Manufacturers, Grocery Manufacturers Association, National Turkey Federation, and National Chicken Council. Matthew Nis Leerberg, Kip D. Nelson, Troy D. Shelton, FOX ROTHSCHILD LLP, Raleigh, North Carolina, for Amici Joey D. Carter, Joey Carter Farms, William R. Kinlaw, Kinlaw Farms, LLC, Paul Stanley, Page Corp., and Greenwood Livestock, LLC. Steven M. Virgil, WAKE FOREST UNIVERSITY SCHOOL OF LAW, Winston-Salem, North Carolina, for Amici Law Professors with Expertise in Tort and Regulatory Law. Elise Sanguinetti, President, Jeffrey R. White, AMERICAN ASSOCIATION FOR JUSTICE, Washington, D.C.; David Arbogast, ARBOGAST LAW, San Carlos, California, for Amicus American Association for Justice. Elizabeth Haddix, Mark Dorosin, JULIUS L. CHAMBERS CENTER FOR CIVIL RIGHTS, Carrboro, North Carolina, for Amici North Carolina Environmental Justice Network and the Rural Empowerment Association for Community Help. Emily P. Turner, NORTH CAROLINA JUSTICE CENTER, Raleigh, North Carolina; J. Jerome Hartzell, HARTZELL & WHITEMAN, LLP, Raleigh, North Carolina, for Amicus North Carolina Justice Center. Anna Frostick, Laura Fox, Peter Brandt, THE HUMANE SOCIETY OF THE UNITED STATES, Washington, D.C., for Amicus The Humane Society of the United States. Marianne Engelman-Lado, YALE SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES, New Haven, Connecticut; Peter Hans Lehner, Alexis Andiman, EARTHJUSTICE, New York, New York, for Amici Dr. Lawrence B. Cahoon, Elizabeth Christenson, Dr. Brett Doherty, Mike Dolan Fliss, Dr. Jill Johnston, Bob Martin, Dr. Sarah Rhodes, Dr. Ana María Rule, Dr. Sacoby Wilson, and Dr. Courtney Woods. Tarah Heinzen, FOOD & WATER WATCH, Washington, D.C., for Amicus Food & Water Watch. David S. Muraskin, Jessica L. Culpepper, Kellan Smith, PUBLIC JUSTICE, P.C., Washington, D.C., for Amici Public Justice and Food & Water Watch. Chandra T. Taylor, Blakely Hildebrand, Nick Jimenez, SOUTHERN ENVIRONMENTAL LAW CENTER, Chapel Hill, North Carolina, for Amicus Waterkeeper Alliance.

THACKER, Circuit Judge:

Murphy-Brown, LLC (“Appellant”) challenges a jury verdict against it awarding compensatory and punitive damages to neighbors of its hog production facilities. Those neighbors, residents of rural Bladen County, North Carolina, sought relief under state nuisance law from odors, pests, and noises they attribute to farming practices Appellant implemented at an industrial-scale hog feeding farm. Having heard evidence of those harms and Appellant’s role in creating them, a jury returned a verdict in favor of the neighbors, to the tune of \$75,000 in compensatory damages per plaintiff, along with a total of \$5 million in punitive damages, which was subsequently reduced to \$2.5 million due to North Carolina’s punitive damages cap.

Appellant asserts seven reasons why we should overturn the decision below and grant a new trial. For the reasons detailed below, we affirm the jury’s verdict as to liability for compensatory and punitive damages, but we vacate the award of punitive damages and remand for a rehearing on that issue based on our evidentiary standards.

I.

A.

Appellant is a commercial hog producer, who contracted with third-party “grower” Kinlaw Farms LLC (“Kinlaw Farms”) to operate an industrial hog feeding facility in Bladen County, North Carolina.¹ Appellant is a single-member LLC of a wholly owned

¹ Appellant is a vertically integrated hog producer, which means Appellant farms hogs on an industrial scale by controlling each stage of pork production from the raising and feeding of the livestock to slaughter and packaging for sale. Appellant operates in part (Continued)

subsidiary of Smithfield Foods, Inc. (“Smithfield”), which is in turn owned by WH Group Limited (“WH Group”), a publicly traded company based in Hong Kong.

Industrial farming operators like Appellant require their contract growers like Kinlaw Farms to comply with specific policies. The controlling industrial farmer issues detailed mandates to its growers in order to ensure consistency across their various contract operations. Appellant imposes standard operating procedures for all of its contract growers. Specifically, Appellant (1) directs grower management procedures; (2) mandates design and construction of operations; (3) can require the use of technological enhancements; (4) can require capital investments; (5) dictates how many of its hogs are to be placed at a given operation; and (6) controls hog waste management systems.

Joyce McKiver, Delois Lewis, Daphne McKoy, Alexandria McKoy, Antonio Kevin McKoy, Archie Wright, Jr., Tammy Lloyd, Deborah Johnson, Ethel Davis, and Priscilla Dunham (collectively, “Appellees”) are North Carolina residents who owned properties near Kinlaw Farms. Appellees are a subset of a number of plaintiffs (“Plaintiffs”) who sued Appellant for alleged nuisances associated with the hog operations at Kinlaw Farms.

The operation at Kinlaw Farms annually maintained nearly 15,000 of Appellant’s hogs. These hogs generated approximately 153,000 pounds of feces and urine daily. Kinlaw Farms housed the hogs in hog sheds that used vents and fans to move fumes from the hogs to the outside of the building. By design, the hog waste in the sheds fell through

by supplying livestock and feed to contractors known as “growers” who house and care for Appellant’s hogs for certain portions of the animals’ life cycle, subject to Appellant’s control.

slats in the flooring, where the waste was then stored in three open-air pits within view of Appellees' homes. These pits or "lagoons" contained millions of gallons of hog waste.

As part of its standard operating procedures for contract growers, Appellant wrote the policy dictating how Kinlaw Farms disposed of the waste from Appellant's hogs. At Appellant's direction, Kinlaw Farms used what is known as the lagoon-and-sprayfield method for hog waste disposal. Kinlaw Farms periodically drained waste from the lagoons and spread it across open "sprayfields" on the Kinlaw Farms property. Approximately eight million gallons of hog feces were sprayed in the air annually at Kinlaw Farms.

Appellant was aware of the proximity of Kinlaw Farms to neighboring residences because Appellant's corporate predecessor had sited and designed the facility, and Appellant routinely visited the Kinlaw Farms property for inspections. Notably, because of its operations' proximity to surrounding properties, Appellant instructed its growers to refrain from applying the hog waste to sprayfields "out of respect for [their] neighbors" if the contractor was aware that neighbors planned to have guests over for weddings or cookouts. Despite this policy, spraying of hog waste in summer months occurred at Kinlaw Farms as regularly as three to five days a week for an average of six hours per day.

Additionally, through its contractual arrangement, Appellant was solely responsible for the Kinlaw Farms trucking schedule and for the decision of where to site the facility's entrance road that passed near Appellees' properties. Trucks frequented Kinlaw Farms on a regular basis to deliver new hogs, take away live hogs, and pick up dead hogs. Appellant set Kinlaw Farm's delivery and pickup schedules for trucks at an all-day, all-night pace.

As an example, on one night in 2016, at least 12 trucks passed through to the Kinlaw Farms property between midnight and six in the morning.

At Appellant’s direction, hog carcasses pending pickup were stored in “dead boxes,” dumpsters placed in open fields on the Kinlaw Farms property. Hog carcasses would pile up and rot in these dumpsters in open fields until collection of the carcasses was scheduled. These dead boxes attracted dozens of buzzards and flies that would accumulate around the dead boxes and frequent Appellees’ neighboring properties.

B.

For decades predating the lawsuit at issue here, agricultural experts and lay media alike researched and reported environmental effects associated with industrial hog operations in Eastern North Carolina. Indeed, Appellant itself collected and stored hundreds of newspaper articles documenting neighbors’ complaints about lagoon-and-sprayfield industrial hog operations and was aware of scientific studies and state government documents reporting the effects of odor, including upper respiratory and gastrointestinal ailments, on neighbors of concentrated animal feeding operations like Kinlaw Farms. For years, Appellant defended its practices against critics in North Carolina communities and public offices, and routinely opposed regulations that would require lagoon-and-sprayfield operations to curtail their effects on neighbors. In particular, Appellant’s former director Don Butler admitted that Appellant was aware of Bladen County community complaints about unabated lagoon-and-sprayfield hog operations of the

kind Appellant prescribed to its growers -- specifically that individuals were complaining about “odor, flies, noise, trucks, [and] interference with their quality of life.” J.A. 7466.²

Although there is no evidence of complaints made directly to Appellant about Kinlaw Farms specifically, Kinlaw Farms did receive complaints from one plaintiff in this suit and another neighbor, who also complained about Kinlaw Farms to the North Carolina Department of Environment and Natural Resources. The record demonstrates that all parties agreed Kinlaw Farms consistently followed Appellant’s policies, compliance which Appellant actively monitored. Yet before the recent nuisance suits, Appellant had neither monitored odor at any operation (including Kinlaw Farms), nor terminated a grower because of complaints about odor.

C.

Reacting to mounting community pressure, in 1997, North Carolina banned new lagoon-and-sprayfield hog operations. *See* N.C. Sess. Laws 1997–458. Existing farms including Kinlaw Farms were grandfathered in and not subjected to the ban, but the North Carolina legislature did bind the state’s Department of Agriculture to “develop a plan to phase out the use of . . . lagoons and sprayfields as primary methods of disposing of animal waste at swine farms.” *See id.* § 12.4(a). And in 1999, North Carolina’s governor announced an intention to end lagoon-and-sprayfield operations.

The following year, Smithfield, Appellant’s parent company, signed an agreement with the Attorney General of North Carolina to fund research for replacement technologies

² Citations to the “J.A.” refer to the Joint Appendix filed by the parties in this appeal.

and to implement technologies found to be feasible (the “AG Agreement”). In 2006, the scientific expert designated by the AG Agreement identified alternative abatement technologies but, applying the AG Agreement’s criteria, the designee did not deem those technologies economically feasible at that time for existing hog farms. This 2006 feasibility analysis did not consider Smithfield’s profits or ability to pay.

Appellant’s growers were not expected to pay for waste management improvements on their own. Because of the extensive control Appellant maintained over its contract growers -- and the control in turn exerted over Appellant by Smithfield and its parent WH Group -- Appellant’s president explained it had the power to implement abatement technologies at its growers’ operations by prescribing those technologies and getting money from the parent companies to help pay for them. Due to the integrated nature of Appellant’s farming operations, company procedures would have Appellant receive funding from the parent companies for waste management improvements it might choose to implement.

D.

In 2013, Appellant and several of its contract growers, including Kinlaw Farms, were sued in North Carolina state court by neighbors of their hog operations, including Appellees. As Appellees explained, “after learning the full extent of [Appellant’s] control over the operations causing the nuisance and the growers’ powerlessness to address it,” the plaintiffs dismissed those state actions and refiled suit in federal court in the Eastern District of North Carolina in 2014, naming Appellant only. Appellees’ Br. 16.

The district court for the Eastern District of North Carolina coordinated 26 related cases filed by neighbors of Appellant's various hog operations as part of a Master Case docket.³ During the Master Case proceedings, the district court issued a number of decisions, including denying Appellant's motion for judgment on the pleadings based on failure to join its contract farmers including Kinlaw Farms as necessary parties. The court also denied Appellant's motion to dismiss claims for noneconomic damages and motion for partial summary judgment on the plaintiffs' punitive and annoyance damage claims. On the other hand, the court granted the plaintiffs' motion for partial summary judgment on Appellant's statute of limitations defense.

In the fall of 2017, the district court ordered trials to move forward from the Master Case docket, with Appellees' case being first in line. During the trial, the district court denied Appellant's motion to bifurcate the punitive damages phase from the liability phase of the trial and also denied Appellant's evidentiary objections as to proof of profits, executive compensation of its parent companies, and certain expert opinions. At the close of all evidence, the district court denied Appellant's motion for judgment as a matter of law as to (i) the sufficiency of evidence to support punitive damages; (ii) vicarious liability;

³ In all, this opinion refers to three sets of plaintiffs involved in suits against Appellant. Complainants in the Master Case Docket cases were neighbors of Appellant's various hog operations. Among this broadest set of neighbor plaintiffs were our Plaintiffs, neighbors of Kinlaw Farms whose claims related particularly to Appellant's operations there. Appellees are a subset of the Plaintiffs who originally brought suit against Appellant over the Kinlaw Farms operation.

(iii) the statute of limitations; and (iv) evidence supporting fear of future injuries. And, before submitting the case to the jury, the district court rejected Appellant’s proposed jury instructions relating to the (i) statute of limitations; (ii) scope of available compensatory damages; and (iii) vicarious liability for contractors.

In Spring 2018, the jury returned a verdict awarding \$75,000 in compensatory damages to each of the ten Appellees and also awarding \$5 million in punitive damages. The district court then applied North Carolina’s punitive damages cap, reducing the total punitive award to \$2.5 million. *See* N.C. Gen. Stat. § 1D-25(b) (limiting per-plaintiff punitive damages to the greater of \$250,000 or treble compensatory damages); *Rhyne v. K-Mart Corp.*, 594 S.E.2d 1, 5 (N.C. 2004) (explaining N.C. Gen. Stat. § 1D-25 “applies to limit recovery of punitive damages per each plaintiff”). Appellant timely appealed, challenging each of the rulings noted above.

Following the judgment, Appellant terminated its relationship with Kinlaw Farms and withdrew its hogs from that facility, alleging in the termination letter that Kinlaw Farms failed to “comply with standard operating procedures.” J.A. 9593 (quoting May 4, 2018 Kinlaw Letter at 2, *McKiver v. Murphy-Brown, LLC*, No. 14-cv-00180-BR (E.D.N.C. Sept. 28, 2018), ECF No. 324-2). On appeal, Appellant asserts, “[t]he jury’s nuisance finding effectively required that Kinlaw Farm cease operations until any nuisance is abated.” Appellant’s Br. 12.

II.

Appellant raises seven purported errors on appeal, each of which Appellant contends will require a new trial. We address each in turn.

A.

Necessary and Indispensable Party

First, Appellant argues that Kinlaw Farms was a necessary and indispensable party to this suit, and thus, should have been joined pursuant to Federal Rule of Civil Procedure 19. Appellant presented this argument to the district court in both a motion pursuant to Federal Rule of Civil Procedure 12(c) and in a post-trial motion. The district court rejected Appellant's contentions on each occasion.

1.

We review a district court's Rule 19 rulings for an abuse of discretion. *Nat'l Union Fire Ins. Co. of Pittsburgh v. Rite Aid of S.C., Inc.*, 210 F.3d 246, 250 (4th Cir. 2000) (citation omitted). Generally, “[t]he inquiry contemplated by Rule 19 is a practical one,” properly “addressed to the sound discretion of the trial court.” *Coastal Modular Corp. v. Laminators, Inc.*, 635 F.2d 1102, 1108 (4th Cir. 1980) (citations omitted).

2.

Rule 19 sets up “a two-step inquiry.” *Owens-Illinois, Inc., v. Meade*, 186 F.3d 435, 440 (4th Cir. 1999) (citation omitted). We ask “first whether the nonjoined party is necessary under Rule 19(a) and then whether the party is indispensable under Rule 19(b).” *Gunvor SA v. Kayablian*, 948 F.3d 214, 218 (4th Cir. 2020) (citation omitted).

Pursuant to Rule 19(a), a party is necessary if

- (A) in that person's absence, the court cannot accord complete relief among existing parties; or
- (B) that person claims an interest relating to the subject of an action and is so situated that disposing of the action in the person's absence may: (i) as a practical matter

impair or impede the person's ability to protect the interest; or (ii) leave an existing party subject to a substantial risk of incurring double, multiple, or otherwise inconsistent obligations because of the interest.

Fed. R. Civ. P. 19(a). A necessary party should be ordered into the action. *See Owens-Illinois, Inc.*, 186 F.3d at 440. But “[w]hen a party cannot be joined because its joinder destroys diversity, the court must determine whether the proceeding can continue in its absence or whether it is indispensable pursuant to Rule 19(b) and the action must be dismissed.” *Id.* (citation omitted).

Rule 19(b) provides guidance on the identification of an indispensable party: “If a person who is required to be joined if feasible cannot be joined, the court must determine whether, in equity and good conscience, the action should proceed among the existing parties or should be dismissed.” Fed. R. Civ. P. 19(b). In this regard, we are given the following nonexclusive factors to consider:

- (1) the extent to which a judgment rendered in the person's absence might prejudice that person or the existing parties;
- (2) the extent to which any prejudice could be lessened or avoided by: (A) protective provisions in the judgment; (B) shaping the relief; or (C) other measures;
- (3) whether a judgment rendered in the person's absence would be adequate; and
- (4) whether the plaintiff would have an adequate remedy if the action were dismissed for nonjoinder.

Id. “Courts are loath to dismiss cases based on nonjoinder of a party, so dismissal will be ordered only when the resulting defect cannot be remedied and prejudice or inefficiency will certainly result.” *Owens-Illinois, Inc.*, 186 F.3d at 441 (citations omitted).

Neither prong of Rule 19 is to be applied merely as a “procedural formula.” *Home Buyers Warranty Corp. v. Hanna*, 750 F.3d 427, 433 (4th Cir. 2014) (quoting *Provident Tradesmens Bank & Trust Co. v. Patterson*, 390 U.S. 102, 119 n.16 (1968)). To the contrary, the “[d]ecisions must be made pragmatically, in the context of the substance of each case, and courts must take into account the possible prejudice to all parties, including those not before it.” *Id.* (citations and internal quotation marks omitted).

3.

Applying Rule 19(a), there is nothing before us to suggest that the district court could not have “accord[ed] complete relief among existing parties” in this suit without the addition of Kinlaw Farms, and Appellant does not so claim. Fed. R. Civ. P. 19(a)(1)(A). Nor does Appellant argue that it would be subject to multiple or inconsistent judgments. Fed. R. Civ. P. 19(a)(1)(B)(ii).

Instead, Appellant argues “Kinlaw Farms has significant pecuniary and contractual interests threatened by this litigation.” Appellant’s Br. 55. This argument is aimed at the second prong of Rule 19(a)’s test -- whether a third party “claims an interest relating to the subject of an action” whose ability to protect that interest “as a practical matter” will be impaired or impeded if excluded from the existing suit. Fed. R. Civ. P. 19(a)(1)(B)(i). This aspect of the test “directs us to consider a non-joined party’s ability to protect its own interests.” *Home Buyers Warranty Corp.*, 750 F.3d at 433.

Appellant insists that Kinlaw Farms needed to be made a party to this suit in order to protect its own interests. Yet Kinlaw Farms did not seek to join the suit or otherwise “claim[] an interest relating to the subject of an action” before the district court, and

Appellant did not assert a claim against Kinlaw Farms to bring the grower into the suit. Fed. R. Civ. P. 19(a)(1)(B)(i). Unlike the instant case, our Rule 19(a) decisions Appellant cites each involve a situation where the contracts or obligations of the “necessary” party were being interpreted or were otherwise directly at issue. *See Home Buyers Warranty Corp.*, 750 F.3d at 434 (determining third parties “actively contesting their liability in state court” under a contract and entitled to insurance by the defendants for construction defects like those alleged had “a natural interest in any adjudication of the terms of [the] contract”); *Yashenko v. Harrah’s NC Casino Co.*, 446 F.3d 541, 552–53 (4th Cir. 2006) (deeming necessary and indispensable the third party whose preferential hiring policy dictated the defendant casino operator’s conduct, where the court would be deciding the legality of the policy); *Nat’l Union Fire Ins. Co. v. Rite Aid of S.C., Inc.*, 210 F.3d 246, 251 (4th Cir. 2000) (indicating that the court’s decision would “necessarily require it to interpret the notice provisions of the policy and other agreements” between the plaintiff and the absent party).

“[E]ven if [an absent party] is alleged to have played a central role” in the action at issue, “and even if resolution of the action will require the court to evaluate the absent party’s conduct,” that party “in many cases . . . will not have interests that warrant protection under Rule 19(a)(1)(B)(i).” *Ward v. Apple Inc.*, 791 F.3d 1041, 1050 (9th Cir. 2015). The interest in question should “be more than a financial stake, and more than speculation about a future event.” *Id.* at 1051 (internal quotation marks omitted).

Here, the suit’s practical consequence for the third party, Kinlaw Farms, was Appellant’s termination of its grower relationship. But Appellant’s post-verdict

termination of Kinlaw Farms was not a necessary or inevitable consequence of anything resolved in this suit. Though no doubt financially difficult for Kinlaw Farms, that termination was not compelled by the court’s decision and cannot control Appellees’ case. Appellant’s termination letter to Kinlaw Farms suggested that Kinlaw Farms failed to “comply with standard operating procedures.” J.A. 9593 (quoting May 4, 2018 Kinlaw Letter at 2, *McKiver v. Murphy-Brown, LLC*, No. 14-cv-00180-BR (E.D.N.C. Sept. 28, 2018), ECF No. 324-2). But this is the exact opposite of what Appellant (and Appellees) argued at trial, where both parties had contended that Kinlaw Farms followed Appellant’s policies to the letter.

Nothing found by the jury in this case or mandated by the judgment required Appellant’s termination of its relationship with Kinlaw Farms after the litigation was over. The jury’s decision left Appellant free to continue its grower relationship with Kinlaw Farms in a manner that respects the property rights of its neighbors if it so chose. Appellant’s assessment of the costs and benefits of doing so -- and its business decision based thereon -- cannot retroactively make Kinlaw Farms a necessary party.

And even assuming Kinlaw Farms *was* a necessary party, dismissal of a case is “a drastic remedy that should be employed only sparingly.” *Gunvor SA*, 948 F.3d at 219 (quoting *Home Buyers Warranty Corp.*, 750 F.3d at 433). Owing deference to the district court’s determination under the abuse of discretion standard, we see no reason to hold that Kinlaw Farms is a necessary party, let alone an indispensable one whose absence warrants dismissal. Appellant’s arguments that Kinlaw Farms is indispensable are cursory and do not creditably address any of the Rule 19(b) factors, other than pointing out that Plaintiffs

could have brought this suit against Kinlaw Farms and Appellant in state court. There is nothing to indicate that the judgment rendered is not adequate or that Kinlaw Farms's absence unfairly prejudices either Kinlaw Farms or Appellant. We therefore affirm the district court's judgment as to Rule 19.

B.

Statute of Limitations

Next, Appellant contends the district court erred in rejecting its statute of limitations defense. Appellant contended that Plaintiffs' claims should have been barred by a three-year statute of limitations applying to actions involving a "continuing" nuisance. In response, Plaintiffs moved for partial summary judgment on Appellant's statute of limitations defense, asserting that this case involves a "recurrent" nuisance, for which the three-year limit acts only to constrain the amount of damages available, not to completely bar the claim. The district court partially denied Plaintiffs' summary judgment motion with regard to certain other affirmative defenses but held "as a matter of law" with regard to the statute of limitations defense that the alleged nuisance was recurring. J.A. 3473.⁴ Appellant alleges this was error. Appellant further claims the court erred in refusing to give an instruction for the jury to decide whether the nuisance was continuing or recurring.

⁴ The denial of Plaintiffs' summary judgment motion with regard to the other affirmative defenses is not at issue in this appeal.

1.

We review a district court’s summary judgment decision *de novo*, *Woods v. Berryhill*, 888 F.3d 686, 691 (4th Cir. 2018) (citation omitted), and the court’s refusal to grant a jury instruction for abuse of discretion, *United States v. Savage*, 885 F.3d 212, 222 (4th Cir. 2018). A district court’s refusal to provide a jury instruction is reversible only if the defendant’s requested instruction “(1) was correct; (2) was not substantially covered by the court’s charge to the jury; and (3) dealt with some point in the trial so important, that failure to give the requested instruction seriously impaired the defendant’s ability to conduct his defense.” *Savage*, 885 F.3d at 223 (quoting *United States v. Lewis*, 53 F.3d 29, 32 (4th Cir. 1995)).

2.

North Carolina law applies a three-year statute of limitations for suits based on “trespass upon real property,” and this standard applies equally to nuisance actions. N.C. Gen. Stat. Ann. § 1-52(3); *Wilson v. McLeod Oil Co.*, 398 S.E.2d 586, 596 (N.C. 1990). “When a trespass is a continuing one,” the suit must be “commenced within three years from the original trespass, and not thereafter.” N.C. Gen. Stat. Ann. § 1-52(3). A “continuing” nuisance (involving a single event causing ongoing damage) is materially distinct from a “recurrent” nuisance (involving repeated injuries). See *Wilson*, 398 S.E.2d at 596.

The North Carolina Supreme Court in *Wilson v. McLeod Oil Co., Inc.*, 398 S.E.2d 586, 595 (N.C. 1990), made clear that the distinction between a continuing trespass and a recurrent one hinges on whether there has been a completed act. The *Wilson* court

referenced a previous case in which it had rejected a statute of limitations defense for repeated flooding:

“Suppose [the defendant] had lamed the plaintiff’s horse more than three years ago, and he had continued lame ever since; the action would be barred. So, as he first injured the plaintiff’s land more than three years ago, and it has continued injured ever since, the action is barred.” *[quoting the defendant]*.

The fallacy [in this premise] is in not drawing the distinction between a *single* act of injury and *continuous* acts. In our case, he flooded the land more than three years ago, it is true; and for that the action is barred; but he has also continued to flood it anew every day within three years, and for that the action lies.

Id. (quoting *Spilman v. Roanoke Nav. Co.*, 74 N.C. 675, 678 (1876) (emphasis in original)).

Noting this, the *Wilson* court refused to apply the statute of limitations to bar a suit where plaintiffs complained of ongoing seepage of gasoline from a neighboring property. *See id.* at 596. Because the invasion of the plaintiffs’ land stemmed from an ongoing leak, the North Carolina Supreme Court concluded that it was a renewing or recurrent injury and not complete. *See id.* Though damages were to be limited to the previous three-year period, the court did not bar the plaintiffs’ nuisance suit from going forward even though there was evidence to demonstrate that the plaintiffs knew of gasoline contamination well before the three-year mark. *See id.*

Appellant itself cites *Wilson* in attempt to support its defense. However, Appellant fails to apply the case’s analysis to the facts at hand. The harm claimed here is the loss of use and enjoyment of property caused by repeated invasion by odor, noise, and pests. Appellant argues that statements by Appellees referring to these invasions as constant

raised a material dispute of fact for the jury to decide whether the nuisance was continuing. *See, e.g.*, Appellant's Br. 53 (citing one Appellee's statement that "there's not a day we don't have trouble with buzzards" (quoting J.A. 7425), another Appellee's testimony that "the odor was 'always annoying' and that she heard 'hogs squealing all the time'" (quoting J.A. 7754-55), and another Appellee's statement "that traffic annoyed her 'all the time, day and night'" (quoting J.A. 7917)). In response, Appellees point out that interpreting these statements as though there was literally unending odor, truck noise, and pests is unreasonable. We agree with Appellees on this point.

Moreover, even at that most extreme, Appellees' cited harms would be no less constant than the gas seepage in *Wilson*, claims which were spared from the three-year statute of limitations due to their recurrent nature. As the North Carolina Supreme Court there explained, "[c]ontinuous injuries caused by the maintenance of a nuisance are barred only by the running of the statute against *recurrent* trespasses . . ." *Wilson*, 398 S.E.2d at 596 (emphasis supplied) (quoting *Anderson v. Waynesville*, 164 S.E. 583, 587 (N.C. 1937)). In this regard, it is important to note that Appellees did not rest their case on establishing Kinlaw Farms constituted a nuisance *per se*. That is -- the nuisance alleged was not simply the years-ago construction of a lagoon-and-sprayfield hog operation -- but rather the ongoing maintenance of conditions that in fact caused harm.

Put in the simple terms of the *Wilson* court, the question before us is whether the injurious act is completed or ongoing. *See Wilson*, 398 S.E.2d at 595 (quoting *Spilman*, 74 N.C. at 678). That is, do the harms flow from something done in the past as a single, complete act or do the harms constitute a renewed, avoidable violation each time they

occur? Here, maintenance of odiferous, noisy, and pest-ridden farm operations resulted in repeated -- i.e., recurrent -- invasions of Appellees' properties. The nuisance was not the solitary act of building a lagoon-and-sprayfield hog farm in the past but was instead the practical operation of that farm in a manner inconsistent with its neighbors' use and enjoyment of their own properties. The district court's decision as to the applicable statute of limitations was therefore not legal error and refusing to give the inapplicable jury instruction on continuing nuisances was not an abuse of discretion.

C.

Private Nuisance Damages

Appellant's third argument in this appeal is that North Carolina private nuisance law bars recovery of compensatory damages of any kind, other than damages for reduction in the harmed properties' fair market or rental value. Specifically, Appellant points to a 2017 amendment to North Carolina's Right to Farm Act (the "2017 RTFA amendment") enacted three years after the filing of the lawsuit in this case. The 2017 RTFA amendment limited compensatory damages in nuisance suits to the reduction in fair market value caused by the nuisance (for permanent nuisances) and to the diminution in fair rental value (for temporary nuisances). *See* N.C. Sess. Laws 2017-11, codified at N.C. Gen. Stat. § 106-702. Appellant asserts that the amendment merely "clarified" this limitation on the available forms of compensatory damages in North Carolina nuisance law. Appellant's Br. 44.

Because Appellees stipulated they were not seeking damages for property or rental value losses and focused only on loss of use and enjoyment of their property, the parties

do not disagree that this suit *if filed today* would likely be barred by the 2017 RFTA amendment. But the question before us is whether the 2017 RTFA amendment’s limitation of damages actually changed the state’s law or simply clarified a preexisting principle. If the former, the district court did not err; if the latter, Appellant’s argument holds water.

At summary judgment, the district court concluded that the issue of annoyance and discomfort damages should go to the jury, citing longstanding North Carolina case law allowing such recovery in nuisance suits, including compensation for “the inconvenience, discomfiture, and unpleasantness sustained.” J.A. 3476 (quoting *Thomason v. Seaboard Air Line Ry.*, 55 S.E. 198, 204 (N.C. 1906)). In the face of that decision, Appellant still sought a jury instruction that North Carolina plaintiffs “may not recover damages for physical discomfort or annoyance.” J.A. 5373. The district court refused to give this instruction.

1.

We review a district court’s summary judgment decision *de novo*, *Woods*, 888 F.3d at 691, and the refusal of a jury instruction for an abuse of discretion, *Savage*, 885 F.3d at 222.

Both federal and North Carolina courts maintain a longstanding presumption against retroactive application of legislation. *See Landgraf v. USI Film Products*, 511 U.S. 244, 265 (1994); *Vanderbilt v. Atl. Coast Line R.R. Co.*, 125 S.E. 387, 391 (N.C. 1924). Indeed, “the presumption is very strong that a statute was not meant to act retrospectively, and it ought never to receive such a construction if it is susceptible of any other.” *Vanderbilt*, 125 S.E. at 391 (quoting *U.S. Fid. & Guar. Co. v. United States*, 209 U.S. 306, 314 (1908)).

We must not give a statute a retroactive construction “unless the words used are so clear, strong and imperative that no other meaning can be annexed to them or unless the intention of the Legislature cannot be otherwise satisfied.” *Id.* (quoting *U.S. Fid. & Guar. Co.*, 209 U.S. at 314).

In North Carolina, “[t]he primary goal of statutory construction is to effectuate the purpose of the legislature in enacting the statute.” *State v. Curtis*, 817 S.E.2d 187, 189 (N.C. 2018) (internal quotation marks omitted). “The intent of the General Assembly may be found first from the plain language of the statute, then from the legislative history, the spirit of the act, and what the act seeks to accomplish.” *Midrex Techs., Inc. v. N.C. Dep’t of Revenue*, 794 S.E.2d 785, 792 (N.C. 2016) (quoting *Lenox, Inc. v. Tolson*, 548 S.E.2d 513, 517 (N.C. 2001)). And of course, “[a] statute will not be construed to have retroactive effect unless that intent is clearly expressed or arises by necessary implication from its terms.” *In re Mitchell’s Will*, 203 S.E.2d 48, 50 (N.C. 1974) (citations omitted). Case law is thus very clear that we should look for clear signs of intentional and unavoidable retroactive application if a statute is indeed to have that effect.

2.

Turning to the statute’s text, the 2017 RTFA amendment, enacted as HB 467 on May 11, 2017, includes the following effective date language: “This act is effective when it becomes law and applies to causes of action commenced or brought on or after that date.” N.C. Sess. Laws 2017-11, codified at N.C. Gen. Stat. § 106-702. Appellees argue that our inquiry should start and end with this provision inasmuch as they assert this language speaks clearly about which causes of action fall under the amended law and no other part

of the statute provides such a “clear, strong and imperative” message. *Vanderbilt*, 125 S.E. at 391 (quoting *U.S. Fid. & Guar. Co.*, 209 U.S. at 314).

Appellant, for its part, points to the 2017 RTFA amendment’s title: “An Act to Clarify the Remedies Available in Private Nuisance Actions Against Agricultural and Forestry Operations.” N.C. Sess. Laws. 2017-11. This title, Appellant asserts, indicates that the North Carolina General Assembly only intended the law to “clarify” existing law rather than change anything substantive about the law. According to Appellant, this distinction matters because North Carolina law provides, “[a] clarifying amendment, unlike an altering amendment, is one that does not change the substance of the law but instead gives further insight into the way in which the legislature intended the law to apply from its original enactment.” *Ray v. N.C. Dept. of Transp.*, 727 S.E.2d 675, 681 (N.C. 2012) (citation omitted). If the 2017 RFTA amendment only clarified “the way in which the legislature intended the law” to originally apply, the amendment would be stating the law *as it applied* at the time of the pending suit as well as how it will apply going forward. *Id.* (“[I]n addition to applying to all cases brought after their effective dates, [clarifying] amendments apply to all cases pending before the courts when the amendment is adopted, regardless of whether the underlying claim arose before or after the effective date of the amendment.” (citations omitted)).

Evaluating each of these arguments, we note -- as do Appellees -- that the 2017 RTFA amendment expressly states it will apply to causes of action *going forward*. *See* N.C. Sess. Laws 2017-11. And, apart from the amendment’s title, no provision lends itself to a view that the legislature was merely “clarifying” North Carolina law on damages.

While we cannot ignore the act’s title, it does not control as compared to the operative text of the statute. *See United States v. Capers*, 61 F.3d 1100, 1110 (4th Cir. 1995) (explaining that the drafters’ characterization of an enactment as clarifying “cannot be accepted as conclusive, because that would enable [them] to make substantive changes in the guise of ‘clarification’” (internal quotation marks omitted)).

Nevertheless, Appellant points to *Ray v. North Carolina Department of Transportation*, 727 S.E.2d 675, 682 (N.C. 2012), which specifies that a prospective effective date does not itself determine whether a law is clarifying or altering. In *Ray*, the court held that the amendment relevant there was meant to clarify “the General Assembly’s original intent” regarding claims created “when the legislature enacted the S[tate] T[ort] C[laims] A[ct].” *Id.* There, the court explained, “[g]iven that all statutes have [] effective dates, an effective date standing alone, is insufficient information” for the court to determine whether an enactment is clarifying or substantive. *Id.*

But if the 2017 RTFA amendment is a “clarifying” one -- what precisely is it clarifying? Before the 2017 amendment, North Carolina’s RTFA codified the “coming-to-the-nuisance” defense, thereby limiting *who* could bring nuisance claims. But before 2017, the law did not contain any provision as to the damages available for those claims. This situation poses a stark contrast to *Ray* and the examples it contains -- situations where a statute “initially fails expressly to address a particular point” related to what the statute originally set out or created. *See Ray*, 727 S.E.2d at 682 (suit at issue was brought under the State Tort Claims Act, which originally “did not address the application of the public duty doctrine to claims *made under it*” (emphasis supplied)); *Ferrell v. Dep’t of Transp.*,

435 S.E.2d 309, 311 (N.C. 1993) (law empowering department to reconvey property did not specify at what price).

By contrast, here, the General Assembly added a new section to the RTFA expressly limiting the damages available in private common law actions for nuisance. The RFTA never previously purported to do anything of the sort. For the “clarifying” principle to apply here, we would need to conclude that, through the original RFTA and its previous amendments, the General Assembly intended -- but never saw fit to mention -- that the law revoked a long-recognized measure of recovery in North Carolina nuisance suits, being the loss of use and enjoyment of one’s property beyond mere property value. *See, e.g., Hanna v. Brady*, 327 S.E.2d 22, 25 (N.C. Ct. App. 1985) (explaining the availability of “physical pain, annoyance, stress, deprivation of the use and comforts of one’s home” as damages “left to the sound judgment and discretion of the trier of fact”).

In *Ray*, the court concluded, “[b]ecause the legislature left essentially all [the state’s] pre-amendment cases intact,” the amendment did not constitute “a complete change in the law but instead only an explanation of the limited role of the public duty doctrine” to suits brought pursuant to the State Tort Claims Act. 727 S.E.2d at 683. In the case of the 2017 RTFA amendment, however, stripping all but property value losses from traditional nuisance suits did violence to North Carolina precedent. While it is true that the parties here are able to cite to conflicting authorities, it is beyond debate that North Carolina case law dating back over 100 years includes recognition of loss of use and enjoyment from

annoyance and discomfort, as well as other forms of damages now barred by the 2017 RTFA amendment.⁵

Thus, the 2017 RTFA amendment represents a substantive, forward-looking change in the law. This is supported by the legislative history and statements about the law's intended effect. Even focusing on Appellant's substantive-versus-clarifying test, we have nothing from which to conclude the 2017 RTFA amendments should apply retroactively. In contrast, we have a multitude of backdrop principles guiding us firmly away from that conclusion.

For one thing, the implications for vested rights -- and therefore the doctrine of constitutional avoidance -- support rejection of retroactivity here.

Both the federal and North Carolina constitutions protect vested rights. *See Landgraf*, 511 U.S. at 266 (noting the Fifth Amendment's role in protecting vested rights); *Fogleman v. D & J Equip. Rental, Inc.*, 431 S.E.2d 849, 852 (N.C. 1993) (refusing retroactive application of an amended statute where it "deprived appellants of vested rights and, thus, was unconstitutionally retroactive"). Even where there are two reasonable constructions of a statute's language, we are to avoid adopting the unconstitutional reading. *See United States v. Mills*, 850 F.3d 693, 699 (4th Cir. 2017).

⁵ *See BSK Enters., Inc. v. Beroth Oil Co.*, 783 S.E.2d 236, 249–50 (N.C. Ct. App. 2016); *Broadbent v. Allison*, 626 S.E.2d 758, 762 (N.C. Ct. App. 2006); *Evans v. Lochmere Recreation Club, Inc.*, 627 S.E.2d 340, 343 (N.C. Ct. App. 2006); *Whiteside Estates, Inc. v. Highlands Cove, LLC*, 553 S.E.2d 431, 440 (N.C. Ct. App. 2001); *Hanna v. Brady*, 327 S.E.2d 22, 25 (N.C. Ct. App. 1985); *Barrier v. Troutman*, 55 S.E.2d 923, 926 (N.C. 1949); *Oates v. Algodon Mfg. Co.*, 8 S.E.2d 605, 606 (N.C. 1940); *Thomason v. Seaboard Air Line Ry.*, 55 S.E. 198, 204 (N.C. 1906).

In North Carolina, the right to compensatory damages “vest in a plaintiff upon injury.” *Rhyne v. K-Mart Corp.*, 594 S.E.2d 1, 12 (N.C. 2004) (citation omitted). Appellant’s only response to this point is to say that a right to annoyance damages did not exist at the time of injury. But, as explained, the weight of North Carolina case law and the district court’s determination on the basis of that law are to the contrary. And, “annoyance” damages aside, the 2017 RTFA amendment limited available damages to *only* reduction in market value (for permanent nuisances) and rental value (for temporary nuisances). *See* N.C. Sess. Laws 2017-11, § 1; codified at N.C. Gen. Stat § 106-702(a). This without question would strip plaintiffs in pending suits of vested rights to damages noted even in Appellant’s authorities, such as “reasonable costs of replacement or repair [and] restoration of the property to its prenuisance condition; and other added damages for incidental losses.” *Rudd v. Electrolux Corp.*, 982 F. Supp. 355, 372 (M.D.N.C. 1997).

Further, policy and justice concerns weigh against allowing retroactive amendments to alter the damages available in pending suits. A decision in Appellant’s favor as to the effect of the 2017 RTFA amendment would reward powerful defendants who, faced with a possible judgment against them, could escape responsibility by raising a specter of doubt about something the state’s courts have long made available. North Carolina’s legislators were worried about the constitutionality and fairness of the RTFA’s amendment, and these concerns motivated the change from the original language -- specifying it would apply to pending cases -- to the current version applying only to claims filed on or after the effective date. Motivated by all of the above concerns, we have previously declined to apply responsive enactments and we do so here. *See Ward v. Dixie Nat’l Life Ins. Co.*, 595 F.3d

164, 171–72 (4th Cir. 2010) (refusing to retroactively apply an amendment where, on first appeal, we ruled for the plaintiffs and the state legislature then adopted a definition purporting to affect pending cases that “was, in effect, that advocated by defendants and rejected by this court”).

We therefore affirm the district court with regard to the availability of compensatory damages beyond property or rental value in this case.

D.

Expert Testimony

Next, Appellant asserts the district court erred when it approved the testimony of Appellees’ expert, Dr. Shane Rogers, but excluded certain opinions of Appellant’s own expert, Dr. Pamela Dalton.

1.

We review a district court’s decisions on the admissibility of expert testimony for abuse of discretion. *United States v. Campbell*, 963 F.3d 309, 313 (4th Cir. 2020).

Rule 702 of the Federal Rules of Evidence provides that a qualified expert witness “may testify in the form of an opinion or otherwise if . . . [his or her] scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702(a). The expert’s testimony must be “based on sufficient facts or data” and be “the product of reliable principles and methods.” Fed. R. Evid. 702(b), (c). And “the expert [must] reliably appl[y] the principles and methods to the facts of the case.” Fed. R. Evid. 702(d).

“Implicit in the text of Rule 702 is a district court’s gatekeeping responsibility to ‘ensur[e] that an expert’s testimony both rests on a *reliable* foundation and is *relevant* to the task at hand.’” *Nease v. Ford Motor Co.*, 848 F.3d 219, 229 (4th Cir.) (alteration in original) (emphases in original) (quoting *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 597 (1993)). “With respect to reliability, the district court must ensure that the proffered expert opinion is based on scientific, technical, or other specialized knowledge and not on belief or speculation, and inferences must be derived using scientific or other valid methods.” *Id.* (internal quotation marks omitted) (emphasis omitted). “Relevant evidence, of course, is evidence that helps ‘the trier of fact to understand the evidence or to determine a fact in issue.’” *Id.* (quoting *Daubert*, 509 U.S. at 591).

As the Supreme Court has repeatedly explained, *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 597 (1993), offers district courts several guidepost factors that the court “*may consider*” in assessing an expert’s evidentiary reliability to the extent that the factors are relevant to the specific facts of the case at hand. *See Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 141 (1999) (emphasis in original). These factors include “[w]hether a theory or technique . . . can be (and has been) tested”; whether the theory or technique “has been subjected to peer review and publication”; whether a given technique has a “high known or potential rate of error and whether there are standards controlling the technique’s operation”; and “[w]hether the theory or technique enjoys general acceptance within a relevant scientific community.” *Id.* at 149–50 (internal quotation marks omitted). These factors “may or may not be pertinent in assessing

reliability, depending on the nature of the issue, the expert's particular expertise, and the subject of his [or her] testimony." *Id.* at 150 (internal quotation marks omitted).

2.

a.

Dr. Rogers

i.

Appellees called upon Dr. Shane Rogers to testify that a DNA marker of hog feces could be found on the homes neighboring Kinlaw Farms, as support for the idea that hog waste chemicals could and did reach their properties. The district court qualified Dr. Rogers as "an expert in environmental engineering, . . . animal waste management engineering and technology, and microbiology." J.A. 6185. The district court was informed that Dr. Rogers earned a Ph.D with honors in environmental engineering, has held professorships in civil and environmental engineering for a decade, and previously served as an environmental engineer at the United States Environmental Protection Agency. His specialty was described as "the fate and transport of fecal pathogens." *Id.* at 6184.

According to Appellant, Dr. Rogers offered unreliable opinions both in his report and at trial. As support, Appellant cites purported errors in sample collecting and limited training and experience of Dr. Rogers's teams. Appellant further contends that Dr. Rogers utilized a DNA indicator called Pig2bac to show the presence of fecal material "as a proxy for odor" leaving the farm, even though he conceded that he is not an expert on how people perceive odor and that this use of Pig2bac had not been peer-reviewed. Appellant's Br. 35.

Appellant argues the district court did not discharge its *Daubert* “gatekeeping” responsibility in admitting the testimony of Dr. Rogers. In this regard, Appellant asserts that the court failed to “make any reliability findings” and did not use “*Daubert’s* guideposts or any other factors to assess the reliability of [Rogers]’s testimony.” Appellant’s Br. 34 (quoting *Nease*, 848 F.3d at 230). Appellant further complains that its request for a *Daubert* hearing was refused.

ii.

As to the reliability of Dr. Rogers’s testimony, the errors Appellant alleges as to Dr. Rogers’s sample collecting and labeling were explained to the district court in briefing as resulting from *Appellant’s* last minute changes to the sampling location. Appellees informed the court that these issues were fully considered in the report’s methodology. And, while it is true that Dr. Rogers’s Pig2bac method itself has not been peer-reviewed, this is only one of the several factors -- that do not “necessarily nor exclusively” apply in every case. *Kumho Tire Co. Ltd.*, 526 U.S. at 141 (citing the “flexible” nature of the reliability test (quoting *Daubert*, 509 U.S. at 594)). “[A] trial court *may* consider one or more of the more specific factors that *Daubert* mentioned when doing so will help determine that testimony’s reliability.” *Id.*

Here, though Dr. Rogers’s work itself had not been peer-reviewed, Pig2bac, upon which the report was based, has been used globally to demonstrate the traceability of swine fecal wastes and was applied in this case using protocols for sampling and analysis by a team of four Ph.D. holders, each with experience with field work, animal operations, and environmental health and engineering. Moreover, Appellant was permitted to put on a

counter-expert, Dr. Jennifer L. Clancy, who critiqued Dr. Rogers's report but who also admitted that Dr. Rogers's method "was acceptable," at least "in some cases." Dep. of Jennifer Lee Clancy, Ph.D. at 4, *McKiver v. Murphy-Brown, LLC*, No. 14-cv-00180-BR (E.D.N.C. Sept. 28, 2018), ECF No. 124-1.

Finally, any contention that Dr. Rogers was not qualified was met with evidence that his area of expertise in waste management qualified him to opine on odor traceability, waste management measures, and their testability. *See* Expert Report of Dr. Shane Rogers at 4, *McKiver v. Murphy-Brown, LLC*, No. 14-cv-00180-BR (E.D.N.C. Sept. 28, 2018), ECF No. 81-2 (citing Dr. Rogers's work with livestock agriculture and related emissions and "development of good management practices to decrease potential exposures of manure pollutants to neighbors and downwind produce growing areas"). Although Dr. Rogers is not (and never claimed to be) an expert on the ability of humans to perceive odor, that is beside the point. Appellees called Dr. Rogers as an expert on tracing how the compounds creating odor travel in agricultural settings.

Taking all of this information as a whole, we conclude that the district court did not abuse its discretion in determining that Dr. Rogers's opinions were both reliable and relevant to the issues in this case.

iii.

Further, as to Appellant's grievance that the district court ruled on the admissibility of the testimony of Dr. Rogers without first affording Appellant a hearing, this argument fails.

A trial court has “considerable leeway in deciding in a particular case *how* to go about determining whether particular expert testimony is reliable.” *Kumho Tire Co., Ltd.*, 526 U.S. at 152 (emphasis supplied). As the Supreme Court has made clear, *Daubert*’s factors “do *not* constitute a definitive checklist or test.” *Id.* at 150 (emphasis in original) (internal quotation marks omitted). “[T]he gatekeeping inquiry must be tied to the facts of a particular case.” *Id.* (internal quotation marks omitted). Importantly, “[t]he trial court must have the same kind of latitude in deciding *how* to test an expert’s reliability, and to decide whether or when special briefing or other proceedings are needed to investigate reliability, as it enjoys when it decides *whether or not* that expert’s relevant testimony is reliable.” *Id.* at 152 (emphasis in original).

As the Supreme Court has explained, the district court here was entitled to rely on the parties’ materials without requiring further submissions or a *Daubert* hearing. The district court’s ruling from the bench reflected that it considered the parties’ arguments and briefing as to Dr. Rogers’s qualifications, area of expertise, and the relevance and reliability of his report. We conclude that the district court had sufficient information before it -- as detailed above -- such that refusing to grant a *Daubert* hearing was not an abuse of discretion.

b.

Dr. Dalton

i.

According to Appellant, it was prejudiced by the district court’s “allowing *only* Plaintiffs’ expert to testify on the central issue.” Appellant’s Br. 33 (emphasis in original).

While Dr. Rogers was permitted to testify, Appellant argues that its own odor expert, Dr. Pamela Dalton, was improperly prevented from testifying about her “odor monitoring study and her opinion regarding the lack of odor nuisance emanating from Kinlaw Farm[s].” J.A. 8596. The district court qualified Dr. Dalton, a scientist specializing in understanding the human perception of odor, as an odor expert, but it barred her from offering certain testimony about odor monitoring she conducted at Kinlaw Farms. Appellant’s arguments about the testimony of Dr. Dalton are inaccurate on a number of levels.

First, contrary to Appellant’s assertions, the issues on which Dr. Rogers and Dr. Dalton opined are not the same.⁶ Dr. Rogers did not purport to opine as to whether odors reaching Appellees’ properties constituted a nuisance or that an objective measure of objectionable odors was even possible. Dr. Dalton, on the other hand, asserted “to a reasonable degree of scientific certainty . . . that the normal operating activities at the farm do not produce odors that travel offsite at an intensity, frequency or duration that would be considered a nuisance level at the [Appellees’] properties.” Expert Report of Pamela Dalton, Ph.D, MPH at 5, *McKiver v. Murphy-Brown, LLC*, No. 14-cv-00180-BR (E.D.N.C. Sept. 28, 2018), ECF No. 96-1. Dr. Dalton also indicated, “It is generally agreed that unless

⁶ Though the Rules of Evidence do not guarantee perfect correspondence of adverse expert witness testimony, Appellant was in any event permitted to use Dr. Jennifer L. Clancy as a rebuttal witness to Dr. Rogers. Dr. Clancy’s testimony included her critique of Dr. Rogers’s methodology and report.

an odor can be detected at a 7:1 dilution or higher, it is not an objectionable odor.” *Id.* at 4.

Citing its obligation to ensure “a valid scientific connection to the pertinent inquiry,” *Nease*, 848 F.3d at 229 (quoting *Daubert*, 509 U.S. at 592), the district court rejected the proposed testimony of Dr. Dalton as to the odor levels emanating from Kinlaw Farms. Though the court did allow Dr. Dalton to testify about the unreliability of human self-reports of odor, it excluded Dr. Dalton’s “testimony about the odor monitoring study and her opinion regarding the lack of odor nuisance emanating from Kinlaw Farm[s].” J.A. 8596. The district court explained, “North Carolina (unlike some other jurisdictions) has not adopted a dilution to threshold ratio or any other objective standard for assessing whether an odor is objectionable,” and even Dr. Dalton recognized “the perception of odors is a highly subjective experience.” *Id.* For these reasons, the district court concluded that her testimony “would have a strong likelihood of confusing or misleading the jury,” and her opinion based on her report would likewise “not be helpful to the jury and would be confusing.” *Id.*

ii.

We conclude that the exclusion of Dr. Dalton’s odor monitoring testimony was not an abuse of discretion. Though an expert’s “opinion is not objectionable simply ‘because it embraces an ultimate issue to be decided by the trier of fact’ -- [here, whether the odors leaving Kinlaw Farms created a nuisance] -- . . . such an opinion may be excluded if it is not helpful to the trier of fact under Rule 702.” *Kopf v. Skyrn*, 993 F.2d 374, 377–78 (4th Cir. 1993) (quoting Fed. R. Evid. 704(a)). Dr. Dalton purported to provide objective

evidence as to whether Kinlaw Farms was giving off odors constituting a nuisance and asserted that odors below a particular threshold were not considered objectionable. Given that North Carolina has not adopted an objective measurement for nuisance odors, and that Plaintiffs themselves would be testifying about their experiences relative to the nuisance at their respective properties, the district court's judgment that Dr. Dalton's testimony would not be helpful and would in fact confuse the jury was not an abuse of discretion.

3.

The Supreme Court has cautioned appellate courts against "fail[ing] to give the trial court the deference that is the hallmark of abuse-of-discretion review" in the expert testimony context. *General Elec. Co. v. Joiner*, 522 U.S. 136, 143 (1997). "[I]t is very much a matter of discretion with the court whether to receive or exclude the evidence; [such that] the appellate court will not reverse in such a case, unless the ruling is manifestly erroneous." *Id.* at 142 (quoting *Spring Co. v. Edgar*, 99 U.S. 645, 658 (1879)). This is true whether the evidence is physical or testimonial, from a lay witness or expert. *See id.* Here, none of the concerns lodged by Appellant render the district court's evidentiary decisions "manifestly erroneous." *Id.* (quoting *Spring Co.*, 99 U.S. at 658). And Appellant's argument that the district court erred in admitting one expert without the other fails to appreciate that the testimonies speak to different issues -- one to whether odor-causing particles are present and the other to whether the odors were causing a nuisance -- not to mention that no such parity is guaranteed by the Rules of Evidence. We therefore affirm the district court's decisions as to admission and exclusion of the testimonies of Drs. Rogers and Dalton, respectively.

E.

Jury Instruction as to Vicarious Liability for Nuisance

Next, Appellant contends the district court misstated North Carolina law in its jury instruction on nuisance. Specifically, the district court instructed the jury that a party can be vicariously liable for nuisance “if it employs an independent contractor to do work which that party knows or has reason to know to be likely to involve the creation of a nuisance.” J.A. 9165. This language was based on section 427B of the Restatement (Second) of Torts (1965). Appellant claims, however, that this instruction misstated North Carolina law because the North Carolina Supreme Court has not explicitly adopted the language from this Restatement.

1.

“We review de novo whether the district court’s instructions to the jury were correct statements of law.” *Gentry v. East West Partners Club Mgmt. Co.*, 816 F.3d 228, 233 (4th Cir. 2016) (quoting *Emergency One, Inc. v. Am. FireEagle, Ltd.*, 228 F.3d 531, 538 (4th Cir. 2000)). “Even if a jury was erroneously instructed, however, we will not set aside a resulting verdict unless the erroneous instruction *seriously* prejudiced the challenging party’s case.” *Id.* (emphasis in original) (quoting *Bunn v. Oldendorff Carriers GmbH & Co. KG*, 723 F.3d 454, 468 (4th Cir. 2013)).

2.

First, we look to the language of Restatement section 427B, which states, “One who employs an independent contractor to do work which the employer knows or has reason to know to be likely to involve a trespass upon the land of another or the creation of a public

or a private nuisance, is subject to liability for harm resulting to others from such trespass or nuisance.” The comments to section 427B explain that the section applies particularly “where the contractor is directed or authorized by the employer to commit such a trespass, or to create such a nuisance, and where the trespass or nuisance is a necessary result of doing the work.” Restatement (Second) Torts § 427B cmt. b. But the section 427B rule will apply even if the employer did not “direct[] or authorize[]” the nuisance; “[i]t is sufficient that the employer has reason to recognize that, in the ordinary course of doing the work in the usual or prescribed manner, the trespass or nuisance is likely to result.” *Id.*

3.

As Appellant indicates, North Carolina’s highest court has not expressly adopted the Restatement provision at issue. But Appellees urge that North Carolina case law demonstrates the Restatement’s “likely to” liability theory applies here.

First and foremost, we are mindful of our role as a federal court sitting in diversity. In *Rhodes v. E.I. du Pont de Nemours & Co.*, 636 F.3d 88 (4th Cir. 2011) we explained, “[a] federal court acting under its diversity jurisdiction should respond conservatively when asked to discern governing principles of state law.” *Id.* at 96 (citing *Day & Zimmermann, Inc. v. Challoner*, 432 U.S. 3, 4 (1975) (per curiam)). As a result, “in a diversity case, a federal court should not interpret state law in a manner that may appear desirable to the federal court, but has not been approved by the state whose law is at issue.” *Id.* With this principle in mind, in *Rhodes*, “we decline[d] the plaintiffs’ invitation to predict that the West Virginia Supreme Court of Appeals would adopt the specific provisions of the Restatement advanced by the plaintiffs.” *Id.* The *Rhodes* court identified a case from West

Virginia's highest court directly conflicting with one of the Restatement theories the plaintiffs urged and found nothing else to show the alternative theory had been "embraced" by the state's courts. *See id.* at 95–96.

"But in a situation where the [state's highest court] has spoken neither directly nor indirectly on the particular issue before us, we are called upon to predict how that court would rule if presented with the issue." *Private Mortg. Inv. Servs., Inc. v. Hotel and Club Assocs., Inc.*, 296 F.3d 308, 312 (4th Cir. 2002). The state's intermediate appellate courts' decisions "constitute the next best indicia of what state law is, although such decisions may be disregarded if the federal court is convinced by other persuasive data that the highest court of the state would decide otherwise." *Id.* (internal quotation marks omitted).

We are therefore tasked with understanding whether North Carolina has embraced the jury instruction's rule, as borrowed from the Restatement.

4.

In *Coastal Plains Utilities, Inc. v. New Hanover County*, 601 S.E.2d 915 (N.C. Ct. App. 2004) itself -- the case Appellant cites for what it says is a general rule against contractor liability -- the intermediate Court of Appeals of North Carolina considered a party's argument that a contractor's employer is liable for a trespass "if the independent contractor's trespass was committed at the direction of the employer, or where the work necessarily involved a trespass or *where trespass is likely to occur.*" *Id.* at 925 (emphasis supplied) (internal citations omitted). The plaintiff there directly cited Restatement section 427B for this principle and argued that the defendant's water and sewer system was likely to result in a trespass. *See id.* at 925–26. Without question, the court went straight to

applying the “*likely to*” test Appellant here challenges. *Id.* at 926. The independent contractor rather than its employer designed the project, so the court observed, “[The plaintiff] ha[d] not pointed to any evidence that the project, if properly designed, *would likely have caused a trespass*. Without such evidence, the County could not be held liable under this theory.” *Id.* at 926 (emphasis supplied). If “North Carolina does *not* hold employers vicariously liable for hiring independent contractors to do work that is ‘likely’ to create a nuisance,” as Appellant contends, Appellant’s Br. 47 (emphasis in original), we would expect that the Court of Appeals would have just said so, rather than attempting to apply that very standard.

The district court’s jury instruction on the “likely to” exception here thus appears to be consistent with North Carolina law. The district court here possessed North Carolina precedent applying that very test, with nothing from the state’s highest court to suggest otherwise. Application of the test appears in the very case Appellant advances to demonstrate North Carolina’s rule. *See* Appellant’s Br. 47 (quoting *Coastal Plains Utils., Inc.*, 601 S.E.2d at 923). Where the *Rhodes* court saw the West Virginia Supreme Court of Appeals announcing a contrary rule to the Restatement and silence as to an alternative Restatement theory, 636 F.3d at 96, the district court here was presented with North Carolina precedent applying the exact exception provided in the jury instruction it selected.

Still, Appellant argues that the allegedly erroneous vicarious liability jury instruction given by the district court “significantly prejudiced” Appellant’s defense and permitted “reams of so-called ‘notice’ evidence about odor problems at other farms” to be admitted. Appellant’s Br. 49 (emphasis omitted). In Appellant’s view, evidence that

Appellant knew of odor problems at contract grower operations other than Kinlaw Farms would only be relevant under a theory of vicarious liability. But Appellant's awareness of the known issues associated with its prescribed farming methods is relevant under a direct liability theory as well, such that -- even if the contested instruction as to vicarious liability were erroneous -- prejudice did not result.

In North Carolina, harms caused by a “corporation’s acts or policies” constitute “a theory of direct liability” in the punitive damages context. *Everhart v. O’Charley’s Inc.*, 683 S.E.2d 728, 737 (N.C. Ct. App. 2009). Therefore, the jury’s finding in favor of punitive damages could rest on Appellant’s acts itself, in making and enforcing the problematic policies and decisions, not merely on its direction of Kinlaw Farms. Evidence of the known effects of Appellant’s policies and procedures, as uniformly applied across their various grower operations including Kinlaw Farms, would therefore be relevant irrespective of any supposed vicarious liability theory based on supervision of its contractor.

As a result, we hold that the contested jury instruction did not prejudice Appellant because the evidence admitted and the jury’s judgment equally apply under a theory of direct liability such that, even if the instruction were erroneous, it did not prejudice -- much less “seriously prejudice[]” -- Appellant. *Gentry*, 816 F.3d at 233 (emphasis in original).

F.

Punitive Damages

Finally, Appellant asks us to decide whether the district court erred in submitting the issue of punitive damages to the jury, rather than deciding as a matter of law that Appellees could not meet the punitive damages standard.

1.

At the close of Appellees' case and again at the close of all evidence, Appellant moved for judgment as a matter of law that Appellees did not present sufficient evidence to meet North Carolina's standard for punitive damages. The district court denied the motion each time.

We review denial of a motion for judgment as a matter of law *de novo*, with all evidence and reasonable inferences taken in the light most favorable to the nonmoving party. *See Russell v. Absolute Collection Servs., Inc.*, 763 F.3d 385, 391 (4th Cir. 2014).

Judgment as a matter of law pursuant to Federal Rule of Civil Procedure 50 is proper when “a party has been fully heard on an issue during a jury trial and the court finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.” Fed. R. Civ. P. 50(a)(1). A district court should grant judgment as a matter of law “if the nonmoving party failed to make a showing on an essential element of his case with respect to which he had the burden of proof.” *Russell*, 763 F.3d at 392 (internal quotation marks omitted).

North Carolina makes punitive damages available to plaintiffs who demonstrate that (1) the defendant is liable for compensatory damages and (2) either fraud, malice, or willful

or wanton conduct are present as aggravating factors and are related to the injury for which compensatory damages were awarded. N.C. Gen. Stat. Ann. § 1D-15(a). A plaintiff bears the burden of proving the existence of one of the aggravating factors by clear and convincing evidence. *Id.* § 1D-15(b). Here, Appellees alleged “willful or wanton conduct,” which North Carolina defines as “the conscious and intentional disregard of and indifference to the rights and safety of others, which the defendant knows or should know is reasonably likely to result in injury, damage, or other harm.” *Id.* § 1D-5. “Willful or wanton conduct means more than gross negligence.” *Id.* (internal quotation marks omitted).

North Carolina does not permit punitive damages to be awarded “solely on the basis of vicarious liability for the acts or omissions of another.” N.C. Gen. Stat. Ann. § 1D-15(c). “Punitive damages may be awarded against a person only if that person participated in the conduct constituting the aggravating factor giving rise to the punitive damages, or if, in the case of a corporation, the officers, directors, or managers of the corporation participated in or condoned the conduct” in question. *Id.* In this context, we have previously explained, “[t]he plain meaning of ‘condone’ is to ‘forgive or overlook,’ or ‘permit the continuance of.’” *Vandevender v. Blue Ridge of Raleigh, LLC*, 901 F.3d 231, 239 (4th Cir. 2018) (quoting *Miller v. B.H.B. Enters., Inc.*, 568 S.E.2d 219, 225 (N.C. Ct. App. 2002)). This means, for example, “[a] manager condones employees’ actions when the manager is aware of those actions and fails to intervene.” *Id.* (citation omitted).

2.

Appellant argues Appellees did not put forth evidence from which a reasonable jury could conclude Appellant engaged in willful or wanton conduct as an aggravating factor supporting punitive damages. Appellant makes no argument that the conduct at issue was not “related to” the claimed injuries. N.C. Gen. Stat. Ann. § 1D-15(a).

a.

Appellant Claims Lack of Knowledge

Appellant’s primary wanton-and-willful argument is that it lacked knowledge of the conditions associated with its operation at Kinlaw Farms, and therefore cannot be said to have consciously disregarded any possible nuisance there. Appellant points, in part, to a lack of complaints from Appellees to Appellant as to the Kinlaw Farms operation. But Appellees argue that industrial hog operations are a “predictably messy business,” *In re Murphy Brown, LLC*, 907 F.3d 788, 792 (4th Cir. 2018), and contend Appellant “has known for decades that its ‘messy business’ is a nuisance when placed near residences,” Appellee Br. 30.

i.

Knowledge of Harms

A lack of complaints about Kinlaw Farms in particular does not save Appellant from punitive damages. There can be no doubt that Appellees provided evidence of Appellant’s deliberate corporate policies and evidence that Appellant *knew* these policies had associated harms. Appellees’ proof in this regard included Appellant’s own collection of

media articles reporting conditions associated with its farming practices and policies, as well as its knowledge of studies detailing the effects of lagoon-and-sprayfield operations and types of effective remediation.⁷ This evidence details effects on properties much further from the various hog operations than Appellees' were from Kinlaw Farms. Yet, despite this knowledge, Appellant persisted in practices it knew were reasonably likely to result in injury to neighboring properties. The practices include but are not limited to (i) use of the existing lagoon-and-sprayfield waste management system without further remedial measures; (ii) the use of "dead boxes" to collect corpses; and (iii) persistent and unconstrained truck traffic.

Still, according to Appellant, the lack of evidence that it had received complaints about Kinlaw Farms in particular forced Appellees to resort to what it calls a "nuisance per se" argument. Appellant's Br. 20. But Appellees' theory of liability was not that all lagoon-and-sprayfield farms are "inherently bad," as Appellant phrases it, *id.* at 22, but rather that they create known risks to neighbors that must be monitored and remediated to avoid creating a nuisance. That is, Appellees sought to provide evidence sufficient for a reasonable jury to conclude that, *in practice*, Appellant's persistent use of lagoons and sprayfields with only minimal remedial methods -- i.e. methods not comparable to known

⁷ Articles in Appellant's possession and read into the record include accounts explaining that hog farms in Bladen County "stink" with a "sickening and nauseating odor," such that neighbors "can't plan outdoor activities because [they] never know which way the wind will blow." J.A. 7451. In one letter in Appellant's possession read at trial, a Bladen County resident explained that the hog farm in her community was affecting her "house and land and most of all [her] health" and that she had made verbal complaints about odor "several times." *Id.* at 7449.

effective methods -- created a nuisance affecting neighbors of Kinlaw Farms, and that Appellant knew its failure to fully remediate the harms associated with those practices was “reasonably likely to result in injury, damage, or other harm.” N.C. Gen. Stat. Ann. § 1D-5. For instance, Appellant admitted awareness of a number of available waste management technologies (such as soil technologies or lagoon covers) that would prevent nuisance odors from reaching neighbors and admitted that it could have its growers change to such technologies if it so chose.

Yet Appellant argues that, because its farms were operated legally and consistent with all requisite permits, Appellees failed to prove that its lagoon-and-sprayfield operations were nuisances *per se*. This is beside the point. Lawful enterprises can constitute a nuisance in fact. *See Jones v. Queen City Speedways, Inc.*, 172 S.E.2d 42, 47 (N.C. 1970). The parties do not debate that Kinlaw Farms’s grandfathered use of the lagoon-and-sprayfield system satisfied North Carolina’s permitting requirements. But North Carolina law hardly “protects” these operations as Appellant suggests. Appellant’s Br. 21. Indeed, new hog operations seeking permits in North Carolina cannot utilize the lagoon-and-sprayfield methods as they existed at Kinlaw Farms and existing lagoon-and-sprayfield farms are being slated for conversion to other methods of waste management. *See* N.C. Gen. Stat. § 143-215.10I; N.C. Sess. Laws 1997-458. The farm’s “grandfathering” does not serve to shield Appellant from nuisance liability, but rather is evidence a jury could use to conclude Appellant knew its operations posed a threat of nuisance to neighboring properties absent additional remedial measures.

Moreover, Appellees' claims were not solely based on effects of lagoon-and-sprayfield practices, but also on other known side effects associated with industrial hog farming. For example, "dead boxes" and frequent traffic doubtlessly can create a nuisance in fact by interfering with neighbors' use and enjoyment of their land due to pests, odors, and noises. Appellant's former director Don Butler's testimony reflected the company's knowledge that Bladen County residents complained about "odor, flies, noise, trucks, [and] interference with their quality of life" from neighboring hog farms. J.A. 7466. A jury reasonably could hold Appellant responsible for knowing about the likelihood of these resultant harms but still persisting in its existing carcass-management and trucking policies.

Appellant cites *Finch v. BASF Catalysts, LLC*, No. 1:16-cv-1077, 2018 WL 3941978 (M.D.N.C. Aug. 16, 2018), for the principle that "general awareness of danger is not enough to establish a conscious disregard of a known duty." *Id.* at *5–6 (citation omitted). Indeed, "knowledge of broad statements about potential harms under undefined conditions is insufficient to show willful and wanton misconduct." *Id.* at *6 (internal quotation marks omitted). But, although Appellant may not have had received specific complaints about Kinlaw Farms, the known dangers here were far from generic.

Appellant had far more knowledge than the defendant in *Finch*, who was only "generally aware asbestos had health risks." 2018 WL 3941978, at *6. Appellant was specifically aware of the risks associated with its chosen policies: Appellant possessed studies of Eastern North Carolina lagoon-and-sprayfield hog farms that explained the effects of those operations on their neighbors' properties, received comments specifically about farms managed with its own methods, and knew Kinlaw Farms was in fact

implementing those practices as directed. The evidence demonstrates that Appellant ensured that its growers, including Kinlaw Farms, uniformly applied its practices: Appellant conducted weekly inspections of Kinlaw Farms to confirm that it maintained total compliance with Appellant's prescribed policies. From this, a jury could reasonably conclude Appellant knew that Kinlaw Farms's compliance with those procedures would create nuisance conditions for its neighbors.

Further still, Appellees' evidence demonstrated that Appellant knew the conditions as they *actually* existed at Kinlaw Farms based on multiple weekly inspections of the facility, including the proximity of neighbors, number of hogs, use of dead boxes, trucking schedule, and absence of control technologies. Thus, Appellees provided evidence from which a jury could conclude Appellant knew the procedures in place at Kinlaw Farms did not adequately address -- and actually persisted in -- known harms associated with lagoon-and-sprayfield operations and similar tightly controlled large hog farms in the region.

ii.

Intentional Disregard of Harms

In all, there is abundant evidence supporting Appellant's conscious disregard of the conditions at Kinlaw Farms. Appellees supplied evidence that Appellant knew the farming methods it mandated at Kinlaw Farms -- including lagoon-and-sprayfield waste management, minimal distance from neighboring properties, dead boxes, all-hours trucking, and a high volume of hogs -- caused known impacts to neighbors. This evidence included scientific studies and news reports in Appellant's own collection, exposure to and participation in years of accumulated public comment on Appellant's practices, and visible

political pressure to ensure adequate mitigation of the effects of those practices -- practices Appellant worked hard to ensure its contract growers, including Kinlaw Farms, implemented precisely. Appellees further provided evidence that, despite this knowledge, Appellant did not attempt to alleviate the effects of methods it knew Kinlaw Farms used at Appellant's direction. Appellees also provided evidence demonstrating Appellant was aware of available technologies and its ability to alleviate the above described harms but chose not to implement those technologies. Finally, Appellees' evidence demonstrated that Appellant did not even attempt to assess the impact of its operations on neighbors, despite known risks.

Based on this abundance of evidence, a jury could reasonably conclude that Appellant persisted in its chosen farming practices despite its knowledge of the harms to its neighbors, exhibiting wanton or willful disregard of the neighbors' rights to enjoyment of their property.

b.

Proactive Measures by Parent Companies

Appellant also attempts to defeat punitive damages by relying on proactive measures taken by its parent companies as evidence that it could not have acted with wanton or willful disregard. Appellant offers *Faris v. SFX Ent., Inc.*, No. 3:04-cv-08, 2006 WL 3690632, at *7 (W.D.N.C. Dec. 12, 2006), for the proposition that “even ineffective action may ‘show assertive effort inconsistent with disregard or indifference to the safety of others,’” Appellant’s Br. 22–23 (quoting *Faris*, 2006 WL 3690632, at *7).

First, as a district court opinion, *Faris* has no precedential value. *See Booker v. S.C. Dep’t of Corrs.*, 855 F.3d 533, 538 n.1 (4th Cir. 2017). Beyond that, *Faris* fails to aid Appellant’s cause. In *Faris*, having heard word that two patrons had been electrically shocked in a stairwell, the defendant concert venue had a maintenance worker tape off the fixtures suspected of causing the problem; thus, the tortfeasor acknowledged the problem and took targeted action aimed at completely removing the risk of harm. 2006 WL 3690632, at *7. The court credited the defendant’s repeated efforts to correct, then test the correction, of the danger. *Id.* Therefore, the district court in *Faris* concluded that the plaintiff had not “produce[d] evidence that [the defendant] intentionally turned a blind eye to the danger: he looked, he saw, and he acted,” though his action was unfortunately ineffective. *Id.*

The *Faris* court itself contrasted the facts presented there with a situation -- much like Appellant’s -- where the defendant “looked at [its options], saw the danger involved in using [the chosen approach], and used it despite the known danger.” 2006 WL 3690632, at *7. Here, Appellees presented clear and convincing evidence Appellant knew about likely harms, denied their existence, and fought for them not to come to light. Appellees also provided evidence demonstrating that the supposed proactive steps -- investment in feed conversion and nutrient output -- were motivated by profit and/or efficiency of operations, as opposed to concern for neighbors of Appellant’s hog operations. The fact that Appellant’s policies expressly encouraged growers to avoid spraying at times neighbors were known to be outside demonstrates that Appellant knew its sprayfield operation was still likely to interfere with its neighbors’ use and enjoyment of their

property, even taking into account other supposed proactive efforts. Even further, Appellant's indifference to the effectiveness of its supposed remediation methods reasonably implies corresponding indifference to the rights of others to be free from the harms those methods are meant to avoid. *See id.* (noting defendant's repeated efforts to ensure problem was resolved).

Appellant's conduct -- through its parent Smithfield -- might suggest an effort to reduce some odor effects. But a jury could still reasonably find conscious disregard of neighbors' rights as evidenced by Appellant's awareness that its methods fell far short of abating the problem, while it rejected alternatives demonstrably able to do so.⁸ Moreover, even making proactive efforts to reduce fecal odor does not excuse Appellant from persisting in other practices such as dead boxes and all-hours trucking without any attempt to limit these practices out of respect for neighbors' rights. On the whole, Smithfield's limited proactive measures cannot rescue Appellant from punitive damages.

⁸ We pause here to note the inapplicability of *Ward v. Autozoners, LLC*, 958 F.3d 254 (4th Cir. 2020) provided by Appellant as supplemental authority on this point. *Ward* is wholly inapposite to the case at hand. *Ward* applied a theory of vicarious liability pursuant to Title VII, which provides its own separate standard for punitive damages, requiring the employer to act "with malice or with reckless indifference." 42 U.S.C. § 1981a(b)(1). In *Ward*, we concluded that an employee's supervisors had been negligent "at best . . . not recklessly indifferent" where "there was simply not sufficient evidence demonstrating that [they] engaged in . . . steps [to address harassment] with 'subjective appreciation' of the inadequacy." *Id.* at 268. Appellant attempts to use *Ward* to illustrate how punitive damages represent a "high standard [for a plaintiff] to meet," but the standard the plaintiff there was asserting would apply punitive damages "imputed to an employer *based solely on negligence by management level employees.*" *Id.* at 269 & n.5 (emphasis supplied). Here, by contrast, we are of course not applying Title VII's punitive damages standard, and the evidence in the record supports a reasonable jury finding more than negligence.

c.

Participation in or Condoning Misconduct

Appellant’s final argument as to why punitive damages should not have been an available option for the jury is that Appellees failed to prove Appellant’s officers, directors, or managers “participated in or condoned” any misconduct. Appellant’s Br. 24 (quoting N.C. Gen. Stat. § 1D-15(c)).

i.

Appellant’s Policies

Pursuant to North Carolina law, “[a] corporation may be subject to punitive damages based on a theory of direct liability where the corporation’s acts or policies constitute the aggravating factor.” *Everhart v. O’Charley’s Inc.*, 683 S.E.2d 728, 737 (N.C. Ct. App. 2009) (citation omitted). In *Everhart v. O’Charley’s, Inc.*, 683 S.E.2d 728 (N.C. Ct. App. 2009), an intermediate North Carolina appellate court considered whether a company’s policy of requiring managers to complete an incident form before rendering aid to customers in medical distress met the wanton-and-willful standard. There, the court concluded a jury could reasonably find the company chose to protect the restaurant from harm over preventing or mitigating harm to others, and from this the jury could find willful or wanton disregard of guests’ rights. *See id.* at 736. As in *Everhart*, a reasonable jury here could conclude that Appellant’s own policies reflected conscious and intentional disregard of the safety and wellbeing of others in the interest of protecting the company’s bottom line, rendering direct liability applicable. *See id.* at 737 (explaining that the company’s policy “recklessly disregards customers’ safety and well-being in order to begin

the process of protecting O’Charley’s against potential litigation,” supporting direct liability).

Here, Appellees advanced evidence that Appellant’s own corporate policies -- as opposed to a separate policy of Kinlaw Farms -- prescribed the lagoon-and-sprayfield system, waste and carcass management, and all-hours truck traffic underlying the complaints. As a result, in contrast to vicarious liability for acts of its contractor, Appellant’s liability is premised on the corporation’s *own* act of maintaining a set of policies it knew perpetuated the effects of hog farming that (i) caused the state to outlaw such operations within a mile of homes, except where neighbors came to the nuisance and (ii) resulted in well-documented complaints and study results that applied to Kinlaw Farms, since the policies mandated uniform conditions across Appellant’s grower sites.

ii.

Officers & Managers Condoning Conduct

Furthermore, the evidence demonstrates that Appellant’s officers and managers had notice of the harms caused by its operations, based on studies, community meetings, and political engagement. *See* N.C. Gen. Stat. Ann. § 1D-15(c). Yet Appellant’s leadership persisted in mandating the culpable practices and participated in political efforts aimed at minimizing regulation of harms known to be associated with Appellant’s chosen farming methods. This evidence is sufficient to support punitive damages.

In *Vandevender v. Blue Ridge of Raleigh, LLC*, 901 F.3d 231, 238–39 (4th Cir. 2018), plaintiffs provided sufficient evidence to support an award of punitive damages by demonstrating the defendants’ managers had notice that their policy of maintaining

inadequate staffing created a danger to their facilities' patients. *See* 901 F.3d at 238–39. Similarly, here Appellees provided sufficient proof by demonstrating Appellant's principals had notice that their policy of maintaining their standard lagoon-and-sprayfield systems, bins, and trucks created annoyance and disturbance to neighbors, as evidenced by (i) community comments; (ii) studies focused on their practices and region; (iii) successful legislation/activism to ban their form of farming and find alternatives; (iv) regular inspections of the farm in question, showing knowledge that its practices were by-the-book; and (v) longstanding advocacy to *limit* nuisance suits by neighbors, from which a jury could reasonably infer knowledge that Appellant intended to persist in its methods without amending its conduct to respect its neighbors' use and enjoyment of their property. We did not require the plaintiffs in *Vandevender* to show the defendant knew the likely harms had already come to pass at the facility in question.

It is therefore clear that a jury could find Appellant's principals at minimum “forg[ave],” “overlook[ed],” or “permit[ted] the continuance of” the conditions at Kinlaw Farms. *Vandevender*, 901 F.3d at 239 (each quoting *Miller*, 568 S.E.2d at 225). Appellees here provided evidence that Appellant's decisionmakers actually *required* Kinlaw Farms' continued application of the problematic policies and attendant harms (such as dead boxes), in the face of statewide policy pressure to change these methods due to their known effects on neighbors when used as Appellant prescribed and with the knowledge that area residents were complaining about odor, flies, noises, and trucks associated with industrial hog operations.

Therefore, considering all evidence in the light most favorable to Appellees, we conclude the district court did not err in allowing the jury to decide whether Appellant's principals "participated in or condoned" the aggravating conduct -- here, requiring its growers to persist in methods known to have associated harms.

d.

In sum, Appellees presented "clear and convincing evidence that [Appellant] w[as] fully aware" of the nuisance effects of its prescribed farming practices "yet did nothing or worse." *Vandevender*, 901 F.3d at 239. From the evidence here, a jury could reasonably conclude Appellant and its officers "knew -- because they were repeatedly told -- that [their currently prescribed remediation of odors, noise, and pests] was reasonably likely to result in [injury to neighboring properties]." *Id.* at 240. "They nonetheless deliberately continued to disregard duties imposed by law" -- here the duty not to harm neighbors' use and enjoyment of their own land -- "because doing so would increase profits." *Id.* "This is precisely the type of egregious conduct punitive damages are meant to deter." *Id.* (citing N.C. Gen. Stat. § 1D-1, which explains that the purpose of punitive damages is "to punish a defendant for egregiously wrongful acts and to deter the defendant and others from committing similar wrongful acts").

Having reviewed all of the evidence in this case, we lack reason to reject either the district court's submission of the question of punitive damages to the jury or the jury's determination here that clear and convincing evidence established that punitive damages apply.

G.

Financial Evidence

Appellant's final assignment of error is that the district court erred by admitting financial information of Appellant's "corporate grandparent" Smithfield and "ultimate parent entity" WH Group, and by refusing to bifurcate the punitive damages portion of the trial from the liability phase due to the allegedly inflammatory nature of such evidence. Appellant's Br. 26. The contested evidence includes the values of Appellants' parent companies and their executive compensation.

We address this "parent evidence" argument in two parts. First, we analyze the evidence in the context of the jury's verdict as to liability. Then, we do the same with regard to punitive damages.

1.

Parent Evidence with Regard to Nuisance Liability

a.

Federal Rule of Evidence 403 states that a "court may exclude relevant evidence if its probative value is substantially outweighed by a danger of," among other things, "unfair prejudice." Fed. R. Evid. 403. "Except under the most 'extraordinary' of circumstances, where [the district court's] discretion has been plainly abused, this Court will not overturn a trial court's Rule 403 decision." *In re C.R. Bard, Inc. MDL. No. 2187, Pelvic Repair Sys. Products Liab. Litig.*, 810 F.3d 913, 920 (4th Cir. 2016) (internal quotation marks omitted).

b.

We turn first to assess the probative value of the challenged financial evidence with regard to liability. The finances and executive compensation expenditures of Smithfield and WH Group were relevant to the question of nuisance liability because they are probative of the feasibility or impracticality of Appellant's adoption of mitigation measures to avoid the harm to neighbors' lands. In this regard, Appellees put forward testimony indicating that if Appellant wanted to cover its lagoons, Smithfield or WH Group would cover the costs. Specifically, Appellant's president George Schmidt testified as follows:

[Appellees' Counsel]: If or when -- if the hog production division wanted to go cover the lagoons, it could go ask Smithfield or WH Group for the money to do it, right?

Mr. Schmidt: That would be the procedure, yes.

[Appellees' Counsel]: And, as a matter of fact, if you wanted to do it, that would be where you'd get the money, you'd go to Smithfield or the WH Group for them to give you the money, right?

Mr. Schmidt: Correct.

J.A. 7908. The ability of Smithfield and WH Group to pay is therefore relevant evidence of whether Appellant would face undue hardship in abating the nuisance. If the cost of remediation were to be borne by a highly profitable parent company, Appellant's claim that it would be harmed -- or that financial limitations prevented successful remediation -- rings hollow. Indeed, the AG Agreement itself committed Smithfield to providing financial assistance to convert lagoon-and-sprayfield systems operated by its contract growers. Smithfield's ability to pay to do so thus is fundamental in deciding whether such

conversions were feasible. And significantly, Appellant conflated itself with its parent company, Smithfield, when asking the district court to credit Appellant with the AG Agreement and other policies adopted by Smithfield as though they were Appellant's own.

For all these reasons, we deem the parent financial evidence relevant to the question of whether any feasible effective remedial measures were out of Appellant's reach. Therefore, we cannot conclude that the district court abused its discretion in deciding the probative value of this evidence -- which speaks to a key defensive argument raised -- was not "substantially outweighed" by unfair prejudice. Fed. R. Evid. 403. The district court carefully considered whether mention of Appellant's parent companies' finances was unduly prejudicial and whether this prejudice outweighed the probative value of that information. Further, the court made clear that the parent companies' information could not itself be used to argue in favor of punishing Appellant. *See* J.A. 5726–27 (explaining that comparing individual executives' salaries to local residents or using the foreign identity of Appellant's corporate grandparent could not be used to argue in favor of punishment). The court also recognized that keeping information about parent companies' ability to pay from the jury would permit a defendant to unfairly claim both that it is too poor to afford existing remedial measures, but also that it has been proactive (through its parent company) in developing new alternatives. And because Appellant wanted to claim Smithfield's conduct as a shield, the district court reasonably concluded that evidence of Smithfield's ability to cover remediation costs also could come in as a sword.

Furthermore, due to North Carolina's particular nuisance framework, mention of the parent companies' identities and ownership bears a cognizable relationship to the

question before the jury. *See* N.C. Pattern Jury Instr. (Civ.) § 805.25 (noting the relevance of the “nature, utility, and social value of the defendant’s operation” to the existence of a nuisance). The task before the jury was to compare the *community’s benefit with Appellees’ harm*, and the fact that much of the profit from the injurious conduct left the area while Appellant and its local grower Kinlaw Farms were left unable to afford to abate the harm speaks to whether and how much the community benefitted from the operation.

Ultimately, the district court did not bar Appellant from claiming its parent companies’ efforts as its own, but likewise also did not bar evidence of those companies’ abilities to do better. Though Appellant admits that contrasting “the community’s benefit against the harm to [Appellees]” is consistent with North Carolina law, Appellant’s Br. 28 (citing N.C. Pattern Jury Instr. (Civ.) § 805.25), it nonetheless contends that conflating Appellant and its parent companies in this analysis was unnecessary and unfair. But having invoked its parent companies’ identities in its defense, Appellant cannot complain that the court allowed the jury to have information about those entities for the purposes of comparing benefits and harms as delineated by North Carolina law. Where this is the case, we cannot override the district court’s considered judgment that the evidentiary value of the parent companies’ information was not substantially outweighed by undue prejudice.

2.

Parent Evidence with Regard to Punitive Damages

Though we decline to overturn the district court’s admission of Appellant’s parent company financial evidence relevant to liability, we reach a different conclusion as to bifurcation and the amount of punitive damages. Specifically, we conclude that the value

and compensation evidence was relevant to whether punitive damages should have been awarded and do not disturb the district court’s considered judgment that any prejudice associated with that information did not substantially outweigh its probative value in that context. However, this evidence does not bear the same level of relevance to the determination of the amount of punitive damages supported by Appellant’s conduct. Because of this irrelevance and because of the particular ability of potentially inflammatory evidence to sway a jury’s calculation of punitive damage awards, we vacate the judgment below as to the amount of punitive damages and remand for rehearing on that issue alone.

a.

We review a district court’s decision not to bifurcate a trial for abuse of discretion. *Shetterly v. Raymark Indus., Inc.*, 117 F.3d 776, 782 (4th Cir. 1997).

North Carolina has a mandatory bifurcation statute. N.C. Gen. Stat. § 1D-30. “But, in our federal system, bifurcation is a case-specific procedural matter within the sole discretion of the trial court.” *Nester v. Textron, Inc.*, 888 F.3d 151, 163 (5th Cir. 2018) (citation omitted). Federal courts sitting in diversity “are to apply state substantive law and federal procedural law.” *Hanna v. Plumer*, 380 U.S. 460, 465 (1965). Therefore, “a district court is simply not bound by state law when deciding whether to bifurcate.” *Nester*, 888 F.3d at 163 (citing *Getty Petroleum Corp. v. Island Transp. Corp.*, 862 F.2d 10, 15 (2d Cir. 1988) and *Rosales v. Honda Motor Co.*, 726 F.2d 259, 260 (5th Cir. 1984)); see *Shugart v. Cent. Rural Elec. Co-op*, 110 F.3d 1501, 1504 (10th Cir. 1997); *Sellers v. Baiser*, 792 F.2d 690, 694 (7th Cir. 1986); *Moss v. Associated Transp., Inc.*, 344 F.2d 23, 27 (6th Cir. 1965).

Federal Rule of Civil Procedure 42(b) specifies, “[f]or convenience, to avoid prejudice, or to expedite and economize, the court may order a separate trial of one or more separate issues” As we have explained, “when it is determined that the evidence relevant to the appropriate amount of punitive damages will be prejudicial to the jury’s consideration of liability or compensatory damages, bifurcation of the trial under Fed. R. Civ. P. 42(b) remains an available solution.” *Mattison v. Dallas Carrier Corp.*, 947 F.2d 95, 110 (4th Cir. 1991) (citation omitted). This does not mean it is the *only* solution. “[S]ince the evidence usually overlaps substantially, the normal procedure is to try compensatory and punitive damage claims together with appropriate instructions to make clear to the jury the difference in the clear and convincing evidence required for the award of punitive damages.” *Hangarter v. Provident Life & Acc. Ins. Co.*, 373 F.3d 998, 1021 (9th Cir. 2004) (alteration in original) (quoting *McLaughlin v. State Farm Mut. Auto. Ins. Co.*, 30 F.3d 861, 871 (7th Cir. 1994)).

“The party requesting separate trials bears the burden of convincing the court that such an exercise of its discretion will (1) promote greater convenience to the parties, witnesses, jurors, and the court, (2) be conducive to expedition and economy, and (3) not result in undue prejudice to any party.” *F&G Scrolling Mouse, LLC v. IBM Corp.*, 190 F.R.D. 385, 387 (M.D.N.C. 1999) (citations omitted).

b.

Appellant raises a very real specter of prejudice stemming from the parent company financial information. The Supreme Court has reminded us that “the presentation of evidence of a defendant’s net worth creates the potential that juries will use their verdicts

to express biases against big businesses, particularly those without strong local presences.” *State Farm Mut. Auto. Ins. Co. v. Campbell*, 538 U.S. 408, 417 (2003) (quoting *Honda Motor Co. v. Oberg*, 512 U.S. 415, 432 (1994)). Importantly, “[o]ur concerns are heightened when the decisionmaker is presented . . . with evidence that has little bearing as to the amount of punitive damages that should be awarded,” because “[v]ague instructions, or those that merely inform the jury to avoid passion or prejudice do little to aid the decisionmaker in its task of assigning appropriate weight to evidence that is relevant and evidence that is tangential or only inflammatory.” *Id.* at 418 (internal quotation marks omitted).

As explained above, the district court here did not abuse its discretion where, through the AG Agreement and Appellant’s admissions, Appellant’s ability to remediate harms necessarily implicated the financial worth and expenditures of its parent companies. But having decided to admit this evidence on the question of liability, the district court nonetheless needed to evaluate the effect that same information would have in the context of punitive damages and whether the risk of prejudice -- as described by the Supreme Court -- required bifurcation.

A jury must be convinced by clear and convincing evidence to award punitive damages. This is a higher evidentiary burden than applies to the simple question of whether a defendant is liable for a nuisance. In finding nuisance, the jury had already concluded that Appellant had the ability to abate the harm without undue hardship. As with nuisance liability, we recognize the relevance of parent company financials relative to punitive damages where, as here, a defendant admits the connection of its parents to its own ability

to abate a nuisance. However, with regard to determining the *amount* of punitive damages to award, we fail to see what value the parent company financial evidence would have that could possibly outweigh the substantial risk of prejudice it carries in that delicate context.

As the Supreme Court has recognized, inflammatory financial evidence can be especially destructive in the context of punitive damages because of the leeway given to juries in selecting the appropriate amount necessary to punish and deter. *See State Farm Mut. Auto Ins.*, 538 U.S. at 417 (explaining how “punitive damages pose an acute danger of arbitrary deprivation of property” because of the “wide discretion” given to juries “in choosing amounts”). To be sure, juries are and should be afforded substantial room to exercise their discretion, but it is the court’s responsibility to ensure that the tools the jury uses to exercise that discretion are appropriate. *See Mattison*, 947 F.2d at 105 (“When a jury is left to its own devices to take property or mete out punishment to whatever extent it feels is best in the course of the process, our sensibilities about that process are offended.”).

“[A] defendant’s financial position is a proper consideration in assessing punitive damages.” *See Stamathis v. Flying J, Inc.*, 389 F.3d 429, 442 (4th Cir. 2004) (citing *Pacific Mut. Life Ins. Co. v. Haslip*, 499 U.S. 1, 22 (1991)). The jury here was instructed to consider Appellant’s ability to pay punitive damages, and the district court did not reference Appellant’s parents’ ability to pay. This makes sense: while testimony indicated that Appellant’s parent companies would be responsible for remediation costs -- justifying admission of the financial evidence on the matter of liability -- there was no such evidence

that Appellant's parent companies would be made to bear the costs of a punitive damage award.

Still, without a more specific jury instruction, a jury exposed to the high-dollar values of Appellant's parent companies and the parents' executive compensation could understandably -- but inappropriately -- apply that information when it came time to decide how much money would be required for Appellant to "feel" the effect of the damages award. Appellees used the high values and high-dollar compensation figures of Smithfield and WH Group to argue that Appellant, through its relationship to these wealthy parents, "ha[d] the money to eliminate the odor, [yet] cho[se] to do nothing." J.A. 5817; *see also* J.A. 9050 ("They know there is a problem. They know there is a fix. They willfully choose not to do anything about it. Not even figure out how much it would cost [to fix], but yet they pay \$245 million to four people over four years. That's the kind of money they can spend when they want to.") But though this evidence is relevant to the question of whether Appellant's refusal to change policies and technologies was a willful choice, it does not bear the same relevance to the proper *amount* of punitive damages necessary "to punish [Appellant] for egregiously wrongful acts." N.C. Gen. Stat. § 1D-1.

Thus, given the irrelevance of the parents' financial information to the amount of punitive damages, and given the lack of guidance provided to the jury as to how that information is to be applied in the analysis, in the absence of a limiting instruction, we conclude that the district court should have bifurcated the trial pursuant to Federal Rule of Civil Procedure 42(b) in order to avoid any undue prejudice associated with such evidence. To be quite clear -- we do not disturb the district court's decision to submit the availability

of punitive damages to the jury or the jury’s determination that those damages are appropriate in this case; rather, we are only remanding for a new calculation of those damages absent the parent company financial evidence that threatens significant prejudice without any relevance to the question of the appropriate *amount* of punitive damages to award.

“Exacting appellate review ensures that an award of punitive damages is based upon an application of law, rather than a decisionmaker’s caprice.” *State Farm Mut. Auto. Ins.*, 538 U.S. at 418 (internal quotation marks omitted). Juries are given greater latitude in assigning value to punitive damages than they possess in the liability and compensatory damages contexts, where the damages awarded are grounded in actual losses to the plaintiff. Because of this distinction, our deferential standard of review requires us to only redress the evidentiary prejudice as it pertains to the amount of punitive damages, where financial prejudice has a unique ability to do harm to a defendant. Here, a limited remand so that the amount of the punitive damages award can be reconsidered with constraints on the parent financial information will ensure that the award is based solely on Appellant’s own conduct and ability to pay, and not on any unfair prejudice against its status as the subsidiary of a wealthy parent. We therefore vacate the jury’s judgment as to the amount of punitive damages, and remand for rehearing with omission of the inflammatory parent company financial evidence.

III.

For the foregoing reasons, we conclude that none of Appellant’s arguments require the grant of a new trial wholesale. We do however remand this case for the limited purpose

of determining the proper amount of punitive damages without the parent company financial evidence, including executive compensation.

*AFFIRMED IN PART;
VACATED AND REMANDED IN PART*

WILKINSON, Circuit Judge, concurring:

I am pleased to concur in Judge Thacker's well-reasoned opinion. It ably explains why compensatory and punitive damages were appropriate here and why the admission of certain financial information, specifically the valuation and executive compensation structure of Murphy-Brown's parent companies, was especially prejudicial with respect to the amount of any punitive award. As Judge Thacker notes, punitive damages represent an especially unmoored and ungrounded form of relief, and it makes sense to keep their consideration free of gratuitously inflammatory evidence. The danger of an unleashed jury, moreover, is far greater where it sets the amount of a punitive award than when it determines willfulness and wantonness. *See Sasaki v. Class*, 92 F.3d 232, 238 (4th Cir. 1996) (affirming a jury finding of punitive liability while remanding for a redetermination of punitive damages). It is that danger that Judge Thacker rightly perceives requires a remand here.

I write separately, however, to highlight the facts in this case that support the jury's finding that liability for compensatory and punitive damages in some amount was warranted. It is past time to acknowledge the full harms that the unreformed practices of hog farming are inflicting.

This is not to say that the industry is unimportant. In fact, quite the contrary. Hog farming is central to economic life in North Carolina. It supports 46,000 much-needed, mostly low-skill jobs and accounts for approximately \$11 billion of the state's annual economic productivity. Brief of the American Farm Bureau Federation et al. as *Amici Curiae* Supporting Appellant 8, *McKiver v. Murphy-Brown* (No. 19-1019) [hereinafter

Am. Farm Bureau Brief].¹ This economic activity is concentrated in the state’s relatively rural eastern region. Sampson, Duplin, and Bladen counties collectively contain over forty percent of the state’s hog farms, where size undoubtedly makes for market efficiencies. *See id.* at 8–9. The efforts of those who work in these farms play an important role in preserving the nation’s food supply. Pork products include not only bacon, sausage, ham, and pork chops, but also byproducts with pharmaceutical applications. Inedible byproducts such as pig hair and skin can be useful in producing, respectively, such things as paint brushes and wallets. John R. Romans et al., Purdue University, *Pork By-Products*, <https://www.animalgenome.org/edu/PIH/128.html>.

It is the hog’s misfortune, and, I suppose, humanity’s good fortune that it has become such an indispensable animal. To safeguard the hog farming industry, the state legislature amended the Right to Farm Act, limiting future nuisance recoveries to declines in a property’s market value. *See* N.C. Sess. Laws 2017-11, codified at N.C. Gen. Stat. § 106-702. The state had also generally capped punitive awards per plaintiff at “three times the amount of compensatory damages or two hundred fifty thousand dollars (\$250,000), whichever is greater.” N.C. Gen. Stat. § 1D-25(b). In passing these laws, the state legislature acted within its constitutional police powers.

¹ While it is of course true that amicus briefs were not part of the jury’s consideration, they align in this case to an exceptional extent with the extensive trial testimony that is herein referenced.

But our job is different. In this case, the ancient tort of nuisance, which has long refereed disputes between neighbors, *see e.g., Tenant v. Goldwin* (1705) 92 Eng. Rep. 222, is claimed to have a very contemporary application. Plaintiffs, almost all of modest means and minorities, live in close proximity to Kinlaw Farms, the hog farm at issue in this case. They have brought suit contending that Murphy-Brown, which by virtue of contract directed Kinlaw's operations, "substantially" and "unreasonabl[y]" interfered—in a "willful and wanton" manner—with the "use and enjoyment of their property." Complaint at 35, 39, *McKiver v. Murphy-Brown, LLC*, No. 4:14-cv-00153-F (E.D.N.C. Aug. 21, 2014); *see also Morgan v. High Penn Oil Co.*, 77 S.E.2d 682, 689 (N.C. 1953); N.C. Gen. Stat. § 1D-15(a). The industry counters that such suits pose "a dire threat to hog farming" in North Carolina, and—even more urgently—"an existential threat to the livelihoods of farmers and the food security of our Nation." Am. Farm Bureau Brief 3, 9. As noted above, I fully recognize the essential contributions of the pork industry in general, and of North Carolina's hog farms in particular. I am also not so naive as to imagine that hog farming could ever be an antiseptic enterprise. But the record here reveals outrageous conditions at Kinlaw Farms—conditions that, when their effects inevitably spread to neighboring households, violated homeowners' rights to the healthful enjoyment of their property. All this the jury recognized, and its verdict, once capped, was essentially a just one.

How did it come to this? What was missing from Kinlaw Farms—and from Murphy-Brown—was the recognition that treating animals better will benefit humans. What was neglected is that animal welfare and human welfare, far from advancing at cross-

purposes, are actually integrally connected. The decades-long transition to concentrated animal feeding operations (“CAFOs”) lays bare this connection, and the consequences of its breach, with startling clarity. Once, most hogs were raised on “smaller, pasture-based hog farms.” J.A. 618. Now, the paradigm has shifted: “large numbers of hogs, often many thousands” crowd together in each of the many cramped “confinement structures” that comprise the typical hog CAFO. J.A. 618; *see also* USDA Nat’l Agric. Statistics Serv., 2017 Census of Agriculture: Vol. 1, Ch. 1: U.S. National Level Data, Tbl. 23: Hogs and Pigs – Inventory by Type of Producer: 2017. The following illustrates how Kinlaw, an endpoint of this pasture-to-CAFO transition, created serious ecological risks that, when imprudently managed, bred horrible outcomes for pigs and humans alike.²

The warp in the human-hog relationship, and the root of the nuisance in this suit, lay in the deplorable conditions of confinement prevailing at Kinlaw, conditions that there is no reason to suppose were unique to that facility. Confinement defined life for the over 14,000 hogs—all of which Murphy-Brown owned—that Kinlaw Farms had crammed into its twelve confinement sheds. J.A. 6197–98, 6908. Consistent with Kinlaw’s role as a “finishing” facility, hogs arrived at around forty pounds, to be fattened to over seven times their starting weight. J.A. 6200. The one thing that never grew with the hogs, though, was the size of their indoor pens. Even though “[h]ogs grow bigger now,” *id.*, the pens’ design has not changed a whit in twenty-five years. *See* J.A. 6200, 7823. The sad fate of Kinlaw’s

² Following the jury verdict, Smithfield Hog Production stopped placing new hogs at and removed existing hogs from Kinlaw Farms. J.A. 9322–23.

hogs was, therefore, to remain in these densely packed pens from the time they arrived to the time they were shipped for slaughter, straining in vain as their increasing girth slowly but surely reduced them to almost suffocating closeness. *See* J.A. 6198.

To manage waste under such conditions, the concrete floors of Kinlaw's sheds were partially slatted. *Id.* These slats were supposed to allow the hogs' feces and urine to fall through to a gutter system below. J.A. 6200–02. But due to the close confinement just described, hogs were often packed too tightly to defecate over the slats. J.A. 5211. As a result, waste built up, *id.*, and as photos of Kinlaw's facilities show, hogs ended up covered in feces. J.A. 6758–64; *see also* J.A. 5828–29, 8510, 9027.

The waste that did make it through the slats to the gutter system was flushed four to six times a day to one of three nearby open-air "lagoons"—essentially three uncovered, 8 million-gallon cesspools. J.A. 6202–03; *see also* J.A. 6740–41. From there, the waste material was sprayed into the air, to fertilize nearby crops—a waste disposal method known as the lagoon-and-sprayfield system. J.A. 4980, 6203–04, 6958–59.

The dangers endemic to such appalling conditions always manifested first in animal suffering. Ineluctably, however, the ripples of dysfunction would reach farm workers and, at last, members of the surrounding community. To start, take the basic issue of air quality. When pigs defecated, gases accumulated in their sheds. J.A. 5217, 6198–99. But at certain concentrations—only possible under conditions of overcrowded, indoor confinement—these gases could become toxic, even fatal, to the hogs. J.A. 6199. To prevent its hogs from dying in their own wind, Kinlaw ventilated their sheds by opening curtains that released these noxious fumes unfiltered into the air outside. J.A. 5217, 6197–99.

Viewing the sheds’ diminished air quality solely as a “hog problem” misses the very real hazard it represented for workers. *See* Brief for Dr. Lawrence B. Cahoon et al. as *Amici Curiae* Supporting Plaintiffs-Appellees 9–15, *McKiver v. Murphy-Brown* (No. 19-1019) [hereinafter Dr. Cahoon Brief]. Workers, after all, breathe the same air as the hogs they tend. Given that these gases could kill pigs, it is entirely unsurprising that “approximately 50 percent of [CAFO] workers experience one or more of the following health outcomes: bronchitis, toxic organic dust syndrome, hyper-reactive airway disease, chronic mucous membrane irritation, occupational asthma and hydrogen sulfide intoxication.” J.A. 8244.

What may seem surprising, but should not, is the gaseous spiral’s final arc: the air quality threat posed to Kinlaw’s neighbors. Like workers, neighbors living within two miles of hog CAFOs suffer from elevated rates of respiratory problems. J.A. 8242–43. Nearby residents may also suffer from aggravated rates of high blood pressure, depression, and infant mortality. Dr. Cahoon Brief 10–13; *see also* J.A. 8243. One study has even shown that children attending schools as far as three miles away from a hog CAFO face an increased likelihood of presenting asthma-related symptoms. Dr. Cahoon Brief 13; *see also* J.A. 935.

This triangular rotation among animals, workers, and homeowners is no fluke. It repeats again and again. Consider another similarly structured example: the problem of viral disease. It is well-established that close confinement leads to the “increased risk of the spread of disease” between hogs. J.A. 5206; *see also* Brief for the Humane Society of the United States as *Amici Curiae* Supporting Plaintiffs-Appellees 17, *McKiver v. Murphy-*

Brown (No. 19-1019) [hereinafter Humane Society Brief]. The buildup of excrement is, for example, “conducive to . . . breeding flies and insects,” J.A. 5211, which are known “vectors of disease,” J.A. 2567. Indeed, Kinlaw Farms suffered an outbreak of Porcine Epidemic Diarrhea Virus. J.A. 1801. It was, again, the hogs that suffered first.

But humans are not far behind. Pathogens like H1-N1 “swine flu,” which incubate and mutate in pigs, can sometimes jump to human hosts. J.A. 5204–05, 5972–73. The swine flu outbreak of 2009, which led to almost 275,000 hospitalizations and 12,500 deaths in the United States, put the country on notice of that fact. In any future pig-to-human transmission, individuals working directly with affected pigs at facilities like Kinlaw are likely to be among the first infected, followed shortly thereafter by other members of their community.

Analogous is the problem of diseases communicated not virally, but rather through bacterial infection. And again, it starts with the harms that pigs suffer in confinement: to compensate for the stressors of close confinement, CAFOs commonly administer antibiotics at subtherapeutic concentrations both “as prophylactic drugs and to increase feed efficiency and daily weight gain.” J.A. 5205; *see also* J.A. 5973; Humane Society Brief 17, 23. The predictable result is the genesis of novel strains of antibiotic-resistant bacteria. J.A. 5205. These strains, much more difficult to eradicate, plague the hogs more acutely.

As before, though, the problem’s impact on pigs is only the first link in a longer chain that wraps around workers and the surrounding homeowners. Antibiotic-resistant bacteria can spread from hogs to people, J.A. 5971–72; *see also* J.A. 5206 (“The capacity

for human care workers, their families, and residents of nearby communities to become infected with antibiotic-resistant microorganisms from swine CAFOs has long been documented.”), and even beyond the farm’s neighboring communities. J.A. 5972–73. The human health implications arising from antibiotic-resistant bacteria are severe: “if we use antibiotics . . . when we don’t really need them to treat people, they’ll lose their effectiveness when we really need them.” J.A. 5971; *see also* J.A. 5205–06.

The fourth and, in many senses, final confinement-related variation on this theme is the sheer amount of death at hog CAFOs like Kinlaw. Up to “ten percent of pigs die in confinement most likely due to complications from their overcrowded environment and lack of individualized veterinary care.” Humane Society Brief 11; J.A. 9014. The hogs at Kinlaw faced a slightly lower, but still significant, mortality rate of around seven percent. *See* J.A. 5201–02. This figure assumes that Kinlaw operated at full capacity. There is some suggestion that Kinlaw operated above capacity to account for the fact that “some [hogs] are going to die.” J.A. 6908.³

Dying hogs imperil human well-being in other ways. As Judge Thacker has noted, the problem lies in Kinlaw’s method of storing and disposing of the numerous dead hogs. *See* Maj. Op., *ante* at 48–49. Kinlaw piled carcasses into uncovered storage containers that

³ The calculation works as follows. Kinlaw Farms had a permitted hog count of 14,688. J.A. 5202. Based on the typical finishing operation turnover of 2.5 sellouts per year, J.A. 5201, approximately 36,720 hogs passed through Kinlaw in a year ($= 14,688 \times 2.5$). Kinlaw had average weekly fatalities of 49 hogs, J.A. 5202, or 2,548 hogs per year ($= 49 \times 52$). Thus, around 6.9% of hogs passing through Kinlaw were expected to die ($= 2,548 / 36,720$).

plaintiffs call “dead boxes.” J.A. 4956, 5679–80, 7867. Unfortunately for Kinlaw’s neighbors, exposed hog carcasses attracted buzzards and flies, which range with scant concern for property rights. J.A. 8446. A sorely unwelcome buzzard startled one neighbor’s little girl so badly that she slammed a door on her foot. J.A. 7757. Other homeowners detailed their distress at finding flies in their hair and food, J.A. 7317, and suffering invasions of “more gnats than you’ve ever seen in your life,” J.A. 7352. These unwelcome visitations were not minor inconveniences. They were hazardous to health and vectors of disease. *See* J.A. 1098–99, 2566–67. And they originated with the mistreatment of Kinlaw’s hogs.

The plentiful hog carcasses of Kinlaw Farms also posed a nuisance to neighbors when they were carted away daily in “dead trucks,” which caused the worst of the odors. J.A. 7260–62. Other Kinlaw trucks created noise and dust ceaselessly. As part of the initial design, Murphy-Brown placed a private service road leading to Kinlaw Farms within feet of nearby homes when an alternate route would have impacted neighbors far less. J.A. 2024, 7271–72, 7813–16, 7918. Instead, neighbors suffered from trucks constantly entering and leaving Kinlaw Farms—the truck delivery schedule, set by Murphy-Brown, showed eleven deliveries between 12:30 a.m. and 5:30 a.m. during a single morning. J.A. 7273. Again, Murphy-Brown cut corners and its neighbors suffered for it.

At the risk of replaying this theme *ad nauseum*, it should be observed that these interlocking dysfunctions were characteristic not just of close confinement but of the lagoon-and-sprayfield system as well. The negative effects on animals, workers, and homeowners are here all visible in a single glance. As with any large, uncovered cesspool,

it should come as no surprise that “[e]nvironmental and health concerns with the lagoon technology include emissions of ammonia, odors, pathogens, and water quality deterioration.” J.A. 6384 (internal citations omitted). The waste in these lagoons almost “certainly” contained “pathogenic microorganisms and bacteria,” including antibiotic-resistant bacteria. J.A. 6969. When this waste material is sprayed into the air, everything around, including nearby homes, is at the mercy of the prevailing winds. J.A. 5242–43. While the odor potential from spraying untreated hog waste high into the air—where it then drifts toward nearby homes—is self-evident, Murphy-Brown also knew of odor complaints from neighbors of hog farms with setups similar to Kinlaw. J.A. 5242–43, 7466–68. Nevertheless, it persisted in requiring the system for Kinlaw.

Even setting dispersion aside, the existence of lagoons maintained like Kinlaw’s tends to compromise local water quality. Studies have shown that many lagoons leach waste material into both surface water and groundwater. Dr. Cahoon Brief 15. In surface water, leakage can produce toxic algae blooms inimical to local wildlife and their habitat. *Id.* at 15–16; *see also* J.A. 5974–76. And waste that enters groundwater creates a health hazard, particularly for any nearby residents who drink or bathe with well water. Dr. Cahoon Brief 17–18; *see also* J.A. 5975. Water quality concerns are especially pressing here because Kinlaw—like many eastern North Carolina hog facilities—sits in a floodplain. J.A. 618, 5761–63. Similarly situated lagoons have overflowed during hurricanes, Dr. Cahoon Brief 18; J.A. 5761, and even under less dramatic weather conditions, recently sprayed waste material at Kinlaw can easily flow into the nearby Cape Fear River. *See* J.A. 624, 5231. Needless to say, deterioration in the local water quality is

a grievous blow to both animal and human welfare. Here as elsewhere, these two values are not orthogonal, but integrally connected.

At the end of all this wreckage lies an uncomfortable truth: these nuisance conditions were unlikely to have persisted for long—or even to have arisen at all—had the neighbors of Kinlaw Farms been wealthier or more politically powerful. Indeed, North Carolina’s ban on building new lagoon-and-sprayfield systems arose after CAFOs threatened to expand into a General Assembly member’s home district of Moore County, a popular destination for golfers and tourists. Stuart Leavenworth, *Golfers Take on Pork Producers over Hog-Farm Rules*, News & Observer, Feb. 27, 1997 (“When it hits home in your district, you become more keenly aware of problems that other parts of the state are having. . . . Travel and tourism are so very important to my district.” (quoting Rep. Richard Morgan of Moore County)); *see also* N.C. Sess. Law 1997-458; J.A. 5810–11, 7532. In 1997, residents of Bladen County suffered from a poverty rate almost twice that of Moore County—by 2018, the poverty rate grew to nearly three times that of Moore County. *State and County Estimates for 1997*, U.S. Census Bureau, Small Area Income and Poverty Estimates Program, <https://www.census.gov/data/datasets/1997/demo/saipe/1997-state-and-county.html>; *2018 Poverty and Median Household Income Estimates—Counties, States, and National*, U.S. Census Bureau, Small Area Income and Poverty Estimates Program (Dec. 2019), <https://www.census.gov/data/datasets/2018/demo/saipe/2018-state-and-county.html>. And a substantial proportion of residents near Kinlaw Farms are people of color. J.A. 5697.

It is well-established—almost to the point of judicial notice—that environmental harms are visited disproportionately upon the dispossessed—here on minority populations and poor communities. *See* Brief of the North Carolina Environmental Justice Network and the Rural Empowerment Association for Community Help as *Amici Curiae* Supporting Plaintiff-Appellees 26, *McKiver v. Murphy-Brown* (No. 19-1019) (noting that “[Industrial hog operations are] disproportionately concentrated in communities of color” and “that African Americans, Latinos, and Native Americans are 1.54, 1.39, and 2.18 times (respectively) more likely than whites to live within three miles of one or more [operations].”); *see also* J.A. 2263–64, 8422–23, 8426. But whether a home borders a golf course or a dirt road, it is a castle for those who reside in it. It is where children play and grow, friends sit and visit, and a life is built. Many plaintiffs in this suit have tended their hearths for generations—one family for almost 100 years. J.A. 7796. They are exactly whom the venerable tort of nuisance ought to protect. Murphy-Brown’s interference with their quiet enjoyment of their properties was unreasonable. It was willful, and it was wanton. The record fully supports the jury’s finding that punitive damages were warranted.

Moreover, plaintiffs’ suffering—stemming from Murphy-Brown’s mistreatment of its hogs—was avoidable. The scale of industrial hog farming is no warrant to ride roughshod over the property rights of neighbors, the health of workers and community members, and the lives of the hogs themselves. In fact, not one of the above problems is insuperable. Many can be mitigated using “[s]imple management and manure handling controls.” J.A. 5221. For example, facilities could decrease the number of hogs penned in each shed, *id.*, install covers on lagoons to lessen air and water pollution, J.A. 7896–900,

or implement available controls to remove pollutants from the air prior to ventilation, J.A. 5223. Moreover, “[i]f Smithfield paid for more labor, [it] may be able to keep the swine houses cleaner, which would also keep the hogs cleaner, reduce the dust, and reduce the odor.” J.A. 5221. This suggestion appears particularly apt for Kinlaw, where a single employee managed all twelve hog sheds—over 14,000 hogs—largely by himself. *Id.*

Perhaps due to labor constraints, Kinlaw flushed waste from the gutter beneath the sheds “around four to six times a day,” while a North Carolina State facility using similar technology flushes waste “up to 12 times a day.” J.A. 6202. This difference matters, because when you flush more, “it’s less waste accumulation so, of course, less opportunity for . . . gases and other things to evolve and to be emitted from the hog facility.” *Id.*

Beyond these straightforward improvements, more sophisticated solutions abound. Of note, “Terra Blue” advanced wastewater treatment technology—which was developed under the AG Agreement, *see Maj. Op., ante* at 8–9—is known for “pathogen reduction, odor reduction beyond the property boundaries, and . . . treat[ing] . . . wastewater constituents to a high quality before that material is disposed of.” J.A. 6985–86. It is sometimes true that economic development and environmental quality are incompatible. But it is not always the case, and the notion that we are invariably forced to a binary choice is a fallacy. Mutual benefit would seem within reach here. Advanced systems may benefit hogs *and* farmers by decreasing hog mortality and increasing weight gain “compared to the traditional lagoon management.” *See J.A. 6392.* However, Murphy-Brown never diverged from the lagoon-and-sprayfield system, J.A. 1988, 2005–10, or instructed Kinlaw to

implement any available technological improvements, or so much as considered the cost. J.A. 7628, 7656–65, 7874–80.

All this and more this nuisance lawsuit has laid bare. Courts may take note when an industry has “unduly lagged in the adoption of new and available devices.” *The T.J. Hooper*, 60 F.2d 737, 740 (2d Cir. 1932). While it is obviously not our job to displace corporate decision-making with our own, improvements in technology may bear relevance at trial to a company’s remediation efforts and options. As Gregg Schmidt, the president of Murphy-Brown, wrote in 2013: “We also believe that . . . many of our contract farms are approaching the age where significant renovations are necessary to ensure that the farm continues to operate efficiently.” J.A. 5231. These renovations were long overdue at Kinlaw Farms.

And efficiency is only one piece in the responsible stewardship of this essential industry. Leaders of such industries can cultivate them in ways that account for their full impact on *all* stakeholders. Business Roundtable, *Statement on the Purpose of a Corporation* (Aug. 2019). Smithfield itself has put it best:

We believe that financial stability and sustainability go hand in hand. Our sustainability strategies help us improve our company.

We seek to create value for our stakeholders, for our employees, and for our company as a whole. . . . We believe we can create greater value for each of our stakeholders by recognizing the intrinsic interconnections between our business objectives and our sustainability objectives. . . .

We use the term “value creation” broadly and think of it in ways that go beyond just our own company’s value.

J.A. 6632. Stakeholders do not just include consumers, suppliers, and employees; they include neighbors of hog facilities, children who go to school nearby, medical patients who rely on antibiotics, wildlife and water sports enthusiasts, and many more.

Finally there is Wilbur, the pig who was friends with a spider, a rat, geese, sheep, cows, and a little girl. *Charlotte's Web* reminds us that all life is interconnected. And while not all pigs will be pardoned like Wilbur, it is fitting that the creatures who give their very lives for us, receive in return our efforts to make their brief stay on earth less intolerable. For their sake and for ours. Such is the web of life.

AGEE, Circuit Judge, concurring in part and dissenting in part:

Although I concur in the resolution of several issues addressed in the majority opinion, I disagree that the admission of evidence relating to Murphy-Brown’s corporate parents posed an improper risk only to the jury’s calculation of punitive damages. In my view, the admission of this evidence was also patently erroneous as to liability for both compensatory and punitive damages. The prejudice from this error is so profound that a full new trial is necessary.

In addition, I disagree with the majority opinion’s affirmance of the district court’s decisions regarding the admissibility of certain expert witness testimony. Specifically, I conclude the district court abused its discretion in (1) failing to exercise its *Daubert*¹ gatekeeping function, which should have led to the limitation of testimony from Plaintiffs’ expert witness Dr. Shane Rogers, and (2) excluding Murphy-Brown’s expert witness Dr. Pamela Dalton from testifying about the results of olfactometer measurements taken at and near Kinlaw Farms. These evidentiary errors so affected the entire trial that they too require remanding for a new trial.

For these reasons, described in greater detail below, I respectfully dissent in part.²

¹ *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

² I concur in the majority opinion’s conclusions that: (1) Kinlaw Farms was not a necessary and indispensable party in this case, Maj. Op. II.A; (2) the statute of limitations would not bar Plaintiffs’ nuisance claims because this case alleged a “continuing” nuisance, Maj. Op. II.B; and (3) at the time this case was filed, North Carolina law authorized recovery of compensatory damages for loss of use and enjoyment of property, and the 2017 amendment to the Right to Farm Act does not operate retroactively to bar Plaintiffs from recovering such damages as a matter of law, Maj. Op. II.C.

I. Legal Background & District Court Proceedings

A. North Carolina Nuisance Law

Before exploring the particulars of the evidentiary errors, a brief discussion of Plaintiffs' claim is warranted. Each of the ten plaintiffs asserted a single cause of action—private nuisance under North Carolina law—against a single defendant, Murphy-Brown, LLC, d/b/a Smithfield Hog Production Division. Because operating “a lawful enterprise is not a private nuisance *per se*,” Plaintiffs asserted that Kinlaw Farms was a private nuisance *per accidens*, meaning that they alleged it “bec[a]me [a] nuisance[] by reason of [its] location, or by reason of the manner in which [it was] constructed, maintained or operated.”

Watts v. Pama Mfg. Co., 124 S.E.2d 809, 813 (N.C. 1962).³ A plaintiff must prove two things to hold a defendant liable for creating or maintaining a private nuisance *per accidens*: “(1) that the defendant's use of its property, under the circumstances, unreasonably invaded or interfered with the plaintiff's use and enjoyment of the plaintiff's property; and (2) because of the unreasonable invasion or interference, the plaintiff suffered substantial injury.” *Elliott v. Muehlbach*, 620 S.E.2d 266, 269 (N.C. Ct. App. 2005). The two elements operate in tandem, as North Carolina courts have summarized a plaintiff's *prima facie* case to require a showing of “the existence of a substantial and unreasonable interference with the use and enjoyment of [the plaintiff's] property.” *The Shadow Group, L.L.C. v. Heather Hills Home Owners Ass'n*, 579 S.E.2d 285, 287 (N.C. Ct. App. 2003).

³ I have omitted internal quotation marks, alterations, and citations here and throughout the opinion, unless otherwise noted.

The “unreasonableness” component of a nuisance *per accidens* cause of action recognizes that individuals generally have freedom to use their property as they desire and some interferences with another person’s use of his property are expected when living in community. *Watts*, 124 S.E.2d at 815. This inquiry does not look to “whether a reasonable person in plaintiffs’ or defendant’s position would regard the invasion as unreasonable, but whether reasonable persons generally, looking at the whole situation impartially and objectively, would consider it unreasonable.” *Id.* at 814. That is why “[w]hat is reasonable in one locality and in one set of circumstances may be unreasonable in another [sic].” *Id.* North Carolina courts have identified many circumstances that factfinders can consider when determining whether an interference is unreasonable, including:

the surroundings and conditions under which defendant’s conduct is maintained, the character of the neighborhood, the nature, utility and social value of defendant’s operation, the nature, utility and social value of plaintiffs’ use and enjoyment which have been invaded, the suitability of the locality for defendant’s operation, the suitability of the locality for the use plaintiffs make of their property, the extent, nature and frequency of the harm to plaintiffs’ interest, priority of occupation as between the parties, and other considerations arising upon the evidence.

Id. “[N]o single factor is decisive, [and] all the circumstances in the particular case must be considered.” *Elliott*, 620 S.E.2d at 270.

The “substantial injury” component recognizes that because “[t]he law does not concern itself with trifles,” recovery is limited to invasions involving “more than slight inconvenience or petty annoyance.” *Watts*, 124 S.E.2d at 815. North Carolina courts have explained that a “substantial interference” means “a substantial annoyance, some material

physical discomfort or injury to the plaintiff's health or property." *The Shadow Group*, 579 S.E.2d at 200.

B. The Claim & the Trial

Plaintiffs' case was built around the allegation that three aspects of Kinlaw Farms' operations constitute a cognizable nuisance: (1) regular—though not constant—odors emanating onto their property from hogs and the lagoon-and-sprayfield waste management system; (2) buzzards and flies that frequented their properties, particularly when hog carcasses were stored in "dead boxes" awaiting removal from Kinlaw Farms; and (3) trucks driving on the dirt road that passed close to their residences to access Kinlaw Farms throughout the day and night to deliver and remove hogs. Plaintiffs each lived between one-tenth to one-half mile from the hog-confinement buildings, waste lagoons, or sprayfields on Kinlaw Farms; several of Plaintiffs' residences abut the unpaved roads used to access Kinlaw Farms.

Much of the evidence Plaintiffs submitted in support of their case was uncontested and is not at issue on appeal. Broadly described, their evidence included Plaintiffs' anecdotal descriptions of all three complained-of circumstances; records about Kinlaw Farms' operations, including waste spraying and truck transport schedules; expert testimony about how the lagoon-and-sprayfield waste management system works and the long-studied effects of industrial hog operations, including the type of lagoon-and-sprayfield system used at Kinlaw Farms, on surrounding communities; and testimony about

North Carolina’s hog industry generally, including legislative action regulating it from the 1990s to present day.⁴

Similarly, much of Murphy-Brown’s evidence was uncontested and is not at issue on appeal. It consisted of testimony describing (and records documenting) Kinlaw Farms’ compliance with North Carolina laws regulating lagoon-and-sprayfield waste management systems on hog farms; Smithfield Foods, Inc.’s cooperation in studies regarding odor reduction following a 2000 agreement with North Carolina’s Attorney General (“2000 AG Agreement”);⁵ Murphy-Brown’s responsiveness to reports of odor problems at *other* farms and the *absence* of any such complaints about Kinlaw Farms; efforts Murphy-Brown had undertaken to minimize odors associated with hog waste at its farms, including Smithfield Foods, Inc.’s research and development of hog feed that decreased the volume and odor of

⁴ Both parties presented extensive evidence about North Carolina’s regulation of the industry. It included newspaper articles and scientific and legislative reports regarding statewide complaints about industrial hog farm odors in the 1990s that led to the legislature’s decision to prohibit new lagoon-and-sprayfield waste storage systems from being created (while old systems were grandfathered in), as well as decades-long lobbying efforts in opposition and support of changes to the industry within the state and at other Murphy-Brown-affiliated farms in the United States.

⁵ The 2000 AG Agreement was entered into by the North Carolina Attorney General and Smithfield Foods, Inc. and several of its subsidiaries, including Murphy Farms, in which Smithfield Foods, Inc. agreed to participate in and fund research into “environmentally superior” waste management technology, and to subsidize the installation of any technology on its own and contract farms if an independent panel determined the technology was “technically, operationally and economically feasible” to implement. J.A. 7714, 7717. (That same year, Smithfield Foods, Inc. acquired Murphy Farms, which was later merged “with and into” Murphy-Brown. *See* J.A. 206, 597–98.)

hog feces; and anecdotal testimony from other individuals living within a few miles of Kinlaw Farms who testified they were not bothered by odors or the other alleged nuisances.

As relevant here, Murphy-Brown challenges the evidentiary decisions described above, which are reviewed for abuse of discretion. “A district court abuses its discretion if its conclusion is guided by erroneous legal principles or rests upon a clearly erroneous factual finding.” *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 261 (4th Cir. 1999). A district court’s evidentiary decision is subject to reversal only if, after considering the full record, the Court is left with “a definite and firm conviction that the court below committed a clear error of judgment in the conclusion it reached upon a weighing of the relevant factors.” *Id.* Lastly, evidentiary errors are subject to harmless-error review, meaning that erroneous decisions warrant a new trial only if the error affected a party’s “substantial rights.” Fed. R. Civ. P. 61. This standard requires that the error “so fatally infect[ed] the trial” as to violate the trial’s “fundamental fairness.” *Ward v. AutoZoners, LLC*, 958 F.3d 254, 273 (4th Cir. 2020).

II. Trial Testimony About Murphy-Brown’s Corporate Parents

Murphy-Brown challenges the admission of certain evidence about its corporate parents, which it contends allowed Plaintiffs to argue that Murphy-Brown should be held liable based on evidence about its parent corporations, which are not parties in this case.

A. Factual Background and District Court Ruling

Murphy-Brown is the sole defendant in this case. After the case was filed, but before trial, Murphy-Brown began doing business under the name “Smithfield Hog Production Division.” This tradename change reflected an ongoing effort to rebrand all Smithfield

Foods, Inc. subsidiaries under the “Smithfield” name. Throughout trial, the district court, counsel for both parties, and witnesses referred to “Murphy-Brown” and “Smithfield” using this interchangeable shorthand. Depending on context, sometimes “Smithfield” meant Murphy-Brown; sometimes it meant corporate parent Smithfield Foods, Inc.; and sometimes it meant the entire chain of corporate entities from Murphy-Brown on up to its ultimate corporate owner, WH Group Limited (“WH Group”).

But Murphy-Brown is not the same corporate entity as Smithfield Foods, Inc. In 2000, Smithfield Foods, Inc. purchased Murphy Family Farms; it later merged Murphy Family Farms with its other hog production subsidiaries to operate that aspect of Smithfield Foods, Inc.’s business under the name “Murphy-Brown.” In 2013, Smithfield Foods, Inc. became a “wholly-owned subsidiary of Shuanghui International Holdings Limited,” a China-based company, and a year later Shuanghui changed its name to WH Group. J.A. 8286.⁶

Murphy-Brown filed motions in limine seeking to exclude evidence about its own and its parent companies’ financial condition, executive compensation as well as its Chinese ownership. The district court denied the motion to exclude evidence of Murphy-Brown’s financial condition and reserved ruling on the parent companies’ financial condition until trial. It granted the motion to exclude “references to and evidence of

⁶ The actual relationship is more complicated, as Murphy-Brown’s sole member is John Morrell & Co., which is a wholly-owned subsidiary of Smithfield Foods, Inc., which is owned by United Global Foods (US), Inc., which is owned by Ipopema 127. In turn, that entity is owned by SFDS Malta Limited, which is owned by Rotary Vortex Limited, which is owned by WH Group.

Chinese ownership, exports of pork to China and other Asian nations, and racial issues.” J.A. 5796. Specifically, it ruled that Plaintiffs could “bring out that the WH Group is a Chinese corporation,” but that they could not mention communism or government control of Chinese corporations and could not “emphasize the ownership by the Chinese or any foreign entity.” J.A. 5724. The district court later agreed to the clarification that Plaintiffs could elicit testimony that “there is Chinese ownership,” but advised that they could “not stress that . . . I mean, it’s a fact and the fact that it’s a Chinese ownership is okay, but to argue that somehow you should punish these people because the grandparent corporation, whatever, is owned by the Chinese is unacceptable and I will not permit it.” J.A. 5727.

At trial Plaintiffs were permitted to introduce evidence that WH Group was a Chinese-based company doing business on the Hong Kong stock exchange, a fact they repeatedly referenced during opening and closing statements. From the outset of the trial, Plaintiffs characterized this case as a foreign company using cheap production methods in North Carolina:

In 2013, a Chinese company called Shuanghui purchases Smithfield Murphy-Brown for \$7.1 billion dollars. In the largest ever purchase of an American company by the Chinese. 25 percent of the pork in the United States is produced in the country, but owned by a foreign company. Using the cheapest waste disposal method available makes it cheaper to grow hogs in North Carolina than it is in China. 30 percent of Smithfield’s hogs are exported. The waste stays here.

Shuanghui is renamed WH Group and in 2015, Murphy-Brown is renamed Smithfield Hog Production Division. This is part of the one Smithfield initiative instituted by the new foreign owners. It’s a symbol of the fact that this is all one economic enterprise. The Smithfield Hog Production Division creates the hogs that Smithfield turns into the pork so that the foreign owner, WH Group, can make a profit. I’ll refer to this corporate organization through the trial as they refer to themselves,

Smithfield. So during the trial when you hear Murphy Farms, Carroll's, Brown's of Carolina, Premium Standard Farms, Smithfield Hog Production, Shuanghui, WH Group, those are all part of one economic entity: Smithfield.

In 2016, the Smithfield Hog Production Division sold \$2.7 billion dollars worth [sic] of pork.

J.A. 5813–14. Plaintiffs emphasized that under “Smithfield’s” current operations, “all this profit goes to the owners of Smithfield, that foreign company, WH Group,” but argued that if “Smithfield” implemented even more odor-reducing technologies to implement on its North Carolina farms, then

some of that profit would benefit the North Carolina economy by paying for those things. . . . Smithfield can give back to North Carolina by creating jobs and spending money cleaning up their mess and the neighborhoods. A company doesn’t get to cut costs or make profits by ruining the neighbors’ use and enjoyment of their property. It’s Smithfield’s hogs, Smithfield’s hogs’ waste, Smithfield’s profit. Smithfield must pay for the harm.

J.A. 5853.

During trial, Plaintiffs interrogated Murphy-Brown executives about Smithfield Foods, Inc.’s approximately \$1 billion profit annually, WH Group’s nearly \$2 billion profit annually,⁷ and the combined \$245 million that three Smithfield Foods, Inc. executives and one Murphy-Brown executive earned from 2010 to 2015.⁸ When Plaintiffs began questioning Murphy-Brown executive Donald Butler about WH Group’s \$2 billion profits,

⁷ Plaintiffs’ reference to the corporate parents’ profits varied, with most references citing “Smithfield’s” \$2 billion in profit, attributing to Murphy-Brown all of WH Group’s profits for its worldwide business.

⁸ Specifically, Plaintiffs were permitted to introduce evidence relating to the compensation paid to Smithfield Foods, Inc.’s President and CEO, Executive Vice President and CFO; the Pork Group’s President and COO; and Murphy-Brown’s President. (Continued)

Murphy-Brown objected, but was summarily overruled each time. The next day, Murphy-Brown raised a more detailed objection, reminding the district court that it had deferred ruling on the motion in limine to exclude evidence about the corporate parents' profits, and that Plaintiffs were supposed to obtain a ruling before questioning witnesses about it, but had failed to do so. Murphy-Brown pointed out that because of the way Plaintiffs were "using the word 'Smithfield' interchangeably to refer both to Murphy-Brown and to the parent company, the manner in which [Plaintiffs' counsel was] doing this [was] very confusing and misleading to the jury and certainly would have left the impression that it[] [was] Murphy-Brown that had \$2 billion of profits." J.A. 7808. Further, Murphy-Brown argued that this information was irrelevant and extremely prejudicial, and it sought a limiting instruction and a ruling prohibiting further questioning of this kind. The district court "accept[ed] responsibility" for what had occurred the day before, but indicated that it would continue to allow this testimony—without any limiting instruction—because "the evidence that has been presented by [Plaintiffs] on the integrator setup of this company

Consistent with Plaintiffs' collective reference to the compensation for these four positions throughout trial, Murphy-Brown challenges as prejudicial the admission of the entire \$245 million in compensation. But the analysis to determine admissibility of financial compensation for the President of Murphy-Brown differs from the analysis for the admissibility of the financial compensation for the non-party Smithfield Foods, Inc. executives. For current purposes, it's sufficient to point out that the district court's decision failed to recognize the meaningful distinctions between parties and non-parties, as well as subsidiary and parent corporations. At any future trial, the analysis must consider these differences in determining admissibility, if any, of such evidence.

makes an admission of evidence” about WH Group or Smithfield Foods, Inc. admissible as evidence about Murphy-Brown “itself.” J.A. 7810–11.⁹

Plaintiffs later questioned Murphy-Brown’s president, Gregg Schmidt, about the combined \$245 million compensation paid to four “Smithfield” executives over six years. In so doing, Plaintiffs elicited testimony that compensation information was “no longer a matter of public record” because “the foreign ownership of Smithfield” meant that it was “no longer obligated to make certain . . . Security Exchange Commission filings with the United States Government.” J.A. 7882. Schmidt acknowledged that “Smithfield” was no longer “listed on the New York Stock Exchange,” but was “part of a company that[] [was] listed on the Hong Kong Exchange so it ha[d] different reporting requirements.” J.A. 7882.

During closing statements, Plaintiffs once again used the district court’s rulings to full effect, referring to the billions of dollars in profit of WH Group and Smithfield Foods, Inc. on at least six separate occasions and peppering in references to the executive compensation multiple times as well. *E.g.*, J.A. 9005 (“Smithfield refuses to implement [odor-reducing technologies] despite profits of \$2 billion every year.”); 9009 (“Despite \$2 billion in profit every year, Smithfield says it’s too expensive.”); 9011 (“And last year, in a single year, WH Group made \$2 billion in profit. \$2 billion in profit. Selling pork.”);

⁹ The parties described the corporate structure as being “vertically integrated,” meaning not just that each subsidiary is entirely owned by each corporate parent all the way to WH Group, but also that Smithfield Foods, Inc. owns every aspect of its pork-related business from feed to hogs to slaughterhouses to pork processing and sales. As its rebranding indicated, Murphy-Brown is Smithfield Foods, Inc.’s hog production division. Murphy-Brown owns the hogs it places on its own and contract-farmers’ industrial hog farms to be raised and slaughtered.

9043 (“It’s all about a \$2 billion a year profit not being spent to fix their own mess.”); 9050 (“They willfully choose not to do anything about [this problem]. Not even figure out how much it would cost, but yet they pay \$245 million to four people over four years.); 9051–52 (“We know how Smithfield values the harm. Smithfield values the harm in their own dollars. Murphy-Brown revenue, \$3 billion every year. WH Group after tax profit, \$2 billion every year. Smithfield after tax profit, \$1 billion every year. The cost of covering all North Carolina lagoons, \$500 million. The pay for just four Smithfield executive [sic], from 2010 to 2015, \$245 million.”); 9125 (“And finally, the defendant’s ability to pay punitive damages as evidenced by its revenues or net worth. And that’s why we’re discussing it. . . . The revenues are \$3 billion dollars every year. . . . [W]hether the defendant profited by the conduct—is \$2 billion every year for WH Group, \$1 billion dollars every year for Smithfield.”).

B. Analysis

Murphy-Brown raises two interconnected errors in the district court’s evidentiary rulings: (1) the admission of evidence about non-party corporate parents’ financial information to establish a subsidiary’s liability and assess damages; and (2) the admission of evidence that a *Chinese* corporation owns Murphy-Brown, which Plaintiffs exploited to argue this case was against foreign big business in an appeal to xenophobia. Each argument involves slightly different focal points and is addressed separately, although they rely on interconnected facets of the record and the law.

1. Ignoring Foundational Principles of Corporate Liability to Admit Evidence About the Finances of Murphy-Brown’s Parent Corporations

Plaintiffs were the masters of their complaint and decided to name only one defendant: Murphy-Brown. This decision means that any judgment obtained would be against Murphy-Brown alone. As a matter of essential due process, “a person is not subject to a judgment entered in litigation in which he has not been named as a party or been made a party by service of process.” *Life Techs. Corp. v. Govindaraj*, 931 F.3d 259, 264 (4th Cir. 2019). So even assuming Plaintiffs proved their nuisance claims against Murphy-Brown, that judgment—including any compensatory or punitive damages award—could be levied against Murphy-Brown alone. Neither WH Group nor Smithfield Foods, Inc. could be held liable in this case.

Even if Plaintiffs *had* named any of Murphy-Brown’s corporate parents as a defendant, their ability to obtain judgment against those defendants would have been contingent on a separate analysis and determination of whether the evidence permitted judgment against that defendant either directly or by piercing the corporate veil. Put another way, before establishing liability, Plaintiffs would have had to first demonstrate to the court that it was appropriate to disregard corporate formalities and allow one or more of the parent corporations to be held liable for the conduct of Murphy-Brown. This course is required by the cardinal rule of corporate law that “a parent corporation (so-called because of control through ownership of another corporation’s stock) is not liable for the acts of its subsidiaries.” *United States v. Bestfoods*, 524 U.S. 51, 61 (1998); *accord Watters v. Wachovia Bank, N.A.*, 550 U.S. 1, 43 (2007) (Stevens, J., dissenting) (“[T]he primary

advantage of maintaining an operating subsidiary as a separate corporation is that it shields the [parent corporation] from the operating subsidiaries’ liabilities.”); *Richardson v. Bank of America, N.A.*, 643 S.E.2d 410, 421 (N.C. Ct. App. 2007) (same). In appropriate cases, an “equally fundamental principle of corporate law” provides “that the corporate veil may be pierced and the [corporate parent] held liable for the [subsidiary’s] conduct when, *inter alia*, the corporate form would otherwise be misused to accomplish certain wrongful purposes, most notably fraud, on the [corporate parent’s] behalf.” *Bestfoods*, 524 U.S. at 62. This doctrine has several descriptors, including “piercing the corporate veil,” an “alter ego” theory, and the “instrumentality” rule. *See Strategic Outsourcing, Inc. v. Stacks*, 625 S.E.2d 800, 804–05 (N.C. Ct. App. 2006) (describing these concepts and authorizing veil-piercing “in reverse” to make the corporation liable for its officer’s actions, rather than the officer being liable for the corporation’s obligations).¹⁰

Regardless of the name ascribed to it, the issue of whether it’s appropriate to hold a corporate parent responsible for the conduct of its subsidiary arises *only* when a plaintiff has *named* the corporate parent as a defendant in the action and it can be done *only* after

¹⁰ North Carolina describes its “instrumentality rule” as “the basis for disregarding the corporate entity or ‘piercing the corporate veil.’” *Glenn v. Wagner*, 329 S.E.2d 326, 330 (N.C. 1985). It states: “A corporation which exercises actual control over another, operating the latter as a mere instrumentality or tool, is liable for the torts of the corporation thus controlled. In such instances, the separate identities of parent and subsidiary or affiliated corporations may be disregarded.” *Id.* Liability may be imposed upon satisfaction of three elements. Several factors demonstrate whether the elements are meant, such as the level of control exercised and whether there’s “[i]nadequate capitalization,” “[n]on-compliance with corporate formalities,” “[c]omplete domination and control of the corporation so that it has no independent identity,” or “[e]xcessive fragmentation of a single enterprise into separate corporations.” *Id.* at 330–31.

the plaintiff satisfies the distinct principles applicable to this basis of liability. Put differently, while North Carolina “courts will disregard the corporate form or ‘pierce the corporate veil,’ and extend liability for corporate obligations beyond the confines of a corporation’s separate entity . . . to achieve equity,” they will do so only after making the necessary factual findings demonstrating the propriety of doing so. *Glenn*, 329 S.E.2d at 330–31.

In this case, brought against Murphy-Brown alone, Plaintiffs did not seek to hold WH Group, Smithfield Foods, Inc., or any other corporate parent liable for Murphy-Brown’s allegedly tortious conduct. Moreover, the district court made no specific factual findings supporting the conclusion that Murphy-Brown was the “mere instrumentality or tool” of its corporate parents, or vice versa. And, indeed, the district court’s *judgment* does not violate any of these principles because it holds Murphy-Brown alone liable for the nuisance and associated damages. It does not purport to be a judgment against WH Group or Smithfield Foods, Inc.

But the trial record demonstrates that the district court improperly allowed Plaintiffs to introduce evidence about and argue for Murphy-Brown’s liability based on the conduct and characteristics of its non-party corporate parents. The above principles of due process and corporate law do not authorize this sort of implicit veil-piercing between a party subsidiary and a non-party corporate parent. *See Estate of Hurst ex rel. Cherry v. Moorehead I, LLC*, 748 S.E.2d 568, 575 (N.C. Ct. App. 2013) (affirming a judgment imposing liability on the corporate parent—who was a party to the case—because the facts supported piercing the corporate veil under the instrumentality rule); *accord Broussard v.*

Meineke Discount Muffler Shops, Inc., 155 F.3d 331, 349 (4th Cir. 1998) (applying North Carolina law to reverse district court’s ruling that “[d]isregard[ed] the corporate form” to impose liability on a corporate parent); *Continental Indus., Inc. v. Integrated Logistics Sols., LLC*, 211 F.R.D. 442, 444–45 (N.D. Okla. 2002) (denying discovery request about defendant’s corporate parent because the parent was “not even before the [c]ourt” as a named defendant, so the issue of whether the non-party corporate parent could be held liable by piercing the corporate veil was not before the court). The district court’s disregard for these bedrock principles was error and affected the entire trial because it led to the admission of irrelevant and highly prejudicial evidence about Murphy-Brown’s corporate parent as a means to hold Murphy-Brown liable.

Without question, different analyses are involved in the decision about when a corporate parent can be held liable for the acts of its subsidiary and when evidence about a corporate parent can be admitted into evidence in a trial involving its subsidiary. But as described next, these principles necessarily inform a district court’s decisions about admissibility of evidence related to a corporate parent under Rules 401 and 403 of the Federal Rules of Evidence. In short, these principles of due process and corporate liability provide the framework for understanding why—in a trial against the subsidiary alone—evidence about its parent corporations is usually irrelevant and runs a high likelihood that its probative value is substantially outweighed by the risk of prejudice. This case presents a quintessential example of why those Rules are in place.

Murphy-Brown challenges the district court’s rulings allowing the admission of its corporate parents’ executive compensation and profits, which Plaintiffs used to argue that

Murphy-Brown should be held liable for a nuisance and assessed corresponding compensatory and punitive damages. On this issue, I agree with the majority opinion’s conclusion that this evidence was inadmissible for the purpose of calculating punitive damages because it ran an unacceptable risk that the jurors would rely on the corporate parents’ financial information in assessing an appropriate amount to award Plaintiffs. But I disagree with the majority opinion’s conclusion that this evidence was admissible for purposes of determining *liability* for either compensatory or punitive damages in the first instance. The wall the majority opinion draws between liability and damages is illusory: the prejudice permeates the entire case. Plaintiffs specifically argued that this evidence should be used for both purposes, and its admission allowed the jury to hold Murphy-Brown liable based on irrelevant and highly prejudicial evidence about its corporate parents’ financial information. The district court abused its discretion in allowing admission of this evidence, which was not harmless.

As pertinent here, evidence is admissible under the Federal Rules if it is relevant, Fed. R. Evid. 401, but the court “may exclude relevant evidence if its probative value is substantially outweighed by a danger of” “unfair prejudice, confusing the issues, [or] misleading the jury,” among other things, Fed. R. Evid. 403; *Spring/United Mgmt. Co. v. Mendelsohn*, 552 U.S. 379, 384 (2008) (recognizing district courts have latitude to balance the “probative value and prejudice” of all evidence, including the decision to “exclude as unduly prejudicial some evidence that has already been found to be factually relevant”). The test for relevant evidence is both straightforward and permissive: “Evidence is relevant if it has any tendency to make a fact more or less probable than it would be without the

evidence; and the fact is of consequence in determining the action.” Fed. R. Evid. 401; *Minter v. Wells Fargo Bank, N.A.*, 762 F.3d 339, 349 (4th Cir. 2014) (“To be admissible, evidence must be relevant—a low barrier requiring only that evidence be worth consideration by the jury.”). In addition, “unfair prejudice” is “the possibility that the evidence will excite the jury to make a decision on the basis of a factor unrelated to the issues properly before it.” *Mullen v. Princess Anne Volunteer Fire. Co.*, 853 F.2d 1130, 1134 (4th Cir. 1988); *see also Morgan v. Foretich*, 846 F.2d 941, 945 (4th Cir. 1988) (describing it as the “genuine risk that the motions of the jury will be excited to irrational behavior, and that this risk is disproportionate to the probative value of the offered evidence”). Applying these principles to this case leaves the firm conviction that the district court erred in allowing the admission and use of the challenged financial information about Murphy-Brown’s parent corporations to establish Murphy-Brown’s liability.

At the outset, it’s worth reiterating that under the principles of due process and corporate law discussed above, a non-party corporate parent’s profitability and executive compensation typically would be irrelevant to determining a subsidiary’s liability. Absent a properly presented case brought against the corporate parent in which the plaintiff demonstrates the propriety of piercing the corporate veil (which is not present in this case), the corporate parent is a stranger to the litigation, cannot be held liable, and is not a pertinent actor for establishing the subsidiary’s tort liability. *See Estate of Hurst ex rel. Cherry*, 748 S.E.2d at 575; *Broussard*, 155 F.3d at 349. As such, that evidence would not matter to the jury’s determination of what the subsidiary did and whether to hold it liable. Likewise, information about a parent corporations’ substantial profitability and executive

compensation runs a real risk of unfair prejudice to the subsidiary as well as confusing the issue of a parent corporation's conduct and ability to pay with the subsidiary's own culpability and ability to pay. *E.g., O'Dell v. Hercules, Inc.*, 904 F.2d 1194, 1208 (8th Cir. 1990) (affirming the district court's exclusion of evidence about a non-party corporate parent's conduct because it would have been unfairly prejudicial to the subsidiary).

Both the district court's and the majority's opinions incorrectly conclude that something about Murphy-Brown's specific trial arguments made this highly prejudicial evidence relevant to establishing liability. To the contrary, the record shows that throughout the trial *Plaintiffs* repeatedly and intentionally conflated Murphy-Brown and its corporate parents, treating Murphy-Brown as if it had unfettered control over how Smithfield Foods, Inc. compensated its executives and how WH Group and Smithfield Foods, Inc. spent their profits. In truth, nothing in the record suggests that Murphy-Brown had such authority. Moreover, nothing Murphy-Brown advanced at trial made WH Group or Smithfield Foods, Inc.'s financial information so probative that its admission was not substantially outweighed by the risk of unfair prejudice, confusing the issues, and misleading the jury.

Recognizing that part of the nuisance analysis was a determination that any intrusion was *unreasonable*, Murphy-Brown argued that any hog odors emanating from Kinlaw Farms were *reasonable* because it operated in accord with its state-imposed obligations. It advanced this argument in several ways, including contentions that North Carolina law authorized Kinlaw Farms' lagoon-and-sprayfield system, that Kinlaw Farms possessed and complied with all necessary state operating permits, and that the 2000 AG Agreement did

not impose any additional unfulfilled obligations on how Kinlaw Farms operated. In addition, Murphy-Brown argued it had voluntarily implemented additional economically feasible odor-reducing technologies, and acted reasonably in deciding not to impose the ones Plaintiffs now advocated as additional actions because those were not economically viable. Plaintiffs cite—and the majority opinion accepts—the last two arguments as reasons why Murphy-Brown’s arguments opened the door to admission of its corporate parents’ financial information. A closer look reveals why the majority opinion errs.

Murphy-Brown invoked the 2000 AG Agreement as proof that its operations did not unreasonably intrude on Plaintiffs’ properties. This agreement required Smithfield Foods, Inc. to cooperate with the state’s studies of potential odor-reducing technologies and to implement any of those technologies that an independent designee determined to be economically feasible. Part of Smithfield Foods, Inc.’s contractual obligation was to fund implementation of those technologies on any of the farms it operated or contracted with, which would include funding them at Kinlaw Farms. So when Plaintiffs argued that Murphy-Brown should have been using such technologies as super soils or lagoon covers, Murphy-Brown pointed to Smithfield Foods, Inc.’s obligations under the 2000 AG Agreement to assert that had those technologies been deemed economically feasible, they would have been put into effect. Murphy-Brown was correct at least insofar as the independent designee determined not to require these measures.

Thus, while it is true that Murphy-Brown cited Smithfield Foods, Inc.’s conduct related to the 2000 AG Agreement as something to be imputed to it for purposes of arguing it operated Kinlaw Farms in a reasonable manner, it did so because Smithfield Foods, Inc.

was the relevant signatory. But Smithfield Foods, Inc. had agreed to be liable *only* for implementing any odor-reducing technologies required by the designee. Its obligation to pay for anything on Kinlaw Farms or anywhere else extended no further. Notably, Plaintiffs do *not* contend Murphy-Brown failed to implement any action required by the 2000 AG Agreement. Further, nothing in the record indicates any additional binding obligations or commitments on the part of Smithfield Foods, Inc. By relying on Smithfield Foods, Inc.'s obligation under the 2000 AG Agreement, Murphy-Brown did not open the door to admission of evidence of all of Smithfield Foods, Inc.'s profits because they are irrelevant to assessing the obligations under that agreement.¹¹

Separate from the 2000 AG Agreement, Murphy-Brown also argued that it had voluntarily implemented economically feasible odor-reducing technologies. And it's true that Smithfield Foods, Inc. developed the odor-reducing technologies that Murphy-Brown pointed to as proof that it (Murphy-Brown) had implemented economically viable technologies and continued to develop and explore other options. Once again, however, no evidence showed that Murphy-Brown, the subsidiary, could have required or obligated WH Group, Smithfield Foods, Inc., or any other entity to devote more of their resources to developing or implementing additional odor-reducing technologies for use at Kinlaw Farms. So this argument did not open the door to evidence about the corporate parents' financial information either.

¹¹ WH Group's profits are even further removed from the realm of relevant evidence. It was not a party to the 2000 AG Agreement, so it never undertook any obligation at all with respect to Kinlaw Farms.

The testimony of Murphy-Brown’s executives does not suggest otherwise. Schmidt agreed that “Smithfield” would “pay to put technology on contract growers’ operations to better deal with the waste from Smithfield’s hogs on those operations” if such a technology was identified and economically viable. J.A. 7880. Plaintiffs’ use of “Smithfield” during questioning blurs which company—Smithfield Foods, Inc. or Murphy-Brown—would have paid or was under any obligation to do so. J.A. 7880. (“Q. . . . And Smithfield could pay for it if Smithfield wanted to pay for it, correct? A. If it was economically viable.”). Even assuming Schmidt was referring to Smithfield Foods, Inc.’s theoretical ability to pay, there’s nothing in the record suggesting Schmidt—Murphy-Brown’s president—could have obligated Smithfield Foods, Inc. to pay for anything or had unrestricted access to the parent company’s money. Thus, the door to admitting Smithfield Foods, Inc.’s financial information should have been closed.

The majority opinion also takes Schmidt’s later testimony out of context. During one exchange, Schmidt agreed that if Murphy-Brown decided to cover the lagoons on contract farmers’ properties “it could go ask Smithfield or WH Group for the money to do it” because “[t]hat would be the procedure” and “that would be where [Murphy-Brown would] get the money.” J.A. 7908. Once again, nothing in this testimony suggests that WH Group or Smithfield Foods, Inc. would have agreed to incur any costs at Murphy-Brown’s request; instead, Schmidt’s testimony was purely about the hypothetical procedure

Murphy-Brown could have pursued to obtain funding outside its own resources.¹² Neither this exchange—nor any other trial evidence—shows Schmidt had any authority to bind any party but Murphy-Brown. By admitting that Murphy-Brown could *ask* its corporate parents for money, Schmidt was not testifying that Murphy-Brown could *obtain* its corporate parents’ funds for any purpose. Therefore, this testimony does not make any evidence regarding the corporate parents’ finances relevant.

At bottom, Murphy-Brown’s arguments at trial and the testimony of its executives focused on the decisions that Murphy-Brown made about why it chose to implement some new technologies and not implement others. Its arguments did not change whose conduct was relevant to the jury’s consideration of Murphy-Brown’s decisions. Nor did its arguments open the door to information about its corporate parents’ profits as evidence of what more *it* could have afforded. Thus, contrary to the district court and the majority opinion’s view, neither the “integrated” nature of Smithfield Foods, Inc.’s corporate structure nor the specific arguments Murphy-Brown made to defend its decisions made information about the non-party corporate parents relevant. As such, that evidence was inadmissible.

Even were Smithfield Foods, Inc.’s financial information somehow marginally relevant as a result of Murphy-Brown’s arguments, a proper Rule 403 analysis would still

¹² The same conclusion can be drawn from Butler’s testimony, who testified that “Smithfield” would not choose to “implement a technology that we know would render farms economically nonviable,” J.A. 7571, and that it based those determinations on North Carolina law and Smithfield Foods, Inc.’s contractual obligations as opposed to considering whether it had money to pursue additional technologies.

require exclusion of evidence of \$245 million in non-party executive compensation and \$2 billion in non-party profit because of the resulting unfair prejudice, confusion of the issues, and risk of misleading the jury. The record shows that Murphy-Brown often operated at a loss or was barely profitable despite having significant annual revenues. But the district court’s ruling effectively allowed Plaintiffs to avoid haling the corporate parents into federal court as a defendant to this action and proving their liability by association alone. Under this short-circuited approach, Plaintiffs were permitted to argue that Murphy-Brown—the sole defendant at issue in this case—actually had \$2 billion at its disposal and had elected to spend \$245 million to compensate four executives. Viewed another way, they argued that WH Group and Smithfield Food, Inc. acted unreasonably by not doing more on behalf of their subsidiary, Murphy-Brown, despite WH Group and Smithfield Food, Inc.’s conduct not being at issue in the case because they were not named parties.

The resulting unfair prejudice to Murphy-Brown could not be more readily apparent. Had the evidence been limited to Murphy-Brown’s financial information, which was nowhere near these amounts, the jury may well have reached a much different determination of the financial feasibility of implementing odor-reducing technologies when it was deciding Murphy-Brown’s liability for a nuisance. Instead, it heard—repeatedly—that “Smithfield” operated at a \$2 to \$3 billion profit, leaving the jury with an entirely skewed idea of whether Murphy-Brown’s decisions unreasonably intruded on Plaintiffs’ properties. And it was invited to hold Murphy-Brown liable based on the financial capability of its non-party corporate parents. Where evidence runs such a high risk of leading the jury to base its verdict on improper grounds, it should be excluded under

Rule 403. *E.g., Carnell Constr. Corp. v. Danville Redev't & Hous. Auth.*, 745 F.3d 703, 719–21 (4th Cir. 2014) (holding that the district court abused its discretion in admitting evidence of marginal probative value); *Utility Control Corp. v. Prince William Constr. Co.*, 558 F.2d 716, 721 (4th Cir. 1977) (holding that the district court abused its discretion in admitting evidence that an employee “once previously executed an express guarantee” because “its relevancy was so slight” that it was substantially outweighed by the danger that the jury would think it served as evidence that the employee signed in that capacity in the contract at issue).

At this point, it scarcely requires any additional discussion of why the improper admission of evidence about WH Group and Smithfield Foods, Inc.’s financial information affected Murphy-Brown’s substantial rights during the trial. As noted earlier, Plaintiffs disregarded basic principles of corporate law by bringing their case against Murphy-Brown alone and yet arguing that this one subsidiary should be held liable based on evidence related to the entire “Smithfield” corporate structure. Plaintiffs plainly timed their questions about Murphy-Brown’s decision not to implement additional odor-reducing technologies to immediately precede questions about Smithfield Foods, Inc.’s executive compensation and WH Group and Smithfield Foods, Inc.’s profits. Moreover, they admitted that “[the] point” of their focus on “Smithfield’s” \$2 billion profits was to demonstrate that *Smithfield Foods, Inc.* spent only “about a thousandth of one year’s profit” on researching and developing odor-reducing technologies. J.A. 7610. Plaintiffs repeatedly referred to a \$2 billion profit during opening and closing statements, arguing to the jury that “[t]echnological solutions have been found. . . . Super soils and covers. *Smithfield*

refuses to implement them despite profits of \$2 billion every year. *They* say it's too expensive.” J.A. 9005 (emphases added); *see also* J.A. 9050 (“*They* willfully cho[]se not to do anything about it . . . but yet *they* pay \$245 million to four people over four years.” (emphases added)). And in reminding the jury of its duty to determine an appropriate amount of damages arising from a nuisance, Plaintiffs specifically urged the jury to consider the corporate parents’ executive compensation and profitability:

There is no fixed formula for placing a value on these alleged harms. It's up to the ten of you to make your decision what is the appropriate value. We know how *Smithfield* values the harm. *Smithfield* values the harm in their own dollars. *Murphy-Brown* revenue, \$3 billion every year. *WH Group* after tax profit, \$2 billion every year. *Smithfield* after tax profit, \$1 billion every year. The cost of covering all North Carolina lagoons, \$500 million. The pay for just four *Smithfield* executive [sic], from 2010 to 2015, \$245 million.

J.A. 9051–52 (emphases added). The financial information about *Murphy-Brown*’s corporate parents was a focal point of Plaintiffs’ argument that *Murphy-Brown* could have afforded to do more to reduce odors at Kinlaw Farms and for assessing both compensatory and punitive damages. Its admission was not harmless because it cannot be said “with fair assurance, after pondering all that happened without stripping the erroneous action from the whole, that the judgment was not substantially swayed by the error.” *Smith v. Balt. City Police Dep’t*, 840 F.3d 193, 201 (4th Cir. 2016); *see Macsherry v. Sparrows Point, LLC*, 973 F.3d 212, 225–26 (4th Cir. 2020) (vacating and remanding for a new trial where evidentiary error harmed the defendants—despite other evidence supporting plaintiff’s claim—because of its likelihood of swaying the jury’s consideration of the evidence and determination of damages).

Unlike the majority opinion, I see no basis in common sense or the law for concluding that this evidence was not equally prejudicial for both compensatory and punitive liability purposes. Accordingly, I would hold that the district court abused its discretion in allowing admission of the corporate parents' financial information as the basis for holding Murphy-Brown liable. And because this error affected Murphy-Brown's substantial rights and guarantee of a fundamentally fair trial, I would hold that it requires a new trial on both liability and damages.¹³

2. Evidence of Chinese Ownership Led to Improper Xenophobic Appeals

The district court also abused its discretion by allowing Plaintiffs to introduce and emphasize testimony that a *Chinese* corporation with \$2 billion profits owned Murphy-Brown. This evidence was largely irrelevant and—as it was used at trial—created an unacceptable risk that the jury's verdict would be based on anti-China bias.

¹³ The error was not limited to the liability stage and, as the majority opinion correctly concludes, the prejudicial nature of this evidence is readily apparent in the jury's calculation of punitive damages. *See Maj. Op. II.G.2.* As that opinion recognizes, juries must assess the *defendant*'s ability to pay and determine what might deter the *defendant* when calculating a proper amount of punitive damages. *See TXO Prod. Corp. v. Alliance Res. Corp.*, 509 U.S. 443, 462 n.28 (1993) (plurality opinion) (observing the “well-settled” principle that a defendant’s “net worth” is one factor “typically considered in assessing punitive damages”); N.C. Gen. Stat. § 1D-35(2)(i) (allowing consideration of the defendant’s ability to pay “as evidenced by *its* revenues or net worth” (emphasis added)); *Watson v. Dixon*, 532 S.E.2d 175, 178 (N.C. 2000) (same). In sum, I agree with this part of the majority opinion’s decision because evidence of the corporate parents’ financial information should not have been part of the determination of punitive damages, but I disagree that the harm only arose in that context because it equally poisoned the determination of liability.

In 2013, WH Group became Murphy-Brown’s owner, seven corporate levels removed. Nothing in the record indicates that WH Group was ever actively involved in any aspect of North Carolina’s industrial hog farms, let alone in the management of Kinlaw Farms. More particularly, WH Group’s Chinese identity had no bearing on whether Murphy-Brown substantially and unreasonably interfered with Plaintiffs’ use and enjoyment of their property. *See supra* Part I.A (discussing a plaintiff’s burden in establishing a *per accidens* nuisance). Its irrelevance to any issue before the jury meant that it plainly served only to facilitate Plaintiffs’ arguments to provoke passions against foreign big business, and incite anti-China sentiment specifically. As such, its admission was irreparably prejudicial.

To be sure, the district court’s pre-trial ruling ostensibly struck a balance between allowing admission of the mere fact of Chinese ownership and prohibiting Plaintiffs from “emphasiz[ing]” or “stress[ing]” that fact at trial. J.A. 5724, 5727. But whatever theoretical balance had been contemplated was abandoned during opening statements and continued to be exploited repeatedly throughout the trial. As the earlier factual recitation makes plain, Plaintiffs immediately set out to tear down any distinction between Murphy-Brown and its corporate parents, explaining that it would refer to “this corporate organization”—i.e., any company from Murphy-Brown to WH Group—as “Smithfield.” J.A. 5814. Doing so simultaneously allowed Plaintiffs to emphasize defendant Murphy-Brown’s foreignness in arguments that can only be described as encouraging xenophobia amongst the jurors. *E.g.*, J.A. 5852–53 (“[A]ll this profit goes to the owners of Smithfield, *that foreign company*, WH Group.” (emphasis added)).

During opening and closing statements, Plaintiffs characterized the entire case as one where the profits from North Carolina's hog farms ended up in China while the hog waste generated on them was left in-state. J.A. 5814 ("Using the cheapest waste disposal method available makes it cheaper to grow hogs in North Carolina than it is in China. 30 percent of Smithfield's hogs are exported. The waste stays here."); J.A. 9010 (same). They also highlighted WH Group's acquisition of Smithfield Foods, Inc. as "the largest ever purchase of an American company by the Chinese." J.A. 5813, 9010. Plaintiffs elicited testimony on WH Group's purchase of Smithfield Foods, Inc., including WH Group's having to go through a congressional process overseeing "proposed foreign acquisitions," J.A. 7432, and no longer being required to disclose certain information as a "matter of public record" because it was listed on the Hong Kong stock exchange rather than the New York Stock Exchange, J.A. 7882. And Plaintiffs asked Butler about Murphy-Brown's profits to confirm that all of Murphy-Brown's profits flowed solely to "Smithfield," J.A. 7438, a response they used to argue that all of Murphy-Brown's endeavors occur so "that the foreign owner, WH Group, can make a profit" in the neighborhood of \$2 billion. J.A. 5814; J.A. 9011 ("The Smithfield Hog Production Division creates the hogs that Smithfield turns into the profit for the WH Group. And last year, in a single year, WH Group made \$2 billion in profit.").

"The Supreme Court has long made clear that statements that are capable of inflaming jurors' racial or ethnic prejudices degrade the administration of justice." *United States v. Runyon*, 707 F.3d 475, 494 (4th Cir. 2013); *see also United States v. Blankenship*, 382 F.3d 1110, 1127 (11th Cir. 2004). Further, the Supreme Court has cautioned about the

prejudice that can arise from the admission of evidence of corporations deemed to be “other.” *E.g., State Farm Mut. Auto. Ins. Co. v. Campbell*, 538 U.S. 408, 417 (2003) (noting that the bias created from evidence about a large corporation’s wealth is particularly acute when that business lacks a “strong local presence[]”). In fact, many courts have recognized the prejudice that easily arises from evidence about—and repeated references to—an entity’s foreignness when compared to the local entities and issues in a case. *E.g., Boyle v. Mannesmann Demag Corp.*, 991 F.2d 794, *3 (6th Cir. 1993) (unpublished table decision) (“[R]epeated references to a party’s citizenship or nationality can be unduly prejudicial to that party. *See Gearhart v. Uniden Corp. of Am.*, 781 F.2d 147 (8th Cir. 1986) (on retrial, remarks relating to Far Eastern parent corporations should not be permitted because of xenophobia and because wealth of parent corporations is irrelevant to the issues in the case.”). Trial courts have been repeatedly cautioned to guard against such bias-baiting arguments. Although the district court’s pre-trial ruling implicitly acknowledged this very real risk, it did nothing at trial to enforce its pretrial order or restrain Plaintiffs from inflaming the passions of the jury against Chinese big business despite Murphy-Brown’s motion in limine.

By emphasizing that *Smithfield* was a Chinese corporation, Plaintiffs fostered a genuine likelihood that the verdict was influenced by anti-China bias. Their arguments and the admitted evidence speak for themselves, but did not occur in a vacuum. This trial occurred from April 3 to 26, 2018, at a time when escalating concern and inflammatory rhetoric concerning this precise matter of Chinese big business and United States–China economic relations dominated the news, and had done so for some time. Rebecca Tan, *The*

U.S.-China Trade War Has Begun. Here's How Things Got to This Point, Wash. Post:

Worldviews (July 6, 2018, 10:20 AM),

<https://www.washingtonpost.com/news/worldviews/wp/2018/07/05/a-timeline-of-how-the-u-s-china-trade-war-led-us-to-this-code-red-situation/> (chronicling trade relations since 2015) (saved as ECF opinion attachment); White House, *National Security Strategy of the United States of America 2* (2017), <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf> (“China . . . challenge[s] American power, influence, and interests, attempting to erode American security and prosperity.”) (saved as ECF opinion attachment). When Donald J. Trump announced his candidacy for the U.S. presidency, his speech “mentioned China 21 times, arguing that the country was taking American jobs and ‘ripping’ the U.S. economy.” Tan, *supra*; see also Berkley Sanders-Velez, *Cold War Rhetoric: China and the US Today*, Colum. Pol. Rev., Mar. 31, 2018 (quoting then-candidate Trump as saying, “We can’t allow China to rape our country anymore. . . . We need to stop them from taking our jobs.”). And beginning in January 2018, the “trade war” was official, with both countries implementing certain measures targeting the other’s goods while also threatening to implement harsher measures. See Tan, *supra*; Jethro Mullen, *The US and China Are in Talks to Try to Avoid a Trade War*, CNN: Money (Mar. 26, 2018, 8:06 AM),

<https://money.cnn.com/2018/03/26/news/economy/china-us-trade-war-talks/index.html>

(saved as ECF opinion attachment). The week this trial began, China responded to the decision of the United States to introduce new tariffs, increase certain import taxes, and threaten additional tariffs on Chinese products by proposing its own tariffs on United States

exports, including pork. *See* Tan, *supra*; David J. Lynch & Emily Rauhala, *Trump Pushes Back on Fears of a Trade War with China*, Wash. Post (Apr. 4, 2018 9:32 PM), https://www.washingtonpost.com/world/asia_pacific/china-fires-back-at-trump-with-tariffs-on-106-us-products-including-soybeans-cars/2018/04/04/338134f4-37d8-11e8-b57c-9445cc4dfa5e_story.html (“President Trump showed no sign Wednesday of backing down from an escalating trade confrontation with China, even as financial markets wobbled and American farmers and manufacturers warned that he was inviting a damaging commercial clash.”) (saved as ECF opinion attachment).

Running parallel to these actions, and thus to the trial, President Trump posted many statements on Twitter critical of United States-China economic relations, such as:

- “We are not in a trade war with China, that war was lost many years ago by the foolish, or incompetent, people who represented the U.S. Now we have a Trade Deficit of \$500 Billion a year, with Intellectual Property Theft of another \$300 Billion. We cannot let this continue!” Donald Trump (@realDonaldTrump), Twitter, (Apr. 4, 2018, 7:22 AM), <https://twitter.comrealDonaldTrump/status/981492087328792577> (saved as ECF opinion attachment).
- “China, which is a great economic power, is considered a Developing Nation within the World Trade Organization. They therefore get tremendous perks and advantages, especially over the U.S. Does anybody think this is fair. We were badly represented. The WTO is unfair to U.S.” Donald Trump (@realDonaldTrump), Twitter, (Apr. 6, 2018, 10:32 AM), <https://twitter.comrealDonaldTrump/status/982264844136017921> (saved as ECF opinion attachment).
- “The United States hasn’t had a Trade Surplus with China in 40 years. They must end unfair trade, take down barriers and charge only Reciprocal Tariffs. The U.S. is losing \$500 Billion a year, and has been losing Billions of Dollars for decades. Cannot continue!” Donald Trump (@realDonaldTrump), Twitter, (Apr. 7, 2018,

2:03 PM), <https://twitter.com/realDonaldTrump/status/982680387116781568> (saved as ECF opinion attachment).

- “When a car is sent to the United States from China, there is a Tariff to be paid of 2 1/2 %. When a car is sent to China from the United States, there is a Tariff to be paid of 25%. Does that sound like free or fair trade. No, it sounds like STUPID TRADE – going on for years!” Donald Trump (@realDonaldTrump), Twitter, (Apr. 9, 2018, 6:03 AM), <https://twitter.com/realDonaldTrump/status/983284198046826496> (saved as ECF opinion attachment).

It is perhaps reflective of these ongoing national tensions that a survey conducted by the Pew Research Center in April 2017 found that 44% of Americans had a favorable opinion of China and 47% an unfavorable opinion of China. Richard Wike, *Americans’ Views of China Improve as Economic Concerns Ease*, Pew Rsch. Ctr. (Apr. 4, 2017), <https://www.pewresearch.org/global/2017/04/04/americans-views-of-china-improve-as-economic-concerns-ease/> (saved as ECF opinion attachment). In contrast, a survey released sixteen months later showed that although the unfavorable opinion remained the same (47%), six percent fewer Americans (38%) viewed China favorably. Richard Wike & Kat Devlin, *As Trade Tensions Rise, Fewer Americans See China Favorably*, Pew Rsch. Cnt. (Aug. 28, 2018), <https://www.pewresearch.org/global/2018/08/28/as-trade-tensions-rise-fewer-americans-see-china-favorably/> (saved as ECF opinion attachment).

All this to say, Plaintiffs tapped into a leading issue of the nation’s economy (and, as some viewed it, an issue of national security) at the time. They capitalized on anti-China sentiment by calling jurors’ attention to evidence concerning Murphy-Brown’s Chinese corporate parent and stressing that the profits from North Carolina’s hog farm industries went overseas, while the waste remained in-state. Because the district court allowed the

evidence of Chinese ownership to be introduced for this purpose without curtailing Plaintiffs' xenophobic rhetoric, the result was to sanction anti-China bias as a basis for a verdict against Murphy-Brown. This is not harmless error; it is reversible error on its face.

* * * *

The combined effect of admitting the challenged evidence about Murphy-Brown's corporate parents, coupled with the unfettered way in which Plaintiffs emphasized this information in a case brought solely against Murphy-Brown, constituted an abuse of discretion. It affected the trial as a whole. Therefore, I would vacate the entire judgment and remand for a new trial on both liability and damages.

III. Expert Witnesses

A. Admission of Dr. Rogers' Testimony

Murphy-Brown also challenges three aspects of the district court's decisions regarding Plaintiffs' expert witness Dr. Shane Rogers: (1) its failure to hold a hearing or otherwise exercise its gatekeeping obligation under *Daubert*, (2) its decision to allow Dr. Rogers to testify about matters that appear to have been beyond his expertise, and (3) its decision to allow the admission of unreliable testimony that the presence of pig2bac meant that hog odor had been present on Plaintiffs' property. A brief overview of the relevant record is again in order.

1. Factual Background and District Court Rulings

Before trial, Plaintiffs proposed to have Dr. Rogers testify as an expert witness about the environmental impact of Kinlaw Farms' operations. They obtained permission for Dr.

Rogers and his associates to take air, manure, and lagoon samples at Kinlaw Farms. Dr. Rogers' team also collected physical samples at some of Plaintiffs' properties.

One aspect of Dr. Rogers' proposed testimony derived from testing samples taken from the exteriors of three Plaintiffs' homes "for the presence of the genetic sequence known as pig2bac." J.A. 4104.¹⁴ Dr. Rogers stated that this genetic marker is "unique to pig feces," and thus its presence identifies "the presence of pig feces" in an environment. J.A. 4104–05. In his view, finding pig2bac on the exterior of a residence indicated that hog feces had been present there, and that the presence of hog feces served as a "physical representation of odor" given that the chemical properties associated with pig feces were well-documented to be odorous. J.A. 4110. In short, Dr. Rogers opined that evidence of pig2bac served as a reliable proxy for evidence of odor. Moreover, he asserted that because "pig feces has to be in relatively high concentrations to facilitate . . . detection" of pig2bac, a detectable presence of pig2bac indicated the presence of comparatively higher levels of pig feces and resulting odor. J.A. 4105. Based on this data, Dr. Rogers opined "within a reasonable degree of scientific certainty, that [Kinlaw Farms had] the ability to cause and the effect of causing a substantial interference with Plaintiffs' use and enjoyment of their property in the form of significant annoyance and material physical discomfort." J.A. 4110.

¹⁴ Dr. Rogers took samples from Tammy Lloyd's residence in October 2016; in addition, samples were taken from Joyce McKiver and Delois Lewis' joint residence in November 2016 and from the McKoy home sometime later. All of the samples contained pig2bac. Samples were not taken from the residences of the remaining Plaintiffs.

In other words, Dr. Rogers represented that pig2bac was an objective measure of the presence of hog odor on Plaintiffs' property.

Murphy-Brown moved to exclude Dr. Rogers' testimony from trial, arguing that he lacked the qualifications to be certified as an odor expert, that he had used flawed methods to collect field samples, and that he lacked the scientific foundation needed to offer his opinion about the existence of a nuisance because of his reliance on the unreliable and unproven proposition that pig2bac could serve as a proxy for hog odor. In support of its motion, Murphy-Brown offered a 66-page declaration from its microbiology expert, Dr. Jennifer Clancy, in which she identified flaws in Dr. Rogers' sample collection protocols and questioned the validity of his use of pig2bac as a proxy for hog odor. Murphy-Brown requested a hearing to address whether Dr. Rogers was *Daubert* qualified.

The district court denied the motion without a hearing, observing that it "simply [could not] honor" a request for oral argument on the motion and that it had reviewed the parties' written submissions related to the motion. J.A. 6183. Reiterating that it had "read all [the] materials that [had] been submitted with regard to this issue" that morning, it found Dr. Rogers to be "an expert in environmental engineering, . . . animal waste management engineering and technology[,] and microbiology." J.A. 6185. The sum total of its explanation for its decision was:

that in carrying out its *Daubert* responsibilities, that [Dr. Rogers'] proposed testimony is both reliable and relevant and that the objections and questions regarding his testimony go to the weight and may be covered on cross-examination except insofar as defendant contends that some questions are being – that he may be asked questions outside of the field of his expertise, and the Court obviously is confronted with that question with every expert witness and there will be questions that will be posed to the witness that

defendant will contend do not fit the area of expertise which the Court has found him to be in.

J.A. 6185–86.

Benefiting from this ruling, Plaintiffs called Dr. Rogers “to talk about odor from industrial hog operations.” J.A. 6194. While his testimony covered a host of topics, of particular relevance to this appeal, Dr. Rogers testified that what humans perceive as “hog odor” is actually “a very large mixture, very complex mixture of chemicals that are in [hog] waste treatment systems. So several hundred volatile organic compounds – hydrogen sulfide gas, ammonia gas, for example – and the particles that might carry them.” J.A. 6194. He described the relationship between his expertise and hog odor as knowing “how those [chemicals] are generated from waste management systems . . . and also how those types of particles and gases might move in the environment” until a person “experience[d] them.” J.A. 6194.

In Dr. Rogers’ view, testing for hog odor directly is a subjective and unreliable assessment for two reasons. First, humans experience odor differently and therefore measure and perceive it differently. For this reason, he asserted that self-reports and even measurements taken from an olfactometer were too subjective because they required someone to “smell something and then they make a call on it.” J.A. 7204. Second, he opined that testing for the presence of a particular chemical to confirm the presence of hog odor ran its own risks given that hog odor is a complex chemical compound and no one representative chemical could be tested so as to reliably confirm the presence of hog odor. He explained that “any one of [the chemicals comprising hog odor] is extremely smelly”

and if one or more are removed, “it’s not likely to change the odor.” J.A. 6206. Consequently, chemicals known to be *sometimes* present in hog odor may not be present on a particular occasion despite the presence of something identifiable as hog odor.

Given these perceived problems with measuring hog odor directly, Dr. Rogers instead elected to rely on the presence of the DNA sequence pig2bac as a means of objectively—but indirectly—testing for the presence of hog odor. Consistent with the view set out in his expert report, Dr. Rogers explained his basis for using pig2bac as a proxy for odor, the results of his investigation of Plaintiffs’ properties outlined earlier, and his opinion that Kinlaw Farms was operating as a nuisance under North Carolina law. When asked to provide “the one thing” he wanted the jurors to take away from his testimony, he replied that he “brought [them] physical evidence that shows that the feces from this operation is moving out into the neighborhood and is impacting – it is a physical marker that shows this operation is impacting the neighbors.” J.A. 7246–47.

Of course, Dr. Rogers did not testify without resistance from Murphy-Brown. He was subject to extensive cross-examination that delved into the novelty of his using pig2bac as a proxy for odor. He was also questioned about his decision not to test for certain odorous chemicals in the air despite the ability to do so, about the lack of data documenting the presence and quantity of pig2bac at each plaintiff’s residence, and about the lack of data concerning pig2bac’s general prevalence in the region considering the number of hog farms in eastern North Carolina. In addition, Murphy-Brown called its counter-expert, Dr. Clancy, to testify about some of the flaws she’d identified in Dr. Rogers’ collection protocols, which she said may have led to contaminated results.

Murphy-Brown again challenged the admission of Dr. Rogers' testimony in its motion for a new trial, and the district court summarily denied the motion.

2. Analysis

On appeal, Murphy-Brown reiterates its challenges to the admission of Dr. Rogers' expert testimony, arguing that (1) the district court abandoned its *Daubert* gatekeeping function by failing to ensure that Dr. Rogers' testimony about pig2bac was reliable and relevant, (2) the district court improperly admitted him as an expert to opine on how Kinlaw Farms was an odor nuisance when his background did not qualify him as an odor expert, and (3) the district court abused its discretion in allowing Dr. Rogers to testify about the results of his pig2bac testing because this novel theory failed to satisfy *Daubert* and Rule 702's reliability standards. Each of these challenges has merit, and the district court erred in ruling otherwise, just as the majority opinion errs in affirming those decisions.

Daubert and Federal Rule of Evidence 702 govern the admissibility of scientific evidence through an expert witness. In short, individuals qualified "by knowledge, skill, expertise, training, or education may testify in the form of an opinion or otherwise if" their opinion is based on "specialized knowledge [that] will help the trier of fact to understand the evidence or determine a fact in issue" and "sufficient facts or data," "the testimony is the product of reliable principles and methods," and "the expert has reliably applied the principles and methods to the facts of the case." Fed. R. Evid. 702. "Implicit in the text of Rule 702 . . . is a district court's gatekeeping responsibility to 'ensur[e] that an expert's testimony both rests on a *reliable* foundation and is *relevant* to the task at hand.'" *Nease v. Ford Motor Co.*, 848 F.3d 219, 229 (4th Cir. 2017) (quoting *Daubert*, 509 U.S. at 597

(emphases added)). Reliability focuses on the expert’s knowledge and methodology, while relevance looks to whether the evidence “helps the trier of fact to understand the evidence or to determine a fact in issue.” *Id.* A court that abandons its gatekeeping function necessarily abuses its discretion in allowing the expert to testify. *Id.* at 228; *see Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (observing that when an expert’s “testimony’s factual basis, data, principles, methods, or their application are called sufficiently into question, . . . the trial judge must determine whether the testimony has a reliable basis in the knowledge and experience of the relevant discipline”).

a. Abdication of the Gatekeeping Function

The record reveals the district court’s abdication of its responsibility under *Daubert* to serve as a gatekeeper before allowing Dr. Rogers to testify about the results of his pig2bac testing. Even a cursory review of the record demonstrates that the court abandoned this required function. After a passing reference to “its *Daubert* responsibilities,” the court summarily concluded without analysis or explanation that Dr. Rogers’ “proposed testimony is both reliable and relevant and that the objections and questions regarding his testimony go to the weight and may be covered on cross-examination[.]” J.A. 6185. It rejected Murphy-Brown’s multiple challenges as going to weight, not admissibility, without providing *any* reason and it failed to mention a single aspect of the proposed testimony that supported its conclusion.

Faced with a similarly broad and generic admissibility ruling in *Nease*, we held that the court had abandoned its gatekeeping function, and the majority opinion offers no justification for reaching a different result in this case. Specifically, in *Nease*, the district

court’s ruling “simply dismissed every argument raised by [the defendant] as going to the weight, not admissibility, of [the expert’s] testimony.” 848 F.3d at 230. So too here. Further, in *Nease* the district “court did not use *Daubert*’s guideposts or any other factors to assess the reliability of [the expert’s] testimony, and the court did not make any reliability findings.” *Id.* Here, the record is equally undeveloped, addressing none of the guideposts or other considerations and making no factual findings. Lastly, in *Nease* “the district court referred neither to Rule 702 nor to *Daubert*.” *Id.* On this front, the record here differs just slightly: the district court gave lip service to “its *Daubert* responsibilities,” but failed to provide any description of what those responsibilities entailed or any analysis applying them. J.A. 6185. The *Nease* ruling and those here are substantively similar and equally flawed. In both, the district court abandoned its gatekeeping function of “mak[ing] certain that an expert . . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co.*, 526 U.S. at 152.

The district court’s failure to exercise its gatekeeping function was not cured by Murphy-Brown’s robust cross-examination and introduction of a counter-expert witness’s testimony. As this Court recognized in *Nease*, cross-examination does *not* serve as a substitute for the district court’s failure to make the threshold gatekeeping decision as to the reliability and relevance of expert testimony. 848 F.3d at 231. Similarly, Murphy-Brown’s counter-expert, Dr. Clancy, challenged Dr. Rogers’ protocols for collecting samples, raising concerns about his testing methods that should have been addressed in determining whether to admit his testimony about the results of his testing before it could

be heard by the jury. In sum, the whole point of *Daubert*'s gatekeeping function is "to protect juries from being swayed by dubious scientific testimony" in the first instance, and that purpose is not served by admitting the untested evidence and relying on the jury to determine its reliability. *Id.* at 231. To do so is to ignore *Daubert*, which demands that district courts undertake their gatekeeping function role *before* expert testimony reaches the jurors' ears. *Id.*

b. Disconnect Between the Scope of Dr. Rogers' Testimony and His Expertise

The second problem with Dr. Rogers' testimony occurred because the district court allowed him to testify about a wide range of topics that appear to be outside his expertise without adequately inquiring into his qualifications to do so. Part of the court's gatekeeping function is to ensure that an expert witness is qualified to testify about each component of his testimony. *Cf. Belk, Inc. v. Meyer Corp.*, U.S., 679 F.3d 146, 162 (4th Cir. 2012) ("In undertaking its role as gatekeeper to ensure that proffered evidence is reliable pursuant to Fed. R. Evid. 702, the district court must decide whether the expert has sufficient specialized knowledge to assist the jurors in deciding the particular issues in the case.").

At Plaintiffs' request, the district court designated Dr. Rogers as an expert in the fields of environmental engineering, animal waste management engineering and technology, and microbiology. But the court then allowed Dr. Rogers to testify extensively about odors and how humans perceive odors without any factual findings that his fields of expertise qualified him to testify about this broader topic. Instead, the jurors were asked to follow and accept Dr. Rogers' explanation about why his particular training qualified him to opine about hog odor. Plaintiffs respond to Murphy-Brown's challenges to Dr. Rogers'

expertise by focusing on the fact that he was not designated as an expert on odor; the majority opinion follows suit, pointing out that Dr. Rogers never purported to be an expert on how humans perceive odor. But these are red herrings, distracting from the substance of Dr. Rogers' testimony, because he in fact opined at length on these very matters.

Dr. Rogers testified about how an industrial hog farm such as Kinlaw Farms generates odors, why testing for pig2bac on Plaintiffs' residences "proves" that odors also traveled to their properties, and what led to his opinion Kinlaw Farms substantially interfered with the enjoyment of their property. All these representations—and more—necessarily entailed testimony about odors and human perception of hog odors. For example, at the outset of Dr. Rogers' substantive testimony, Plaintiffs' counsel quickly transitioned to the observation that "[w]e're here obviously with the members of the jury to talk about odor from industrial hog operations." J.A. 6194. Counsel then asked Dr. Rogers a series of questions about how his training and background were relevant to the issue of hog odor's effect on the environment. He did so by explaining the "way we"—obviously, humans—"perceive a very large mixture, very complex mixture of chemicals" such as "hog odor." J.A. 6194 (emphases added). Throughout his testimony, Dr. Rogers described the primary sources of odor on a hog farm, and how their design affects odor. He discussed what "particles and gases [in hog operations] have to do with odor" and explained that when "we perceive [something] as odor or whatever, what we're doing is sensing these different chemicals." J.A. 6195. And he summarized various studies on why people perceive hog odors with greater "intensity and offensiveness . . . after rainfall or when humidity increases." J.A. 6917. It's no surprise, then, that Dr. Rogers agreed that his

background made him “an expert” in “whether and how industrial hog odor gets to the neighbors,” which was the issue the jurors would be asked to decide “at the end of the case.” J.A. 6195.

Dr. Rogers also testified at length about how hog odor is generated at Kinlaw Farms specifically, basing that testimony on both his knowledge of how industrial hog farms work generally and his site inspection. He labeled particles ventilated from the Kinlaw buildings where the hogs live as “very odiferous” and described at some length for the jury “what’s entering [someone’s] nose” when she “smell[s] hog odor” emanating from those buildings. J.A. 6914. He later provided similar descriptions of how odors transported from the lagoons during storage and decomposition of waste as well as from the spraying of waste onto Kinlaw Farms’ fields. He described “odor tests” he and his team performed on samples from the lagoons to “determine how many dilutions it takes of the material before it no longer has an odor to it,” testifying that it “can take between 800 and even up to nearly 16,000 dilutions before the odors are no longer noticeable” to humans. J.A. 6944, 6957; *see also* 6954–57. Throughout his testimony, he reiterated that he had experienced the odors he spoke of while at Kinlaw Farms and on Plaintiffs’ property. And he ultimately opined that Kinlaw Farms was “not a good location for this type of a hog operation,” providing additional testimony about various odor-reducing technologies that could be implemented at Kinlaw Farms. J.A. 6985–95.

At bottom, notwithstanding Dr. Rogers’ formal designation as an expert in other fields, Plaintiffs presented him to the jury as an expert in odor and human perception of odor, and thus qualified to offer expert opinions on when hog odors create a nuisance. Any

assertion to the contrary ignores the substance of his testimony. At a minimum, the district court failed to adequately consider and explain why Dr. Rogers' background and qualifications were sufficient to permit him to speak about all the aspects of odors touched on in his testimony. And if he was not qualified to testify about these matters, it erred in allowing him to do so. *See Fed. R. Evid. 702* (requiring expert's testimony to be qualified based on "knowledge, skill, experience, training, or education"); *Thomas J. Kline, Inc. v. Lorillard, Inc.*, 878 F.2d 791, 799 (4th Cir. 1989) (observing that although "the test for exclusion is a strict one," an expert lacking the requisite qualifications should be excluded). Allowing an expert witness to testify outside the areas in which he is qualified leads to the admission of testimony that has the potential to be "both powerful and quite misleading" when it should never have been presented to the jury. *Daubert*, 509 U.S. at 595.

Perhaps Dr. Rogers could have adequately assured the district court of his qualifications to opine on the spectrum of odor-related issues he testified about, but the connection to his qualifications and areas of expertise is not readily apparent in this record. With that in mind, it's also possible that the discrepancy between Dr. Rogers' designation and his testimony may not have been sufficient on its own to prejudice Murphy-Brown to such an extent so as to require reversal. But it compounds the district court's other gatekeeping errs, detailed earlier. The combined effect is error "so fatally infect[ing] the trial" that it violated Murphy-Brown's substantial rights. *Ward*, 958 F.3d at 273.

c. Unreliability of Dr. Rogers' Pig2bac Testimony

Lastly, the district court's abdication of its gatekeeping function matters because it led to the improper admission of Dr. Rogers' unreliable testimony that physical evidence

of pig2bac was physical evidence that odors from Kinlaw Farms were traveling to Plaintiffs' properties.¹⁵ *See Bresler v. Wilmington Trust Co.*, 855 F.3d 178, 195 (4th Cir. 2017) ("In fulfilling its gatekeeping function, a district court must conduct a preliminary assessment to determine whether the methodology underlying the expert witness' testimony is valid."). As such, Dr. Rogers' testimony did not satisfy *Daubert* or Rule 702, and the court abused its discretion in allowing its admission.

In considering the reliability of proposed expert witness testimony, district courts may consider several "guideposts" as well as any other relevant factor. *Daubert*, 509 U.S. at 593; *Nease*, 848 F.3d at 229. The guideposts are, first, "whether [a theory or technique] can be (and has been) tested." *Daubert*, 509 U.S. at 593. Second, "whether the theory or technique has been subjected to peer review and publication." *Id.* Third, "the known or potential rate of error," as well as "the existence and maintenance of standards controlling the technique's operation." *Id.* at 594. Fourth, whether the theory or technique is generally accepted because "[w]idespread acceptance" hues in favor of admissibility, while "a known technique which has been able to attract only minimal support with the community may properly be viewed with skepticism." *Id.* At its core, *Daubert*'s guideposts are designed to ensure that expert opinion is admitted only when it is reliable, i.e., that it is "based on scientific, technical, or other specialized knowledge and not on belief or

¹⁵ Murphy-Brown does not challenge the admissibility of other aspects of Dr. Rogers' testimony.

speculation, and inferences must be derived using scientific or other valid methods.”

Oglesby v. Gen. Motors Corp., 190 F.3d 244, 250 (4th Cir. 1999).

A foundational concern about Dr. Rogers’ pig2bac testimony is the novelty of its use as a proxy for odor, which was the basis of his testing and for much of his testimony. For example, Dr. Rogers admitted that he was unaware of anyone who used pig2bac as a surrogate for odor in the way he had done for purposes of forming his opinion in this case. J.A. 7221 (Q: “No one ever reports Pig2bac used the way you use it, do they?” A: “Not that I’m aware.”). Further, he admitted that the pig2bac proxy theory and the methodology for detecting “odor” that he used in this case had never been published (by him or anyone else). J.A. 7222. And he acknowledged that no one had suggested in “the peer-reviewed literature” that his approach was “an appropriate scientific method . . . to measure odor leaving the farm.” J.A. 7222. While it is not clear from the record that he developed his method strictly for purposes of this litigation, it is indisputably new—and unique to Dr. Rogers—and does not have any credence in the broader scientific community. *See United States v. Crisp*, 324 F.3d 261, 268 (4th Cir. 2003) (observing that although *Daubert* “enabled the courts to entertain new and less conventional forms of expertise” than the prior “uncompromising general acceptance test,” it nonetheless “attempted to ensure that courts screen out junk science”); *see also Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995) (observing that a “significant fact to be considered” as part of the *Daubert* analysis is whether an expert is testifying “about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying”). Although the

novelty of a methodology and theory is not dispositive to the *Daubert* analysis, it is relevant and prompts giving additional attention to whether other indicia of reliability exist. *See Daubert*, 509 U.S. at 594; *Daubert*, 43 F.3d at 1317–18 (observing that “other objective, verifiable evidence that the testimony is based on scientifically valid principles” that have “been subjected to normal scientific scrutiny through peer review and publication” is a means of demonstrating reliability despite novelty of a theory).

Working from this blank slate, Dr. Rogers developed what appears to be an unsupported and untested hypothesis and opinion that the existence of pig2bac serves as physical evidence of hog odor also having been present at that location such that Kinlaw Farms “is impacting” the Plaintiffs. J.A. 7247. At bottom, his underlying hypothesis satisfies neither *Daubert* nor Rule 702 because it lacks reliability. Dr. Rogers’ hypothesis was not based on the belief that pig2bac, by itself, was odorous. Instead, he testified that pig2bac was “*associated* with odor” because it’s a “segment of DNA that’s in fecal bacteria aldolase so that’s bacteria aldolase that come[s] out of feces of the hog and it’s a particle that is in feces of a hog. So that Pig2bac DNA is a very good indicator of the odor that comes along with that feces of the hog.” J.A. 7200 (emphasis added); *see also* J.A. 6981 (describing the 100 percent correlation between pig2bac and pig feces). At its core, Dr. Rogers’ testimony about pig2bac requires the assumption that detecting pig2bac is a valid surrogate, or proxy, for detecting hog odor.¹⁶

¹⁶ Dr. Rogers was contradictory in his testimony about whether pig2bac had any independent odor, at first stating it “probably” did not smell, and then reversing course that because pig2bac is found in bacteria located in pig feces, and because “[o]ften when I’m (Continued)

But Dr. Rogers had not performed—and was unaware of any other—tests demonstrating that pig2bac and hog odor actually traveled *together*. Although he described how “[g]ases, fecal particles and other things” formed and transported from the farm onto neighboring properties, J.A. 6914, he never explained a basis for believing that pig2bac and odor traveled so coterminously that the presence of pig2bac always served as physical evidence of hog odor. In fact, he had never tested whether pig2bac and hog odor were *ever* present at the same time, let alone run such testing on Plaintiffs’ properties. Further, Dr. Rogers acknowledged that he had not tested whether pig2bac was present at the same time as *any* chemical typically associated with hog odor, let alone tested for some combination of the complex chemical compound that would be described as “hog odor.”¹⁷ Nor could he testify to how much pig2bac was present, or what correlation—if any—existed between a certain amount of pig2bac and a certain amount or concentration of hog odor. And, of course, because his testing was limited to the presence or absence of pig2bac, he could not testify to the amount of pig2bac present on the properties or provide any correlation between its presence and any particular level of odor that would assist the jury in determining whether it rose to the level of a nuisance. All in all, the association at the core

growing bacteria I can smell them,” pig2bac would have the same odor, although he “couldn’t say” what it would smell like or if that smell resembled hog odor. J.A. 7199. Regardless, his testimony centered on this proxy hypothesis.

¹⁷ Dr. Rogers’ testimony that he smelled a strong hog odor while collecting the sample from Tammy Lloyd’s house was anecdotal lay testimony rather than scientific evidence demonstrating the reliability of his core hypothesis about pig2bac for *Daubert* purposes.

of Dr. Rogers' hypothesis was—at least to date and for purposes of this trial—based on pure conjecture rather than scientifically reliable evidence of an odor nuisance.

Other aspects of Dr. Rogers' pig2bac testimony highlight its speculative nature: Dr. Rogers could not be sure that the pig2bac he recovered originated at Kinlaw Farms or was simply the result of its prevalence throughout the region given the number of hog farms in eastern North Carolina. He admitted he'd done no comparative testing of nearby areas such as Elizabethtown to determine whether pig2bac was commonly detected in field samples. Also, Dr. Rogers was unable to provide data about how far pig2bac could travel, instead offering his “susp[icion]” that it could travel at least half-a-mile and could not travel ten miles. J.A. 7189–90. He was similarly uncertain about how long pig2bac could persist in an environment, noting that he'd tested its presence in soil samples “on the order of days” and that it was his “opinion” that it could last “in the air or on a building or on a car” “on the order of weeks.” J.A. 7190–91.

Without any scientific evidence to reliably establish a connection between the presence of pig2bac and the presence of hog odor and without any broader acceptance of this hypothesis in the scientific community, the only proffer for the reliability of Dr. Rogers' method for detecting odors on Plaintiffs' properties was his own *ipse dixit*. That's neither expert testimony nor a sufficient basis for admissibility. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (observing that courts should not admit an expert opinion supported only by “the *ipse dixit* of the expert”); *Small v. WellDyne, Inc.*, 927 F.3d 169, 177 (4th Cir. 2019) (“Without testing, supporting literature in the pertinent field, peer reviewed publications or some basis to assess the level of reliability, expert opinion

testimony can easily, but improperly, devolve into nothing more than proclaiming an opinion is true ‘because I say so.’”).

While strength as to one of the *Daubert* factors may overcome a deficiency as to another, the totality in this instance leads to the conclusion that Dr. Rogers’ pig2bac testimony lacks the requisite indicia of reliability to be admissible as opposed to simply being subject to cross-examination to test its weight. The admission of Dr. Rogers’ testimony introduced speculation under the guise of science and expertise. That error strikes at the core of what *Daubert* and Rule 702 are designed to avoid given that “expert witnesses have the potential to be both powerful and quite misleading.” *Westberry*, 178 F.3d at 261. Based on how it was described and defended in the record, this evidence should never have reached the jury’s ears. For these reasons, the district court abused its discretion in admitting Dr. Rogers’ testimony about pig2bac.¹⁸

* * * *

For the reasons stated, the district court abused its discretion with respect to Dr. Rogers’ testimony in three respects. First, it abandoned its gatekeeping duty by offering a cursory and rote explanation of its admissibility decision, in violation of the inquiry required by *Daubert* and *Nease*. Second, it failed to ensure that Dr. Rogers’ expertise and testimony adequately aligned. Third, it admitted Dr. Rogers’ expert testimony on pig2bac

¹⁸ Because I reach this conclusion, it is not necessary to consider whether the district court was required to hold a hearing before ruling on Murphy-Brown’s motion in limine. At a minimum, these concerns demonstrate why the district court abused its discretion in not engaging in a more probing review of Dr. Rogers’ pig2bac testimony, regardless of the method the district court should have undertaken to perform that review.

when that testimony falls well short of *Daubert*'s guidance for ensuring that expert testimony is reliable. The admission of Dr. Rogers' testimony clearly harmed Murphy-Brown given that it was the only purportedly "scientific" on-site testing admitted to support Plaintiffs' case, making it impossible to say that it did not affect the jury's liability finding. As such, it meets the criteria for reversal, leaving not only the "definite and firm conviction" of a wrong evidentiary ruling, *Westberry*, 178 F.3d at 261, but also the conclusion that it affected Murphy-Brown's right to a fundamentally fair trial, *Ward*, 958 F.3d at 273–74.

B. Improper Exclusion of Dr. Dalton's Olfactometer Readings Evidence

Murphy-Brown sought to introduce expert testimony from Dr. Pamela Dalton, but the district court restricted that testimony so that Murphy-Brown elected not to call her as a witness at trial. On appeal, Murphy-Brown challenges the court's ruling limiting Dr. Dalton's testimony, arguing that it abused its discretion by excluding evidence of an objective measure of odor, which the jury should have been permitted to consider.

1. Factual Background and District Court Rulings

Dr. Dalton¹⁹ and her associates tested the frequency, intensity, and duration of odors in the air at and near Kinlaw Farms. Her approach was based on her "opinion that in

¹⁹ Dr. Dalton has a M.S. and Ph.D in Experimental Psychology from New York University and a Master of Public Health from Drexel University. For over two decades, she has conducted olfactory research at the Monell Chemical Senses Center in Pennsylvania. Her research has focused on a range of odor-related topics, including "the human perception of odor, irritation and acute health symptoms from odorous chemical exposures, especially as this perception is influenced by cognitive factors." J.A. 4713.

order to establish whether odors from a facility occur at a nuisance level it is necessary to independently monitor the frequency, intensity and duration of odors that have the potential to be perceived offsite or at Plaintiffs' homes over an extended period of time.” J.A. 4720. In her view, this was required because an “often unconscious bias in how people respond to the expectation of an odor,” which causes “self-report[s] [to] generally [be] unreliable.” J.A. 4720.

Dr. Dalton collected data on two sites at Kinlaw Farms over a four-week period and at one site off the farm over a one-week period in late 2016. Her study entailed recruiting six monitors who met her criteria for odor detections, were trained on topics relevant to odor observation techniques and field procedures, and were provided practice using a field olfactometer²⁰ known as the Nasal RangerTM.²¹ “To familiarize them with the relevant odors, monitors were taken to various locations at [Kinlaw Farms] to experience the quality of odor emanating from the barns and the lagoons.” J.A. 4714.

During the testing period, “[m]onitors worked in two or five hour shifts,” during which time their activities and preparations were regulated to avoid contaminating results by the introduction of other scents. J.A. 4714. Working in pairs, monitors took readings “every 15 minutes from dawn until dusk for the duration of the study.” J.A. 4715. When the monitors disagreed, the higher intensity level was recorded.

²⁰ An olfactometer is an instrument that detects and measures odor dilution.

²¹ Dr. Dalton described the Nasal RangerTM as “the ‘gold standard’ for conducting field olfactometry assessments in studies such as” hers. J.A. 4714.

The Nasal Ranger™ “allows ambient air to be sniffed at varying dilutions with clean air in order to quantify the intensity of any odor.” J.A. 4715. Dr. Dalton explained in her expert report that “[i]n states where odor regulations exist based on the use of a Nasal Ranger™ or similar device, the threshold for flagging objectionable odor (along with other temporal requirements) has been commonly determined to be 7:1 or above.” J.A. 4715. She cited “general[] agree[ment]” that a lower dilution ratio would not constitute an “objectionable odor.” J.A. 4715.

Dr. Dalton reported that in the testing on Kinlaw Farms property, monitors detected a dilution level of 7:1 or greater a total of sixty-five times over the course of the four weeks, and detected a dilution level of 7:1 or greater only once during the course of the one week of testing off-site. She explained that this disparity “confirm[ed] that distance from the barns/lagoons drastically reduces odor impact.” J.A. 4719.

Based on the results of her testing, Dr. Dalton opined, “to a reasonable degree of scientific certainty,” that Kinlaw Farms’ normal operations “do not produce odors that travel offsite at an intensity, frequency or duration that would be considered a nuisance level at Plaintiffs’ properties.” J.A. 4716. Dr. Dalton also provided several reasons why subjective reports of odors often do not align with objective measurements of odor, particularly when “individuals . . . are motivated to complain about a putative odor source.” J.A. 4716.

At her deposition, Dr. Dalton provided some clarifying comments about her opinion. For example, when asked if “smelling hog odor at any concentration can cause annoyance,” she replied, “[i]t depends on the individual.” J.A. 4753. And she

acknowledged that “[t]he annoyance one might experience [from breathing hog odor] could happen whether or not the odor is strong.” J.A. 4754. She reiterated that “there’s incredible individual variation in what people can smell and how they react to what they smell.” J.A. 4755. But she opined that she would not consider “a hog odor at a 4 all day at [someone’s] house” to be a nuisance “because it would be a weak odor” regardless of how that person personally experienced it or responded. J.A. 4568–69. Lastly, Dr. Dalton admitted North Carolina had not adopted an objective measurement, and described instead that “there really isn’t a standard” because it’s subjective, based on individual complaints. J.A. 4771.

Plaintiffs sought to exclude Dr. Dalton’s olfactometer testing and the opinion she formed from those results.²² The district court agreed to do so on the ground that it “would have a strong likelihood of confusing or misleading the jury” and “would not be helpful to the jury.” J.A. 8596. The district court explained that, unlike the jurisdictions Dr. Dalton referenced in her expert report, North Carolina had not adopted a dilution to threshold ratio or other objective measure for determining when an odor nuisance exists. In its view, this evidence would not aid the jury in determining whether an odor nuisance existed, and it would confuse them by equating a nuisance with an objective measure that North Carolina did not require.

²² Plaintiffs did not object to Dr. Dalton testifying about “the biology of olfaction and factors that influence individual perception of and response to odor,” J.A. 8596 n.2, and the district court held that Dr. Dalton could testify about the “unreliability of self-report of odor” without invading the province of assessing Plaintiffs’ credibility about the odors they smelled and their source, J.A. 8596.

2. Analysis

The district court abused its discretion in excluding Dr. Dalton's testimony about the olfactometer tests, the commonly used 7:1 dilution ratio, and her opinion that the test results did not show that Kinlaw Farms operated as a nuisance. None of the grounds the district court articulated is an appropriate reason to exclude this testimony.

Expert opinion is admissible to help the factfinder "determine a fact in issue," Fed. R. Evid. 702, and Dr. Dalton's testimony was probative of a central issue before the jury: whether a reasonable person would conclude Kinlaw Farms' operations constituted an odor nuisance. As described earlier, North Carolina's nuisance law required the jury to assess whether a "substantial" and "unreasonable" interference had occurred. *See supra* Part I.A. One aspect of that determination involves considering "the degree of intensity and disagreeableness of the [odors], their times and frequency, and their effect, not on peculiar and unusual individuals but on ordinary, normal and reasonable persons of the locality."

Hooks v. Int'l Speedways, Inc., 140 S.E.2d 387, 392 (N.C. 1965).

Dr. Dalton's testimony was plainly relevant, and helpful, to this factual determination. Her test objectively scored the disagreeableness of the odors emanating from Kinlaw Farms. Its results demonstrated that most of the readings fell far short of a common standard for assessing the existence of an odor nuisance. And rather than being anecdotal in nature, Dr. Dalton's testimony would have provided the jury with objective, scientific evidence about the frequency, intensity, and duration of odors detected on and near Kinlaw Farms. The jury could have weighed this data when considering whether

Plaintiffs proved the existence of an unreasonable and substantial interference to the use and enjoyment of their property.

For this reason, Dr. Dalton's testimony is a classic example of the relevant and reliable expert testimony that is admissible under *Daubert* and Rule 702. *Westberry*, 178 F.3d at 261 (stating that Rule 702 “was intended to liberalize the introduction of relevant expert evidence”); *id.* (stating evidence admissible under Rule 702 should be excluded under Rule 403 only if it “has a greater potential to mislead [or confuse] than to enlighten”). In contrast to Dr. Rogers’ testimony, no *Daubert* concerns arose about the methodology Dr. Dalton used to conduct her test and form her opinion. While Dr. Rogers’ testimony was based on a novel proxy theory of odor that provided no information about the intensity, frequency, or duration of either the proxy pig2bac or actual odors, Dr. Dalton’s testimony was based on tests conducted using gold-standard equipment and methods widely accepted and used in the industry to test the actual intensity, frequency, and duration of odors at and near Kinlaw Farms. As such, Dr. Dalton’s test results were admissible, but subject to traditional methods of challenging its weight for purposes of establishing the ultimate issue before the jury. *See Daubert*, 509 U.S. at 596 (“Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.”); *Bresler*, 855 F.3d at 195 (“[Q]uestions regarding the factual underpinnings of the expert witness’ opinion affect the weight and credibility of the witness’ assessment, not its admissibility.”).

To be sure, North Carolina has not adopted an objective standard for establishing a nuisance. But that is not the same thing as North Carolina having rejected the admissibility

of evidence about such an objective standard as one part of the decision-making process—subject to cross-examination and proper instruction—about whether an odor nuisance exists. Indeed, no North Carolina odor nuisance cases have required the exclusion of olfactometer readings for the factfinder’s consideration. Moreover, one part of North Carolina hog-odor regulation *has* adopted objective standards that rely on the 7:1 dilution ratio as a basis for assessing compliance with the state’s odor-control objectives. Specifically, in deciding whether to issue or modify permits related to hog farms that use the lagoon-and-sprayfield waste management system, the relevant authorities are required to determine that the “system will meet or exceed” certain performance standards, including that it will “[s]ubstantially eliminate the emission of odor that is detectable beyond the boundaries of the parcel or tract of land on which the swine farm is located.” N.C. Gen. Stat. § 143-215.10I(b)(2).²³ And the implementing regulations for this provision state that one way to satisfy this requirement “at new or modified swine farms” is by obtaining a field olfactometer test documenting that “the measured dilution-to-threshold ratio [is] less than or equal to 7:1.” 15A N.C. Admin. Code § 2D.1808(d)(1).²⁴ Thus, North

²³ This is the current location of the statute, as amended and made effective June 12, 2020. The identical requirement was previously codified at § 143-215.10I(b)(3), and this prior location is cross-referenced in the cited regulations.

²⁴ Plaintiffs’ suggestion that North Carolina does not currently rely on this standard relies on shaky support (an agency PowerPoint), but is ultimately beside the point. The relevant inquiry is whether it would have been so inconsistent with North Carolina law as to prejudice Plaintiffs if it were admitted. North Carolina officials charged with promulgating standards in related areas of the law have recognized this objective measure of odor may be relevant to the analysis.

Carolina has accepted this objective measure in other, closely related, areas even if it has not been specifically adopted in civil nuisance claims. Its having done so bolsters the conclusion that it would not be inconsistent with North Carolina's understanding of industrial hog farm odors to put Dr. Dalton's testimony before the jury for it to assess the evidence's weight for purposes of determining whether an odor nuisance existed.

In addition, methods well short of exclusion could have been used to alleviate any concern about confusing or misleading the jury. For example, Dr. Dalton's testimony would have been subject to cross-examination, where Plaintiffs could have urged that the jury should afford the testimony little weight for any reason, including that North Carolina nuisance law uses a different, lower standard for establishing liability. The court could have tailored a cautionary instruction to remind the jury of Plaintiffs' burden under North Carolina law so as to limit how Dr. Dalton's testimony would be used in assessing whether a nuisance existed. Relatedly, the district court could have prohibited Dr. Dalton from opining on the ultimate issue of the existence of a nuisance and instead limit her testimony to the results of the olfactometer tests, which provided an objective measure of the dilution ratio quite apart from any legal conclusions Dr. Dalton arrived at from interpreting them. *E.g., Kopf v. Skymr*, 993 F.2d 374, 378 (4th Cir. 1993) (observing that even if a district court determines the expert should not opine on the ultimate opinion, that "does not necessarily banish him from the stand altogether, because his specialized knowledge may still assist the trier of fact in other ways").

Lastly, the exclusion of this evidence was not harmless because the ruling prevented Murphy-Brown "from fully developing evidence relevant to a material issue." *Schultz v.*

Butcher, 24 F.3d 626, 632 (4th Cir. 1994). Specifically, the court’s ruling prevented Murphy-Brown from presenting scientific evidence about the absence of frequent and intense odors on Plaintiffs’ property for the jury to weigh against Plaintiffs’ anecdotal evidence about what they experienced on a regular basis. In addition, although there’s no equivalent to Newton’s Third Law respecting expert witnesses requiring that every trial involve “an equal and opposite expert” from the opposing side, *Harrington v. Richter*, 562 U.S. 86, 111 (2011), it’s nonetheless relevant that the district court’s decision to exclude Dr. Dalton created an imbalance in the parties’ presentation of evidence. As noted, the district court admitted Dr. Rogers’ unreliable pig2bac testimony, which allowed Plaintiffs to present a novel and unfounded hypothesis that the presence of pig2bac served as a proxy for hog odor being on Plaintiffs’ property. But it excluded Dr. Dalton’s olfactometer testimony, which prevented Murphy-Brown from presenting a reliable and tested method of assessing the intensity and frequency of odors actually recorded. If jurors had heard just Dr. Dalton’s testimony (because Dr. Rogers’ testimony was improperly admitted) or both Dr. Dalton and Dr. Rogers’ testimony (upon finding him *Daubert* qualified), they may have reached a different verdict based on the totality of the evidence before them. Because there’s “a high probability that the error affected the judgment,” *Huskey v. Ethicon, Inc.*, 848 F.3d 151, 160 (4th Cir. 2017), the improper exclusion of Dr. Dalton’s testimony warrants *vacatur* and a new trial.

* * * *

Based on the foregoing, the district court abdicated its gatekeeping function before allowing Dr. Rogers to testify. Regardless of how a remand for the district court to perform

its proper *Daubert* role would play out with respect to the rest of Dr. Rogers' testimony, it was an abuse of discretion to admit his testimony as to pig2bac as a proxy for odor given that—at least as presented in the record—it does not satisfy *Daubert* or Rule 702. Further, the district court abused its discretion in excluding Dr. Dalton's testimony about the olfactometer tests she performed at and near Kinlaw Farms. These prejudicial errors require a new trial.

IV.

While Plaintiffs may have cognizable nuisance claims, their pursuit of victory through overtly irrelevant, prejudicial, and unreliable evidence makes the resulting verdict invalid. For the reasons discussed, it is impossible to know that these errors did not materially affect the decisions to hold Murphy-Brown liable for compensatory damages in the first instance, to assess any punitive damages award, and in setting the amount of those damages. *See Sparks v. Gilley Trucking Co.*, 992 F.2d 50, 53 (4th Cir. 1993) (recognizing that error in admitting evidence is not harmless if the court cannot determine whether the error affected the outcome of the case).²⁵ Accordingly, the district court's evidentiary errors

²⁵ Although these errors relate solely to Plaintiffs' allegation of a hog odor nuisance, there can be no doubt from the record that this aspect formed the core of Plaintiffs' case even though they also presented evidence of other alleged interferences in the form of pests and noise. Given that the jury's verdict form did not require information about what type of interference occurred, it is safe to conclude that these evidentiary errors affected the entire verdict. *See* J.A. 9177 (indicating jurors responded "yes" to the broad question, "Did the defendant substantially and unreasonably interfere with the plaintiff's use and enjoyment of his or her property?" as to each plaintiff).

Relatedly, because I believe these errors require a new trial, I do not join—nor need I express a view regarding—the remaining issues Murphy-Brown has raised on appeal.

constitute reversible error as to both liability and damages. I therefore respectfully dissent from those parts of the majority opinion reaching a different conclusion.