***** CAPITAL CASE *****

No. _____

In The
Supreme Court of the United States

JEFFERY LEE,

PETITIONER,

V.

GREG LOVELACE, COMMISSIONER, ALABAMA DEPARTMENT OF CORRECTIONS, AND TERRY RAYBON, WARDEN, HOLMAN CORRECTIONAL FACILITY,

RESPONDENTS.

EXECUTION SCHEDULED FOR SEPTEMBER 17, 2026 AT 12 A.M. CDT TO SEPTEMBER 18, 2026 AT 6 A.M. CDT

PETITION FOR A WRIT OF CERTIORARI

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NOT FOR PUBLICATION

In the

United States Court of Appeals

For the Eleventh Circuit

No. 26-12710

JEFFERY LEE,

Plaintiff-Appellant,

versus

COMMISSIONER, ALABAMA DEPARTMENT OF CORRECTIONS,
WARDEN, HOLMAN CORRECTIONAL FACILITY,

Defendants-Appellees.

Appeal from the United States District Court
for the Middle District of Alabama
D.C. Docket No. 2:25-cv-00680-ECM

Before JORDAN, LUCK, and KIDD, Circuit Judges.

BY THE COURT:

Jeffery Lee is scheduled to be executed on September 17, 2026. He brought a successful method-of-execution lawsuit under

42 U.S.C. § 1983, permanently enjoining his execution by nitrogen hypoxia under Alabama's current protocol. Alabama now plans to execute him by lethal injection.

Mr. Lee seeks a stay of his execution. For the reasons which follow, we deny the motion for a stay.

I

In December of 1998, Mr. Lee shot and killed Jimmy Ellis and Elaine Thompson and attempted to kill Helen King during an attempted armed robbery of a pawn shop in Orville, Alabama. *See Lee v. State*, 44 So. 3d 1145, 1148–49 (Ala. Crim. App. 2009). A jury convicted Mr. Lee of capital murder and attempted murder. *See id.* at 1148. By a vote of 7 to 5, the jury recommended that Mr. Lee be sentenced to life in prison without the possibility of parole. *See id.*

The trial court overrode the jury's recommendation and sentenced Mr. Lee to death for the capital offenses. *See id.* Mr. Lee's convictions and sentence of death were affirmed on direct appeal and withstood collateral challenges. *See Lee v. State*, 898 So. 2d 790 (Ala. Crim. App. 2001); *Lee v. Comm'r, Ala. Dep't of Corr.*, 726 F.3d 1172 (11th Cir. 2013).

A

Before 2018, Alabama law authorized execution by lethal injection or electrocution. *See* Ala. Code § 15-18-82.1(a) (2017). On March 22, 2018, Alabama Governor Kay Ivey signed into law Senate Bill 272, which amended § 15-18-82.1 to include nitrogen hypoxia as an approved method of execution. Alabama took five

years to develop a protocol for executions by nitrogen hypoxia—releasing the protocol in August of 2023 and executing the first prisoner by that method in January of 2024.

In September of 2016, before nitrogen hypoxia became an approved method of execution, Mr. Lee had brought an Eighth Amendment challenge under 42 U.S.C. § 1983 to Alabama's lethal injection protocol. *See Lee v. Dunn*, No. 16-473, 2017 WL 1483530 (S.D. Ala. Apr. 24, 2017) (*Lee I*), *vacated in part*, 731 F. App'x 885 (11th Cir. 2018). But in June of 2018, Mr. Lee elected to be executed by nitrogen hypoxia while reserving his right to challenge the constitutionality of the forthcoming protocol.

Accordingly, Mr. Lee and Alabama jointly moved to dismiss his lethal injection lawsuit without prejudice. The parties represented to the district court that "[b]ecause of [Mr. Lee's] election, all claims in [Mr. Lee's] complaint [were] moot because [they] relate[d] to [Alabama's] current lethal-injection protocol." *Lee I*, No. 16-473, D.E. 37 at 2. Their motion explained that because Mr. Lee had "elected to be executed by nitrogen hypoxia, rather than lethal injection, pursuant to [§] 15-18-82.1, [Mr. Lee's] claims and causes of action [were] moot because if he is to be executed, [Alabama] will carry out that execution by nitrogen hypoxia." *Id.* at 2–3. The district court agreed that the case was moot and granted the joint motion to dismiss pursuant to Federal Rule of Civil Procedure 41(a)(1)(A)(ii). The dismissal was without prejudice.

B

In August of 2025, Mr. Lee filed this § 1983 action, challenging the nitrogen hypoxia protocol as violative of the Eighth Amendment. The district court held a three-day bench trial, at which it heard the testimony of eleven witnesses and admitted hundreds of exhibits. The court assessed the Eighth Amendment claim under the test set out in *Glossip v. Gross*, 576 U.S. 863, 877–81 (2015), which required Mr. Lee to show (1) that the challenged method of execution presents a substantial risk of severe harm—severe pain over and above death itself, and (2) that there is an alternative method that is feasible, readily implemented, and significantly reduces the risk of harm involved, which Alabama has refused to adopt. *See Lee v. Lovelace*, No. 2:25-CV-680-ECM, 2026 WL 1493098, at *12 (M.D. Ala. May 28, 2026) (*Lee II*).

The district court made extensive factual findings but ultimately concluded that Mr. Lee had not proven that the "nitrogen hypoxia execution protocol causes severe pain or suffering well beyond what's needed to effectuate a death sentence." *Id.* at *22 (internal quotation marks and citation omitted). The court declined to reach the second *Glossip* prong and did not decide whether Mr. Lee's proposed alternative—execution by firing squad—was feasible, readily implemented, or less painful. *See id.*

We reversed and held, based on the district court's factual findings, that Alabama's nitrogen hypoxia protocol presented a substantial risk of serious pain and suffering. *See Lee v. Comm'r, Ala. Dep't of Corr.*, No. 26-11864, 2026 WL 1651147, at *8 (11th Cir. June

8, 2026) (*Lee III*). We concluded that Mr. Lee had satisfied the first prong of his Eighth Amendment challenge, and remanded to the district court to address the second prong of *Glossip* based on the evidence presented at trial. *See id.* at *6–*8.

On remand, the district court concluded that Mr. Lee had shown that execution by "firing squad is feasible, readily implemented, and significantly reduces the substantial risk of serious harm posed by the [p]rotocol, and that [Alabama] failed to proffer a legitimate penological reason not to adopt it." *Lee v. Lovelace*, No. 2:25-CV-680-ECM, 2026 WL 1664095, at *1 (M.D. Ala. June 9, 2026) (*Lee IV*). Based on its conclusion that Mr. Lee satisfied the two prongs of his Eighth Amendment challenge, the court entered a permanent injunction prohibiting Alabama from executing him using the nitrogen hypoxia protocol. *See id.* at *11.

Originally, Alabama had planned to execute Mr. Lee by nitrogen hypoxia during a 30-hour time frame, beginning at midnight on Thursday, June 11, 2026, and ending at 6:00 a.m. on Friday, June 12, 2026. It sought a stay of the district court's permanent injunction to proceed with this execution date.

We denied Alabama's stay motion. *See Lee v. Comm'r, Ala. Dep't of Corr.*, No. 26-12027, 2026 WL 1741802, at *8 (11th Cir. June 10, 2026) (*Lee V*). So did the Supreme Court. *See Lovelace v. Lee*, No. 25A1381, ___ S. Ct. ___, 2026 WL 1694504, at *1 (U.S. June 11, 2026) (mem.). The parties then jointly filed a motion for voluntary dismissal of Alabama's appeal, which we granted.

C

On June 12, 2026, Alabama filed an expedited renewed motion in the Alabama Supreme Court to authorize Mr. Lee's execution by lethal injection following the entry of the permanent injunction. The Alabama Supreme Court granted Alabama's motion, and the Governor then set a 30-hour window for Mr. Lee's execution to occur, beginning at midnight on September 17, 2026, and expiring at 6 a.m. on September 18, 2026.

Mr. Lee moved the district court to amend the scope of the permanent injunction related to nitrogen hypoxia pursuant to Federal Rules of Civil Procedure 52(b) and 59(e). Mr. Lee asked the court to amend its earlier order to declare that Alabama was judicially or equitably estopped from executing him by lethal injection. He also asked the court to modify its order to remove any language suggesting that Alabama could, consistent with Alabama law, execute him by lethal injection or electrocution.

The district court denied Mr. Lee's motion. It assumed without deciding that Mr. Lee had successfully shown that the factors in *New Hampshire v. Maine*, 532 U.S. 742, 750 (2001), weighed in favor of applying judicial estoppel and that he had satisfied the equitable estoppel elements. The court then exercised its discretion to decline to estop Alabama from executing Mr. Lee by lethal injection based on the totality of the circumstances.

Mr. Lee appealed and filed an emergency motion to stay his execution by lethal injection. We address only the stay motion in this order.

II

"We review the denial of a Rule 59 motion for abuse of discretion." *Arthur v. King*, 500 F.3d 1335, 1343 (11th Cir. 2007) (citing *Drago v. Jenne*, 453 F.3d 1301, 1305 (11th Cir. 2006)). We also review a Rule 52 motion to amend the district court's findings of fact and conclusions of law for abuse of discretion. *See Trigo v. Fed. Deposit Ins. Corp.*, 847 F.2d 1499, 1504 (11th Cir. 1988). A court abuses its discretion when, for example, it commits a "clear error of judgment[.]" *United States v. Frazier*, 387 F.3d 1244, 1259 (11th Cir. 2004) (en banc) (citation omitted).

"Because judicial estoppel is an equitable doctrine, we review the district court's decision to apply the doctrine for abuse of discretion." *Slater v. U.S. Steel Corp.*, 871 F.3d 1174, 1180 n.4 (11th Cir. 2017) (en banc) (first citing *New Hampshire*, 532 U.S. at 750, and then citing *Talavera v. Sch. Bd. of Palm Beach Cnty.*, 129 F.3d 1214, 1216 (11th Cir. 1997)). Though we have cases stating that the application of equitable estoppel is subject to de novo review, *see Doe v. Garrett*, 903 F.2d 1455, 1458 (11th Cir. 1990), the parties agree that the abuse of discretion standard governs our review of the district court's order denying Mr. Lee's motion to amend the scope of the permanent injunction.

III

In deciding whether to grant a stay, we consider the following four factors:

> (1) whether the stay applicant has made a strong showing that he is likely to succeed on the merits;

> (2) whether the applicant will be irreparably injured absent a stay; (3) whether issuance of the stay will substantially injure the other parties interested in the proceeding; and (4) where the public interest lies.

Nken v. Holder, 556 U.S. 418, 426 (2009) (quoting *Hilton v. Braunskill*, 481 U.S. 770, 776 (1987)).

Mr. Lee argues that a stay is warranted because the district court abused its discretion in declining to apply the doctrines of judicial and equitable estoppel to amend its permanent injunction. He relies on the following language of the joint motion to dismiss in his lethal injection lawsuit: "Plaintiff's claims and causes of action are now moot because if he is to be executed, Defendants will carry out that execution by nitrogen hypoxia." *Lee I*, No. 16-473, D.E. 37 ¶ 6.[1]

A

Mr. Lee has not shown a substantial likelihood that the district court abused its discretion in deciding not to amend its permanent injunction. A permanent injunction entered after a bench trial must be supported by factual findings. *See* Fed. R. Civ. P. 52(a), 65(d). *Cf. Schenck v. Pro-Choice Network of W. N.Y.*, 519 U.S. 357, 394 n.4 (1997) ("*Any* injunction must be justified by the elements that support it.") (emphasis in original). As a general matter, a "remedy

[1] As things stand, Mr. Lee has not attempted to show that Alabama's lethal injection protocol violates the Eighth Amendment.

must of course be limited to the inadequacy that produced the injury in fact that the plaintiff has established." *Lewis v. Casey*, 518 U.S. 343, 357 (1996).

In his amended complaint in this case, Mr. Lee brought one § 1983 claim to "challenge[ ] the method and means by which [Alabama] intend to execute him—by nitrogen hypoxia—and [sought] declaratory and injunctive relief to prevent [Alabama] from violating the federal prohibition on cruel and unusual punishment." *Lee II*, No. 2:25-CV-680, D.E. 40 ¶ 4. He sought an injunction that would prevent the defendants from executing him "using any method other than one of the alternatives provided by his attorneys." *Id.* at 23. He did not seek any other relief specifically related to lethal injection.

In his trial brief, Mr. Lee did not indicate that he would present any evidence related to execution by lethal injection. Indeed, his witnesses' testimony referenced the availability of lethal injection as an execution method in Alabama only in passing. In his proposed findings of fact and conclusions of law, Mr. Lee did not ask the district court to make any findings related to execution by lethal injection. Nor did he propose injunctive relief related to lethal injection.

Nevertheless, after we remanded in *Lee III* for findings on the second *Glossip* prong, Mr. Lee asked the district court to prevent Alabama from executing him through any method other than those proposed by his attorneys. As the court explained, Mr. Lee wanted "to permanently enjoin [Alabama] from executing him by

nitrogen hypoxia or any other method other than firing squad." *Lee IV*, 2026 WL 1664095, at *9 (internal quotation marks omitted, emphasis omitted, and alterations adopted). It continued:

> Alabama law authorizes two other methods of execution: lethal injection and electrocution. Here, [Mr.] Lee challenged only the ADOC's nitrogen hypoxia protocol—not lethal injection or electrocution. After carefully considering traditional equitable principles, and given the [c]ourt's legal conclusions, the [c]ourt concludes that a permanent injunction should issue prohibiting [Alabama] from executing [Mr.] Lee using the [p]rotocol.

Id. (internal citations omitted).

In his motion to amend, Mr. Lee sought to relitigate that matter. But he has not shown that Rules 52 and 59 allow, much less demand, such relitigation. *See Arthur*, 500 F.3d at 1343 ("A Rule 59(e) motion cannot be used to relitigate old matters, raise argument or present evidence that could have been raised prior to the entry of judgment.") (alterations adopted, internal quotation marks and citation omitted).

B

Even if we accept the premise that a party can seek equitable post-judgment relief untethered to the facts proven at trial, Mr. Lee has not shown a substantial likelihood that the district court abused its discretion in applying the estoppel doctrines.

Mr. Lee first argues the district court erred by considering that the essential facts had changed since the joint motion to dismiss in 2018 because, in his view, his successful challenge to nitrogen hypoxia is not the type of changed circumstance which makes judicial or equitable estoppel inapplicable. He further asserts that the court abused its discretion in declining to apply equitable estoppel by focusing on whether Alabama anticipated its later change in position, rather than on the material facts that it knew at the time.

In *New Hampshire*, the Supreme Court suggested that judicial estoppel may not apply where the party's changed position was "the result of a change in facts essential to the prior judgment." 532 U.S. at 756. Mr. Lee cites only non-binding authority to support his argument that a later successful litigation position cannot constitute a change in essential facts. *See* Br. for Appellant at 18–19 (first citing *Henry v. Nationwide Ins. Co.*, No. 06-0612-CG-M, 2007 WL 9717743, at *5 (S.D. Ala. Nov. 5, 2007), and then citing *Spencer v. Annett Holdings, Inc.*, 757 F.3d 790, 797–98 (8th Cir. 2014), and arguing that both cases rejected changed circumstances argument where the later litigation position rested on facts known earlier).

The estoppel analysis in *Henry* lacks persuasive value because it relies on the precedent that we overruled in *Slater*, 871 F.3d at 1189. *See Henry*, 2007 WL 9717743, at *5. As for *Spencer*, it held that a district court, applying Iowa law, did not abuse its discretion in failing to "give enough weight to changed circumstances during the course of the litigation[.]"757 F.3d at 797. *Spencer* did not pronounce an absolute rule under federal estoppel law, and, even if it

did, the district court here would not be bound by it. *See id.* The court therefore did not unreasonably or incorrectly apply the law by concluding that the events of the intervening six years—including Alabama's development of the nitrogen hypoxia protocol and Mr. Lee's successful constitutional challenge to that protocol—constituted a change in circumstances.

The district court also did not make clearly erroneous factual determinations. First, after execution by nitrogen hypoxia became statutorily authorized in Alabama, inmates sentenced to death were given one opportunity to elect to be executed by that method. It was not unreasonable for the court to conclude that, when Alabama signed onto the joint dismissal in Mr. Lee's earlier lawsuit, it did so with the understanding that it would be able to develop a constitutional protocol and lawfully carry out Mr. Lee's death sentence. Second, the court did not have to give dispositive weight to Mr. Lee's reservation of his right to challenge the nitrogen hypoxia protocol. Instead, the court considered that Alabama understood that Mr. Lee chose execution by nitrogen hypoxia, as signified by his election, and that many of the other facts, such as the specifics of the protocol, were unknown to it at the time.

C

Finally, Mr. Lee argues that the district court erred in failing to give meaningful weight to its finding in *Lee IV* that the firing squad is a feasible and readily implemented alternative. But even Mr. Lee agrees that *Glossip*, 576 U.S. at 877, and its progeny do not

automatically entitle a prevailing plaintiff to execution by his proposed alternative method. The court considered its finding regarding the implementation of the firing squad and nevertheless concluded that Alabama is not currently prepared to use that method. That determination was likely not an abuse of discretion.

"The abuse of discretion standard allows a range of choices for the district court, so long as any choice made by the court does not constitute a clear error of judgment." *Collegiate Licensing Co. v. Am. Cas. Co. of Reading*, 713 F.3d 71, 77 (11th Cir. 2013) (citing *Manuel v. Convergys Corp.*, 430 F.3d 1132, 1135 (11th Cir. 2005)). In this case, Mr. Lee asks us to apply estoppel differently than the district court did. But Mr. Lee sought relief through an avenue where the court has considerable discretion, and absent an unreasonable conclusion, "we will not reverse . . . even if we might have reached a different decision." *Schiavo ex rel. Schindler v. Schiavo*, 403 F.3d 1223, 1226 (11th Cir. 2005) (citations omitted). *See also Slater*, 871 F.3d at 1176 (explaining that "a district court *may* [not must] apply judicial estoppel . . . if it finds that the plaintiff intended to make a mockery of the judicial system") (emphasis added); *Lengen v. Dep't of Transp.*, 903 F.2d 1464, 1468 (11th Cir. 1990) (stating that "[t]he decision regarding whether to grant equitable relief and what equitable relief to grant lies in the discretion of the trial court") (citation omitted).

We therefore conclude that Mr. Lee has not shown a substantial likelihood of success on the merits.[2]

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[2] Because we do not think that it is likely that the district court abused its discretion based on Mr. Lee's arguments on appeal, we express no opinion on

D

Although his execution is irreparable, *cf. Moody v. Warden, Holman CF*, 887 F.3d 1281, 1286 (11th Cir. 2018), Mr. Lee does not presently challenge the lethal injection protocol as unconstitutional. *See Humphreys v. Comm'r, Ga. Dep't of Corr.*, 161 F.4th 1300, 1312 (11th Cir. 2025) ("The irreversible nature of the death penalty cannot, on its own, justify a stay."). And "[b]oth the [s]tate and the victims of crime have an important interest in the timely enforcement of a sentence." *Hill v. McDonough*, 547 U.S. 573, 584 (2006) (citing *Calderon v. Thompson*, 523 U.S. 538, 556 (1998)).

On this record, the harm to Mr. Lee does not overcome his failure to demonstrate likelihood of success on the merits. And the other stay factors do not weigh heavily in his favor.

IV

Mr. Lee's motion for a stay of execution is denied.

STAY DENIED.

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the other issues raised by Alabama. For example, we do not address whether "the doctrine of equitable estoppel can be applied against the government" under these circumstances. *See Tovar-Alvarez v. U.S. Att'y Gen.*, 427 F.3d 1350, 1353–54 (11th Cir. 2005) (citation omitted).

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

JEFFERY LEE,	)	
	)	
Plaintiff,	)	
	)	
v.	)	CASE NO. 2:25-cv-680-ECM
	)	[WO]
GREG LOVELACE, Commissioner,	)	
Alabama Department of Corrections, *et al.*,	)	
	)	
Defendants.	)	

MEMORANDUM OPINION and ORDER

I. INTRODUCTION

On June 9, 2026, following remand from the United States Court of Appeals for the Eleventh Circuit, this Court declared that the Alabama Department of Corrections' ("ADOC") nitrogen hypoxia execution protocol ("Protocol") facially violates the Eighth Amendment and permanently enjoined the State[1] from executing Plaintiff Jeffery Lee ("Lee") using the Protocol. *Lee v. Lovelace*, 2026 WL 1664095 (M.D. Ala. June 9, 2026); (docs. 187, 188). Now pending before the Court is Lee's motion to amend pursuant to Rules 52(b) and 59(e) of the Federal Rules of Civil Procedure, in which Lee requests that the Court amend the scope of the injunctive relief in its Opinion and Final Judgment. (Doc.

[1] Because the Defendants are state officials sued in their official capacities, this Opinion refers to them as "the State."

204). The motion is fully briefed and ripe for review. After careful consideration, and for the following reasons, the Court concludes that Lee's motion is due to be denied.

II. LEGAL STANDARDS

Under Rule 59(e), a party may seek to alter or amend a judgment only on the basis of "newly-discovered evidence or manifest errors of law or fact." *Jacobs v. Tempur-Pedic Int'l, Inc.*, 626 F.3d 1327, 1344 (11th Cir. 2010) (quoting *Arthur v. King*, 500 F.3d 1335, 1343 (11th Cir. 2007) (per curiam)). "The decision to alter or amend a judgment is committed to the sound discretion of the district court." *Drago v. Jenne*, 453 F.3d 1301, 1305 (11th Cir. 2006) (citing *Lockard v. Equifax, Inc.*, 163 F.3d 1259, 1267 (11th Cir. 1998)). "A party moving the court to alter or amend its judgment pursuant to Rule 59(e) faces an extremely heavy burden." *Scharff v. Wyeth*, 2012 WL 3149248, at *1 (M.D. Ala. 2012).[2]

Rule 52(b) further provides that "the court may amend its findings—or make additional findings—and may amend the judgment accordingly." Rule 52(b) has a "limited scope," *Johnson v. New Destiny Christian Ctr. Church, Inc.*, 771 F. App'x 991, 995 n.5 (11th Cir. 2019) (per curiam), which is "to correct manifest errors of law or fact or, in some limited situations, to present newly discovered evidence," *Fontenot v. Mesa Petrol. Co.*, 791 F.2d 1207, 1219 (5th Cir. 1986); *see also Johnson*, 771 F. App'x at 995 n.5 (citing this language from *Fontenot* with approval).

[2] Here, and elsewhere in this Opinion, the Court cites nonbinding authority. While the Court acknowledges that these cases are nonprecedential, the Court finds them persuasive.

III. BACKGROUND

The Court summarized the relevant procedural history and background in detail in its May 28, 2026 Memorandum Opinion and Order, (doc. 176), and does not repeat it here. The Court sets forth below the background relevant to resolving Lee's motion to amend.

In 2016, Lee filed suit in the United States District Court for the Southern District of Alabama challenging the ADOC's lethal injection protocol, arguing that it violated the Eighth Amendment. *Lee v. Dunn*, 2017 WL 1483530, at *1 (S.D. Ala. Apr. 24, 2017), *vacated in part by Lee v. Comm'r, Ala. Dep't of Corr.*, 731 F. App'x 885 (11th Cir. 2018) (per curiam). In 2018, Lee elected to be executed by nitrogen hypoxia, (doc. 204-3), pursuant to the Alabama Legislature's adoption of nitrogen hypoxia as an execution method and the procedure by which an inmate may elect execution by nitrogen hypoxia, *see* ALA. CODE § 15-18-82.1.[3] Thereafter, the parties moved to dismiss Lee's lethal injection challenge as moot. (Doc. 204-4). The court granted the motion and dismissed the action without prejudice. (Doc. 204-2). The court's order recounts the parties' joint representation that Lee's "'claims and causes of action are now moot because if he is to be executed, [the State] will carry out that execution by nitrogen hypoxia,' not the three-drug lethal injection protocol at issue in this litigation." (*Id.*). Further, the court agreed that the action was moot. (*Id.*). As explained further below, the circumstances surrounding the

[3] Lethal injection remains the default method of execution. *See* ALA. CODE § 15-18-82.1 ("A death sentence shall be executed by lethal injection, unless the person sentenced to death affirmatively elects to be executed by electrocution or nitrogen hypoxia.").

dismissal of Lee's lethal injection lawsuit are a substantial basis for Lee's motion to amend the judgment.

On August 22, 2025, Lee filed a method of execution challenge to the ADOC's nitrogen hypoxia protocol, naming as Defendants John Q. Hamm ("Hamm"), then-Commissioner of the ADOC,[4] and Terry Raybon, the Warden of Holman, in their official capacities. (Doc. 1). At trial, Lee's sole claim was that the Protocol facially violates the Eighth Amendment, (doc. 40 (operative complaint)), and his proposed alternative method of execution was the firing squad, (*id.* at 20–22; *see also* doc. 98). Lee sought a declaration that the Protocol is unconstitutional and an injunction prohibiting the ADOC from executing him by nitrogen hypoxia or "any method other than one of the alternatives provided by his attorneys." (Doc. 40 at 23). As stated above, the Court declared that the Protocol facially violates the Eighth Amendment, but it did not grant the permanent injunctive relief sought by Lee. Instead, "[a]fter carefully considering traditional equitable principles," the Court permanently enjoined the State from executing him using the Protocol. *Lee*, 2026 WL 1664095, at *9. But because Lee had not established that Alabama's other statutorily authorized execution methods—lethal injection and electrocution—violate the Eighth Amendment, the Court concluded that he was not entitled to an injunction prohibiting the State from executing him using one of those methods. *Id.*

[4] While this case was pending, Hamm retired from his position as Commissioner of the ADOC. (*See* doc. 144 at 1). On May 1, 2026, Greg Lovelace became the Commissioner of the ADOC and was substituted as a named Defendant pursuant to Federal Rule of Civil Procedure 25(d). (*Id.*).

IV. DISCUSSION

Lee argues that the Court should amend the scope of its injunctive relief to provide that the State is judicially and/or equitably estopped from executing him by lethal injection; and to remove any language from the Court's Opinion indicating that he may be executed by lethal injection or electrocution because, according to him, Alabama law forecloses those options for him. Lee submits that this relief is warranted pursuant to Rule 59(e) to prevent a manifest injustice.[5]

Lee first contends that the State should be estopped from executing him by lethal injection because the Southern District of Alabama dismissed his lethal injection lawsuit after the parties jointly represented that the State would execute him by nitrogen hypoxia and not by lethal injection. He further claims that when he dismissed his lethal injection lawsuit, he reasonably relied on the State's representation that it would execute him by nitrogen hypoxia, and that he will face an unfair detriment if the State is not estopped from executing him by lethal injection. Lee next argues that Alabama Code § 15-18-82.1 does

[5] Several district courts in the Eleventh Circuit have stated that Rule 59(e) relief is available to prevent or correct a "manifest injustice." *See, e.g.*, *Griffith v. Toscano*, 2026 WL 1309051, at *2 (S.D. Fla. May 14, 2026); *McCall v. Mitchem*, 2012 WL 2946268, at *1 (S.D. Ala. July 19, 2012); *Jacobs v. Elec. Data Sys. Corp.*, 240 F.R.D. 595, 599 (M.D. Ala. 2007). However, the Court was unable to locate any published decisions in which the Eleventh Circuit has recognized that preventing a manifest injustice is a basis for Rule 59(e) relief. Instead, the Eleventh Circuit has stated that Rule 59(e) authorizes a court to alter or amend a judgment *only* on the basis of "newly-discovered evidence or manifest errors of law or fact." *Jacobs*, 626 F.3d at 1344 (stating that the "only grounds for granting [a Rule 59] motion are newly-discovered evidence or manifest errors of law or fact" (alteration in original) (quoting *Arthur*, 500 F.3d at 1343)). Nonetheless, even if the Court assumes that Rule 59(e) relief is available under Lee's theory, and even if Lee had argued that Rule 59(e) relief was warranted based on a manifest error of law or on other grounds expressly recognized by the Eleventh Circuit, it would not change the Court's conclusion that he has not established entitlement to relief.

not permit the State to execute him by lethal injection or electrocution because his election for execution by nitrogen hypoxia is still in force, and that under Alabama law, the State therefore may only execute him by nitrogen hypoxia. The State responds that estoppel should not apply under these circumstances; and that Lee's arguments concerning Alabama's execution statutes fail because this Court lacks the authority to instruct state officials to comply with state law, and in any event, that Alabama law permits the ADOC to execute Lee by lethal injection or electrocution.

The Court begins with Lee's estoppel arguments, which the Court addresses together, before addressing his arguments about Alabama's execution statutes.

A. Estoppel

Judicial estoppel is an equitable doctrine whose purpose is "'to protect the integrity of the judicial process' by 'prohibiting parties from deliberately changing positions according to the exigencies of the moment.'" *New Hampshire v. Maine*, 532 U.S. 742, 749–50 (2001) (citations omitted). Where, as here, the party seeking to apply judicial estoppel—Lee—was a party to the prior case, the Court evaluates the propriety of estoppel based on the considerations the Supreme Court outlined in *New Hampshire*. *See United States v. Munoz*, 112 F.4th 923, 934 (11th Cir. 2024) (explaining that the Eleventh Circuit applies "the *New Hampshire* test" when "the party seeking to apply judicial estoppel . . . was a party to the prior lawsuit in which [the other party] had taken an

inconsistent position" (alterations in original) (quoting *Slater v. U.S. Steel Corp.*, 871 F.3d 1174, 1182 (11th Cir. 2017) (en banc))).[6]

In determining whether to apply judicial estoppel, courts typically consider (1) whether the party's later position is "clearly inconsistent" with its earlier position; (2) "whether the party has succeeded in persuading a court to accept that party's earlier position, so that judicial acceptance of an inconsistent position in a later proceeding would create 'the perception that either the first or the second court was misled'"; and (3) "whether the party seeking to assert an inconsistent position would derive an unfair advantage or impose an unfair detriment on the opposing party if not estopped." *New Hampshire*, 532 U.S. at 750–51 (citations omitted). However, these factors do not amount to "inflexible prerequisites or an exhaustive formula for determining the applicability of judicial estoppel." *Id.* at 751. Moreover, "[b]ecause the rule is intended to prevent '*improper* use of judicial machinery,' judicial estoppel 'is an equitable doctrine invoked

[6] When "the party seeking to invoke judicial estoppel was not a party to the [prior] case," the Eleventh Circuit applies the two-part test laid out in its *en banc* decision in *Slater*: "the party 'took an inconsistent position under oath in a separate proceeding' and the 'inconsistent positions were calculated to make a mockery of the judicial system.'" *Munoz*, 112 F.4th at 935 (quoting *Slater*, 871 F.3d at 1181). Although the parties analyze judicial estoppel under *Slater*'s two-part test, the Court concludes that *New Hampshire* is the appropriate analytical framework under these circumstances. *See United States v. Holland*, 117 F.4th 1352, 1360 (11th Cir. 2024) (explaining that parties "cannot waive [or forfeit] the application of the correct law or stipulate to an incorrect legal test" (alteration in original) (quoting *United States v. Dawson*, 64 F.4th 1227, 1239 (11th Cir. 2023))).

Even if the Court analyzed judicial estoppel using *Slater*'s two-part test, it would not change the Court's conclusion. Applying *Slater*'s two-part test requires courts to consider "all the facts and circumstances in determining whether the [party] acted with the intent to make a mockery of the judicial system." *Slater*, 871 F.3d at 1180. And as stated below, the *New Hampshire* test is flexible. Thus, any difference between the *Slater* and *New Hampshire* tests may be more apparent than real. Further, as stated below, "judicial estoppel 'is an equitable doctrine invoked by a court at its discretion,'" *New Hampshire*, 532 U.S. at 750, and the Court in its discretion declines to apply it here.

by a court at its discretion[.]'" *Id.* at 750 (emphasis added) (citations omitted); *see also Slater*, 871 F.3d at 1180 ("[A] district court *may* apply judicial estoppel when [the applicable] test is satisfied." (emphasis added)). And "ordinarily the doctrine of estoppel or that part of it which precludes inconsistent positions in judicial proceedings is not applied to states." *Illinois ex rel. Gordon v. Campbell*, 329 U.S. 362, 369 (1946).[7] The Supreme Court has acknowledged that "broad interests of public policy may make it important to allow a change of positions that might seem inappropriate as a matter of merely private interests." *New Hampshire*, 532 U.S. at 755 (citation omitted).

Equitable estoppel is similarly "an equitable doctrine invoked to avoid injustice in particular cases." *Heckler v. Cmty. Health Servs. of Crawford Cnty., Inc.*, 467 U.S. 51, 59 (1984). Equitable estoppel comprises the following five elements:

> (1) the party to be estopped misrepresented material facts; (2) the party to be estopped was aware of the true facts; (3) the party to be estopped intended that the misrepresentation be acted on or had reason to believe the party asserting the estoppel would rely on it; (4) the party asserting the estoppel did not know, nor should it have known, the true facts; and (5) the party asserting the estoppel reasonably and detrimentally relied on the misrepresentation.

Busby v. JRHBW Realty, Inc., 513 F.3d 1314, 1326 (11th Cir. 2008) (citation omitted).

[7] In *New Hampshire*, the Supreme Court applied judicial estoppel to the State of New Hampshire, explaining that the case was not one "where estoppel would compromise a governmental interest in enforcing the law," or where the change in position was "the result of a change in public policy" or "the result of a change in facts essential to the prior judgment"; instead, it was "a case between two States, in which each owes the other a full measure of respect." 532 U.S. at 755–56 (citation omitted).

Assuming without deciding that Lee has successfully shown that the *New Hampshire* factors counsel in favor of applying judicial estoppel or that he has satisfied the equitable estoppel elements, which the Court doubts,[8] the Court in its discretion declines to estop the State from executing Lee by lethal injection under the circumstances of this case. First, the change in the State's position is a result of a change in essential facts. *See New Hampshire*, 532 U.S. at 756. In 2018, when the State represented to the Southern District of Alabama that it would execute Lee by nitrogen hypoxia and not by lethal injection, Lee wanted to be executed by nitrogen hypoxia, as signified by his election. These facts were essential to the Southern District of Alabama's dismissal of Lee's lethal injection lawsuit as moot. When the ADOC later released its nitrogen hypoxia execution protocol, however, Lee challenged it in this Court, and he ultimately won a declaration that the Protocol is facially unconstitutional and a permanent injunction prohibiting his execution using the Protocol—the ADOC's sole protocol for carrying out nitrogen hypoxia

[8] Regarding judicial estoppel, for example, the Court doubts whether Lee could show that the State's position would impose an unfair detriment on him. He argues that he faces an unfair detriment because it would be "impracticable" for him to revive his lethal injection lawsuit in the Southern District. However, he does not elaborate on why it would be impracticable to do so. The Court expresses no view as to whether such a showing would be sufficient to establish an unfair detriment. But the lack of such showing underscores the Court's doubt that Lee could show he would suffer an unfair detriment.

And regarding equitable estoppel, the Court doubts Lee could show that the State misrepresented material facts—that it would execute Lee by nitrogen hypoxia and not lethal injection—or that it was aware of the true facts—that it would seek to execute Lee by lethal injection. Nothing before the Court suggests that, in June 2018, the State misrepresented that it would execute Lee by nitrogen hypoxia and not lethal injection. To the contrary, the record suggests that intervening events—Lee's subsequent challenge to the Protocol, the Court's declaration that the Protocol is unconstitutional, and the Court's permanent injunction prohibiting the State from executing Lee using the Protocol—have caused the State's later actions to deviate from its prior intentions.

executions. It was only after these developments that the State decided to pursue Lee's execution by lethal injection. Under these circumstances, the change in the State's position is attributable to a change in essential facts and does not amount to an "improper use of the judicial machinery," *see New Hampshire*, 532 U.S. at 750 (citation omitted), thereby counseling against the application of estoppel.

This case's procedural posture also informs the Court's discretionary decision not to apply estoppel. Lee invokes equitable doctrines as grounds for modification of the Court's permanent injunction, which is itself an equitable remedy. *See eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006). But Lee's interests are not the only interests at stake here. "[E]quity must [also] be sensitive to the State's strong interest in enforcing its criminal judgments without undue interference from the federal courts." *Hill v. McDonough*, 547 U.S. 573, 584 (2006) (stating this proposition in the context of a request for a stay of execution); *see also eBay Inc.*, 547 U.S. at 391 (explaining that a plaintiff seeking a permanent injunction must show (1) irreparable injury; (2) that "remedies available at law, such as monetary damages, are inadequate to compensate for that injury"; (3) that an equitable remedy is warranted "considering the balance of hardships between the plaintiff and defendant[s]"; and (4) that "the public interest would not be disserved by a permanent injunction"); *Angel Flight of Ga., Inc. v. Angel Flight Am., Inc.*, 522 F.3d 1200, 1208 (11th Cir. 2008) (same). The victims of Lee's crimes also have "an important interest in the timely enforcement of [his] sentence." *See Hill*, 547 U.S. at 584.

Here, Lee sought a permanent injunction prohibiting the ADOC from executing him by nitrogen hypoxia or "any method other than one of the alternatives provided by his attorneys," (doc. 40 at 23), which functionally was a request that he not be executed "by any method other than firing squad," (*see* doc. 185 at 1). After balancing the hardships between Lee and the State and considering the public interest, however, the Court concluded that a narrow permanent injunction prohibiting the State from executing Lee using the nitrogen hypoxia protocol was appropriate. *Lee*, 2026 WL 1664095, at *9. As the Court explained, this permanent injunction was narrowly tailored to remedy the specific harm at issue: that the Protocol violates the Eighth Amendment. *Id.* at *9 n.15. Moreover, the injunction entered by the Court would not further delay the State in carrying out Lee's lawfully imposed death sentence.

The need to avoid further delay is particularly salient here given Lee's litigation history. While his lethal injection lawsuit was pending, Lee elected execution by nitrogen hypoxia as provided by Alabama statute. Because the ADOC did not at that time have a nitrogen hypoxia protocol, Lee's election had the practical effect of delaying his execution until such protocol was adopted. In this challenge to the ADOC's nitrogen hypoxia protocol, Lee's proposed alternative method of execution was the firing squad, and he requested a permanent injunction prohibiting his execution by any means other than the firing squad. If the Court had granted his request, it would have had the practical effect of further delaying his execution because the ADOC is not currently prepared to use the firing

squad.[9] Now that the State has announced its intention to execute him by lethal injection, Lee claims that the State can only execute him by nitrogen hypoxia, just not using the existing protocol. If Lee were correct, it would also have the practical effect of delaying his execution because the ADOC would need time to develop a new nitrogen hypoxia protocol. Considering the totality of the circumstances, including the circumstances of the dismissal of Lee's lethal injection challenge, equity does not demand that the Court prohibit the State from executing Lee by lethal injection, the State's default execution method and one which it is presently able to use. For these reasons, the Court in its discretion declines to apply judicial estoppel.

To be sure, Lee successfully established that the ADOC's nitrogen hypoxia protocol is facially unconstitutional, and a permanent injunction prohibiting his execution using the unconstitutional Protocol was and remains appropriate. But balancing all of the equities, including the State's and the victims' interests in the enforcement of Lee's sentence, the broader, modified injunction Lee now seeks is not warranted. Consequently, the Court concludes that Lee has not established entitlement to amendment of the Court's injunction under Rules 52(b) or 59(e) on the basis of estoppel.

[9] The Court reiterates that, for the reasons explained in further detail in its June 9 Opinion, firing squad is feasible and readily implemented notwithstanding this delay. *See Lee*, 2026 WL 1664095, at *5.

B. Whether Alabama Code § 15-18-82.1 Prohibits Lee's Execution by Lethal Injection or Electrocution

Lee further argues that, because he timely elected execution by nitrogen hypoxia pursuant to Alabama Code § 15-18-82.1, Alabama law prohibits the State from executing him by lethal injection or electrocution. He thus requests that the Court remove from its Opinion "any and all language suggesting that the State may, consistent with Alabama Code § 15-18-82.1, execute [him] by lethal injection or electrocution." (Doc. 204 at 23, para. 3). The State counters that this ground for relief is barred pursuant to *Pennhurst State School & Hospital v. Halderman*, 465 U.S. 89 (1984). The Court agrees with the State.

The Eleventh Amendment prohibits suits against a state, including those brought by a state's own citizens. *Pennhurst*, 465 U.S. at 97–99. The Supreme Court has explained that "the principle of sovereign immunity" embodied in the Eleventh Amendment, which is rooted in principles of federalism and state sovereignty, "is a constitutional limitation on the federal judicial power established in" Article III. *Id.* at 98. But notwithstanding a state's sovereign immunity, a suit for declaratory or injunctive relief against a state official may be permitted under *Ex parte Young*, 209 U.S. 123 (1908), where the court is asked to instruct a state official to comply with federal law, because requiring compliance with federal law is not offensive to state sovereignty or federalism. *See id.* at 160 ("The State has no power to impart to [state officials] any immunity from responsibility to the supreme authority of the United States."). On the other hand, "it is difficult to think of a greater intrusion on state sovereignty than when a federal court instructs state officials on how to

conform their conduct to state law." *Pennhurst*, 465 U.S. at 106 ("A federal court's grant of relief against state officials on the basis of state law . . . does not vindicate the supreme authority of federal law."). To that end, "federal courts do not have the authority to compel state actors to comply with state law." *Doe v. Bush*, 261 F.3d 1037, 1055 (11th Cir. 2001); *see also Pennhurst*, 465 U.S. at 106, 121. This rule applies equally to a request for a declaration that state officials' conduct violates state law. *See Leeds v. Bd. of Dental Exam'rs of Ala.*, 382 F. Supp. 3d 1214, 1230 (N.D. Ala. 2019), *vacated in part on other grounds*, 2019 WL 1696845 (N.D. Ala. Apr. 17, 2019); *see also Silver v. Baggiano*, 804 F.2d 1211, 1213–15 (11th Cir. 1986) (in suit against state official seeking both declaratory and injunctive relief for violations of state law, concluding that all claims based on state law were barred by the Eleventh Amendment), *abrogated in part on other grounds*, *Lapides v. Bd. of Regents of Univ. Sys. of Ga.*, 535 U.S. 613 (2002).

As stated above, Lee asks the Court to remove from its Opinion "any and all language suggesting that the State may, *consistent with Alabama Code § 15-18-82.1*, execute [him] by lethal injection or electrocution." (Doc. 204 at 23, para. 3 (emphasis added)).[10] The premise of Lee's argument is that, because he elected nitrogen hypoxia, neither lethal injection nor electrocution is an available execution method under Alabama law. He plainly does not request relief on the basis that executing him by lethal injection or electrocution would violate *federal* law. Instead, he requests relief pursuant to state law

[10] For purposes of this analysis, the Court need not, and does not, determine whether Lee's interpretation of state law is correct. *See Oneida Cnty. v. Oneida Indian Nation of N.Y. State*, 470 U.S. 226, 252 (1985) ("The Eleventh Amendment bar does not vary with the merits of the claims pressed against the State.").

because, according to him, state law requires it. Granting Lee the relief he seeks would, in substance, require this Court to determine that the State's actions violate state law and to order the State to comply with state law, which the Court lacks the authority to do. *See Doe*, 261 F.3d at 1055; *Silver*, 804 F.2d at 1213–15. It does not matter that Lee neither brings a formal claim for a violation of Alabama Code § 15-18-82.1 nor formally seeks an injunction for the State to comply with state law; his "requested relief is disguised . . . to achieve that aim." *See Ford v. Strange*, 2013 WL 6804193, at *8 (M.D. Ala. Dec. 23, 2013); *cf. Brown v. Ga. Dep't of Rev.*, 881 F.2d 1018, 1023 (11th Cir. 1989) ("Under *Pennhurst*, . . . the determinative question is not the relief ordered, but whether the relief was ordered pursuant to state or federal law."). The "gravamen" of his requested relief is that the State "has improperly interpreted and failed to adhere to a state statute governing" execution methods, *see DeKalb Cnty. Sch. Dist. v. Schrenko*, 109 F.3d 680, 688 (11th Cir. 1997) (per curiam), and the Eleventh Amendment plainly bars such relief. For these reasons, Lee's arguments concerning Alabama Code § 15-18-82.1 do not supply grounds for amending the Court's injunction under Rules 52(b) or 59(e). Consequently, the Court concludes that Lee's motion to amend is due to be denied.

V. CONCLUSION

Accordingly, for the reasons stated, it is

ORDERED that Lee's motion to amend (doc. 204) is DENIED.

DONE this 22nd day of July, 2026.

/s/ Emily C. Marks
EMILY C. MARKS
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

JEFFERY LEE,	)	
	)	
Plaintiff,	)	
	)	
v.	)	CASE NO. 2:25-cv-680-ECM
	)	[WO]
GREG LOVELACE, Commissioner,	)	
Alabama Department of Corrections, *et al.*,	)	
	)	
Defendants.	)	

MEMORANDUM OPINION and ORDER

I. INTRODUCTION

This case is before the Court on remand from the United States Court of Appeals for the Eleventh Circuit to address whether Plaintiff Jeffery Lee's ("Lee") proposed alternative method of execution—firing squad—is feasible, is readily implemented, and significantly reduces the substantial risk of serious harm caused by the Alabama Department of Corrections' ("ADOC") nitrogen hypoxia protocol (the "Protocol"). *See generally Lee v. Comm'r, Ala. Dep't of Corr.*, 2026 WL 1651147 (11th Cir. June 8, 2026) (per curiam).

After a three-day bench trial, the Court found that the Protocol causes one to three minutes of severe air hunger but ultimately concluded that the Protocol did not constitute cruel and unusual punishment in violation of the Eighth Amendment. *Lee v. Lovelace*, 2026 WL 1493098, at *24–25 (M.D. Ala. May 28, 2026). The Eleventh Circuit disagreed and concluded that the Protocol causes "a substantial risk of serious harm." *Lee*, 2026 WL

1651147, at *8. The Eleventh Circuit remanded with explicit instructions to immediately address whether Lee's proposed alternative method significantly reduces that substantial risk of serious harm. *Id.* Following the issuance of the Eleventh Circuit's mandate, Lee moved this Court to enter judgment in his favor or, in the alternative, to stay his execution. (Doc. 185). The State opposes that motion.[1] (Doc. 186). On this record, and given the Eleventh Circuit's legal conclusion that the Protocol poses an unconstitutional risk of pain, the Court finds that Lee has shown by a preponderance of the evidence that firing squad is feasible, readily implemented, and significantly reduces the substantial risk of serious harm posed by the Protocol, and that the State failed to proffer a legitimate penological reason not to adopt it. Accordingly, the Court enters judgment in Lee's favor and denies his motion to stay his execution as moot.

II. JURISDICTION AND VENUE

The Court has original subject matter jurisdiction over this case pursuant to 28 U.S.C. § 1331. Personal jurisdiction and venue are uncontested, and the Court concludes that venue properly lies in the Middle District of Alabama. *See* 28 U.S.C. § 1391.

III. PROCEDURAL HISTORY AND BACKGROUND

The Court summarized the relevant procedural history and background in its May 28, 2026 Memorandum Opinion and Order, *see Lee*, 2026 WL 1493098, and does not repeat it here. The Court sets forth below the relevant evidence presented at trial regarding

[1] Because the Defendants are state officials sued in their official capacities, the Court refers to them as the State.

Lee's proposed firing squad alternative, in particular Dr. James Williams' ("Dr. Williams") expert testimony.[2]

A. Firing Squad

Five states—including Utah—authorize execution by firing squad.[3] At trial, Lee introduced Utah's and the United States Army's ("U.S. Army") firing squad protocols into evidence.[4] (*See* doc. 173-46 (Utah's protocol); doc. 174-35 (U.S. Army protocol)). Lee's proposal largely tracks Utah's firing squad protocol, which was used as recently as 2010.[5] (*Compare* doc. 40 at 20–22, paras. 70–72, *with* doc. 173-46 at 55, 89–92); *see Boyd v. Warden, Holman Corr. Facility*, 856 F.3d 853, 881 n.4 (11th Cir. 2015) (Wilson, J., concurring) (taking judicial notice of the fact that Utah executed Kirk Johnson by firing squad in 2010). Below, the Court summarizes how Lee's proposed alternative would proceed.

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[2] As discussed below, the Court also heard testimony from various ADOC employees, including former-Commissioner John Q. Hamm ("Hamm"), Deputy Commissioner Charles Williams ("Charles Williams"), and Warden Terry Raybon ("Raybon") regarding Lee's proposed firing squad protocol and whether the ADOC could feasibly and readily implement such a protocol.

[3] The other four states are Idaho, Mississippi, Oklahoma, and South Carolina. *See* IDAHO CODE § 19-2716; MISS. CODE § 99-19-51; OKLA. STAT. tit. 22, § 1014; S.C. CODE § 24-3-530. Lee's proposed alternative and Dr. Williams' expert opinion do not rely on the Idaho, Mississippi, Oklahoma, or South Carolina protocols.

[4] The Court pretermits discussion of the U.S. Army protocol because Lee's expert and proposed supplemental findings of fact rely heavily on Utah's protocol. (*See* doc. 173-40 at 16–21 (Dr. Williams' expert report); doc. 147 at 49:9–12 (Dr. Williams' trial testimony ("I rely heavily on the Utah state protocol for executions.")); doc. 167-1 at 36, para. 76) (Lee's proposed supplemental findings of fact)).

[5] Lee introduced a redacted copy of Utah's firing squad protocol into evidence at trial. (*See* doc. 173-46).

First, a member of the execution team would restrain the condemned inmate to a chair placed "between stacked sandbags." (Doc. 40 at 20, para. 71). Next, an execution team member would place a hood over the inmate's head and a target over his heart. (*Id.*). The firing squad team leader would then direct the execution team to stand at attention twenty-one feet from the condemned inmate. (*Id.* at 21, para. 72). Five trained marksmen armed with .30-caliber rifles would take aim and fire. (*Id.*). If, after the first volley, the condemned "is obviously conscious," the warden "shall immediately instruct the firing squad team leader to prepare the weapons and fire again." (Doc. 40 at 21–22, para. 72; *see also* doc. 173-46 (Utah's protocol)).

B. Dr. James Williams

Dr. Williams is an emergency physician, and much of his practice involves treating patients injured by gunshot wounds. (Doc. 147 at 5:21–6:8). At trial, he was accepted as an expert in emergency and family medicine, gunshot wounds, firearms, and ballistics. (*Id.* at 8:6–12). Dr. Williams testified to a reasonable degree of medical certainty that execution by firing squad: (1) causes a quick and painless death; and (2) is feasible and readily implemented. (*Id.* at 8:15–23). His opinion that firing squad causes a quick and painless death is based on scientific literature, his clinical experience treating gunshot victims in the emergency room, and his own experience being shot. (*Id.* at 27:16–28:7 (clinical experience); *id.* at 30:1–17 (personal experience); *id.* at 36:10–11, 37:16–24 (scientific literature); *see also* docs. 173-55, 173-90).

Dr. Williams opines that an execution by firing squad directed at the cardiac bundle[6]—the area of the body that includes the heart and great vessels—will very likely cause immediate disruption of blood flow to the brain, resulting in loss of consciousness within three to five seconds and death shortly thereafter. (Doc. 147 at 31:18–32:10, 36:15–37:9). Dr. Williams further opines that an inmate shot in the heart is unlikely to feel pain in the three to five seconds before he loses consciousness. (*Id.* at 18:7–15, 29:1–3). He bases this opinion on two related phenomena: (1) the delay in the brain's processing of novel stimuli into a subjective experience such as pain; and (2) the effects of "neural stunning." (*Id.* at 15:1–26:25). Dr. Williams testified that the 2025 firing squad execution of Mikal Mahdi ("Mahdi")[7] in South Carolina does not change his opinions because it was one purportedly botched execution out of forty-six firing squad executions in the United States since 1860. (Doc. 147 at 69:23–70:4, 71:7–18, 106:18–19).[8]

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[6] For simplicity, this Opinion will refer to the cardiac bundle as the "heart" with the understanding that it also includes the great vessels.

[7] Pathologists have opined that the riflemen largely missed Mahdi's heart and that Mahdi remained conscious for approximately thirty to sixty seconds after he was shot. (*See* doc. 147 at 103:16–25, 104:15–25 (Dr. Williams' testimony); doc. 173-189 at 7).

[8] On cross-examination, the State questioned Dr. Williams regarding Mahdi's firing squad execution. (*See generally* doc. 147 at 88:13–104:9). During his testimony, Dr. Williams revealed that he is "currently retained by counsel for Mr. Mahdi and his estate" as a consulting expert for a potential lawsuit. (*Id.* at 75:4–7, 84:9–15). Dr. Williams has not been paid for his services and does not expect to be paid unless and until a lawsuit is filed, which had not occurred at the time of trial. (*Id.* at 84:7–8, 122:7–19). Although best practices counsel in favor of disclosing potential conflicts, any prejudice to the State was ameliorated through vigorous cross-examination and probing questions regarding Dr. Williams' potential bias. (*See, e.g.*, *id.* at 122:7–123:23). As noted above, Lee did not offer South Carolina's protocol as his proposed alternative. (*See, e.g.,* doc. 147 at 53:6–54:2 (Dr. Williams' testimony that there are significant differences between South Carolina's firing squad protocol and Utah's that renders South Carolina's protocol inferior)). The Court denied the State's oral motion to strike Dr. Williams' testimony. (*See id.* at 75:14–18, 78:23–79:2). Having personally observed Dr. Williams' testimony, the Court further finds that he was credible.

Dr. Williams further opines that execution by firing squad is feasible and can be readily implemented by the ADOC. (*See* doc. 147 at 55:22–56:3). He explains that a firing squad execution can either be done outdoors or indoors, as in Utah, (*id.* at 54:5–8), and that the weapons and materials required to conduct firing squad executions indoors—including .30-caliber rifles, sandbags, and steel plates—are "[v]ery commonly available," (*see, e.g.*, *id.* at 50:21–51:1, 54:8–55:18).

IV. LEGAL STANDARDS

A. Bench Trial

"In an action tried on the facts without a jury . . . the court must find the facts specially and state its conclusions of law separately." FED. R. CIV. P. 52(a)(1). In a bench trial, "it is the exclusive province of the judge . . . to assess the credibility of witnesses and to assign weight to their testimony." *Childrey v. Bennett*, 997 F.2d 830, 834 (11th Cir. 1993); *see also Sidman v. Travelers Cas. & Sur.*, 841 F.3d 1197, 1201 (11th Cir. 2016) (explaining, in the bench trial context, that "the district court has the advantage of observing the witnesses and evaluating their credibility firsthand," and that "[t]he credibility of a witness is in the province of the factfinder" (alteration in original) (first quoting *Fischer v. S/Y NERAIDA*, 508 F.3d 586, 592 (11th Cir. 2007), then quoting *Crystal Ent. & Filmworks, Inc. v. Jurado*, 643 F.3d 1313, 1320 (11th Cir. 2011))). Additionally,

"[a] trial judge sitting without jury is entitled to great latitude concerning the admission or exclusion of evidence." *Wright v. Sw. Bank*, 554 F.2d 661, 663 (5th Cir. 1977).[9]

B. Method of Execution Claims

To prevail on his method of execution claim, Lee must show by a preponderance of the evidence that (1) the Protocol creates a substantial risk of severe pain; and (2) "there is an alternative [method of execution] that is feasible, readily implemented, and in fact significantly reduces a substantial risk of severe pain." *Nance v. Comm'r, Ga. Dep't of Corr.*, 169 F.4th 1312, 1318 (11th Cir. Mar. 19, 2026) (quoting *Barber v. Governor of Ala.*, 73 F.4th 1306, 1318 (11th Cir. 2023)). If Lee makes these showings and the State refuses to adopt his proposed alternative "without a legitimate penological justification," then Lee's Eighth Amendment claim succeeds. *See Baze v. Rees*, 553 U.S. 35, 52 (2008) (plurality op.) ("If a State refuses to adopt [a feasible, readily implemented, and less painful] alternative in the face of these documented advantages, without a legitimate penological justification for adhering to its current method of execution, then a State's refusal to change its method can be viewed as 'cruel and unusual' under the Eighth Amendment.").

V. DISCUSSION

Because the Eleventh Circuit concluded that the Protocol poses a substantial risk of severe pain, *Lee*, 2026 WL 1651147, at *8, the issues before the Court are whether the

[9] In *Bonner v. City of Prichard*, 661 F.2d 1206, 1209 (11th Cir. 1981) (en banc), the Eleventh Circuit adopted as binding precedent all decisions of the former Fifth Circuit handed down prior to the close of business on September 30, 1981.

firing squad is feasible, readily implemented, and significantly reduces the substantial risk of severe pain posed by the Protocol, and whether the State has refused to adopt it without a legitimate penological reason. *See Bucklew*, 587 U.S. at 134; *Nance*, 169 F.4th at 1318. Because each of those issues resolves in Lee's favor on this record, the Court concludes that the Protocol violates the Eighth Amendment. The Court addresses each issue in turn and then addresses the specific injunctive relief Lee seeks in this case.

A. Feasible and Readily Implemented

"[A]n inmate must show that his proposed alternative method is not just theoretically 'feasible' but also 'readily implemented.'" *Bucklew*, 587 U.S. at 141 (quoting *Glossip v. Gross*, 576 U.S. 863, 877 (2015)). "This means the inmate's proposal must be sufficiently detailed to permit a finding that the State could carry it out 'relatively easily and reasonably quickly.'" *Id.* (citation omitted).

Lee's proposed alternative passes muster. In his amended complaint, after noting that the firing squad is an authorized method of execution in five states (indeed, one that is currently in use), Lee drew up a blueprint for the State to follow that largely tracks Utah's current firing squad protocol:

- "[T]he prisoner shall be seated in a chair set up between stacked sandbags to prevent bullets from ricocheting. A designated person on the execution team shall pin a target over the prisoner's heart and a hood over the prisoner's head."

- "The firing squad shall be comprised of five trained marksmen, one of whom is the firing squad team leader. The firing squad shall set up at a distance of [twenty-one] feet from the inmate, armed with .30-caliber rifles. One of the rifles shall be loaded with blanks so that it is unknown which firing squad member kills the prisoner."

- "The warden or his designee shall order the firing squad team leader to begin the cadence for the firing squad to fire. The firing squad team leader shall ready the weapons in a controlled and safe manner."

- "If the prisoner appears to be unconscious [after the first volley], the warden or his designee shall call for the medical examiner to enter the execution chamber and check the prisoner's vital signs. . . . If the prisoner is obviously conscious, the warden or his designee shall immediately instruct the fir[ing] squad team leader to prepare the weapons and fire again."

(Doc. 40 at 20–22, paras. 71–72; *see* doc. 173-46 at 55, 62, 89–92 (Utah's protocol)). These procedures are to be "repeat[ed] . . . until no vital signs are detected." (Doc. 40 at 22, para. 72; *see* doc. 173-46 at 91–92).

Lee also presented the testimony of Dr. Williams. Dr. Williams testified that multiple states use firing squad as a method of execution, and firing squad's prevalence is due, at least in part, to the ease with which it can be accomplished. (*See* doc. 147 at 49:25–50:11 ("A military tribunal or an officer capriciously may say, this soldier needs to be executed. The means of execution could be assembled in a . . . minute or two, and the execution could be carried out quickly and expeditiously.")). He also opined that the firing squad protocol Lee proposes—involving five shooters firing four live rounds from .30-caliber rifles at a target placed over the inmate's heart—would be effective. (*See id.* at 50:12–51:24). And he stated that he was familiar with Alabama's rifle qualification course and that "anyone who could shoot that course of fire and achieve a score of [eighty] percent or more . . . is going to be capable of performing a firing squad execution effectively." (*Id.* at 52:11–17).

The State concedes that it can "procure guns and ammunition of a variety of calibers." (Doc. 148 at 29). Still, it claims that, for various reasons, "[f]iring squad is not feasible and readily available." (*Id.*). The Court is not persuaded.

The State argues that firing squad is not readily implemented because it is not presently an authorized method of execution under Alabama law. (*Id.* (citing ALA. CODE §§ 15-18-82, 15-18-82.1)). But that argument has been rejected by the Supreme Court—twice. *See Bucklew*, 587 U.S. at 139–40 ("An inmate seeking to identify an alternative method of execution is not limited to choosing among those presently authorized by a particular State's law."); *Nance v. Ward*, 597 U.S. 159, 164 (2022) ("The prisoner may, for example, 'point to a well-established protocol in another State as a potentially viable option.'" (quoting *Bucklew*, 587 U.S. at 140)). After all, "the Eighth Amendment is the supreme law of the land, and the comparative assessment it requires can't be controlled by the State's choice of which methods to authorize in its statutes." *Bucklew*, 587 U.S. at 140.

The thrust of the State's remaining arguments is that implementing a firing squad protocol would take time—time to (1) develop its own firing squad protocol, (2) construct a proper facility, and (3) source volunteers to serve on the execution team. (Doc. 148 at 30–33). This Court has previously considered and rejected these same arguments:

> If a condemned inmate may point to another state's protocol as a "viable option" even if it is not currently authorized in his jurisdiction—and the Supreme Court says he can—it necessarily follows that there would be some incidental delay involved in implementing the "new" method in the inmate's jurisdiction. Thus, it cannot be the case that the firing squad is not readily implemented merely because the State is not presently or immediately prepared to carry out a firing squad

> execution. To conclude otherwise would render the Supreme Court's guidance a dead letter.

Boyd v. Hamm, 2025 WL 2884410, at *22 (M.D. Ala. Oct. 9, 2025). Suffice it to say that if an inmate can propose an alternative method that is not presently authorized by the law of the executing state, then the "'incidental delay' involved in changing a procedure"—which the Supreme Court has recognized "may take some real work"—is not enough to invalidate that method as a suitable alternative. *Nance*, 597 U.S. at 170. What's more, several ADOC employees testified that the ADOC *could* carry out a firing squad execution, if the Alabama Legislature authorized it. (*See, e.g.*, doc. 146 at 229:4–22 (Hamm's testimony that the ADOC could "train people to use .30-caliber rifles for firing squad if approved by the legislature" and could procure the required materials); *id.* at 230:9–13 (Hamm's testimony that the ADOC could modify space at Holman Correctional Facility[10] to carry out executions by firing squad)).

In sum, Lee has provided Alabama with a "pathway forward," *see Nance*, 597 U.S. at 169, and thus he has satisfied his burden to show that firing squad is feasible and readily implemented. *Cf. Bucklew*, 587 U.S. at 141–42 (concluding that the plaintiff's "bare-bones proposal f[ell] well short of" the relevant standard because he "presented *no evidence* on essential questions" (emphasis added)).

[10] Executions in Alabama are carried out at Holman Correctional Facility ("Holman").

B. Significant Reduction of Substantial Risk of Severe Pain

The Eleventh Circuit determined that the Protocol poses a substantial risk of severe pain. *See Lee*, 2026 WL 1651147, at *7 ("In our view, the overall suffering described by the district court, which lasts for one to three minutes, presents a substantial risk of serious harm over and above death itself."). The question is whether the firing squad will significantly reduce that risk. *See Nance*, 597 U.S. at 164. On this record, Lee has made that showing. To show how the Court reached this conclusion, the Court compares the evidence proffered by Lee with the State's evidence to the contrary.

1. Lee's Evidence

Lee relies primarily on the testimony of Dr. Williams, who credibly opined that death by firing squad is quick and painless, rendering the inmate unconsciousness in three to five seconds and before he can perceive any pain. Dr. Williams' expertise is twofold. He is an emergency physician who has treated "[m]any thousands" of gunshot wounds. (Doc. 147 at 5:21–6:5). He is also a firearms expert, boasting "lifelong experience as a shooter and hunter" and "extensive training in the use of defensive firearms in the law enforcement and civilian context[s]." (*Id.* at 7:15–8:2). As indicated above, he also bases his opinions on scientific literature and his own experience being shot.

Dr. Williams testified that execution by firing squad would rapidly induce a deep state of unconsciousness. A .30-caliber bullet "deliver[s] something in the area of 2,000 foot-pounds of energy," which Dr. Williams likened to "being struck by a three-quarter-ton truck." (*Id.* at 20:3–9). The firing squad protocol that Lee proposes calls for four .30-

caliber bullets—four three-quarter-ton trucks—to be fired at the heart simultaneously. When the bullets strike the heart, according to Dr. Williams, the result will be an immediate and total loss of blood flow to the brain, producing unconsciousness within three to five seconds. (*Id.* at 31:18–32:10, 35:6–9, 105:11–25).

But Dr. Williams also opines that execution by firing squad is painless. In support of his opinion that an inmate would not feel pain, Dr. Williams cites two phenomena: (1) the delay in the brain's processing of novel stimuli into a subjective experience such as pain; and (2) the effects of "neural stunning." (*Id.* at 15:1–26:25; doc. 173-40 at 6–9). Regarding the processing delay, Dr. Williams testified as follows: Pain is a noxious stimulus that is "transmitted to the brain via sensory nerves." (Doc. 173-40 at 5). But pain is not felt instantaneously upon exposure to a noxious stimulus. (Doc. 147 at 16:15–18:15). Rather, the stimulus must travel from the sensory nerves to the cerebral cortex, where the individual perceives the stimulus as pain. (*Id.* at 16:15–17:22). And when a stimulus is novel, the brain's processing delay is substantially longer, potentially "several seconds." (*Id.* at 15:4–21, 18:7–15). Because multiple bullets striking the heart is "a novel neurological stimulus," the inmate's brain will not complete the processing required to experience pain in the three to five seconds before he loses consciousness. (*Id.* at 18:7–15, 29:1–3).

Regarding the effects of neural stunning, Dr. Williams testified as follows: When a person is shot, the bullet "stretche[s], compresse[s], and otherwise disrupt[s]" all the nerves "near to the impact of the bullet," thereby "stunning" the nerves and preventing the

transmission of neural impulses of pain. (*Id.* at 26:4–16). This disruption of neural impulses or "stunning" lasts "several hours if not days." (*Id.* at 24:11–17, 26:19–25; *see also* doc. 173-60). Because of neural stunning, an inmate executed by firing squad will be unconscious and dead long before he can process the pain from the gunshot wounds. (Doc. 147 at 26:2–25). Thus, due to the twin phenomena of delayed processing and neural stunning, an inmate executed by firing squad would lose consciousness without perceiving *any pain*. (*Id.* at 26:19–25; *see also id.* at 28:23–29:3 (Dr. Williams reiterating that a condemned inmate would experience no conscious pain)). Dr. Williams' testimony on these points was as consistent as it was credible. (*See id.* at 18:5–15, 19:12–22, 69:11–18).

2. The State's Evidence

Before trial, Dr. Antognini opined that an inmate executed by firing squad would consciously suffer severe pain for eight to ten seconds due to "shattering of bone and damage to the spinal cord." (Doc. 173-141 at 26, para. 47). Dr. Antognini purportedly relied in part on South Carolina's execution of Mahdi to bolster his opinion that death by firing squad would be extremely painful. (*Id.* at 26–27, para. 47; *see also* doc. 149 at 62:22–64:4). At trial, Dr. Antognini conceded that nothing in his expert report supported his contention that an inmate executed by firing squad would consciously suffer severe pain for eight to ten seconds after bullet entry. (*See* doc. 149 at 102:3–9). Dr. Antognini agreed that he did not cite any scientific articles in support of his theory, either. (*Id.* at 102:10–13). Dr. Antognini could not identify the names of any studies or authors he relied on to form his opinion that an inmate's consciousness would persist for eight to ten seconds after

being shot. (*Id.* at 102:14–17). Considering Dr. Antognini's concessions, the Court excluded Dr. Antognini's opinions regarding pain caused by a firing squad execution. (*Id.* at 102:18–103:14).

3. Firing Squad Significantly Reduces a Substantial Risk of Severe Pain

On this record, Dr. Williams' testimony is credible, persuasive evidence that an inmate executed by Lee's proposed firing squad protocol would experience no pain. The State offered no admissible evidence to the contrary. Of course, the Court need not accept expert testimony solely because it goes unrebutted. *See Eason v. Weaver*, 484 F.2d 459, 460 (5th Cir. 1973) ("The weight to be accorded unimpeached expert opinion evidence is solely for the judge sitting without a jury."). But the Court is persuaded by Dr. Williams' testimony, which is based on his extensive experience and supported by science. The undersigned acknowledges that its finding—getting shot multiple times in the heart causes a painless death—is not intuitive. Nevertheless, having listened to the witnesses' testimony and reviewed all the parties' materials, the record in this case supports this finding.

The Protocol causes one to three minutes of severe air hunger, which the Eleventh Circuit concluded is a substantial risk of serious harm. *Lee*, 2026 WL 1651147, at *8. On this record, the firing squad produces a painless death.[11] This difference is "clear and

[11] In *Hoffman v. Westcott*, a divided panel of the Fifth Circuit, in a preliminary injunction posture, rejected a challenge to Louisiana's nitrogen hypoxia protocol in which the plaintiff, as here, proposed firing squad as an alternative method. 131 F.4th 332, 335–36 (5th Cir. 2025). The Eleventh Circuit concluded that the Fifth Circuit's reasoning on the first prong (whether nitrogen hypoxia presents a substantial risk of severe pain) is inapplicable given this Court's factual findings. *Lee*, 2026 WL 1651147, at *7. *Hoffman*'s reasoning on the second prong (whether firing squad significantly reduces that risk) is also inapposite on this record, as the record in *Hoffman* indicated that nitrogen hypoxia was painless and that firing squad was not. *See* 131 F.4th at 336. The Court agrees with the Fifth Circuit that the Eighth Amendment "does not require State officials to favor more painful methods of execution over less painful ones." *Id.* But the

considerable," *see Bucklew*, 587 U.S. at 143, and the Court therefore finds that Lee's proposed firing squad protocol "significantly reduce[s] a substantial risk of severe pain," *Glossip*, 576 U.S. at 877 (quoting *Baze*, 553 U.S. at 52).

C. Legitimate Penological Reasons

Lee's Eighth Amendment claim faces a final hurdle. The State "may refuse to adopt a prisoner's proposed alternative method of execution for a legitimate penological reason." *Nance v. Comm'r, Ga. Dep't of Corr.*, 59 F.4th 1149, 1155–56 (11th Cir. 2023). The Constitution "affords a 'measure of deference to a State's choice of execution procedures' and does not authorize courts to serve as 'boards of inquiry charged with determining 'best practices' for executions." *Bucklew*, 587 U.S. at 134 (quoting *Baze*, 553 U.S. at 51 & nn.2–3). That includes, for example, where an inmate requests an alternative that is "untried and untested," as a state can legitimately "choos[e] not to be the first to experiment with a new method of execution." *Id.* at 142 (quoting *Baze*, 553 U.S. at 41). Of course, such an argument would have no purchase here, where the proposed alternative has been in use for centuries. *Cf. Wilkerson v. Utah*, 99 U.S. 130 (1878); (doc. 173-40 at 14 (Dr. Williams' expert report ("Death by [firing squad] . . . has been a common means of military execution since at least the Napoleonic era.")).

The State articulates two penological reasons for refusing to adopt Lee's method: (1) the ADOC cannot reliably source volunteers "willing and capable of serving in a firing

Eleventh Circuit has concluded that, on *this* record, nitrogen hypoxia poses a substantial risk of severe pain, and this Court finds that the firing squad does not.

squad"; and (2) the ADOC may be unable to procure materials used in firing squad executions.[12] (*See* doc. 148 at 31–33; doc. 149 at 137:17–19). Neither reason is persuasive.

1. Execution Volunteers

The State contends that it would be unable to execute Lee by firing squad because the ADOC cannot reliably locate volunteers "willing and capable of serving in a firing squad." (Doc. 148 at 31). The State asserts that it would not only face staffing shortages but also raises concerns regarding the ability for volunteer marksmen to effectively administer death by firing squad. The Court addresses each of these arguments in turn.

Citing Hamm's testimony, the State points out that the ADOC cannot compel ADOC staff to participate in a firing squad execution. (*See* doc. 146 at 237:16–238:3). Notwithstanding the State's argument, Hamm and Charles Williams both testified that if firing squad were an approved method of execution, the ADOC would be able to train and staff an execution team capable of executing an inmate by firing squad. (*See id.* at 229:1–11 (Hamm's trial testimony); *id.* at 256:25–258:1 (Charles Williams' trial testimony)). And the State's concern regarding the use of volunteers would apply to all methods of execution—the State cannot compel staff to participate in *any* execution, regardless of the method. (*See id.* at 237:16–238:3). The inability to compel participation apparently has not presented an issue in the past, and the State has identified no reason it would pose one

[12] In its closing argument at trial, the State also claimed an interest in "preserving the dignity of the proceedings." (*See* doc. 149 at 137:17–19). However, the State did not elaborate or present evidence regarding how an execution by firing squad would inhibit this interest. Thus, to the extent the State relies on this asserted legitimate penological interest, the Court finds it unavailing on this record.

now. (*See* doc. 173-40 at 13 (Dr. Williams expert report) (stating that "there are roughly 14,000 sworn law enforcement officers in the state of Alabama")).

The State also asserts that even if it could find five volunteers, those volunteers would be unable to meet the "exacting degree of proficiency necessary for a firing squad execution." (Doc. 148 at 32). The Alabama Peace Officers Standards Training Commission ("APOSTC") scores law enforcement officers' (including ADOC personnel) marksmanship on a numerical scale. (*See* doc. 146 at 236:20–237:8 (Hamm's trial testimony); doc. 148 at 32 (the State's proposed findings of fact and conclusions of law)). Officers are required to receive a score of "at least a 70 to pass" with "100 [being] the top score." (Doc. 146 at 236:20–237:3). Dr. Williams opined that any APOSTC qualified marksman "is . . . capable of performing a firing squad execution effectively." (Doc. 147 at 52:14–17). But, on cross-examination, Dr. Williams—consistent with Utah's protocol—testified that the ADOC would need to locate "riflemen who can shoot considerably more accurately than" the minimum APOSTC certification. (*Id.* at 113:1–7). Dr. Williams conceded that he could not testify regarding whether this heightened shooting requirement would limit the number of qualified marksmen in Alabama but testified that Utah's volunteer pool did not shrink as a result of the heightened skill requirement. (*Id.* at 113:21–23). In any event, even if the ADOC chose to use marksmen who were more skilled than required, Hamm and Charles Williams testified that the ADOC would be able to staff a firing squad execution team with five capable shooters. The Court credits their testimony.

Finally, the State contends that Dr. Williams' testimony that "glitches" may occur during firing squad executions constitutes a legitimate penological reason to reject Lee's proposed alternative—in other words, it submits that the risk that a firing squad may go awry is a sufficient reason to reject it entirely. (Doc. 148 at 32–33). The State cites Mahdi's recent execution in South Carolina as an example of a firing squad execution gone wrong. (*Id.*). It is true, as Dr. Williams conceded, that even a method that dates to the Napoleonic era can be botched.[13] (*See* doc. 173-40 at 14; doc. 147 at 110:2–8). Nonetheless, on this record the State's concern about potential problems with firing squad executions is unavailing for several reasons. First, Lee's proposed method relies heavily on Utah's protocol, which is meaningfully different than South Carolina's. (*See* doc. 147 at 53:15–23 (Dr. Williams noting that South Carolina's protocol uses fewer and different-caliber bullets)). Second, assuming without deciding that Mahdi's execution was "botched," an "isolated mishap alone" does not render the firing squad constitutionally suspect. *See Baze*, 553 U.S. at 50 (noting that the Supreme Court had previously "upheld a second attempt at executing a prisoner by electrocution after a mechanical malfunction had interfered with the first attempt" (citing *Louisiana ex rel. Francis v. Resweber*, 329 U.S. 459 (1947))). Further, the State fails to adequately identify any unique concerns regarding the efficacy of firing squad—a method that Dr. Williams opines rarely results in botched executions. (Doc. 147 at 71:9–18).

[13] The Court expresses no view as to whether Mahdi's execution was "botched."

2. Supply Concerns

The State also expresses concern that it would be unable to easily procure and maintain the materials necessary to carry out executions by firing squad. (*See* doc. 148 at 31–32). In support, the State asserts that execution by firing squad faces similar "supply concerns" that "have hampered the use of lethal injection." (*Id.* at 32). In recent years, death penalty opponents have successfully "pressured pharmaceutical companies to refuse to supply the drugs used to carry out" lethal injection executions. *Glossip*, 576 U.S. at 870. In response, many states, including Alabama, have moved away from methods of execution that require reliance on third party suppliers. *See Frazier v. Hamm*, 2025 WL 361172 at *13 (M.D. Ala. Jan. 31, 2025). Courts have found that supply-chain difficulties can constitute legitimate penological reasons to move away from methods of execution that require such reliance. *See id.*; *see also Price v. Comm'r, Dep't of Corr.*, 920 F.3d 1317, 1327 (11th Cir. 2019) (per curiam) (noting that "[n]o supply concerns exist for nitrogen"). But here, the State does not identify which materials necessary to carry out firing squad executions would be subject to "supply concerns," (*see* doc. 148 at 31–32), so the Court must assume that the State's concern applies to rifles, ammunition, and the materials necessary to fortify an execution chamber, such as sandbags, lumber, and some form of a ballistic barrier. (*See* doc. 173-40 at 18–19). To the extent these are the State's concerns—and, again, the State has not adequately articulated what, exactly, its concerns on this point are—the Court finds them unavailing. It is true that death penalty opponents have successfully lobbied certain pharmaceutical companies into refusing to provide Alabama

with lethal injection drugs. But the State has presented no evidence that this same concern exists as to the materials necessary to carry out firing squad executions.

And importantly, Dr. Williams and *the State's own witnesses* testified that the materials required to carry out an execution by firing squad could be readily procured. Indeed, the State concedes that it can "procure guns and ammunition of a variety of calibers." (Doc. 148 at 29). And materials such as bullet-proof glass are "commonly used in construction," thus undermining any supply chain concerns. (*See, e.g.*, doc. 147 at 54:16–23 (Dr. Williams' trial testimony)). Nor has the State presented evidence that its current supply of firearms and ammunition are insufficient to carry out firing squad executions. (*See* doc. 173-40 at 18 (Dr. Williams noting that "[s]ervice rifles of the types currently used by Alabama law enforcement agencies . . . would be suitable for firing squad executions")).

Although the State cites the unreliability of supply as a reason for refusing to implement firing squad, the State is inconsistent on this point. In its proposed findings of fact and conclusions of law, the State notes that on April 24, 2026, the Department of Justice ("DOJ") released a report "recommending policy changes within the Federal Bureau of Prisons as to capital punishment" wherein the DOJ explored "adding different methods of execution in *case of supply chain issues*, such as . . . firing squad."[14] (Doc. 148 at 30 n.5) (emphasis added). While the State *could* articulate supply chain concerns as a

[14] *See* U.S. DEP'T OF JUST. OFF. OF LEGAL POLICY, *Restoring and Strengthening the Federal Death Penalty* 19–38 (2026), https://www.justice.gov/ag/media/1437806/dl?inline.

legitimate penological reason for refusing to adopt a plaintiff's proposed alternative, it has not done so here.

D. Lee's Requested Permanent Injunctive Relief

In the operative complaint, Lee seeks a declaration that the Protocol is facially unconstitutional and an injunction prohibiting the ADOC from executing him by nitrogen hypoxia or "any method other than one of the alternatives provided by his attorneys." (Doc. 40 at 23). He seeks similar relief in his pending motion, asking the Court to "permanently enjoin [the State] from executing him by nitrogen [hypoxia] *or any other method other than firing squad*." (Doc. 185 at 1 (emphasis added)). But Alabama law authorizes two other methods of execution: lethal injection and electrocution. *See* ALA. CODE § 15-18-82.1. Here, Lee challenged only the ADOC's nitrogen hypoxia protocol—not lethal injection or electrocution. After carefully considering traditional equitable principles, and given the Court's legal conclusions, the Court concludes that a permanent injunction should issue prohibiting the State from executing Lee using the Protocol. *See eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006) (explaining that a plaintiff seeking a permanent injunction must show (1) irreparable injury; (2) that "remedies available at law, such as monetary damages, are inadequate to compensate for that injury"; (3) that an equitable remedy is warranted "considering the balance of hardships between the plaintiff and defendant[s]"; and (4) that "the public interest would not be disserved by a permanent injunction"); *Angel Flight of Ga., Inc. v. Angel Flight Am., Inc.*, 522 F.3d 1200, 1208 (11th Cir. 2008) (same). But because Lee has not established that Alabama's other statutorily

authorized methods violate the Eighth Amendment, he is not entitled to an injunction barring the State from executing him using one of those methods.[15]

VI. FINDINGS OF FACT AND CONCLUSIONS OF LAW[16]

A. Findings of Fact[17]

An execution pursuant to Lee's proposed firing squad alternative, involving four .30-caliber bullets fired at the heart, renders an inmate unconscious in three to five seconds. Due to the related phenomena of delayed brain processing and neural stunning, an inmate executed under Lee's firing squad alternative is rendered unconscious before his brain can process any pain. Thus, Lee's proposed alternative produces a quick and painless death.

The State can readily obtain rifles, ammunition, and other materials necessary to carry out a firing squad execution. Additionally, the State would be able to modify space at Holman to carry out executions by firing squad. The State is also able to source and train volunteers willing to carry out such an execution.

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[15] That the State will be prohibited only from executing Lee using nitrogen hypoxia bolsters the Court's conclusion that entry of this permanent injunction is appropriate, as it is narrowly tailored to remedy the specific harm at issue here: that the Protocol violates the Eighth Amendment.

[16] To the extent that any findings of fact may constitute conclusions of law, they are adopted as such, and to the extent that any conclusions of law may constitute findings of fact, they are adopted as such.

[17] The Eleventh Circuit discerned no error in the Court's prior findings of fact. *Lee*, 2026 WL 1651147, at *6. The Court accordingly incorporates its previous factual findings into this Memorandum Opinion and Order, *see Lee*, 2026 WL 1493098, at *24–25, with one clarification. The Court did not find that air hunger is "worse than pain" but instead recounted patients' descriptions in a clinical setting that air hunger can be "'worse than pain' because it is associated with the fearing of dying." *See id.* at *24.

B. Conclusions of Law

Consistent with the Eleventh Circuit's opinion, Lee has shown by a preponderance of the evidence that the Protocol "presents a 'substantial risk of serious harm'—severe pain over and above death itself." *Lee*, 2026 WL 1651147, at *2 (quoting *Nance*, 597 U.S. at 164). Additionally, Lee has shown by a preponderance of the evidence that his proposed firing squad alternative is feasible, readily implemented, and significantly reduces the substantial risk of serious harm posed by the Protocol. The State has failed to articulate a legitimate penological reason for refusing to adopt Lee's proposed alternative. Therefore, Lee has shown by a preponderance of the evidence that the Protocol constitutes cruel and unusual punishment in violation of the Eighth Amendment.

VII. CONCLUSION

On this record, and in this posture, Lee has shown that the ADOC's nitrogen hypoxia execution protocol violates the Eighth Amendment. Consequently, the Court will enter judgment in Lee's favor and enjoin the State from executing Lee pursuant to the Protocol.

To be clear, the Court's decision does not disturb the State's ability to administer capital punishment. Lee successfully challenged only the ADOC's nitrogen hypoxia protocol, not its electrocution or (this time) its lethal injection protocol. *Cf. Lee v. Comm'r, Ala. Dep't of Corr.*, 731 F. App'x 885 (11th Cir. 2018) (per curiam) (Lee's challenge to the ADOC's lethal injection protocol). An Eighth Amendment method of execution claim is a "*necessarily* comparative exercise," *Bucklew*, 587 U.S. at 136 (emphasis in original), and Lee only asks this Court to compare nitrogen hypoxia and firing squad. On this record, and in light of the Eleventh Circuit's opinion, Lee has shown that his proposed firing squad

alternative significantly reduces a substantial risk of severe pain *as compared to* nitrogen hypoxia. The result is that the State of Alabama cannot execute Lee by nitrogen hypoxia—no more, no less.

Federal courts are routinely placed in the difficult position of comparing methods of execution, both old and new alike. This Court is intimately familiar with the history of method of execution claims in this State. As methods evolve and change, so too do the challenges to each method. The only constant is litigation. Were Alabama to adopt firing squad as a method of execution, that method would likely be challenged as well. Indeed, there is likely no method—no matter how humane—that would be immune to constitutional challenge. *Cf. Bucklew*, 587 U.S. at 140 (acknowledging in passing that a condemned inmate may have just as much motivation to forestall his execution entirely as to "avoid[] unnecessary pain"). But the Constitution does not guarantee a painless death, *see id.* at 132, and human life cannot be purposefully extinguished without some risk of pain. The Court, the condemned, and the State must all confront that sobering reality.

Accordingly, the Court DECLARES and ORDERS as follows:

1. The ADOC's nitrogen hypoxia execution protocol violates the Eighth Amendment;

2. The State is PERMANENTLY ENJOINED from executing Lee using the Protocol;

3. Judgment is entered in favor of Lee and against the State;

4. Lee's motion to enter judgment in his favor or, in the alternative, to stay his execution (doc. 185) is DENIED as moot;

5. Costs are taxed as paid.

A separate Final Judgment will be entered.

DONE this 9th day of June, 2026.

/s/ Emily C. Marks
EMILY C. MARKS
UNITED STATES DISTRICT JUDGE

NOT FOR PUBLICATION

In the

United States Court of Appeals

For the Eleventh Circuit

No. 26-11864

JEFFERY LEE,

Plaintiff-Appellant,

versus

COMMISSIONER, ALABAMA DEPARTMENT OF CORRECTIONS,
WARDEN, HOLMAN CORRECTIONAL FACILITY,

Defendants-Appellees.

Appeal from the United States District Court
for the Middle District of Alabama
D.C. Docket No. 2:25-cv-00680-ECM

Before JORDAN, LUCK, and KIDD, Circuit Judges.

PER CURIAM:

Alabama is one of a number of states—the others are Arkansas, Louisiana, Mississippi, and Oklahoma—which currently

authorize nitrogen hypoxia as a method of execution. *See* Ala. Code §§ 15-18-82(a), 15-18-82.1(a)–(b). This appeal presents another challenge to the constitutionality of nitrogen hypoxia.

In *Grayson v. Comm'r, Ala. Dep't of Corr.*, 121 F. 4th 894 (11th Cir. 2024), we affirmed the denial of a preliminary injunction to prohibit an execution in Alabama by nitrogen hypoxia. Without determining the merits of the inmate's Eighth Amendment claim, we held that, given the evidence in the record and its factual findings, the district court had not abused its discretion in ruling that the inmate had not shown a substantial likelihood of success on that claim. First, the inmate's expert had testified that the nitrogen hypoxia protocol only inflicted psychological pain, a pain which would exist regardless of the method of execution. Second, the district court had credited the testimony of a state expert that unconsciousness would result within 10 to 40 seconds. Third, the district court rejected the testimony of the inmate's expert that the protocol would result in negative pressure pulmonary edema. *See id.* at 898–900.

We noted in *Grayson*, however, that there "may exist a form of execution that induces psychological terror or pain that is severe enough to support an Eighth Amendment claim." *Id.* at 900 n.3. And we expressed "no view on what the result would have been had the district court's factual findings been different." *Id.* at 901 n.4.

In this case, Jeffery Lee, an Alabama inmate under sentence of death, filed an action under 42 U.S.C. § 1983 in August of 2025,

alleging that the nitrogen hypoxia protocol violated the Eighth Amendment. *See generally* D.E. 1. On February 2, 2026, Mr. Lee filed an amended complaint, where he proposed execution by firing squad, similar to Utah's protocol, as an alternative method of execution. *See* D.E. 40. *See also* D.E. 173-40.

One week later, on February 9, 2026, Alabama moved to set his execution. On April 15, 2026, the Governor set Mr. Lee's execution for a 30-hour period beginning on June 11, 2026, at 12:00 a.m., and concluding on June 12, 2026, at 6:00 a.m. *See* D.E. 127-1.

From April 27–29, 2026, the district court held a three-day bench trial on the constitutionality of Alabama's nitrogen hypoxia protocol, the first such trial in the country. The parties introduced voluminous evidence, including testimony from seven lay witnesses and four expert witnesses, and hundreds of exhibits totaling thousands of pages.

After weighing the evidence presented, the district court entered an order rejecting Mr. Lee's Eighth Amendment claim. The district court found that an inmate who is executed under the nitrogen hypoxia protocol "consciously" experiences "severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort" for "one to three minutes," but concluded that the protocol does not violate the Eighth Amendment by causing "severe pain or suffering 'well beyond what's needed to effectuate a death sentence.'" *Lee v. Lovelace*, No. 25-cv-680, ____ F. Supp. 3d ____, 2026 WL 1493098, at *22, *25 (M.D. Ala. May 28, 2026). Given its ruling, the district court did not address

whether execution by firing squad pursuant to Utah's protocol constitutes a feasible and readily implemented alternative method of execution that significantly reduces a substantial risk of severe pain. *See id.* at *22.

Mr. Lee appealed the district court's judgment, and sought a stay of execution. We expedited briefing and heard oral argument by videoconference on Friday, June 5, 2026.

We hold that, given the district court's factual findings—which are not clearly erroneous—Mr. Lee has shown that the protocol "presents a 'substantial risk of serious harm'—severe pain over and above death itself." *Nance v. Ward*, 597 U.S. 159, 164 (2022) (quoting *Glossip v. Gross*, 576 U.S. 863, 877 (2015)). *See also Nance v. Comm'r, Ga. Dep't of Corr.*, 169 F. 4th 1312, 1318 (11th Cir. 2016) (explaining that the question is whether the method of execution "creates a substantial risk of serious harm, an objectively intolerable risk of harm that prevents prison officials from pleading that they were subjectively blameless for purposes of the Eighth Amendment"). We therefore reverse the district court's judgment and remand for consideration of the firing squad alternative proposed by Mr. Lee.

I

A jury found Mr. Lee guilty of the 1998 murders of Jimmy Ellis and Elaine Thompson, as well as the attempted murder of Helen King, during a robbery. *See Lee v. State*, 898 So. 2d 790, 807 (Ala. Crim. App. 2001). After the penalty phase of the trial, the jury

recommended by a vote of 7 to 5 that he be sentenced to imprisonment for life without the possibility of parole for the murders. *See id.* at 807–808. Under then-governing Alabama law, the trial court exercised its discretion to override the jury's recommendation and sentence Mr. Lee to death. *See id.* at 808.

After exhausting his direct and collateral remedies, *see, e.g.*, *Lee v. Comm'r, Alabama Dep't of Corr.*, 726 F.3d 1172 (11th Cir. 2013), Mr. Lee filed an action under 42 U.S.C. § 1983 challenging Alabama's lethal injection protocol as violative of the Eighth Amendment. *See Lee v. Dunn*, No. 16-473, 2017 WL 1483530 (S.D. Ala. Apr. 24, 2017), *vacated in part*, 731 F. App'x 885 (11th Cir. 2018). That lawsuit became moot in 2018 when Mr. Lee elected to be executed by nitrogen hypoxia, which had recently been authorized by the Alabama Legislature for the first time. *See Lee*, No. 16-473, D.E. 38 (order granting joint motion to dismiss) (S.D. Ala. July 20, 2018).

On August 22, 2025, Mr. Lee filed the present § 1983 action against the Commissioner of Alabama's Department of Corrections challenging Alabama's nitrogen hypoxia protocol. Although Alabama had not yet set his execution date, Mr. Lee explained that he brought his suit "to avoid being denied relief . . . on timeliness grounds." D.E. 1 at ¶ 3.

After the district court granted in part and denied in part the Commissioner's motion to dismiss, Mr. Lee filed an amended complaint in February of 2026. He alleged that "[e]xecution by nitrogen hypoxia" induces "conscious suffocation" that "is cruel and unusual because it superadds terror and pain during the execution." D.E.

40 at ¶ 63. He proposed that execution by firing squad similar to Utah's protocol is a feasible and readily implemented alternative method that would significantly reduce the substantial risk of severe pain associated with nitrogen hypoxia. *See id.* at ¶¶ 69–72. *See also* D.E. 173-40. About a week later, the state asked the Alabama Supreme Court to set Mr. Lee's execution date. *See* D.E. 176 at 9. The Alabama Supreme Court granted the motion, and on April 15, 2026, the Governor declared that Mr. Lee's execution would take place during a 30-hour window commencing on June 11, 2026, at 12:00 a.m.[1]

Following discovery, the district court held a three-day bench trial, at which it heard the testimony of eleven witnesses, admitted hundreds of exhibits totaling thousands of pages, and viewed video demonstrations of the nitrogen hypoxia systems of Alabama and Louisiana. *See Lee*, 2026 WL 1493098, at *6. Mr. Lee called three experts, two of whom were Dr. Richard Schwartzstein and Dr. Julie Bastarache. Dr. Schwartzstein was admitted as an expert in pulmonology, critical care medicine, physiology, hypoxia, dyspnea, and air hunger. Dr. Bastarache was admitted as an expert in pulmonology, critical care medicine, and pathology. For its part,

[1] As the district court explained, a number of other Alabama inmates also filed a similar action challenging the nitrogen hypoxia protocol. Their cases were initially consolidated with Mr. Lee's, but when the state indicated that it was going to move to set an execution date for Mr. Lee, his case was deconsolidated. *See Lee*, 2026 WL 1493098, at *4.

the Commissioner called Dr. Joseph F. Antognini, an expert in anesthesiology. *See id.* at *5. We summarize the evidence and the district court's findings of fact below.[2]

A

"Nitrogen hypoxia, as set out in Alabama's protocol, causes death by introducing 'pure nitrogen gas . . . to the condemned inmate through an industrial-use respirator mask until the inmate is declared dead.'" *Grayson*, 121 F.4th at 896. The parties generally agree on how Alabama's nitrogen hypoxia protocol is carried out.

As the district court explained, the execution team escorts the inmate to the execution chamber. *See Lee*, 2026 WL 1493098, at *3. They then secure the inmate to the gurney with a chest and shoulder harness made of nylon straps, attach pulse oximeters, and secure a mask to the inmate's face. *See id.* After the death warrant is read and the inmate makes his final statement, the warden activates the nitrogen hypoxia system, which causes ultra-high purity nitrogen gas to flow into the mask. *See id.* The nitrogen gas displaces breathable air until the inmate is breathing almost pure nitrogen. *See id.* The mask allows exhaled carbon dioxide to exit via a one-way valve, which prevents the inmate from rebreathing carbon dioxide. *See id.* When the brain is deprived of oxygen for long enough, unconsciousness and death ensue. *See id.*

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[2] We thank the district court for its comprehensive order. Given time constraints, we do not summarize all of the evidence presented at the bench trial.

Mr. Lee is scheduled to be the eighth inmate in Alabama executed by nitrogen hypoxia. In March of 2025, Louisiana executed Jessie Hoffman, Jr. via a nitrogen hypoxia protocol similar to Alabama's. *See id.* at *4.

B

The district court credited the following opinions of Dr. Schwartzstein and/or Dr. Bastarache regarding severe air hunger caused by the nitrogen hypoxia protocol.

- Inmates executed under the nitrogen hypoxia protocol "likely experience severe air hunger, which evokes distress and anxiety." *Id.* at *14. Specifically, the district court credited Dr. Bastarache's opinion that "air hunger triggers the body's 'extreme physiologic need to get more oxygen' and produces 'intense physiologic stress that causes intense suffering.'" *Id.* (record citations omitted). "Because the inmate cannot respond to his 'basic survival instincts' to address the air hunger, a 'vicious cycle of increasing air hunger and panic symptoms' can occur." *Id.* (record citations omitted).
- "Unlike pain, which is normally localized to a specific body part, air hunger is 'a holistic discomfort sensation,' and individuals struggle to distract themselves from their dyspnea." *Id.* at *15 (record citation omitted). "Because it evokes a fear of dying, air hunger can be worse than pain." *Id.*
- "[A]t a partial pressure of oxygen (PO_2) below 60 mm Hg . . . , a person's drive to breathe 'takes off,' making him

or her 'desperate to try to do something to correct the hypoxemia.'" *Id.* (record citations omitted). Given that the goal of the nitrogen hypoxia protocol "is to take the inmate's PO_2 all the way down to 0 mm Hg," the protocol "evokes an 'incredibly strong stimulus' to breathe." *Id.* And, "while only a minor factor, the inmate's awareness that he cannot alleviate his dyspnea . . . would exacerbate his anxiety and the air hunger itself." *Id.*

- "[F]our inmates executed under the [p]rotocol had flash pulmonary edema, which would have exacerbated their dyspnea." *Id.* "[F]lash pulmonary edema is a condition triggered by extreme distress in which the lungs 'almost instantaneously' fill with fluid, making it 'extremely difficult to breathe.'" *Id.* "Of the inmates executed under the [p]rotocol who have had autopsies performed . . . , all four had evidence of flash pulmonary edema caused by a sudden rise in blood pressure," which is "an abnormal autopsy finding." *Id.* "Flash pulmonary edema indicates severe physiological stress; exacerbated the inmates' dyspnea; and would have occurred 'very early on in the executions' while the inmates were conscious and 'when air hunger was occurring and reaching its peak[.]'" *Id.*

- "[H]ypoxia causes dyspnea even when carbon dioxide levels are normal and, therefore, the lack of carbon dioxide buildup in the mask does not eliminate or reduce the possibility of severe air hunger." *Id.* at *16.

- "Several factors can alleviate air hunger, including taking larger breaths and reducing anxiety. In the clinical and research settings, mitigating the dyspneic subject's anxiety is possible. In the research setting, for example, researchers can reassure the subjects that the air hunger is merely part of the experiment, and this reassurance helps the subjects tolerate the discomfort of air hunger. And in the clinical setting, doctors can reassure many patients that the patients' dyspnea is a consequence of their condition and that it does not mean they are going to die. In an execution setting, such reassurance is not possible because the goal is to cause the inmate's death." *Id.* at *25.

Mr. Lee and the Commissioner "vigorously contest[ed]" how long it takes an inmate being executed by nitrogen hypoxia to become unconscious and how long he is capable of experiencing suffering. *See id.* at *16. Dr. Antognini opined that inmates are rendered unconscious within 60 to 75 seconds after the nitrogen gas is turned on, while Dr. Bastarache posited that four inmates previously executed by nitrogen hypoxia remained conscious for three to seven minutes. *See id.*

Ultimately, after considering the conflicting evidence, the district court found that an inmate who is executed under the protocol "experiences severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort" for "not significantly more than one to three minutes." *Id.* at *25. It explained that "air hunger causes extreme emotional distress,

panic, anxiety, and fear because breathing is essential to human life. Patients often describe air hunger as akin to suffocation or drowning." *Id.* at *24 (internal quotation marks omitted).[3]

C

After making these factual findings, the district court concluded that Alabama's nitrogen hypoxia protocol does not cause needless suffering and therefore does not violate the Eighth Amendment. *See id.* Although the protocol "likely causes severe air hunger—the most severe form of breathing discomfort—for one to three minutes," that "pain, anxiety, and dread" is primarily a result of inmates "know[ing] they are going to die" and "their body's survival instincts" kicking in. *See id.* at *22–23. Thus, the district court reasoned, the nitrogen hypoxia protocol does not cause suffering "well beyond what's needed to effectuate a death sentence." *Id.* at *22 (quoting *Bucklew v. Precythe*, 587 U.S. 119, 136–37 (2019)). *See also id.* at *23 ("[T]he physiological discomfort caused by the Protocol does not violate the Constitution.").

[3] Dr. Schwartzstein opined that a person being executed by nitrogen hypoxia continues to suffer pain for three to five minutes after becoming unconscious. The district court did not address whether that opinion was persuasive or not. *See id.* at *17. Instead, it declined to consider the opinion because, in its view, an unconscious person "does not experience or perceive dyspnea of a constitutionally relevant kind." *Id.* At oral argument, counsel for Mr. Lee asserted (without waiving any argument in his brief) that this Court could grant him relief without addressing that ruling. We agree, and express no view on the alleged unconscious suffering.

Because it concluded that the nitrogen hypoxia protocol did not cause needless suffering in violation of the Eighth Amendment, the district court did not reach Mr. Lee's proposed alternative of execution by firing squad. *See id.* at *25. *See also Nance*, 169 F.4th at 1318 ("If the planned method does not present a substantial risk of serious harm, the officials may use it regardless of the proposed alternatives.").

II

In an appeal from a bench trial, we review factual findings for clear error and legal conclusions de novo. *See Dish Network, LLC v. Fraifer*, 171 F.4th 1344, 1351 (11th Cir. 2026).

Under clear error review, a factual "finding that is 'plausible' in light of the full record—even if another is equally or more so—must govern." *Cooper v. Harris*, 581 U.S. 285, 293 (2017). "This standard does not entitle us to overturn a finding simply because we are convinced that we would have decided the case differently." *Glossip*, 576 U.S. at 881 (internal quotation marks and brackets omitted).

Once the relevant underlying facts are determined, whether a method of execution violates the Eighth Amendment presents a question of law. *See Grayson v. Warden, Comm'r, Ala. Dep't of Corr.*, 869 F.3d 1204, 1239 (11th Cir. 2017). *Accord Bucklew v. Precythe*, 883 F.3d 1087, 1094 (8th Cir. 2018) ("[W]hether a method of execution 'constitutes cruel and unusual punishment is a question of law.'") (citation omitted), *aff'd*, 587 U.S. 119 (2019).

III

Under governing Supreme Court precedent,

> [t]he Eighth Amendment "does not demand the avoidance of all risk of pain in carrying out executions." To the contrary, the Constitution affords a "measure of deference to a State's choice of execution procedures" and does not authorize courts to serve as "boards of inquiry charged with determining 'best practices' for executions." The Eighth Amendment does not come into play unless the risk of pain associated with the State's method is "substantial when compared to a known and available alternative."

Bucklew, 587 U.S. at 134 (citations omitted).

To succeed on a method-of execution claim, an inmate must satisfy two requirements. First, he "must establish that the . . . method of execution presents a 'substantial risk of serious harm'—severe pain over and above death itself." *Nance*, 597 U.S. at 164 (quoting *Glossip*, 576 U.S. at 877). Second, he "'must identify an alternative method that is feasible, readily implemented, and in fact significantly reduces' the risk of harm involved." *Id.* (quoting *Glossip*, 576 U.S. at 877) (brackets omitted). *See Bucklew*, 587 U.S. at 136 ("Distinguishing between constitutionally permissible and impermissible degrees of pain . . . is a *necessarily* comparative exercise. To decide whether the State has cruelly 'superadded' pain to the punishment of death isn't something that can be accomplished by examining the State's proposed method in a vacuum, but only by

'compar[ing]' that method with a viable alternative."). "Where a prisoner claims a safer alternative to the State's . . . protocol, he cannot make a successful challenge by showing a 'slightly or marginally safer alternative.'" *Price v. Comm'r, Ala. Dep't of Corr.*, 920 F.3d 1317, 1326 (11th Cir. 2019) (quoting *Glossip*, 576 U.S. at 877). Nevertheless, he may identify "an alternative method that is not [currently] authorized" by state law. *See Nance*, 597 U.S. at 163–64, 173. *See also Bucklew*, 587 U.S. at 139–40.

The district court found that the nitrogen hypoxia protocol causes one to three minutes of "severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort." *Lee*, 2026 WL 1493098, at *25.

> Air hunger involves activation of brain regions dedicated to basic survival instincts, which include the need to breathe adequately. When breathing is insufficient, severe distress, anxiety, and panic are normal and expected human sensations that, under typical circumstances, highly motivate an individual to improve [his] breathing immediately or face imminent death.

Id. at *24. "Many people find air hunger worse than pain because it is associated with the fear of dying." *Id.*

A

The parties challenge some of the district court's factual findings. Mr. Lee, for example, asserts that the district court should have found, based on the expert testimony he presented, that inmates subjected to execution by nitrogen hypoxia could remain

conscious for three to seven minutes. The Commissioner, for his part, attacks the district court's finding that the protocol causes an inmate to experience air hunger and associated distress for not significantly more than one to three minutes. *See* Brief for Appellant at 26; Brief for Appellee at 35.

We discern no clear error in any of the district court's factual findings. As noted, a finding that is plausible, even if another is equally or more so, must govern. *See Cooper*, 581 U.S. at 293. And we cannot "overturn a finding simply because we are convinced that we would have decided the case differently." *Glossip*, 576 U.S. at 881 (internal quotation marks and brackets omitted).

A district court in a bench trial is not required to accept an expert's opinion even if unimpeached. *See, e.g., Eason v. Weaver*, 484 F.2d 459, 460 (5th Cir. 1973). And, like a jury, when a district court performs the role of factfinder it "is not required to accept 'all or none' of a witness'[ ] testimony; rather, [it] may accept those portions of a witness'[ ] testimony which it considers credible and reject other portions which it finds to be improbable." *Rixey v. W. Paces Ferry Hosp., Inc.*, 916 F.2d 608, 616 (11th Cir. 1990). The district court here did not err, much less clearly err, in accepting some of the expert testimony and in rejecting other aspects of that same testimony. *See United States v. Stein*, 964 F.3d 1313, 1322 (11th Cir. 2020) ("Our case law is . . . unambiguous: the district court frequently must choose between dueling experts, and if that decision is reasonably based on evidence found in the record, the choice is not clear error.").

B

Based upon the district court's factual findings, we hold that Alabama's nitrogen hypoxia protocol "presents a 'substantial risk of serious harm'—severe pain over and above death itself." *Nance*, 597 U.S. at 164. Mr. Lee has therefore satisfied the first prong of the *Glossip* Eighth Amendment standard.[4]

As intended, the protocol causes death by introducing pure nitrogen gas through a respirator mask until the inmate is declared dead. The district court found that an inmate executed under the protocol suffers one to three minutes of "severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort." *Lee*, 2026 WL 1493098, at *25. This mental distress, physiological suffering, and physical discomfort, the district court found, will likely take place. There is, in other words, a substantial risk of serious harm. The risk is not conjectural, speculative, or doubtful.

The Eighth Amendment does not "guarantee a prisoner a painless death." *Bucklew*, 587 U.S. at 132. Yet at the Founding, "cruel" was "often defined to mean . . . '[d]isposed to give pain to others, in body or mind[.]'" *Id.* at 130 (quoting 1 Noah Webster, An

[4] Mr. Lee challenges the district court's order allowing the testimony of Dr. Antognini, the Commissioner's expert, on the ground that he did not sufficiently explain the extrapolation underlying some of his opinions. *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). Given our resolution on the first prong of *Glossip*, we need not address this issue.

American Dictionary of the English Language (1828) (first set of brackets in original)).

In our view, the overall suffering described by the district court, which lasts for one to three minutes, presents a substantial risk of serious harm over and above death itself. Counting to 60 or 180 seconds is not a quick exercise, and constitutionally speaking, that timeframe is intolerable given the suffering that would likely take place under Alabama's nitrogen hypoxia protocol. Such suffering, we believe, is over and above the mental distress that typically accompanies the knowledge of impending death by execution.

The Fifth Circuit's 2-1 decision in *Hoffman v. Westcott*, 131 F.4th 332 (5th Cir. 2025), does not call for a different result.

In *Hoffman*, Louisiana appealed a preliminary injunction that prevented state officials from executing an inmate through nitrogen hypoxia. The Fifth Circuit vacated the preliminary injunction. It held that the inmate failed to meet the two requirements demanded under Supreme Court precedent—namely, that the method of execution "presents a risk that is '*sure or very likely* to cause serious illness and needless suffering,'" *id.* at 335 (quoting *Glossip*, 576 U.S. at 877), and that the State could use "a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain" which it "has refused to adopt without a legitimate penological reason," *id.* (quoting *Bucklew*, 587 U.S. at 134).

As to the first requirement, the Fifth Circuit explained that "the district court heard expert testimony from both parties that nitrogen hypoxia is painless." *Id.* at 336. With respect to the second requirement, the Fifth Circuit concluded that "experts for both parties agreed that death by firing squad"—Mr. Hoffman's proposed alternative means of execution—would "be *more* painful than execution by nitrogen hypoxia." *Id.*[5]

Here, in contrast, the district court found that nitrogen hypoxia causes an inmate to suffer "profound physiological discomfort and distress"—in addition to mental distress—through severe air hunger, *see Lee*, 2026 WL 1493098 at *22, and physiological distress is at least partly physical. *See* Webster's Third New World Dictionary (Unabridged) 1707 (2012) (defining "physiological" in part as "characteristic of or appropriate for an organism's healthy or normal functioning"); The American Heritage Dictionary of the English Language 1325 (4th ed. 2009) (defining "physiological" in part as "[b]eing in accord with or characteristic of the normal functioning of a living organism"); 2 Shorter Oxford English Dictionary 2194 (5th ed. 2002) (defining "physiological" in part as "[p]ertaining

[5] The dissent in *Hoffman* believed that the majority had failed to address the district court's findings that inmates executed by nitrogen hypoxia faced conscious terror and a sense of suffocation for 35 to 40 seconds on the low end and conscious psychological suffering for three to five minutes if they held their breath. *See id.* at 337 (Haynes, J., dissenting).

to the material universe or to natural science; physical"). The district court here also did not make any findings about the firing squad as an alternative method of execution.

C

Under the second prong of *Glossip*, Mr. Lee must also identify an alternative method that "is feasible, readily implemented, and in fact significantly reduces the risk of harm involved." *Nance*, 597 U.S. at 164 (quotations and brackets omitted). He asserts that execution by firing squad pursuant to the Utah protocol is a feasible, readily implementable, and less painful alternative within the meaning of the Eighth Amendment. As noted, an "inmate seeking to identify an alternative method of execution is not limited to choosing among those presently authorized by a particular State's law." *Bucklew*, 587 U.S. at 139–40. *Cf. Nance v. Comm'r, Ga. Dep't of Corr.*, 59 F. 4th 1149, 1155–56 (11th Cir. 2023) (holding that a Georgia inmate set for execution by lethal injection sufficiently pled that the firing squad was an alternative method of execution, but not addressing whether the state had a "legitimate penological reason" for refusing to use the firing squad and allowing district court to address that issue on remand).

The district court, as noted, did not address whether Mr. Lee had shown that the firing squad was a feasible and readily implemented alternative method that would significantly reduce the risk of harm. Mr. Lee asks us to resolve that issue now, but we are not equipped to do so. As an appellate tribunal, it is not our "role to find facts," *United States v. Barnette*, 10 F.3d 1553, 1558 (11th Cir.

1994), and we cannot therefore make findings with respect to feasibility given the conflicting testimony on matters that might affect that issue (e.g., the risk of failure with the firing squad, and whether the need for volunteer marksmen from the correctional staff amounts to a valid penological reason to reject that method). *Compare* Br. for Appellant at 50–52, *with* Br. for Appellee at 39–46. Nor are we able to make factual determinations about what pain, if any, an inmate will suffer if executed by firing squad. Mr. Lee seems to grudgingly recognize some of these problems, as he alternatively requests a remand to the district court to address the firing squad. *See* Reply Br. of Appellant at 12 ("To the extent this Court doubts whether Mr. Lee met his burden of identifying an alternative method of execution, the appropriate remedy is to remand for further proceedings, not to dismiss [the] Eighth Amendment claim.").

We therefore remand the case to the district court with instructions to immediately address the second prong of *Glossip*. And because we cannot make a determination about likelihood of success on that prong on this record, we deny without prejudice Mr. Lee's current motion for a stay of his execution.

IV

Under the facts found by the district court, Alabama's nitrogen hypoxia protocol "presents a 'substantial risk of serious harm'—severe pain over and above death itself." *Nance*, 597 U.S. at 164 (quoting *Glossip*, 576 U.S. at 877). As a result, Mr. Lee has satisfied the first prong of *Glossip*, and we reverse the district court's judgment in favor of the Commissioner.

Given the parties' disputes on prong two of *Glossip*, some of which are factual, the district court will now need to determine in the first instance whether Mr. Lee has demonstrated that the firing squad is an alternative method of execution that "is feasible, readily implemented, and in fact significantly reduce[s]" the risk of harm posed by nitrogen hypoxia. *See id.* If Mr. Lee files a motion for stay of execution, the district court will have to rule on that as well.

Given the impending execution window for Mr. Lee, we order the clerk to issue the mandate immediately (i.e., along with the filing of this opinion). That way the district court will reacquire jurisdiction right away. *See United States v. Sears*, 411 F.3d 1240, 1241 (11th Cir. 2005) ("Issuance of the mandate g[ives] the district court jurisdiction over the case again.").[6]

REVERSED AND REMANDED.

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[6] If we issued a published opinion in this case, we could not expedite the issuance of the mandate without providing "reasonable notice" to the other members of this Court. *See* 11th Cir. R. 41-2.

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

JEFFERY LEE,	)	
	)	
Plaintiff,	)	
	)	
v.	)	CASE NO. 2:25-cv-680-ECM
	)	[WO]
GREG LOVELACE, Commissioner,	)	
Alabama Department of Corrections, *et al.*,	)	
	)	
Defendants.	)	

MEMORANDUM OPINION and ORDER

I. INTRODUCTION

On December 12, 1998, Jeffery Lee ("Lee") murdered Jimmy Ellis ("Ellis") and Elaine Thompson ("Thompson"). A jury convicted Lee of capital murder. As punishment for his crimes, the State of Alabama will end Lee's life. The question before the Court is whether the nitrogen hypoxia protocol the State plans to use to execute Lee is cruel and unusual in violation of the Eighth Amendment to the United States Constitution.

The Court held a three-day bench trial on that question—the first trial in this Court, and in the entire country, examining the constitutionality of nitrogen hypoxia.[1] This method of execution causes death via oxygen deprivation by replacing the condemned inmate's breathing air with 100% nitrogen.[2] Our bodies need adequate oxygen to function,

[1] The undersigned presided over two earlier Eighth Amendment challenges to this nitrogen hypoxia protocol without the benefit of a trial. *See Frazier v. Hamm*, 2025 WL 361172 (M.D. Ala. Jan. 31, 2025); *Boyd v. Hamm*, 2025 WL 2884410 (M.D. Ala. Oct. 9, 2025).

[2] Our normal breathing air comprises 78% nitrogen, 21% oxygen, and 1% other gases.

and an environment with little to no oxygen results in death. And while nitrogen itself is not harmful, nitrogen can kill by displacing the oxygen that would otherwise be present.

Lee claims that the Alabama Department of Corrections' ("ADOC") nitrogen hypoxia protocol ("Protocol") causes inmates to experience prolonged air hunger and feelings of suffocation, which evoke severe anxiety, fear, and physiological distress. Lee does not argue that nitrogen hypoxia is physically painful like a broken bone. Rather, Lee claims that nitrogen hypoxia triggers inmates' survival instincts to breathe oxygen while also preventing them from doing so. The State disagrees,[3] arguing that inmates executed under the Protocol experience only the suffering necessary to carry out a death sentence.

Because the Constitution does not guarantee inmates a painless death, Lee must do more than show a risk of pain—he must show that the Protocol causes *severe* pain, pain that is "well beyond what's needed to effectuate a death sentence." *Bucklew v. Precythe*, 587 U.S. 119, 136–37 (2019). While Lee has shown that executions under the Protocol involve some suffering, on this record he has failed to prove that the Protocol causes more than "the necessary suffering involved in any method employed to extinguish life humanely." *Louisiana ex rel. Francis v. Resweber*, 329 U.S. 459, 464 (1947). Because Lee has not shown that the Protocol cruelly superadds pain, his claim that the Protocol violates the Eighth Amendment fails as a matter of law.

[3] Because the Defendants are state officials sued in their official capacities, this Opinion refers to them as "the State."

II. JURISDICTION AND VENUE

The Court has original subject matter jurisdiction over this case pursuant to 28 U.S.C. § 1331. Personal jurisdiction and venue are uncontested, and the Court concludes that venue properly lies in the Middle District of Alabama. *See* 28 U.S.C. § 1391.

III. PROCEDURAL HISTORY AND BACKGROUND

The Court begins by summarizing Lee's crimes, capital litigation history, and prior lawsuit challenging the ADOC's lethal injection protocol. The Court concludes this section by explaining the Protocol, reciting the relevant procedural history in this case, and summarizing the witness testimony and evidence presented during the three-day bench trial on Lee's Eighth Amendment claim.

A. Lee's Capital Litigation History

On the morning of December 12, 1998, Lee walked into a pawn shop and, without warning, began firing his sawed-off shotgun. *Lee v. Thomas*, 2012 WL 1965608, at *1 (S.D. Ala. May 30, 2012). He fired multiple rounds at Ellis, the store's owner, and Ellis' employees, Thompson and Helen King ("King"). *Id.* Ellis and Thompson were killed. *Id.* Lee then tried and failed to dislodge the cash register before fleeing, leaving behind his shotgun and the carnage he had caused. *Id.* Miraculously, King survived the attack and alerted the authorities. *Id.* Lee was apprehended the following day and confessed. *Id.*

Lee was charged with three counts of capital murder—one count apiece for Ellis' and Thompson's murders during the commission of an attempted robbery, and a third count for murdering Ellis and Thompson pursuant to a single scheme or course of conduct—and one count of attempted murder. *Lee v. Comm'r, Ala. Dep't of Corr.*, 726 F.3d 1172, 1177–

78 (11th Cir. 2013) (citing ALA. CODE §§ 13A-4-2, 13A-5-40(a)(2), (10), 13A-6-2)). He was convicted on all four counts. *Lee v. Comm'r, Ala. Dep't of Corr.*, 731 F. App'x 885, 886 (11th Cir. 2018) (per curiam). The jury recommended a sentence of life imprisonment without the possibility of parole by a seven-to-five vote. *Lee v. State*, 898 So. 2d 790, 807–08 (Ala. Crim. App. 2001). However, the trial court overrode the jury's recommendation and sentenced Lee to death.[4] *See Lee*, 898 So. 2d at 808.

Lee spent the better part of the following two decades unsuccessfully challenging his convictions in state and federal court. *See Lee*, 726 F.3d at 1188–91, 1228. In 2017, Lee challenged the ADOC's lethal injection protocol,[5] arguing that it violated the Eighth Amendment's prohibition on cruel and unusual punishment. *Lee v. Dunn*, 2017 WL 1483530, at *1 (S.D. Ala. Apr. 24, 2017), *vacated in part by Lee*, 731 F. App'x 885. That claim became moot in 2018, however, when Lee elected to be executed by a new method

[4] The Alabama Legislature has since amended the Alabama Code to make a jury's sentencing verdict binding on the trial court. *See* ALA. CODE §§ 13A-5-45, 13A-5-46, and 13A-5-47 But because Lee was charged, convicted, and sentenced to death for capital murder before April 11, 2017, his jury's sentencing verdict was merely advisory. *See* ALA. CODE § 13A-5-47.1 ("Sections 13A-5-45, 13A-5-46, and 13A-5-47 shall apply to any defendant who is charged with capital murder after April 11, 2017, and shall not apply retroactively to any defendant who has previously been convicted of capital murder and sentenced to death prior to April 11, 2017.").

[5] When Lee was convicted and sentenced, electrocution was Alabama's default method of execution. In July 2002, the Alabama Legislature amended Alabama Code § 15-18-82 to make lethal injection the default method. *See* 2002 Alabama Laws Act 2002-492; *Ziegler v. State*, 886 So. 2d 127, 148–49 (Ala. Crim. App. 2003). The change "applie[d] to all persons . . . on Alabama's death row." *Turner v. State*, 924 So. 2d 737, 783 (Ala. Crim. App. 2002) (citation omitted). Thus, even an inmate like Lee, convicted and sentenced before July 2002, would be executed by lethal injection unless he "affirmatively elect[ed] to be executed by electrocution." ALA. CODE § 15-18-82.1(a) (2002); *see also Turner*, 924 So. 2d at 783.

of execution authorized by the Alabama Legislature: nitrogen hypoxia. (*See* doc. 38 in *Lee v. Dunn*, 1:16-cv-473-WS (S.D. Ala. July 20, 2018)); *see also* ALA. CODE § 15-18-82.1(a).[6]

B. The ADOC's Nitrogen Hypoxia Protocol

Executions by all three statutorily authorized methods—electrocution, lethal injection, and nitrogen hypoxia—occur at the Holman Correctional Facility ("Holman") in Atmore, Alabama.[7] *See* ALA. CODE § 15-18-82(b); (doc. 173-7 at 3). Once Alabama's Governor sets an execution timeframe, the ADOC prepares to carry out the inmate's death sentence.[8]

After the execution date is set, the Warden briefs the members of the execution team on the Protocol and provides them with training materials on the hazards associated with nitrogen gas. (Doc. 173-7 at 5–6). Next, the ADOC inspects and calibrates "[a]ll portable [oxygen] monitors and/or gas-measurement devices." (*Id.* at 6–7). The Warden also examines the nitrogen and breathing air tanks and verifies "that the volume of gas in each bank . . . exceeds the minimum acceptable thresholds." (*Id.* at 7).

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[6] "When Alabama added nitrogen hypoxia as an alternative method of execution, it did not . . . have a protocol in place for nitrogen-hypoxia executions." *See Woods v. Comm'r, Ala. of Corr.*, 951 F.3d 1288, 1291 (11th Cir. 2020). In August 2023, approximately five years after Alabama authorized nitrogen hypoxia as an execution method, the ADOC finalized and released a redacted, publicly available version of the Protocol. (Doc. 40 at 10, para. 39).

[7] During discovery, Lee moved to compel "inspection of the nitrogen hypoxia delivery system . . . , the control room from which the delivery of nitrogen hypoxia is initiated, the nitrogen storage area, and any other equipment and locations associated with nitrogen hypoxia executions." (Doc. 70 at 1). The Court granted Lee's motion. (Doc. 79). The undersigned attended the parties' inspection at Holman and observed several key rooms, including the control room, the execution chamber, the viewing rooms, and the nitrogen tank storage room. (*See id.*; *see also* doc. 173-7).

[8] In Alabama, once a death sentence is imposed, the Attorney General must move the Alabama Supreme Court to authorize the Commissioner of the ADOC to carry out the execution, which is only then set "within a time frame set by the governor." ALA. R. APP. P. 8(d)(1).

The week of the execution, the execution team meets to "walk through the steps of the procedure." (*Id.* at 8). At least two ADOC officers observe the condemned inmate at all times during this period. (*Id.* at 9). The officers' observations are memorialized in "duty post logs" which chronicle various events, including the inmate's meals, phone calls, and visits. (*Id.* at 9–10; *see, e.g.*, doc. 173-8 (Anthony Boyd's Duty Post Log)). These duty post logs also describe the executions themselves, albeit at a high level of generality. (*See, e.g.*, doc. 173-14 at 9 (Geoffrey West's Duty Post Log)).

On the day of the execution, the Protocol proceeds as follows: The Warden, Assistant Warden, or Execution Team Captain (1) pressurizes the nitrogen hypoxia system, (2) connects an industrial-use respirator mask to the breathing gas tubing, and (3) inspects the oxygen monitors to ensure they are functioning properly. (Doc. 173-7 at 14). The execution team escorts the condemned inmate to the execution chamber and secures him to the gurney. (*Id.* at 15). The condemned inmate is secured to the gurney by a chest and shoulder harness and one or more nylon straps ("chest restraints")—"the same type [of] material that you would make a seat belt out of." (Doc. 147 at 187:14–25; *see also* doc. 173-5 at 20–21, paras. 77–82).

Execution team members attach pulse oximeters, devices that measure the oxygen saturation in the blood, to the condemned inmate on the gurney. (Doc. 173-7 at 15). The mask is secured to the inmate's face and adjusted as necessary. (*Id.* at 16). The Warden then enters the execution chamber and reads the death warrant. (*Id.*). Shortly thereafter, the inmate is given two minutes to make a final statement. (*Id.*). After a series of final safety checks, the execution begins. The Warden activates the nitrogen hypoxia system,

starting the flow of ultra-high purity nitrogen gas into the mask, which lasts for the longer of fifteen minutes or five minutes after a flatline indication on the inmate's EKG. (*Id.* at 16–17). Once the nitrogen gas begins to flow, it displaces the breathing air in the mask until the inmate is breathing almost pure nitrogen. (Doc. 173-141 at 5, para. 8). And when the brain is deprived of oxygen for long enough, unconsciousness and death ensue. (*Id.*). Additionally, the mask allows exhaled carbon dioxide to exit via a one-way valve, which eliminates "rebreathing" of carbon dioxide by the inmate. (*Id.* at 6, para. 9).

Lee is scheduled to be the eighth inmate executed by this Protocol.[9] Additionally, in March 2025, the State of Louisiana executed Jessie Hoffman Jr. via nitrogen hypoxia under a substantially similar protocol to Alabama's.

C. Lee's Nitrogen Hypoxia Challenge

Lee initiated this lawsuit on August 22, 2025, naming as Defendants John Q. Hamm ("Commissioner Hamm"), then-Commissioner of the ADOC,[10] and Terry Raybon ("Warden Raybon"), the Warden of Holman, in their official capacities. (Doc. 1). Lee's sole remaining claim, brought pursuant to 42 U.S.C. § 1983, is that the Protocol facially violates the Eighth Amendment. (Doc. 40 (operative complaint)). And the only alternative

[9] The others were Kenneth Smith ("Smith"), Alan Miller ("Miller"), Carey Grayson ("Grayson"), Demetrius Frazier ("Frazier"), Gregory Hunt ("Hunt"), Geoffrey West ("West"), and Anthony Boyd ("Boyd").

[10] While this case was pending, Hamm retired from his position as Commissioner of the ADOC. (*See* doc. 144 at 1). On May 1, 2026, Greg Lovelace became the Commissioner of the ADOC and was substituted as a named Defendant pursuant to Federal Rule of Civil Procedure 25(d). (*Id.*).

method of execution he now proposes is the firing squad. (*Id.* at 20–22; *see also* doc. 98).[11] Lee seeks a declaration that the Protocol is unconstitutional and an injunction prohibiting the ADOC from executing him by nitrogen hypoxia or "any method other than one of the alternatives provided by his attorneys." (Doc. 40 at 23).

On the same day that Lee filed his lawsuit, seven other Alabama death row inmates filed § 1983 actions claiming (among other things) that the Protocol violates the Eighth Amendment.[12] The parties in all eight lawsuits filed joint motions to consolidate the cases for purposes of case management and discovery. (*See, e.g.*, doc. 22). On January 14, 2026, the Court held a hearing on the motions to consolidate. At that hearing, the State notified the Court and Lee's counsel for the first time that Lee was the next person for whom the State would move to set an execution date. At a later status conference, the State represented that it anticipated moving to set Lee's execution date by mid-February. Accordingly, although Lee's case was briefly consolidated with the others (*see* doc. 35), on January 29, 2026, the Court deconsolidated his case and set it on a separate, expedited schedule (*see* doc. 36).

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[11] Lee originally raised other claims arising under the federal and Alabama constitutions. (*See* doc. 1). The Court dismissed those claims on the State's motion. (Doc. 33). Likewise, Lee's original and amended complaints identified medical-aid-in-dying as an alternative method of execution (doc. 1 at 21, para. 72; doc. 40 at 22, para. 72), but he filed a notice prior to trial withdrawing that method as an alternative (doc. 98). The Court construed that notice (doc. 98) as containing a motion to amend the operative complaint (doc. 40), which the Court granted (*see* doc. 172).

[12] *Van Pelt v. Hamm*, 2:25-cv-671-ECM; *Belisle v. Hamm*, 2:25-cv-673-ECM; *Brooks v. Hamm*, 2:25-cv-674-ECM; *George v. Hamm*, 2:25-cv-675; *Jenkins v. Hamm*, 2:25-cv-676-ECM; *Williams v. Hamm*, 2:25-cv-677-ECM; and *Taylor v. Hamm*, 2:25-cv-678-ECM. These seven cases have since been consolidated with another § 1983 method of execution case, *Wilson v. Hamm*, 2:24-cv-111-ECM ("*Wilson*"), and recaptioned *In Re: Alabama Nitrogen Hypoxia Protocol Litigation*, 2:24-cv-111-ECM (M.D. Ala.).

True to its word, on February 9, 2026, the State moved to set Lee's execution. (*See* doc. 106-1). On April 2, 2026, the Alabama Supreme Court granted that motion and authorized Alabama's Governor to set Lee's execution date. (*Id.*). On April 15, 2026, the Governor declared that Lee's execution would take place in the thirty-hour timeframe commencing on June 11, 2026 at 12:00 a.m., and concluding on June 12, 2026 at 6:00 a.m. (Doc. 127-1).

During discovery in *Wilson*, it was brought to the Court's attention that the pulse oximeters used in previous executions retained residual data from those executions. Specifically, the pulse oximeters retained periodic readings of the inmates' blood oxygen saturation levels and pulse rates. And on April 21, 2026—six days before the start of Lee's bench trial—the State filed a notice in *Wilson* notifying the Court that data from what appeared to be prior executions had been extracted from the pulse oximeters. (Doc. 118 in 2:24-cv-111-ECM (M.D. Ala.)). Lee filed a motion to exclude, seeking to preclude the State from offering at trial the pulse oximeter data and any testimony or evidence related to pulse oximeter readings. (Doc. 136).

At the pretrial conference, the parties agreed to bifurcate the trial as follows: Phase 1 would commence on April 27 and address all matters not related to the pulse oximeter data; and Phase 2, if necessary, would address matters related to the pulse oximeter data and would be set later pending an opportunity for Lee to conduct additional discovery. The parties reserved the right to recall witnesses, call new witnesses, or both during Phase 2. The Court denied Lee's motion to exclude the pulse oximeter evidence without prejudice.

(Doc. 142). As discussed further below, the parties submitted evidence regarding the new pulse oximeter data but did not reconvene for additional in-court testimony.

D. Overview of Trial Evidence

Eleven witnesses testified during the bench trial: seven lay witnesses and four experts.[13] Lee called as experts three medical doctors: (1) Dr. Richard Schwartzstein ("Dr. Schwartzstein"), an expert in pulmonology, critical care medicine, physiology, hypoxia, dyspnea,[14] and air hunger; (2) Dr. Julie Bastarache ("Dr. Bastarache"), an expert in pulmonology, critical care medicine, and pathology; and (3) Dr. James Williams ("Dr. Williams"), an expert in emergency and family medicine, gunshot wounds, firearms, and ballistics.[15] (Doc. 146 at 10:17–20; *id.* at 129:15–17; doc. 147 at 8:6–10). The State proffered Dr. Joseph F. Antognini ("Dr. Antognini") as an expert in anesthesiology.[16] (Doc. 147 at 251:2–5). Lee filed a motion to exclude Dr. Antognini (doc. 103), which the Court held in abeyance pending the conclusion of trial and ultimately denied (*see* doc. 175).

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[13] The parties also stipulated to the admission of Dr. Brian McAlary's ("Dr. McAlary") declaration testimony from two previous nitrogen hypoxia lawsuits. (Doc. 128 at 2); *see Frazier*, 2025 WL 361172; *see also Boyd*, 2025 WL 2884410. Dr. McAlary is a board-certified anesthesiologist who witnessed Grayson's execution by nitrogen hypoxia. (*See* doc. 173-19 at 2–4, paras. 1–18).

[14] As explained further below, dyspnea is breathing difficulty or breathing discomfort, the most severe form of which is air hunger.

[15] Dr. Williams testified regarding the firing squad, Lee's proposed alternative method of execution. Specifically, Dr. Williams testified to a reasonable degree of medical certainty that execution by firing squad (1) causes a quick and painless death and (2) is feasible and readily implemented. (Doc. 147 at 8:15–23). But because Lee fails to show that the Protocol poses a substantial risk of severe pain, the Court pretermits discussion of Dr. Williams' opinions on the firing squad.

[16] The State also sought to offer Dr. Antognini as an expert "in the field of general medicine." (Doc. 147 at 251:2–4).

The Court also admitted hundreds of exhibits totaling thousands of pages, including scientific literature, ADOC records, news articles about prior nitrogen hypoxia executions, witness testimony from prior nitrogen hypoxia litigation, and video demonstrations of Alabama's and Louisiana's nitrogen hypoxia execution systems. Among the exhibits are the pulse oximeter data and expert witness declarations interpreting aspects of the data, which the Court addresses *infra* Section III.E.

The Court does not exhaustively summarize each piece of evidence or each witness's testimony. However, the Court describes the following evidence and testimony: (1) information about nitrogen and oxygen as atmospheric gases, (2) demonstrations of Alabama's and Louisiana's nitrogen hypoxia execution systems, (3) background about different types of pain, (4) background about dyspnea and air hunger, (5) an overview of the experts' opinions on the effects of the Protocol, and (6) an overview of the lay witnesses testimony.

1. Nitrogen and Oxygen

Our bodies need oxygen to function. The normal oxygen concentration in the air is around 21%. (Doc. 173-141 at 15, para. 25 (Declaration of Dr. Antognini)). But the most abundant atmospheric gas is nitrogen, comprising approximately 78% of air. (*Id.* at 5, para. 7). Nitrogen itself is not harmful under normal circumstances, but it can kill via displacement of the oxygen that is normally present in our breathing air. (*Id.*).

An oxygen concentration of 6.2% is "just sufficient to maintain consciousness." (*Id.* at 22, para. 40). If the oxygen concentration is less than 5%, "you start to get critically low oxygen levels of inspired gas." (Doc. 146 at 132:15–16 (Dr. Bastarache trial testimony)).

An oxygen concentration of 2.1% would "rapidly cause death." (Doc. 173-141 at 16, para. 26). An atmosphere containing 0.8% oxygen is not "supportive of human life," and exposure to an atmosphere with 0.8% oxygen would result in unconsciousness very quickly and death soon thereafter. (Doc. 149 at 17:16–23 (Dr. Antognini trial testimony)).

2. Demonstrations of Nitrogen Hypoxia Systems

At trial, the State presented video demonstrations of Louisiana's and Alabama's nitrogen hypoxia systems (doc. 173-198, doc. 173-197), as well as Dr. Antognini's written account of another demonstration of the Alabama system (doc. 173-141 at 11–12, para. 19). The Louisiana video depicts a masked mannequin with an oxygen monitor attached to a tube placed inside the mask, which tracks the decrease in oxygen level after the nitrogen gas is turned on. (*Id.* at 16:6–25; doc. 173-196). The video shows the oxygen level inside the mask rapidly decreasing to 0.8% within one minute after the nitrogen began to flow. (Doc. 149 at 17:1–15; doc. 173-196).[17]

The Alabama video is similar, depicting a mask strapped to a gas tank and an oxygen monitor attached to a tube inside the mask. (Doc. 173-197). Like the Louisiana video, the Alabama video shows the oxygen concentration in the mask quickly plummeting: around twenty-five seconds after the breathing air supply is cut off and nitrogen is turned on, the oxygen concentration is less than 6%. (*Id.*; *see also* doc. 147 at 143:24–144:2 (Houts trial testimony)). Approximately thirty to thirty-three seconds after the nitrogen gas is turned

[17] The oxygen level inside the mask reached 0.8% despite a "gap" in the mask seal caused by the tube attached to the oxygen monitor (*see* doc. 149 at 18:3–5), which would not be present in an execution under the Protocol.

on, the oxygen concentration in the mask is less than 3%. (Doc. 173-197). And thirty-five to forty seconds in, the oxygen concentration is less than 2%. (*Id.*). In the separate demonstration witnessed by Dr. Antognini, "an oxygen monitor was placed in the mask and surrounded by sheets and a towel." (Doc. 173-141 at 11, para. 19). According to Dr. Antognini, this demonstration showed results similar to those in the video: less than twenty-four seconds after nitrogen gas was turned on, the oxygen concentration in the mask was 5%; and approximately forty-two seconds in, the oxygen concentration was 2%. (Doc. 173-141 at 11–12, para. 19).

3. Types of Pain

To explain how the medical community understands pain, Dr. Williams testified regarding how pain is processed by the brain. (Doc. 147 at 10:9–13). Dr. Williams defined pain as a noxious stimulus that is "transmitted to the brain via sensory nerves." (Doc. 173-40 at 5). There are four types of noxious stimuli: (1) mechanical (like a gunshot, stabbing, or pressure); (2) thermal (like placing your hand on a hot stove); (3) chemical (like the reaction to capsaicin in food); and (4) visceral or homeostatic, including nausea, itching, and air hunger. (Doc. 147 at 11:3–12:5). As relevant here, the visceral or homeostatic receptors—"the systems which give the brain input on things such as the state of oxygen in the blood"— can result in "sensations as simple as hunger, air hunger, nausea, cramping, [and] itching." (*Id.* at 11:24–12:5).

4. Dyspnea and Air Hunger

Dr. Schwartzstein, a pulmonary and critical care physician and a professor, has treated and studied dyspnea for decades. (Doc. 146 at 7:12–9:19). He has treated over

15,000 dyspneic patients; written numerous articles on dyspnea; and served on the writing committees for multiple "consensus statements" (the official positions by leading medical organizations) on dyspnea. (*Id.* at 7:23–8:18, 9:14–19, 23:5–24:22; 29:17–31:20). Dr. Bastarache, also a pulmonary and critical care physician as well as a professor of pathology, regularly treats dyspnea from hypoxia and studies lung injury and disease. (*Id.* at 127:10–29:14, 175:13–76:14). Based on their training, clinical experience, and research, Dr. Schwartzstein and Dr. Bastarache testified about how hypoxia can cause dyspnea, and how humans experience and respond to dyspnea and air hunger, as follows:

Dyspnea is a symptom generally understood as breathing difficulty or breathing discomfort. (Doc. 146 at 8:12–14 (Dr. Schwartzstein trial testimony)). "With few exceptions, dyspnea will provoke increases in respiratory rate (breathing faster) and tidal volume (the size of the breath) in healthy individuals." (Doc. 173-43 at 7, para. 20 (parentheticals in original)). Although dyspnea shares similar features with pain, dyspnea is "a more holistic discomfort sensation" without a specific source, whereas pain is often associated with "a particular injury to a portion of the body." (Doc. 146 at 11:4–12 (Dr. Schwartzstein trial testimony)). And similar parts of the brain are activated in response to dyspnea as are activated when a person is experiencing pain. (*See id.* at 33:20–23 (Dr. Schwartzstein trial testimony)).

The experience of dyspnea can range from minor to very severe. (*Id.* at 11:11–12 (Dr. Schwartzstein trial testimony)). The most severe form of dyspnea is air hunger,[18]

[18] Because air hunger is a form of dyspnea, this Opinion occasionally uses those terms interchangeably.

which is "associated with severe gas exchange changes." (Doc. 173-43 at 6, para. 18). Clinical patients and research subjects have described the distressing sensation that accompanies air hunger in numerous ways, including feeling "starved for air" or like your "[b]reaths are too small," feeling like you "[c]annot get enough air," feeling like there is "an elephant on your chest," "like running in a race . . . and feel[ing] like you are going to collapse," "a feeling of suffocation," and "a smothering feeling akin to drowning," (Doc. 146 at 19:9–13, 32:11–20, 63:1–5); (doc. 173-82 at 6 ("Patients often describe air hunger as akin to suffocation or drowning . . . ."); *see also* doc. 173-74 at 9 fig. 6 (research subjects describing hypoxia as air hunger, starved for air, short of breath, and "a feeling of suffocation")).[19]

For many people, air hunger causes extreme emotional distress, panic, anxiety, and fear. (Doc. 146 at 18:18–24, 20:3–14, 22:19–23:2, 29:9–15 (Dr. Schwartzstein trial testimony); *see also* doc. 149 at 70:9–19 (Dr. Antognini agreeing that dyspnea "can cause terror," "panic," and "ranks among the most distressing experiences that human beings can endure")). Dr. Schwartzstein testified that dyspnea is one of the "most severe forms of threat to [one's] very existence," triggering the brain's survival instincts and evoking a primal fear response due to the inability to take in enough air. (Doc. 146 at 11:17–18; *see id.* at 133:14–20 (Dr. Bastarache defining air hunger as "the primal urge to get more air," which corresponds with the body's "extreme physiologic need to get more oxygen"); *id.* at

[19] One accepted medical definition of suffocation is "death from deprivation of oxygen, either from a lack of the gas in a breathable environment or from obstruction of the external air passages." (Doc. 149 at 74:17–75:1).

156:23–24 (Dr. Bastarache testifying that air hunger produces "intense physiologic stress that causes intense suffering")). Indeed, many people find air hunger "worse than pain" because it is associated with the fear of dying. (*Id.* at 28:4–5 (Dr. Schwartzstein trial testimony); *see also* doc. 173-57 at 1 ("Although it shares many similarities with pain, dyspn[]ea can be far worse than pain in that it summons a primal fear response.")).

Several factors cause or exacerbate air hunger, including hypercapnia (too much carbon dioxide), hypoxia, and restrictions on the size of one's breath. (Doc. 173-43 at 7, para. 21; *id.* at 9–10, para. 28). Anxiety can also exacerbate air hunger. (*Id.* at 9, para. 27). Several factors can alleviate air hunger, including taking larger breaths and reducing anxiety. (*Id.* at 9–10, paras. 27–30). In the clinical and research settings, mitigating the dyspneic subject's anxiety is possible. In the research setting, for example, researchers can reassure the test subjects that their feelings of air hunger are merely part of the experiment. (Doc. 173-74 at 3). And in the clinical setting, doctors can reassure many patients that the patients' dyspnea is a consequence of their condition and does not mean they are going to die. (Doc. 173-57 at 17 tbl. 2). In an execution setting, however, such reassurance is not possible because the goal is to cause the inmate's death.

5. Expert Testimony on the Protocol's Effects

Except for Dr. Williams, each of the parties' experts testified generally about the effects of nitrogen hypoxia, with particular focus on the time it takes to render an inmate unconscious and any suffering involved. The parties' experts agree that the Protocol

creates a hypoxic environment,[20] the Protocol causes some level of air hunger, and air hunger is extremely distressing. But the parties presented conflicting expert testimony about the air hunger's severity, the time to unconsciousness, and (relatedly) how long inmates are able to experience air hunger.

Dr. Antognini, an anesthesiologist, opines that the Protocol renders a condemned inmate unconsciousness in approximately sixty to seventy-five seconds from when the nitrogen is turned on and begins to flow into the mask.[21] (Doc. 149 at 88:11–19). He bases this opinion on his clinical career; his personal experience testing various aspects of the Protocol; demonstrations of the Alabama and Louisiana nitrogen hypoxia systems; and various articles, reports, reviews, and studies. Across the scientific literature on which he relies, hypoxia resulted in unconsciousness in approximately one minute or less. Additionally, he opines that because unconsciousness occurs quickly under the Protocol, "any distress or suffering [from air hunger] . . . is going to be very, very brief if at all present"—on the order of ten to twenty seconds. (Doc. 149 at 61:17–19, 109:20). He further claims that any air hunger would only be "mild" and akin to the shortness of breath one might expect to have "on an exercise bike." (*Id.* at 28:16–22, 54:25–55:3). In support, he contends that air hunger results primarily from the buildup of carbon dioxide and not

[20] Dr. Schwartzstein noted that the Protocol causes "hypoxemia," or "low oxygen levels in the blood." (*See* doc. 146 at 8:19–22). Dr. Schwartzstein noted that hypoxemia and hypoxia "are often used interchangeably." (*See id.* at 8:22–9:2). While the Court uses the term hypoxia, the Court understands the terms hypoxia and hypoxemia to mean the same thing when used by the experts.

[21] Elsewhere, Dr. Antognini estimates it takes sixty to seventy seconds. (Doc. 149 at 12:25–13:1).

oxygen deprivation, and that the Protocol prevents carbon dioxide buildup because exhaled carbon dioxide exits the mask via a one-way valve.

In contrast to Dr. Antognini, Dr. Schwartzstein and Dr. Bastarache opine that inmates executed under the Protocol likely experience severe air hunger and associated emotional suffering and physiological distress. (Doc. 146 at 63:1–7 (Dr. Schwartzstein); *id.* at 156:23–25 (Dr. Bastarache)). They claim that air hunger is severe because of the extent of oxygen deprivation; the human body's primal physiological response to not getting enough oxygen; the associated fear of dying; the inmate's inability to alleviate air hunger; restrictions on the inmate's breathing from the chest restraints; and the occurrence of flash pulmonary edema, a condition triggered by a sudden rise in blood pressure in which the lungs "almost instantaneously" fill with fluid and make it "extremely difficult to breathe," (*id.* at 28:16–22, 54:25–55:3).

Lee's experts further claim that inmates executed under the Protocol remain conscious, and therefore able to experience air hunger, for much longer than Dr. Antognini estimates. Regarding time to unconsciousness, Dr. Bastarache opines that the theoretical "floor," under idealized conditions with a healthy person breathing 100% nitrogen and having no breathing restrictions, is two minutes and eighteen seconds. (*Id.* at 138:3–39:9). But based on her interpretations of eyewitnesses' observations of past executions, Dr. Bastarache estimates that four inmates previously executed under the Protocol remained conscious for between three and seven minutes. (*Id.* at 144:14–51:1). In particular, witnesses observed the inmates making certain movements during the executions, which Dr. Bastarache interprets as "purposeful" movements and thus evidence of consciousness

(*id.* at 141:12). Additionally, citing brain imaging data and studies of patients who later developed PTSD attributable to dyspnea experienced during mechanical ventilation, Dr. Schwartzstein opines that the human brain can continue to process "respiratory-related brain suffering"—i.e., distress evoked by dyspnea—even when the person is apparently unconscious or "unawake." (*See id.* at 48:18–24, 55:15–25, 78:20–24, 90:18–92:18). He testified that unconsciousness "does not prevent [a person] from *experiencing* dyspnea and the associated suffering," because the brain continues to process the stimuli. (*Id.* at 95:10–12, 97:20–21 (emphasis added)). He claims that an inmate's brain likely continues processing dyspnea-related stimuli for three to five minutes after the inmate is "unawake." (*Id.* at 53:15–17).

6. Lay Witnesses

The seven lay witnesses who testified were: (1) Sarah Clifton ("Clifton"), a reporter for the Montgomery Advertiser; (2) Commissioner Hamm; (3) Charles Williams ("Williams"), Deputy Commissioner of the ADOC; (4) James Houts ("Houts"), a former Alabama Assistant Attorney General; (5) Warden Raybon; (6) Warden Brandon McKenzie ("Warden McKenzie"), a member of the ADOC's execution team; and (7) Warden Fitzgerald Clemons ("Warden Clemons"), another member of the ADOC's execution team. (Doc. 146 at 191:18–22, 216:7–11, 244:23–45:2; doc. 147 at 128:4–21, 159:12–19, 171:2–17, 210:22–11:7).

Clifton testified live about her observations as a media witness to the past nitrogen hypoxia executions of Frazier, West, and Boyd, including her observations of the inmates' movements during the executions. (Doc. 146 at 191:25–192:16). The Court also received

affidavit testimony and news articles detailing witnesses' observations of past nitrogen hypoxia executions, including their observations of the inmates' movements. (*See, e.g.*, docs. 173-19, 173-31, 173-88, 173-129, 173-130). The other lay witnesses provided background information regarding the ADOC's adoption of the Protocol and testimony regarding their own observations of nitrogen hypoxia executions. (*See, e.g.*, doc. 146 at 246:5–255:3). For example, Warden McKenzie testified about pulse oximeter readings he personally observed during past executions. Additionally, Houts, Warden McKenzie, and Warden Clemons testified that they each had been strapped to the gurney under execution conditions in terms of the tightness of the straps, and that the straps did not restrict their ability to breathe deeply. (*See, e.g.*, doc. 147 at 221:5–24).

E. Pulse Oximeter Data

After the bench trial, the parties offered additional exhibits—including the pulse oximeter data and updated declarations from Dr. Bastarache and Dr. Antognini—but did not seek to reconvene for further in-court testimony. The pulse oximeter data appear to show blood oxygen saturation readings from three past nitrogen hypoxia executions, although it is not clear which executions. (*See* doc. 173-139 at 70–79, 113–20, 215–24). All three data points show the same pattern: oxygen saturation levels plunge rapidly—within thirty seconds—then continue to decline gradually for several minutes before measurements completely cease.

Although the Court cannot, on this record, determine which executions these data represent, the Court finds it noteworthy that they consistently show a rapid decline in oxygen saturation levels. Beyond that general trend, however, the Court gives no weight

to the pulse oximeter data—including Warden McKenzie's testimony about pulse oximeter readings he personally observed during past executions—because the parties have not provided the necessary context for the data's interpretation, particularly at what oxygen saturation level consciousness ceases, whether and at what level consciousness begins fading, and how any continuum of consciousness might impact the inmates' experience of any distress. *Cf. Boyd*, 2025 WL 2884410, at *7 & n.37 (relaying expert's testimony that "consciousness fades for most people around 50% oxygen saturation, and that some people can lose consciousness before they feel any distress"; and observing that, because "consciousness 'starts to fluctuate'" when the oxygen saturation level drops below 50%," inmates may not be fully conscious the entire period after nitrogen begins to flow).[22] For this reason, neither the data nor the related exhibits have impacted the Court's analysis or conclusion.

IV. LEGAL STANDARDS

A. Bench Trial

"In an action tried on the facts without a jury . . . the court must find the facts specially and state its conclusions of law separately." FED. R. CIV. P. 52(a)(1). In a bench trial, "it is the exclusive province of the judge . . . to assess the credibility of witnesses and to assign weight to their testimony." *Childrey v. Bennett*, 997 F.2d 830, 834 (11th Cir. 1993); *see also Sidman v. Travelers Cas. & Surety*, 841 F.3d 1197, 1201 (11th Cir. 2016)

[22] Besides Dr. Antognini's statement that consciousness is "a continuum," (doc. 149 at 66:9–11), on which he did not elaborate, the Court heard no expert testimony in this case about whether consciousness fluctuates during a nitrogen hypoxia execution. Moreover, as discussed *infra* note 26, the Court heard little evidence about whether the level of air hunger remains consistent or varies during the execution.

(explaining, in the bench trial context, that "the district court has the advantage of observing the witnesses and evaluating their credibility firsthand," and that "[t]he credibility of a witness is in the province of the factfinder" (alteration in original) (first quoting *Fischer v. S/Y NERAIDA*, 508 F.3d 586, 592 (11th Cir. 2007), then quoting *Crystal Ent. & Filmworks, Inc. v. Jurado*, 643 F.3d 1313, 1320 (11th Cir. 2011))). Additionally, "[a] trial judge sitting without jury is entitled to great latitude concerning the admission or exclusion of evidence." *Wright v. Sw. Bank*, 554 F.2d 661, 663 (5th Cir. 1977).[23]

B. Eighth Amendment Method of Execution Claims

Capital punishment is unquestionably constitutional. *See Bucklew*, 587 U.S. at 129. And states are permitted to carry out executions by any method that is not "cruel and unusual." U.S. CONST. amend. VIII. When a federal court evaluates whether a state's method of execution violates the Constitution, it may not act as a "board[] of inquiry charged with determining 'best practices' for executions" or "intrude on the role of state legislatures in implementing their execution procedures," and it must refrain from becoming "embroil[ed] . . . in ongoing scientific controversies beyond [its] expertise." *See Baze v. Rees*, 553 U.S. 35, 51 (2008) (plurality op.).

"The cruelty against which the Constitution protects a convicted man is cruelty inherent in the method of punishment, not the necessary suffering involved in any method employed to extinguish life humanely." *Resweber*, 329 U.S. at 464. Cruelty

[23] In *Bonner v. City of Prichard*, 661 F.2d 1206, 1209 (11th Cir. 1981) (en banc), the Eleventh Circuit adopted as binding precedent all decisions of the former Fifth Circuit handed down prior to the close of business on September 30, 1981.

"implies . . . something inhuman and barbarous[]—something more than the mere extinguishment of life." *In re Kemmler*, 136 U.S. 436, 447 (1890). It requires the "superadd[ition]" of "terror, pain, or disgrace" to death. *Wilkerson v. Utah*, 99 U.S. 130, 135 (1878); *cf. Baze*, 553 U.S. at 48 ("What each of the forbidden punishments had in common was the deliberate infliction of pain for the sake of pain—'superadd[ing]' pain to the death sentence through torture and the like." (alteration in original) (quoting *Wilkerson*, 99 U.S. at 135)). The United States Supreme Court has provided instructive examples of cruelty: drawing and quartering, public dissection, burning at the stake, crucifixion, breaking on the wheel, flaying, scourging, starving, gibbeting, or rending asunder with horses. *See Bucklew*, 587 U.S. at 131; *In re Bonner*, 151 U.S. 242, 258 (1894); *In re Kemmler*, 136 U.S. at 446; *Wilkerson*, 99 U.S. at 135; *Baze*, 553 U.S. at 95–96 (Thomas, J., concurring); *see also id.* at 50 (plurality op.) (reasoning that "a series of abortive attempts at electrocution" would likely run afoul of the Eighth Amendment (citing *Resweber*, 329 U.S. at 471 (Frankfurter, J., concurring))).

"It's instructive, too, to contrast the modes of execution the Eighth Amendment was understood to forbid with those it was understood to permit[] . . . [a]t the time of the Amendment's adoption . . . ." *Bucklew*, 587 U.S. at 132. Among those permitted methods was hanging, which was "no guarantee of a quick and painless death." *Id.* Hanging more often than not caused death from "loss of blood flow to the brain, which could produce unconsciousness usually within seconds, or suffocation, which could take several minutes." *Id.* Even though "hanging could and often did result in significant pain," it was not cruel in the constitutional sense because it was not intended to cause pain, and the risks

were considered unfortunate but inevitable—necessarily concomitant to the act of carrying out capital punishment. *See id.* (citations omitted). The same unfortunate but inevitable risks attend execution by firing squad. *See Wilkerson*, 99 U.S. at 134–35. And electrocution. *See Resweber*, 329 U.S. at 463–64; *In re Kemmler*, 136 U.S. at 446–47, 449. And lethal injection. *See Bucklew*, 587 U.S. at 147–49; *Glossip v. Gross*, 576 U.S. 863, 878 (2015); *Baze*, 553 U.S. at 62.[24] In short, "what unites the punishments the Eighth Amendment was understood to forbid, and distinguishes them from those it was understood to allow, is that the former were long disused (unusual) forms of punishment that intensified the sentence of death with a (cruel) 'superadd[ition]' of 'terror, pain, or disgrace.'" *Bucklew*, 587 U.S. at 133 (parentheticals and alteration in original) (quoting *Baze*, 553 U.S. at 48).

To show that the ADOC's nitrogen hypoxia protocol is cruel and unusual, Lee must first show that the Protocol poses "a 'substantial risk of serious harm,' an 'objectively intolerable risk of harm' that prevents prison officials from pleading that they were 'subjectively blameless for purposes of the Eighth Amendment.'" *Glossip*, 576 U.S. at 877

[24] Cyanide gas was also not free from unfortunate risks—yet multiple federal courts upheld the constitutionality of this execution method. The Fifth Circuit's decision in *Gray v. Lucas*, though nonbinding, is instructive. 710 F.2d 1048 (5th Cir. 1983), *cert. denied*, 463 U.S. 1237 (1983). That court, accepting "as proven" that execution by cyanide gas caused more than seven minutes of physical pain, held that "the pain and terror from death by cyanide gas is [not] so different in degree or nature from that resulting from other traditional modes of execution as to implicate the [E]ighth [A]mendment." *Id.* at 1061. The Fourth Circuit reached a similar conclusion. *See Hunt v. Nuth*, 57 F.3d 1327, 1337–38 (4th Cir. 1995), *cert. denied*, 516 U.S. 1054 (1996); *see also id.* at 1338 (collecting cases, and corresponding denials of certiorari, in which courts held lethal gas not violative of the Eighth Amendment). The Ninth Circuit disagreed and held that execution by cyanide gas was unconstitutional, but thereafter, the State of California amended its statute to allow inmates to choose execution by lethal injection instead; consequently, the Supreme Court vacated the Ninth Circuit's judgment and remanded in light of the amended statute. *See Fierro v. Gomez*, 77 F.3d 301, 306–08 (9th Cir. 1996), *cert. granted, judgment vacated*, 519 U.S. 918 (1996).

(quoting *Baze*, 553 U.S. at 50).[25] "Simply because an execution may result in pain, either by accident or as an inescapable consequence of death, does not establish the sort of 'objectively intolerable risk of harm' that qualifies as cruel and unusual." *Baze*, 553 U.S. at 50 (quoting *Farmer v. Brennan*, 511 U.S. 825, 846 (1994)). Instead, Lee must show that the Protocol "presents a risk that is '*sure or very likely* to cause serious illness and needless suffering,' and give[s] rise to 'sufficiently *imminent* dangers.'" *Glossip*, 576 U.S. at 877 (emphases in original) (quoting *Baze*, 553 U.S. at 50). To prevail, Lee must also "show a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain." *Bucklew*, 587 U.S. at 134. But if the Protocol does not present a substantial risk of severe pain, the State "may use it regardless of the proposed alternatives." *Nance v. Comm'r, Ga. Dep't of Corr.*, 169 F.4th 1312, 1318 (11th Cir. Mar. 19, 2026). After all, "[a]n 'alternative method' cannot 'reduce a substantial risk of severe pain' when there was no substantial risk in the first place." *Id.*

In sum, Lee must show by a preponderance of the evidence that the Protocol (1) creates a substantial risk of severe pain and (2) "there is an alternative that is feasible, readily implemented, and in fact significantly reduces a substantial risk of severe pain." *Id.* (quoting *Barber v. Governor of Ala.*, 73 F.4th 1306, 1318 (11th Cir. 2023)). Lee's claim

[25] That Lee brings a facial challenge rather than an as-applied challenge does not change the applicable substantive rule of law. *See Bucklew*, 587 U.S. at 138–39. "Rather than requiring differing substantive rules, 'classifying a lawsuit as facial or as-applied affects the extent to which the invalidity of the challenged law must be demonstrated and the corresponding 'breadth of the remedy.'" *Boyd*, 2025 WL 2884410, at *15 (quoting *Bucklew*, 587 U.S. at 138). Lee insists that the Defendants cannot defeat his claim by merely identifying one hypothetical scenario in which an execution under the Protocol would be constitutional—but the Defendants have not made that argument here. Instead, Lee's framing only shifts the Court's focus from what is likely to happen to *Lee* under the Protocol (i.e., as applied) to what is substantially likely to happen to *any inmate* executed under the Protocol (i.e., facial). The Court analyzes his claim accordingly.

"faces an exceedingly high bar," *see Barr v. Lee*, 591 U.S. 979, 980 (2020) (per curiam), and the United States Supreme Court has "yet to hold that a State's method of execution qualifies as cruel and unusual," *Bucklew*, 587 U.S. at 133.

V. DISCUSSION

The Court must determine whether this record supports the conclusion that the Protocol causes severe suffering well beyond what is necessary to extinguish human life, thus rendering it cruel and unusual in violation of the Eighth Amendment. *See Bucklew*, 587 U.S. at 132, 134. Even without a showing of physical pain, Lee may succeed if the Protocol "induces psychological terror or pain that is severe enough to support an Eighth Amendment claim," *Grayson v. Comm'r, Ala. Dep't of Corr.*, 121 F.4th 894, 900 n.3 (11th Cir. 2024), because the Founders broadly understood pain to encompass psychological terror or disgrace, *see Bucklew*, 587 U.S. at 130 ("[A] reader at the time of the Eighth Amendment's adoption would have understood" the word "cruel" to mean "[d]isposed to give pain to others, in body or mind." (second alteration in original) (quoting 1 NOAH WEBSTER, AN AMERICAN DICTIONARY OF THE ENGLISH LANGUAGE (1828))).

The parties agree that the Protocol causes some level of air hunger and corresponding emotional suffering and physiological distress. (Doc. 146 at 63:1–2 (Dr. Schwartzstein opining that "it is highly likely that individuals succumbing to th[e] [P]rotocol will experience severe air hunger"); *id.* at 156:19–20 (Dr. Bastarache stating that the Protocol's "forced nitrogen hypoxia causes extreme air hunger"); doc. 149 at 73:19–20 (Dr. Antognini acknowledging that "there could be a few seconds where [air hunger] might occur" during a nitrogen hypoxia execution)). But the parties bitterly dispute both the

severity of the air hunger and how long inmates can experience it. *Cf. Bucklew*, 587 U.S. at 137 ("[T]he relevant question isn't how long it will take for [the inmate] to die, but how long he will be capable of feeling pain.").

Lee does not argue that air hunger entails physical pain like a broken bone—though, again, he need not establish the occurrence of physical pain to prevail. Instead, he claims that air hunger causes emotional suffering and physiological distress, producing a "more holistic discomfort sensation" that shares similar features with pain, (doc. 146 at 11:4–14 (Dr. Schwartzstein trial testimony)), but that air hunger is also "worse than pain" because it is associated with the fear of dying, (*id.* at 28:13–15 (Dr. Schwartzstein trial testimony); (*see also* doc. 173-57 at 1 ("Although it shares many similarities with pain, dyspnea can be far worse than pain in that it summons a primal fear response.")). Dr. Williams explains that although "[p]ain is a specific type of noxious stimulus," the body may experience something "extremely noxious" that results in bodily discomfort without experiencing what we might traditionally call pain. (Doc. 147 at 12:12–25; *see id.* at 13:1–6 (explaining that if a person eats very hot food, they may have "the experience of chemical burning, which is extremely uncomfortable, but most of us would not actually describe that as pain")). Lee elaborates that the Protocol causes emotional suffering and physiological distress because the inability to take in sufficient oxygen activates the body's survival instincts to try to get more air, which cannot be satisfied—the Protocol produces an urgent need for the very thing it takes away. (*See, e.g.*, doc. 146 at 133:15–20). Because nitrogen hypoxia triggers inmates' physiological need to breathe oxygen while also preventing them

from doing so, Lee claims that this method of execution is unique, and uniquely distressing, and constitutes cruel and unusual punishment.

Lee further claims that inmates experience air hunger for six to twelve minutes—although inmates are unconscious or "unawake" for three to five minutes of that time.[26] (*See* doc. 146 at 53:12–17). By contrast, Dr. Antognini claims that the Protocol induces unconsciousness in sixty to seventy-five seconds from when the nitrogen gas begins to flow into the mask, and that any air hunger would be mild. (Doc. 149 at 28:16–22, 88:11–19).

To determine whether the Protocol causes unconstitutional suffering, the Court must resolve certain factual disputes and make credibility determinations, which require further examination of the expert witnesses' testimonies. Then, the Court sets forth its findings of fact and conclusions of law.

A. Severity of Air Hunger

The State claims that any air hunger induced by the Protocol would only be "mild" and akin to the shortness of breath one might expect to have "on an exercise bike." (Doc. 149 at 28:19–22, 54:25–55:3 (Dr. Antognini trial testimony)). In support, the State relies on Dr. Antognini's opinions that air hunger is primarily caused by carbon dioxide buildup,

[26] Dr. Bastarache opines that air hunger begins ten to twelve seconds after the nitrogen gas is turned on. (Doc. 146 at 133:10–13). She further testified that the Protocol causes "extreme air hunger that lasts up to minutes, during minutes of consciousness," (*id.* at 156:20–21), from which one could infer that air hunger persists at the same severity until the inmate becomes unconscious. Aside from this testimony, the Court fails to discern record evidence as to whether the level of air hunger remains constant or fluctuates after the nitrogen begins to flow. *But cf. Boyd*, 2025 WL 2884410, at *7 (expert testifying that "consciousness fades for most people around 50% oxygen saturation, and that some people can lose consciousness before they feel any distress"). Based on this record, and because it does not alter the Court's conclusion, the Court assumes without deciding that the level of air hunger is the same throughout.

and because the mask eliminates carbon dioxide buildup via the one-way exhalation valve, inmates executed under the Protocol do not experience more than mild air hunger. (*See id.* at 4:17–21, 33:23–34:10, 43:24–44:9). Lee claims that an inmate's air hunger is severe because of the total oxygen deprivation; the activation of the body's basic survival instinct to breathe more oxygen and the physiological response to the inability to do so; the associated fear of dying; the inmate's inability to alleviate air hunger; restrictions on the inmate's breathing from the chest restraints; and the occurrence of flash pulmonary edema. Based on Dr. Schwartzstein and Dr. Bastarache's opinion, Lee further claims lack of oxygen alone causes air hunger even when carbon dioxide levels are normal, and thus the lack of carbon dioxide buildup in the mask does not eliminate the possibility of severe air hunger. (*See* doc. 146 at 36:5–37:6, 45:3–22 (Dr. Schwartzstein trial testimony); *see also* doc. 173-74 (S.H. Moosavi et al., *Hypoxic and Hypercapnic Drives to Breathe Generate Equivalent Levels of Air Hunger in Humans*, 94 J. APPLIED PHYSIOL. 141 (2003) (hereinafter, the "Moosavi study")); doc. 173-42 at 1 (Dr. Bastarache rebuttal report)).

Below, the Court explains why it credits Lee's experts that inmates executed under the Protocol likely experience severe air hunger. But the Court begins by addressing one factor upon which Lee relies which, on this record, does not contribute to or exacerbate air hunger: the chest restraints.

On this record, the Court does not credit Dr. Schwartzstein's opinion that the chest restraints prevent inmates from breathing deeply, thus exacerbating their feelings of breathlessness. (Doc. 146 at 55:24–56:10, 86:21–87:7; doc. 173-43 at 9–10, para. 28). The Court did find credible his testimony that restrictions on a person's ability to take deep

breaths may exacerbate air hunger. But Houts, Warden McKenzie, and Warden Clemons all testified consistently that they have been strapped to the gurney under execution conditions in terms of tightness, and they were not restricted in their abilities to breathe deeply. (Doc. 147 at 149:23–150:9 (Houts trial testimony); *id.* at 187:14–188:17 (Warden McKenzie trial testimony); *id.* at 221:5–222:3 (Warden Clemons trial testimony)). By contrast, Dr. Schwartzstein acknowledged that, while he has seen photographs of individuals strapped to the gurney (doc. 146 at 26:20–27:1), he has not seen or examined the chest restraints in person or been strapped to the gurney (*id.* at 99:7–17). Thus, considering the testimony of Houts, Warden McKenzie, and Warden Clemons, which is based on their firsthand experience and which the Court finds credible, the Court finds that the chest restraints used in executions under the Protocol do not restrict inmates from breathing deeply—which Dr. Schwartzstein said was a significant factor exacerbating dyspnea. Thus, the Court finds that the chest restraints do not contribute to or exacerbate any air hunger the inmates may experience.

Notwithstanding this finding, the Court credits Dr. Schwartzstein and Dr. Bastarache's opinion that inmates executed under the Protocol likely experience severe air hunger, which evokes distress and anxiety.[27] (Doc. 146 at 56:24–57:1, 63:1–7 (Dr.

[27] The Court affords less weight to Dr. Antognini's opinion that any air hunger induced by the Protocol would *only* be "mild" and akin to the shortness of breath one might expect to have "on an exercise bike" because he did not persuasively support his opinion. (Doc. 149 at 28:19–22, 54:25–55:3). To the extent his opinion was based on the premise that air hunger is primarily caused by carbon dioxide buildup (which is not expected to occur under the Protocol), the Court rejects this view for the reasons explained *infra* pages 33–34. Further, the other data on which he relied, such as the Occupational Safety and Health Administration ("OSHA") reports, case reports of inert gas suicides, and the Ernsting study, did not consider whether and to what extent the subjects experienced dyspnea. (*See, e.g.*, docs. 173-186, 173-187

Schwartzstein trial testimony); *id.* at 156:19–25 (Dr. Bastarache trial testimony)). Dr. Schwartzstein's opinion is based, among other things, on his experience studying dyspnea for forty years and treating more than 15,000 dyspneic patients. The Court finds persuasive Dr. Schwartzstein's opinion that air hunger "involves activation of brain regions dedicated to basic survival instincts, which include the need to breathe adequately," and that when an individual's breathing is inadequate, "severe distress, anxiety and panic are normal and expected human sensations" because the individual fears death is imminent. (Doc. 173-43 at 7, para. 22 (emphasis omitted)). Dr. Bastarache echoes this view, explaining that air hunger triggers the body's "extreme physiologic need to get more oxygen" and produces "intense physiologic stress that causes intense suffering." (Doc. 146 at 133:14–20, 156:19–25). Because the inmate cannot respond to his "basic survival instincts" to address the air hunger, a "vicious cycle of increasing air hunger and panic symptoms" can occur. (Doc. 173-43 at 10, para. 29 (Dr. Schwartzstein report) (quotation marks omitted)).

Unlike pain, which is normally localized to a specific body part, air hunger is "a holistic discomfort sensation," and individuals struggle to distract themselves from their dyspnea. (Doc. 146 at 11:4–12). Because it evokes a fear of dying, air hunger can be worse than pain. And unlike "anticipatory anxiety" about something bad that will happen in the future, air-hunger-induced anxiety is evoked by the underlying problem—shortness of breath—and cannot be treated with anti-anxiety medication. (*See id.* at 56:21–57:7 (Dr. Schwartzstein trial testimony)).

(OSHA reports); docs. 173-165, 173-166, 173-167 (inert gas suicide reports); doc. 173-162 (Ernsting study)).

The total oxygen deprivation in these executions also supports the Court's finding that air hunger is severe. Dr. Schwartzstein opines that, at a partial pressure of oxygen (PO_2) below 60 mm Hg (which corresponds to a blood oxygen saturation below 90%), a person's drive to breathe "takes off," making him or her "desperate to try to do something to correct the hypoxemia." (Doc. 146 at 42:11–43:2, 43:17–44:6; *see also* doc. 173-81 at 81 fig. 5-8, 110 fig. 6-6). The Court thus credits Dr. Schwartzstein's view that the Protocol evokes an "incredibly strong stimulus" to breathe (doc. 146 at 44:18–23), given that the goal is to take the inmate's PO_2 all the way down to 0 mm Hg.[28] Dr. Schwartzstein further opines that, while only a minor factor, the inmate's awareness that he cannot alleviate his dyspnea, given the execution context, would exacerbate his anxiety and the air hunger itself. (Doc. 173-43 at 9, para. 27; doc. 146 at 86:11–20, 87:3–7).

The Court also credits Dr. Bastarache's opinion, given her training and experience, that four inmates executed under the Protocol had flash pulmonary edema, which would have exacerbated their dyspnea. (Doc. 146 at 153:1–13, 155:5–15). As indicated above, flash pulmonary edema is a condition triggered by extreme distress in which the lungs "almost instantaneously" fill with fluid, making it "extremely difficult to breathe." (*Id.* at 155:5–156:2). Dr. Bastarache opines as follows: Of the inmates executed under the Protocol who have had autopsies performed (Smith, Miller, Grayson, and Boyd), all four had evidence of flash pulmonary edema caused by a sudden rise in blood pressure. (*Id.* at

[28] Further, in the Moosavi study, subjects who were exposed to hypoxic conditions corresponding to 75% to 90% blood oxygen saturation reported, on average, mild air hunger when allowed to breathe freely (10% to 15% on the scale used) and moderate air hunger (around 40% on the scale used) when breathing was restricted. (Doc. 173-74 at 4–12). These hypoxic conditions were much less severe than those experienced in executions under the Protocol.

153:1–13, 155:13–15; doc. 173-41 at 4, para. 5). Pulmonary edema is an abnormal autopsy finding. (Doc. 146 at 153:10–13; doc. 173-41 at 4, para. 5). Flash pulmonary edema indicates severe physiological stress; exacerbated the inmates' dyspnea; and would have occurred "very early on in the executions" while the inmates were conscious and "when air hunger was occurring and reaching its peak," because when consciousness is lost, heart rate and blood pressure are low. (Doc. 146 at 155:19–156:25 (Dr. Bastarache trial testimony); doc. 173-41 at 4, para. 6 (Dr. Bastarache report); *cf.* doc. 149 at 27:7–8 (Dr. Antognini opining that pulmonary edema can cause shortness of breath and air hunger "in an awake person"); *id.* at 98:18–21 (Dr. Antognini acknowledging that "a sudden severe rise in blood pressure can be explained by a sudden extreme level of physiological stress")).[29] Dr. Bastarache, who has been to dozens of autopsies and reviewed hundreds of autopsy reports (doc. 146 at 128:11–14), methodically explained the different types of pulmonary edema and credibly explained how the four inmates' autopsies showed evidence of flash pulmonary edema (*see* doc. 146 at 153:4–155:15).[30]

Finally, the Court credits Dr. Schwartzstein and Dr. Bastarache's opinion that hypoxia causes dyspnea even when carbon dioxide levels are normal and, therefore, the

[29] Dr. Shante Hill, the pathologist who autopsied Smith, testified in prior litigation that pulmonary edema is "expected in cases of asphyxia or hypoxia" and is a very common finding in autopsies. (Doc. 173-143 at 7:11–8:10). Further, Dr. Antognini asserts that "[p]ulmonary edema at autopsy is common and is a non-specific finding in a variety of causes of death." (Doc. 173-141 at 20, para. 36). However, neither Dr. Hill nor Dr. Antognini offered an opinion about flash pulmonary edema. Additionally, Dr. Hill did not offer an opinion about whether pulmonary edema can exacerbate dyspnea, nor did she address the autopsies of Miller, Grayson, or Boyd. For these reasons, the Court assigns less weight to Dr. Hill's and Dr. Antognini's opinions on these issues.

[30] Dr. Bastarache does not claim that flash pulmonary edema causes traditional physical pain.

lack of carbon dioxide buildup in the mask does not eliminate or reduce the possibility of severe air hunger. The Court bases this finding on Dr. Schwartzstein's and Dr. Bastarache's expertise, their extensive experience studying dyspnea and treating dyspneic patients, and the scientific literature. According to Dr. Schwartzstein, the opinion that dyspnea is primarily caused by carbon dioxide buildup—an opinion Dr. Antognini espouses—used to be the prevailing view, but more recent research has altered that understanding. (*See id.* at 36:5–37:2 (Dr. Schwartzstein trial testimony); doc. 173-74 at 1 ("There is a commonly held notion, prevalent in the altitude literature, that dyspnea does not accompany hypoxia.")).[31] Additionally, in Dr. Schwartzstein's experience, the "vast majority of patients who are short of breath have normal or low levels of carbon dioxide." (Doc. 146 at 36:7–8). And in Dr. Bastarache's clinical experience, providing supplemental oxygen is a common treatment for air hunger, and in her over twenty years of experience, "[a] near universal feature of hypoxic patients is that when their supplemental oxygen is removed, they become panicked, breathless, voice distress over 'not getting enough air,' and plead for their supplemental oxygen to be replaced even if their carbon dioxide levels are normal." (Doc. 173-42 at 1, para. 1). For these reasons, the Court finds that the Protocol likely causes severe air hunger.

[31] Dr. Schwartzstein relies on the Moosavi study (doc. 173-74), which Dr. Antognini does not address. In that study, which sought to study humans' relative responses to hypoxia and hypercapnia, sixteen subjects underwent experiments in which they breathed either through a mouthpiece or a face mask. (*Id.* at 1–2). The subjects were exposed, at different times, to hypoxic gas mixtures and hypercapnic gas mixtures. (*Id.* at 2). The study found that, when ventilatory drive was the same, "both the quality and intensity of air hunger were the same" with hypoxia and hypercapnia. (*Id.* at 9).

B. Duration of Air Hunger

The parties also vigorously contest how long it takes inmates to become unconscious under the Protocol, and relatedly, how long they are capable of experiencing suffering. In earlier cases, the time component was based on the time to unconsciousness because no one argued that an unconscious person can feel pain. *See, e.g.*, *Boyd*, 2025 WL 2884410, at *17 ("A key question is how long a person will experience emotional terror and psychological distress when he is executed under the Protocol. Resolving this question depends on how long it will take for the inmate to become unconscious, as no party contends that an unconscious person can feel pain or distress."). Here, however, Lee contends that the relevant time extends beyond apparent unconsciousness based on Dr. Schwartzstein's opinion that people can experience dyspnea even while apparently unconscious or "unawake." (*But cf.* doc. 147 at 41:7–16 (Dr. Williams' testimony that people do not experience pain after losing consciousness, whether they are rendered unconscious by a loss of blood flow to the brain or by anesthesia); doc. 149 at 27:7–10 (Dr. Antognini opining that a person who has pulmonary edema while unconscious will not experience sensations of shortness of breath or air hunger)).

Based on his opinion that inmates are rendered unconscious within approximately sixty to seventy-five seconds after the nitrogen gas is turned on, Dr. Antognini claims that "any distress or suffering" from air hunger "is going to be very, very brief if at all present because of the rapid onset of unconsciousness." (Doc. 149 at 61:17–19, 88:11–19). While Dr. Bastarache posits a theoretical "floor" of two minutes and eighteen seconds to unconsciousness, she claims that four inmates previously executed under the Protocol

remained conscious for between three and seven minutes. (*See* doc. 146 at 145:1–8 (Smith), 146:16–19 (Miller), 148:21–23 (Grayson), 150:15–19 (Hunt)). Citing brain imaging studies and studies of hospital patients who later developed PTSD attributable to the dyspnea experienced during mechanical ventilation, Dr. Schwartzstein opines that the human brain can continue to process "respiratory-related brain suffering"—i.e., distress evoked by dyspnea—even when the person is apparently unconscious or "unawake," and that the brain likely continues processing these stimuli for three to five minutes after the inmate is no longer "awake." (*See* doc. 146 at 47:8–20, 48:15–49:13, 53:15–17, 78:20–24). Thus, considering Dr. Bastarache's and Dr. Schwartzstein's opinions together, Lee contends that inmates executed under the Protocol experience dyspnea-induced suffering for six to twelve minutes.

The Court first addresses Dr. Schwartzstein's view on the unconscious experience of suffering and explains why, on this record, any unconscious experience of dyspnea does not rise to the level of an Eighth Amendment violation.

1. Unconscious Brain Processing of Dyspnea

Dr. Schwartzstein uses terms like "consciousness" and "experiences" in ways that are unfamiliar to an ordinary English speaker. According to him, an "unawake" person "experiences" and is "conscious." (*See, e.g.*, doc. 146 at 48:18–21 (Dr. Schwartzstein explaining that when he says "not awake," he means "colloquially unconscious")); *id.* at 51:23–24 (Dr. Schwartzstein noting that patients still experience dyspnea "in the unawake state")). Dr. Schwartzstein's view is premised upon his definitions of "experience" and "consciousness" as the "processing of stimuli by the brain"—specifically here, the brain's

"processing" of dyspnea while unawake but before the onset of death. (*Id.* at 48:20–22 ("[I]f they're not awake, colloquially unconscious – we cannot exclude respiratory-related brain suffering.")). In support, Dr. Schwartzstein cites studies of ventilated, sedated hospital patients who later "woke up" and suffered from mental health issues, including PTSD, attributable to the dyspnea experienced during mechanical ventilation. (*See id.* at 49:4–13; doc. 173-43 at 10–11, paras. 32–33; *see also* doc. 173-82; doc. 173-57). He further relies on data from brain imaging, which he says shows that "adverse experiences are processed by the brain even when the patient is unconscious from sedation." (Doc. 173-57 at 5). And under Dr. Schwartzstein's definitions, the movements of a person who is unawake or anesthetized and reacts to a stimulus in a controlled manner (i.e., by rolling over or flinching) are "purposeful" movements which evidence brain processing of stimuli. (*See* doc. 146 at 48:22–24; *see also* doc. 173-43 at 12, para. 37)

The Court does not suggest that Dr. Schwartzstein's opinion is, in the clinical context, incorrect, unworthy of credence, or lacking in value. But, on this record, three to five minutes of unconscious brain suffering (*see* doc. 146 at 53:15–17) is merely "an inescapable consequence of death" that would attend virtually every other method of execution and, therefore, does not amount to a significant experience of pain or suffering, *see Baze*, 553 U.S. at 50.[32] And for purposes of this Opinion, a person who is "unawake"

[32] The Supreme Court has not squarely addressed whether the brain's processing of suffering during a period of unconsciousness, or "unconscious brain suffering," is cognizable under the Eighth Amendment. The Court does not suggest that inflicting abuse upon an unconscious inmate during an execution would be constitutionally permissible. *See Wilkerson*, 99 U.S. at 135. Yet absent actions by the State superadding disgrace in such a manner, it is questionable whether unconscious brain suffering can qualify as unconstitutional pain or suffering.

is unconscious, and a person who is unconscious does not experience or perceive dyspnea of a constitutionally relevant kind.

2. Time to Unconsciousness

Having addressed the issue of unconscious brain suffering, the Court focuses on what the record supports regarding how long inmates remain conscious and capable of feeling air hunger. Considering all of the evidence in this case, the Court finds that, more likely than not, inmates lose consciousness in not significantly more than one to three minutes after nitrogen begins to flow into the mask. This timeframe considers both the data on which Dr. Antognini relies, including the hypoxia system demonstrations and literature which consistently shows hypoxia resulting in unconsciousness in one minute or less, and Dr. Bastarache's two minute and eighteen second baseline, with a reasonable margin to account for variability among individuals. Even if consciousness may persist for slightly longer than three minutes in some instances, which the Court doubts, the record does not support a finding that consciousness persists for five, six, or seven minutes. The Court examines Dr. Antognini's and Dr. Bastarache's opinions on time to unconsciousness in more detail below.

But here, even if unconscious brain suffering without any actions that superadd disgrace could amount to constitutionally cognizable pain, the unconscious brain suffering that Dr. Schwartzstein says occurs under the Protocol is not "well beyond what's needed to effectuate a death sentence," *Bucklew*, 587 U.S. at 136–37, so it is not cruel in the constitutional sense, *cf. Baze*, 553 U.S. at 50 (excluding suffering that is "an inescapable consequence of death").

Additionally, the Court finds noteworthy that Dr. Williams—another of Lee's experts—testified that people *do not* experience pain after losing consciousness. (Doc. 147 at 41:9–16). While not dispositive, the Court is also mindful that it should not become "embroil[ed] . . . in ongoing scientific controversies beyond [its] expertise." *See Baze*, 553 U.S. at 51.

a. Dr. Antognini on Time to Unconsciousness

In addition to his clinical training and experience, Dr. Antognini bases his opinions regarding time to unconsciousness on: (1) the demonstrations of Louisiana's and Alabama's nitrogen hypoxia systems (docs. 173-198; doc. 173-41 at 11–12, para. 19); (2) the Ernsting study of three subjects inhaling nitrogen gas (doc. 173-162); (3) case reports of suicides using inert gas (docs. 173-165, 173-166, 173-167); and (4) studies of hypoxia in pilots (doc. 173-161).[33] The demonstration of Louisiana's system shows that the oxygen level inside the mask rapidly decreased to 0.8% oxygen within one minute after nitrogen began to flow. (Doc. 149 at 17:1–15; doc. 173-198). A person subjected to a 0.8% oxygen environment "would become unconscious very quickly from that, and if it's sustained, they would die." (Doc. 149 at 17:16–23). Like Louisiana's, the Alabama demonstration shows the oxygen concentration in the mask quickly plummeting: less than twenty-four seconds after the breathing air supply is cut off and nitrogen is turned on, the oxygen concentration is less than 6%, which is "just sufficient to maintain consciousness." (Doc. 173-41 at 11–12, para. 19 (Dr. Antognini discussing ADOC demonstration); *id.* at 22, para. 40; *see also* doc. 146 at 132:15–16 (Dr. Bastarache testifying that an oxygen concentration of less than 5% is "where you start to get critically low oxygen levels of inspired gas")). And forty-two seconds after the nitrogen gas is turned on, the concentration is 2%, which would rapidly cause death. (Doc. 173-141 at 11–12, para. 19; *id.* at 16, para. 26 (Dr. Antognini declaration)).

[33] While this is not an exhaustive list of materials upon which Dr. Antognini relies, these are the materials the Court finds most probative.

In addition to the demonstrations, Dr. Antognini relies on studies and reports of several real-world examples of hypoxia causing unconsciousness relatively quickly. In the Ernsting study, three healthy male subjects were instructed the empty their lungs of air, after which nitrogen began to flow, and they then were instructed to breathe as deeply as possible. (Doc. 173-162 at 1–2). The subjects lost consciousness in seventeen to twenty seconds, during which they exhibited convulsions. (*Id.* at 4, 10). Further, the suicide case reports involved subjects breathing inert gas, including nitrogen and helium; some of the subjects were directed to empty their lungs of air and then take a deep breath of the gas. (*See, e.g.*, doc. 173-167 at 3–4). Time until loss of consciousness ranged from ten to fifty-five seconds. (*See* doc. 173-166 at 4; doc. 173-167 at 4 tbl. 3). And in the pilot studies, military pilots lost consciousness in approximately five to six seconds at high altitudes. (*See* doc. 173-161 at 5–6; *see also* doc. 149 at 35:16–20 (Dr. Antognini trial testimony explaining that rapid decompression could occur "in the order of five, six, [or] seven seconds")).

Regarding movements observed in past nitrogen hypoxia executions, Dr. Antognini testified that "[i]t's hard to know . . . if some of these movements are just spontaneous movement even before the nitrogen starts," and that "there can be a lot of movement associated with the decreased oxygen" after the inmate becomes unconscious. (Doc. 149 at 19:16–21). He explains that when the brain and spinal cord are not getting enough oxygen, their neurons start "fir[ing] off," which causes twitching and other movements, such as leg raising. (*Id.* at 19:21–20:3). He opines that unconscious movement when a person is dying is "common," and he was "not surprised" that movements have been

observed during hypoxia executions. (*Id.* at 20:3–7). He did not, however, offer an opinion about how long any inmate had remained conscious during past executions under the Protocol. (*See id.* at 89:8–11 (Dr. Antognini agreeing that he "cannot tell the precise moment when any individual inmate became unconscious during execution by nitrogen hypoxia")).

b. Dr. Bastarache on Time to Unconsciousness

In formulating her opinion that the baseline minimum time to unconsciousness is two minutes and eighteen seconds, Dr. Bastarache's analysis proceeds in three steps: (1) the amount of time it takes, after the nitrogen gas is turned on, for oxygen to be purged from the mask; plus (2) the amount of time it takes for the inmate to exchange the oxygen in his lungs with 100% nitrogen; plus (3) the amount of time it takes for blood to circulate and deliver oxygen throughout the body. (*See* doc. 146 at 130:11–24, 138:3–8).

Dr. Bastarache calculates that Step 1 takes thirty-three seconds based on Dr. Antognini's testing of the ADOC's nitrogen hypoxia system, represented in a chart, and her general knowledge that an oxygen concentration in the air of less than 5% (compared to the norm of 21%) is "really where you start to get to critically low oxygen levels of inspired gas." (*See id.* at 132:15–16; *see also* doc. 173-141 at 11). In Step 2, Dr. Bastarache estimates that it will take approximately forty-five seconds for the lungs of an older inmate—in his 50s, 60s, or 70s—to displace any residual oxygen present when the Protocol begins and to completely fill with nitrogen. (Doc. 146 at 133:23–34:10). In Step 3, because oxygen is delivered to the body by blood circulation, Dr. Bastarache estimates that it will take several circulatory cycles—totaling another sixty seconds—for the oxygen in the

blood to reach a level where the inmate would lose consciousness. (*Id.* at 136:8–137:2). In her view, these three time intervals are additive and largely do not overlap. (*Id.* at 135:12–36:2; 137:10–19).[34]

Based on her review and analysis of eyewitness accounts of four earlier executions (Smith's, Miller's, Grayson's, and Hunt's), Dr. Bastarache opines that inmates have remained conscious for between three and seven minutes, and that, accordingly, inmates in future executions would likely also remain conscious for between three and seven minutes. (*See, e.g.*, doc. 146 at 146:16–19, 148:21–23). As explained above, her three-to-seven-minute estimate is based on her interpretations of reports of the inmates' movements after nitrogen apparently began flowing into the mask, including reports from media witnesses and from Dr. McAlary. She interprets certain reported movements as "purposeful" and thus evidence of consciousness. (Doc. 146 at 141:12). She testified that she interprets lay witnesses' observations "every day" when treating patients. (*Id.* at 128:20–29:5). Her methodology consisted of reviewing the reports from prior executions, noting when the author estimated that nitrogen began to flow, and then identifying which of the inmate's movements as described by the author were "purposeful." (*Id.* at 140:24–42:1). In particular, she looked for movements such as rolling, attempting to sit up to breathe, legs

[34] Dr. Antognini disagrees with this analysis, contending that Steps 1 and 2 have substantial overlap because the oxygen in the lungs "is decreasing during that 30-second period when the mask is beginning to fill with the nitrogen." (Doc. 149 at 11:1–12:1). He further disagrees with Step 3, explaining that the "red blood cell that she talks about is coming down, going up to the brain and then coming back down, there's blood behind it that . . . has less oxygen in it. It's picking up less oxygen from the lungs and then getting into the brain." (*Id.* at 12:13–17). In contrast to Dr. Bastarache, he contends that these three steps are "happening all at the same time." (*Id.* at 12:19).

lifting up, lifting of the head, clenching of the fists, and pulling against the restraints. (*Id.* at 141:2–14, 144:18–25, 146:2–11).

Based on her review of the witness accounts, she estimates that Smith was conscious for four minutes, Miller for seven minutes, Grayson for "[b]etween three and five minutes," and Hunt for "approximately six minutes." (Doc. 146 at 143:20–145:8; 146:16–19; 148:21–23; 150:15–19). Regarding Smith's execution, she relies on a media witness's report that, in the four minutes after nitrogen apparently began flowing, Smith made movements such as writhing and convulsing, shaking, and clenching his fists and legs, which she considers purposeful movements. (*Id.* at 144:18–25; *see* doc. 173-31). For Miller's, she similarly relies on a media witness's report, which indicated that Miller exhibited what she deems purposeful movements—lifting his head from the gurney and struggling against his restraints—for approximately seven minutes. (Doc. 146 at 146:2–19; *see* doc. 173-129). For Grayson's, she cites Dr. McAlary's report that Grayson lifted both legs off the gurney around three minutes after nitrogen apparently began flowing, which she considers a purposeful movement. (Doc. 146 at 148:4–23; *see* doc. 173-19). And for Hunt's, she cites a media witness's report that Hunt's body shook approximately two minutes after nitrogen gas presumably began to flow, that he lifted his feet into the air approximately two minutes later, and that his "left fist was balled tightly" another two minutes after that, all of which she considers purposeful. (Doc. 146 at 150:10–14; *see* doc. 173-88).

When asked why, in her view, these four inmates remained conscious for longer than her theoretical baseline, Dr. Bastarache explained that many factors can increase the

time it takes for a person exposed to a hypoxic environment to lose consciousness. One factor is the variability among individuals. "Each patient is going to have a different experience in time to loss of consciousness. People vary in their sensitivity to hypoxia, their sensitivity to hypercarbia, [and] the time it takes for them to pass out after getting hypoxic. So there's a lot of individual variability." (Doc. 146 at 138:14–18; *see also id.* at 173:10–11 ("[T]here's a wide variability in people's response to hypoxia.")). Additionally, she asserts that because the oxygen concentration in the mask never reaches 0%, an inmate will continue to breathe some minimal oxygen during the execution, thereby extending the time beyond her theoretical estimate. (*Id.* at 171:3–13). Further, she opines that the ADOC's use of chest restraints can increase the time to unconsciousness *if* the inmate cannot take full breaths. (*Id.* at 151:24–25 ("[I]f the inmates aren't able to breathe deeply, that would also prolong the time [to unconsciousness].")).

c. Discussion on Time to Unconsciousness

The Court has not excluded Dr. Antognini's opinions for the reasons explained in its separate Opinion (*see* doc. 175), and the Court finds the data underlying his opinions helpful to the extent they illustrate how human beings react to hypoxia. (*See generally* docs. 173-159; 173-162, 173-165, 173-166, 173-167). And the data consistently show unconsciousness from hypoxia occurring in approximately one minute or less. Nonetheless, the Court questions some of the data on which Dr. Antognini relies because he does not adequately explain how he extrapolated from the data in those studies to reach his conclusions about nitrogen hypoxia executions. Regarding the pilot studies, he acknowledges that the low barometric pressures at high altitudes accelerate the hypoxia

process, and that Holman (where executions occur) is at sea level. (*See* doc. 149 at 81:6–82:1). However, he did not explain whether or to what extent he accounted for this distinction in forming his opinion. Further, regarding the Ernsting studies and suicide case reports, he did not articulate whether or to what extent he accounted for the fact that the subjects received breathing instructions and took deep breaths of the inert gas, despite his acknowledging that inmates in the execution context are "not given any instructions, in terms of inhaling or exhaling." (*Id.* at 79:13–15). And he also acknowledges that the subjects in the suicide case reports were voluntarily ending their lives, which differs from the execution context. (*Id.* at 79:16–18). While extrapolation is permitted, the expert must provide a sufficient basis for the extrapolation. *Arthur v. Comm'r, Ala. Dep't of Corr.*, 840 F.3d 1268, 1311–12 (11th Cir. 2016) (citing *Glossip*, 576 U.S. at 883), *abrogated in part by, Bucklew*, 587 U.S. 119, *as recognized in*, *Nance v. Comm'r, Ga. Dep't of Corr.*, 981 F.3d 1201 (2020). As indicated above, the Court does find the studies on which he relies relevant and helpful to the extent that they demonstrate, relatively consistently, how the human body reacts to low oxygen environments. While the Court finds his opinions worthy of some weight, these unanswered questions create some doubt about the reliability of his sixty to seventy-five second figure.

But the Court also has concerns about aspects of Dr. Bastarache's opinions—in particular, her conclusion that inmates have remained conscious for three to seven minutes after nitrogen gas began to flow, which she justifies based on (1) restrictions on inmates' ability to breathe deeply; (2) the fact that the oxygen concentration in the mask is not 0%; and (3) the inherent variability among individuals. As the Court explained above and

specifically finds below, the record in this case does not support a finding that the chest restraints prevent inmates from breathing deeply during a nitrogen hypoxia execution. Thus, while the Court has no reason to doubt Dr. Bastarache's opinion that inability to breathe deeply could extend the time to unconsciousness, the record does not establish that inmates *are* unable to breathe deeply due to the chest straps—thus, in this case, the inmates' inability to breathe deeply does not help explain her proffered prolonged time to unconsciousness.

As for the oxygen concentration in the mask, it is undisputed that the oxygen concentration reaches 2%, and likely lower. Dr. Bastarache did not explain the extent to which an oxygen concentration of 2% would prolong the time to unconsciousness, nor did she opine that it could account for several additional minutes of consciousness. Given this evidence and the undisputed evidence that an oxygen concentration of 2.1% would rapidly cause death, on this record the Court is skeptical that a 2% (versus 0%) oxygen concentration would significantly prolong the time to unconsciousness beyond her baseline of two minutes and eighteen seconds—and certainly not to five, six, or seven minutes.

That leaves the variability among individuals. According to Dr. Bastarache, different people respond to hypoxia differently (*see* doc. 146 at 172:23–73:11), which Dr. Antognini does not refute. Moreover, Dr. Bastarache testified that hypoxia and loss of consciousness will occur faster in someone with an underlying lung disease than a young, healthy person, based on the "reserves" in the body of a healthy versus unhealthy person. (*Id.* at 189:5–22).

To recap, Dr. Bastarache offers conclusions about the time to unconsciousness in past executions based on witnesses' observations about inmates' movements, in conjunction with her two minute and eighteen second theoretical baseline, which is based on her knowledge, training, and experience. The Court acknowledges that Dr. Bastarache has ample experience interpreting lay witness observations about patients. But in the clinical setting, Dr. Bastarache is *also* able to physically observe her patients, so her conclusions are not solely informed by lay observations. And even if they were, Dr. Bastarache did not testify that she frequently makes *consciousness determinations* based purely on lay observations. Additionally, the State presented conflicting expert testimony from Dr. Antognini that inmates can be expected to exhibit twitching and movement—including leg raising—after becoming unconscious because the brain's and spinal cord's neurons are "fir[ing] off" due to decreased oxygen. (Doc. 149 at 19:19–20:3).

Considering the unchallenged evidence about near-zero oxygen levels and her theoretical baseline, the Court finds that Dr. Bastarache has not adequately supported her opinion that consciousness persisted for five, six, or seven minutes while inmates breathed nearly 100% nitrogen gas. The Court acknowledges her testimony that the inmates' "purposeful" movements are evidence of prolonged consciousness, and the State did not directly rebut her testimony about time to unconsciousness for these inmates. Nonetheless, the Court does not find her opinion on this point plausible in light of the record as a whole and the other uncontested evidence. *See Mims v. United States*, 375 F.2d 135, 140 & n.2 (5th Cir. 1967) (observing that "questions of the credibility and weight of expert opinion testimony are for the trier of fact, and that such testimony is ordinarily not conclusive even

where it is uncontradicted," and collecting cases); *Negron v. City of Miami Beach*, 113 F.3d 1563, 1570 (11th Cir. 1997) (observing that "the district court as factfinder was free to reject [the] expert testimony, even if it was uncontradicted" (citing *Gregg v. U.S. Indus., Inc.*, 887 F.2d 1462, 1469–70 (11th Cir. 1989))). Moreover, the prolonged times to unconsciousness which Dr. Bastarache identifies—five, six, and seven minutes—are far afield from much of the data Dr. Antognini cites on time to unconsciousness in hypoxic environments. While not dispositive, Dr. Antognini's data are relevant and inform the Court's consideration of the prolonged times to unconsciousness posited by Dr. Bastarache. Even if Dr. Antognini's sixty-to-seventy-five second figure is not exactly right, it does not follow that this record supports figures of five, six, or seven minutes.

In sum, the Court does find Dr. Bastarache's baseline figure plausible, as it concretely describes the mechanism by which consciousness is lost under the Protocol. However, she did not provide a sufficient basis for the Court to find that inmates are likely to remain conscious for as many as five, six, or even seven minutes while breathing nearly 100% nitrogen gas.

Having resolved these factual disputes and explained its findings, the Court now turns to the legal issue of whether the Protocol causes unconstitutional suffering.

C. Whether the Protocol Causes Unconstitutional Suffering

To prevail on his method of execution claim, Lee must show by a preponderance of the evidence that the Protocol (1) creates a substantial risk of severe pain, and (2) "there is an alternative that is feasible, readily implemented, and in fact significantly reduces a substantial risk of severe pain." *See Nance*, 169 F.4th at 1318 (quoting *Barber*, 73 F.4th at

1318). Even without a showing of physical pain, Lee may succeed if the Protocol "induces psychological terror or pain that is severe enough to support an Eighth Amendment claim." *Grayson*, 121 F.4th at 900 n.3. But "[p]sychological pain or mental suffering is a likely result of being sentenced to death and anticipating the execution." *In re Ohio Execution Protocol Litig.*, 881 F.3d 447, 450 (6th Cir. 2018) (citation omitted). The Protocol does not implicate the Eighth Amendment unless it very likely causes "*needless* suffering," *Baze*, 553 U.S. at 50 (emphasis added), or "cruelly *superadds* pain to the death sentence," *Bucklew*, 587 U.S. at 134 (emphasis added).

After careful consideration, the Court finds that Lee has failed to show that the ADOC's nitrogen hypoxia execution protocol causes severe pain or suffering "well beyond what's needed to effectuate a death sentence." *See id.* at 136–37. Because Lee has failed to show that the Protocol poses a substantial risk of severe pain, the Court pretermits discussion of his proposed alternative method of firing squad.

As discussed above, the evidence shows that the Protocol likely causes severe air hunger—the most severe form of breathing discomfort—for one to three minutes. As Dr. Schwartzstein and Dr. Bastarache explain, air hunger results in profound physiological discomfort and distress, as well as anxiety, fear, and dread. In evaluating whether the air hunger induced by the Protocol cruelly superadds pain beyond that required to extinguish life, *see Resweber*, 329 U.S. at 464, the Court is mindful of the clinical context from which Dr. Schwartzstein's and Dr. Bastarache's opinions arise. When treating patients in a clinical setting, the goal is to minimize pain, alleviate discomfort, and prevent death. But in an execution, the goal is to *cause* death—and because the Constitution does not

guarantee inmates a painless death, *Bucklew*, 587 U.S. at 132, all executions presume a risk of some pain, *see Resweber*, 329 U.S. at 464; *Boyd*, 2025 WL 2884410, at *20 (citing *Bucklew*, 587 U.S. at 132). The Court acknowledges that patients have described air hunger as "the worst thing that could ever happen to you" and "worse than pain." (Doc. 146 at 28:2–9; doc. 173-51 at 1). But air hunger is "the worst thing" and "worse than pain" because it is associated with the fear of death, which doctors can take steps to avoid for their patients but which is the very goal of an execution. (*See* 173-51 at 1 at 2–3 (patients describing air hunger: "*Scared. I thought the world was going to end, like in a box . . . . I'm going to die. I might not make it*" and "[*W*]*hen the shortness of breath was at its extreme, I thought I was going to die and saw a coffin beside me.*" (emphases in original))). Although physicians might find the air hunger induced by the Protocol problematic if reported by one of their patients, it does not necessarily follow that it is unconstitutionally cruel pain in the execution context.

Yes, the Protocol causes air hunger and corresponding emotional pain, anxiety, and dread. Inmates executed under the Protocol will know they are going to die, and their body's survival instincts will kick in, attempting to take in more oxygen while knowing they are unable to do so. The Court also acknowledges Dr. Schwartzstein's testimony that the anxiety caused by the Protocol is evoked by the underlying problem—air hunger—and thus is unique and separate from the baseline anxiety associated with an imminent execution. (Doc. 146:15–47:16). But the anxiety evoked by air hunger remains inextricably intertwined with the fear of dying—and in the execution setting, the *fact* of dying and the inmate's conscious awareness that he *is* dying. Again, this view is

underscored by some of the patients' descriptions of air hunger summarized in the medical literature, discussed *supra*. For Eighth Amendment purposes, the anxiety evoked by air hunger—lasting not significantly more than one to three minutes—is more an "inescapable consequence of death," *Baze*, 553 U.S. at 50, than "'superadd[ed]' pain well beyond what's needed to effectuate a death sentence," *Bucklew*, 587 U.S. at 136–37.[35] As the Court stated previously:

> Every person condemned to die likely experiences feelings of angst, anxiety, stress, or panic. For hundreds of years, condemned inmates—regardless of the execution method—have been placed in the unenviable position of confronting their final moments. On death row, a condemned inmate arguably endures psychological pain from the date his sentence is imposed until the moment of his execution. Every method of execution also inevitably includes several steps signaling that death is imminent. The condemned inmate eats a last meal, says goodbye to loved ones, is escorted to the execution chamber, and utters his final words. It is no accident that the Protocol refers to these actions as "last" and "final." The condemned inmate's psychological and emotional pain likely increase as each step is complete . . . .
>
> Psychological and emotional pain are thus unavoidable consequences of capital punishment under any method of execution, past or present. Walking to the gallows, feeling the electric chair's straps tighten, having a target affixed to one's chest, or being secured to a gurney each evokes strong feelings that death is imminent and results in corresponding psychological and emotional pain.

Boyd, 2025 WL 2884410, at *20–21 (citations omitted).

[35] The Court's conclusion is the same when accounting for the several minutes of unconscious respiratory-related brain suffering identified by Dr. Schwartzstein. *See also* discussion *supra* note 32.

True, the Protocol also causes profound and holistic physiological discomfort—although Lee does not claim that it causes physical pain like a broken bone. The physiological discomfort may feel "like an elephant on your chest," "like a boa constrictor," "like running in a race when you had to stop suddenly and feel like you are going to collapse," or even like "suffocation." (*See* doc. 146 at 19:7–12, 32:11–20, 63:1–5). But on this record, this experience, lasting one to three minutes, is similar to that associated with hanging, which has been considered constitutional for over a century. *See In re Ohio Execution Protocol Litig.*, 946 F.3d at 290 (reaching a similar conclusion in a challenge to Ohio's lethal injection protocol); *see also Bucklew*, 587 U.S. at 132 (explaining that hanging often caused death by suffocation, "which would take several minutes," but its use "was virtually never questioned" (citing and quoting STUART BANNER, THE DEATH PENALTY: AN AMERICAN HISTORY 46–47, 170)). Thus, the Court concludes that the physiological discomfort caused by the Protocol does not violate the Constitution.

It bears repeating that "[t]he Eighth Amendment 'does not demand the avoidance of all risk of pain in carrying out executions.'" *Bucklew*, 587 U.S. at 134 (quoting *Baze*, 553 U.S. at 47). On this record, nitrogen hypoxia does not superadd "terror, pain, or disgrace" to the death sentence. *Wilkerson*, 99 U.S. at 135. It is not like drawing and quartering, public dissection, burning at the stake, crucifixion, breaking on the wheel, flaying alive, scourging, starving, gibbeting, rending asunder with horses, or execution in installments—methods that involve severe pain or suffering "well beyond what's needed to effectuate a death sentence." *See Bucklew*, 587 U.S. at 136–37. Instead, it is like hanging, firing squad,

electrocution, and lethal injection, involving only the "necessary suffering involved in any method employed to extinguish life humanely." *See Resweber*, 329 U.S. at 464.

The Court grants that Lee has shown by a preponderance of the evidence that the ADOC's nitrogen hypoxia execution protocol causes air hunger and corresponding anxiety and physiological distress. Physicians likely would be troubled by this outcome in a clinical setting. But this Court is evaluating the constitutionality of a method of execution, where the relevant legal question is whether the Protocol presents "the sort of 'objectively intolerable risk of harm' that qualifies as cruel and unusual" in violation of the Eighth Amendment under the standard articulated by the Supreme Court. *See Baze*, 553 U.S. at 50. On this record, Lee has failed to clear this high bar. Because he has failed to show that the Protocol cruelly superadds pain, Lee has not established that the Protocol violates the Eighth Amendment.

VI. FINDINGS OF FACT AND CONCLUSIONS OF LAW[36]

A. Findings of Fact

In an execution under the Protocol, approximately twenty-five seconds after the breathing air supply is cut off and nitrogen is turned on, the oxygen concentration in the mask is less than 6%. An oxygen concentration of 6.2% is "just sufficient to maintain consciousness." (Doc. 173-141 at 22, para. 40). An oxygen concentration of less than 5% is "where you start to get critically low oxygen levels of inspired gas." (Doc. 146 at 132:15–18).

[36] To the extent that any findings of fact may constitute conclusions of law, they are adopted as such, and to the extent that any conclusions of law may constitute findings of fact, they are adopted as such.

Approximately thirty to thirty-three seconds after the nitrogen gas is turned on, the oxygen concentration in the mask is less than 3%. And thirty-five to forty seconds in, the concentration is less than 2%. An oxygen concentration of 2.1% would rapidly cause death.

Dyspnea is a medical term for breathing difficulty or breathing discomfort. "With few exceptions, dyspnea will provoke increases in respiratory rate (breathing faster) and tidal volume (the size of the breath) in healthy individuals." (Doc. 173-43 at 7, para. 20). Although dyspnea shares similar features with pain, dyspnea is not physical pain like a broken bone; instead, it is a "more holistic discomfort sensation" without a specific source, whereas pain is associated with a particular injury to a part of the body. (Doc. 146 at 11:1–19).

The experience of dyspnea can range from minor to very severe. The most severe form of dyspnea is "air hunger," the sensation of needing to take in more air. For many people, air hunger causes extreme emotional distress, panic, anxiety, and fear because breathing is essential to human life. "Patients often describe air hunger as akin to suffocation or drowning." (Doc. 173-82 at 6). Air hunger "involves activation of brain regions dedicated to basic survival instincts, which include the need to breathe adequately. When breathing is insufficient, severe distress, anxiety and panic are normal and expected human sensations that, under typical circumstances, highly motivate an individual to improve their breathing immediately or face imminent death." (Doc. 173-43 at 7, para. 22) (emphasis omitted). Many people find air hunger "worse than pain" because it is associated with the fear of dying. (*See* doc. 146 at 28:10–18; *see also* doc. 173-57 at 2 ("Although it

shares many similarities with pain, dyspnea can be far worse than pain in that it summons a primal fear response.”)).

Several factors cause or exacerbate air hunger, including hypercapnia (too much carbon dioxide), hypoxia (too little oxygen), and restrictions on the size of one’s breath. Anxiety can also exacerbate air hunger. Oxygen deprivation alone, while carbon dioxide levels are normal, can cause air hunger. The chest restraints used in executions under the Protocol do not restrict an inmate’s ability to breathe deeply and, therefore, do not contribute to or exacerbate any air hunger the inmate experiences.

Several factors can alleviate air hunger, including taking larger breaths and reducing anxiety. In the clinical and research settings, mitigating the dyspneic subject’s anxiety is possible. In the research setting, for example, researchers can reassure the subjects that the air hunger is merely part of the experiment, and this reassurance helps the subjects tolerate the discomfort of air hunger. And in the clinical setting, doctors can reassure many patients that the patients’ dyspnea is a consequence of their condition and that it does not mean they are going to die. In an execution setting, such reassurance is not possible because the goal is to cause the inmate’s death.

Once PO_2 in the blood dips below 60 mm Hg, which corresponds to a blood oxygen saturation level of 90% on a pulse oximeter, the drive to breathe “takes off” and there is a “very strong stimulus” to breathe, making the person “desperate to try to do something to correct the hypoxemia.” (Doc. 146 at 43:17–44:6). Because the goal to take the inmate’s PO_2 all the way down to 0 mm Hg, the Protocol will evoke an “incredibly strong stimulus”

to breathe. (*Id.* at 44:20–23). In terms of the concentration of oxygen in the air, dyspnea and air hunger begin when the oxygen concentration is below 15%.

An inmate who is executed under the Protocol experiences severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort. An inmate executed under the Protocol consciously experiences air hunger and associated distress for not significantly more than one to three minutes. Even if consciousness may persist for slightly longer than three minutes in some instances, the record does not support a finding that consciousness persists for five, six, or seven minutes.

B. Conclusions of Law

While a person's brain may continue to process dyspnea for three to five minutes while the person is unconscious, on this record, this unconscious brain processing is not cognizable under the Eighth Amendment because it is merely an "inescapable consequence of death." *See Baze*, 553 U.S. at 50.

Lee has failed to show by a preponderance of the evidence that the ADOC's nitrogen hypoxia execution protocol causes severe pain or suffering "well beyond what's needed to effectuate a death sentence." *See Bucklew*, 587 U.S. at 136–37. Because Lee has failed to show that the Protocol cruelly superadds pain, the Court need not consider Lee's proposed alternative method of firing squad. It also follows that, on this record, Lee has failed to show by a preponderance of the evidence that the ADOC's nitrogen hypoxia protocol violates the Eighth Amendment.

VII. CONCLUSION

The extinguishment of human life results in suffering. Murder victims often endure a brutal end while their families suffer unimaginable loss. As a result, the people, through their representatives, permit the State of Alabama to impose the ultimate punishment for capital crimes. Americans continue to passionately advocate for and against the death penalty. If history is any guide, these hotly contested debates will continue regardless of a State's chosen method of execution. Although hotly contested in the public square, the "question of capital punishment belongs to the people and their representatives, not the courts, to resolve." *Bucklew*, 587 U.S. at 150. Thus, the Court's inquiry is a limited one: whether Lee has shown by a preponderance of the evidence that the Protocol "presents a risk that is 'sure or very likely to cause serious illness and needless suffering,' and gives rise to sufficiently imminent dangers.'" *Glossip*, 576 U.S. at 877 (emphases omitted) (quoting *Baze*, 553 U.S. at 50).

Although this Court held the first bench trial in the entire country examining the constitutionality of nitrogen hypoxia, the Court does not write on a clean slate. The United States Supreme Court "has never invalidated a State's chosen procedure for carrying out a sentence of death as the infliction of cruel and unusual punishment." *Baze*, 553 U.S. at 48. Time and time again, the Supreme Court "tells us that the Eighth Amendment does not guarantee a prisoner a painless death." *See Bucklew*, 587 U.S. at 132. While Lee establishes that death by nitrogen hypoxia involves some suffering, he fails to show that the Protocol is cruel and unusual in violation of the Eighth Amendment.

Accordingly, the Court DECLARES and ORDERS as follows:

1. Lee has not shown by a preponderance of the evidence that the ADOC's nitrogen hypoxia execution protocol violates the Eighth Amendment;

2. Judgment is entered in favor of the State and against Lee;

3. Costs are taxed as paid.

A separate Final Judgment will be entered.

DONE this 28th day of May, 2026.

/s/ Emily C. Marks
EMILY C. MARKS
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

JEFFERY LEE,	)	
	)	
Plaintiff,	)	
	)	
v.	)	CASE NO. 2:25-cv-680-ECM
	)	[WO]
GREG LOVELACE, Commissioner,	)	
Alabama Department of Corrections, *et al.*,	)	
	)	
Defendants.	)	

O R D E R

On June 9, 2026, following remand from the United States Court of Appeals for the Eleventh Circuit, this Court concluded that the Alabama Department of Corrections' nitrogen hypoxia execution protocol ("Protocol") violates the Eighth Amendment and permanently enjoined the State from executing Plaintiff Jeffery Lee ("Lee") using the Protocol. *Lee v. Lovelace*, 2026 WL 1664095 (M.D. Ala. June 9, 2026); (docs. 187, 188). The State has appealed to the Eleventh Circuit. (Doc. 189). Now pending before the Court is the State's motion to stay the Court's injunction pending appeal. (Doc. 193). After careful consideration, and for the following reasons, the Court concludes that the motion is due to be denied.

Federal Rule of Civil Procedure 62(d) permits a district court, in its discretion, to "suspend, modify, restore, or grant an injunction" while an appeal is pending. FED. R. CIV. P. 62(d). In deciding whether to stay an injunction pending appeal, the Court analyzes four factors: "(1) whether the stay applicant has made a strong showing that he is likely to

succeed on the merits; (2) whether the applicant will be irreparably injured absent a stay; (3) whether issuance of the stay will substantially injure the other parties interested in the proceeding; and (4) where the public interest lies." *Hilton v. Braunskill*, 481 U.S. 770, 776 (1987); *accord Ruiz v. Estelle*, 650 F.2d 555, 565 (5th Cir. Unit A June 26, 1981) (per curiam).[1] "The first two factors . . . are the most critical," and "[i]t is not enough that the chance of success on the merits be 'better than negligible.'" *Nken v. Holder*, 556 U.S. 418, 434 (2009) (citation omitted).

Regarding likelihood of success on the merits, the State does little more than repeat the arguments it made previously. The Court carefully considered each of these arguments and the entire record but ultimately concluded—based on the Eleventh Circuit's legal conclusion that the Protocol "presents a 'substantial risk of serious harm,'" *Lee v. Comm'r, Ala. Dep't of Corr.*, 2026 WL 1651147, at *8 (11th Cir. June 8, 2026) (per curiam) (quoting *Nance v. Ward*, 597 U.S. 159, 164 (2022)), and the factual record here about the firing squad—that Lee met his burden to establish that the Protocol violates the Eighth Amendment. *See Glossip v. Gross*, 576 U.S. 863, 877 (2015). That other courts have concluded that a firing squad execution entails some risk of pain is not dispositive given the record in this case. Therefore, on this record the State has not made a strong showing that it is likely to succeed on the merits. *See Hilton*, 481 U.S. at 776.

[1] In *Bonner v. City of Prichard*, 661 F.2d 1206, 1209 (11th Cir. 1981) (en banc), the Eleventh Circuit adopted as binding precedent all decisions of the former Fifth Circuit handed down prior to the close of business on September 30, 1981.

The Court also carefully considered the equities. For the reasons stated in the Court's June 9 Memorandum Opinion and Order, the narrowly tailored injunctive relief the Court granted is appropriate under the circumstances of this case. The State appears to believe that it can only execute Lee using the firing squad and argues that it could not do so by Lee's scheduled execution date of June 11, 2026, but that is not the injunctive relief this Court granted.[2] *See Lee*, 2026 WL 1664095, at *9, *11. To the extent the State complains about the Court's "eleventh hour" injunction, (doc. 193 at 6), it bears repeating that the State moved to set Lee's execution during the pendency of this litigation, nearly six months after Lee first challenged the Protocol, thus requiring the Court to set Lee's case on an "expedited schedule," *see Lee v. Lovelace*, 2026 WL 1493098, at *4 (M.D. Ala. May 28, 2026). Accordingly, the State has not shown that the equities favor a stay of the Court's injunction. Consequently, the State's motion is due to be denied.

Accordingly, it is

ORDERED that the State's motion to stay injunction pending appeal (doc. 193) is DENIED.

DONE this 10th day of June, 2026.

/s/ Emily C. Marks
EMILY C. MARKS
UNITED STATES DISTRICT JUDGE

[2] To the extent the State argues that it could not utilize any other method at this late date, including lethal injection or electrocution, the Court is not persuaded that this merits the relief sought.

In the

United States Court of Appeals

For the Eleventh Circuit

No. 26-12027

JEFFERY LEE,

Plaintiff-Appellee,

versus

COMMISSIONER, ALABAMA DEPARTMENT OF CORRECTIONS,
WARDEN, HOLMAN CORRECTIONAL FACILITY,

Defendants-Appellants.

Appeal from the United States District Court
for the Middle District of Alabama
D.C. Docket No. 2:25-cv-00680-ECM

Before JORDAN, LUCK, and KIDD, Circuit Judges.

BY THE COURT:

In *Lee v. Commissioner*, No. 26-11864, 2026 WL 1651147 (11th Cir. June 8, 2026) (*Lee II*), we held, based on the district court's factual findings following a bench trial, that Alabama's nitrogen hypoxia protocol, *see* Ala. Code § 15-18-82.1, presents a "'substantial

risk of serious harm'—severe pain over and above death itself." *Lee II*, 2026 WL 1651147, at *8 (quoting *Glossip v. Gross*, 576 U.S. 863, 877 (2015)). As a result, we concluded that Jeffery Lee had satisfied the first prong of his Eighth Amendment challenge under *Glossip*. We remanded to the district court to address the second prong of *Glossip* based on the evidence that the parties had presented at trial.

On remand, the district court found that the firing squad is a feasible alternative that is readily implemented, that the firing squad would significantly reduce the risk of harm posed by Alabama's nitrogen hypoxia protocol, and that Alabama does not have a valid penological reason for rejecting the firing squad. The district court entered a permanent injunction prohibiting Alabama from executing Mr. Lee through the nitrogen hypoxia protocol. It also denied the Commissioner's motion to stay the injunction.

The Commissioner of the Alabama Department of Corrections has appealed, and seeks an emergency stay of the district court's permanent injunction so that it can execute Mr. Lee by nitrogen hypoxia tomorrow or Friday. Following review of the parties' briefs, the record, and the district court's orders, we deny the Commissioner's motion.

I

In 2000, a jury convicted Mr. Lee of two counts of capital murder, and attempted murder, after a two-day trial. *See Lee v. State*, 898 So. 2d 790, 807 (Ala. Crim. App. 2001). The trial court overrode the jury's recommendation of life and sentenced him to death. *See id.*

Mr. Lee exhausted his direct and collateral appeals. He then sought to challenge Alabama's lethal injection protocol as violative of the Eighth Amendment, *see Lee v. Dunn*, 731 F. App'x 885 (11th Cir. 2018), but that action became moot when Mr. Lee elected to be executed by nitrogen hypoxia, which the Alabama Legislature authorized in 2018. *See Lee v. Dunn*, No. 16-473, D.E. 38 (order granting joint motion to dismiss) (S.D. Ala. July 20, 2018).

"Nitrogen hypoxia, as set out in Alabama's protocol, causes death by introducing pure nitrogen gas to the condemned inmate through an industrial-use respirator mask until the inmate is declared dead." *Grayson v. Comm'r, Ala. Dep't of Corr.*, 121 F.4th 894, 896 (11th Cir.) (internal quotation marks omitted and alteration adopted), *cert. denied sub nom. Grayson v. Hamm*, 145 S. Ct. 586 (2024). In August of 2025, Mr. Lee brought this action under 42 U.S.C. § 1983, seeking to prevent the State from executing him using nitrogen hypoxia on the ground that this method violates the Eighth Amendment's prohibition on cruel and unusual punishment. At that time, no execution date had been set for Mr. Lee. In his amended complaint, Mr. Lee proposed that execution by firing squad is a feasible and readily implemented alternative method that would significantly reduce the substantial risk of severe pain associated with nitrogen hypoxia.

On February 9, 2026, the State moved the Supreme Court of Alabama to set Mr. Lee's execution. The Governor later set a 30-hour time frame for the execution, beginning at 12:00 a.m. on

Thursday, June 11, 2026, and ending at 6:00 a.m. on Friday, June 12, 2026.

From April 27 to April 29, 2026, the district court held a bench trial, at which it heard the testimony of eleven witnesses and admitted hundreds of exhibits. The district court assessed Mr. Lee's Eighth Amendment claim under the test set out in *Glossip*, 576 U.S. at 877–81—requiring an inmate to show (1) that a challenged method of execution presents a substantial risk of severe harm and (2) that there is "a feasible and readily implemented alternative method . . . that would significantly reduce a substantial risk of severe pain and that the State has refused to adopt without a legitimate penological reason." *Bucklew v. Precythe*, 587 U.S. 119, 134 (2019).

The district court found that an inmate executed under the protocol "experiences severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort." *Lee v. Lovelace*, No. 25-cv-680, 2026 WL 1493098, at *25 (M.D. Ala. May 28, 2026) (*Lee I*). The district court also found that an inmate "consciously experiences air hunger and associated distress for not significantly more than one to three minutes." *Id.*[1]

[1] "Dyspnea is a medical term for breathing difficulty or breathing discomfort." *Lee I*, 2026 WL 1493098, at *24. "The most severe form of dyspnea is 'air hunger,' the sensation of needing to take in more air." *Id.* "For many people, air hunger causes extreme emotional distress, panic, anxiety, and fear because breathing is essential to human life." *Id.*

On these factual findings, the district court held that Mr. Lee had "failed to show by a preponderance of the evidence that the [Alabama] nitrogen hypoxia execution protocol causes severe pain or suffering 'well beyond what's needed to effectuate a death sentence.'" *Id.* at *25 (quoting *Bucklew*, 587 U.S. at 137). Because it reached this conclusion, the district court did not address Mr. Lee's proposed alternative of execution by firing squad. *See id.* at *22.

Mr. Lee immediately appealed the district court's judgment, and sought a stay of execution. *See Lee II*, 2026 WL 1651147, at *2. We expedited briefing, heard oral argument by videoconference on June 5, 2026, and reversed the district court's determination of substantial risk of severe pain on June 8, 2026. *See id.*

We concluded that, based on "the facts found by the district court, Alabama's nitrogen hypoxia protocol presents a substantial risk of serious harm—severe pain over and above death itself." *Id.* at *8 (internal quotation marks and citation omitted). We reasoned that suffering "one to three minutes of severe air hunger and corresponding emotional distress, anxiety, physiological stress, and physical discomfort" is sufficient to satisfy the first prong of the *Glossip* standard. *See id.* at *7 (internal quotation marks omitted).

We could not, however, resolve the second prong of the *Glossip* standard because the district court "did not address whether Mr. Lee had shown that the firing squad was a feasible and readily implemented alternative method that would significantly reduce the risk of harm." *Id.* at *8. We therefore "remand[ed] the case to the district court with instructions to immediately address the

second prong of *Glossip*," and issued the mandate together with the opinion. *See id.* And "because we [could not] make a determination about likelihood of success on that prong on this record, we [denied] without prejudice Mr. Lee's [ ] motion for a stay of his execution." *Id.*

On remand, the district court immediately addressed the second prong, ruled that the firing squad was a feasible and readily-implemented alternative method of execution, and entered a permanent injunction and final judgment in favor of Mr. Lee. The Commissioner moved the district court to stay its injunction pending appeal, but the district court denied that request, explaining that the Commissioner had not shown a likelihood of success on the merits or that the equities favored a stay of the injunction. *See* Fed. R. App. P. 8(a)(1); Fed. R. Civ. P. 62(d).

II

The Commissioner has now filed a motion asking us to stay the district court's permanent injunction pending appeal, thereby permitting the State to execute Mr. Lee by nitrogen hypoxia. A motion to stay a permanent injunction is governed by the stay factors from *Nken v. Holder*, 556 U.S. 418, 426 (2009). *See Hand v. Scott*, 888 F.3d 1206, 1207 (11th Cir. 2018). *Accord Rose v. Raffensperger*, 143 S. Ct. 58, 59 (2022) (analyzing emergency motion to stay the district court's permanent injunction pending appeal).

We may grant a stay pending an appeal on the merits only if the stay applicant establishes that (1) it has a substantial likelihood of success on the merits, (2) it will suffer irreparable injury unless

the stay issues, (3) the stay would not substantially harm the other litigant, and (4) if issued, the stay would not be adverse to the public interest. *See Barwick v. Governor of Fla.*, 66 F.4th 896, 900 (11th Cir. 2023). "A stay is not a matter of right, even if irreparable injury might otherwise result." *Nken*, 556 U.S. at 433. "The party requesting a stay bears the burden of showing that the circumstances justify an exercise of that discretion." *Id.* at 433–44. In assessing a motion for stay, we do not definitively address the merits. *See Robinson v. Att'y Gen.*, 957 F.3d 1171, 1177 (11th Cir. 2020); *Ritter v. Smith*, 726 F.2d 1505, 1512 n.17 (11th Cir. 1984).

A district court's decision to grant permanent injunctive relief is reviewed deferentially for abuse of discretion. *See Barrett v. Walker Cnty. Sch. Dist.*, 872 F.3d 1209, 1221 (11th Cir. 2017). "By definition . . . under the abuse of discretion standard of review there will be occasions in which we affirm the district court even though we would have gone the other way had it been our call." *United States v. Frazier*, 387 F.3d 1244, 1259 (11th Cir. 2004) (en banc) (citation omitted). "That is how an abuse of discretion standard differs from a *de novo* standard of review." *Id.* (citation omitted).

As a general matter, factual findings are reviewed for clear error. *See Glossip*, 576 U.S. at 881; *Mills v. Hamm*, 102 F.4th 1245, 1248 (11th Cir. 2024). That means that a finding "that is 'plausible' in light of the full record—even if another is equally or more so—must govern." *Cooper v. Harris*, 581 U.S. 285, 293 (2017). *See also Bucklew v. Precythe*, 883 F.3d 1087, 1094 (8th Cir. 2018) (stating that

the factual findings regarding a proposed alternative method of execution are reviewed for clear error), *aff'd*, 587 U.S. 119 (2019).

Once the underlying facts are determined, whether the second prong of *Glossip* is met is a question of law. *See id.* We review legal questions *de novo*. *See Nance v. Comm'r, Ga. Dep't of Corr.*, 169 F.4th 1312, 1317 (11th Cir. 2026).

III

The second prong of *Glossip* requires Mr. Lee to "show a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain and that the State has refused to adopt without a legitimate penological reason." *Bucklew*, 587 U.S. at 134. "Distinguishing between constitutionally permissible and impermissible degrees of pain . . . is a necessarily comparative exercise." *Id.* at 136 (emphasis and citations omitted). "To decide whether the State has cruelly 'superadded' pain to the punishment of death isn't something that can be accomplished by examining the State's proposed method in a vacuum, but only by 'compar[ing]' that method with a viable alternative." *Id.* (brackets omitted). "An inmate seeking to identify an alternative method of execution is not limited to choosing among those presently authorized by a particular State's law." *Id.* at 139–40.

A

"[T]o establish that a proposed alternative method is available, an inmate must do more than show that it is theoretically feasible; he must also show that it is readily implemented." *Price v. Comm'r, Ala. Dep't of Corr.*, 920 F.3d 1317, 1327 (11th Cir. 2019)

(internal quotation marks omitted). "To meet this burden, the inmate's proposed alternative must be sufficiently detailed to permit a finding that the State could carry it out relatively easily and reasonably quickly." *Id.* (internal quotation marks omitted). In addition, an inmate "cannot make a successful challenge by showing a slightly or marginally safer alternative." *Id.* In other words, "[a] minor reduction in risk is insufficient; the difference must be clear and considerable." *Bucklew*, 587 U.S. at 143.

Finally, the State "may refuse to adopt a prisoner's proposed alternative method of execution for a legitimate penological reason." *Nance v. Comm'r, Ga. Dep't of Corr.*, 59 F.4th 1149, 1155–56 (11th Cir. 2023) (citing *Bucklew*, 587 U.S. at 143–44).

Mr. Lee asserted that execution by firing squad is a feasible, readily implementable, and a substantially less painful (i.e., less severe) alternative within the meaning of the Eighth Amendment. Five states authorize execution by firing squad. Mr. Lee proposes a protocol, similar to Utah's, in which the firing squad is comprised of five trained marksmen, one of whom is the firing squad team leader. He suggests that the firing squad be set up at a distance of 21 feet from the inmate, armed with .30-caliber rifles. He proposes that one of the rifles be loaded with blanks so that it is unknown which firing squad member fires a fatal shot.

In Mr. Lee's proposal, the warden or his designee would give an order to fire. The firing squad team leader would then ready the weapons in a controlled and safe manner. After the first volley, the protocol shifts based on whether the prisoner is conscious. If the

prisoner appears to be unconscious, the medical examiner enters the execution chamber and checks the prisoner's vital signs. If vital signs are detected, the firing squad would fire a second volley. Alternatively, if the prisoner is obviously conscious after the first volley, the warden or his designee would immediately instruct the first squad team leader to prepare the weapons and fire again.

B

On June 9, 2026, on remand and based on the testimony and evidence presented at the bench trial, the district court entered final judgment in favor of Mr. Lee on the second prong of the *Glossip* test, and permanently enjoined the State from executing him via nitrogen hypoxia. As explained below, the district court reviewed all the evidence adduced at the bench trial and weighed the credibility of witnesses.

Specifically, Mr. Lee introduced the testimony of Dr. James Williams, an emergency physician with expertise in gunshot wounds, firearms, and ballistics. The district court found that "Dr. Williams testified to a reasonable degree of medical certainty that execution by firing squad: (1) causes a quick and painless death; and (2) is feasible and readily implemented." D.E. 187 at 4.

Dr. Williams testified that "an execution by firing squad directed at the cardiac bundle—the area of the body that includes the heart and great vessels—will very likely cause immediate disruption of blood flow to the brain, resulting in loss of consciousness within three to five seconds and death shortly thereafter." *Id.* at 5 (footnote omitted). He further explained that, in his opinion, "an

inmate shot in the heart is unlikely to feel pain in the three to five seconds before he loses consciousness" because of "two related phenomena: (1) the delay in the brain's processing of novel stimuli into a subjective experience such as pain; and (2) the effects of 'neural stunning.'" *Id.* The district court found that "Dr. Williams' testimony is credible, persuasive evidence that an inmate executed by [Mr.] Lee's proposed firing squad protocol would experience no pain." *Id.* at 15.

Significantly, the district court rejected the testimony of Dr. Joseph F. Antognini, the Commissioner's expert, about the firing squad. It recounted that it had excluded some of Dr. Antognini's trial testimony because he "conceded that nothing in his expert report supported his contention that an inmate executed by firing squad would consciously suffer severe pain for eight to ten seconds after bullet entry." *Id.* at 14.

Moreover, the district court found that his—and the Commissioner's—reliance on the "botched" firing squad execution of Mikal Mahdi in South Carolina was misplaced for two reasons. *Id.* at 5, 14–15, 19. First, Mr. "Lee's proposed method relies heavily on Utah's protocol, which is meaningfully different than South Carolina's." *Id.* at 19. "Second, assuming without deciding that Mahdi's execution was 'botched,' an 'isolated mishap alone' does not render the firing squad constitutionally suspect" given the other testimony about the efficacy of the firing squad. *Id.*

The district court also addressed the State's purported penological reasons for refusing to implement the firing squad: (1) the

inability to source volunteers willing and capable of serving in a firing squad; and (2) the potential inability to procure materials used in firing squad executions. The district court found that the testimony at trial was contrary to these two asserted reasons and credited the testimony of the former Commissioner himself that the Alabama Department of Corrections "would be able to staff a firing squad execution team with five capable shooters." *Id.* at 18. And "Dr. Williams and the State's own witnesses testified that the materials required to carry out an execution by firing squad could be readily procured." *Id.* at 21 (emphasis omitted).

Thus, the district court made the ultimate factual finding that Mr. Lee's "proposed firing squad alternative, involving four .30-caliber bullets fired at the heart, renders an inmate unconscious in three to five seconds." *Id.* at 23. "Due to the related phenomena of delayed brain processing and neural stunning, an inmate executed under [Mr.] Lee's firing squad alternative is rendered unconscious before his brain can process any pain." *Id.* Mr. Lee's proposed alternative method, therefore, "produces a quick and painless death." *Id.*

Regarding the feasibility and ease of implementation, the district court found that "[t]he State can readily obtain rifles, ammunition, and other materials necessary to carry out a firing squad execution." *Id.* "Additionally, the State would be able to modify space at Holman to carry out executions by firing squad." *Id.* "The State is also able to source and train volunteers willing to carry out such an execution." *Id.*

Given these factual findings, the district court concluded that Mr. "Lee has shown by a preponderance of the evidence that his proposed firing squad alternative is feasible, readily implemented, and significantly reduces the substantial risk of serious harm posed by" the nitrogen hypoxia protocol. *Id.* at 24. The district court therefore entered a permanent injunction, prohibiting the State from executing Mr. Lee using the nitrogen hypoxia protocol.[2]

C

The Commissioner has not made a substantial showing that the district court clearly erred in its factual findings. These findings, amply supported by the evidence presented, establish that Mr. Lee demonstrated that execution by firing squad is a feasible, readily implementable, and significantly less painful alternative to nitrogen hypoxia. On initial review, we find plausible the factual findings underlying the "necessarily comparative exercise" between the potential for three minutes of severe air hunger caused by nitrogen hypoxia and the upper limit of five seconds for the inmate to be "rendered unconscious *before* his brain can process any pain" due to the neural stunning and novel stimuli reaction. *See* D.E. 187 at 23 (emphasis added). *See also Cooper*, 581 U.S. at 293 ("A finding that is

[2] The district court did not grant Mr. Lee's requested relief in full. Mr. Lee had asked to enjoin the State from executing him by "any method *other than one of the alternatives provided by his attorneys*." D.E. 40 at 23 (emphasis added).

'plausible' in light of the full record—even if another is equally or more so—must govern.") (citation omitted).[3]

The Commissioner is not substantially likely to succeed on his argument that the district court clearly erred by crediting Dr. Williams' extensive testimony over that of Dr. Antognini. We "accept the factfinder's choice of whom to believe unless it is contrary to the laws of nature, or is so inconsistent or improbable on its face that no reasonable factfinder could accept it." *United States v. Braddy*, 11 F.4th 1298, 1313 (11th Cir. 2021) (internal quotation marks and citation omitted). When it is faced with a choice between "dueling experts," a district court does not clearly err by crediting one expert (here Dr. Williams) over another (Dr. Antognini) because that choice is "reasonably based on evidence found in the record." *United States v. Stein*, 964 F.3d 1313, 1322 (11th Cir. 2020). *See also Grayson*, 121 F.3d at 900. Simply put, Dr. Antognini's opinion—that "for the 8 [to] 10 seconds of consciousness after bullet entry, the injury would be severely painful, especially related to shattering of bone and damage to the spinal cord"—lacks supporting authority. *See* D.E. 173-141 at 26. In contrast, the record supports Dr. Williams' vast experience and well-sourced expert opinion.

The Commissioner continues to question Dr. Williams' credibility in his appeal, but the district court denied his motion to

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[3] The Commissioner's contention that Mr. "Lee knows it hurts to be shot" because he has witnessed shootings is irrelevant to the district court's factual findings. *See* Br. for Appellants at 44.

strike, and he does not meaningfully argue why this evidentiary ruling was an abuse of discretion. In particular, the Commissioner fails to specifically address how Dr. Williams' previous consultation with the Mahdi family weighs on his ultimate conclusions about the three to five seconds to unconsciousness, or the neurological delay in the inmate registering the pain or undermines the studies on which Dr. Williams relies.

Dr. Williams' opinion makes the record in this case unlike the record in *Hoffman v. Wescott*, 131 F.4th 332, 336 (5th Cir. 2025), where "experts for both parties agreed that death by firing squad can cause pain." On this record, the Commissioner has not shown a strong likelihood of success. Based on the three to five seconds to unconsciousness and the neurological delay in the inmate registering the pain, we agree that execution by firing squad significantly reduces the risk of severe harm posted by execution by nitrogen hypoxia. *See also Arthur v. Dunn*, 580 U.S. 1141, 1154 (2017) (Sotomayor, J., joined by Breyer, J., dissenting from denial of certiorari) ("[T]he available evidence suggests 'that a competently performed shooting may cause nearly instant death.' In addition to being near instant, death by shooting may also be comparatively painless.") (citation omitted).[4]

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[4] The Commissioner does not confront the parties' agreement to admit Dr. Brian McAlary's declaration testimony from two previous nitrogen asphyxiation challenges. Dr. McAlary stated that execution by firing squad is "significantly more humane" than execution by nitrogen hypoxia. *See* D.E. 173-19 ¶ 34. He explained that there is objective evidence and relevant literature demonstrating that "the loss of consciousness is nearly instantaneous with the

Moreover, the Commissioner has not substantially shown that any difficulties with retrofitting an execution chamber and assembling a team of five marksmen would make this method unfeasible or unimplementable. We have said that, to meet his burden, "a petitioner can identify a well-established protocol in another State as a potentially viable option." *Price*, 920 F.3d at 1326 (internal quotation marks omitted). Mr. Lee admitted into evidence Utah's firing squad protocol, and the district court credited his expert's testimony examining how a similar protocol would be feasible in Alabama.

The Commissioner's arguments on feasibility amount to a suggestion that if a State would need time and resources to implement a protocol for an alternative method, then that method is not feasible. But if that were the test, then, *Bucklew*'s statement that an inmate "is not limited to choosing among those presently authorized by a particular State's law," 587 U.S. at 140, would be rendered meaningless.

As the district court explained, "the State concedes that it can procure guns and ammunition of a variety of calibers" and "materials such as bullet-proof glass are commonly used in construction, thus undermining any supply chain concerns." D.E. 187 at 21 (internal quotation marks omitted). And "even if the [State] chose to use marksmen who were more skilled than required," the court credited the testimony that Alabama "would be able to staff

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impact of the projectiles" and death criteria are present "within a minute." *See id.* ¶ 33.

a firing squad execution team with five capable shooters." *Id.* at 18. These findings do not appear to be erroneous, much less clearly so.[5]

III

It goes without saying that Mr. Lee would suffer irreparable harm if he were executed pursuant to a method that the district court has found unconstitutional. To him, loss of life is not compensable by legal remedies like damages. *See Ne. Fla. Chapter of Ass'n of Gen. Contractors v. Jacksonville*, 896 F.2d 1283, 1285 (11th Cir. 1990) ("An injury is 'irreparable' only if it cannot be undone through monetary remedies."). *Cf. Ramirez v. Collier*, 595 U.S. 411, 433 (2022).

We recognize, of course, that the State has a "significant interest in meting out a sentence of death in a timely fashion." *Nelson v. Campbell*, 541 U.S. 637, 644 (2004). But the State's arguments concerning delay, on this record, are not well taken.

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[5] The Commissioner faults the district court for crediting Dr. Williams' testimony on feasibility because "he has never visited Holman, does not know the dimensions of its execution chamber, does not know how that chamber is oriented relative to the rest of the facility, and has no familiarity with the structural constraints that would govern any modification." Br. for Appellants at 27. As we have explained, however, the district court relied on the testimony of others witnesses who were familiar with Holman—for example, the Commissioner himself. Even so, it is unclear to us how Dr. Williams' testimony about, for example, the common-sense availability of firearms and bulletproof glass would require him to have visited the facility.

Mr. Lee filed his nitrogen hypoxia challenge within the statute of limitations, and the State chose to set Mr. Lee's execution date while the parties were in active litigation. Indeed, Mr. Lee filed his lawsuit on the same day (August 22, 2025) as seven other Alabama death row inmates claiming the protocol violated the Eighth Amendment. *See In Re: Alabama Nitrogen Hypoxia Protocol Litigation*, 2:24-cv-111-ECM (M.D. Ala.). Mr. Lee's case was briefly consolidated with those cases.

On January 14, 2026, however, the State notified the district court, Mr. Lee, and Mr. Lee's counsel—for the first time—that Mr. Lee was the next person for whom the State would move to set an execution date. Two weeks later, on January 28, 2026, the State represented that it anticipated moving to set Mr. Lee's execution date by mid-February. The next day, on January 29, 2026, the district court deconsolidated Mr. Lee's case and set it on a separate, expedited schedule for the bench trial in late April.

On February 9, 2026, the State moved the Supreme Court of Alabama to authorize Mr. Lee's execution. On April 15, 2026, the Governor set the execution for a date less than two months away. After the late April bench trial, the district court issued its findings of fact and conclusions of law on May 28, 2026. Mr. Lee sought relief from this Court immediately.

Any delay in obtaining relief after the State moved to set the execution date is not attributable to Mr. Lee. *Cf. Dunn v. Ray*, 586 U.S. 1138, 1138 (2019) (vacating a stay of execution where the inmate waited until one week before his execution date to seek

relief). June 11 is not a magical date, and the injury to the State caused by a delay would not be irreparable because the district court's injunction allows it to execute Mr. Lee by any other authorized method (including lethal injection or the electric chair). The State could have attempted to show why having to execute Mr. Lee by another authorized method, lethal injection for example, would constitute irreparable harm. But it has made no effort to do so. *See* D.E. 146 at 238 (then-Commissioner Hamm testified that the State "still [has] electrocution, lethal injection, nitrogen hypoxia, so all those methods are still available").

Beyond the timing, the Commissioner argues that we should hold the fact that Mr. Lee elected for execution by nitrogen hypoxia over lethal injection against him because of his litigious challenges to both methods. Although we factor this point into the balance of the equities, we cannot say that Mr. Lee knew the extent to which he would suffer conscious severe air hunger for approximately one to three minutes as laid out by physicians eight years after he made this election. In 2018, when Mr. Lee had to elect nitrogen hypoxia as the method of execution, the State had not yet come up with a protocol. And it would not be until 2023 when that protocol was completed.

The public and the State undoubtedly have an expectation that capital punishment will be effectuated. "To unsettle these expectations is to inflict a profound injury to the 'powerful and legitimate interest in punishing the guilty,' an interest shared by the State and the victims of crime alike." *Calderon v. Thompson*, 523 U.S.

538, 556 (1998) (quoting *Herrera v. Collins*, 506 U.S. 390, 421 (1993)). But the public, the State, and Mr. Lee all have an interest in ensuring that executions are carried out consistently with the Constitution. And we note that the effect of the Commissioner's requested stay, if granted, would be to moot this appeal and prevent this Court from reaching the constitutionality of execution by nitrogen hypoxia.

Ultimately, it is Mr. Lee who would be executed under a likely-unconstitutional method—one that we held met the first *Glossip* prong and that the district court held unconstitutional under the Eighth Amendment—if we granted the stay. *See e.g.*, *Enmund v. Florida*, 458 U.S. 782, 798 (1982) (stating that the unconstitutional imposition of a death sentence "is nothing more than the purposeless and needless imposition of pain and suffering"); *Glossip*, 576 U.S. at 877 (indicating that "needless suffering" can create "an objectively intolerable risk of harm that prevents prison officials from pleading that they were subjectively blameless for purposes of the Eighth Amendment") (internal quotation marks omitted).

The equities, we believe, favor Mr. Lee. And even if they do not favor Mr. Lee, they do not favor the Commissioner.

IV

The Commissioner's motion to stay the district court's permanent injunction is **DENIED.**

LUCK, Circuit Judge, dissenting:

Twenty-six years ago, Jeffery Lee was sentenced to die for robbing and murdering Jimmy Ellis and Elaine Thompson. Unlike his victims, Lee was allowed to choose his method of execution. Eight years ago, he did that by electing nitrogen hypoxia. His execution is fixed for tomorrow.

Or it was. Two days before Lee's sentence was finally set to be carried out, the district court declared that the state's nitrogen hypoxia protocol facially violated the Eighth Amendment and enjoined the state from executing Lee using the protocol. The state appeals the injunction and moves for a stay pending appeal. I would grant the motion. Because the majority opinion doesn't, I respectfully dissent.

"A court considering whether to issue a stay 'considers four factors: (1) whether the stay applicant has made a strong showing that he is likely to succeed on the merits; (2) whether the applicant will be irreparably injured absent a stay; (3) whether issuance of the stay will substantially injure the other parties interested in the proceeding; and (4) where the public interest lies.'" *Swain v. Junior*, 958 F.3d 1081, 1088 (11th Cir. 2020) (quoting *Nken v. Holder*, 556 U.S. 418, 426 (2009)). Here, the state has met its burden as to each factor.

I.

"A death row inmate may attempt to show that a [s]tate's planned method of execution, either on its face or as applied to him, violates the Eighth Amendment's prohibition on 'cruel and

unusual' punishment." *Nance v. Ward*, 597 U.S. 159, 164 (2022). "To succeed on that claim . . . he must satisfy two requirements." *Id.* "First, he must establish that the [s]tate's method of execution presents a 'substantial risk of serious harm'—severe pain over and above death itself." *Id.* (quoting *Glossip v. Gross*, 576 U.S. 863, 877 (2015)). Second, "he 'must identify an alternative [method] that is feasible, readily implemented, and in fact significantly reduce[s]' the risk of harm involved." *Id.* (alterations in original) (quoting *Glossip*, 576 U.S. at 877).

In an earlier appeal, we concluded that Lee met his burden as to the first requirement. And on remand, the district court concluded that he met his burden as to the second requirement. Here, the state has made a strong showing that the district court likely erred in finding: that a firing squad was a readily implemented alternative method of execution; that it would significantly reduce the risk of harm involved; and that the state lacked legitimate reasons for not adopting a firing squad as an alternative method.

A.

To be "readily implemented," the alternative method of execution must be one the state could carry out "relatively easily and reasonably quickly." *Bucklew v. Precythe*, 587 U.S. 119, 141 (2019) (first quoting *Glossip*, 576 U.S. at 877; and then quoting *McGehee v. Hutchinson*, 854 F.3d 488, 493 (8th Cir. 2017), and *Arthur v. Comm'r, Ala. Dep't of Corr.*, 840 F.3d 1268, 1300 (11th Cir. 2016)). Even if the state completely adopted Utah's protocol, it could not relatively easily and reasonably quickly carry out a firing squad execution.

First, Lee presented no evidence that the state has a facility for a firing squad execution. As the state explains, under the Utah protocol, it would need a restraint chair, stacked sandbags sufficient to absorb .30-caliber rifle fire, a large enough firing line between the riflemen and the prisoner, a viewing area, and structural reinforcement to prevent ricochets and ensure the safety of the surrounding area. The state would have to build this structure from scratch because its current facility—Holman Correctional Facility—doesn't have these necessary elements. And the state would then have to test the new elements before they could become operational. For reference, when the state adopted nitrogen hypoxia as a method of execution, that method took five years to implement. At best, the evidence shows that a firing squad execution would eventually be done. But there's no evidence that it would be relatively easy or reasonably quick to do so.

The same is true for finding five marksmen to serve as executioners. Lee presented no evidence that it would be relatively easy and reasonably quick to find five people who are willing to pull the trigger and have the skill to shoot accurately. The marksmen must hit a target the size of a heart from at least twenty feet. Again, at best, the evidence shows that the state would train five people to do the job, but not that it could do so relatively easily and reasonably quickly.

These concerns are not the kind of "incidental delay" that comes with "enact[ing] legislation approving what a court has found to be a fairly easy-to-employ method of execution." *See*

Nance, 597 U.S. at 170. In *Nance*, the prisoner alleged that "Georgia ha[d] enough qualified personnel." *Id.* at 166. Here, on the other hand, there's no evidence that the state currently has enough qualified personnel to relatively easily and reasonably quickly carry out the execution. And there was no allegation in *Nance* that Georgia did not have the structural facilities to carry out the execution. Here, the evidence shows that the state does not presently have a facility fit for a firing squad. Instead, we are left with some of the same open questions the Supreme Court found dispositive in *Bucklew*, like how the state should build the new facility to ensure the safety of staff, witnesses, and other prisoners. *See Bucklew*, 587 U.S. at 141. Lee's alternative method of execution doesn't say how that should be done. Because he has not met his burden to provide the answers, as in *Bucklew*, it is likely the district court erred in concluding that a firing squad execution could be readily implemented.

B.

The district court also likely erred in concluding that a firing squad in fact significantly reduces the risk of harm involved in the execution. It reached this conclusion based on its finding that there was no evidence contradicting Dr. Williams's opinion that a prisoner executed by firing squad would experience no pain.

This was wrong. There was evidence contradicting Dr. Williams's opinion, supplied by Dr. Williams himself.

> Dr. James Williams, [Lee's] expert in ballistics, emergency medicine, and firearms, described an execution by firing squad at the evidentiary hearing. The

> inmate is first fitted with a target over his heart and a hood is placed over his head. Five riflemen then take aim and fire at the inmate's heart. When the bullets hit the inmate, they tear the heart muscle to pieces and blow apart the tissue, which causes a rapid and total disruption of blood flow to the brain, and when that blood supply is stopped, loss of consciousness follows. Before falling unconscious, the inmate feels the physical pain of the bullets' impact.
>
> [. . .]
>
> [Dr. Williams'] report [also] supports the inference that the inmate *would* experience physical pain during the three to five seconds before he became unconscious.

Boyd v. Comm'r, Ala. Dep't of Corr., No. 25-13545, 2025 WL 2970017, at *4 (11th Cir. Oct. 20, 2025) (citation modified). Based on Dr. Williams's description, we explained that "the firing squad subjects the inmate to intense, albeit brief, physical pain. The firing squad would very likely carry both intense physical pain as well as the psychological and emotional harm to the inmate . . . ." *Id.*

This is not a controversial conclusion. The Fifth Circuit—reviewing a similar method of execution challenge to Louisiana's nitrogen hypoxia protocol—noted the undisputed evidence "that death by firing squad can cause pain." *Hoffman v. Westcott*, 131 F.4th 332, 336 (5th Cir. 2025). The South Carolina Supreme Court—reviewing a cruel and unusual punishment claim under the

state constitution—cited evidence from the prisoner's expert that the outer limit of the period of time in which an inmate will suffer pain, absent a botched execution, is "hardly more than fifteen seconds." *Owens v. Stirling*, 904 S.E.2d 580, 600 (S.C. 2024). In *Bucklew*, the Supreme Court lumped in a firing squad with hanging and electrocution as arguably less humane methods of execution compared to lethal injection. *See* 587 U.S. at 135. And even the district court acknowledged that its finding was "not intuitive." Indeed, it wasn't. It was contradicted by the testimony of the same expert the district court relied on. We ourselves previously credited the testimony of Lee's "own expert, Dr. Williams" that, when a prisoner is executed by firing squad, "four bullets strike the [prisoner's] heart, . . . tear[ing] the heart muscles to pieces and blow[ing] apart the tissue," causing the prisoner "pain and suffering." *Boyd*, 2025 WL 2970017, at *4 (citation omitted).

Because there's evidence that a prisoner executed by a firing squad will feel pain and suffering, the district court erred in concluding Dr. Williams's no-pain opinion was uncontradicted. And that error tainted the district court's conclusion that a firing squad would significantly reduce the risk of harm to Lee.

C.

There's another likely error in the district court's conclusion that the state had no legitimate reasons for declining to switch to a firing squad. The state had a very good reason—the error rate of firing squad executions.

The district court rejected this legitimate reason because, it found, the reason was based on an isolated mishap alone, pointing to the firing squad execution of Mahdi in South Carolina. But the Mahdi execution was not an isolated mishap. Dr. Williams testified that, since 1860, there have been forty-three firing squad executions in Utah and six in South Carolina; of those forty-nine, he said four had been "botched." In other words, a little over eight percent of those firing squad executions went wrong.

Lee presented no evidence of how that figure compared to the frequency of mishaps with the nitrogen hypoxia protocol. But the state did, and the evidence showed that there had been no mishaps since Alabama and Louisiana began using their protocols. Given this evidence, the district court erred in rejecting the state's error-rate reason for not adopting firing squads as the method of execution in Alabama.

II.

Putting these three likely errors together, the state is likely to succeed in its appeal. Combined with the equitable factors, we should stay the district court's injunction.

First, Lee chose to be executed by nitrogen hypoxia, so he "waived any objection he might have to it." *Stewart v. LaGrand*, 526 U.S. 115, 119 (1999). In *Stewart*, the prisoner was afforded a choice between lethal injection and lethal gas, and he "decided to be executed by lethal gas." *Id.* The Supreme Court vacated the lower court's injunction partly because, "[b]y declaring his method of execution, picking lethal gas over the [s]tate's default form of

execution—lethal injection—[the prisoner] . . . waived any objection he might have to it." *Id.*

We have a similar situation here. Lee had two constitutionally approved default methods of execution—electrocution and lethal injection. He selected nitrogen hypoxia, instead. As in *Stewart*, when making the equitable call on a lower court's injunction, Lee should be held to that choice.

Second, despite the fact that Alabama has two other methods of execution that are constitutionally sound, Lee chose as an alternative method an execution protocol that Alabama does not offer. If Lee was concerned about the nitrogen hypoxia protocol and genuinely wanted a constitutionally assured method of execution, he would have chosen one of the two authorized in Alabama. But he didn't. He sought an alternative that only two states have used over the last one hundred years and sought an injunction that barred any method other than one Alabama doesn't authorize. Even the district court found this was inequitable. So should we. *See Gomez v. U.S. Dist. Ct. for N. Dist. of Cal.*, 503 U.S. 653, 654 (1992) ("Equity must take into consideration the [s]tate's strong interest in proceeding with its judgment and Harris' obvious attempt at manipulation.").

Third, Lee delayed bringing his Eighth Amendment claim. He selected nitrogen hypoxia as his method of execution in 2018. Alabama established its protocol in 2023. And it executed five prisoners in 2024 and 2025 before Lee attacked the method of execution. We're in this last-minute scramble because Lee delayed

months and years before bringing his claim on the eve of the statute-of-limitations deadline. We have regularly denied equitable relief where the prisoner waited months or years to bring his claim. *See, e.g.*, *Grayson v. Allen*, 491 F.3d 1318, 1326 (11th Cir. 2007); *Williams v. Allen*, 496 F.3d 1210, 1215 (11th Cir. 2007). We should do so here too.

Fourth, "[b]oth the [s]tate and the victim's family have a strong interest in the timely enforcement of [Lee's] death sentence." *See Williams*, 496 F.3d at 1214. "[E]quity must be sensitive to the [s]tate's strong interest in enforcing its criminal judgment[s] without undue interference from the federal courts." *Bowles v. Desantis*, 934 F.3d 1230, 1247 (11th Cir. 2019) (quoting *Hill v. McDonough*, 547 U.S. 573, 584 (2006)). And, specifically, we have "rejected the argument that" a prisoner "will suffer irreparable harm if he is executed, whereas the state will only suffer a minimal inconvenience, because the state, the victim, and the victim's family also have an important interest in the timely enforcement of [the prisoner's] sentence." *Id.* at 1247–48 (citation modified).

* * *

For as long as we've had an Eighth Amendment, the Supreme Court has never held that a state's method of execution qualifies as cruel and unusual under the Eighth Amendment. *See Bucklew*, 587 U.S. at 113. Because we shouldn't do so here, I would grant the state's motion to stay the injunction.

(ORDER LIST: 608 U.S.)

THURSDAY, JUNE 11, 2026

ORDER IN PENDING CASE

25A1381 LOVELACE, COMM'R, AL DOC, ET AL. V. LEE, JEFFERY

The application for stay or vacatur presented to Justice Thomas and by him referred to the Court is denied.

Justice Thomas, Justice Alito, and Justice Gorsuch would grant the application for stay or vacatur.

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