APPENDICES

APPENDICES

Appendix A

NOT FOR PUBLICATION

In the

United States Court of Appeals

For the Eleventh Circuit

No. 25-13545

ANTHONY BOYD,

Plaintiff-Appellant,

versus

COMMISSIONER, ALABAMA DEPARTMENT OF CORRECTIONS,
HOLMAN CF WARDEN,

Defendants-Appellees.

Appeal from the United States District Court
for the Middle District of Alabama
D.C. Docket No. 2:25-cv-00529-ECM

Before JORDAN, LAGOA, and ABUDU, Circuit Judges.

PER CURIAM:

Anthony Todd Boyd, an Alabama prisoner, is scheduled to be executed on Thursday, October 23, 2025. He filed a method-of-execution lawsuit under 42 U.S.C. § 1983, challenging Alabama's nitrogen hypoxia protocol under the Eighth Amendment. He also sought a preliminary injunction prohibiting his execution by nitrogen hypoxia. Following an evidentiary hearing, the district court denied the motion for a preliminary injunction.

Mr. Boyd now seeks a stay of execution. For the reasons which follow, we deny the motion for a stay.[1]

I

"We may grant a stay of execution only if the prisoner 'establishes that (1) he has a substantial likelihood of success on the merits, (2) he will suffer irreparable injury unless the injunction issues, (3) the injunction would not substantially harm the other litigant, and (4) if issued, the injunction would not be adverse to the public interest.' To obtain a stay, the prisoner 'must satisfy all of the requirements for a stay, including a showing of a significant possibility of success on the merits.'" *Barwick v. Governor*, 66 F. 4th 896, 900 (11th Cir. 2023) (citations omitted).

---

[1] Mr. Boyd was convicted and sentenced to death for his participation (along with others) in the kidnapping and murder of Gregory Huguley. The underlying facts are set out in *Boyd v. State*, 715 So.2d 825, 832 (Ala. Crim. App. 1997), and *Boyd v. Warden*, 856 F.3d 853, 859 (11th Cir. 2017).

The district court's denial of a preliminary injunction is reviewed for abuse of discretion. *See Robinson v. Attorney Gen.*, 957 F.3d 1171, 1177 (11th Cir. 2020). The court's factual findings are subject to clear error review. 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) (citation omitted).

II

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. The protocol also calls for the use of EKG and pulse oximeter devices to monitor the . . . inmate's condition until declared dead' but 'does not call for the use of a sedative in advance of the initiation of nitrogen gas.'" *Grayson v. Commissioner*, 121 F. 4th 894, 896–97 (11th Cir. 2024).

Mr. Boyd alleged in his complaint that certain aspects of Alabama's nitrogen hypoxia protocol violate the Eighth Amendment. He claimed, for example, that the protocol creates an unnecessary risk of superadded pain through conscious suffocation, which creates severe psychological and physiological distress. As an alternative to nitrogen hypoxia, Mr. Boyd proposed two other methods of execution: (1) death by firing squad, or (2) medical aid in dying ("MAID"). *See* Appellant's Brief at 13.

A

The Supreme Court has explained that

> [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 v. Precythe, 587 U.S. 119, 134 (2019) (citations omitted). "[I]dentifying an available alternative is 'a requirement of *all* Eighth Amendment method-of-execution claims' alleging cruel pain." *Id.* at 136 (citation omitted).

We have similarly said that "[p]risoners cannot succeed on a method-of-execution claim unless they can establish that the method challenged presents a risk that is *sure or very likely* to cause serious illness and needless suffering, and gives rise to sufficiently *imminent* dangers." *Price v. Comm'r, Dep't of Corr.*, 920 F.3d 1317, 1325–26 (11th Cir. 2019) (internal quotation marks and citations omitted). "[They] must also identify an alternative that is feasible, readily implemented, and in fact significantly reduce[s] a substantial risk of severe pain. 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." *Id.* at 1326.

The first question for us is whether the district court "abused its discretion in concluding that [Mr. Boyd] has [not] shown a 'substantial likelihood of success' on the merits of [his Eighth Amendment] claim." *LSSi Data Corp. v. Comcast Phone LLC*, 696 F.3d 1114, 1120 (11th Cir. 2012). *See, e.g.*, *BellSouth Telecommunications, Inc. v. MCIMetro Access Transmission Servs., LLC*, 425 F.3d 964, 970 (11th Cir. 2005) ("The district court did not abuse its discretion in determining that BellSouth had established a substantial likelihood of success."); *Ingram v. Ault*, 50 F.3d 898, 900 (11th Cir. 1995) (reviewing district court's "substantial likelihood of success" determination for abuse of discretion). In answering that question, we do not decide the ultimate merits of Mr. Boyd's claim. *See, e.g.*, *Doran v. Salem Inn, Inc.*, 422 U.S. 922, 932 (1975) ("In these circumstances, and in the light of existing case law, we cannot conclude that the district court erred by granting preliminary injunctive relief. This is the extent of our appellate inquiry, and we 'intimate no view as to the ultimate merit of [respondent's] contentions.'") (citation omitted); *Di Giorgio v. Causey*, 488 F.2d 527, 528–29 (5th Cir. 1973) ("[O]n appeal from a preliminary injunction this Court does not concern itself with the merits of the controversy . . . No attention is paid to the merits of the controversy beyond that necessary to determine the presence or absence of an abuse of discretion.")

Mr. Boyd asserted that Alabama's nitrogen hypoxia protocol forces inmates to suffer from "conscious suffocation." According

to Mr. Boyd, under the protocol it can take anywhere from two to seven minutes before an inmate is rendered unconscious. *See Anthony Boyd v. Comm'r, Ala. Dep't of Corr.*, No. 2:25-CV-529-ECM, 2025 WL 2884410, at *14 (M.D. Ala. Oct. 9, 2025). During that time, he says, the inmate is consciously aware of his slow suffocation, which causes "extreme discomfort and near terror." *Id.* at *7.

To support these assertions at the evidentiary hearing on his motion for a preliminary injunction, Mr. Boyd provided details from five nitrogen hypoxia executions in Alabama where inmates exhibited signs of distress and struggle. *See id.* at *10–12. Mr. Boyd also presented testimony from his expert, Dr. Philip Bickler, who is an anesthesiologist and Director of the Hypoxia Research Laboratory at University of California, San Francisco. Dr. Bickler testified that hypoxia causes "air hunger" that is a "profoundly distressing sensation." Appellant's Brief at 15; *Boyd*, 2025 WL 2884410, at *7. And that unconsciousness does not set in for several minutes. *See Boyd*, 2025 WL 2884410, at *7.

Mr. Boyd argued that a firing squad (under Utah's protocol) would lead to nearly instantaneous loss of consciousness and would therefore be far less painful. *See id.* at *19. In the alternative, he maintained that Alabama could feasibly and readily use MAID, which would similarly significantly reduce the risk of pain. *See* Appellant's Brief at 19; *Boyd*, 2025 WL 2884410, at *1.

B

As noted, the district court denied the motion for a preliminary injunction. In part, the court concluded that Mr. Boyd did not

establish a "substantial likelihood of success on his Eighth Amendment method of execution claim because he has not identified an alternative method of execution that would both significantly reduce a substantial risk of severe pain and that is feasible and readily implemented." *Boyd*, 2025 WL 2884410, at *14. In arriving at its decision, the court examined and credited the testimony of Mr. Boyd's expert, Dr. Bickler, that a person undergoing nitrogen hypoxia when breathing normally may take up to two minutes before falling unconscious, and that the experience is both psychologically and physiologically distressing. *See id.* at *8. Dr. Bickler described the experience as "emotional terror" that includes extreme shortness of breath akin to an asthma attack, increased heart rate, and pounding blood in the head. The court, however, determined that this level of discomfort did not constitute a constitutional violation because the Eighth Amendment "does not demand the avoidance of all risk of pain in carrying out executions." *Id.* at *18. (quoting *Bucklew*, 587 U.S. at 134).

Dr. Joseph Antognini, Alabama's expert on anesthesia, opined that the protocol renders inmates unconscious within 35 to 40 seconds, or sooner, if the inmate inhales 90 to 100 percent nitrogen gas. *See id.* at *7. Dr. Antognini also explained that some of the inmate movements that Mr. Boyd pointed to from prior executions as signs of distress were "involuntary, unconscious responses to the erratic firing of neurons resulting from hypoxia." *Id.* at *13. Indeed, both sides agreed that an unconscious person may exhibit such movements as part of the dying process and that they may not necessarily indicate pain. *See id.*

The "key question" that the district court focused on was "how long a person will experience emotional terror and psychological distress when he is executed under the Protocol." *Id.* at *17. In answering that question, the court assumed without deciding that Dr. Bickler's baseline of two minutes was the one to be considered. *See id.* at *18.

Although the district court found that Alabama's nitrogen hypoxia protocol would cause physiological and psychological distress, it determined that the protocol would not cause the physical pain that one of Mr. Boyd's proposed alternatives—a firing squad—would. *See id.* at *16. The distinction between the two experiences was explained by the court as the difference between being cut with a knife and the feeling one gets when being threatened with a knife. *See id.* at *7, 15. In the first, one is physically hurt by the wound. In the second, one is psychologically harmed and feels the discomfort that accompanies fear and panic. *See id.*

> It is undisputed that the Protocol does not pose a risk of physical pain akin to being cut with a knife. (Doc. 83 at 200:13–23). Instead, Boyd claims that the Protocol, by depriving inmates of oxygen while they are conscious, causes "emotional terror," physiological distress, and physical discomfort because inmates are unable to get sufficient oxygen into their lungs when their bodies are desperate to do so, and because they must participate in their own deaths by breathing in nitrogen.

Id. at *15.

Dr. James Williams, Mr. Boyd'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. *See id.* at *19. Before falling unconscious, the inmate feels the physical pain of the bullets' impact. *See id.*

The district court credited Dr. Williams' opinion in determining that

> Utah's firing squad protocol would provide a quick death with minimal pain and suffering. (Doc. 82-19 at 7, 12). But [Dr. Williams'] report [also] supports the inference that the inmate *would* experience physical pain during the three to five seconds before he became unconscious. (*See id.* at 7 (explaining that the inmate would become unconscious in three to five seconds and would not feel pain and suffering "thereafter")).

Id.

The district court noted that feelings of extreme anxiety and psychological and emotional pain are often an inevitable and expected part of any execution because the ultimate result for the inmate is death. *See id.* at *20. The court determined that nitrogen hypoxia induces fear and stress, but the firing squad subjects the

inmate to intense, albeit brief, physical pain. *See id.* at *21. The firing squad would very likely carry both intense physical pain as well as the psychological and emotional harm to the inmate, while nitrogen hypoxia carries psychological and emotional discomfort without the intense physical pain of bullets breaching flesh. *See id.* at *21. As a result, the court concluded that Mr. Boyd failed to establish that a firing squad would significantly reduce a substantial risk of severe pain resulting from Alabama's nitrogen hypoxia protocol.

The district court also determined that MAID was not "a feasible, readily implemented alternative" because of administrability issues. The court found that MAID would require additional medical staff and personnel to assist who would not or could not be available to assist in an execution. *See id.* at* 23. Finally, the court noted that there was a valid penological reason not to opt for this method because it would require extended monitoring of the inmate for hours after administration to confirm the inmate's passing. *See id.*

C

In our view, Mr. Boyd has not made a substantial showing that he is likely to succeed on his Eighth Amendment challenge to Alabama's nitrogen hypoxia protocol. The district court correctly applied the governing law, and we do not think it committed clear error in making its factual findings or otherwise abused its discretion.

In reaching this conclusion we need not and do not address the district court's factual determinations about whether nitrogen hypoxia causes only discomfort and mental distress or actual physical pain (and if so to what precise degree). Assuming that execution by nitrogen hypoxia contains a physical harm component that induces distress, the court did not err in ruling that Mr. Boyd's proposed alternative of a firing squad would not significantly reduce a substantial risk of severe pain. Mr. Boyd's own expert, Dr. Williams, testified that when the four bullets strike the heart, they tear the heart muscles to pieces and blow apart the tissue. *See Boyd*, 2025 WL 2884410, at *19. Moreover, the inmate would not lose consciousness for three to six seconds, during which time he or she would "feel pain and suffering." *Id.* On this record, we cannot say that the district court abused its discretion in concluding that execution by firing squad would not significantly reduce a substantial risk of severe pain. *Cf. Hoffman v. Westcott*, 131 F.4th 332, 336 (5th Cir.) ("Moreover, experts for both parties agreed that death by firing squad can cause pain—and would therefore necessarily be more painful than execution by nitrogen hypoxia."), *cert. dismissed*, 145 S. Ct. 1951 (2025).

The district court also did not err or abuse its discretion in rejecting the MAID alternative proposed by Mr. Boyd. First, the cocktail of drugs needed for MAID can be difficult to obtain and finding the necessary personnel to administer them would be problematic. *See Boyd*, 2025 WL 2884410, at *23. Those findings are not clearly erroneous. Second, Alabama provided a legitimate penological reason for not opting for MAID in lieu of nitrogen hypoxia

because it is untested—no other state has authorized this method of execution—and would require additional extended monitoring of the inmate following its application. *See id.* Given that "[a] state may refuse to adopt a prisoner's proposed alternative method of execution for a legitimate penological reason," *Nance v. Commissioner*, 59 F. 4th 1159, 1155–56 (11th Cir. 2023), we discern no error here either.

III

Mr. Boyd's motion for a stay of execution is therefore denied.[2]

[2] Having failed to prevail on the first preliminary injunction prong, we decline to reach any of the other issues. *See Schiavo ex rel. Schindler v. Schiavo*, 403 F.3d 1223, 1226 (11th Cir. 2005).

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

ELBERT PARR TUTTLE COURT OF APPEALS BUILDING
56 Forsyth Street, N.W.
Atlanta, Georgia 30303

David J. Smith
Clerk of Court

For rules and forms visit
www.ca11.uscourts.gov

October 20, 2025

Matthew C. Moschella
Sherin and Lodgen LLP
1 LINCOLN ST FL 14
BOSTON, MA 02111

Lauren Ashley Simpson
Office of The Attorney General - Alabama
501 WASHINGTON AVE
PO BOX 300152
MONTGOMERY, AL 36130

Appeal Number: 25-13545-P
Case Style: Anthony Boyd v. Commissioner, Alabama Department of Corrections, et al
District Court Docket No: 2:25-cv-00529-ECM

The enclosed order has been ENTERED.

Electronic Filing
All counsel must file documents electronically using the Electronic Case Files ("ECF") system, unless exempted for good cause. Although not required, non-incarcerated pro se parties are permitted to use the ECF system by registering for an account at www.pacer.gov. Information and training materials related to electronic filing are available on the Court's website.

Clerk's Office Phone Numbers

General Information:	404-335-6100	Attorney Admissions:	404-335-6122
Case Administration:	404-335-6135	Capital Cases:	404-335-6200
CM/ECF Help Desk:	404-335-6125	Cases Set for Oral Argument:	404-335-6141

MOT-2 Notice of Court Action

Appendix B

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

ANTHONY BOYD,	)	
	)	
Plaintiff,	)	
	)	
v.	)	CASE NO. 2:25-cv-529-ECM
	)	[WO]
JOHN Q. HAMM, Commissioner,	)	
Alabama Department of Corrections, *et al.*,	)	
	)	
Defendants.	)	

MEMORANDUM OPINION and ORDER

I. INTRODUCTION

The Alabama Department of Corrections ("ADOC") intends to execute Anthony Boyd ("Boyd") by nitrogen hypoxia between 12:00 a.m. on October 23, 2025, and 6:00 a.m. on October 24, 2025, for the 1993 kidnapping and murder of Gregory Huguley. Boyd previously challenged his capital murder conviction and sentence without success. He is now before the Court seeking to enjoin the ADOC from carrying out his death sentence using its nitrogen hypoxia protocol (the "Protocol"). (Doc. 1). Boyd claims that, compared to Utah's firing squad protocol or medical-aid-in-dying ("MAID"), the Protocol poses a substantial risk of severe pain in violation of the Eighth Amendment to the United States Constitution.

Before the Court is Boyd's motion for preliminary injunction. (Doc. 11). The Defendants—John Q. Hamm ("Commissioner Hamm"), Commissioner of the ADOC, and

Terry Raybon ("Warden Raybon"), Warden of Holman Correctional Facility ("Holman")[1] (collectively, the "State")—oppose the motion.[2] The Court held an evidentiary hearing on September 4 and 5, 2025. Over those two days, the Court heard nearly fifteen hours of witness testimony from expert and lay witnesses, including eyewitnesses to earlier executions under the Protocol. The Court also received and reviewed over one thousand pages of evidence. Additionally, the parties filed post-hearing briefs (*see* docs. 85, 87; *see also* doc. 96 (Boyd's sealed, unredacted brief)) and responsive briefs (*see* docs. 97, 99; *see also* doc. 103 (Boyd's sealed, unredacted response brief)). Boyd's motion is ripe for review. After careful review, and for the following reasons, the Court concludes that Boyd's motion for preliminary injunction is due to be denied.

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.

[1] Executions occur at Holman. *See* ALA. CODE § 15-18-82(b) ("Executions shall take place at the William C. Holman unit of the prison system at Atmore . . . .").

[2] Originally, Boyd's complaint also named as Defendants Alabama Attorney General Steve Marshall ("Marshall") and the ADOC. The action against Marshall and the ADOC has since been dismissed without prejudice. (*See* doc. 37).

III. PROCEDURAL HISTORY AND BACKGROUND[3]

First, to provide relevant context, the Court briefly outlines the history of capital punishment in Alabama, including the evolution of the State's statutorily authorized methods of execution. The Court next summarizes Boyd's capital litigation history, including his direct appeal and his pursuits of postconviction relief in both state and federal courts. The Court then recaps Boyd's earlier litigation challenging the constitutionality of the ADOC's lethal injection protocol, as well as the relevant procedural history of this action. The Court will also summarize the relevant witness testimony and evidence presented in anticipation of and during the evidentiary hearing on Boyd's motion for preliminary injunction.

A. History of Capital Punishment in Alabama

In modern history, Alabama has authorized four methods of execution: (1) hanging; (2) electrocution; (3) lethal injection; and (4) nitrogen hypoxia. Hanging served as the State's only authorized method of execution until 1927, when the legislature codified electrocution as the sole method. *See Boyd v. Warden, Holman Corr. Facility*, 856 F.3d 853, 869–70 (11th Cir. 2017) (citing *Bachelor v. State*, 113 So. 67, 72 (Ala. 1927)).

[3] "When ruling on a preliminary injunction, 'all of the well-pleaded allegations [in a movant's] complaint . . . are taken as true.'" *Alabama v. U.S. Dep't of Com.*, 546 F. Supp. 3d 1057, 1063 (M.D. Ala. 2021) (first alteration in original) (quoting *Elrod v. Burns*, 427 U.S. 347, 350 n.1 (1976)). And "[t]he [C]ourt may also consider supplemental evidence, even hearsay evidence, submitted by the parties." *Id.* (citing *Levi Strauss & Co. v. Sunrise Int'l Trading, Inc.*, 51 F.3d 982, 985 (11th Cir. 1995)). In addition to the factual allegations in Boyd's complaint, the Court also considered the evidence presented at the evidentiary hearing, in Boyd's motion for preliminary injunction (doc. 11), and in the State's response (doc. 29). With that said, the Court recites only those facts which it finds relevant in ruling on Boyd's motion.

Seventy-five years later, on July 1, 2002, Alabama adopted lethal injection as its default method of execution. *Grayson v. Warden, Comm'r, Ala. Doc*, 869 F.3d 1204, 1210 & n.1 (11th Cir. 2017) (citing ALA. CODE § 15-18-82.1); *Grayson v. Dunn*, 221 F. Supp. 3d 1329, 1333 n.6 (M.D. Ala. 2016) ("Before the adoption of lethal injection, electrocution was Alabama's sole method of execution."). Although the State designated lethal injection as its default method, an inmate could still elect that "his or her death sentence be executed by electrocution." *Grayson*, 869 F.3d at 1210 n.1 (quoting ALA. CODE § 15-18-82.1(a)).

In 2018, the Alabama legislature again amended Alabama Code § 15-18-82.1—this time to add nitrogen hypoxia as an alternative method of execution, effective June 1, 2018. *See Smith v. Dunn*, 568 F. Supp. 3d 1244, 1251 (M.D. Ala. 2021); ALA. CODE § 15-18-82.1(a). Lethal injection remains Alabama's default method of execution. ALA. CODE § 15-18-82.1(a). Condemned inmates, within a fixed period, may opt out of execution by lethal injection and elect execution by nitrogen hypoxia instead. *Id.* § 15-18-82.1(b).

B. Boyd's Capital Litigation History

On July 31, 1993, Boyd, Shawn Ingram, Marcel Ackles, and Quintay Cox kidnapped and later murdered Gregory "New York" Huguley because he owed the group $200 for cocaine he had received several days earlier. *Boyd v. State*, 715 So. 2d 825, 832 (Ala. Crim. App. 1997). The four men forced Huguley into a van at gunpoint and drove him to a North Talladega County baseball field. *Id.* On the way, the participants stopped at a gas station and purchased some gasoline in a plastic container. *Id.* Huguley all the while pleaded for his life and promised to repay the men. *Id.* Once they reached the

baseball field, Ingram forced Huguley to lie down on a bench. *Id.* Ackles bound Huguley's hands and mouth, and Boyd secured Huguley's feet with duct tape. *Id.* With Huguley taped to the bench, Ingram doused him in gasoline, poured a two-foot trail of gasoline leading away from the bench, and lit the gasoline, causing Huguley to catch fire. *Id.* Boyd, Ingram, Ackles, and Cox watched Huguley burn to death for ten to fifteen minutes until the flames subsided. *Id.*

On June 28, 1994, Boyd was indicted for capital murder for intentionally causing Huguley's death by burning him during a kidnapping in the first degree. *Id.* at 837, 851 (citing ALA. CODE § 13A-5-40(a)(1)). On March 16, 1995, a Talladega County jury convicted Boyd of capital murder and recommended a death sentence by a ten to two vote. *Boyd v. Comm'r, Ala. Dep't of Corr.*, 697 F.3d 1320, 1326 (11th Cir. 2012). After a sentencing hearing, the trial court accepted the jury's recommendation and sentenced Boyd to death by electrocution. *Id.*

1. Direct Appeal

Boyd appealed his conviction and death sentence to the Alabama Court of Criminal Appeals ("ACCA"). On January 17, 1997, the ACCA unanimously affirmed Boyd's conviction and death sentence, holding that Boyd "received a fair trial." *Boyd*, 715 So. 2d at 852. Boyd appealed once more to the Alabama Supreme Court, bringing the same claims he had raised to the ACCA on direct appeal. *Boyd*, 697 F.3d at 1326; *see also Ex parte Boyd*, 715 So. 2d 852, 856 (Ala. 1998). On March 13, 1998, the Alabama Supreme Court affirmed Boyd's conviction and death sentence. *Ex parte Boyd*, 715 So. 2d at 856. Eight

months later, on November 2, 1998, the United States Supreme Court denied Boyd's petition for writ of certiorari. *Boyd v. Alabama*, 525 U.S. 968 (1998) (Mem).

2. State Postconviction Proceedings

On October 20, 1999, Boyd moved for relief from his conviction and death sentence under Rule 32 of the Alabama Rules of Criminal Procedure in Talladega County Circuit Court ("Rule 32 Court"). *Boyd v. State*, 913 So. 2d 1113, 1121 (Ala. Crim. App. 2003). The State moved to dismiss Boyd's Rule 32 petition. *Id.* at 1121–22. In May 2002, Boyd filed, without leave, an amended Rule 32 petition. *Id.* at 1121. After a June 14, 2002 hearing on the State's motion to dismiss, the Rule 32 Court entered an order dismissing Boyd's Rule 32 petition two months later, on August 28, 2002.[4] *Boyd*, 913 So. 2d at 1121–22. Boyd appealed the Rule 32 Court's dismissal on October 8, 2002. *Id.* at 1122. On September 26, 2003, the ACCA affirmed the Rule 32 Court's judgment. *Id.* at 1148. Thereafter, on May 27, 2005, the Alabama Supreme Court denied Boyd's petition for writ of certiorari. *See Boyd*, 697 F.3d at 1329.

3. Federal Habeas Proceedings

On June 3, 2005, after he exhausted his state postconviction remedies, Boyd petitioned for federal habeas relief under 28 U.S.C. § 2254 in the United States District Court for the Northern District of Alabama. *Id.* at 1330. The district court denied Boyd's habeas petition in its entirety but granted Boyd's application for a certificate of

[4] The Rule 32 Court's "order of dismissal did not refer to any matters contained in Boyd's amended [Rule 32] petition." *Boyd*, 913 So. 2d at 1122.

appealability on one issue: whether the district court improperly concluded that his amended Rule 32 petition was procedurally barred. *Id.* On October 10, 2012, the Eleventh Circuit affirmed the district court's denial of habeas relief.[5] *Boyd*, 697 F.3d at 1330, 1342. On June 24, 2013, the United States Supreme Court denied certiorari review. *Boyd v. Thomas*, 570 U.S. 920 (2013) (Mem).

4. Lethal Injection Litigation and Election of Nitrogen Hypoxia

When Boyd was sentenced to death in 1995, Alabama's default method of execution was electrocution. *Boyd*, 856 F.3d at 860. In July 2002, the Alabama legislature modified the state's statutory methods of execution to make lethal injection the default method, "unless the person sentenced to death affirmatively elects to be executed by electrocution." *Id.* (quoting ALA. CODE § 15–18–82.1(a) (2002)). The record does not indicate that Boyd made such an election. In the years following lethal injection's introduction, the ADOC performed such executions using a three-drug protocol. *Id.* Each drug in the ADOC's protocol serves a specific function: (1) "the first drug should render the inmate unconscious"; (2) "the second drug is a paralytic agent"; and (3) "the third drug 'interferes with the electrical signals that stimulate the contractions of the heart, inducing cardiac arrest.'" *Id.* at 860–61 (quoting in part *Baze v. Rees*, 553 U.S. 35 (2008) (plurality opinion)). On September 11, 2014, the ADOC began using midazolam hydrochloride as the lethal

[5] The Eleventh Circuit granted Boyd's motion to expand the certificate of appealability "to consider one additional issue: whether his Rule 32 claims were pled with sufficient specificity to meet the requirements of Alabama's Rule 32.6(b)." *Boyd*, 697 F.3d at 1330.

injection protocol's first drug. *Id.* at 861.[6] That same day, then-Alabama Attorney General Luther Strange moved the Alabama Supreme Court to authorize Boyd's execution by lethal injection. (Doc. 33 at 1 in *Boyd v. Myers et al.*, Case No. 2:14-cv-1017-WKW (M.D. Ala.) [hereinafter *Boyd's Lethal Injection Litigation*]; *see also* doc. 33-1 at 2 in *Boyd's Lethal Injection Litigation*).

On October 2, 2014, Boyd filed suit in this Court pursuant to 42 U.S.C. § 1983, alleging that the ADOC's lethal injection protocol was unconstitutional. (*See* doc. 1 in *Boyd's Lethal Injection Litigation*). At that time, the Alabama Supreme Court had not yet authorized Boyd's execution. (*See* doc. 33 at 1 in *Boyd's Lethal Injection Litigation*). On March 27, 2015, the Alabama Supreme Court granted the State's motion to hold in abeyance its motion to set Boyd's execution date pending the United States Supreme Court's decision in *Glossip v. Gross*, *infra*, which was considering the constitutionality of Oklahoma's use of midazolam in its lethal injection protocol. (Doc. 39 at 12 in *Boyd's Lethal Injection Litigation*); *see also* Order, *Ex parte Boyd*, No. 1961321 (Ala. Mar. 27, 2015). On March 19, 2015, the district court stayed Boyd's lethal injection litigation and ordered the parties to file "[w]ithin fourteen . . . days from the Supreme Court's decision in *Glossip* . . . appropriate motion[s] that inform[] the court of their respective positions on the issues in this case in view of the *Glossip* decision." (Doc. 34 at 3–4, paras. 1–2 in *Boyd's Lethal Injection Litigation*).

[6] Midazolam hydrochloride is a "sedative in the benzodiazepine family of drugs." *Chavez v. Fla. SP Warden*, 742 F.3d 1267, 1269 (11th Cir. 2014).

On June 29, 2015, the United States Supreme Court issued its decision in *Glossip*, holding that condemned inmates challenging their method of execution must identify a known and available alternative method that entails a lesser risk of pain. *Glossip v. Gross*, 576 U.S. 863, 867 (2015). Shortly after the Supreme Court's decision, the State filed a renewed motion to dismiss Boyd's amended complaint in light of *Glossip*. (Doc. 39 in *Boyd's Lethal Injection Litigation*). On October 7, 2015, the district court granted the State's renewed motion to dismiss. (Doc. 50 in *Boyd's Lethal Injection Litigation*). The district court rejected Boyd's proposed alternative methods of execution—firing squad and hanging—because, among other reasons, Boyd's allegations that "hanging and . . . firing squad would entail a lesser risk of pain than Alabama's current method of execution . . . [were] nothing more than bare-bone legal conclusions unsupported by facts." (*Id.* at 11–12 in *Boyd's Lethal Injection Litigation*). Boyd appealed the district court's decision to the Eleventh Circuit. On May 9, 2017, the Eleventh Circuit affirmed. *See Boyd*, 856 F.3d at 859.

In 2015, other condemned inmates separately challenged the constitutionality of the ADOC's lethal injection protocol in this Court.[7] (*See* doc. 59 in *In Re: Alabama Lethal Injection Protocol Litigation*, Case No. 2:12-cv-316-WKW (M.D. Ala. Nov. 5, 2015) [hereinafter *Consolidated Lethal Injection Litigation*]). Several of these challenges were

[7] Several inmates, including Kenneth Smith and Alan Miller, proposed nitrogen hypoxia as a feasible and readily implemented alternative method of execution. *See, e.g.*, *Price v. Comm'r, Dep't of Corr.*, 920 F.3d 1317, 1326–29 (11th Cir. 2019) (per curiam); *Smith v. Hamm*, 2023 WL 4353143, at *5 (M.D. Ala. July 5, 2023); *Miller v. Hamm*, 640 F. Supp. 3d 1220, 1231 (M.D. Ala. 2022).

consolidated into one action before the district court. (Doc. 59 in *Consolidated Lethal Injection Litigation*). The condemned inmates proposed four alternative methods of execution, including "asphyxiation via the inhalation of pure nitrogen gas," which purportedly would render "the condemned inmate unconscious within seconds and painlessly dead within minutes." (Doc. 348 at 32–33, paras. 161–63 in *Consolidated Lethal Injection Litigation*). The asphyxiation method—inhalation of pure nitrogen gas—included "the administration of an anxiolytic, such as midazolam,"[8] before the introduction of nitrogen gas. (*Id.* at 33, para. 163 in *Consolidated Lethal Injection Litigation*).

As discussed above, the Alabama legislature amended Alabama Code § 15-18-82.1 to add nitrogen hypoxia as an authorized method of execution, effective June 1, 2018. ALA. CODE § 15-18-82.1(a). Condemned inmates, including Boyd, whose death sentences became final before the amendment took effect had thirty days to elect execution by nitrogen hypoxia. *Id.* § 15-18-82.1(b)(2). On June 27, 2018, Boyd elected execution by nitrogen hypoxia before the July 2, 2018 deadline.[9] (Doc. 29-17 at 2).[10]

---

[8] An anxiolytic is an anti-anxiety medication. *Anxiolytic*, NCI Dictionary of Cancer Terms, NAT'L CANCER INST., https://www.cancer.gov/publications/dictionaries/cancer-terms/def/anxiolytic (last visited Oct. 9, 2025).

[9] Alabama law states that the "[t]ime within which any act is provided by law to be done must be computed by excluding the first day and including the last. However, if the last day is Sunday, . . . the last day also must be excluded, and the next succeeding secular or working day shall be counted as the last day within which the act may be done." ALA. CODE § 1-1-4. Excluding June 1, 2018, the day the statutory period began to run, thirty days is through July 1, 2018. But because July 1, 2018, was a Sunday and thus cannot be counted as the last day, the statutory period to elect nitrogen hypoxia ran through July 2, 2018.

[10] The condemned inmates in the *Consolidated Lethal Injection Litigation*, which included Demetrius Frazier, Gregory Hunt, and Geoffrey West, also elected execution by nitrogen hypoxia, and in July 2018, their case was dismissed as moot. (Doc. 429 in *Consolidated Lethal Injection Litigation*).

5. Present Action

On June 11, 2025, Alabama Attorney General Steve Marshall moved the Alabama Supreme Court to authorize Boyd's execution by nitrogen hypoxia. (*See* doc. 33-1 at 1). Thirty-six days later, on July 16, 2025, Boyd filed this § 1983 action. (Doc. 1). On July 18, 2025, Boyd filed his motion for preliminary injunction in this Court. (Doc. 11). On July 30, 2025, the Alabama Supreme Court granted the State's motion to authorize Boyd's execution. (Doc. 33-1 at 1–2). Shortly thereafter, on August 18, 2025, Alabama Governor Kay Ivey set Boyd's execution for the thirty-hour time frame beginning at 12:00 a.m. on Thursday, October 23, 2025, and ending at 6:00 a.m. on Friday, October 24, 2025. (Doc. 33-2 at 1).

C. The ADOC's Nitrogen Hypoxia Protocol

Although the Alabama legislature authorized nitrogen hypoxia as a method of execution in 2018, the ADOC did not have a means of carrying out such executions at that time. (*See* doc. 83 at 135:3–23). The ADOC finalized the Protocol in August 2023—over five years after the legislature amended the statute. (*See id.*; doc. 11-3). The publicly available version of the Protocol, which contains redactions, explains how the ADOC carries out a nitrogen hypoxia execution. (*See* doc. 11-3 at 16–18). In preparation for a nitrogen hypoxia execution, the Protocol calls for: (1) calibration of oxygen monitoring equipment; (2) pressurization of breathing air and nitrogen gas banks; and (3) connection of the mask to the tubes through which the nitrogen gas flows. (*Id.* at 30–35).

After the execution team completes various preliminary steps, execution by nitrogen hypoxia proceeds as follows: (1) the condemned inmate is escorted to the execution chamber and placed on a gurney, at which time members of the execution team secure onto him two pulse oximeters;[11] (2) an industrial-use respirator mask is placed and adjusted on the condemned inmate's face; and (3) after several safety checks, the reading of the execution warrant, and any last words from the condemned inmate, pure nitrogen gas is introduced into the mask and administered for fifteen minutes or five minutes following a flatline indication on the EKG, whichever is longer. (Doc. 11-3 at 16–18; doc. 84 at 53:14–16). A physician enters the execution chamber to pronounce the inmate's death. (Doc. 11-3 at 21; *see also* doc. 84 at 23:19–21).

To date, the ADOC has executed six inmates under the Protocol: Kenneth Smith ("Smith"), Alan Miller ("Miller"), Carey Grayson ("Grayson"), Demetrius Frazier ("Frazier"), Gregory Hunt ("Hunt"), and Geoffrey West ("West").[12]

D. Boyd's Nitrogen Hypoxia Challenge

Boyd filed this action on July 16, 2025—nearly two years after the Protocol was released. (Doc. 1). Boyd alleges that the Protocol violates the Eighth Amendment's

[11] Pulse oximetry "is a quick and non-invasive monitoring technique that measures the oxygen saturation in the blood by shining light at specific wavelengths through tissue." *Pulse Oximetry*, NAT'L LIBR. OF MED., https://www.ncbi.nlm.nih.gov/books/NBK470348/ (last visited Oct. 9, 2025). A pulse oximeter is a device used in pulse oximetry that processes "[t]he absorbed light . . . to display a saturation value." *Id.*

[12] West was executed on September 25, 2025, after the evidentiary hearing on Boyd's motion for preliminary injunction. Neither side has offered argument or evidence regarding what occurred during West's execution.

prohibition against cruel and unusual punishment and his Fourteenth Amendment right to due process. (*Id.* at 8–11, paras. 33–47; *id.* at 32–34, paras. 141–52). In his complaint, Boyd asserts four claims pursuant to § 1983: an Eighth Amendment facial challenge (Count I), a Fourteenth Amendment procedural due process claim (Count II), an Eighth Amendment as-applied challenge (Count III), and a "claim" for injunctive relief (Count IV). (*See id.* at 30–37, paras. 126–66).

In Count I, Boyd claims that the Protocol, on its face, creates a substantial risk of severe pain violative of the Eighth Amendment because it causes condemned inmates to consciously experience extreme pain and terror from being deprived of oxygen, which he calls "conscious suffocation." (*Id.* at 31, paras. 131–33). Boyd requests that the Court declare the Protocol "facially unconstitutional under the Eighth Amendment." (*Id.* at 37). In Count III, Boyd claims that the Protocol as applied to him will very likely cause him to experience "extreme psychological distress and panic" due to his medical conditions: asthma and vertigo. (*Id.* at 35, paras. 157–58). Boyd proposes three alternative execution methods: (1) firing squad; (2) hanging; and (3) MAID. (*Id.* at 27–30, paras. 115–25). In Count II, Boyd claims that the State's failure to provide Boyd with the unredacted Protocol violates his due process rights.[13] (Doc. 1 at 32–34, paras. 141–52). Finally, in Count IV, Boyd pursues injunctive relief "to prevent scheduling and enforcement of [his] execution by nitrogen hypoxia." (*Id.* at 35–37, paras. 161–66).

[13] On August 6, 2025, Boyd's counsel received the ADOC's unredacted Protocol. (Doc. 29 at 62).

On July 18, 2025, Boyd moved for a preliminary injunction to enjoin the State "from executing him using the Protocol during the pendency of this litigation." (Doc. 11 at 23). The issues relevant to resolving Boyd's motion have narrowed considerably compared to those raised in his complaint. During a September 3, 2025 status conference, Boyd's counsel stated on the record that Boyd was *not* seeking a preliminary injunction based on his as-applied Eighth Amendment claim (Count III), and they also acknowledged that Boyd's "claim" for injunctive relief (Count IV) was "subsumed" by the other counts and thus was duplicative. Boyd's counsel further confirmed that Boyd sought preliminary injunctive relief based on his Eighth Amendment facial challenge to the Protocol (Count I) and his Fourteenth Amendment due process claim (Count II). In his post-hearing brief, however, Boyd informed the Court that he is no longer relying on the due process claim (Count II) for purposes of his motion for preliminary injunction. (Doc. 99 at 2 n.1). Additionally, Boyd's counsel represented during the status conference that Boyd is not relying on his proposed alternative method of hanging for purposes of the motion for a preliminary injunction, and is instead relying only on Utah's firing squad protocol[14] and MAID. Consequently, this Opinion focuses on Boyd's Eighth Amendment facial challenge (Count I) and his proposed alternatives of the firing squad and MAID.

[14] As discussed further below, Utah authorizes the firing squad as a method of execution for inmates who elected the firing squad before May 3, 2004, and if lethal injection is declared unconstitutional or the state is unable to procure the lethal injection drugs. *See* UTAH CODE § 77-18-113.

E. Summary of Evidence Presented at Preliminary Injunction Hearing

On September 4 and 5, 2025, the Court held an evidentiary hearing on Boyd's motion for preliminary injunction. The Court heard extensive testimony from eighteen witnesses, including five experts. Boyd offered four experts: Dr. Brian McAlary ("Dr. McAlary"), an expert in "medicine" and anesthesia (doc. 84 at 183:3–4); Dr. Phillip Bickler ("Dr. Bickler"), an expert in hypoxia in humans and anesthesia; Dr. Carly Zapata ("Dr. Zapata"), an expert in "medicine" and MAID (*id.* at 183:4–5); and Dr. James Williams ("Dr. Williams"), an expert in ballistics, emergency medicine, and firearms who testified about the firing squad. Dr. McAlary also witnessed Grayson's execution and testified regarding his observations and the conclusions he drew from those observations. The State proffered Dr. Joseph Antognini ("Dr. Antognini") as an expert in anesthesia.

Before turning to the lay witnesses, the Court summarizes Dr. Bickler's and Dr. Antognini's opinions, which the Court finds most relevant in its evaluation of the Protocol. The Court notes at the outset that the experts offer differing opinions about how long it will take for the Protocol to render an inmate unconscious. Dr. Antognini opines that the Protocol will render condemned inmates unconscious "within [thirty-five to forty seconds] (and perhaps sooner) once the inmate inhales 90[%]–100% nitrogen gas." (Doc. 29-8 at 27 (parenthetical in original)). According to Dr. Bickler, an inmate breathing normally will become unconscious within two minutes under the Protocol. (Doc. 83 at 213:15–14:7). Dr. Bickler further opined that if it takes longer than two minutes to render the inmate

unconscious, it is because the inmate was either holding his breath or breathing shallowly. (*Id.* at 214:8–15).

1. Dr. Bickler

Dr. Bickler testified to the effects of hypoxia on humans, emphasizing that the lack of oxygen causes strong involuntary physiological reactions, including sending impulses to the brain that command a person to breathe more, causing shortness of breath and a "primal" fight or flight response "that is deeply threatening on an emotional level." (*Id.* at 168:14–20; 170:4–14). He further testified as follows: The physiological responses to lack of oxygen create a feeling of "air hunger" similar to an asthma attack or being stuck under water and needing to surface for air. (*Id.* at 172:2–17).[15] Pain, generally speaking, has physical and emotional dimensions that are "interlocked." (Doc. 83 at 175:11–19; *see also id.* at 200:6–10 (noting that pain is "a combination of" the physical and emotional)). The pain caused by nitrogen hypoxia includes both the "physical"—"the drive to breathe, the increase in heart rate, the pounding of blood that you feel in your head"—as well as the "emotional terror and panic that's elicited by this primal reaction to having your oxygen supply cut off." (*Id.* at 170:15–19; 175:20–23). The "physical pain" associated with hypoxia is not like being "cut with a knife," but rather like being threatened with one. (*See id.* at 200:11–23; *see also* doc. 82-68 at 77:17–20 (Dr. Bickler's August 27, 2025

[15] Dr. Bickler also testified that this air hunger is caused both by carbon dioxide buildup and a lack of oxygen, but that air hunger can also be caused by a lack of oxygen alone. (Doc. 83 at 172:18–25; *see also id.* at 204:9–16).

deposition transcript)). A steep rate of change in oxygen levels causes a "much greater" "degree of discomfort" compared to a gradual change. (Doc. 83 at 179:1–9).

Dr. Bickler's opinions are based on his experience as director of the Hypoxia Research Laboratory at the University of California at San Francisco where he has studied the "effects of hypoxia on humans" for thirty-five years, which involved between eight thousand and ten thousand subjects; as a former clinical anesthesiologist; and as a former participant in hypoxia studies. (*Id.* at 160:18–25, 161:10–11, 24–25; 162:1; 166:24–67:4; 168:4–10; 177:6–9). To study nitrogen hypoxia, Dr. Bickler's lab reduces breathing oxygen by diluting air with nitrogen. (*Id.* at 164:1–9). His studies gradually, over the course of ten to fifteen minutes, take subjects to near 70% oxygen saturation levels but no lower because at lower saturation levels, "the symptoms of oxygen deprivation begin to be very profound and are problematic." (*Id.* at 164:10–17; 178:7–11). An oxygen saturation level of 70% is one which "a very well coached, very well educated, and very well monitored subject can tolerate." (*Id.* at 164:16–25). In one study, in which Dr. Bickler reduced his own oxygen level to 48%, he recalled feeling "extreme discomfort and near terror." (*Id.* at 173:3–21). While Dr. Bickler does not remember losing consciousness, his colleagues recounted to him that his hand was twitching, and he recalls his vision changing. (*Id.* at 174:3–8). Nevertheless, Dr. Bickler recognized that there is significant variation in how people respond to hypoxia, stating that even shortness of breath is not universal. (*Id.* at 174:18–22; *see also id.* at 207:24–08:7). Further, Dr. Bickler testified that consciousness fades for most people around 50% oxygen saturation, and that some people can lose

consciousness before they feel any distress. (*Id.* at 208:8–10; 211:22–24; *see also id.* at 216:19–24).

Dr. Bickler also offered the following opinions: Consciousness is indicated by coordinated, smooth, and purposeful movements of the body. (*Id.* at 184:13–16). With normal breathing, an inmate executed under the Protocol would remain conscious for approximately two minutes after the nitrogen begins flowing, but an inmate could lose consciousness before or after two minutes, depending on breathing volume. (*Id.* at 213:24–14:2; *see also id.* at 215:17–16:2). Agonal breathing[16] likely occurs during unconsciousness. (Doc. 83 at 227:24–28:2). Dr. Bickler ultimately concluded to a degree of medical and scientific certainty that the Protocol causes "an added terror effect that's being produced by the oxygen deprivation that is[] . . . very different than other execution methods." (*Id.* at 188:25–89:7).

2. Dr. Antognini

Dr. Antognini opines that the Protocol causes unconsciousness within thirty-five to forty seconds and a physically painless death thereafter. (Doc. 29-8 at 27, para. 49; doc. 84 at 112:18–24). Dr. Antognini's opinions are based on the following: (1) his experience as an anesthesiologist; (2) reviews of a study involving three military pilots; (3) case studies of inert-gas suicides; and (4) Occupational Safety and Health Administration ("OSHA")

[16] Agonal breathing is defined as "[a]n abnormal breathing pattern originating from lower brainstem neurons and characterized by labored breaths, gasping, and, often, [muscle jerks] and grunting." *Agonal Respiration*, NAT'L LIBR. OF MED., https://www.ncbi.nlm.nih.gov/medgen/746160 (last visited Oct. 9, 2025).

work-incident reports of hypoxia deaths. (*See* doc. 84 at 111:15–20; 115:5–33:21; 135:14–36:21; 142:15–43:23; doc. 29-8 at 7–10, 13–14, paras. 11–15, 21 (discussing articles)). He relied strongly on three articles: Ernsting (1963),[17] Ogden (2010),[18] and Ogden *et al.* (2010).[19] (*See* doc. 29-8 at 13–14, para. 21; doc. 82-74 (Ernsting); doc. 82-78 (Ogden); doc. 82-79 (Ogden *et al.*)).

In Ernsting (1963), three military pilots were instructed to empty their lungs of air, after which nitrogen began fully flowing; thereafter, the participants were instructed to breathe as deeply as possible. (Doc. 84 at 158:23–60:9; doc. 82-74 at 1–2). Ogden (2010) recounts two suicides that utilized bags prefilled with helium. (Doc. 84 at 126:15–27:13; doc. 82-78 at 2–5). After the individuals placed the bags over their heads, Ogden observed that unconsciousness occurred at twelve seconds, and agonal breathing began at three minutes. (Doc. 84 at 128:4–9; 132:11–14; doc. 82-78 at 4–5). In Ogden *et al.* (2010), four suicides using a mask (rather than a bag) and helium gas were documented. (Doc. 84 at 130:17–31:3; doc. 82-79 at 1). Time until loss of consciousness ranged from thirty-six to fifty-five seconds, and Dr. Antognini interpreted the intermittent movement the authors

[17] J. Ernsting, *The Effect of Brief Profound Hypoxia Upon the Arterial and Venous Oxygen Tensions in Man*, 169 J. PHYSIOL. 292 (1963).

[18] Russel D. Ogden, *Observation of Two Suicides by Helium Inhalation in a Prefilled Environment*, 31 AM. J. FORENSIC MED. PATHOL. 156 (2010).

[19] Russel D. Ogden *et al.*, *Assisted Suicide by Oxygen Deprivation with Helium at a Swiss Right-to-Die Organisation*, 36 J. MED. ETHICS 174 (2010).

described as "very similar" to that which occurs in nitrogen hypoxia executions. (Doc. 84 at 131:14–33:7; doc. 82-79 at 4).

3. Lay Witnesses

The thirteen lay witnesses fall into two general categories: (1) witnesses to prior nitrogen hypoxia executions, and (2) ADOC personnel, most of whom were present for or involved with prior nitrogen hypoxia executions. The first category includes Deanna Smith, Smith's widow, and several former attorneys for condemned inmates: Robert Grass, Smith's attorney; Mara Klebaner ("Klebaner"), Miller's attorney; and Matt Schulz ("Schulz"), Frazier's attorney. It also includes statutory media witnesses Ralph Chapoco, reporter for the Alabama Reflector; and Marty Roney ("Roney") and Sara Clifton, reporters for the Montgomery Advertiser.

The second category of witnesses, ADOC personnel, includes Regional Director Cynthia Stewart-Riley ("Director Stewart-Riley"); Commissioner Hamm; Warden Raybon; Warden Brandon McKenzie ("Warden McKenzie"); Captain Fitzgerald Clemons; and Jason Grindle. The Court also admitted over seventy exhibits, comprising more than 1,600 pages of evidence.[20]

[20] In addition to the live witnesses' testimonies, the Court also received four affidavits from media reporters concerning articles written following various nitrogen hypoxia executions: Lauren Layton, journalist at WHNT-TV, Huntsville, Alabama (doc. 72); Kim Chandler, reporter for the Associated Press (doc. 74); Kent Faulk, AL.com reporter (doc. 78); and Ivana Hrynkiw, another AL.com reporter (doc. 79). Boyd also submitted a fifth affidavit from Shannon Maze, who serves as News Director at Gray Local Media, Inc. (Doc. 73 at 1). Maze did not witness any prior nitrogen hypoxia executions.

Much of the testimony during the two-day evidentiary hearing concerned witness observations during previous nitrogen hypoxia executions in Alabama. Generally, witnesses unaffiliated with the ADOC testified consistently regarding their observations. The testimony centered on four main topics. First, the witnesses described being escorted to a viewing room adjacent to the execution chamber. (*See, e.g.*, doc. 83 at 25:24–26:4). The viewing room contained rows of chairs, a digital clock, and a curtain that obstructed the view into the execution chamber. (*See, e.g.*, *id.* at 12:2–10; 68:13–14). The witnesses testified about where they sat in the viewing room and the process before the ADOC carried out the execution. (*See, e.g.*, *id.* at 22:22–23:1).

Second, witnesses recounted that once the curtains were drawn back, they observed condemned inmates already strapped to the gurney, with the industrial respirator mask secured to their face. (*See, e.g.*, *id.* at 26:17–21). Additional testimony recounted readings of the death warrant and any last words from the condemned inmates. (*See, e.g.*, *id.* at 51:3–11). Third, the witnesses described the inmates making various movements after the Protocol was initiated, including: (1) shaking and jerking (*id.* at 28:7–8); (2) convulsing (*id.* at 23:17); (3) gasping for air (*id.* at 36:24–37:5); (4) eyes bulging (*id.* at 52:7–8); and (5) struggling to breathe (*id.* at 62:7–9). Fourth, some witnesses kept timelines of the executions and made observations based on the times displayed by the viewing room's digital clock. (*See, e.g.*, *id.* at 38:8–13). On cross-examination, many witnesses acknowledged that they could not concretely determine: (1) when nitrogen began to flow

into the inmate's mask; (2) when the inmate became unconscious; and (3) whether the observed movements evidenced consciousness. (*See, e.g.*, *id.* at 64:9–22).

ADOC personnel generally testified to the events leading up to and during earlier nitrogen hypoxia executions. The ADOC keeps records called "duty post logs" that capture the events at the "start [of] the execution week" extending through the execution. (*Id.* at 136:20–37:8; 150:5–11). The duty post logs typically contain two redacted time entries stating that "[REDACTED] is given." (*Id.* at 152:18–25; *see also, e.g.*, doc. 82-8 at 7 (Grayson's Duty Post Log)). The redacted time entries correspond with two "codes." (Doc. 83 at 153:1–10). The first code ("Code One") "alert[s] the staff that . . . [t]he warden has start[ed] his procedures for the execution."[21] (Doc. 83 at 153:6–8). Specifically, Code One means Warden Raybon has initiated the nitrogen system and turned the breathing air off and the nitrogen on. (*Id.* at 153:6–10). Although the nitrogen is turned on "within seconds" after Warden Raybon gives Code One, nitrogen does not "immediately" begin to flow. (*Id.* at 153:15–20). The second code ("Code Two") means that the "inmate appears to be deceased." (*Id.* at 153:11–13). Code Two signals that the nitrogen hypoxia "process is finished with the system." (*Id.* at 153:25–154:1). Warden Raybon testified that Code Two corresponds with the Protocol's timing requirement that the nitrogen flow for "[fifteen] minutes or five minutes past flat line." (Doc. 84 at 43:12–20).

[21] The ADOC's execution team receives verbal notification through headsets that a code has been issued. (Doc. 84 at 54:1–15).

Because much of the evidence centers on the witnesses' observations of previous nitrogen hypoxia executions and expert testimony interpreting those movements, the Court recounts the relevant testimony and evidence concerning five previous nitrogen hypoxia executions: Smith's, Miller's, Grayson's, Frazier's, and Hunt's. The Court relies on the witness testimony and the ADOC's duty post logs to craft approximate timelines for relevant events.[22]

a. Kenneth Smith

On January 25, 2024, the State executed Smith using the Protocol—becoming the first state to execute an inmate by nitrogen hypoxia. (Doc. 11 at 5; doc. 82-37 at 1). The State contends that Smith died within eighteen minutes after nitrogen began to flow. (Doc. 85 at 3; doc. 82-5 at 10). Smith's Duty Post Log shows that Code One was given at 7:57 p.m. and Code Two followed eighteen minutes later at 8:15 p.m.[23] (Doc. 82-5 at 10). Witnesses offered various accounts of what occurred during those eighteen minutes.

Witnesses recounted that Smith "ma[de] violent movements" after Warden Raybon exited the execution chamber. (Doc. 83 at 14:1–6). Smith's feet and head left the gurney, his arms appeared to strain against his restraints, and he appeared to "gasp[] for . . . air."

[22] Roney testified that the clock in the execution viewing room is digital and set to military time. (Doc. 83 at 38:8–10). He explained that the clock does not account for seconds, so he counted "one Mississippi, two Mississippi, to try and keep time with the seconds." (*Id.* at 38:10–13; *see also id.* at 68:13–15). Schulz testified that "time in a place like this and during something like this can move very differently . . . whether something happened at 6:08 [p.m.] or 6:08 [p.m.] and 56 seconds, I wouldn't be able to tell you." (Doc. 83 at 70:12–17). The Court notes the potential imprecision associated with various witness timelines and views them as an approximation of what occurred rather than an exact recounting.

[23] The cited times are given in Central Time.

(*Id.* at 14:2–14). One witness reported that "Smith convulsed for two minutes with seven minutes of heavy breathing as he took large breaths." (Doc. 83-38 at 2; *see also* doc. 83 at 23:13–20). Others estimated that Smith convulsed for a total of four minutes from 7:57 p.m. until 8:01 p.m. (Doc. 82-37 at 2). Smith, while strapped to the gurney, held up the "I love you" sign (in American Sign Language) with his left hand. (Doc. 83 at 27:24–28:1, 34:18–22; doc. 82-37 at 2). Smith continued to "hold[] on to the 'I love you' sign" during his execution. (Doc. 83 at 28:14–15, 29:15–18).

Director Stewart-Riley observed that Smith appeared to hold his breath during his execution. (*Id.* at 152:6–14). In a press conference following Smith's execution, Commissioner Hamm stated that "Smith held his breath for as long as he could[.]" (Doc. 82-37 at 3). Dr. Bickler, one of Boyd's experts, similarly opined that Smith either held his breath or breathed shallowly. (Doc. 83 at 215:17–16:2). Dr. Antognini also noted that Smith's autopsy indicated that his blood contained a synthetic cannabinoid, which Dr. Antognini says could explain some of Smith's movements.[24] (Doc. 82-63 at 17–18, para. 31). Warden McKenzie recalled that once Smith took a "deep breath, [his] . . . pulse oximeter drop[ped] from 97 [or] 98 percent to the lower forties in a matter of seconds."

[24] Dr. Antognini also cites to Dr. Philip Nitschke, Smith's medical expert, who wrote after Smith's execution that "[t]he convulsions that [Smith] experienced were almost certainly accentuated by his obvious (and understandable) non-cooperation with the execution process." (Doc. 82-63 at 17, para. 30 (parenthetical in original)). He further wrote that "[b]reath-holding would have increased the level of carbon dioxide in [Smith's] body, acidifying his blood and increasing discomfort and distress." (*Id.*). "By the time of the convulsions," however, "[Smith] would not have been aware of what was happening to him." (*Id.*).

(Doc. 84 at 73:16–19). At 8:25 p.m., the ADOC pronounced Smith dead. (Doc. 82-5 at 10).

b. Alan Miller

Eight months after Smith's execution, on September 26, 2024, the State used the Protocol for a second time to execute Alan Miller. (Doc. 82-7 at 3). The State asserts that Miller died within sixteen minutes after nitrogen began to flow. (Doc. 85 at 3). Miller's Duty Post Log shows that Code One was given at 6:16 p.m. and Code Two followed sixteen minutes later at 6:32 p.m. (Doc. 82-7 at 3). Witnesses provided various accounts of what occurred during those sixteen minutes.

During the execution, Miller's "whole body started to shake very intensely," and Miller's attorney described him as "so obviously awake, conscious."[25] (Doc. 83 at 52:5–13). One witness approximated that Miller convulsed and took "gasping breaths of air" for five minutes. (*Id.* at 52:19–53:1). Roney noted that "Miller gasped, shook[,] and struggled against his restraints for two minutes after the [nitrogen] gas apparently began to flow." (*Id.* at 36:24–37:1; doc. 82-36 at 1). Roney's timeline estimated that the nitrogen gas began to flow at approximately 6:18 p.m. and that one minute later, at 6:19 p.m., Miller "appeared to lose consciousness but his movements continued sporadically." (Doc. 82-36 at 3; doc. 83 at 45:20–25). Roney acknowledged on cross-examination, however, that he did not know when nitrogen began to flow or when the inmate lost consciousness. (Doc. 83 at

[25] Klebaner believed Miller's movements were conscious based on her familiarity with Miller's mannerisms and facial expressions. (Doc. 83 at 59:4–8).

42:22–43:2). Commissioner Hamm said he was not concerned about Miller's movements because movements were "to be expected under nitrogen hypoxia." (Doc. 84 at 14:2–4; 16:25–17:4). Miller was pronounced dead at 6:38 p.m. (Doc. 82-7 at 3).

c. Carey Grayson

On November 21, 2024, the State executed Grayson using the Protocol. (Doc. 82-8 at 7). The State asserts that, like Miller, Grayson died within sixteen minutes after nitrogen began to flow. (Doc. 85 at 3). Grayson's Duty Post Log notes that Code One was given at 6:11 p.m. and Code Two followed sixteen minutes later at 6:27 p.m. (Doc. 82-8 at 7). Several witnesses, including Dr. McAlary, provided accounts of what occurred during the sixteen minutes between Code One and Code Two. (*See* doc. 83 at 103:10–22, 105:13–14).

One media witness described Grayson as "combative" before Code One was issued. (Doc. 82-35 at 2). Commissioner Hamm noted that Grayson used an expletive before Warden Raybon left the room and extended his middle finger on both hands. (Doc. 84 at 18:1–11). After Code One, a media witness described Grayson's conduct from 6:12 p.m. to 6:13 p.m. as follows: "Grayson's hands were tightly clenched. He took several deep gasps, shaking his head vigorously. He pulled his arms against the restraints . . . . He took several deep gasps, raising his head off the gurney." (Doc. 82-35 at 3).

Dr. McAlary and Schulz witnessed Grayson's execution. (*See* doc. 83 at 106:7–10). Dr. McAlary sat approximately twelve to fourteen feet away from the gurney. (*Id.* at 108:21–22). Schulz took notes during Grayson's execution on Dr. McAlary's behalf to prevent Dr. McAlary from "be[ing] distracted by looking at the clock [and] taking notes."

(*Id.* at 106:16–22). Schulz's notes provide the following timeline of Grayson's execution: (1) at 6:12 p.m.,"[Grayson] appeared to breath[e] heavily as it seemed the air flow had changed . . . [f]or about two minutes, he made hand gestures, clenched his hands, and struggled, while clearly still breathing"; (2) at 6:14 p.m., "[Grayson's] legs/feet lifted fairly high up off the table"; (3) from 6:15 p.m. to 6:22 p.m., Grayson continued to breathe, which Schulz described at various points as "light" or "shallow." (Doc. 82-41 at 1–2).[26] At 6:33 p.m., the ADOC pronounced Grayson dead. (Doc. 82-8 at 7).

Dr. McAlary testified that Grayson's legs "both raised up, almost by levitation" in a "measured and consistent" manner. (Doc. 83 at 115:8–12). He estimated that Grayson's legs paused in the air for approximately ten seconds and descended "[a]t the same rate of speed." (*Id.* at 115:11–16). According to Dr. McAlary, this "coordinated activity" was a conscious movement.[27] (Doc. 83 at 115:4–16:3). Based on his observations and medical expertise, Dr. McAlary concluded that Grayson was conscious for "at least four minutes." (*Id.* at 117:10–23).

Dr. Antognini disagrees with Dr. McAlary's assessment, opining that synchronous leg movement like Grayson's could be explained by low levels of oxygen, because "when the oxygen levels get so low, the neurons in [the] central nervous system begin to fire

[26] Dr. McAlary opined that Schulz's notes had "a little bit of a problem with a lack of quantification." (Doc. 83 at 107:15–108:6). For example, Dr. McAlary would have used "degrees of elevation" to describe Grayson's leg lift. (*Id.* at 107:24–108:5).

[27] On cross-examination, Dr. McAlary acknowledged it was "[p]ossible but improbable" that Grayson was unconscious during his leg lift. (*See* doc. 83 at 127:14–17).

erratically, and they do not coordinate with each other." (Doc. 84 at 134:18–135:1). Thus, according to Dr. Antognini, unexpected movements like a synchronous leg lift can occur when neurons "discharge." (*Id.* at 134:23–135:13).

d. Demetrius Frazier

On February 6, 2025, Frazier became the fourth inmate executed under the Protocol. (Doc. 82-11 at 2). The State, relying on Frazier's Duty Post Log, claims that he died within eighteen minutes after nitrogen began flowing. (Doc. 85 at 3). Frazier's Duty Post Log shows that Code One was given at 6:10 p.m. and Code Two followed nineteen minutes later at 6:29 p.m.[28] (Doc. 82-11 at 2). The Court heard testimony from witnesses about what occurred during those nineteen minutes.

Schulz testified that at 6:10 p.m., Frazier "appeared to be trying to settle [and] calm himself." (Doc. 83 at 78:18–25). One media witness noted at 6:11 p.m. that Frazier's "breathing appeared to get heavier. He seemed to quiver and twitch." (*Id.* at 62:3–6). At 6:12 p.m., Frazier "appeared distressed" while taking deep gasping breaths. (*Id.* at 79:9–11). One minute later, at 6:13 p.m., witnesses observed "Frazier's legs . . . raise a few inches off the gurney." (*Id.* at 62:10–14). Schulz, who attended both Grayson's and Frazier's executions, noted that their leg lifts were similar in nature, but Frazier's legs were

[28] The State asserts that Frazier died within eighteen minutes after nitrogen began flowing. (Doc. 85 at 3). The Court relies on the figures included in Frazier's Duty Post Log, which establishes a period of nineteen minutes. (Doc. 82-11 at 2).

not lifted as high or for as long as Grayson's.[29] (*See* doc. 83 at 79:16–22). Warden McKenzie recalled Frazier "roll[ing] his hands around . . . in a circular motion." (Doc. 84 at 61:9–11). Warden McKenzie also testified that Frazier's pulse oximeter "bottomed out fairly quickly . . . within a couple of minutes." (*Id.* at 61:12–21). The ADOC pronounced Frazier deceased at 6:36 p.m. (Doc. 82-11 at 3).

e. Gregory Hunt

On June 10, 2025, the State executed Hunt using the Protocol, making him the fifth person executed in Alabama by nitrogen hypoxia. (Doc. 82-12 at 5). The State argues that Hunt died within twenty-three minutes after nitrogen began to flow. (Doc. 85 at 3). A review of Hunt's Duty Post Log reveals that Code One was issued at 5:56 p.m. (Doc. 82-12 at 5). The execution team received Code Two twenty-three minutes later at 6:19 p.m. (*Id.*).

One media witness noted that at 5:57 p.m., one minute after Code One was issued, "Hunt briefly shook, gasped[,] and raised his head off the gurney." (Doc. 74-3 at 2). At 5:59 p.m., Hunt raised his feet from the gurney. (*Id.*). After Hunt lifted his legs, "his breath became more shallow." (Doc. 79-4 at 3). Warden McKenzie recalled participating in Hunt's execution and noted that Hunt's oxygen levels "began to drop rather fast. It was more seconds to a minute with . . . Hunt." (Doc. 84 at 61:22–62:1). The ADOC pronounced Hunt deceased at 6:26 p.m. (Doc. 82-12 at 5).

[29] During the preliminary injunction hearing, the parties referred to Grayson's and Frazier's synchronous leg lifts as "[P]ilates type move[s]." (*See, e.g.*, doc. 83 at 91:16–19).

4. The Meaning of Inmates' Movements and Breathing

While the parties bitterly contest what happened during the previous nitrogen hypoxia executions, they do agree on a few matters. For example, both sides agree that "agonal breathing"—a phenomenon associated with the dying process and characterized by gasping, muscle jerks, and grunting—is expected, occurs when the person is unconscious, and is not itself evidence of pain. (Doc. 83 at 184:8–10, 227:16–20; doc. 84 at 128:14–19; *see also* doc. 83 at 227:24–28:2 (Dr. Bickler testifying that agonal breathing is expected and "more likely than not" occurs when the person is unconscious)). Similarly, both sides agree that an unconscious person may exhibit involuntary movements as part of the dying process, and that such involuntary movements do not necessarily evince pain. A core dispute is what inferences the Court should draw based on what witnesses observed during the ADOC's previous nitrogen hypoxia executions.

The State urges that it is not appropriate to infer from the movements and gasps that inmates were in pain or necessarily even conscious. (Doc. 97 at 3–5). The State characterizes Boyd's lay witnesses as offering accounts "that [are] not fully informed by an understanding of the dying process . . . [and] the hallmarks of death by hypoxia," including agonal breathing. (*Id.* at 3). The State highlights Dr. Antognini's opinion that inmates' convulsive movements and leg lifts were involuntary, unconscious responses to the erratic firing of neurons resulting from hypoxia. (*See* doc. 84 at 134:20–35:13; 138:1–4). The State also points out that lay witnesses were unable to see and document the statistical readings on the inmates' EKGs or pulse oximeters. (*See, e.g.*, doc. 83 at 64:2–8).

By contrast, Boyd contends that the witness testimony confirms that "each inmate consciously suffocated for an extended duration prior to losing consciousness." (Doc. 87 at 2). He submits that "[t]he exhibition of involuntary movements, muscle twitching, and myoclonic activity do not demonstrate that consciousness has been lost."[30] (Doc. 99 at 8). At bottom, Boyd argues that "suffering is inherent in the Protocol[;] it is a feature, not a bug." (*Id.* at 10).

IV. LEGAL STANDARD

To obtain a preliminary injunction, Boyd must demonstrate: (1) a substantial likelihood of success on the merits; (2) a likelihood of suffering irreparable injury without the injunction; (3) the threatened injury to him outweighs the harm the injunction would cause the other litigants; and (4) the injunction would not be adverse to the public interest. *See Siegel v. LePore*, 234 F.3d 1163, 1176 (11th Cir. 2000) (per curiam). Where, as here, "the [State] is the party opposing the preliminary injunction, its interest and harm merge with the public interest," and thus the third and fourth elements are the same. *Swain v. Junior*, 958 F.3d 1081, 1091 (11th Cir. 2020) (citing *Nken v. Holder*, 556 U.S. 418, 435 (2009)).

[30] Dr. Zapata defined "myoclonus" or myoclonic activity as "twitching" or "brief jerking movements" that can occur from "the natural toxic byproducts that our bodies produce [that] build up and affect the central nervous system." (Doc. 83 at 251:4–15); *see also Myoclonus*, NAT'L LIBR. OF MED., https://www.ncbi.nlm.nih.gov/medgen/10234 (defining myoclonus as "[v]ery brief, involuntary random muscular contractions occurring at rest, in response to sensory stimuli, or accompanying voluntary movements.") (last visited Oct. 9, 2025).

"A preliminary injunction is an extraordinary remedy never awarded as of right." *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 24 (2008) (citing *Munaf v. Geren*, 553 U.S. 674, 689–90 (2008)). Such relief is "'not to be granted unless the movant clearly established the "burden of persuasion"' for each prong of the analysis." *Am.'s Health Ins. Plans v. Hudgens*, 742 F.3d 1319, 1329 (11th Cir. 2014) (quoting *Siegel*, 234 F.3d at 1176). As the movant, Boyd must satisfy his burden on all four elements "by a clear showing." *Mazurek v. Armstrong*, 520 U.S. 968, 972 (1997) (per curiam) (emphasis omitted) (citation omitted). Failure to meet any of the elements "is fatal" to the request for injunctive relief. *Grayson v. Comm'r, Ala. Dep't of Corr.*, 121 F.4th 894, 896 (11th Cir. 2024) (citation omitted), *cert. denied sub nom. Grayson v. Hamm*, 2024 WL 4846625 (U.S. Nov. 21, 2024).

V. DISCUSSION

The Court concludes that Boyd has not established entitlement to a preliminary injunction because he has not shown a substantial likelihood of success on the merits—"the most important preliminary-injunction criterion." *See Speech First, Inc. v. Cartwright*, 32 F.4th 1110, 1127–28 (11th Cir. 2022); *see also Schiavo ex rel. Schindler v. Schiavo*, 403 F.3d 1223, 1226 (11th Cir. 2005) (per curiam) ("Controlling precedent is clear that injunctive relief may not be granted unless the plaintiff establishes the substantial likelihood of success criterion."). Additionally, the balance of the equities does not favor injunctive relief because Boyd inexcusably delayed filing this action. For these reasons, Boyd has not shown he is entitled to the extraordinary remedy of a preliminary injunction.

A. Substantial Likelihood of Success on the Merits

Boyd has not shown a substantial likelihood of success on his Eighth Amendment method of execution claim because he has not identified an alternative method of execution that would both significantly reduce a substantial risk of severe pain *and* that is feasible and readily implemented. Consequently, his motion for preliminary injunction is due to be denied for this reason alone.

It is well-settled that the Constitution permits the State to administer capital punishment. *See, e.g.*, *Bucklew v. Precythe*, 587 U.S. 119, 129 (2019); *Glossip*, 576 U.S. at 869; *Baze*, 553 U.S. at 47. But the State's power to administer capital punishment is not plenary. Rather, its authority is limited by the Eighth Amendment's prohibition on "cruel and unusual" punishment. U.S. CONST. amend. VIII. Boyd does not challenge the State's right to effectuate his execution; instead, he contends that the State's chosen *method* of execution violates the Eighth Amendment. (*See* doc. 1 at 8–11). The State seeks to execute Boyd using the ADOC's nitrogen hypoxia protocol—the same protocol used to execute Smith, Miller, Grayson, Frazier, and Hunt. *See supra* Part III.E. Boyd argues that the Protocol poses a substantial risk of severe pain and terror by depriving an inmate of oxygen while he is still conscious, which Boyd says will last for at least two minutes and as long as seven minutes. (Doc. 11 at 5).

The Eighth Amendment does not guarantee Boyd a painless death. *See Bucklew*, 587 U.S. at 132. Instead, the relevant Eighth Amendment inquiry is whether the State's chosen method of execution "'superadds' pain well beyond what's needed to effectuate a

death sentence." *Id.* at 136–37. Boyd's method of execution claim "faces an exceedingly high bar." *See Barr v. Lee*, 591 U.S. 979, 980 (2020) (per curiam); *see also Price*, 920 F.3d at 1326 (explaining that "[d]eath-row inmates face a heavy burden" when bringing an Eighth Amendment method of execution challenge). Boyd cannot prevail unless he establishes 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." *Grayson*, 121 F.4th at 897 (emphases in original) (quoting *Price*, 920 F.3d at 1325). The Protocol must pose 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 (quoting *Baze*, 553 U.S. at 50). To date, 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.

To determine whether the State's "method of execution cruelly superadds pain to the death sentence" and thus violates the Eighth Amendment, Boyd must also show a "feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain." *See id.* at 134; *see also Boyd*, 856 F.3d at 858 (explaining that a plaintiff asserting an Eighth Amendment method of execution challenge "must plausibly plead, and ultimately prove, that there is an alternative method of execution that is feasible, readily implemented, and in fact significantly reduces the substantial risk of pain posed by the state's planned method of execution"). Additionally, he must show

that the State "has refused to adopt [his alternative method of execution] without a legitimate penological reason." *See Bucklew*, 587 U.S. at 134.

Recall also that Boyd is pursuing a facial challenge to the Protocol. A facial challenge is a "claim that the law or policy at issue is unconstitutional in all its applications." *See id.* at 138. To be sure, the same substantive rule of law applies to Boyd's facial challenge as it would to an as-applied challenge. *See id.* 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.'" *Id.* at 138. In any event, the Supreme Court has "made facial challenges hard to win," *Moody v. NetChoice, LLC*, 603 U.S. 707, 723 (2024), and has directed courts to "consider the circumstances" in which the challenged law or policy is "likely to be constitutional," rather than "hypothetical scenarios" in which the law or policy "might raise constitutional concerns," *United States v. Rahimi*, 602 U.S. 680, 701 (2024).[31]

It is undisputed that the Protocol does not pose a risk of physical pain akin to being cut with a knife. (Doc. 83 at 200:13–23). Instead, Boyd claims that the Protocol, by depriving inmates of oxygen while they are conscious, causes "emotional terror," physiological distress, and physical discomfort because inmates are unable to get sufficient

[31] Neither side devotes much (if any) time to the facial aspect of Boyd's Eighth Amendment claim. But the parties "cannot waive [or forfeit] the application of the correct law or stipulate to an incorrect legal test." *United States v. Holland*, 117 F.4th 1352, 1360 (11th Cir. 2024) (alteration in original) (quoting *United States v. Dawson*, 64 F.4th 1227, 1239 (11th Cir. 2023)). For this reason, the Court addresses the standard applicable to a facial challenge.

oxygen into their lungs when their bodies are desperate to do so, and because they must participate in their own deaths by breathing in nitrogen. Even without a showing of physical pain, Boyd may prevail 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);[32] (*see also* doc. 83 at 200:24–01:22 (Dr. Bickler agreeing that an inmate would be expected to experience a "baseline" level of anxiety and emotional pain leading up to his execution)). The Protocol does not implicate the Eighth Amendment unless it very likely causes "*needless* suffering," *Grayson*, 121 F.4th at 897 (emphasis added) (quoting *Price*, 920 F.3d at 1325), or "cruelly *superadds* pain to the death sentence," *Bucklew*, 587 U.S. at 134 (emphasis added). Because "[d]istinguishing between constitutionally permissible and impermissible degrees of pain . . . is a *necessarily* comparative exercise," *id.* at 136 (emphasis in original), the relevant question for the Court concerning the risk of pain is whether Boyd's proffered alternative methods of execution—Utah's firing squad protocol or MAID—would significantly reduce a substantial risk of severe pain posed by the ADOC's nitrogen hypoxia protocol. And even if Boyd can make this showing, he must also show that one of his proposed alternatives is feasible and readily

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

implemented, and that the State has failed to adopt it without a legitimate penological reason. *See id.* at 134.

Boyd cannot establish a substantial likelihood of success on the merits of his Eighth Amendment claim because he has not marshalled sufficient evidence that either Utah's firing squad protocol or MAID would significantly reduce a substantial risk of severe pain caused by the ADOC's nitrogen hypoxia protocol. Thus, he cannot show a substantial likelihood of success for this reason alone. Additionally, with respect to MAID, he fails to demonstrate that this proposed alternative is feasible, readily implemented, or that the State refuses to adopt it without a legitimate penological reason. The Court addresses each issue in turn below.

1. Risk of Pain Posed by the Protocol

Before turning to Boyd's proposed alternatives, the Court first addresses the asserted risk of pain posed by the Protocol. As discussed above, Boyd claims that the Protocol, which necessarily involves the conscious deprivation of oxygen, causes "emotional terror" and physiological distress. Relying on Dr. Bickler's and Dr. McAlary's opinions, Boyd elaborates as follows: When a person tries to breathe but is not getting enough oxygen—an ingredient necessary to human life—the body has a "very strong, inborn response" involving many parts of the body. (Doc. 83 at 169:14–19 (Dr. Bickler's hearing testimony)). The person experiences "air hunger"[33] and feels extremely short of breath,

[33] There is some disagreement between Dr. Bickler and Dr. Antognini about the cause of "air hunger." According to Dr. Antognini, air hunger is caused by a person's inability to expel carbon dioxide ("CO2"), not from the inability to get sufficient oxygen to the lungs. (*See* doc. 84 at 124:25–25:16). Dr. Antognini

akin to an asthma attack. (Doc. 83 at 171:20–72:9). Oxygen deprivation also causes increased heart rate and pounding of blood in the head, (*id.* at 170:15–17), and the person experiences physical distress in the form of his lungs aching, (*id.* at 176:5–6). According to Dr. Bickler, feelings of suffocation can occur with oxygen deprivation. (*Id.* at 204:15–16). Dr. Bickler further opines that the emotional and physical aspects of pain are "interlocked." (*Id.* at 175:18–19). Dr. Bickler and Dr. McAlary opine that conscious deprivation of oxygen causes "emotional terror," panic, and physiological distress because the person is unable to get sufficient oxygen into his lungs when his body is desperate to do so. (*E.g.*, *id.* at 170:17–19). And according to Dr. McAlary, the conscious deprivation of oxygen under the Protocol is psychologically painful beyond what is inherent in an execution because the inmate must "participate in [his] execution" by inhaling nitrogen. (Doc. 11-4 at 22, para. 12). Dr. Antognini acknowledges that a person consciously experiencing the "primal urge to breathe" while knowing that breathing will cause death amounts to severe emotional suffering. (Doc. 84 at 171:11–19). Additionally, Dr. Bickler opines that if a person knows to expect discomfort and can reduce his anxiety, he can more

---

thus opines that the deprivation of oxygen by inert gas—like what occurs under the Protocol—reduces the sensation of breathlessness or air hunger because the person can still exhale and take normal breaths. (*Id.* at 144:15–21).

Dr. Bickler disagrees. He contends that both CO2 buildup *and* the lack of oxygen contribute to air hunger and the breathless feeling. (Doc. 83 at 172:18–25, 188:3–9). He opines that even if the person can eliminate CO2, the person can still experience air hunger from the lack of oxygen. (*Id.* at 172:23–25). Dr. Bickler did acknowledge, however, that people are affected by each phenomenon differently. (*Id.* at 188:8–13 ("[B]uildup of carbon dioxide and deprivation of oxygen both drive air hunger. But they are separate and vary in their strength in different individuals.")).

easily handle the discomfort of being deprived of oxygen. (Doc. 83 at 209:20–10:7). Dr. Bickler also acknowledges that the panic and "terror response" from conscious oxygen deprivation is "activated in an execution environment" versus a situation in which a person willingly wants to end his or her life by asphyxiation. (*Id.* at 186:6–20).

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. Boyd argues that the evidence from five of the ADOC's prior nitrogen hypoxia executions—Smith's, Miller's, Grayson's, Frazier's, and Hunt's—establishes that "each inmate consciously suffocated for an extended duration prior to losing consciousness." (Doc. 87 at 2). In particular, Boyd highlights the inmates physically struggling against their restraints and exhibiting bodily movements such as leg lifts. According to Boyd, the leg lifts and other movements were not involuntary movements but instead evidence that the inmates were still conscious and experiencing emotional terror and physiological distress. For example, Dr. McAlary opines that Grayson was conscious for at least four minutes after the nitrogen began to flow. (Doc. 83 at 103:16–18). Dr. McAlary reaches this conclusion based on his observation of Grayson raising his legs, which Dr. McAlary concludes was a conscious movement because it appeared coordinated and purposeful. Dr. Antognini disagrees,

opining that Grayson's leg lift is not evidence that he was conscious at that time.[34] (Doc. 84 at 130:2–10, 134:18–35:13).

As discussed above, the parties' experts testified as to the time to unconsciousness under the Protocol, although their opinions differ. According to Dr. Antognini, the Protocol will result in unconsciousness in thirty to forty seconds. Dr. Antognini largely bases his opinion on several scientific studies and articles, including the Ernsting and Ogden articles discussed above. According to Dr. Bickler, a person breathing normally will become unconscious within two minutes; if it takes longer than two minutes, it is because the person is either holding his breath or breathing shallowly. (Doc. 83 at 213:15–14:15 (Dr. Bickler's hearing testimony)).[35] Dr. Bickler bases his opinion on his thirty-five years of experience studying the effects of hypoxia on humans, which involved eight to ten thousand subjects

[34] Besides Grayson, Boyd does not clearly argue or identify record evidence indicating how long it took for each inmate previously executed under the Protocol to become unconscious. Although Boyd argues that inmates took "between two to seven minutes" to become unconscious, (doc. 11 at 5), he does not identify sufficient evidence to support the seven-minute figure or to which inmate(s) it applies. To the extent he relies on lay witnesses' observations of the executions, those witnesses acknowledged that they do not know when an inmate becomes unconscious. And although Dr. Bickler opines that conscious movements and evident distress occurred "many minutes" into the executions, (doc. 82-14 at 1; doc. 83 at 213:19–21), "many minutes" is insufficiently precise to constitute reliable evidence of how long an inmate remained conscious. Dr. Bickler also stated that in prior executions, death was not instantaneous but instead "lasted for several minutes." (Doc. 82-13 at 8). But the relevant question is not "how long it will take for [an inmate] to die, but how long he will be capable of feeling pain." *Bucklew*, 587 U.S. at 147. Consequently, the Court finds these statements unhelpful in assessing Boyd's likelihood of success on his Eighth Amendment claim. In any event, even if Boyd had clearly shown that an inmate was conscious for seven minutes after the nitrogen began to flow, it would not change the Court's conclusion that Boyd has not established a substantial likelihood of success on the merits of his Eighth Amendment facial challenge to the Protocol.

[35] Dr. Bickler also opined that longer time to unconsciousness could be caused by a mask leak; he clarified, however, he did not have an opinion on that issue with respect to the Protocol. (Doc. 83 at 214:13–18). Boyd does not claim that the mask used in the Protocol is likely to leak, nor does he argue that potential mask leak is relevant to his claim (at least for purposes of the motion for preliminary injunction).

and resulted in hundreds of publications. Dr. Bickler further opines that Dr. Antognini's cited articles are not a reliable basis for his thirty-to-forty-second benchmark. (*See* doc. 82-14 at 2–3). For example, Dr. Bickler contends that the Ernsting article is inapposite because it involved a very small sample size (three subjects) and the subjects were told to empty their lungs of air and then breathe as deeply as possible, and there is no evidence that these steps occur in an execution under the Protocol. (Doc. 83 at 181:6–16). Dr. Bickler and Dr. Antognini agree, though, that it will take more time for the inmate to lose consciousness if he breathes shallowly or holds his breath, and less time if the inmate breathes deeply or even normally. (*Id.* at 182:1–7; 213:15–14:15 (Dr. Bickler's hearing testimony)); doc. 84 at 171:23–25 (Dr. Antognini opining that "[i]f the inmate were to breathe rapidly and take deep breaths, then that would quicken the onset of unconsciousness")). Additionally, as indicated above, Dr. McAlary opines that Grayson was conscious for at least four minutes based on the type and quality of Grayson's movements, which Dr. McAlary says indicates conscious movement as opposed to unconscious movement.

Ultimately, the Court need not resolve the experts' dispute regarding the time to unconsciousness (to the extent there is a dispute, *see infra* at 42), and the Court will assume without deciding that Dr. Bickler's opinion is correct—that an inmate subject to an execution under the Protocol who breathes more normally will become unconscious within approximately two minutes after nitrogen begins to flow. Additionally, the Court will

assume without deciding that Dr. McAlary's opinion that Grayson was conscious for four minutes after the nitrogen gas was introduced is correct.[36]

Two minutes of consciously breathing in nitrogen is less constitutionally suspect than a longer period. But because Boyd is pursuing a facial challenge, whether Grayson was conscious (and thus consciously breathing in nitrogen) for four minutes, or whether another inmate may hypothetically be conscious for longer than two minutes, is not dispositive. *Cf. Rahimi*, 602 U.S. at 701 (observing that courts evaluating a facial challenge should "consider the circumstances" in which the challenged law or policy "was most likely to be constitutional"). For this reason, the Court finds Dr. Bickler's approximate two-minute benchmark most relevant to evaluating Boyd's likelihood of success on the merits of his Eighth Amendment facial challenge.

Although the approximate two-minute benchmark is most relevant, the Court acknowledges that some inmates may remain conscious—and thus be able to experience emotional pain and distress—for different amounts of time, and potentially longer than two minutes. Indeed, Dr. Antognini, Dr. Bickler, and Dr. McAlary may all be correct in their respective opinions on time to unconsciousness: it may take thirty to forty seconds for some inmates, and it may take approximately two to four minutes for others. In any event, the record evidence here supports a finding that the differing times to unconsciousness are largely outside of the ADOC's control and instead depend on the inmate's behavior—

[36] In any event, the time to unconsciousness is longer than the mere "seconds" the State previously anticipated. (*See* doc. 66 at 12 in *Smith v. Hamm et al.*, Case No. 2:23-cv-656-RAH (M.D. Ala. Dec. 29, 2023)).

whether voluntary or involuntary. Again, the experts agree that an inmate who breathes more normally or deeply will be rendered unconscious sooner, and the Court credits Dr. Bickler's opinion that if a person knows to expect discomfort and can reduce his anxiety, he can more easily handle the discomfort of being deprived of oxygen. Indeed, according to witness testimony, Frazier "appeared to be trying to settle [and] calm himself" in the execution chamber, (doc. 83 at 78:18–25), and his pulse oximeter "bottomed out fairly quickly . . . within a couple of minutes," (doc. 84 at 61:12–21). The experts also agree that an inmate who breathes shallowly or holds his breath will remain conscious longer. For example, the record evidence tends to show that Smith may have held his breath—a finding with which Dr. Bickler agrees—but once Smith took a deep breath, his "pulse oximeter drop[ped] from 97 [or] 98 percent to the lower forties in a matter of seconds." (*Id.* at 73:16–19). Nevertheless, even an inmate who wants to breathe more normally may struggle to do so in the moment because he knows it will lead to death. For this reason, the Court is not persuaded that a longer time to unconsciousness is always attributable to the inmate being combative or intentionally resisting. Rather, it may be an involuntary response to the knowledge that he is about to die. But Boyd fails to identify sufficient evidence that this aspect of an execution under the Protocol is attributable to some defect *in the Protocol* and not, instead, merely an "accident" or "an inescapable consequence of death"—which does not violate the Eighth Amendment. *See Baze*, 553 U.S. at 50. And even if an inmate is unable to breathe more normally, the resulting additional time to unconsciousness, on this record, does not approach that which would be required to show that the Protocol is

facially unconstitutional.[37] Again, the Eighth Amendment "does not demand the avoidance of *all* risk of pain in carrying out executions." *Bucklew*, 587 U.S. at 134 (emphasis added) (quoting *Baze*, 553 U.S. at 47).

Dr. Bickler also contends that an inmate executed under the Protocol experiences "much greater" discomfort than the subjects in his lab because the inmate experiences a far more rapid decrease in oxygen saturation. But in a judicial execution, unlike Dr. Bickler's hypoxia lab, the goal is to cause death, which requires reducing oxygen levels to 0%. For this reason, the Court disagrees with Dr. Bickler's suggestion that the Protocol superadds pain by rapidly exposing the condemned inmate to high levels of nitrogen gas. *See id.* at 136–37 (explaining that a method of execution implicates the Eighth Amendment if it "'superadds' pain *well beyond what's needed to effectuate a death sentence*" (emphasis added)). The record evidence establishes that the higher the level of nitrogen, and the deeper the inmate breathes, the sooner the inmate will become unconscious and thus be unable to feel pain or distress. Thus, while the degree of discomfort may be greater compared to the discomfort experienced by Dr. Bickler's lab subjects, the discomfort is limited in duration to approximately two minutes if the inmate breathes more normally, and certainly less than the ten to fifteen minutes during which Dr. Bickler's lab subjects experienced hypoxic conditions. And again, the "terror response" from being deprived of oxygen is "activated in an execution environment" because the inmate does not want to

[37] Additionally, Dr. Bickler opined that consciousness "starts to fluctuate" when the oxygen saturation level drops below 50%. (Doc. 83 at 178:16–17). Thus, even if it takes slightly longer for some inmates to become unconscious, they may not be fully conscious for that entire additional period.

die, (doc. 83 at 186:6–20), which is true for virtually all executions and does not implicate the Eighth Amendment, *see Baze*, 553 U.S. at 50.

Having established this baseline, the Court now turns to the "comparative exercise" of whether either of Boyd's proposed alternative methods of execution would significantly reduce the substantial risk of severe pain; and whether either alternative is feasible, readily available, and one which the State refuses to adopt without a penological justification.

2. Firing Squad

The Court addresses whether Utah's firing squad protocol would significantly reduce a substantial risk of severe pain caused by the Protocol. Utah authorizes the firing squad as a method of execution for inmates who elected the firing squad before May 3, 2004, and if lethal injection is declared unconstitutional or the state is unable to procure the lethal injection drugs. *See* UTAH CODE § 77-18-113. Utah has authorized the firing squad as a method of execution in some form since 1852. *See id.*; *Wilkerson v. Utah*, 99 U.S. 130, 132 (1878). Utah's most recent firing squad execution occurred in 2010. *See Boyd*, 856 F.3d at 881 n.4 (Wilson, J., concurring) (taking judicial notice of the fact that Utah carried out a firing squad execution in 2010); Kirk Johnson, *Double Murderer Executed by Firing Squad in Utah*, N.Y. TIMES (June 18, 2010), www.nytimes.com/2010/06/19/us/19death.html (last visited Oct. 9, 2025).

Utah's redacted firing squad execution protocol was admitted as an exhibit during the preliminary injunction hearing. (*See generally* doc. 82-55; *id.* at 47, 54–56, 62–63, 76–77, 89–92). Under that protocol, before any shots are fired, the inmate is moved into the

execution chamber and then restrained to a chair. (*Id.* at 76–77). A target is placed over the inmate's heart, and a hood is placed over the inmate's head.[38] (Doc. 82-55 at 90).

Dr. Williams, Boyd's expert in ballistics, emergency medicine, and firearms, explained what occurs in the human body during a firing squad execution under Utah's protocol. (Doc. 83 at 262:22–64:3 (Dr. Williams' hearing testimony); *see also* doc. 82-19 at 4–9 (Dr. Williams' report)). Under Utah's firing squad protocol, five riflemen simultaneously discharge their weapons, aiming at the inmate's heart. (Doc. 82-55 at 54–55, 90–91). One of the rifles is loaded with blanks or rubber bullets,[39] so four (rather than five) live bullets are intended to reach the target. (Doc. 82-55 at 89–90).[40] When the four bullets[41] strike the heart, they tear the heart muscle to pieces and blow apart the tissue. (Doc. 83 at 279:21–80:25). This impact causes a rapid and total disruption of blood flow to the brain, and when that blood supply is stopped, loss of consciousness occurs in three to five (possibly six) seconds. (*See* doc. 82-19 at 5–7; doc. 83 at 263:16–64:3). Dr.

[38] Utah's firing squad protocol does not require that the "aiming point or target" be a particular size. (*See* doc. 82-55 at 90 ("The Warden shall direct that an aiming point or target be placed over the condemned inmate's heart.")). By contrast, the United States Army's firing squad protocol ("U.S. Army protocol") specifically calls for a "white or black" "[four]-inch round target" to be affixed to the condemned. (Doc. 82-56 at 5, para. i). On this record, the size of the target is not dispositive.

[39] Dr. Williams opined that a rubber bullet is unnecessary and meant only to create "plausible deniability" for the riflemen. (Doc. 83 at 270:24–71:5). He further opined that the practice of having a rubber bullet was futile because it would be apparent to each rifleman, after firing, whether his rifle contained the rubber bullet. (*Id.* at 271:1–5).

[40] Four rifles are loaded with two live rounds each. (Doc. 82-55 at 89). The riflemen fire one bullet each in the first "volley" of shots. (*See id.* at 91–92). The rifles are each loaded with two bullets in case the condemned inmate does not die after the first volley. (*See id.*).

[41] Utah's protocol calls for rounds of ammunition fit for ".30 caliber rifles." (Doc. 82-55 at 62; *see also* doc. 83 at 279:24–80:9 (Dr. Williams noting that Utah's protocol uses ".30 caliber bullets")).

Williams opines that Utah's firing squad protocol would provide a quick death with minimal pain and suffering. (Doc. 82-19 at 7, 12). But his report supports the inference that the inmate *would* experience physical pain during the three to five seconds before he became unconscious. (*See id.* at 7 (explaining that the inmate would become unconscious in three to five seconds and would not feel pain and suffering "thereafter")).

As discussed above, Boyd claims that the Protocol creates a substantial risk of severe emotional suffering and physiological distress because it deprives inmates of oxygen while they are conscious—for two minutes if the inmate breathes normally, but longer if they breathe shallowly or hold their breath. During this time, the inmate will, according to Boyd, experience breathlessness akin to drowning or suffocation as well as "emotional terror" from being unable to breathe. Additionally, he says the inmate will experience his body's "strong, inborn response" driving him to breathe and obtain necessary oxygen, which includes physical discomfort from his lungs aching and blood pounding. During this time, the inmate knows that breathing—something his body is desperate to do—will cause his death.

"The Eighth Amendment does not come into play unless the risk of pain associated with the State's method [of execution] is 'substantial when compared to a known and available alternative.'" *Bucklew*, 587 U.S. at 134 (quoting *Glossip*, 576 U.S. at 878). Thus,

Boyd must show that Utah's firing squad protocol[42] would "in fact significantly reduce[] a substantial risk of severe pain." *See Bucklew*, 587 U.S. at 127 (quoting *Glossip*, 576 U.S. at 877). "A minor reduction in risk is insufficient; the difference must be clear and considerable." *Id.* at 143. Thus, in assessing Boyd's proposed alternative, the Court must compare the risk of pain caused by the ADOC's nitrogen hypoxia protocol with the risk of pain caused by Utah's firing squad protocol—whether the pain be emotional, psychological, physical, or some combination.

Before proceeding, the Court reiterates that the Eighth Amendment does not guarantee a painless death. *See id.* at 132. For over a century, Alabama has executed condemned inmates using four methods: (1) hanging; (2) electrocution; (3) lethal injection; and (4) nitrogen hypoxia. *See supra* Part III.A. History and common experience confirm that psychological and emotional pain are inherent in any execution—a point with which Dr. McAlary, Dr. Bickler, and Dr. Antognini all agree. To be sure, when the Eighth Amendment was adopted, the Founders understood "cruel" to include punishments "[d]isposed to give pain to others, in body or *mind*." *Bucklew*, 587 U.S. at 130 (alteration in original) (emphasis added) (quoting 1 NOAH WEBSTER, AN AMERICAN DICTIONARY OF THE ENGLISH LANGUAGE (1828)). However, "[t]he cruelty against which the Constitution protects a convicted man is cruelty inherent in the method of punishment, not the necessary

[42] In *Wilkerson*, the United States Supreme Court permitted an execution by firing squad. 99 U.S. at 130, 137. Additionally, the Supreme Court has made clear that subsequent implementation of new execution methods, such as lethal injection or nitrogen hypoxia, does not automatically render "traditionally accepted" methods like the firing squad unconstitutional. *See Bucklew*, 587 U.S. at 134.

suffering involved in any method employed to extinguish life humanely." *Louisiana ex rel. Francis v. Resweber*, 329 U.S. 459, 464 (1947). Thus, a state's administration of capital punishment, which remains constitutional subject to the Eighth Amendment's protections, presumes the prospect of some pain, including psychological pain.

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. *See In re Ohio Execution Protocol Litig.*, 881 F.3d at 450 ("Psychological pain or mental suffering is a likely result of being sentenced to death and anticipating the execution." (citation omitted)). 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." (*See, e.g.*, doc. 11-3 at 13, 17). The condemned inmate's psychological and emotional pain likely increase as each step is complete—an unfortunate "but inescapable consequence of death." *Baze*, 553 U.S. at 50.

Psychological and emotional pain are thus unavoidable consequences of capital punishment under any method of execution, past or present. (*See* doc. 83 at 200:24–01:4 (Dr. Bickler explaining that in the lead up to an execution, a condemned inmate will likely have extreme anxiety)). 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. But again, the Eighth Amendment does not guarantee Boyd a painless death. *See Bucklew*, 587 U.S. at 132. The Constitution does not require the State of Alabama to eliminate any and all pain—psychological or otherwise—when administering capital punishment. *See id.*

With this background, and after carefully reviewing the evidence and applicable law, Boyd fails to establish that Utah's firing squad protocol would significantly reduce a substantial risk of severe pain resulting from Alabama's nitrogen hypoxia protocol. The Court does not doubt that a person consciously deprived of oxygen even for two minutes under the Protocol experiences discomfort, panic, and emotional distress. But Dr. Bickler acknowledges that this "terror response" is "activated in an execution environment" because the inmate does not want to die, versus a situation in which a person willingly wants to end his or her life by asphyxiation. (Doc. 83 at 186:6–20). Similarly, Dr. Bickler acknowledges that an inmate would be expected to experience a "baseline" level of anxiety and emotional pain leading up to his execution, including the mere sight of the execution chamber and being strapped to the gurney. (*See id.* at 200:24–01:22). And Utah's firing squad protocol also carries with it a risk of psychological and emotional pain, most acutely from the time the inmate is escorted into the execution chamber and restrained in a chair, and continuing when the target is affixed over his heart and the hood is placed over his head. All the while, the inmate knows that four bullets will soon strike his heart, killing

him. Much of the psychological and emotional pain caused by either nitrogen hypoxia or the firing squad is pain which the inmate would inevitably experience because he knows he will soon die—an experience which attends every execution and cannot be avoided.

Additionally, the firing squad carries with it a risk of three to five (possibly six) seconds of physical pain and suffering, and that type of physical pain is absent in an execution under the Protocol—which for some people may decrease the risk of psychological pain. Although Boyd complains that the Protocol superadds psychological pain by requiring inmates to participate in their own executions by consciously breathing in nitrogen, the Court finds that, on this record and when compared to Utah's firing squad protocol, this circumstance does not amount to superadded pain beyond what is necessary to carry out the execution.[43] At most, Boyd has shown that the firing squad *may* reduce the risk of psychological and emotional pain and physical discomfort caused by the nitrogen hypoxia protocol. But that is not the standard. In this preliminary injunction posture, Boyd must show that the firing squad is *substantially likely* to *significantly* reduce a *substantial* risk of *severe* pain caused by Alabama's protocol.[44] For the reasons discussed above, the

[43] Even if the comparison of the relative risks of pain was limited to the time to unconsciousness after the nitrogen gas began to flow and after the shots were fired, it would not change the Court's conclusion.

[44] The State points to South Carolina's April 2025 execution of Mikal Mahdi as evidence that the firing squad "has the potential to cause great pain." (Doc. 85 at 7). But Boyd has proposed *Utah*'s firing squad protocol, not South Carolina's. And Dr. Williams explained that South Carolina's protocol differs from Utah's in that, for example, South Carolina's protocol calls for a different caliber bullet. Thus, Mahdi's execution has "little probative value for present purposes." *Cf. Glossip*, 576 U.S. at 892–93 (rejecting the petitioners' argument that alleged problems with an Arizona lethal injection execution demonstrated that Oklahoma's lethal injection protocol was "sure or very likely to cause serious pain"); *Baze*, 553 U.S. at 50 ("[A]n isolated mishap alone does not give rise to an Eighth Amendment violation, precisely because such

Court concludes that the risk of emotional terror, distress, and physical discomfort caused by the Protocol does not rise to the level of superadded pain "well beyond what's needed to effectuate a death sentence" when compared to the risk of pain caused by Utah's firing squad protocol.[45] *See Bucklew*, 587 U.S. at 134, 136–37. On this record, the Court concludes that, to the extent he proposes Utah's firing squad protocol as an alternative method of execution, Boyd has failed to clear the high bar necessary to establish a substantial likelihood of success on his facial Eighth Amendment challenge to the Protocol.

The State contends that because the ADOC is not presently equipped to carry out a firing squad execution, the firing squad is not readily implemented. The Court disagrees. First, Alabama law provides that if all statutorily authorized methods of execution are declared unconstitutional, condemned inmates "shall be executed by *any constitutional method of execution* based on the sole discretion of the Commissioner of [the ADOC]." ALA. CODE § 15-18-82.1(c) (emphasis added). And Boyd is not required to show that a firing squad execution can be carried out *immediately*; he need only show that it can be carried out "reasonably quickly." *See Bucklew*, 587 U.S. at 141 (citation omitted). Precedent is clear that an inmate "is not limited to choosing among those [methods] presently authorized by a particular State's law" and may instead "point to a well-established protocol in another State as a potentially viable option." *Id.* at 139–40; *accord*

---

an event, while regrettable, does not suggest cruelty, or that the procedure at issue gives rise to a 'substantial risk of serious harm.'" (quoting *Farmer v. Brennan*, 511 U.S. 825, 842 (1994))).

[45] The Court does not suggest that Utah's firing squad protocol is constitutionally suspect.

Nance v. Ward, 597 U.S. 159, 164 (2022). Obviously if the ADOC does not currently authorize the firing squad as an execution method, work must be undertaken to do so: for example, the state legislature would have to amend the relevant statute to include firing squad as an authorized execution method, and the ADOC would have to, at a minimum, develop a firing squad protocol. The ADOC may also have to train riflemen and/or acquire the necessary equipment to carry out a firing squad execution. But it does not follow that the firing squad is not feasible or readily implemented. 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. Here, however, whether Utah's firing squad protocol is readily implemented is not dispositive because Boyd fails to show that it would significantly reduce a substantial risk of severe pain caused by the ADOC's nitrogen hypoxia protocol.

3. MAID

The Court now turns to whether Boyd has shown that MAID is a feasible, readily implemented alternative execution method that would significantly reduce the risk of pain posed by the Protocol. MAID broadly refers to the administration of a combination of drugs to assist terminally ill patients in "voluntarily . . . end[ing] their lives." (*See* doc. 82-

15 at 2, 4; doc. 83 at 237:1–7, 246:9–17). Though a variety of drug formulations can be used, "the most common combination of medications" is digoxin, diazepam, morphine, amitriptyline, and phenobarbital, or "DDMAPh." (Doc. 83 at 239:16–22). It is this DDMAPh formulation that Boyd identifies in his complaint. (Doc. 1 at 29, para. 122). High doses of digoxin and amitriptyline cause cardiac arrest while the remaining drugs "keep the patient deeply sedated."[46] (Doc. 82-15 at 2). Dr. Zapata testified that the median time to death is forty-eight minutes, and that the average is about ninety-six minutes. (Doc. 83 at 243:18–20).

As explained further below, Boyd fails to establish that MAID is feasible and readily implemented, that it would significantly reduce a substantial risk of severe pain, or that the ADOC has failed to adopt it without a legitimate penological reason. MAID's shortcomings include that it: (1) requires either the condemned inmate to cooperate or that the drugs be administered by a medical professional; (2) presupposes access to pharmaceuticals and an ability to compound them; (3) has never been used as a method of execution; and (4) can take a significant time (up to twenty-four hours) to run its course.

The most glaring problem with MAID as a method of execution concerns its proposed administration. Dr. Zapata testified that oral administration—the most common method—requires the drugs to be mixed with water and "ingested within [one to two] minutes to avoid partial ingestion due to rapid sedation." (Doc. 82-15 at 2; *see also* doc. 83

[46] Dr. Zapata testified that the DDMAPh formulation calls for "*a thousand times* the typical therapeutic dose" of diazepam, which is used "as an antianxiety medication[,] or a sedative and antiseizure medicine." (Doc. 83 at 241:5–8) (emphasis added).

at 242:3–18, 254:12–15). She further opined that if the person falls asleep before he finishes the mixture, he may be "in worse shape" than before he ingested it. (Doc. 83 at 242:12–15). This one-to-two-minute time limitation requires the participant's cooperation—which MAID presupposes. (Doc. 83 at 254:12–21; *see also* doc. 87 at 26 (conceding that MAID requires the condemned inmate to "self-administer th[e] medications")). The Court also notes that Boyd decries the aspect of the Protocol which requires an inmate to participate in his own death by breathing in nitrogen, which he claims causes psychological pain. But the same could be said about a MAID execution. Drinking a substance known to cause death would seem to cause substantially the same "severe emotional suffering" as breathing a substance known to cause death (*see* doc. 84 at 170:9–25); it is the *fact*, rather than the *method*, of ingestion that induces apprehension.[47] Thus, it strikes the Court as inconsistent for Boyd to endorse MAID, which requires a greater level of inmate cooperation. In any event, the State understandably argues that the ADOC cannot reasonably rely on an inmate's cooperation in (very quickly) drinking the MAID mixture. (Doc. 85 at 47). Though Boyd notes that the MAID drugs can also be administered through a feeding or rectal tube (doc. 87 at 26),[48] these methods of

[47] If anything, oral administration of the MAID drugs would risk unnecessary physical and emotional pain and would pose unique Eighth Amendment concerns. Because the MAID drugs must be ingested so rapidly, Dr. Zapata testified that if she is concerned about a patient's ability to ingest the mixture, she makes them "practice" by drinking placebo mixtures to ensure that they can drink the entire MAID mixture within the very abbreviated time allotted. (Doc. 83 at 242:12–18). A hypothetical MAID protocol could therefore require a condemned inmate to similarly either "practice" his impending execution or else risk the consequences of partial ingestion—either of which poses constitutional concerns.

[48] Boyd also argues that MAID can be administered intravenously (doc. 87 at 26), but Dr. Zapata testified that no jurisdiction within the United States employs such a method and that amitriptyline—the "A" in

administration would require the participation of someone with medical training, which the State is unlikely to be able to find. (*See* doc. 84 at 103:3–12); *see also Baze*, 553 U.S. at 64 (Alito, J., concurring) ("[T]he ethics rules of medical professionals . . . prohibit their participation in executions."). These considerations strongly undermine Boyd's efforts to show that MAID is a "feasible" alternative, or that it would significantly reduce a substantial risk of severe pain caused by Alabama's nitrogen hypoxia protocol.

The accessibility of drugs for use in MAID also poses a significant problem for its use as a method of execution. Dr. Zapata's expert report identifies drugs "used in routine medical practice" and "regularly obtained from commercial pharmacies across the country." (Doc. 82-15 at 2). But as the State observes, it may nevertheless have difficulty obtaining these drugs for a judicial execution. (*See* doc. 29 at 43); *Glossip*, 576 U.S. at 869–71 (noting the difficulties encountered by states in obtaining drugs to be used in lethal injection due to lobbying on the part of anti-death-penalty advocates to "pressure[] pharmaceutical companies to refuse to supply the drugs used to carry out death sentences"). Dr. Zapata also reported that MAID drugs, once obtained in a powder form, must then be "compounded into a mixture by a . . . pharmacy." (Doc. 82-15 at 2). But this requirement begs the question: Who will compound the mixture? Neither the ADOC's staff medical

---

DDMAPh—cannot be "reliably obtain[ed]" "in an [intravenous or] IV formulation," (doc. 83 at 244:4–45:10). In any event, it would appear that an IV administration of MAID medications would involve the same concerns Boyd previously expressed with regard to lethal injection, *see Boyd v. Myers*, 2015 WL 5852948, at *1 (M.D. Ala. Oct. 7, 2015) (noting Boyd's claim that Alabama's lethal injection protocol was unconstitutional under the Eighth Amendment "based on a substantial risk of 'maladministration' of Boyd's execution resulting from the inadequate training and qualifications of the execution squad").

team nor its medical contractor, YesCare, will do it, as they are barred from participating in executions. (Doc. 84 at 103:7–11). Nor will Dr. Zapata. (Doc. 83 at 257:11–20). Nor will Dr. Antognini, who testified that ethical constraints would similarly preclude him from participating in a judicial execution. (Doc. 84 at 146:10–20). Boyd does not identify any personnel who can properly compound the drugs the MAID protocol requires, assuming that the State will be able to acquire them in the first place. For these reasons, Boyd's proposal is more "theoretically feasible" than "readily implemented." *See Bucklew*, 587 U.S. at 141 (citation omitted). Given these shortcomings, the Court finds that Boyd has not satisfied his burden to show that MAID can be implemented "relatively easily and reasonably quickly." *See id.* (citation omitted).

In addition to the infirmities discussed above, MAID is not a method of execution authorized in any other jurisdiction. (*See* doc. 83 at 254:7–11). Based on its efficacy in cases of voluntary euthanasia—a setting wholly distinct from judicial executions—Boyd asks the Court to mandate that Alabama be the first. But the Eighth Amendment does not require states to experiment with new execution methods. *Bucklew*, 587 U.S. at 142 ("The Eighth Amendment . . . does not compel a State to adopt 'untried and untested' . . . methods of execution." (quoting *Baze*, 553 U.S. at 41)). To the contrary, "choosing not to be the first to experiment with a new method of execution is a legitimate reason to reject it." *Id.* This legitimate penological reason is an additional, independent reason why Boyd fails to show that MAID is a suitable alternative method of execution. *See Frazier*, 2025 WL 361172, at *13–14 ("The State has a legitimate penological reason

to decline to adopt Frazier's novel method involving aspects of both lethal injection and nitrogen hypoxia protocols and which has an insufficient (indeed, nonexistent) track record of successful use." (parenthetical in original)).

Further, Dr. Zapata testified that death by MAID can take upwards of two hours. (*See* doc. 83 at 255:24–56:8 (Dr. Zapata noting that 93% of MAID deaths "occur in fewer than five hours")). This fact did not trouble her because "even if [death by MAID] took [twenty-four] hours, that person w[ould] still [be] deeply sedated and unaware." (*Id.* at 256:9–22). While this situation may be reasonable in the clinical setting in which MAID deaths ordinarily occur, the State has a legitimate penological reason to decline to adopt a method which would require the ADOC to monitor condemned inmates for hours after administration of the MAID drugs as part of a judicial execution. This additional, valid penological reason erects yet another hurdle in Boyd's path to success on his Eighth Amendment claim. *See Bucklew*, 587 U.S. at 134.

In sum, Boyd has not shown a substantial likelihood of success on the merits because he fails to show that either of his proposed alternative execution methods "would significantly reduce a substantial risk of severe pain" posed by the Protocol. *See id.* at 134. Additionally, he fails to show that MAID is feasible, readily implemented, or that the State "has refused to adopt" MAID "without a legitimate penological reason." *See id.*

Consequently, he has not established entitlement to a preliminary injunction for this reason alone.[49]

B. The Equities

Boyd is also not entitled to a preliminary injunction because the equities are not in his favor. A preliminary injunction is an "extraordinary and drastic remedy," *Siegel*, 234 F.3d at 1176 (quoting *McDonald's Corp. v. Robertson*, 147 F.3d 1301, 1306 (11th Cir. 1998)), that "is not available as a matter of right, and equity must 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). This Court must "apply 'a strong equitable presumption against the grant of a stay where a claim could have been brought at such a time as to allow consideration of the merits without requiring entry of a stay.'" *Id.* (citation omitted); *accord Woods v. Comm'r, Ala. Dep't of Corr.*, 951 F.3d 1288, 1293 (11th Cir. 2020) (citation omitted); *Jones v. Allen*, 485 F.3d 635, 638 (11th Cir. 2007) (citation omitted).[50] "Last-minute stays should be the extreme exception, not the norm,

[49] Before the preliminary injunction hearing, Boyd moved to exclude all evidence or testimony from the State which supplemented, contradicted, or differed from the testimony given by the ADOC's Rule 30(b)(6) designee, Director Stewart-Riley. (Doc. 47). According to Boyd, Director Stewart-Riley was not adequately prepared to testify as the Rule 30(b)(6) designee and was improperly instructed not to answer certain questions. (*Id.*). The Court denied the motion to the extent Boyd sought to exclude evidence or testimony. (Doc. 80). Even if the Court had excluded the State's evidence or testimony as Boyd requested, it would not change the outcome here.

[50] Although Boyd moves for a preliminary injunction rather than a stay of execution (doc. 11), the relief he seeks—an injunction preventing the State "from setting his execution date and from executing him using the Protocol during the pendency of this litigation," (*id.* at 23)—is effectively a request for a stay of execution. In any event, the Court's analysis applies equally to the extent he requests a preliminary injunction, a stay of execution, or both. *See Mills v. Hamm*, 102 F.4th 1245, 1250 (11th Cir. 2024); *Long v. Sec'y, Dep't of Corr.*, 924 F.3d 1171, 1176 (11th Cir. 2019).

and 'the last-minute nature of an application' that 'could have been brought' earlier, or 'an applicant's attempt at manipulation,' 'may be grounds for denial of a stay.'" *Bucklew*, 587 U.S. at 150 (quoting *Hill*, 547 U.S. at 584). District courts "'can and should' protect settled state judgments from 'undue interference' by invoking their 'equitable powers' to dismiss or curtail suits that are pursued in a 'dilatory' fashion or based on 'speculative' theories." *Id.* at 151 (quoting *Hill*, 547 U.S. at 584–85).

The equities are not in Boyd's favor because the record evinces unreasonable delay in seeking relief. Boyd claims that the State's Protocol is facially unconstitutional. (*See, e.g.*, doc. 1 at 37 (requesting a declaration that the "Protocol [is] facially unconstitutional"); *see also* doc. 11 at 14 ("[T]he Protocol all but guarantees the inmate will experience unconstitutional pain and suffering during an execution.")). He argues that he will be irreparably harmed absent a preliminary injunction because "he will be tortu[r]ously executed in violation of the Eighth Amendment." (Doc. 11 at 21). But the State released its nitrogen hypoxia protocol in August 2023, nearly two years before Boyd brought this lawsuit. Boyd argues that this delay is excusable because he needed data from actual nitrogen hypoxia executions to present his case. (Doc. 33 at 3). But he does not explain what prevented him from filing a lawsuit soon after the Protocol was released and then amending his complaint to add factual allegations of what occurred during nitrogen hypoxia executions as they were carried out. *See* FED. R. CIV. P. 15(a)(2) ("The court should freely give leave [to amend] when justice so requires.").

But even assuming this explanation supplies a reasonable basis for Boyd to have waited some additional time, Boyd still unreasonably delayed seeking relief from the Court. Boyd did not act until approximately eighteen months after Smith's execution, ten months after Miller's, eight months after Grayson's, and five months after Frazier's. Boyd acknowledges that Smith's January 2024 execution provided information about how the Protocol operates in practice, (*see* doc. 11 at 5–6), as did Miller's, Grayson's, and Frazier's respective executions, (*see id.* at 6–9). Boyd nevertheless sat idle until July 16, 2025—more than five months after Frazier's execution and over a month after the State moved to set Boyd's execution date. The Court concludes that Boyd's delay in bringing this action and seeking a preliminary injunction was "unreasonable, unnecessary, and inexcusable." *Brooks v. Warden*, 810 F.3d 812, 824 (11th Cir. 2016) (citation omitted); *see also Frazier*, 2025 WL 361172, at *16 ("[Frazier] argued that he was waiting for other nitrogen hypoxia executions to occur to see how the Protocol operates in practice. Assuming this explanation is reasonable, it does not justify Frazier's waiting to act until nearly ten months after Smith's execution and two months after Miller's execution . . . .").

Boyd attempts to shift the blame for his own untimeliness to the State, arguing that it would have "likely" argued that his claims were not ripe had he brought them earlier. (Doc. 33 at 3–4). This speculation fails to excuse his delay. *Cf. Brooks*, 810 F.3d at 825 ("Brooks's speculation that the state would not seek to execute him while others were challenging its protocol does not excuse his lengthy delay in asserting his own rights."). It is also incorrect as a matter of law. *See Allen*, 485 F.3d at 640 ("It was during that period—

in which the execution was not so much an imminent or impending danger as it was an event reasonably likely to occur in the future—that [the plaintiff] needed to file [his method-of-execution] challenge." (citation omitted)).[51]

In balancing the equities, the Court must also consider the interests of the victims of Boyd's crime—the State, Gregory Huguley, and Huguley's friends and family—"in the timely enforcement of [Boyd's] sentence." *Hill*, 547 U.S. at 584; *see Calderon v. Thompson*, 523 U.S. 538, 556 (1998) ("Only with an assurance of real finality can the State execute its moral judgment in a case. Only with real finality can the victims of crime move forward knowing the moral judgment will be carried out."). Boyd was convicted and sentenced to death for his participation in Huguley's gruesome murder over thirty years ago. Balancing his delay against his victims' interest in the timely enforcement of his sentence, Boyd fails to show that equity favors entry of a preliminary injunction, and these considerations also counsel against granting Boyd's motion. *See Siegel*, 234 F.3d at 1176 (explaining that a preliminary injunction is appropriate only where "the movant clearly establishe[s] the 'burden of persuasion' as to each of the four prerequisites" (citation omitted)).

[51] Boyd also argues that the State is responsible for the "compressed schedule" because it failed to seek "a declaratory judgment that the protocol was constitutional." (Doc. 33 at 4). Boyd fails to cite authority for the proposition that it is the State's burden to seek a declaratory judgment whenever it seeks to carry out lawfully imposed death sentences—especially here where federal courts have repeatedly found that the Protocol is not substantially likely to violate the Eighth Amendment. *See, e.g.*, *Grayson*, 121 F.4th 894; *Frazier*, 2025 WL 361172, at *14; *Smith v. Comm'r, Ala. Dep't of Corr.*, 2024 WL 266027 (11th Cir. Jan. 24, 2024); *see also Baze*, 553 U.S. at 48 ("This Court has never invalidated a State's chosen procedure for carrying out a sentence of death as the infliction of cruel and unusual punishment.").

"Every death case is important[] and deserves . . . careful scrutiny." *Jones v. Comm'r, Ga. Dep't of Corr.*, 812 F.3d 923, 926 (11th Cir. 2016) (Marcus, J., concurring in the denial of initial hearing en banc). For this reason, the Court has twice "implored members of the bar to cease the all too common 'practice of filing lawsuits and requests for stay of execution at the last minute where the facts were known well in advance.'" *Frazier*, 2025 WL 361172, at *17 (quoting *Mills v. Hamm*, 734 F. Supp. 3d 1226, 1248 (M.D. Ala. 2024)). The Court repeats this admonition. Given the stakes involved in such litigation, death-sentenced inmates are best served by filing their claims as early as possible, giving the parties as much time as possible to litigate their claims without having to seek emergency injunctive relief. *Cf. Mills*, 734 F. Supp. 3d at 1248 ("The unique circumstances of execution litigation and the attendant deadlines are precisely why such litigation should be filed at the earliest possible opportunity: to ensure that courts at all levels have as much time as possible to review the case and make a reasoned decision."); *Frazier*, 2025 WL 361172, at *17 ("The Court once again implores attorneys representing death-sentenced inmates to stop this practice because it is ineffective and unworkable."). True, Boyd filed this action and sought a preliminary injunction sooner than the plaintiffs in *Frazier* and *Mills*. That Boyd's litigation conduct is not "as bad" does not undermine the Court's conclusion that he inexcusably delayed bringing this lawsuit. And although certain circumstances may justify a condemned inmate's delay in challenging a state's contemplated method of execution, *see, e.g.*, *Ramirez v. Collier*, 595 U.S. 411, 434–35 (2022), Boyd's case does not present such circumstances.

Boyd challenges an execution protocol that had been public for nearly two years and implemented five times before he finally sought relief. Because Boyd has not adequately explained his delay, the equities do not weigh in his favor. For these additional reasons, the Court finds that Boyd's request for a preliminary injunction is due to be denied.

VI. CONCLUSION

Because he has not shown a substantial likelihood of success on the merits, and because the equities weigh against him, Boyd has not established entitlement to the extraordinary remedy of a preliminary injunction.

Accordingly, it is

ORDERED that Boyd's motion for preliminary injunction (doc. 11) is DENIED.

DONE this 9th day of October, 2025.

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