

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA**

SHIRLEY SLOCUM, ET AL.

VERSUS

INTERNATIONAL PAPER COMPANY, ET AL.

DERRICK SANDERS, ET AL.

VERSUS

INTERNATIONAL PAPER COMPANY, ET AL.

BRENT JARRELL, ET AL.

VERSUS

INTERNATIONAL PAPER COMPANY, ET AL.

CIVIL ACTION

NO. 16-12563

NO. 16-12567

NO. 16-13793

SECTION "L" (1)

ORDER & REASONS

Pending before the Court is Defendant's Motion to Redefine the Class Definition.¹ R. Doc. 227. Plaintiffs oppose the motion. R. Doc. 237. A hearing was held on November 12 and 13, 2019, and the parties were ordered to submit post-hearing briefs regarding their respective positions. Having considered the parties' arguments and the applicable law, the Court now rules as follows.

I. BACKGROUND

This plethora of cases arises out of damages allegedly sustained by Plaintiffs as a result of a discharge of "black liquor" at the Bogalusa Paper Mill. R. Doc. 1-2 at 1. Plaintiffs assert claims

¹ Identical motions have been filed in the consolidated cases, *Sanders v. International Paper*, No. 16-12567, and *Jarrell v. International Paper*, No. 16-12793. For the sake of simplicity, this Order & Reasons only cites the record in *Slocum v. International Paper*, No. 16-12563.

against Defendant,² International Paper Company. Plaintiffs' theories of liability sound in negligence, strict liability, and nuisance. R. Doc. 1-2 at 21.

Black liquor is a by-product of the paper making process. Black liquor is typically recycled in evaporator tanks for repeated use in the pulping process. R. Doc. 1-2 at 3. On June 10, 2015, the sight glass on an evaporator tank containing black liquor ruptured at the Bogalusa Paper Mill, which resulted in a stream of black liquor erupting several feet into the air and dispersing into the atmosphere. R. Doc. 1-2 at 14. The next day, Defendant advised the media that there was a "slight leak" in a process unit that led to the dispersal of diluted black liquor, but that Defendant was "confident that there is no risk to human health or the environment." R. Doc. 1-2 at 14.

Plaintiffs disagree. Plaintiffs contend that the dispersal of black liquor caused personal injury, property damage and/or emotional distress, and argue Defendant is liable for Plaintiffs' damages. R. Doc. 1-2 at 16. For example, the Welch Plaintiffs claim the dispersal caused a black mist to descend on their house, and that the mist stuck the exposed skin of themselves and their children. R. Doc. 1-2 at 18. For a few days after, the Welches "experienced itchy, burning, watery eyes, [and] headaches with throat and upper respiratory irritation." R. Doc. 1-2 at 18. The Welches concede that their physical symptoms cleared "in a short period of time," but argue they continue to suffer emotional distress and fear about a reoccurrence of the event. R. Doc. 1-2 at 18. Other Plaintiffs claim similar damages.

II. PENDING MOTION

On May 21, 2019, the Court certified this matter as an issue-based class action. R. Doc. 207. The class consisted of "[a]ll persons or entities who were physically present or owned property within Bogalusa, Louisiana, Parish of Washington on June 10, 2015, and who sustained

² Initially, Plaintiffs filed claims against the mill manager, Bernard F. Chascin; however, these claims were dismissed as they were not cognizable under Louisiana law.

injuries or damages as a result of the discharge of ‘black liquor’ at the Bogalusa Paper Mill owned by the International Paper Company.” R. Doc. 207. Having completed additional discovery, Defendant now seeks to redefine the class more narrowly as follows:

All persons or entities who were physically present or owned property within the following boundaries on June 10, 2015 and who sustained injuries or damages as a result of the discharge of “black liquor” at the Bogalusa Paper Mill owned by the International Paper Company:

- Northern boundary: Mississippi Avenue, Bogalusa, Louisiana
- Eastern boundary: Richmond Street, Bogalusa, Louisiana/S. Columbia Street, Bogalusa, Louisiana
- Southern boundary: Willis Avenue, Bogalusa, Louisiana
- Western boundary: Cumberland Street, Bogalusa, Louisiana

Defendant bases this class definition on evidence produced by Class Representatives, reports by the Bogalusa Police and Fire Departments, and the conclusions of defense experts. In particular, Defendant relies on the expert report of Dr. Timothy Myers, an engineer who concluded that 773 gallons of black liquor was released during the event. R. Doc. 227-1 at 8. Defendant also relies on the expert report of Gale Hoffnagle, a meteorologist and air quality modeler, who analyzed the path, air concentrations, and deposition of the black liquor release. R. Doc. 277-1 at 8. Relying on the data provided by Dr. Myers and weather data from IP’s weather station, the National Weather Service, and the United States Geological Survey, Mr. Hoffnagle opines that the plume traveled exclusively in a north-ward direction and that “airborne concentrations and deposition of black liquor droplets per square meter was confined to distances of no more than 2000 meters north and northeast of the release point.” R. Doc. 227-1 at 9. Defendant lastly relies on the expert report of Dr. Glenn Millner, a toxicologist and risk assessment expert, who concluded that any individual located outside of the proposed boundary could not have sustained any adverse physical effects from the exposure. R. Doc. 277-1 at 10. In addition, Defendant sought to exclude the testimony of Plaintiffs’ expert Patrick Campbell. R. Doc. 228.

Plaintiffs oppose the motion. R. Doc. 237. Plaintiffs contend that the class definition should not be redefined, or alternatively, defined to encompass those individuals located within the following boundaries:

- Northern Boundary: Intersection of Highway 21 and 436
- Western Boundary: Powerline Road
- Eastern Boundary: Pearl River Waterway
- Southern Boundary: Davenport Road

Plaintiffs base these boundaries on the conclusions of Dr. Williams and Dr. Campbell. In particular, Dr. Williams calculated that between 2,160 and 3,240 gallons of black liquor were discharged over the course of the thirty-eight-minute incident. R. Doc. 237 at 5. Based on Dr. Williams's calculations, as well as the data provided by Defendants, Dr. Campbell used HYSPLIT to model the path of the plume. R. Doc. 237 at 4. The HYSPLIT model revealed that the plume traveled much further than Defendant's model suggests. In addition, Plaintiffs sought to exclude the testimony of Defendant's experts Gale Hoffnagle, R. Doc. 234, and Glenn C. Millner, R. Doc. 235.

A hearing was held on November 12 and 13, 2019 to allow the parties to present evidence in support of their respective positions. Following the hearing, the Court instructed the parties to discuss, and prepare post-hearing memoranda about, two inter-related issues: (1) the amount of black liquor released during the incident, and (2) the geographic area over which the released black liquor was dispersed. In its post-hearing brief, Plaintiffs conceded that the south-western most boundary of the release was Avenue H. R. Doc. 262 at 29. Accordingly, Plaintiffs propose redefining the class to include anyone located, or anyone owning property located within the following boundary:

- Northern Boundary: Intersection of Highway 21 and 436
- Western Boundary: Powerline Road to Willis Avenue, east on Willis Avenue to Avenue H, and south on Avenue H to Davenport Road

- Eastern Boundary: Pearl River Waterway
- Southern Boundary: Davenport Road

Defendant's proposed boundaries also changed after the hearing. In its post-hearing brief, Defendants ask the Court to redefine the class to include anyone or anyone owning property located within the following perimeter:

- Northern Boundary: Redmond Street
- Eastern Boundary: Richmond Street
- Southern Boundary: Willis Avenue
- Western Boundary: Railroad tracks

Recognizing the importance of the motion and the complexity of the factual issues involved, the Court, after notifying the parties, traveled to Bogalusa, Louisiana, on February 4, 2020 to better understand the geography of the area and the proximity of the third effect evaporator to a number of affected sites. The Court together with the attorneys for the Plaintiffs and Defendant inspected the area in dispute.

III. EXCLUSION OF EXPERTS

Before addressing the motion to redefine the class, the Court will first discuss the parties' respective motions to exclude expert testimony from the November 12th and 13th hearing. These motions were submitted as *in limine* motions in advance of the hearing and the Court orally denied all three. The Court takes this opportunity to explain its reasoning in greater detail.

A. Legal Standard

The admissibility of expert testimony is governed by Rule 702 of the Federal Rule of Evidence, which provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702. This rule codifies the Supreme Court’s decisions in *Daubert v. Merrell Dow Pharma., Inc.*, 509 U.S. 579 (1993) and *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999).

The Court must act as a “gate-keeper” to ensure the proffered expert testimony is “both reliable and relevant.” *Wells v. SmithKline Beecham Corp.*, 601 F.3d 375, 378 (5th Cir. 2010). This requires the Court conduct a two-pronged assessment to determine whether the expert testimony is: (1) based on reliable methodology and (2) will assist the trier of fact to understand the evidence or to determine a fact in issue. *See Daubert*, 509 U.S. at 589–91.

The first prong “entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.” *Wells*, 601 F.3d at 378 (quoting *Daubert*, 509 U.S. at 592–93). With respect to reliability, the Court’s focus “must be solely on principles and methodology, not on the conclusions that they generate.” *Daubert*, 509 U.S. at 595. In *Daubert*, the Supreme Court set forth a non-exclusive list of factors to consider in determining the scientific reliability of expert testimony. *Id.* at 593–95. These factors are: (1) whether the theory has been tested; (2) whether the theory has been subject to peer review and publication; (3) the known or potential rate of error; (4) whether standards and controls exist and have been maintained with respect to the technique; and (5) the general acceptance of the methodology in the scientific community. *Id.* Whether some or all these factors apply in a particular case depends on the facts, the expert’s particular expertise, and the subject of his testimony. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 138 (1999).

The second prong ensures that an expert’s testimony is “reliable and relevant.” *Daubert*, 509 U.S. at 589. “Whether the situation is a proper one for the use of expert testimony is to be

determined on the basis of assisting the trier.” Advisory Committee Notes Fed. R. Evid. 702. Assisting the finder of fact requires the expert testimony to reveal more than the attorneys in arguments can offer. *See In re Air Crash Disaster at New Orleans, La.*, 795 F.2d 1230, 1233 (5th Cir. 1986). Expert testimony does not assist the fact-finder when the jury “could adeptly assess [the] situation using only their common experience and knowledge.” *Peters v. Five Star Marine Serv.*, 898 F.2d 448, 449 (5th Cir. 1990). However, complex issues are considered to fall outside the scope of the jury’s common experience and knowledge. *See In re Horizon Vessels, Inc.*, No. CIV. H -03-3280, 2007 WL 655927, at *8 (S.D. Tex. Feb. 28, 2007); *McMullen v. BP Expl. & Prod.*, No. CIV.A. 12-1206, 2013 WL 2556032, at *7 (E.D. La. June 10, 2013).

Ultimately, a court’s role as a gatekeeper does not replace the adversary system. *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.” *Id.* Proper deference is to be accorded to the jury’s role “as the arbiter of disputes between conflicting opinions.” *United States v. 14.38 Acres of Land*, 80 F.3d 1074, 1077 (5th Cir. 1996) (quoting *Viterbo v. Dow Chem. Co.*, 826 F.2d 420, 422 (5th Cir. 1987)). “As a general rule, questions relating to the bases and sources of an expert’s opinion affect the weight to be assigned that opinion rather than its admissibility and should be left for the jury’s consideration.” *Id.* (quoting *Viterbo*, 826 F.2d at 422).

B. Discussion

The Court found that Dr. Campbell has extensive credentials in the area of meteorology and offered testimony regarding a highly technical matter in this case. The use of the HYSPLIT model is a “scientifically verifiable” method of determining where the black liquor plume traveled

after the incident. Further, the HYSPLIT model has been used for over thirty years in the industry and specifically uses an ensemble approach to produce a viable range of outcomes.

Similarly, Mr. Hoffnagle holds multiple degrees and certifications in meteorology and has previously testified in numerous state and federal courts regarding air modeling. Furthermore, Defendants have provided detailed explanations for the alleged omissions in Mr. Hoffnagle's report, which is based on a widely accepted air modeling software system and data collected from the IP weather station itself.

Lastly, Dr. Glenn Millner is a professional toxicologist who has previously been testified before this Court in *Turner v. Murphy Oil USA, Inc.*, 234 F.R.D. 597 (E.D. La. 2006). His testimony regarding the chemical composition of the black liquor and its potential health affects is the product of his experience in the field and knowledge of the subject matter. To the extent the adverse parties disagreed with the data or methodologies employed by these experts, the parties had ample opportunities to vigorously cross-examine the witness. Finding that any critique of their methodologies and conclusion affected the weight of their opinions and not their admissibility, the Court denied all three motions, R. Docs. 228, 234, 235. The Court now turns to the motion to redefine the class.

IV. MOTION TO REDEFINE CLASS

A. Legal Standard

Federal Rule of Civil Procedure 23, governing class actions, requires district courts to “monitor[] . . . class decisions in light of the evidentiary developments of the case.” *Richardson v. Byrd*, 709 F.2d 1016, 1019 (5th Cir. 1983) (“The district judge must define, redefine, subclass, and decertify as appropriate in response to the progression of the case from assertion to facts.”). One of the unwritten requirements of Rule 23 is that the class to be certified must be “adequately

defined and clearly ascertainable.” *DeBremaecker v. Short*, 433 F.2d 733, 734 (5th Cir.1970). A precise definition is essential to identify those entitled to notice and those bound by a judgment. *In re Monumental Life Ins. Co.*, 365 F.3d 408, 413 (5th Cir.2004). As the Fifth Circuit has explained, class action litigation requires “ongoing refinement and give-and-take . . . particularly in the formation of a workable class definition.” *In re Monumental Life Ins. Co.*, 365 F.3d 408, 414 (5th Cir. 2004). Accordingly, “[d]istrict courts are permitted to limit or modify class definitions to provide the necessary precision.” *Id.*

B. Discussion

Having presided over a two-day hearing, read the parties’ informative briefs, and visited the site of the release event in person, the Court concludes that the geographic scope of the class depends on two factors: (1) how much black liquor was released into the air during the release event; and (2) where the black liquor was dispersed. The Court reviews the uncontroverted facts and then discusses each issue in turn.

1. Uncontroverted Facts

The parties agree that on June 10, 2015, a sight glass located on the 3rd Effect Evaporator at the International Paper Mill in Bogalusa, Louisiana, failed, allowing black liquor liquid and vapor to enter the atmosphere. R. Doc. 261 at 1. The sight glass was located 64 feet above ground level and the event lasted from 6:40 p.m. to 7:18 p.m. R. Doc. 261 at 1. The main steam valve that pressurized the evaporator during normal operations was closed at 7:03 p.m. R. Doc. 261 at 1. Using data generated by IP, Mr. Frank Arrufat, an engineer employed by IP, determined that an amount of black liquor was released during the event. The LDEQ was notified that the discharge contained 37-38% solids. R. Doc. 261 at 2. The parties later respectively hired experts to calculate the quantity of black liquor released into the atmosphere and the area of the black liquor deposition.

2. Volume of Release

As a threshold issue, the Court recognizes that “it is impossible to calculate the exact amount of Black Liquor that was discharged during the Release Event; this figure can only be estimated with modeling.” R. Doc. 262 at 7. Experts on both sides presented convincing testimony regarding the volume of the release, and unsurprisingly, their respective models produced wildly disparate results. Plaintiffs’ expert Dr. Wesley Williams, a nuclear engineer with an expertise in two-phase fluid flow and thermal fluid systems, calculated that 2,703 gallons of black liquor were released during the incident.³ R. Doc. 262 at 8. Dr. Williams determined that the release occurred in two phases, one vapor and one liquid. He calculated that 1,830 gallons of vapor were released, followed by 873 gallons of liquid, with a margin of error of plus or minus 20%. R. Doc. 262 at 9. Defendant disagrees with Dr. William’s calculations.⁴

By Defendant’s account, 773 gallons of black liquor were released during the incident. R. Doc. 263 at 16. This figure was determined by Dr. Timothy Myer, who fundamentally disagrees with Dr. Willams’ two-phase approach. Dr. Myer opined that the headspace of the evaporator contained steam, which, when the sight glass failed, escaped into the atmosphere, carrying with it

³ Dr. Williams assigned a 20% margin of error to his calculation. Accordingly, he determined that the minimum volume released was 2,160 gallons, and that the maximum was 3,240 gallons. R. Doc. 262 at 9.

⁴ Defendant argues that Dr. William’s methodology and conclusions are fundamentally flawed because Dr. Williams lacked expertise in the paper-making process and the contents of black liquor and failed to account for the fact that steam inevitably accounted for at least half of the released material. R. Doc. 263 at 17-19. Defendant explains that steam, which is not harmful, made up at least half of the material released by mass, and was collected in the headspace of the dome as the black liquor was heated in the distribution pan at the bottom of the effect. R. Doc. 263 at 18. Lastly, Defendant explains that Dr. Williams’ account is inconsistent with uncontroverted facts. In particular, Defendant argues there is no evidence to support a two phase process as described by Dr. Williams, particularly because it rests on the assumption that the entire effect was filled with black liquor liquid at the time of the release. R. Doc. 263 at 20. Defendant notes that “[t]his presumption is flatly disproved by the level sensors in the PI data, which show that Effect Three was not filled with black liquor.” R. Doc. 263 at 20. According to Defendant, the PI data does not reflect any significant change in the black liquor liquid level in the evaporator during the incident. R. Doc. 263 at 20. Overall, Defendant argues that because there is no evidence to support a “liquid only” phase of release, this portion of Dr. Williams’ calculation, representing 873 of the 2,703 gallons, or 32%, is inaccurate and demonstrates that his entire opinion is “vastly overstated.” R. Doc. 263 at 21. Defendant also argues that Dr. Williams overestimated the length of the release event. R. Doc. 263 at 21.

droplets of black liquor. R. Doc. 263 at 24. According to Dr. Myer, the plume's buoyance indicates that it constituted at least 50% by mass steam and 50% by mass black liquor. R. Doc. 263 at 24. Lastly, Defendant explains that eliminating the liquid-only phase of Dr. Williams' calculation and reducing it by 50% to account for the portion of the release that was entirely harmless steam results in an estimate of 913 gallons released, which is similar to Dr. Myer's calculation of 773 gallons. R. Doc. 263 at 25. Plaintiffs' expert Dr. Williams disagrees with Dr. Myer's calculations.⁵

The Court is convinced that approximately 773 gallons of black liquor were released during the release event. Plaintiffs' calculation depends on a two-phase process and Defendant successfully demonstrated the flaws in this theory at the hearing. After considering all the evidence regarding the paper-making process and the capacity and operation of the evaporators, the Court concludes that a large quantity of steam was contained in the third effect evaporator before the sight glass failed. As Dr. Myer, an expert in chemical engineering and the paper-making process, explained, the evaporator functions by heating black liquor in the base of the evaporator, allowing steam and particles to collect in the headspace of the evaporator. Accordingly, Dr. Myer explained that Dr. William's two-phase release, first purely vapor and the second purely liquid, erroneously relied on the assumption that the entire effect was filled with black liquor liquid at the time of the release. Hearing trans. at 97:4-11. However, the Court notes that the level sensors in the PI data indicated that at the time of the release, the evaporator was not full of black liquor. Hearing trans. at 97:4-11. Therefore, Defendants successfully demonstrated a lack of evidence to support Dr. Williams' theory regarding a "liquid only" phase of the release. Finding Dr. Myer's credible and

⁵ Dr. Myers used a Homogenous Equilibrium Model ("HEM"), which assumes a single-phase flow. Dr. Williams testified that the accident involved a two-phase flow. Further, Dr. Williams testified that a HEM analysis assumes that the discharge flows through a long nozzle, and that the nozzle in question, which was three inches long and five inches in diameter, "does not meet this requirement." R. Doc. 262 at 10.

his testimony thorough and convincing, the Court will adopt his calculations with respect to the volume of the release.

3. Geographic Area of Release

The parties also disagree about the geographic scope of the release. Plaintiffs urge the Court to adopt the geographic scope modeled by either AERMOD or HYSPLIT, as both are valid models that produced similar results. R. Doc. 262 at 10. Plaintiffs' expert Dr. Campbell performed HYSPLIT ensemble modeling for four different proposed volumes of black liquor: 2,400 gallons (the amount initially reported by Defendant to the LDEQ), 2,160 gallons (the minimum calculated by Dr. Williams), 3,240 gallons (the maximum calculated by Dr. Williams), and 697 gallons (the amount initially proposed by IP). Based on this ensemble, he concluded that the most likely geographic perimeter of the release could be depicted as the area within the Intersection of Highway 21 and Highway 436, the Pearl River Waterway, Davenport Avenue, and Powerline Road. Plaintiffs explain that although "the volume released did not significantly impact the perimeter or geographic footprint of the release," the varying proposed volumes did dramatically affect the amount of deposition of black liquor over any particular area. R. Doc. 262 at 11.

Alternatively, Plaintiffs stand by the AERMOD scientific model employed by defense expert Mr. Hoffnagle. Defendant also urges this Court to adopt the geographic scope modeled by AERMOD. The AERMOD model uses isopleths to represent the areas in which an equal incidence of airborne concentration and deposition of black liquor occurred. However, the parties disagree as to which isopleths should be used to restrict the class definition. Defendants argue that the class definition should be based on the area in which airborne concentrations of black liquor were at least 1 mg/m^3 , because Defendant's expert toxicologist, Dr. Millner, testified that any concentrations of less than 1 mg/m^3 "were de minimus and would not be expected to cause any

injury.”⁶ R. Doc. 263 at 3. Additionally, Dr. Millner explained that airborne concentrations, not deposition rates, is the relevant metric for analyzing potential health risks. R. Doc. 263 at 3.

Plaintiffs argue that Mr. Hoffnagle’s model is misleading because he “severely limited the perimeters of the AERMOD model he presented to the Court but readily admitted that the ‘Unabridged’ version of the AERMOD model would have projected additional Black Liquor deposition to the North, South, East, and West.” R. Doc. 262 at 12-13. Indeed, Mr. Hoffnagle testified that although AERMOD modeled black liquor deposition to the south of the release point, “AERMOD is wrong for putting in plume meander in this case.” Hearing trans. at 190:24. He explained that the plume moved “to the north, with no airborne concentrations or surface depositions to the south.” R. Doc. 263 at 6. Plaintiffs disagree, arguing that there are fact witnesses who testified to witnessing black liquor deposition south of the mill and that AERMOD itself reflected southward deposition that Mr. Hoffnagle simply chose to ignore.

The Court concludes that AERMOD model is most representative of the release event. AERMOD is a model developed by the American Meteorological Society and the Environmental Protection Agency. R. Doc. 262 at 12. Unlike HYSPLIT, the AERMOD model incorporated both surface weather conditions from the IP weather station and the vertical conditions from the Slidell weather balloon. R. Doc. 262 at 12. Furthermore, Dr. Campbell testified that Mr. Hoffnagle’s “unabridged” AERMOD model “was very consistent and is comparable with the HYSPLIT modeling of the Most Likely Geographic Boundaries of the Release.” R. Doc. 262 at 13.

However, the Court does not accept the AERMOD model as presented by Mr. Hoffnagle. Mr. Hoffnagle testified that AERMOD erroneously shows deposition of black liquor to the south

⁶ According to Dr. Millner, “only those people situated within the yellow boundary of [Mr. Hoffnagle’s] isopleths during the release event would have exposures sufficient to possibly cause health effects, and even those effects would have only been transient.” R. Doc. 263 at 5.

of the third effect evaporator. He attributes this to AERMOD's unchangeable assumption that there were brief moments of relative calm that would cause the plume to temporarily flatten, creating a wide, round area of black liquor above and surrounding the release site. According to Mr. Hoffnagle, this southward deposition is impossible because there were no moments of relative calm or southward-blowing winds that could produce "plume meander." Mr. Hoffnagle explained that the weather data collected at the IP weather station show consistent winds blowing from south to north at the time of the release, and that "occasional light winds from other directions were infrequent, brief, and without consequence." R. Doc. 263 at 6. These infrequent winds "did not last for more than 30 seconds before returning to the general south to north direction and the total time for any wind blowing from north to south was less than 15 seconds for the entire 38-minute Release Event." R. Doc. 263 at 6. Accordingly, Mr. Hoffnagle excluded this portion of AERMOD's model from his expert report.

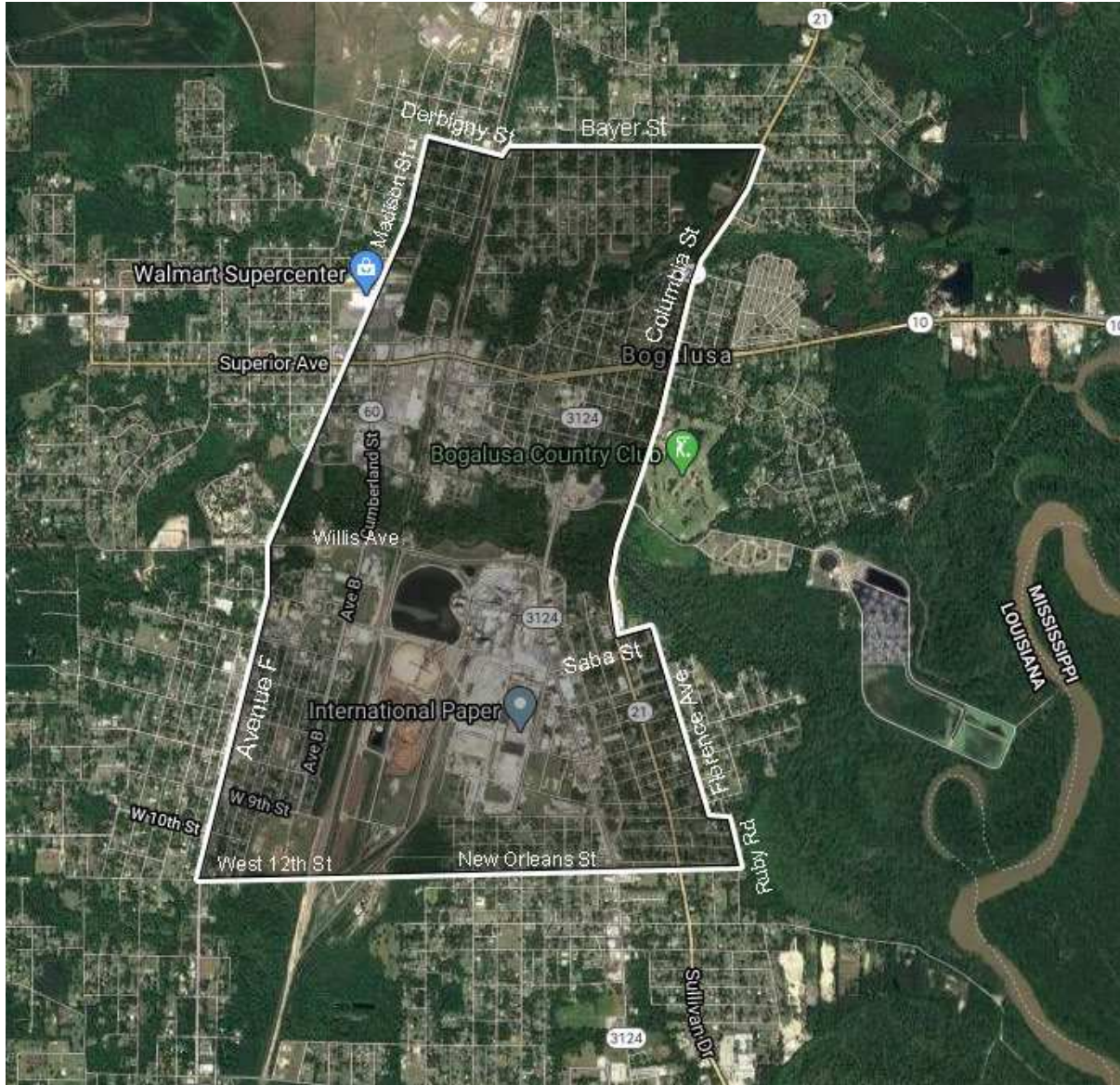
Nevertheless, the Court notes that there is evidence, from both expert and fact witnesses, that black liquor was deposited south of the mill. R. Doc. 262 at 18. Dr. Fitzpatrick, Plaintiffs' expert in atmospheric science and meteorology, testified that that at 7:13 p.m. and again at 7:15 p.m., the wind changed speed and direction, such that the plume was blown momentarily to the southeast of the evaporators. R. Doc. 262 at 19. Dr. Fitzpatrick testified about "brief moments" of winds "from the northwest, the west, southwest, southeast, and northeast." R. Doc. 262 at 19. Data from the IP weather station confirms a 180 degree change in wind direction at 7:14 p.m. that caused winds to blow from north/northwest to south/southeast. R. Doc. 262 at 20. Major Troy Tervalon testified that there was black liquor on his windshield while driving southwest of the mill, and four other witnesses filed affidavits representing that they witnessed black liquor deposition while attending a ballgame at the Avenue B ballpark southwest of the Mill at the time of the incident. R.

Doc. 262 at 20-21. The Court is not willing to discount or discredit this testimony at this stage of the litigation.

Considering the unabridged AERMOD model and the testimony of fact witnesses who were south of the third effect evaporator at the time of the release, the Court concludes that individuals who could potentially have viable claims against Defendant must have been in the area within the orange isopleth on the AERMOD model depicting deposition. R. Doc. 227-16 at 10. This area is substantially larger than the area in which airborne concentrations were at least 1 mg/m³, the maximum area in which individuals could have experienced adverse health effects. The Court recognizes that airborne concentrations, not deposition rates, are the relevant metric for physical injuries. Nevertheless, the case also involves property damage claims, R. Doc. 1-2 at 30, and nuisance claims, for which the relevant metric is clearly deposition rates. At this stage, the Court is merely trying to determine the maximum size of the class, rather than test the viability of individual claims. Accordingly, using a larger geographic footprint based on deposition rates is preferable to the smaller scope produced by considering airborne concentration alone. Therefore, the relevant geographic scope in this case can be defined by reference to streets as follows:

- Northern Boundary: Derbigny Street to Austin Street, north on Austin Street to Bayer Street, east on Bayer Street
- Eastern Boundary: Columbia Street to Saba Street, east on Saba Street to Florence Avenue, south on Florence Avenue to North Avenue, east on North Ave to Ruby Road, south on Ruby Road
- Southern Boundary: St Lewis Street to New Orleans Street to West 12th Street
- Western Boundary: Avenue F to Willis Avenue to Madison Street

These boundaries are depicted on the image below.



The Court believes that the rectangle formed by these boundaries represents the maximum area in which any plaintiff with viable claims against IP must have been located, or had property located, at the time of the release. This perimeter encompasses the area in which the deposition of black liquor were at least .01 grams per square meter. At the hearing, Defense counsel illustrated that this is the equivalent of one pushpin spread out over 100 square meters. Hearing trans. at 212:5-7. The Court concludes that this represents the maximum range in which any individual

could have suffered cognizable property damage and nuisance claims. The Court further notes that this perimeter aligns with the testimony of fact witnesses such as Major Tervalon, who testified that while he was on Avenue H between 5th and 6th Street, he “didn’t notice any [black liquor] on the street.” Hearing trans. at 329:13–19. To the extent the class definition captures individuals who were not actually harmed by the release, the parties will have the opportunity to challenge those claims at later stages in this litigation.

V. CONCLUSION

Considering the foregoing,

IT IS ORDERED that Plaintiffs’ Motions to Exclude Defendant’s Experts Gale Hoffnagle, R. Doc. 234, and Glenn Millner, R. Doc. 235, are **DENIED**.⁷

IT IS FURTHER ORDERED that Defendant’s Motion to Exclude Plaintiffs’ Expert Patrick Campbell, R. Doc. 228, is **DENIED**.⁸

IT IS FURTHER ORDERED that Defendant’s Motion to Redefine the Class Definition, R. Doc. 227, is **GRANTED** in part and **DENIED** in part.⁹ It is **GRANTED** to the extent Defendant seeks to redefine the class. It is **DENIED** with respect to the specific definition Defendant proposes.

IT IS FURTHER ORDERED that the Class Definition be redefined as:

All persons or entities who were physically present or owned property within the following boundaries on June 10, 2015 and who sustained injuries or damages as a result of the discharge of “black liquor” at the Bogalusa Paper Mill owned by the International Paper Company:

⁷ This ruling also applies to Plaintiffs’ identical Motions to Exclude Defendant’s Experts Gale Hoffnagle and Glenn Millner in *Sanders et al v. International Paper Company*, No. 16-12567, R. Docs. 168, 169, and in *Jarrell et al v. International Paper Company*, No. 16-12793, R. Docs. 177, 178.

⁸ This ruling also applies to Defendant’s identical Motions to Exclude Plaintiffs’ Expert Patrick Campbell in *Sanders et al v. International Paper Company*, No. 16-12567, R. Doc. 162, and in *Jarrell et al v. International Paper Company*, No. 16-12793, R. Doc. 171.

⁹ This ruling also applies to Defendant’s identical Motions to Redefine the Class Definition in *Sanders et al v. International Paper Company*, No. 16-12567, R. Doc. 161, and in *Jarrell et al v. International Paper Company*, No. 16-12793, R. Doc. 170.

- Northern Boundary: Derbigny Street to Austin Street, north on Austin Street to Bayer Street, east on Bayer Street
- Eastern Boundary: Columbia Street to Saba Street, east on Saba Street to Florence Avenue, south on Florence Avenue to North Avenue, east on North Ave to Ruby Road, south on Ruby Road
- Southern Boundary: St Lewis Street to New Orleans Street to West 12th Street
- Western Boundary: Avenue F to Willis Avenue to Madison Street

New Orleans, Louisiana this 9th day of March, 2020.

A handwritten signature in black ink, reading "Eldon E. Fallon". The signature is written in a cursive style with a horizontal line underneath the name.

Eldon E. Fallon
United States District Judge