

Nos. 24A893 & 24-6778

In the Supreme Court of the United States

JESSIE HOFFMAN,
Applicant-Petitioner,
v.

GARY WESTCOTT, ET AL.,
Respondents.

**APPENDIX TO BRIEF IN OPPOSITION TO APPLICATION FOR STAY OF
EXECUTION AND PETITION FOR WRIT OF CERTIORARI**

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**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana
State Penitentiary; and JOHN DOES,
unknown executioners,

Defendants.

Civil Action No. 25-169

COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

EXECUTION SET FOR MARCH 18, 2025

NATURE OF THE CASE

1. This action is brought by Plaintiff Jessie Hoffman pursuant to 42 U.S.C. § 1983 seeking declaratory and injunctive relief for violations and threatened violations of Mr. Hoffman’s rights under the First, Sixth, Eighth, and Fourteenth Amendments to the United States Constitution.

2. Three decades ago, Louisiana made lethal injection the sole means of executing condemned inmates in the State. Lawmakers at the time explained that the prior method—electrocution—was a “gruesome,” “ghastly,” and “horrible” way to die. Last year, Louisiana amended La. Rev. Stat. § 15:569 and § 15:570, shrouding the execution process in secrecy and expanding the methods of execution to include nitrogen “hypoxia” and the electric chair. The Secretary of the Department of Public Safety and Corrections (“DPSC”) now has the unfettered authority to choose between nitrogen gas, lethal injection, or electrocution in carrying out a sentence of death.

3. Less than twenty-six days before Mr. Hoffman’s scheduled execution date on March 18, 2025, the DPSC notified Mr. Hoffman that he would be executed by nitrogen hypoxia, that is, by forced nitrogen gassing. Nitrogen gas has been used to kill condemned individuals in only one state, Alabama, and each of the four times it has been used it has resulted in an excruciating, prolonged death that was horrifying for both the person being executed and those who bore witness.

4. Mr. Hoffman has been deprived of notice regarding the protocol that will be used to kill him. On Monday, February 10, 2025, Governor Jeffrey Landry announced that the State had “finalized and implemented an updated [execution] protocol” and would promptly resume executions.¹ The Governor did not release the protocol. Rather, his office released a half-page “summary” of a new nitrogen gas “protocol.”² Defendants have rejected Mr. Hoffman’s requests for the actual protocol.

5. Defendants are moving forward at warp speed to use Mr. Hoffman as a test case for an unusual method of execution, never used by this State, which is known to cause a terrifying and excruciating death. It took Alabama five years of preparations to begin to employ gas as a method of execution. Each time it has been used, witnesses report that the inmate “gasp[ed], shook and struggled against his restraints,”³ “rocked his head, shook and pulled against the gurney

¹ Press Release, Louisiana Governor Jeff Landry, *Promises Made, Promises Kept: Justice Coming for Crime Victims* (Feb. 10, 2025), <https://gov.louisiana.gov/news/4762>.

² *Id.*

³ Marty Roney, *Alabama Executes Alan Eugene Miller with Nitrogen Gas*, *Montgomery Advertiser* (Sept. 26, 2024 7:45 PM), <https://www.montgomeryadvertiser.com/story/news/crime/2024/09/26/alabama-executes-alan-eugene-miller-with-nitrogen-gas/75360739007/>.

restraints,”⁴ “struggle[d] to breathe,”⁵ “heav[ed] and retch[ed] inside the mask,”⁶ and “gasp[ed] for air.”⁷

6. Based on Defendants’ prior execution protocols and previous actions, the current undisclosed execution protocol does not adequately protect Mr. Hoffman from cruel and unusual punishment in violation of the Eighth Amendment of the United States Constitution. Specifically, the execution protocol creates a substantial risk of suffering a lingering or unnecessarily painful death due to: the manner of execution; the insufficient training, expertise, and supervision of those involved in the administration of this new method of executions; and the precipitate, arbitrary and haphazard implementation of the protocol and procedures to be utilized in the implementation of the execution. Mr. Hoffman additionally raises an as-applied Eighth Amendment challenge to execution by nitrogen hypoxia, that is, forced nitrogen gassing method.

7. Defendants have also violated other protections under the United States Constitution and applicable law:

8. First, execution of Mr. Hoffman by nitrogen gassing violates the *ex post facto* clause of Article I, Section 10, clause 1 of the United States Constitution because the method of execution has been changed by Defendants to a manner that is more painful or protracted than the method in effect at the time that Mr. Hoffman was originally sentenced.

⁴ Kim Chandler, *Alabama Carries out Nation’s Third Nitrogen Gas Execution on a Man for Hitchhiker’s Killing*, Associated Press (Nov. 22, 2024 7:15 AM), <https://apnews.com/article/death-penalty-nitrogen-execution-alabama-09450359e223a9d38a5fb24e87cfb45>.

⁵ Sarah Clifton, *Alabama Executes Demetrius Frazier by Nitrogen Gas for 1991 Murder*, Montgomery Advertiser (Feb. 6, 2025 8:46 PM), <https://www.montgomeryadvertiser.com/story/news/local/alabama/2025/02/06/alabama-executes-demetrius-frazier-by-nitrogen-gas-for-1991-murder/78282236007/>.

⁶ Lee Hedgepeth, ‘*Never Alone*’: *The Suffocation of Kenneth Eugene Smith*, available at <https://www.treadbylee.com/p/never-alone-the-suffocation-of-kenneth>

⁷ *Id.*

9. Second, Defendants' refusal to provide adequate notice of the manner of execution and/or to provide access to the protocols and procedures to be utilized in the implementation of execution denies Mr. Hoffman the procedural due process right to notice and opportunity to be heard regarding the method by which Defendants seek to execute him, as well as equal protection of the law.

10. Third, the execution protocol's secrecy provisions violate Mr. Hoffman's rights to counsel and of access to the courts under the Fourteenth, Sixth, and First Amendments.

11. Fourth, the method of forced nitrogen gassing will substantially burden and prevent Mr. Hoffman from practicing his Buddhist faith, and specifically Buddhist meditative breathing techniques, in the execution chamber and during the process in which he is killed by forced nitrogen gassing. This violates both the Religious Land Use and Institutionalized Persons Act ("RLUIPA") and the free exercise clause of the First Amendment of the United States Constitution.

12. Mr. Hoffman seeks declaratory and injunctive relief to prevent Defendants from executing him through unconstitutional means.

PARTIES

13. Plaintiff Jessie Hoffman is a citizen of the United States of America, currently incarcerated under a sentence of death at the Louisiana State Penitentiary, in Angola, Louisiana ("Angola"), and is under the control and supervision of the DPSC. Mr. Hoffman has completed the administrative remedy process for this complaint when his ARPs were rejected on June 6, 2024, and July 3, 2024. On February 12, 2025, the Twenty-Second Judicial District for the Parish of St. Tammany executed a warrant for Mr. Hoffman's execution. In an abundance of caution, after his attorneys received notice that the State was seeking an execution warrant, Mr. Hoffman

filed an emergency ARP on February 11, 2025. On February 13, 2025, Mr. Hoffman was notified that a response from the Warden's office would be issued within 40 days of the date of his filing.

14. Defendant Gary Westcott is Secretary of the DPSC ("DPSC Secretary") and, thus, the chief executive officer of the DPSC. He was appointed to this position by the Governor of Louisiana. In this capacity, Defendant Westcott has control of the DPSC, and is responsible for protecting the constitutional rights of all persons held in the DPSC's custody. At all relevant times, Defendant Westcott was acting under color of law and as the agent, and, as a matter of law, the official representative of the DPSC. Defendant Westcott is sued in his individual and official capacities.

15. Defendant Darrel Vannoy is the Warden of Angola ("Warden"). In this role, Defendant Vannoy is responsible for carrying out executions at Angola, including but not limited to making staffing, budget, and administrative decisions related to executions. Defendant Vannoy is responsible for the "custody, control, care, and treatment of adjudicated people" at Angola.⁸ At all relevant times, Defendant Vannoy was acting under color of law and as the agent, and, as a matter of law, the official representative of Angola. Defendant Vannoy is sued in his individual and official capacities.

16. Defendants John Does ("Doe Defendants") are involved in the implementation of the DPSC's execution protocols including transport, administration of drugs, security, preparation for the execution, and a variety of other tasks. Mr. Hoffman has not been able, through due diligence, to discover their identities. Defendants Westcott and Vannoy possess information identifying these individuals as they are responsible for selecting the individuals to carry out these tasks. Mr. Hoffman anticipates that the identities of these unknown executioners will be revealed

⁸ La. Dep't of Public Safety & Corrections, Louisiana State Penitentiary, <https://doc.louisiana.gov/location/louisiana-state-penitentiary/>.

in discovery. The Doe Defendants are made defendants in their individual and official capacities. Upon information and belief, the Doe Defendants are citizens of the United States of America and residents of Louisiana.

JURISDICTION AND VENUE

17. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1343 because this action arises and seeks relief under the laws and Constitution of the United States, specifically, the First, Sixth, Eighth, and Fourteenth Amendments to the United States Constitution, 18. U.S.C. § 3599, RLUIPA, and 28 U.S.C. § 2201 (declaratory relief), and 28 U.S.C. § 2202 (injunctive relief).

18. Venue is proper in this district pursuant to 28 U.S.C. § 1391(b), as the events complained of have occurred/will occur in this district.

RELEVANT PROCEDURAL BACKGROUND

19. During the course of a separate lawsuit in state court, the DPSC publicly disclosed a copy of its execution protocol dated January 7, 2010, the date of Gerald Bordelon's execution. However, the DPSC later disclosed that it was no longer able to obtain one of the drugs listed in this protocol.

20. Beginning in 2012, counsel for Mr. Hoffman attempted to obtain a copy of the DPSC's then-current execution protocol. After the DPSC denied the public records requests, Mr. Hoffman submitted ARPs asserting that he had no notice of how Defendants would seek to execute him and requesting a copy of the current protocol. The DPSC rejected these requests.

21. In December 2012, Mr. Hoffman brought an action in the United States District Court for the Middle District of Louisiana pursuant to 42 U.S.C. § 1983 for violations and threatened violations of his rights under the First, Sixth, Eighth and Fourteenth Amendments to

the United States Constitution. *See Hoffman v. Jindal, et al.*, No. 3:12-cv-00796-SDD-EWD (M.D. La.) (“Related Case”). Other parties later intervened in that action as plaintiffs. *Id.*, Rec. Docs. 10 (Sepulvado), 120 (Code), 201 (Wessinger, Irish), 210 (Blank), 222 (Tyler), 252 (Reeves, Bell, Tart, Broadway).⁹

22. At the time of filing of the Related Case, Louisiana law provided that “[e]very sentence of death executed on or after September 15, 1991, shall be by lethal injection; that is, by the intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead.” La. Rev. Stat. § 15:569(B) (1991). Based on the execution protocol ultimately disclosed by the State, Mr. Hoffman argued, among other things, that (a) he was at a substantial risk of suffering a lingering or unnecessarily painful death due to the nature of the lethal injection drugs to be used in the execution, and (b) the execution protocol did not adequately protect him from cruel and unusual punishment due to the insufficient training, expertise, and supervision of those involved in the administration of the lethal drug.

23. In January 2013, Christopher Sepulvado, who was under warrant for execution, intervened in the Related Case. At the hearing on Mr. Sepulvado’s motion for preliminary injunction, the Court ordered the DPSC to disclose its execution protocol, but the attorneys for the DPSC had only a Wikipedia printout of its entry for the drug pentobarbital. Noting the “intransigence of the State Defendants,” the Court found that “[i]t is axiomatic that . . . an inmate who is to be executed cannot challenge a protocol as violative of the 8th Amendment until he knows what that protocol contains.” Rec. Doc. 28.

24. Pursuant to orders issued by the Court in the Related Case, the DPSC ultimately disclosed several versions of its execution protocol, revealing that the protocol was in a state of

⁹ “Rec. Doc.” refers to docket entries in the Related Case.

constant flux during the time when Mr. Sepulvado was set to be executed in 2013 and 2014. *See, e.g.*, Rec. Doc. 137, at 4-5; 169-1, at 4-5.

25. On August 12, 2021, Defendants moved to dismiss the Related Case contending that the DPSC “ha[d] no ability to obtain the lethal injection drugs authorized by [the DPSC’s] current protocol nor any other potential lethal injection drugs in the foreseeable future.” Rec. Doc. 263-1, at 4.

26. On March 31, 2022, the Court granted Defendants’ motion to dismiss without prejudice. Rec. Doc. 312, at 22-23. In so ruling, the Court found that “[g]iven the Defendants’ virtual inability to obtain lethal injection drugs Plaintiffs cannot demonstrate a reasonable expectation that Defendants will resume executing prisoners without significant and substantial changes to the execution protocol or the law.” *Id.* at 21.

27. Because of the unavailability of lethal injection drugs, the Court determined that “Defendants are no longer engaging in the behavior the Plaintiffs have deemed unconstitutional in their lawsuit allegations,” and, “[t]here being no live controversy,” the Court “lacks subject-matter jurisdiction.” Of particular relevance here, the Court also stated that, “[i]ndeed, if a live controversy re-emerges [through legislation or revisions to the execution protocol], Plaintiffs may employ the same procedural mechanisms they have previously used to seek the relief they desire.” *Id.* at 21.

28. On March 5, 2024, at the urging of now Governor Landry, the Louisiana Legislature passed Act 5 of the Second Extraordinary Session of 2024, amending La. Rev. Stat. § 15:569-70 to include two methods of execution in addition to lethal injection—nitrogen gas and electrocution—effective July 1, 2024. La. Rev. Stat. § 15:569 (2024).

29. By e-mail dated May 1, 2024, Mr. Hoffman’s counsel requested certain information from the DPSC, including: (a) whether the DPSC has obtained or attempted to obtain or compound

any lethal injection drugs; (b) whether the DPSC remains unable to procure any drugs that could be used for lethal injection; (c) whether the DPSC has the necessary materials and equipment for an execution by electrocution or nitrogen hypoxia; and (d) whether Department Regulation No. C-03-001 (the State's execution protocol) has been modified with respect to lethal injection, nitrogen hypoxia or electrocution. The DPSC, however, declined to answer most of those queries, responding only that it has not procured any drugs intended to be used for lethal injection and has not made any changes to its lethal injection protocol.

30. On November 27, 2024, the DPSC responded to a public records request submitted by a reporter, representing that the DPSC had not changed its protocol, and that the DPSC did not possess drugs or any supplies for use in executions.

31. On February 10, 2025, Governor Landry announced that the DPSC had "finalized and implemented an updated protocol that allows for the sentences of those on Death Row to be carried out." His press release included a link to a "brief summary" of a nitrogen gas protocol that "builds upon" Alabama's method.

32. That same day, the St. Tammany Parish District Attorney filed a request for a warrant of execution in Mr. Hoffman's case. Mr. Hoffman filed an Emergency Request for Administrative Remedy on February 11, 2025, requesting, *inter alia*, a copy of the DPSC's execution protocol. The prison informed Mr. Hoffman that he would receive a response within 40 days. The state court signed the warrant on February 12, 2025, setting Mr. Hoffman's execution for March 18, 2025.

33. On February 20, 2025, eight days after the issuance of Mr. Hoffman's warrant, the DPSC served Mr. Hoffman with notice of his execution warrant and that the method of execution would be nitrogen hypoxia. Mr. Hoffman's counsel reached out to Defendants' counsel to request a copy of the protocol on February 14, 2025. On February 18, 2025, Defendants' counsel

responded that the request: “is being treated as a public records request pursuant to La. R.S. 44:1, et seq. Please be advised that the execution protocol is exempt from disclosure pursuant to La. R.S. 44:3 and La. R.S. 15:570, which is incorporated by reference in La. R.S. 44:4.1(B)(8).” No protocol has been disclosed to either Mr. Hoffman or his counsel.

FACTUAL BACKGROUND

A. Changes to Louisiana’s Execution Methods and Procedures

34. For the last three decades, since 1991, lethal injection was the only authorized method of execution in Louisiana. In March 2024, the Louisiana state legislature amended La. Rev. Stat. § 15:569 and § 15:570 and expanded the manner in which the State can execute condemned inmates by adding nitrogen hypoxia and electrocution. *See* Act 5/2024. The DPSC Secretary now has the unfettered authority to choose between nitrogen hypoxia, lethal injection, or electrocution in carrying out a sentence of death.

35. Specifically, La. Rev. Stat. § 15:569 now provides:

(A) Every sentence of death imposed in this state shall be executed at the Louisiana State Penitentiary at Angola. Every execution shall be made in a room entirely cut off from view of all except those permitted by law to be in the room. At the discretion of the secretary of the Department of Public Safety and Corrections and with no preference to the method of execution, every sentence of death shall be by one of the following methods:

(1) Intravenous injection of a substance or substances in a lethal quantity into the body.

(2) Nitrogen hypoxia.

(3) Electrocution, causing to pass through the body of the person convicted a current of electricity of sufficient intensity to cause death, and the application and continuance of such current through the body of the person convicted until such person is dead.

(B) Upon receipt of the warrant commanding the secretary to cause the execution of the person condemned as provided by law, the secretary shall, within seven days, provide a written notice to the condemned person of the manner of execution.

La. Rev. Stat. § 15:569(A)-(B) (2024).

36. La. Rev. Stat. § 15:570 also provides for “the absolute confidentiality” of persons or entities involved in the execution:

(F) It is the intent of the legislature that the provisions of this Subsection shall be construed to ensure the absolute confidentiality of the identifying information of any person, business, organization, or other entity directly or indirectly involved in the execution of a death sentence within this state. This confidentiality provision shall prevail over any conflicting provision in state law related to public disclosure.

(1) Except as provided in Subsection F of this Section, the identity of any person who participates in or performs ancillary functions in the execution process, including a person or business that delivers, dispenses, distributes, supplies, manufactures, or compounds the drugs, equivalent drug products, pharmacy generated drugs, device drugs, medical supplies, medical equipment, or other supplies or materials intended for use by the Department of Public Safety and Corrections in the administration of an execution shall be confidential and shall not be disclosed.

La. Rev. Stat. § 15:570(G) (2024).

37. The amendments to La. Rev. Stat. § 15:569 and § 15:570 went into effect on July 1, 2024, applying to all executions regardless of the date of offense or imposition of sentence.

1. Former Protocols

38. The DPSC’s lethal injection protocol has been altered many times since it was first instituted in 1991. On multiple occasions, those alterations were announced mere days or hours before an execution.

39. For example, on January 7, 2010, the DPSC promulgated a new protocol. The same day, Gerald Bordelon was executed using the new protocol.

40. Beginning in April 2012, counsel for Mr. Hoffman made repeated requests for a copy of the then-current protocol, through public records requests and administrative remedy procedures. The DPSC denied those requests. Mr. Hoffman therefore filed the Related Case on December 20, 2012, asserting multiple constitutional violations including a violation of his due process rights to notice and an opportunity to be heard regarding the method by which he was to be executed.

41. Mr. Sepulvado was given an execution date of February 13, 2013. Mr. Sepulvado filed a motion for a stay of execution and in a hearing on that motion, the DPSC announced for the first time that it planned to use the drug pentobarbital in Mr. Sepulvado's execution. The Court granted Mr. Sepulvado's motion for a stay of execution on February 7, 2013.

42. In June 2013, in the Related Case, the DPSC disclosed in discovery a new lethal injection protocol which substituted a single dose of pentobarbital for the three-drug formula consisting of an ultra-short-acting barbiturate, a paralytic, and concentrated potassium to stop the heart.

43. On September 1, 2013, the DPSC's supply of pentobarbital expired.

44. In December 2013, an execution warrant was signed for Mr. Sepulvado, ordering the DPSC to execute him on February 5, 2014.

45. On December 19, 2013, the Louisiana Board of Pharmacy disclosed that the DPSC did not have any unexpired stock of pentobarbital.

46. Instead of the drugs in the 2013 protocol, Defendants purchased midazolam from Morris & Dickson on July 25, 2013.

47. At 4:51 p.m. on January 27, 2014, 9 days before the scheduled execution of Mr. Sepulvado, the Ohio Department of Corrections sent a fax to the DPSC, attaching a copy of Ohio's lethal injection protocol. At that time, the Ohio protocol called for lethal injection options to be

chosen at the discretion of the warden, including a single dose of 5g pentobarbital, in manufactured or compounded form, “under whatever name it may be available,” or a combination of 10 mg midazolam and 40mg hydromorphone—under whatever names these drugs may be sold, compounded or manufactured, with additional back-up doses of 60mg hydromorphone. This protocol also allowed for the drugs to be injected either intravenously or intramuscularly.

48. Less than two hours after receiving Ohio’s protocol, at 6:32 p.m. on January 27, 2014, the DPSC issued a new drug protocol that was nearly identical to Ohio’s protocol. The DPSC’s protocol included an array of lethal drug options to be chosen at the discretion of the warden and/or pharmacist, including a single dose of 5g pentobarbital in manufactured or compounded form, or a combination of 10mg midazolam and 40mg hydromorphone in manufactured or compounded form. This protocol also allowed for the drugs to be injected either intravenously or intramuscularly.

49. The next day, on January 28, 2014, the DPSC purchased 20 vials of 50mg/5ml (10mg/ml) hydromorphone, from the Lake Charles Memorial Hospital.

50. On February 1, 2014, four days before the scheduled execution of Mr. Sepulvado, Defendants disclosed that the DPSC had been unable to procure any pentobarbital and would be using “Hydromorphone HC 150mg/5ml vial” and “Midazolam 2mg/2ml.”

51. This disclosure did not comport with the invoices for the DPSC’s purchase of hydromorphone, which instead showed a purchase of 20 vials of 50mg/5ml (10mg/ml) of hydromorphone.

52. On February 3, 2014, Defendants contacted counsel for plaintiffs in the Related Case and requested a 90-day temporary restraining order and stay of execution. The Court granted this request, which was extended and remained in effect until the Court lifted the stay on June 30, 2021.

53. In the Related Case, the Court further ordered Defendants to provide a final execution protocol by March 14, 2014.

54. On March 13, 2014, Defendants provided a copy of the “revised lethal injection protocol,” including a seven-page document entitled “Department Regulation No. C-03-001” (“2014 Execution Protocol”) to plaintiffs in the Related Case. This is the last-disclosed execution protocol.

55. Pursuant to an informal agreement between counsel for Defendants and counsel for Mr. Hoffman and other plaintiffs in the Related Case, counsel for Defendants would provide quarterly updates as to (i) whether the DPSC had changed its execution protocol, and if so provide a copy of any new protocol, and (ii) whether the DPSC had in its possession drugs intended for use in executions. Until July 1, 2024, the DPSC represented that no changes had been made and no drugs had been obtained. However, after July 1, 2024, the DPSC began to take the position with counsel for Mr. Hoffman that this information was exempted from the Public Records Act. Under the 2014 Execution Protocol, attorneys are allowed to remain with the condemned inmate only “until the visit is terminated at the discretion of the Warden.” The condemned inmate is given no right to an attorney present throughout his execution.

56. The 2014 Execution Protocol is the most recent DPSC execution protocol disclosed to Mr. Hoffman.¹⁰ The 2014 Execution Protocol describes only the DPSC’s procedure for executions by lethal injection. Upon information and belief, the 2014 Execution Protocol has never been revoked.

57. The 2014 Execution Protocol provides the DPSC with the option to use either (a) a one-drug protocol comprising of an intravenous dose of pentobarbital (“Pentobarbital Protocol”),

¹⁰ The 2014 Execution Protocol is available at <https://dpic-cdn.org/production/documents/2014.03.14.LA.protocol.pdf?dm=1683576299>.

or (b) a two-drug protocol using an intravenous dose of a mixture of midazolam and hydromorphone (“Midazolam-Hydromorphone Protocol”).

58. ***Pentobarbital Protocol:*** Under the 2014 Pentobarbital Protocol, the condemned inmate is administered a total of 5 grams of pentobarbital “divided into the two syringes,” three syringes containing “25mL of saline flush,” and “[f]our additional syringes” containing an “additional 10 grams of Pentobarbital . . . to be used if the primary dose of five grams proves to be insufficient for the procedure.”¹¹

59. ***Midazolam-Hydromorphone Protocol.*** Under the 2014 Midazolam-Hydromorphone Protocol, the condemned inmate is administered 10 mg of midazolam and 40 mg of hydromorphone “drawn into or mixed in a single syringe.”¹² The protocol further provides for two back-up syringes, one filled with a mix of 10 mg of midazolam and 40 mg of hydromorphone, and the third containing 60 mg of hydromorphone.¹³

2. Methods Authorized by Law at the Time of Mr. Hoffman’s Sentencing

60. At the time the offenses occurred that subjected Mr. Hoffman to a death sentence, and at the time that Mr. Hoffman was sentenced to death, La. Rev. Stat. § 15:569 provided that “[e]very sentence of death executed on or after September 15, 1991, shall be by lethal injection; that is, by the intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead.” La. Rev. Stat. § 15:569 (1991).

61. Mr. Hoffman was sentenced by a jury to death by lethal injection.

62. Lethal injection was the only statutorily authorized method of execution for over thirty years, from 1991 to 2024.

¹¹ 2014 Execution Protocol, Attachment E, at 1.

¹² *Id.*

¹³ *Id.* at 1–2.

63. The amendments to La. Rev. Stat. § 15:569 and § 15:570 went into effect on July 1, 2024, applying to all executions regardless of the date of offense or imposition of sentence.

B. Louisiana Refuses to Disclose Crucial Information

1. Louisiana Refuses to Disclose the Method of Execution Until the Last Possible Moment

64. As set forth above, in 2024, the Louisiana legislature amended La. Rev. Stat. § 15:569 and expanded the manner in which the State can execute condemned inmates by adding electrocution and nitrogen gas.

65. The 2024 amendments give the DPSC Secretary the discretion and unfettered authority to choose between lethal injection, nitrogen gas, or electrocution in carrying out a sentence of death. The statute does not set any guidelines, nor does it require any stated reason for the DPSC Secretary's choice for a given individual.

66. Nor does the statute require the DPSC Secretary to make known which of the three methods are currently available to the State. That is, the DPSC Secretary is not required to inform the public of which methods it has the capacity to carry out. And the DPSC Secretary has indeed refused to disclose which methods are currently practicable.

67. On February 10, 2025, Governor Landry announced that the DPSC had finalized a protocol to carry out executions by nitrogen hypoxia and would resume executions. Rec. Doc. 335-2. The Governor did not, however, announce that the nitrogen hypoxia protocol replaced the 2014 lethal injection protocol. Nor did the Governor indicate whether the DPSC has developed or plans to develop a protocol for electrocution.

68. On February 20, 2025—eight days after the issuance of the warrant and just 26 days before Mr. Hoffman's execution date—the DPSC served Mr. Hoffman with notice that the method of execution would be nitrogen gas.

2. Louisiana Refuses to Disclose the Current Execution Protocol

69. Mr. Hoffman has been denied notice of any actual protocol by which Defendants will use to kill him.

70. As set forth above, Governor Landry announced on February 10, 2025, that the DPSC issued an updated protocol for nitrogen hypoxia. Governor Landry's announcement was accompanied by a three-paragraph document titled "Brief Summary of Nitrogen Hypoxia Execution Protocol," which states:

Execution by nitrogen hypoxia is accomplished by placing a mask on the inmate's face and replacing oxygen with nitrogen gas.

The inmate will be allowed access to a spiritual advisor. Designated victim relationship witnesses and designated media representatives will be authorized to witness the execution in accordance with the protocol and Louisiana law.

The Louisiana State Penitentiary personnel will conduct checks on all aspects of the nitrogen system and other apparatus utilized in the protocol prior to the commencement of the execution. Once escorted to the death chamber, medical monitors will be attached to the inmate to evaluate the relevant vital signs. The inmate will be offered the opportunity to make a final statement, and then, the specialized mask for administration of the nitrogen will be fitted onto the inmate. At the designated time, pure nitrogen gas will be administered to the inmate through the mask for a sufficient time period necessary to cause the death of the inmate. In accordance with the protocol, the coroner will then be asked to confirm the death. The Warden of Louisiana State Penitentiary will then make a statement confirming that the execution has been completed in accordance with the laws of the State of Louisiana.¹⁴

71. The "updated" protocol itself has not been publicly released and has not been provided to Mr. Hoffman or his counsel despite requests for it. Thus, the 2014 Execution Protocol is the most recent execution protocol disclosed to Mr. Hoffman.

¹⁴ Press Release, Office of Governor Jeff Landry, Brief Summary of Nitrogen Hypoxia Execution Protocol (Feb. 10, 2025), <https://gov.louisiana.gov/assets/2025-Extras/Summaries/Summary-of-Protocol-Info.pdf>.

72. Under La. Rev. Stat. § 15:568, the DPSC Secretary is responsible for executing offenders in conformity with the death warrant issued in each case. Given that the DPSC has not made a revised execution protocol available to Mr. Hoffman or the public, Mr. Hoffman reserves the right to amend this complaint if the DPSC produces a revised execution protocol.

73. Without sufficient notice of and/or access to the protocols and procedures to be utilized in the implementation of the execution, Mr. Hoffman cannot adequately evaluate and challenge the protocols and procedures by which Defendants seek to execute him.

C. Death by Nitrogen Gas

74. Nitrogen hypoxia is a method of execution that forces nitrogen gas inhalation, depriving the condemned inmate of oxygen and causing asphyxiation.

75. The DPSC has never executed or attempted to execute a condemned inmate by nitrogen gas. Nor has the federal government. The only state that has carried out an execution by nitrogen gas is Alabama.

76. In March 2018, Alabama enacted legislation authorizing the use of nitrogen gas for executions. The statute became effective on June 1, 2018.

77. The Alabama Department of Corrections (“ADOC”) released a protocol for gas executions until August 25, 2023. Before it released that protocol, the ADOC performed testing of the nitrogen delivery system and training on its use.

78. In January 2024, the ADOC executed Kenneth Smith by nitrogen gas. This involved strapping Mr. Smith to a gurney, fitting him with a respirator mask connected to nitrogen gas, and then administering the nitrogen gas.¹⁵

¹⁵ See Ala. Dep’t of Corrections Execution Procedures (Aug. 2023), at 15-17, https://dpic-cdn.org/production/documents/Al_Lethal_Gas_Execution_Protocol_2023_08.pdf?dm=1693938490.

79. After the ADOC started the flow of nitrogen gas, Mr. Smith started “to convulse and shake vigorously for about four minutes. . . . It was another two to three minutes before he appeared to lose consciousness, all while gasping for air to the extent that the gurney shook several times.”¹⁶

80. Media witness Lee Hedgepeth recounted that Mr. Smith’s head moved back and forth violently in the minutes after the execution began. Having witnessed four other executions, Mr. Hedgepeth stated that he had “never seen such a violent reaction to an execution.”¹⁷

81. Mr. Smith’s spiritual advisor, Reverend Jeff Hood, was also present in the execution chamber and described the scene: “[w]e didn’t see someone go unconscious into two or three seconds. We didn’t see somebody go unconscious in 30 seconds. What we saw was minutes of someone struggling for his life. We saw minutes of someone heaving back and forth. We saw spit. We saw all sorts of stuff develop from his mask.”¹⁸

82. The victim’s son, Mike Sennett, stated that he was told by prison personnel that Mr. Smith would “take two or three breaths and he’d be out and gone.”¹⁹ However, he described: “That ain’t what happened. After about two or three breaths, that’s when the struggling started.

¹⁶ Marty Roney, *Nitrogen Gas Execution: Kenneth Smith Convulses for Four Minutes in Alabama Death Chamber*, Montgomery Advertiser (Jan. 25, 2024), www.montgomeryadvertiser.com/story/news/local/alabama/2024/01/25/four-minutes-of-convulsions-kenneth-smith-executed-with-nitrogen-gas/72358038007/.

¹⁷ Nicholas Bogel-Burroughs and Abbie VanSickle, *Alabama Carries Out First U.S. Execution by Nitrogen*, N.Y. Times (Jan. 25, 2024), www.nytimes.com/2024/01/25/us/alabama-nitrogen-execution-kenneth-smith.html.

¹⁸ Ralph Chapoco, *Kenneth Eugene Smith Executed by Nitrogen Gas for 1988 Murder-for-Hire Scheme*, Alabama Reflector (Jan. 25, 2024), <https://alabamareflector.com/2024/01/25/kenneth-eugene-smith-executed-by-nitrogen-gas-for-1988-murder-for-hire-scheme/>.

¹⁹ Nicholas Bogel-Burroughs, *A Select Few Witnessed Alabama’s Nitrogen Execution. This Is What They Saw*, N.Y. Times (Feb. 1, 2024), www.nytimes.com/2024/02/01/us/alabama-nitrogen-execution-kenneth-smith-witnesses.html.

Other people kept saying he was trying to raise himself up. . . . With all that struggling and jerking and trying to get off that table, more or less, it's just something I don't ever want to see again.”²⁰

83. Twenty-seven minutes after the ADOC started the flow of gas, Mr. Smith was declared dead.²¹

84. The three other nitrogen gas executions carried out by the ADOC were similar. On September 26, 2024, ADOC executed Alan Eugene Miller by nitrogen gas. According to reports, Mr. Miller “shook and trembled on a gurney for about two minutes, with his body at time pulling against restraints. . . . The shaking and trembling was followed by about six minutes of periodic gulping breaths before he became still.”²²

85. On November 21, 2024, the ADOC executed Carey Dale Grayson by nitrogen gas. During the approximately six minutes it took for Mr. Grayson to lose consciousness, he “tightly clenched his hands, took deep gasps, shook his head vigorously and pulled against his restraints.”²³

86. And, on February 6, 2025, the ADOC executed Demetrius Frazier. The execution took approximately 20 minutes. During that time, Mr. Frazier “started waving his hands in circles toward his body.”²⁴ Then, he “clenched his face and his nostrils flared, while his hands quivered. His legs slightly lifted up off the gurney and he gasped.” After that, Mr. Frazier “had sporadic gasping and shallow breathing.”²⁵

²⁰ *Id.*

²¹ Roney, *supra* note 16.

²² Michelle Watson & Jason Hanna, *Alabama Has Executed Alan Eugene Miller, the Second Inmate Known to Die by Nitrogen Gas*, CNN (Sept. 26, 2024), www.cnn.com/2024/09/26/us/alan-eugene-miller-alabama-execution/index.html.

²³ Marty Roney et al., *Carey Dale Grayson Executed in Alabama in Hiker's Murder; 3rd Nitrogen Gas Execution in US*, USA Today (Nov. 21, 2024), www.usatoday.com/story/news/nation/2024/11/21/carey-dale-grayson-execution-alabama-nitrogen-gas/76489211007/.

²⁴ WTVM13, *'Detroit Strong': Alabama Carries Out Execution of Inmate in Michigan's Custody*, <https://www.wvtm13.com/article/alabama-inmate-execution-michigan-lawsuit-1738878056/63692646>.

²⁵ *Id.*

87. The DPSC has not disclosed or made public any execution protocol for nitrogen gas. Upon information and belief, the DPSC intends to employ a procedure similar to the ADOC's in carrying out this form of execution.

88. As confirmed by the Smith, Miller, Grayson, and Frazier executions, nitrogen gas creates terror and extreme pain and suffering.

89. Execution by nitrogen gas deprives the condemned inmate of oxygen, which can cause the feeling of suffocation, panic, significant pain and suffering. For example, to test the accuracy of pulse oximeters, researchers have conducted controlled laboratory desaturation studies using healthy volunteers.²⁶ In these studies, at blood oxygen saturation levels of 60% to 100%, “symptoms range from minimal or mild shortness of breath and visual changes to a full-blown feeling of suffocation”; at blood oxygen saturations of less than 60%, the “majority of people, not yet unconscious, report significant distress and shortness of breath.”²⁷ Because of this response, “it is [now] unethical to even study the effects of very low oxygen levels (<60%) on humans. . . . [Put differently, researchers] have stopped using desaturations below 60% due to concerns for study participant safety and comfort.”²⁸

90. The deprivation of oxygen can also cause nausea. Because the condemned inmate is strapped to a gurney in the supine position, vomiting can cause the condemned inmate to choke to death.

²⁶ Philip E. Bickler and Michael S. Lipnick, *Evidence Against Use of Nitrogen for the Death Penalty*, J. Am. Med. Ass'n (May 29, 2024), <https://jamanetwork.com/journals/jama/fullarticle/2819295>.

²⁷ *Id.*

²⁸ *Id.*

91. Moreover, if the respirator mask is not properly sealed, some oxygen can enter the mask and therefore prolong the time to reach unconsciousness and lead the condemned inmate to enter a persistent vegetative state, have a stroke, or endure the painful sensation of suffocation.²⁹

92. To avoid suffering to animals, for example, the American Veterinary Medical Association (“AVMA”) has advised the use of nitrogen gas is “unacceptable” as euthanasia for most mammals, because it “create[s] an anoxic environment that is distressing for some species and aversive to [others].”³⁰ Louisiana has explicitly codified in law that “[e]uthanasia methods and procedures must conform with recommendations outlined in the report of the American Veterinary Medical Association on Euthanasia,” and has specifically outlawed gassing as a method of euthanasia for cats and dogs. La. Rev. Stat. § 3:2465(C)(1)-(2).

93. The United Nations Human Rights Office, too, has admonished the use of nitrogen gas and the “grave suffering”³¹ it may cause as likely “amount[ing] to torture under international law.”³²

94. Louisiana’s Twenty-Fourth Judicial District Court considered Jerman Neveau’s challenge to nitrogen gas and electrocution as less humane methods of execution than lethal injection. In support, Mr. Neveau presented expert affidavits opining that nitrogen gas can cause

²⁹ See Russel D. Ogden et al., *Assisted Suicide by Oxygen Deprivation with Helium at a Swiss Right-To-Die Organization*, 36 J. Med. Ethics 174, 174 (2010) (“Oxygen deprivation with a face mask is not acceptable because leaks are difficult to control and it may not eliminate rebreathing. These factors will extend time to unconsciousness and time to death.”).

³⁰ AVMA Guidelines for the Euthanasia of Animals, at 28 (2020 ed.), www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf. These guidelines are followed by major research universities, including Louisiana State University and Louisiana State University Health Sciences Center. See, e.g., LSU Health, New Orleans, Institutional Animal Care and Use Committee, www.lsuohsc.edu/administration/academic/ors/iacuc/default.aspx.

³¹ U.N. Human Rights, Office of the High Commissioner, *United States: UN Experts Alarmed at Prospect of First-Ever Untested Execution by Nitrogen Hypoxia in Alabama* (Jan. 3, 2024), www.ohchr.org/en/press-releases/2024/01/united-states-un-experts-alarmed-prospect-first-ever-untested-execution.

³² *First U.S. Nitrogen-Gas May Constitute Torture—UN Rights Office*, reuters.com (Jan. 16, 2024), www.reuters.com/world/us/first-us-nitrogen-gas-execution-may-constitute-torture-un-rights-office-2024-01-16/.

the condemned inmate to “enter[] a persistent vegetative state, experienc[e] [a] stroke, or experienc[e] painful suffocation instead of dying,” as well as “distress, panic, pain, and suffocation by vomit.”³³

95. Judge Darensburg agreed and granted Mr. Neveaux’s motion to declare La. Rev. Stat. § 15:569 unconstitutional.³⁴

D. Maladministration

1. Louisiana’s Execution Procedure Lacks Oversight and Safeguards

96. Upon information and belief, Defendants’ undisclosed execution protocol has not been examined by a licensed medical professional to ensure that there are adequate safeguards to protect the condemned inmates’ constitutional rights against torture, pain, and suffering.

97. Upon information and belief, the undisclosed execution protocol was promulgated without any medical research or review to determine that a prisoner would not suffer cruelly superadded pain or a lingering death.

98. Upon information and belief, Defendants have made core deviations from the written execution protocols in the past.

99. For example, in the days following up to Mr. Sepulvado’s scheduled February 5, 2014 execution date, Defendants materially deviated from their written protocol. *See supra* ¶¶ 41, 46-51.

100. Upon information and belief, at 30 days prior to Mr. Sepulvado’s scheduled execution, Defendants did not perform the first five “actions” listed on the checklist dated “1-10-13,” which were to (1) receive the warrant of execution from the secretary; (2) serve the offender

³³ *State v. Jerman Neveaux*, No. 16-4029 (24th J.D.C.) (Apr. 19, 2024 ruling on Defense Motion to Declare La. R.S. 15:569(A)(2) & (3) Unconstitutional).

³⁴ *Id.* (“Motion to Declare La RS 15:569(A)(2) & (3) Unconstitutional – GRANTED by the Court, State objection for the record.”).

with the execution order; (3) return the signed warrant to the secretary; (4) notify execution team and executive staff; (5) establish staffing for execution day; and (6) establish staff crisis support team for debriefing of officers post execution.

101. Upon information and belief, prior to Mr. Sepulvado's scheduled execution, Defendants did not perform the first two items listed on its (undated) "LSP Pharmacist Checklist," an integral part of the protocol, specifically, to maintain at "all times the following stock ensuring chemicals have not exceeded expiration date: 15 grams pentobarbital 50mg/ml solution;" and "30 days prior to execution . . . [v]erify execution drugs are in stock as above and expiration dates will not be exceeded prior to execution date."

102. Based on Defendants' past practices, Defendants will likely deviate from their written protocol. The undisclosed execution protocol does not contain any mechanism to prevent Defendants from making such deviations.

103. Even if Defendants fully adhere to the undisclosed execution protocol, the execution will proceed without adequate safeguards.

104. The lack of safeguards is further shielded from public scrutiny by the secrecy provisions of La. Rev. Stat. § 15:570(G), which provide for "the absolute confidentiality of the identifying information of any person, business, organization, or other entity directly or indirectly involved in the execution of a death sentence within this state."

105. Upon information and belief, the undisclosed execution protocol does not consider the condemned inmate's physical size or medical conditions in determining the appropriate mask and other implements, as well as the method itself.

2. The Individuals Tasked with Carrying Out the Execution Have Not Received Adequate Training

106. Defendants have not been properly trained to carry out an execution.

107. Upon information and belief, the members of the current execution team (the Doe Defendants) have not received adequate training, which increases the likelihood that errors will be made in carrying out the execution.

108. Upon information and belief, none of the Doe Defendants are medical professionals or have any medical training. Nor will there be any medical supervision of the Doe Defendants during the execution.

109. Upon information and belief, the Doe Defendants are not qualified to administer lethal gas, and are deliberately indifferent to the risks that their failure to train and supervise the Doe Defendants will have on Mr. Hoffman's constitutional rights.

110. Indeed, the previous execution protocol—relating to executions by lethal injection—did not include any requirement that the Doe Defendants become familiar with the drugs they are administering in order to understand their properties, the dangers associated with those drugs, and/or any other relevant medical information. It did not standardize the timing for the administration of the drugs, increasing the likelihood of errors in their delivery. Upon information and belief, the Doe Defendants will not engage in adequate practice sessions prior to Mr. Hoffman's execution.

111. In past executions, Defendants did not adhere to the terms of the execution protocols with regard to practice.

112. For example, under the 2013 execution protocol, once an execution date was set, the members of the execution team were required to train at least weekly. Mr. Sepulvado's execution date was scheduled for February 5, 2014. According to the execution log, the execution team only practiced twice prior to Mr. Sepulvado's execution date. Defendants also materially changed the protocol nine days before the February 5, 2014 execution date, leaving insufficient time to practice the new protocol.

113. On February 10, 2025, Governor Landry released a half-page “summary” of an unreleased nitrogen gas protocol. Within 36 hours, a state court judge had signed an execution warrant for Mr. Hoffman. This gives Defendants just over one month to ensure that the gas protocol can be administered effectively and safely by the Doe Defendants, and that sufficient practice sessions can take place.

114. Upon information and belief, staff members at the DPSC, including the Warden, did not know about the new nitrogen gas “protocol” until Governor Landry’s public announcement on February 10, 2025.

115. Upon information and belief, Defendants have not conducted sufficient training and practice for the execution of Mr. Hoffman that is scheduled to take place on March 18, 2025.

116. Upon information and belief, any “execution practice” sessions held by Defendants are insufficient to adequately train Defendants to be able to undertake an execution in a constitutional manner.

117. The risk of maladministration due to lack of training is substantial.

E. Alternative Means of Execution are Feasible, Readily Available, and Would Significantly Reduce Mr. Hoffman’s Risk of Harm

1. Execution by Firing Squad

118. Execution by use of a firing squad is a known, available, and feasible alternative method that would reduce pain and suffering.

119. Other states and the United States military have carried out numerous executions by firing squad.

120. Oklahoma, Utah and Mississippi also currently authorize the use of a firing squad among their statutory methods of execution.³⁵ Utah has executed three inmates by firing squad since 1976—most recently on July 18, 2010.³⁶

121. Protocols for execution by firing squad are known and available. Utah’s technical manual, which specifies the state’s execution protocol in great detail, is publicly accessible.³⁷ For example, in Utah’s most recent execution by firing squad, the inmate was seated in a chair set up between stacked sandbags to prevent the bullets from ricocheting. A target was pinned over the inmate’s heart. Five shooters set up at a distance of 21 feet from the inmate, armed with .30-caliber Winchester rifles. One rifle was loaded with blanks so that no one knew which officers killed the inmate. The inmate was pronounced dead two minutes after he was shot.³⁸

122. Upon information and belief, Defendants could easily identify qualified personnel to carry out an execution by firing squad. Furthermore, the State already has a sufficient stockpile of both the weapons and ammunition necessary to carry out an execution. The State has all the personnel and implements necessary to carry out executions by firing squad.

123. Execution by firing squad is both swift and virtually painless. If performed properly—a simple matter for trained marksmen—the use of a firing squad will eliminate the substantial risk of severe pain that Defendants’ current execution protocol presents to Mr. Hoffman.

³⁵ See Okla. Stat. Ann. tit. 22 § 1014; Utah Code Ann. § 77-18-5.5; Miss. Code Ann. § 99-19-51; *see also* 2019 S.C. S.B. 176, 123rd Session General Assembly – 2nd Regular Session (2020) (South Carolina Senate Bill to revive firing squad as method of execution).

³⁶ See Kirk Johnson, *Double Murderer Executed by Firing Squad in Utah*, N.Y. Times, June 19, 2010, <https://www.nytimes.com/2010/06/19/us/19death.html>.

³⁷ See Technical Manual of Utah Department of Corrections, https://cdn.muckrock.com/foia_files/2017/03/22/3-13-17_MR34278_RES.pdf; *see also* United States Army Firing Squad Protocol (1959).

³⁸ Brady McCombs, *Utah Brings Back the Firing Squad, So How Does It Work?*, Associated Press (Mar. 24, 2015), <https://apnews.com/general-news-58559881d0f743009cfeb52196702382>.

124. Furthermore, evidence and recent experience strongly suggest that “the firing squad is significantly more reliable” than lethal injection. *Glossip v. Gross*, 576 U.S. 863, 976-77 (2015) (Sotomayor, J., dissenting). Historically, the firing squad has resulted in significantly fewer “botched” executions. “Botched executions are those involving unanticipated problems or delays that caused, at least arguably, unnecessary agony for the prisoner or that reflect gross incompetence of the executioner.”³⁹ A recent study, which analyzed the contemporaneous news reports of all executions in the United States from 1900 to 2010 found that 7.12% of the 1,054 executions by lethal injection were “botched” and none of the 34 executions by firing squad had been botched.⁴⁰

125. Accordingly, execution by firing squad is a known and available alternative method of execution that presents a substantially lower risk of severe pain and suffering than nitrogen gas. Defendants have no legitimate penological reason for not implementing such a protocol.

2. Execution by Administration of Medical-Aid-In-Dying (“DDMAPh”)

126. Medical-aid-in-dying is a known, available, and feasible alternative method that would reduce pain and suffering. DDMAPh is the most commonly used regimen for medical-aid-in-dying in the United States.

127. The study and regular use of the regimen means that Mr. Hoffman is able to present evidence on “essential questions” like what drugs should be administered and in what quantities. This is not merely “a proposal for more research,” but a readily implemented alternative. *Bucklew v. Precythe*, 587 U.S. 119, 142 (2019).

128. DDMAPh is the administration of digonxin, diazepam, morphine, amirtirpyline and phenobarbital.

³⁹ Austin Sarat, *Gruesome Spectacles: Botched Executions and America’s Death Penalty*, p. 5 (2014) (quotations omitted).

⁴⁰ *Id.*

129. Specifically, for a quick death in the execution setting, the DDMAph protocol consists of 100 mg of digoxin, 2,000 mg of diazepam, 15,000 mg of morphine, 8,000 mg of amitriptyline, and 10,000 mg of phenobarbital. The medications are simply mixed with apple juice/apple syrup and administered to the prisoner.

130. Defendants should be able to carry out an execution by administration of DDMAph using supplies, equipment, and the services of personnel already within their control.

131. Administration of DDMAph does not require any specialized equipment or training.

132. DDMAph effectively causes death without any risk of prolonged pain or suffering.

133. This manner of causing death is neither untried nor untested. DDMAph would not be an experiment. There is a proven track record of success in causing death using the DDMAph regimen. Defendants have no legitimate penological reason for not implementing such a protocol.

F. Plaintiff Jessie Hoffman is a Practicing Buddhist and Suffers from PTSD

134. Mr. Hoffman has been a devout follower of the Buddhist faith for over two decades. He has attended Buddhist services on Death Row since the prison began offering them in 2018. He follows Buddhist teachings and practices mindfulness and meditation. A core component of his Buddhist practice is breathing meditation.

135. According to the Buddha, one must maintain contact with the breath in order to be mindful. Mr. Hoffman sincerely believes that he must practice breathing meditation at the most critical time of his transition between life and death.

136. Executing Mr. Hoffman by forcing him to breathe pure nitrogen, poisonous to humans and animals, would interfere with his ability to engage in essential Buddhist beliefs and practices at the time of his death.

137. Mr. Hoffman also suffered a childhood of abuse so severe that it was tantamount to torture and has been diagnosed with complex post-traumatic stress disorder as a result.

138. Mr. Hoffman was two months past his eighteenth birthday at the time of his offense. His childhood was characterized by sexual, physical, and verbal abuse, and other torture and violence. Throughout his childhood, beginning at an early age until about the age of 10, his mother used physically abusive “discipline” to maintain control. In addition to the family member reports of the horrific abuse he suffered growing up, police calls for service reflect regular reports of cruelty to juveniles in the places he lived.

139. Mr. Hoffman’s mother would beat her children with sticks, pipes, pans, belts, on one occasion a bat, and electrical cords. Often the beatings were after baths when the children were wet and naked. They left welts and drew blood. She also sexually abused her children, again from a young age. She would make them get into bed with her while she was naked and “massage” her.

140. Mr. Hoffman’s mother would also hold his hand over the fire burner on the stove when he touched something he was not supposed to. At 14 months of age, Mr. Hoffman’s grandmother brought him to Charity Hospital for a burn to his hand, which she said he suffered ten days before. By then the second- and third-degree burns were so raw and infected, he was hospitalized for nineteen days for treatment.

141. The time that Mr. Hoffman spent at his father’s house was no respite. His father would hog-tie the children for punishment and lock them in the closet for long periods of time. Mr. Hoffman still has claustrophobia from that experience today.

142. It is only due to two decades of practicing mindfulness through breathing meditation that Mr. Hoffman has been able to manage his severe and debilitating symptoms of PTSD.

143. Without the ability to breathe air and practice Buddhist breathing meditation, Mr. Hoffman is very likely to re-experience the severely distressful symptoms of his PTSD. These symptoms may include psychotic and dissociative symptomatology, extreme stress and anxiety, and panic attacks.

144. Executing Mr. Hoffman by nitrogen gas will very likely cause him to experience extreme psychological distress and panic. An individual experiencing panic while also being denied oxygen will experience a constricted airway like an upper airway obstruction. Mr. Hoffman may vomit, convulse, experience an inability to breathe, and otherwise suffer severe psychological pain.

145. As a direct and proximate result of Defendants' violations of the United States Constitution and other laws, Mr. Hoffman has suffered and will continue to suffer irreparable injury.

EXHAUSTION

146. Mr. Hoffman has completed the administrative remedy process for this complaint when his ARPs were rejected on June 6, 2024, and July 3, 2024. On February 12, 2025, the Twenty-Second Judicial District for the Parish of St. Tammany executed a warrant for Mr. Hoffman's execution. In an abundance of caution, after his attorneys received notice that the State was seeking an execution warrant, Mr. Hoffman filed an emergency ARP on February 11, 2025. On February 13, 2025, Mr. Hoffman was notified that a response from the Warden's office would be issued within 40 days of the date of his filing.

CLAIMS FOR RELIEF

COUNT I

Eighth and Fourteenth Amendments Violations – Defendants’ Nitrogen Gas Execution is Unconstitutional

147. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

148. The Eighth Amendment forbids the Government from carrying out a death sentence in a manner that is “‘sure or very likely to cause serious illness and needless suffering,’ and give rise to ‘sufficiently imminent dangers.’” *Glossip*, 576 U.S. 863, 876 (quoting *Baze v. Rees*, 553 U.S. 35, 50 (2008); *Helling v. McKinney*, 509 U.S. 25, 33, 34–35 (1993)). “Punishments are cruel when they involve torture or a lingering death . . . something more than the mere extinguishment of life.” *In re Kemmler*, 136 U.S. 436, 447 (1890); *see also Baze*, 553 U.S. at 50 (execution violates the Eighth Amendment if it presents a “substantial risk of serious harm”).

149. To prevail on an Eighth Amendment claim, Mr. Hoffman must show that there is a “substantial risk of serious harm” or an “objectively intolerable risk of harm” when compared to an alternative method of execution to the state’s protocol that is “feasible, readily implemented, and in fact significantly reduce[s] a substantial risk of severe pain.” *Id.* (quoting *Baze*, 553 U.S. at 50, 52). A “substantial risk of serious harm” may occur when the method of execution involves “torture or a lingering death,” *Baze*, 553 U.S. at 49, or the “‘superaddition’ of ‘terror, pain, or disgrace.’” *Bucklew*, 587 U.S. at 133 (quoting *Baze*, 553 U.S. at 48).

150. Defendants intend to execute Mr. Hoffman in a manner that is cruel, unreliable and that will inflict excruciating suffering on Mr. Hoffman. To the extent Mr. Hoffman knows what the execution procedure Defendants intend to use entails, Mr. Hoffman believes it creates a substantial risk of inflicting grievous suffering and harm that is foreseeable and significant, but which is unnecessary and can be avoided.

151. The secrecy provisions of La. Rev. Stat. § 15:570(G) and the execution protocol also violate the Eighth Amendment’s cruel and unusual punishment clause, as the clause derives its meaning from the evolving standards of decency that mark the progress of a maturing society. This standard requires that a court look to objective indicia that reflect the public attitude toward a given sanction; because the public is deprived of knowledge regarding Louisiana’s executions, Mr. Hoffman’s right to a punishment in line with contemporary values is violated.

152. There are alternative methods of execution, as described above (*see supra* ¶¶ 118-133), that are “feasible, readily implemented, and in fact [would] significantly reduce the substantial risk of severe pain.” *Baze*, 553 U.S. at 52.

153. Because La. Rev. Stat. § 15:569, § 15:570 and the execution protocol pose a substantial risk of serious harm to Mr. Hoffman, it violates his constitutional right guaranteed by the Eighth Amendment of the United States Constitution to be free from cruel and unusual punishment.

A. Execution by Nitrogen Gas Will Subject Mr. Hoffman to Cruel and Unusual Punishment.

154. Execution by nitrogen gas is cruel and excessive, because it involves significantly more pain and suffering than necessary for the mere extinguishment of life. Death by nitrogen gas is not instantaneous. *See supra* ¶¶ 74-95.

155. To be asphyxiated by nitrogen gas causes conscious terror for several minutes and excruciating sensations of being suffocated to death. *See supra* ¶¶ 79-86, 88-89.

156. For example, during the execution of Mr. Smith last year in Alabama, witnesses described Mr. Smith as still conscious while he convulsed and suffocated to death on the gurney. *See supra* ¶¶ 79-82.

157. Because it is difficult to keep oxygen out of the respirator mask, death by nitrogen gas can be prolonged, increasing the risk that the condemned inmate enters into a persistent vegetative state, suffers a stroke, or continues to experience the feeling of suffocation. *See supra* ¶¶ 91, 94.

158. The United Nations has expressed concerns that death by nitrogen gas likely violates the prohibition on torture and other inhumane punishments. *See supra* ¶ 93.

159. The AVMA refuses to recommend euthanizing most mammals by nitrogen gas because of the pain and suffering it causes. *See supra* ¶ 92.

160. Moreover, because La. Rev. Stat. § 15:570(G) “ensure[s] the absolute confidentiality of the identifying information of any person, business, organization, or other entity directly or indirectly involved in the execution of a death sentence within this state,” Mr. Hoffman has no way of knowing whether Defendants have actually obtained and will use pure nitrogen gas, as opposed to some substandard substance that could increase or prolong any pain and suffering.

161. Execution by nitrogen gas is unusual. Virtually untested, nitrogen gas has only been used a handful of times (never by the DPSC), *see supra* ¶ 75, and is only authorized for use in a few jurisdictions (Alabama, Mississippi, Oklahoma, and Louisiana).⁴¹

162. If the execution of Mr. Hoffman is allowed to proceed using nitrogen gas, he will be subjected to cruel and unusual punishment, in violation of the Eighth and Fourteenth Amendments to the United States Constitution.

B. The Protocol is Likely to be Maladministered

163. Defendants will not administer their execution protocol in a way that adequately protects Mr. Hoffman from cruel and unusual punishment. The history of Defendants’ deviations

⁴¹ *See* Death Penalty Info. Ctr., *Methods of Execution: Authorized Methods by State*, <https://deathpenaltyinfo.org/executions/methods-of-execution/authorized-methods-by-state>.

from the written protocol, lack of oversight and safeguards in the protocol, and lack of adequate training for execution team members creates a substantial risk that Mr. Hoffman will be subjected to severe suffering.

1. Core Deviations from Written Execution Protocol

164. Upon information and belief, Defendants are likely to make core deviations from the written execution protocols. For example, in the days leading up to Mr. Sepulvado's scheduled February 5, 2014 execution date, Defendants made multiple material deviations from their written protocol. *See supra* ¶¶ 41, 46-51, 112.

165. Based on Defendants' past practices, Defendants will likely deviate from their written protocol, creating an unacceptable risk that Mr. Hoffman will be subjected to cruel and unusual punishment.

2. Lack of Oversight and Safeguards

166. Upon information and belief, Mr. Hoffman's execution will not be carried out in accordance with the written instructions, or will be administered in such a way that fails to adequately safeguard Mr. Hoffman's rights.

167. There is a reasonable likelihood that the lethal gas has been or will be ineffectively delivered, stored, and/or have expired.

168. Upon information and belief, the equipment that will be used to carry out the execution has not been tested for efficacy.

169. The overall lack of oversight and safeguards creates an unacceptable risk that Mr. Hoffman will be subjected to cruel and unusual punishment, in violation of the Eighth and Fourteenth Amendments to the United States Constitution.

3. Lack of Training

170. Upon information and belief, the members of the current execution team (the Doe Defendants) have not received adequate training, which increases the likelihood that errors will be made in carrying out the execution. None of the Doe Defendants are medical professionals or have any medical training. Nor will there be any medical supervision of the Doe Defendants during the execution.

171. Upon information and belief, the named Defendants know the Doe Defendants are not qualified to administer lethal drugs, but are deliberately indifferent to the risks that their failure to train and supervise the Doe Defendants will have on Mr. Hoffman's constitutional rights.

172. Upon information and belief, the Doe Defendants will not engage in adequate practice sessions prior to Mr. Hoffman's execution.

173. Indeed, Defendants did not adhere to the terms of the execution protocols with regard to practice for past executions. *See supra* ¶¶ 111-112.

174. Nor could the Doe Defendants possibly have sufficient training and practice. For example, under the 2013 execution protocol, once an execution date was set, the members of the execution team were required to train at least weekly. Mr. Sepulvado's execution date was set on February 5, 2014. The execution team practiced exactly twice prior to Mr. Sepulvado's execution date. Significantly, Defendants materially changed the protocol nine days before the February 5, 2014 execution date, which did not allow sufficient time to practice the new protocol.

175. On February 10, 2025, Governor Landry announced that the DPSC had finalized a new execution protocol. Within 36 hours, an execution warrant for Mr. Hoffman was issued for March 18, 2025, leaving the DPSC just over one month to ensure that its new execution protocol can be administered effectively and safely by the Doe Defendants

176. Upon information and belief, Defendants have not conducted sufficient training and practice for the upcoming execution on March 18, 2025.

177. Upon information and belief, any “execution practice” sessions held by Defendants are insufficient to adequately train Defendants to be able to undertake an execution in a constitutional manner.

178. The lack of practice and training creates a substantial risk that Mr. Hoffman will suffer the wanton and unnecessary infliction of pain and torture, or prolonged, lingering deaths, as he is put to death. This includes experiencing cruelly superadded pain and suffering, conscious paralysis, suffocation, or conscious cardiac arrest. On information and belief, the undisclosed execution protocol does not include adequate safeguards to protect Mr. Hoffman from cruel and unusual punishment.

179. Upon information and belief, the execution protocol will not be administered in a way that adequately protects Mr. Hoffman from cruel and unusual punishment. The lack of training and oversight over the implementation of Defendants’ execution protocol creates a substantial risk of severe pain.

4. Lack of Medical Oversight

180. The Eighth Amendment forbids “deliberate indifference” to “serious medical needs of prisoners,” *Estelle v. Gamble*, 429 U.S. 97, 104 (1976), and to a substantial risk of serious harm to a prisoner, *see Farmer v. Brennan*, 511 U.S. 825, 834 (1994).

181. Substantive due process affords similar protections: “[A] physician who acts on behalf of the State to provide needed medical attention to a person involuntarily in state custody (in prison or elsewhere) and prevented from otherwise obtaining it, and who causes physical harm to such a person by deliberate indifference, violates the [United States Constitution’s] protection

against the deprivation of liberty without due process.” *West v. Atkins*, 487 U.S. 42, 58 (1988) (Scalia, J., concurring).

182. The choice of a course of medical treatment may violate the Eighth Amendment where it is “so blatantly inappropriate as to evidence intentional mistreatment likely to seriously aggravate the prisoner’s condition.” *Thomas v. Pate*, 493 F.2d 151, 158 (7th Cir. 1974), *vacated and remanded on other grounds sub nom. Cannon v. Thomas*, 419 U.S. 813 (1974).

183. Defendants are required to provide Mr. Hoffman with appropriate medical care until the moment of his death. Thus, the Eighth Amendment’s proscription against “deliberate indifference” requires that they administer the death penalty without the “unnecessary and wanton infliction of pain.” *Gregg*, 428 U.S. at 173.

184. Upon information and belief, the execution protocol has not been examined by a licensed medical professional to ensure that there are adequate safeguards to protect the condemned inmates’ constitutional rights against torture, pain, and suffering.

185. Upon information and belief, the execution protocol was promulgated without any medical research or review to determine that a prisoner would not suffer cruelly superadded pain or a lingering death.

C. Alternative Execution Methods are Feasible, Readily Implemented, and Would Significantly Reduce the Substantial Risk of Mr. Hoffman’s Suffering Severe Pain and Terror

1. Execution by Firing Squad

186. Execution by use of a firing squad is a “known and available” alternative method under *Baze v. Rees*, 553 U.S. 35, 61 (2008), and *Glossip v. Gross*, 576 U.S. 863 (2015). The Supreme Court has held that the firing squad is a constitutionally permissible form of execution. *See Wilkerson v. Utah*, 99 U.S. 130, 134-35 (1878) (upholding sentence of death by firing squad);

Arthur v. Dunn, 137 S. Ct. 725, 734 (2017) (Sotomayor, J., dissenting from denial of certiorari) (recognizing that condemned inmates may “find more dignity in an instantaneous death [by firing squad]”).

187. Other states and the United States military have carried out numerous executions by firing squad.

188. Oklahoma, Utah and Mississippi currently authorize the use of a firing squad among their statutory methods of execution.⁴² Utah has executed three inmates by firing squad since 1976—most recently on July 18, 2010.⁴³

189. Protocols for execution by firing squad are known and available. For example, as set forth above, Utah’s technical manual specifies the state’s execution protocol in great detail. *See supra* ¶ 121.

190. Upon information and belief, Defendants could easily identify qualified personnel to carry out an execution by firing squad. Furthermore, the State already has a sufficient stockpile of both the weapons and ammunition necessary to carry out an execution.

191. Execution by firing squad is both swift and virtually painless. If performed properly—a simple matter for trained marksmen—the use of a firing squad will eliminate the substantial risk of severe pain that Defendants’ current execution protocol present to Mr. Hoffman.

192. Furthermore, evidence and recent experience strongly suggest that “the firing squad is significantly more reliable” than lethal injection. *Glossip*, 576 U.S. at 976-77 (Sotomayor, J., dissenting). Historically, the firing squad has resulted in significantly fewer “botched” executions, which are those involving unanticipated problems or delays that caused, at least arguably,

⁴² *See* Okla. Stat. Ann. tit. 22 § 1014; Utah Code Ann. § 77-18-5.5; Miss. Code Ann. § 99-19-51; *see also* 2019 S.C. S.B. 176, 123rd Session General Assembly – 2nd Regular Session (2020) (South Carolina Senate Bill to revive firing squad as method of execution).

⁴³ *See* Johnson, *supra* note 36.

unnecessary agony for the prisoner or that reflect gross incompetence of the executioner.”⁴⁴ A recent study, which analyzed the contemporaneous news reports of all executions in the United States from 1900 to 2010 found that 7.12% of the 1,054 executions by lethal injection were “botched” and none of the 34 executions by firing squad had been botched.⁴⁵

193. Accordingly, an execution by firing squad is a known and available alternative method of execution, that presents a substantially lower risk of severe pain and suffering than nitrogen gas. Defendants have no legitimate penological reason for not implementing such a protocol.

2. Execution by Administration of DDMAPh

194. DDMAPh is the most commonly used regimen for medical-aid-in-dying in the United States. The study and regular use of the regimen means that Mr. Hoffman is able to present evidence on “essential questions” like what drugs should be administered and in what quantities. This is not merely “a proposal for more research,” but a readily implemented alternative. *Bucklew*, 587 U.S. at 142.

195. Specifically, for a quick death in the execution setting, the DDMAPh protocol consists of 100 mg of digoxin, 2,000 mg of diazepam, 15,000 mg of morphine, 8,000 mg of amitriptyline, and 10,000 mg of phenobarbital. The medications are simply mixed with apple juice/apple syrup and administered to the prisoner.

196. Administration of DDMAPh does not require any specialized equipment or training.

197. DDMAPh effectively causes death without any risk of prolonged pain or suffering.

⁴⁴ Austin Sarat, *Gruesome Spectacles: Botched Executions and America’s Death Penalty*, at 5 (2014) (quotations omitted).

⁴⁵ *Id.*

198. This manner of causing death is neither untried nor untested. DDMAPh would not be an experiment. There is a proven track record of success in causing death using the DDMAPh regimen. Defendants have no legitimate penological reason for not implementing such a protocol.

COUNT II

**Eighth Amendment Violations – Defendants’ Nitrogen Gas Execution is Unconstitutional
as Applied to Plaintiff Jessie Hoffman**

199. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

200. Mr. Hoffman suffered a childhood of abuse and neglect.

201. Mr. Hoffman has been diagnosed with complex post-traumatic stress syndrome. Individuals who suffer from complex PTSD experience symptoms such as panic, severe anxiety, mood dysregulation, high blood pressure, disassociation, and a sensation of restricted breathing.

202. Mr. Hoffman manages his symptoms by Buddhist breathing techniques. If Mr. Hoffman were to be executed by nitrogen gas, he would be unable to manage his PTSD by Buddhist breathing techniques.

203. Executing Mr. Hoffman by nitrogen gas will very likely cause him to experience extreme psychological distress and panic. An individual experiencing panic while also being denied oxygen will experience a constricted airway like an upper airway obstruction. Mr. Hoffman may vomit, convulse, experience an inability to breathe, and/or otherwise suffer severe psychological pain.

204. The placement of a gas mask over Mr. Hoffman’s face, preventing his use of these breathing techniques to manage PTSD while strapped to a gurney, moreover would trigger his PTSD and claustrophobia from being hog-tied and locked in a closet as a child.

205. Executing Mr. Hoffman by nitrogen gas would further superadd pain and suffering and therefore violate the Eighth Amendment’s prohibition on cruel and unusual punishment.

COUNT III

Violation of the *Ex Post Facto* Provision of the United States Constitution – Defendants’ Nitrogen Gas Execution is an Unconstitutional *Ex Post Facto* Punishment as Applied to Mr. Hoffman

206. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

207. In accordance with Article I, Section 10, clause 1 of the United States Constitution, no State may enact a law which, by retroactive operation, creates a significant risk of increased punishment for a crime after the defendant has been sentenced.

208. At the time the offenses occurred that subjected Mr. Hoffman to a death sentence, and at the time that Mr. Hoffman was sentenced to death, La. Rev. Stat. § 15:569 provided that “[e]very sentence of death executed on or after September 15, 1991, shall be by lethal injection; that is, by the intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead.” La. Rev. Stat. § 15:569 (1991).

209. As set forth above, in 2024, the Louisiana legislature amended La. Rev. Stat. § 15:569 and expanded the manner in which the State can execute condemned inmates by adding electrocution and nitrogen gas. La. Rev. Stat. § 15:569 (2024). The DPSC Secretary now has the discretion and unfettered authority to choose between lethal injection, nitrogen gas, or electrocution in carrying out a sentence of death.

210. The 2024 amendments to La. Rev. Stat. § 15:569 and § 15:570 went into effect on July 1, 2024, applying to all executions regardless of the date of offense or imposition of sentence.

211. If Defendants execute Mr. Hoffman with nitrogen gas, they will retroactively subject Mr. Hoffman to an increased punishment for a crime after Mr. Hoffman was already sentenced in violation of the *ex post facto* clause.

212. Additionally, if Defendants elect to execute Mr. Hoffman with lethal injection, Defendants' past practices in changing Louisiana's execution protocol make it substantially likely that Mr. Hoffman will be subjected to a significantly altered execution procedure than is specified in the last-disclosed protocol. Defendants will likely make such alterations without giving any notice to Mr. Hoffman.

213. The substitution of a compounded or different drug for an FDA-approved drug qualifies as a significant change increasing the severity of Mr. Hoffman's punishment, in violation of the *ex post facto* clause.

214. Accordingly, La. Rev. Stat. § 15:569, § 15:570 and the execution protocol are unconstitutional as *ex post facto* laws as applied to Mr. Hoffman.

COUNT IV

First, Sixth, and Fourteenth Amendments and 18 U.S.C. § 3599 Violations – Defendants Intentionally Deprive Mr. Hoffman of Meaningful Access to Counsel and the Courts

215. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

216. Prisoners have a right under the First, and Fourteenth Amendments of the United States Constitution to access to the courts. *See, e.g., Lewis v. Casey*, 518 U.S. 343, 350-51 (1996); *Wolff v. McDonnell*, 418 U.S. 539, 579 (1974). “The right of access to the courts . . . assures that no person will be denied the opportunity to present to the judiciary allegations concerning violations of fundamental constitutional rights.” *Wolff*, 418 U.S. at 579.

217. Prisoners also have a right under the Sixth Amendment of the United States Constitution to access to counsel at all “critical” stages of criminal proceedings. *United States v. Wade*, 388 U.S. 218, 227-28 (1967).

218. Under Section 3599(a)(2) of Title 18 of the U.S. Code, an indigent defendant's appointed attorney shall represent the defendant throughout every stage of available judicial

proceedings, including all available post-conviction process, together with applications for stays of execution and other appropriate motions and procedures, in addition to competency proceedings and proceedings for executive or other clemency as may be available to the defendant. *See Harbison v. Bell*, 556 U.S. 180, 194 (2009).

219. Prisoners have the right to access to counsel throughout the execution procedure, including during an execution. *Id.*; *In re Ohio Execution Protocol Litig.*, No. 2:11-CV-1016, 2018 WL 6529145, at *4-5 (S.D. Ohio Dec. 12, 2018).

220. To assert an Eighth Amendment violation prior to or during execution, Mr. Hoffman must be able to communicate that violation to his counsel, and counsel must be able to access the courts on Mr. Hoffman's behalf. Abridgement of either prisoner-counsel communication or counsel's access to the courts violates Mr. Hoffman's constitutional right to access to counsel and the courts.

221. Under the 2014 Execution Protocol, attorneys are allowed to remain with the condemned inmate only "until the visit is terminated at the discretion of the Warden." The condemned inmate is given no right to an attorney present throughout his execution.

222. Mr. Hoffman does not know what level of access the current execution protocol allows for, as Defendants have refused to provide Mr. Hoffman with a copy of the current execution protocol.

223. Without attorney access to the current execution protocol, Mr. Hoffman is prevented from meaningfully challenging unconstitutional aspects of the current execution protocol in court.

224. Without attorney access to the execution chamber, there is no way to ensure that the execution protocol is carried out as directed.

225. Without attorney access to the execution chamber, there is no way to confirm that the condemned inmate does not suffer cruelly superadded pain and suffering while conscious.

226. Without attorney access to the execution chamber, it is impossible for counsel to seek an emergency stay of execution should something go wrong.

227. By denying Mr. Hoffman meaningful access to counsel and to the courts during the preparation for, and carrying out of, his execution, Defendants will deny him the right of access to the court system under the First, Sixth and Fourteenth Amendments and intentionally violate Mr. Hoffman's rights under 18 U.S.C. § 3599.

COUNT V

Fourteenth Amendment Violations – Defendants' Refusal to Disclose the Execution Protocol

228. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

229. The Due Process Clause of the United States Constitution entitles Mr. Hoffman to notice and an opportunity to be heard before he can be deprived of life, liberty, or property.

230. Being "deprived of life" unequivocally implicates a constitutionally protected interest, U.S. Const. amend. XIV, and the U.S. Supreme Court has held that constitutionally protected "liberty interests are implicated" when the government plans to "inflict[] appreciable physical pain." *Ingraham v. Wright*, 430 U.S. 651, 674 (1977).

231. Defendants have not disclosed sufficient information or details regarding the development and drafting of the execution protocol or the procedures that will be utilized in carrying out Mr. Hoffman's execution pursuant to the execution protocol. Mr. Hoffman, therefore, cannot determine whether aspects of the execution protocol violate provisions of federal law or constitute cruel and unusual punishment, cannot consult medical experts concerning those aspects,

and cannot determine and seek to remedy the ways in which the execution protocol presents an avoidable risk of unconstitutional pain and suffering during his execution.

232. Executing Mr. Hoffman would violate his procedural due process rights under the Fourteenth Amendment to the United States Constitutions based on the present circumstances that have substantially interfered with any method challenge, including that (i) Defendants plan to execute Mr. Hoffman with a forced nitrogen gassing method that has never been used in this State and where forced nitrogen gassing has resulted in torturous executions when experimented with by Alabama over the last year, (ii) Defendants withheld until February 20, 2025 the information that a forced nitrogen gassing method would be used to execute Mr. Hoffman, (iii) Defendants purport to have a protocol by which they will execute Mr. Hoffman using the forced nitrogen gassing method but refused to disclose it to Mr. Hoffman or his counsel, (iv) Defendants scheduled by warrant an imminent March 18, 2025 execution date, and (v) Defendants have, through baseless oppositions to re-open the Related Case and an emergency petition for writ of mandamus and administrative stay,⁴⁶ engaged in outrageous dilatory practices to deny Mr. Hoffman access to the courts and the assistance of counsel in advance of the imminent execution date. Defendants' conduct deprives Mr. Hoffman of his life and liberty without providing sufficient notice and opportunity to be heard on the execution procedures to be used.

COUNT VI

Religious Land Use and Institutionalized Persons Act (“RLUIPA”) Violations – Defendants’ Nitrogen Gas Protocol Violates Plaintiff Jessie Hoffman’s Religious Liberties

233. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

⁴⁶ Mr. Hoffman’s filing of the instant suit is by no means a concession that Defendants’ arguments in the Related Case are correct, but in light of the exigent circumstances of Mr. Hoffman’s upcoming scheduled execution in 21 days, Mr. Hoffman has decided to initiate the instant suit to have the opportunity to assert his constitutional rights before Defendants run out the clock in the Related Case.

234. Mr. Hoffman has practiced the Buddhist faith for over two decades. He has attended Buddhist services on Death Row beginning seven years ago. He follows Buddhist teachings and practices mindfulness and meditation. A core component of his Buddhist practice is breathing meditation.

235. According to the Buddha, one must maintain contact with the breath in order to be mindful. Mr. Hoffman sincerely believes that he must practice breathing meditation at the most critical time of his transition between life and death.

236. Executing Mr. Hoffman by forcing him to breathe pure nitrogen, poisonous to humans and animals, would interfere with his ability to engage in essential Buddhist beliefs and practices at the time of his death.

237. Under the Religious Land Use and Institutionalized Persons Act, Pub. L. 106–274, codified as 42 U.S.C. § 2000cc et seq (“RLUIPA”), the State and Defendants are prohibited from imposing a substantial burden on the religious exercise of a person confined to an institution, unless that burden is in furtherance of a compelling government interest, and it is the least restrictive means to achieve that interest.

238. Executing Mr. Hoffman by nitrogen gas is a substantial burden on his exercise of his religion. There is no compelling interest in executing him by nitrogen gas that cannot be furthered by less restrictive means.

COUNT VII

First Amendment Violations - Defendants’ Nitrogen Gas Execution Violates Plaintiff Jessie Hoffman’s Free Exercise of Religion

239. Mr. Hoffman incorporates the allegations of the preceding paragraphs as if fully set forth herein.

240. The Buddhist meditative breathing practices that Mr. Hoffman uses are fundamental to the practice of his faith.

241. Executing Mr. Hoffman by forcing him to breathe pure nitrogen, poisonous to humans and animals, would interfere with his ability to engage in essential Buddhist beliefs and practices in the execution chamber and at the time of his death, including Buddhist meditative breathing practices.

242. Denying Mr. Hoffman the right to engage in essential Buddhist beliefs and practices in the execution chamber and at the time of death would be a violation of the Free Exercise clause of the First Amendment, applicable through the Fourteenth Amendment. *Butts v. Martin*, 877 F.3d 571, 584 (5th Cir. 2017); *Smith v. Comm’r, Ala. Dep’t of Corr.*, 844 Fed. Appx. 286, 291 (11th Cir. 2021).

243. Executing Mr. Hoffman by nitrogen gas will place a substantial and unnecessary burden on his free exercise of Buddhism and the practice of his faith in the execution chamber while he is put to death.

244. Executing Mr. Hoffman by nitrogen gas violates his First Amendment rights to freely exercise his religious beliefs.

PRAYER FOR RELIEF

WHEREFORE, in order to prevent the violations of Mr. Hoffman’s rights under the United States Constitution and other laws, Mr. Hoffman respectfully requests that the Court enter a judgment:

- (a) declaring that Defendants’ actions, practices, customs, and policies with regard to their means, methods, procedures, and customs regarding executions, and specifically the execution protocol, are illegal and violate the First, Sixth, Eighth, and Fourteenth Amendments of the United States Constitution, the *ex post facto* Clause of the United States Constitution, 18 U.S.C. § 3599, and RLUIPA;

- (b) declaring that it violates the Eighth Amendment for Defendants to carry out an execution using nitrogen gas;
- (c) declaring that it violates the Eighth and Fourteenth Amendments when there are alternative execution methods that would substantially reduce the risk of substantial harm to Mr. Hoffman;
- (d) declaring that it violates the *ex post facto* clause of the United States, Constitution for Defendants to execute Mr. Hoffman with nitrogen gas because it will retroactively subject Mr. Hoffman to an increased punishment for a crime after Mr. Hoffman was already sentenced;
- (e) declaring that it violates the First, Sixth and Fourteenth Amendments and 18 U.S.C. § 3599 for Defendants to prohibit Mr. Hoffman from having access to his attorneys prior to and during his execution, including having access to his attorneys in the execution chamber;
- (f) declaring that it violates the Fourteenth Amendment for Defendants to refuse to disclose the execution protocol;
- (g) declaring that it violates RLUIPA for Defendants to execute Mr. Hoffman by nitrogen gas given Mr. Hoffman's sincerely held Buddhist religious practices;
- (h) declaring that it violates the First Amendment for Defendants to execute Mr. Hoffman by nitrogen gas;
- (i) enjoining Defendants and all persons acting on their behalf from using the execution protocol, or any revised protocol that violates Mr. Hoffman's rights and the law, for the same reasons challenged above;
- (j) enjoining Defendants from executing Mr. Hoffman during the pendency of this litigation;

- (k) ordering Defendants to provide timely notice to Mr. Hoffman, through his undersigned counsel, every time the execution protocol is modified, regardless of whether an execution date has been set;
- (l) preventing Defendants from executing Mr. Hoffman through unconstitutional means;
- (m) preventing Defendants from executing Mr. Hoffman without affording notice of the protocol by which Mr. Hoffman will be executed at least six (6) months in advance of any execution date;
- (n) preventing Defendants from executing Mr. Hoffman without first promulgating a written protocol that comports with the protections guaranteed by the First, Sixth, Eighth, and Fourteenth Amendments of the United States Constitution, the *ex post facto* Clause of the United States Constitution, 18 U.S.C. § 3599, and RLUIPA and providing Mr. Hoffman adequate time to review and challenge it;
- (o) enjoining Defendants from carrying out an execution pursuant to La. Rev. Stat. § 15:569 and § 15:570;
- (p) enjoining Defendants from carrying out an execution pursuant to the current execution protocol;
- (q) enjoining Defendants from deviating from any valid written protocol;
- (r) enjoining Defendants from carrying out an execution without giving Mr. Hoffman access to counsel before and during the execution;
- (s) ordering Defendants to make the execution and the identities of the executioners public;
- (t) awarding Mr. Hoffman attorneys' fees and costs pursuant to 42 U.S.C. § 1988, or as allowed by law; and

(u) granting such further relief as the Court deems just and proper.

Dated: February 25, 2025

Respectfully submitted,

/s/ Samantha Bosalavage Pourciau

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Counsel for Plaintiff Jessie Hoffman

CERTIFICATE OF SERVICE

I hereby certify that a copy of the above and foregoing was filed electronically with the Clerk of Court using CM/ECF on this 25th day of February, 2025. Notice of this filing as generated by the electronic filing system constitutes service of the filed document on counsel of record for Defendants.

/s/ Samantha Bosalavage Pourciau
Samantha Bosalavage Pourciau

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)

I. (a) PLAINTIFFS

Hoffman, Jessie

(b) County of Residence of First Listed Plaintiff United States of Americ (EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys (Firm Name, Address, and Telephone Number)

See attachment

DEFENDANTS

WESTCOTT, Gary; VANNOY, Darrel; and DOE(s), John

County of Residence of First Listed Defendant United States of America (IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys (If Known)

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- 1 U.S. Government Plaintiff, 2 U.S. Government Defendant, 3 Federal Question (U.S. Government Not a Party), 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

- Citizen of This State, Citizen of Another State, Citizen or Subject of a Foreign Country, PTF DEF, Incorporated or Principal Place of Business In This State, Incorporated and Principal Place of Business In Another State, Foreign Nation

IV. NATURE OF SUIT (Place an "X" in One Box Only)

Click here for: Nature of Suit Code Descriptions.

Table with columns: CONTRACT, REAL PROPERTY, TORTS, CIVIL RIGHTS, PRISONER PETITIONS, FORFEITURE/PENALTY, LABOR, IMMIGRATION, BANKRUPTCY, SOCIAL SECURITY, FEDERAL TAX SUITS, OTHER STATUTES. Includes various legal categories like Personal Injury, Real Property, Labor, etc.

V. ORIGIN (Place an "X" in One Box Only)

- 1 Original Proceeding, 2 Removed from State Court, 3 Remanded from Appellate Court, 4 Reinstated or Reopened, 5 Transferred from Another District, 6 Multidistrict Litigation - Transfer, 8 Multidistrict Litigation - Direct File

VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing (Do not cite jurisdictional statutes unless diversity): 42 U.S.C. § 1983. Brief description of cause: Unconstitutional method of execution

VII. REQUESTED IN COMPLAINT:

CHECK IF THIS IS A CLASS ACTION UNDER RULE 23, F.R.Cv.P. DEMAND \$ CHECK YES only if demanded in complaint: JURY DEMAND: Yes No

VIII. RELATED CASE(S) IF ANY

(See instructions): JUDGE Shelly D. Dick DOCKET NUMBER 3:12-cv-00796-SDD-EWD

DATE 2/25/2025 SIGNATURE OF ATTORNEY OF RECORD /s/ Cecelia Trenticosta Kappel

FOR OFFICE USE ONLY

RECEIPT # AMOUNT APPLYING IFP APP0054 JUDGE MAG. JUDGE

INSTRUCTIONS FOR ATTORNEYS COMPLETING CIVIL COVER SHEET FORM JS 44

Authority For Civil Cover Sheet

The JS 44 civil cover sheet and the information contained herein neither replaces nor supplements the filings and service of pleading or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. Consequently, a civil cover sheet is submitted to the Clerk of Court for each civil complaint filed. The attorney filing a case should complete the form as follows:

- I.(a) Plaintiffs-Defendants.** Enter names (last, first, middle initial) of plaintiff and defendant. If the plaintiff or defendant is a government agency, use only the full name or standard abbreviations. If the plaintiff or defendant is an official within a government agency, identify first the agency and then the official, giving both name and title.
 - (b) County of Residence.** For each civil case filed, except U.S. plaintiff cases, enter the name of the county where the first listed plaintiff resides at the time of filing. In U.S. plaintiff cases, enter the name of the county in which the first listed defendant resides at the time of filing. (NOTE: In land condemnation cases, the county of residence of the "defendant" is the location of the tract of land involved.)
 - (c) Attorneys.** Enter the firm name, address, telephone number, and attorney of record. If there are several attorneys, list them on an attachment, noting in this section "(see attachment)".
- II. Jurisdiction.** The basis of jurisdiction is set forth under Rule 8(a), F.R.Cv.P., which requires that jurisdictions be shown in pleadings. Place an "X" in one of the boxes. If there is more than one basis of jurisdiction, precedence is given in the order shown below.
- United States plaintiff. (1) Jurisdiction based on 28 U.S.C. 1345 and 1348. Suits by agencies and officers of the United States are included here. United States defendant. (2) When the plaintiff is suing the United States, its officers or agencies, place an "X" in this box.
- Federal question. (3) This refers to suits under 28 U.S.C. 1331, where jurisdiction arises under the Constitution of the United States, an amendment to the Constitution, an act of Congress or a treaty of the United States. In cases where the U.S. is a party, the U.S. plaintiff or defendant code takes precedence, and box 1 or 2 should be marked.
- Diversity of citizenship. (4) This refers to suits under 28 U.S.C. 1332, where parties are citizens of different states. When Box 4 is checked, the citizenship of the different parties must be checked. (See Section III below; **NOTE: federal question actions take precedence over diversity cases.**)
- III. Residence (citizenship) of Principal Parties.** This section of the JS 44 is to be completed if diversity of citizenship was indicated above. Mark this section for each principal party.
- IV. Nature of Suit.** Place an "X" in the appropriate box. If there are multiple nature of suit codes associated with the case, pick the nature of suit code that is most applicable. Click here for: [Nature of Suit Code Descriptions](#).
- V. Origin.** Place an "X" in one of the seven boxes.
- Original Proceedings. (1) Cases which originate in the United States district courts.
- Removed from State Court. (2) Proceedings initiated in state courts may be removed to the district courts under Title 28 U.S.C., Section 1441.
- Remanded from Appellate Court. (3) Check this box for cases remanded to the district court for further action. Use the date of remand as the filing date.
- Reinstated or Reopened. (4) Check this box for cases reinstated or reopened in the district court. Use the reopening date as the filing date.
- Transferred from Another District. (5) For cases transferred under Title 28 U.S.C. Section 1404(a). Do not use this for within district transfers or multidistrict litigation transfers.
- Multidistrict Litigation – Transfer. (6) Check this box when a multidistrict case is transferred into the district under authority of Title 28 U.S.C. Section 1407.
- Multidistrict Litigation – Direct File. (8) Check this box when a multidistrict case is filed in the same district as the Master MDL docket.
- PLEASE NOTE THAT THERE IS NOT AN ORIGIN CODE 7.** Origin Code 7 was used for historical records and is no longer relevant due to changes in statute.
- VI. Cause of Action.** Report the civil statute directly related to the cause of action and give a brief description of the cause. **Do not cite jurisdictional statutes unless diversity.** Example: U.S. Civil Statute: 47 USC 553 Brief Description: Unauthorized reception of cable service.
- VII. Requested in Complaint.** Class Action. Place an "X" in this box if you are filing a class action under Rule 23, F.R.Cv.P.
- Demand. In this space enter the actual dollar amount being demanded or indicate other demand, such as a preliminary injunction.
- Jury Demand. Check the appropriate box to indicate whether or not a jury is being demanded.
- VIII. Related Cases.** This section of the JS 44 is used to reference related cases, if any. If there are related cases, insert the docket numbers and the corresponding judge names for such cases.

Date and Attorney Signature. Date and sign the civil cover sheet.

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AO 440 (Rev. 06/12) Summons in a Civil Action

UNITED STATES DISTRICT COURT

for the

Middle District of Louisiana

JESSIE HOFFMAN

Plaintiff(s)

v.

GARY WESTCOTT, et al.,

Defendant(s)

Civil Action No. 3:12-cv-796

SUMMONS IN A CIVIL ACTION

To: (Defendant's name and address) Gary Westcott
Louisiana Department of Corrections & Public Safety
504 Mayflower Street
Baton Rouge, LA 70802

A lawsuit has been filed against you.

Within 21 days after service of this summons on you (not counting the day you received it) — or 60 days if you are the United States or a United States agency, or an officer or employee of the United States described in Fed. R. Civ. P. 12 (a)(2) or (3) — you must serve on the plaintiff an answer to the attached complaint or a motion under Rule 12 of the Federal Rules of Civil Procedure. The answer or motion must be served on the plaintiff or plaintiff's attorney, whose name and address are:

Samantha Bosalavage Pourciau, Esq.
Promise of Justice Initiative
1024 Elysian Fields Avenue
New Orleans, LA 70117
Tel: (504) 529-5955
Email: SBosalavage@defendla.org

If you fail to respond, judgment by default will be entered against you for the relief demanded in the complaint. You also must file your answer or motion with the court.

CLERK OF COURT

Date:

Signature of Clerk or Deputy Clerk

AO 440 (Rev. 06/12) Summons in a Civil Action (Page 2)

Civil Action No. 3:12-cv-796

PROOF OF SERVICE

(This section should not be filed with the court unless required by Fed. R. Civ. P. 4 (l))

This summons for *(name of individual and title, if any)* _____
was received by me on *(date)* _____ .

I personally served the summons on the individual at *(place)* _____
_____ on *(date)* _____ ; or

I left the summons at the individual's residence or usual place of abode with *(name)* _____
_____, a person of suitable age and discretion who resides there,
on *(date)* _____ , and mailed a copy to the individual's last known address; or

I served the summons on *(name of individual)* _____ , who is
designated by law to accept service of process on behalf of *(name of organization)* _____
_____ on *(date)* _____ ; or

I returned the summons unexecuted because _____ ; or

Other *(specify)*:

My fees are \$ _____ for travel and \$ _____ for services, for a total of \$ _____ 0.00 .

I declare under penalty of perjury that this information is true.

Date: _____

Server's signature

Printed name and title

Server's address

Additional information regarding attempted service, etc:

AO 440 (Rev. 06/12) Summons in a Civil Action

UNITED STATES DISTRICT COURT

for the

Middle District of Louisiana

JESSIE HOFFMAN

Plaintiff(s)

v.

GARY WESTCOTT, et. al.

Defendant(s)

Civil Action No.

SUMMONS IN A CIVIL ACTION

To: (Defendant's name and address) Darrel Vannoy
Louisiana State Penitentiary
17544 Tunica Trace
Angola, LA 70712

A lawsuit has been filed against you.

Within 21 days after service of this summons on you (not counting the day you received it) — or 60 days if you are the United States or a United States agency, or an officer or employee of the United States described in Fed. R. Civ. P. 12 (a)(2) or (3) — you must serve on the plaintiff an answer to the attached complaint or a motion under Rule 12 of the Federal Rules of Civil Procedure. The answer or motion must be served on the plaintiff or plaintiff's attorney, whose name and address are:

Samantha Bosalavage Pourciau, Esq.
Promise of Justice Initiative
1024 Elysian Fields Avenue
New Orleans, LA 70117
Tel: (504) 529-5955
Email: SBosalavage@defendla.org

If you fail to respond, judgment by default will be entered against you for the relief demanded in the complaint. You also must file your answer or motion with the court.

CLERK OF COURT

Date:

Signature of Clerk or Deputy Clerk

AO 440 (Rev. 06/12) Summons in a Civil Action (Page 2)

Civil Action No. _____

PROOF OF SERVICE

(This section should not be filed with the court unless required by Fed. R. Civ. P. 4 (l))

This summons for *(name of individual and title, if any)* _____
was received by me on *(date)* _____ .

I personally served the summons on the individual at *(place)* _____
_____ on *(date)* _____ ; or

I left the summons at the individual's residence or usual place of abode with *(name)* _____
_____, a person of suitable age and discretion who resides there,
on *(date)* _____ , and mailed a copy to the individual's last known address; or

I served the summons on *(name of individual)* _____ , who is
designated by law to accept service of process on behalf of *(name of organization)* _____
_____ on *(date)* _____ ; or

I returned the summons unexecuted because _____ ; or

Other *(specify)*: _____

My fees are \$ _____ for travel and \$ _____ for services, for a total of \$ _____ 0.00 .

I declare under penalty of perjury that this information is true.

Date: _____

Server's signature

Printed name and title

Server's address

Additional information regarding attempted service, etc:

**IN THE UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana State
Penitentiary; and JOHN DOES, unknown
executioners

Defendants.

Civil Action No. 25-169-SDD-SDJ

(Related to Civil Action 12-796-SDD-
EWD)

EXECUTION SCHEDULED FOR MARCH 18, 2025

**MOTION FOR PRELIMINARY INJUNCTION AND EXPEDITED DISCOVERY
TO ENJOIN DEFENDANTS FROM EXECUTING JESSIE HOFFMAN BY NITROGEN
GAS SUFFOCATION**

NOW INTO COURT, through undersigned counsel, comes Plaintiff Jessie Hoffman, who moves this Honorable Court pursuant to Fed. R. Civ. P. 65, for a preliminary injunction to prohibit Defendants from executing him by nitrogen gas on March 18, 2025, as currently scheduled for the reasons in the attached memorandum.

Dated: February 26, 2025

Respectfully submitted,

/s/ Samantha Bosalavage Pourciau

Samantha Bosalavage Pourciau, La. Bar No. 39808

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Counsel for Plaintiff Jessie Hoffman

CERTIFICATE OF SERVICE

I hereby certify that a copy of the above and foregoing was filed electronically with the Clerk of Court using CM/ECF on this 26th day of February, 2025. Notice of this filing as generated by the electronic filing system constitutes service of the filed document on counsel of record for Defendants.

/s/ Samantha Bosalavage Pourciau
Samantha Bosalavage Pourciau

**IN THE UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana State
Penitentiary; and JOHN DOES, unknown
executioners

Defendants.

Civil Action No. 25-169-SDD-SDJ

(Related to Civil Action 12-796-SDD-
EWD)

EXECUTION SCHEDULED FOR MARCH 18, 2025

**MEMORANDUM IN SUPPORT OF MOTION FOR PRELIMINARY INJUNCTION
AND EXPEDITED DISCOVERY**

I. INTRODUCTION

The State waited until a mere twenty-six days before his execution date to advise Jessie Hoffman that he would be executed by “nitrogen hypoxia,” that is, by forced nitrogen gassing suffocation, or nitrogen asphyxiation. And as of today, a mere twenty days before that scheduled execution, no execution protocol has been provided to him or his counsel despite requests and despite public confirmation by Governor Landry that an updated protocol for execution by nitrogen gassing has been finalized and implemented. 12-796 Rec. Doc. 335-2.¹ The State has refused to provide this basic information about the method it intends to utilize to gas Mr. Hoffman to death based on the erroneous and irrelevant contention that the protocol is not a public record. Critically, Louisiana has never before attempted a gas execution and intends to use Jessie Hoffman as a test

¹ Citations to “12-796 Rec. Doc.” refer to the record documents in the related action No. 12-796-SDD-EWD (the “Related Case”).

case for a method that has proven to cause prolonged torture and suffering in the few times it has been used in history.

A preliminary injunction staying Mr. Hoffman's March 18, 2025 execution must be issued to prevent the State from killing him before it is compelled, at a minimum, to disclose the detailed protocol it plans to use, explain what steps it has taken to minimize the substantial risk that this unusual execution method will result in a botched and unnecessarily tortuous execution, and provide Mr. Hoffman with an opportunity to be heard regarding any challenge to the protocol.

Louisiana has not conducted an execution for well over a decade. Yet it has scheduled an execution now to take place in less than three weeks while it continued to oppose re-opening the Related Case and, shockingly, failed to provide its new, updated protocol. There is no experience or precedent in Louisiana for an execution or execution protocol involving forced nitrogen gassing and so under these circumstances it is essential that Mr. Hoffman have access to the protocol and the details regarding exactly how the State intends to conduct this execution in a constitutionally appropriate manner.

Instead, the State has issued a press release generically describing death by forced nitrogen gassing in a short paragraph purporting to be a summary of a protocol for one of the three statutorily available execution methods. But the summary does not provide critical information, including information about (1) whether the individuals tasked with executing Mr. Hoffman have been sufficiently trained to do the job properly and to anticipate and be able to detail any difficulties or contingencies that may or are likely to arise; (2) how the mask will remain sealed and in the correct position throughout the execution; (3) how carbon dioxide will be removed from the mask; (4) procedures for a condemned person who vomits inside the mask; (5) the concentration of the gas to be used; (6) the purity of the gas to be used and whether the gas is industrial or medical-grade; (7) the identification and limits of impurities present; (8) the

ventilation capacity of the chamber and safety protocols in connection with releasing nitrogen into the chamber; or (9) monitoring blood oxygen levels as nitrogen is being administered. Having a full understanding of these details is particularly critical in light of the shocking experience and evidence of severe pain and suffering experienced by death row inmates in four prolonged and tortuous nitrogen asphyxiation execution deaths in Alabama in the last year.

Importantly, Mr. Hoffman raises as-applied challenges here specific to executing him by forced gassing with nitrogen. First, Mr. Hoffman has long-standing psychiatric diagnoses whereby any method of death by forced gassing with nitrogen poses a substantial additional risk of a Post Traumatic Stress Disorder (“PTSD”)-induced panic attack and the risk of a botched execution that would not exist with any of the two pleaded alternative methods. Second, Mr. Hoffman is a practicing Buddhist and the method of death by forced nitrogen gassing will prevent him from practicing a principal Buddhist meditative breathing practice in the execution chamber and at the time of his death. In Mr. Hoffman’s case, killing him by forcing him to breathe pure nitrogen will place a substantial and unnecessary burden on his free exercise of Buddhism and the practice of his faith in the execution chamber while he is put to death. The pleaded alternative methods would not interfere with or burden the practice of his faith.

This case raises substantial legal challenges. This Court should require the State to answer basic questions and provide basic and critical facts on the method it intends to use and how it will be implemented, and the execution should be stayed by preliminary injunction to allow for a reasonable period of expedited discovery, briefing and a hearing with experts so that this case may be decided on a developed record. The State is attempting to push through an extremely accelerated and imminent execution while at the same time withholding basic and critical method information and opposing the re-opening of the Related Case. Unreasonably, the State opposed a Rule 60(b)(6) motion to re-open Mr. Hoffman’s 2012 method challenge lawsuit, even filing a

mandamus petition and stay application after re-opening to delay getting Mr. Hoffman's forced nitrogen gassing challenge before this Court. This then necessitated the filing of this second lawsuit to mitigate the State's dilatory practices and expedite bringing Mr. Hoffman's application for expedited discovery and a preliminary injunction before this Court. The State's tactics can fairly be described by the label it so freely uses (falsely) against plaintiffs: dilatory. It appears that the State's plan is to run out the clock and execute Mr. Hoffman before any court can fairly review the constitutionality of his execution in this manner.

As explained herein, the standard for a preliminary injunction is met and injunctive relief is needed to prevent the State from executing Mr. Hoffman without first addressing and resolving through proper litigation his legitimate constitutional and statutory claims. There is no legitimate reason why Mr. Hoffman's execution should take place before his claims can feasibly be heard by this Court. Mr. Hoffman will, of course, agree to proceed with expedited discovery, expedited briefing and a preliminary injunction hearing. The State should not be rewarded for its dilatory tactics and brazen attempt to summarily execute Mr. Hoffman while seeking to deny him the basic access and information necessary to challenge the State's forced nitrogen gassing method.

II. BACKGROUND

In 2012, Mr. Hoffman initiated the Related Case pursuant to 42 U.S.C. § 1983 for violations and threatened violations of his rights under the First, Sixth, Eighth and Fourteenth Amendments, and ex post facto clause, to the United States Constitution. *See* 12-796 Rec. Doc. 118 (Second Am. Compl. dated February 3, 2014). The other Plaintiffs intervened in the action commenced by Mr. Hoffman. *See* 12-796 Rec. Docs. 120 (Code), 201 (Wessinger, Irish), 210 (Blank), 222 (Tyler), and 252 (Reeves, Bell, Tart, Broadway).

At the time of filing, Louisiana law provided that “[e]very sentence of death executed on or after September 15, 1991, shall be by lethal injection; that is, by the intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead.” La. R.S. § 15:569(B) (West 2024 (effect. 8/15/2015)). Mr. Hoffman’s original Complaint was filed after the Department of Public Safety and Corrections (“DOC”) repeatedly denied access to its execution protocol. It contained allegations that, *inter alia*, lack of notice as to how he would be executed violated due process. 12-796 Rec. Doc. 1, at 10. The current protocol denial is much more prejudicial to Mr. Hoffman because death by nitrogen gassing is a new execution method with which Louisiana has no experience. Mr. Hoffman’s due process and related Sixth Amendment claims arise from the totality of circumstances faced by Mr. Hoffman, including the withholding of the protocol and the State’s prejudicial dilatory tactics.

On August 12, 2021, Defendants filed a Motion to Dismiss, contending that the DOC “ha[d] no ability to obtain the lethal injection drugs authorized by [the DOC’s] current protocol nor any other potential lethal injection drugs in the foreseeable future.” 12-796 Rec. Doc. 263-1, at 4. In response to the Defendants’ Motion, the Court determined that “Defendants are no longer engaging in the behavior the Plaintiffs have deemed unconstitutional in their lawsuit allegations,” and, “[t]here being no live controversy,” the Court determined that it “lacks subject-matter jurisdiction” and granted Defendants’ motion, dismissing Plaintiffs’ claims “without prejudice.” 12-796 Rec. Doc. 312, at 22-23. The Court further noted, however, that “[i]ndeed, if a live controversy re-emerges [through legislation or revisions to the execution protocol], Plaintiffs may employ the same procedural mechanisms they have previously used to seek the relief they desire.” *Id.* at 21. Plaintiffs filed a Motion for Reconsideration, 12-796 Rec. Doc. 315, which the Court denied. 12-796 Rec. Doc. 317. In that Ruling, the Court noted that “[i]f Attorney General Landry

is somehow successful in the future at accomplishing that which has yet to be accomplished by the legislature – an alternative means of execution in Louisiana, Plaintiffs and Defendants will have an entirely different execution protocol over which to litigate.” *Id.*

On March 5, 2024, at the urging of now Governor Landry, the Louisiana Legislature passed Act 5 of the Second Extraordinary Session of 2024, amending La. R.S. § 15:569-70 to add two new methods of execution in addition to lethal injection – nitrogen gas and electrocution – effective July 1, 2024:

At the discretion of the secretary of the Department of Public Safety and Corrections and with no preference to the method of execution, every sentence of death shall be by one of the following methods:

(1) Intravenous injection of a substance or substances in a lethal quantity into the body.

(2) Nitrogen hypoxia.

(3) Electrocution, causing to pass through the body of the person convicted a current of electricity of sufficient intensity to cause death, and the application and continuance of such current through the body of the person convicted until such person is dead.

La. R.S. § 15:569(A) (West 2024 (effect. 7/1/24)).

Further, La. R.S. § 15:570 now provides for “the absolute confidentiality” of persons or entities involved in the execution:

(G) It is the intent of the legislature that the provisions of this Subsection shall be construed to ensure the absolute confidentiality of the identifying information of any person, business, organization, or other entity directly or indirectly involved in the execution of a death sentence within this state. This confidentiality provision shall prevail over any conflicting provision in state law related to public disclosure.

(1) Except as provided in Subsection F of this Section, the identity of any person who participates in or performs ancillary functions in the execution process, including a person or business that delivers, dispenses, distributes,

supplies, manufactures, or compounds the drugs, equivalent drug products, pharmacy generated drugs, device drugs, medical supplies, medical equipment, or other supplies or materials intended for use by the Department of Public Safety and Corrections in the administration of an execution shall be confidential and shall not be disclosed.

La. Rev. Stat. § 15:570(G) (2024).

As a result of the amendments of § 15:569-70, on June 14, 2024, Plaintiffs filed a Motion pursuant to Fed. R. Civ. P. 60(b)(6) to return the Related Case to the active docket (the “60(b)(6) Motion”). The State opposed the 60(b)(6) Motion. 12-796 Rec. Doc. 327.

On February 10, 2025, Governor Landry announced that the DOC has finalized and implemented an updated protocol for nitrogen hypoxia. 12-796 Rec. Doc. 335-2. The updated protocol announced by Governor Landry has not been publicly released and has not been provided to Mr. Hoffman or his counsel despite a specific request that it do so. “Department Regulation No. C-03-001,” dated March 12, 2014, is the most recent execution protocol disclosed to Plaintiffs (“2014 Execution Protocol”),² but it does not address execution by nitrogen hypoxia.

On the same day, Plaintiffs filed a motion for leave to file an Emergency Supplemental Memorandum in support of the 60(b)(6) Motion in order to bring to the Court’s attention the recent developments. 12-796 Rec. Doc. 331.

On February 12, 2025, the State obtained a Warrant for Mr. Hoffman’s execution signed by Judge Alan Zaunbrecher of the 22nd Judicial District Court for the Parish of St. Tammany. Ex. A. The Warrant provides for Mr. Hoffman to be “put to death on March 18, 2025, between the hours of 6:00 p.m. and 11:59 p.m.” *Id.* at 2. The Warrant does not indicate a particular method of execution, but instead, merely states: “in the manner provided by law.” *Id.*

² The 2014 Protocol is available at <https://dpic-cdn.org/production/documents/2014.03.14.LA.protocol.pdf?dm=1683576299>.

On February 13, 2025, Mr. Hoffman filed a motion to recall the warrant in state court based on the now present case in controversy and then pending motion to re-open the Related Case. The state court denied the recall motion by February 18, 2025, order without opinion.

On February 14, 2025, Plaintiffs filed a Motion for Expedited Consideration of the 60(b)(6) Motion. 12-796 Rec. Doc. 336. Defendants took no position on the request for expedited consideration but continued to oppose reopening this case. *Id.*

By letter dated February 20, 2025, the DOC's Secretary, Gary E. Wescott, sent a copy of the Warrant to Mr. Hoffman and notified Mr. Hoffman that "[p]ursuant to La. R.S. § 15:569, the method of execution will be by nitrogen hypoxia." Ex. B. at 1.

On February 21, 2025, the Court granted the Rule 60(b)(6) Motion, vacated the prior order of dismissal and returned the Related Case to the active docket. 12-796 Rec. Doc. 337. The State thereafter filed a petition for writ of mandamus to the United States Court of Appeals for the Fifth Circuit, which entered an administrative stay of the order granting the Rule 60(b)(6) Motion. *In re Gary Westcott, et al.*, No. 25-30088, Doc. 16-1 (5th Cir.).

Mr. Hoffman filed his Complaint in this case on February 25, 2025. This Motion follows. Mr. Hoffman is now scheduled to be executed in just twenty days. The State has by its own admission finalized and implemented an updated nitrogen asphyxiation execution protocol, but has refused to disclose it. The State's strategy appears to be to rush to execute Mr. Hoffman and deny him his day in Court. It is axiomatic that Mr. Hoffman cannot possibly challenge the method of his execution appropriately without receiving a copy of the protocol and having an opportunity for expedited and limited discovery to understand and develop the full details regarding the manner in which the State plans to kill him, as well as the sufficiency of the steps undertaken to implement the execution in a constitutional manner. Developing these facts is particularly important now

given the fact that Louisiana has never before utilized forced nitrogen gassing to execute someone, combined with the evidence from Alabama that recent executions by nitrogen gassing have caused horrific and torturous pain and suffering.

After over a decade with no executions, the State is now trying to rush to execute Mr. Hoffman, in the dark, and block Mr. Hoffman's opportunity to raise life-and-death federal constitutional and statutory claims. It appears that the State is trying to run out the proverbial clock, not only on Mr. Hoffman, but on this Court, denying the parties and the Court the time to handle these novel issues in a manner that would allow a ruling on a well-developed record.

III. Death By Nitrogen Gassing

Louisiana has never executed or attempted to execute a condemned inmate by nitrogen gassing. Nor has the federal government. The fact is, despite its scientific-sounding name, "nitrogen hypoxia" as a method of execution was not conceived by scientists or doctors. Instead, it was the idea of a few criminal law professors. In 2014, Professors Michael Copeland, Christine Pappas, and Thomas Parr at Oklahoma's East Central University co-authored a 14-page white paper in which they advocated for the use of forced nitrogen gas asphyxiation (which they called "nitrogen hypoxia")³ over lethal injection. *See* Michael Copeland, Thom Parr, and Christine Pappas, *Nitrogen Induced Hypoxia as a Form of Capital Punishment* (2014). At the time, Oklahoma was under fire for multiple botched executions using lethal injection. In September 2014, Mike Christian of Oklahoma's House of Representatives invited Copeland to present his research to the

³ The term "nitrogen hypoxia" itself reflects the method's non-medical origin. The word "hypoxia" means "low oxygen." It does not describe a process, but rather a state of being. A medical professional would instead describe this execution method as "asphyxiation"—i.e., the *process* of being deprived of oxygen.

Oklahoma House Judiciary Committee.⁴ Soon thereafter, in February 2015, Rep. Christian introduced House Bill 1879 to authorize “nitrogen hypoxia” as a legal alternative to lethal injection. The bill sailed through the Oklahoma state legislature (without expert review), and Governor Mary Fallin signed HB 1879 into law just over two months from its introduction. Oklahoma thereby became the first state to sanction execution by forced nitrogen gas asphyxiation, though it has yet to utilize this method.

Alabama is the only state to execute people by forced nitrogen gassing.⁵ According to eyewitness accounts, all four nitrogen gas executions conducted by the state of Alabama have included observations of extreme suffering. Ex. C Declaration of Philip E. Bickler, M.D., PhD (“Bickler Decl.”) at 2. In January 2024, the Alabama Department of Corrections (“ADOC”) executed Kenneth Smith by nitrogen gassing. This involved strapping Mr. Smith to a gurney, fitting him with a respirator mask connected to nitrogen gas, and then forcing him to breath nitrogen gas.⁶

After ADOC started the flow of nitrogen gas, Mr. Smith started “to convulse and shake vigorously for about four minutes. . . . It was another two to three minutes before he appeared to lose consciousness, all while gasping for air to the extent that the gurney shook several times.”⁷

⁴ Jack Shuler, “Can Executions Be More Humane?,” *Atlantic* (March 20, 2015), <https://www.theatlantic.com/politics/archive/2015/03/can-executions-be-more-humane/388249/>.

⁵ Nicholas Bogel-Burroughs & Abbie VanSickle, *Alabama Carries Out First U.S. Execution by Nitrogen*, N.Y. Times (Jan. 25, 2024), www.nytimes.com/2024/01/25/us/alabama-nitrogen-execution-kenneth-smith.html.

⁶ See Ala. Dep’t of Corrections Execution Procedures (Aug. 2023), at 15–17, <https://dpcicdn.org/production/documents/Al Lethal Gas Execution Protocol 2023 08.pdf?dm=1693938490>.

⁷ Marty Roney, *Nitrogen Gas Execution: Kenneth Smith Convulses for Four Minutes in Alabama Death Chamber*, Montgomery Advertiser (Jan. 25, 2024), www.montgomeryadvertiser.com/story/news/local/alabama/2024/01/25/four-minutes-of-convulsions-kenneth-smith-executed-with-nitrogen-gas/72358038007/.

Media witness Lee Hedgepeth recounted that Mr. Smith's head moved back and forth violently in the minutes after the execution began. Having witnessed four other executions, Mr. Hedgepeth stated that he had "never seen such a violent reaction to an execution."⁸

Mr. Smith's spiritual advisor was also present in the execution chamber and described the scene: "[W]e didn't see someone go unconscious into two or three seconds. We didn't see somebody go unconscious in 30 seconds. What we saw was minutes of someone struggling for his life. We saw minutes of someone heaving back and forth. We saw spit. We saw all sorts of stuff develop from his mask."⁹

The victim's son, Mike Sennett, stated that he was told by prison personnel that Mr. Smith would "take two or three breaths and he'd be out and gone."¹⁰ However, he described: "That ain't what happened. After about two or three breaths, that's when the struggling started. Other people kept saying he was trying to raise himself up. . . . With all that struggling and jerking and trying to get off that table, more or less, it's just something I don't ever want to see again."¹¹ Twenty-seven minutes after ADOC started the flow of gas, Mr. Smith was declared dead.¹²

The three other nitrogen gas executions carried out by ADOC were similar. On September 26, 2024, ADOC executed Alan Eugene Miller by nitrogen gas. According to reports, Mr. Miller

⁸ Nicholas Bogel-Burroughs & Abbie VanSickle, *Alabama Carries Out First U.S. Execution by Nitrogen*, N.Y. Times (Jan. 25, 2024), www.nytimes.com/2024/01/25/us/alabama-nitrogen-execution-kenneth-smith.html.

⁹ Ralph Chapoco, *Kenneth Eugene Smith Executed by Nitrogen Gas for 1988 Murder-for-Hire Scheme*, Alabama Reflector (Jan. 25, 2024), <https://alabamareflector.com/2024/01/25/kenneth-eugene-smith-executed-by-nitrogen-gas-for-1988-murder-for-hire-scheme/>.

¹⁰ Nicholas Bogel-Burroughs, *A Select Few Witnessed Alabama's Nitrogen Execution. This Is What They Saw*, N.Y. Times (Feb. 1, 2024), www.nytimes.com/2024/02/01/us/alabama-nitrogen-execution-kenneth-smith-witnesses.html.

¹¹ *Id.*

¹² Roney, *supra* note 14.

“shook and trembled on a gurney for about two minutes, with his body at time pulling against restraints. . . . The shaking and trembling was followed by about six minutes of periodic gulping breaths before he became still.”¹³ According to media witness Marty Roney, “Miller gasped, shook and struggled against his restraints for two minutes after the gas apparently began to flow.”¹⁴ Media witness Ivana Hrynkiw noted that Mr. Miller took deep breaths after the gas began to flow and lifted his head off the gurney several times, then gasped on and off for six minutes.¹⁵

Mr. Miller’s spiritual adviser John Muench, who is also a physician, said of the execution: “We don’t see people jerking around like that while they’re dying normally. His face was twisted and he looked like he was suffering.”¹⁶ Muench also noted that he had no question that Mr. Miller suffered: “I’m sure he was suffering certainly at the beginning of it, when he was gasping for oxygen. When he lifted his head up and I could see him, he was definitely gasping.”¹⁷ Muench observed Mr. Miller shaking on the gurney: “I didn’t feel like there would be anything possible that I could do, but I very much felt, when he started jerking, that we need – we should stop this at

¹³ Michelle Watson & Jason Hanna, *Alabama Has Executed Alan Eugene Miller, the Second Inmate Known to Die by Nitrogen Gas*, CNN (Sept. 26, 2024), www.cnn.com/2024/09/26/us/alan-eugene-miller-alabama-execution/index.html.

¹⁴ Marty Roney, *Alabama executes Alan Eugene Miller with nitrogen gas*, Montgomery Advertiser (Sept. 26, 2024, 7:45 PM), <https://www.montgomeryadvertiser.com/story/news/crime/2024/09/26/alabama-executes-alan-eugene-miller-with-nitrogen-gas/75360739007/>.

¹⁵ Ivana Hrynkiw, *Alabama inmate Alan Miller executed with nitrogen gas Thursday for 1999 shootings*, AL.com (Sept. 26, 2024 8:59 PM), <https://www.al.com/news/2024/09/alabama-inmate-alan-miller-set-to-be-executed-with-nitrogen-gas-thursday-for-1999-shootings.html>.

¹⁶ Lauren Gill, “Agony” and “Suffering” as Alabama Experiments with Nitrogen Executions, Bolts (Oct. 8, 2024), <https://boltsmag.org/alabama-nitrogen-executions/>.

¹⁷ *Id.*

some point.”¹⁸ Twenty-two minutes after the gas apparently began to flow, Mr. Miller was declared dead.¹⁹

On November 21, 2024, ADOC executed Carey Dale Grayson by nitrogen gas. During the approximately six minutes it took for Mr. Grayson to lose consciousness, he “tightly clenched his hands, took deep gasps, shook his head vigorously and pulled against his restraints.”²⁰ Media witness Kim Chandler observed that “Grayson rocked his head, shook and pulled against the gurney restraints.”²¹ His hands were “tightly clenched [and he] took several deep gasps, shaking his head vigorously.”²² Mr. Grayson’s “sheet-wrapped legs lifted off the gurney into the air. . . . He took a periodic series of more than a dozen gasping breaths for several minutes.”²³

Dr. Brian McAlary witnessed Mr. Grayson’s execution and testified in Demetrius Frazier’s federal court challenge to the method.²⁴ He is the first medical doctor to testify about observations

¹⁸ *Id.*

¹⁹ Ivana Hrynkiw, *Alabama inmate Alan Miller executed with nitrogen gas Thursday for 1999 shootings*, AL.com (Sept. 26, 2024 8:59 PM), <https://www.al.com/news/2024/09/alabama-inmate-alan-miller-set-to-be-executed-with-nitrogen-gas-thursday-for-1999-shootings.html>.

²⁰ Marty Roney et al., *Carey Dale Grayson Executed in Alabama in Hiker’s Murder; 3rd Nitrogen Gas Execution in US*, USA Today (Nov. 21, 2024), www.usatoday.com/story/news/nation/2024/11/21/carey-dale-grayson-execution-alabama-nitrogen-gas/76489211007/.

²¹ Kim Chandler, *Alabama carries out nation’s third nitrogen gas execution on a man for hitchhiker’s killing*, Associated Press (Nov. 22, 2024 7:15 AM), <https://apnews.com/article/death-penalty-nitrogen-execution-alabama-09450359e223a9d38a5fb24e87fcfb45>.

²² Marty Roney, *Alabama executes Carey Dale Grayson by nitrogen gas for brutal 1999 murder*, Montgomery Advertiser (Nov. 21, 2024 7:48 PM), <https://www.montgomeryadvertiser.com/story/news/crime/2024/11/21/alabama-executes-carey-dale-grayson-by-gas-for-brutal-1999-murder/76465482007/>.

²³ Kim Chandler, *Alabama carries out nation’s third nitrogen gas execution on a man for hitchhiker’s killing*, Associated Press (Nov. 22, 2024 7:15 AM), <https://apnews.com/article/death-penalty-nitrogen-execution-alabama-09450359e223a9d38a5fb24e87fcfb45>.

²⁴ Kim Chandler & Safiyah Riddle, *Federal judge hears request to block an upcoming nitrogen gas execution in Alabama*, Associated Press (Jan. 28, 2025 6:32 PM),

during a nitrogen execution.²⁵ McAlary testified that there was clear “evidence of distress,” that Mr. Grayson moved his head back and forth, had rapid eye movements, and struggled against his restraints.²⁶ McAlary believed that Mr. Grayson’s last voluntary movement occurred about three minutes after gas began flowing, when Mr. Grayson simultaneously raised both legs and held them in the air before letting them fall down.²⁷ McAlary believed this was voluntary because “both legs were moved at exactly the same time, direction, and distance.”²⁸ Twenty-one minutes after ADOC appeared to begin the flow of gas, Mr. Grayson was declared dead.²⁹

And on February 6, 2025, ADOC used nitrogen gas to execute Demetrius Frazier. As the nitrogen gas flowed, Mr. Frazier “appeared to struggle to breathe and seemed to clench the muscles in his face. . . . [Mr.] Frazier’s legs appeared to tense and raise a few inches off of the gurney, with his head seemingly lolling to the side. His arms seemed to tighten and fists clenched.”³⁰ Media witnesses observed Mr. Frazier waving his hand in circles.³¹ Mr. Frazier “clenched his face, and

<https://apnews.com/article/nitrogen-gas-execution-alabama-hearing-demetrius-frazier-7a222a9654da01125192d1c4b893fdca>.

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ Kent Faulk, *Alabama executes Carey Dale Grayson by nitrogen gas for 1994 murder*, AL.com (Nov. 21, 2024 11:43 PM), <https://www.al.com/news/2024/11/live-updates-alabama-set-to-execute-carey-dale-grayson-by-nitrogen-gas-for-1994-murder.html>.

³⁰ Sarah Clifton, *Alabama Executes Demetrius Frazier by Nitrogen Gas for 1991 Murder*, USA Today (Feb. 6, 2025), www.usatoday.com/story/news/local/alabama/2025/02/06/alabama-executes-demetrius-frazier-by-nitrogen-gas-for-1991-murder/78282236007/.

³¹ See Kim Chandler, *Alabama puts man to death for a 1991 murder in the nation’s fourth execution using nitrogen gas*, Associated Press (Feb. 6, 2025 10:17 PM), <https://apnews.com/article/alabama-execution-demetrius-frazier-nitrogen-gas-e1b391e1e157f2815be1baa248737778>; Riley Conlon & Taylor Lang, “*Detroit Strong*”: Alabama carries out execution of inmate in Michigan’s custody, WVTM13 (Feb. 10, 2025 3:32 PM),

his nostrils flared, while his hands quivered. He appeared to say something . . . His legs slightly lifted up off the gurney and he gasped. Then, his head rolled to the right side. Frazier exhibited sporadic gasping and shallow breathing . . .”³² He appeared to “quiver and twitch,” “struggle to breathe”, and “breathe sporadically, with seemingly inconsistent amounts of time between breaths, and apparently slightly shuddering.”³³ Approximately twenty-five minutes after the gas began flowing, Mr. Frazier was declared dead.³⁴

IV. ARGUMENT

A. Legal Standard

The purpose of a preliminary injunction “is merely to preserve the relative positions of the parties until a trial on the merits can be held.” *Univ. of Texas v. Camenisch*, 451 U.S. 390, 395 (1981). The primary reason to grant a preliminary injunction is “to preserve the court’s power to render a meaningful decision after a trial on the merits.” 11A Charles Alan Wright, Arthur R. Miller & Mary Kay Kane, *Federal Practice and Procedure* § 2947, at 112, 114 (3d ed. 2013). “[P]reliminary injunctions are ‘customarily granted on the basis of procedures that are less formal and evidence that is less complete than in a trial on the merits.’” *Attorney General of Oklahoma v.*

<https://www.wvtm13.com/article/alabama-inmate-execution-michigan-lawsuit-1738878056/63692646>.

³² Ivana Hryniw, *Alabama inmate Demetrius Frazier executed by nitrogen gas for 1991 Birmingham slaying: “Let’s go”*, AL.com (Feb. 6, 2025 8:27 PM), <https://www.al.com/news/2025/02/alabama-inmate-demetrius-frazier-set-to-die-by-nitrogen-michigan-governor-hasnt-acted.html>.

³³ Sarah Clifton, *Alabama executes Demetrius Frazier by nitrogen gas for 1991 murder*, Montgomery Advertiser (Feb. 6, 2025 8:46 PM), <https://www.montgomeryadvertiser.com/story/news/local/alabama/2025/02/06/alabama-executes-demetrius-frazier-by-nitrogen-gas-for-1991-murder/78282236007/>.

³⁴ Ivana Hryniw, *Alabama inmate Demetrius Frazier executed by nitrogen gas for 1991 Birmingham slaying: “Let’s go”*, AL.com (Feb. 6, 2025 8:27 PM), <https://www.al.com/news/2025/02/alabama-inmate-demetrius-frazier-set-to-die-by-nitrogen-michigan-governor-hasnt-acted.html>.

Tyson Foods, Inc., 565 F.3d 769 (10th Cir. 2009) (quoting *Univ. of Texas v. Camenisch*, 451 U.S. 390, 395 (1981)). For that reason, the moving party is not required to “prove his case in full at a preliminary injunction hearing.” *Id.* (quoting *Camenisch*, 451 U.S. at 395).

To be entitled to a preliminary injunction, generally, a party should demonstrate that (1) they will likely succeed on the merits of their claim(s); (2) without preliminary relief, they will likely suffer irreparable harm; (3) “the balance of the equities tips in [their] favor”; and (4) “an injunction is in the public interest.” *Winter v. Natural Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008). Any of the four factors may provide a reason for this Court to enter or deny an injunction. The same factors apply for a stay of execution. *Hill v. McDonough*, 547 U.S. 573, 584 (2006) (explaining that “like other stay applicants, inmates seeking time to challenge the manner in which the State plans to execute them must satisfy all of the requirements for a stay, including a showing of a significant possibility of success on the merits”). Where the other factors are strong, “it is not even necessary that a substantial likelihood of success be shown...a showing of some likelihood of success on the merits will justify temporary injunctive relief.” *Productos Carnic, S.A. v. Central Amer. Beef and Seafood Trading Co.*, 621 F.2d 683, 686 (5th Cir. 1980). In particular, “the likelihood-of-success element varies with the relative harm occasioned to the parties from the issuance *vel non* of the injunction.” *Bluebonnet Savings Bank v. Office of Thrift Supervision*, 62 F.3d 397, 397 (5th Cir. 1995).

The Fifth Circuit has not explicitly adopted a standard to determine whether a party is entitled to conduct expedited discovery, but “many district courts within the Fifth Circuit have chosen to apply the ‘good cause’ standard.” *Yogaratnam v. Doe*, No. 24-393, U.S. Dist. LEXIS 210774, at *11 (E.D. La. Nov. 19, 2024); *see also Planned Parenthood Gulf Coast, Inc. v. Gee*, 2018 U.S. Dist. LEXIS 248849, at *50 (M.D. La. May 23, 2018). Pursuant to that standard, “good

cause” exists where “the need for expedited discovery, in consideration of the administration of justice, outweighs the prejudice to the responding party.” *Id.* Courts in this circuit have found the requisite good cause exists where “the normal course of discovery would not provide enough time to conduct the discovery prior to the Court’s consideration of [a] motion for preliminary injunction.” *Doe v. Marine-Lombard*, No. 16-14876, 2016 U.S. Dist. LEXIS 156156, at *9 (E.D. La. Nov. 10, 2016). Mr. Hoffman meets this standard for the entry of a preliminary injunction to prevent Mr. Hoffman’s execution before his substantial legal challenges may be heard on a proper record.

B. Mr. Hoffman Has a Substantial Likelihood of Success on His Claims.

1. Mr. Hoffman Has a Substantial Likelihood of Success on His Eighth Amendment Claim

The Eighth Amendment forbids the State, in carrying out a death sentence, from inflicting pain beyond that necessary to end the condemned prisoner’s life. *In re Kemmler*, 136 U.S. 436, 447 (1890). “Punishments are cruel when they involve torture or a lingering death . . . something more than the mere extinguishment of life.” *Id.*; *see also Baze v. Rees*, 553 U.S. 35, 50 (2008) (execution violates the Eighth Amendment if it presents a “substantial risk of serious harm”).

A condemned prisoner challenging a method of execution must show the method creates a “demonstrated risk of severe pain” that is “substantial when compared to the known and available alternatives.” *Baze*, 555 U.S. at 61. A “substantial risk of conscious suffocation can create an Eighth Amendment problem regardless of the method of execution being used.” *Grayson v. Comm’r, Ala. Dep’t of Corr.*, 121 F.4th 894, 898 (11th Cir. 2024). A prisoner’s proposed alternative need not be authorized by state law. *Bucklew v. Precythe*, 578 U.S. 119, 153 (2019) (Kavanaugh, J., concurring).

To prevail on his Eighth Amendment claim, Mr. Hoffman must show that there is a “substantial risk of serious harm” or an “objectively intolerable risk of harm” when compared to an alternative method of execution to the state’s protocol that is “feasible, readily implemented, and in fact significantly reduce[s] a substantial risk of severe pain.” *Glossip*, 576 U.S. at 876 (quoting *Baze*, 553 U.S. at 50, 52). A “substantial risk of serious harm” may occur when the method of execution involves “torture or a lingering death,” *Baze*, 553 U.S. at 49, or the “‘superaddition’ of ‘terror, pain, or disgrace.’” *Bucklew*, 587 U.S. at 133 (quoting *Baze*, 553 U.S. at 48).

Mr. Hoffman is likely to succeed on his claim that death by forced nitrogen gassing will violate his rights under the Eighth Amendment. While Defendants have not yet disclosed the execution protocol and much of the information that will be needed to adjudicate Mr. Hoffman’s claims, as part of a run-out-the-clock strategy, Mr. Hoffman can demonstrate a likelihood of success even on what little has been disclosed up to now.

The Eighth Amendment forbids “deliberate indifference” to “serious medical needs of prisoners,” *Estelle v. Gamble*, 429 U.S. 97, 104 (1976), and to a substantial risk of serious harm to a prisoner. *See Farmer v. Brennan*, 511 U.S. 825, 834 (1994); *see also West v. Atkins*, 487 U.S. 42, 58 (1988) (“[A] physician who acts on behalf of the State to provide needed medical attention to a person involuntarily in state custody (in prison or elsewhere) and prevented from otherwise obtaining it, and who causes physical harm to such a person by deliberate indifference, violates the [Constitution’s] protection against the deprivation of liberty without due process.”) (Scalia, J., concurring). The State is required to provide Mr. Hoffman with appropriate medical care until the moment of death and, thus, the Eighth Amendment’s proscription against “deliberate indifference” requires that the State administer the death penalty without the “unnecessary and wanton infliction

of pain.” *Gregg v. Georgia*, 428 U.S. 153, 173 (1976). The State cannot fulfill this Constitutional obligation by gassing Mr. Hoffman to death.

Executing Mr. Hoffman by forced nitrogen gassing would violate his Eighth Amendment rights because it will subject him to a substantial risk of severe pain and suffering as compared with the two proposed and pleaded alternative methods (i.e., (i) a firing squad targeting the cardiac bundle, and (ii) a widely used (where legal) medical-aid-in-dying (“MAID”) protocol using commonly available drugs), as confirmed by experts in these fields as discussed below.

All four executions conducted in Alabama by nitrogen gassing featured shaking, gasping, and shocking evidence of great pain and suffering. These four experiments with forced nitrogen gassing evidence the substantial terror, pain and suffering to be expected by a method causing death by forced gas asphyxiation. And death by this method took over twenty minutes from the time nitrogen gas began flowing until the time of death.

Dr. Philip Bickler, the Chief of Neuroanesthesia at the University of California, San Francisco is a leading expert on the effects of oxygen deprivation on humans. Ex. C., Bickler Decl. at 1. Dr. Bickler explains that forcing even a healthy person to inhale nitrogen for execution “causes severe pain and suffering.” *Id.* at 2. That suffering includes a prolonged death process with struggling, distress and evident distress. *Id.* at 1.

Nitrogen asphyxiation is widely criticized for causing panic, distress, and severe pain and suffering.³⁵ Indeed, the American Veterinary Medical Association (AVMA) has concluded that

³⁵ In 2024, Louisiana’s 24th Judicial District Court considered and credited expert testimony opining that nitrogen hypoxia can cause the condemned inmate to “enter[] a persistent vegetative state, experienc[e] [a] stroke, or experienc[e] painful suffocation instead of dying,” as well as “distress, panic, pain, and suffocation by vomit” in declaring La. R.S. 15:569(A)(2) & (3) unconstitutional as violating the Ex Post Facto Clauses of the US and Louisiana constitutions. *See* Minute Order, *State v. Neveaux*, No. 16-04029 (La. Dist. Ct., 24th Jud. Dist., Apr. 19, 2024); Supp. to Mot. to Declare La. R.S. 15:569(A)(2) & (3) Unconstitutional As Applied to Mr. Neveaux, at

nitrogen asphyxiation is not even an acceptable method of euthanasia for most animals.³⁶ Ex. C., Bickler Decl. at 3-4. Louisiana has explicitly codified in law that “[e]uthanasia methods and procedures must conform with recommendations outlined in the report of the American Veterinary Medical Association on Euthanasia,” and has specifically outlawed gassing as a method of euthanasia for cats and dogs. La. Rev. Stat. § 3:2465(C)(1)-(2). The United Nations Human Rights Office, too, has admonished the use of nitrogen asphyxiation and the “grave suffering”³⁷ it may cause as likely “amount[ing] to torture under international law.”³⁸

Veterinarian Lawrence Lee Capone Jr. explains that, in the early 1980s, he observed the euthanasia of companion animals by a local Louisiana shelter using forced carbon monoxide gassing. Ex. D., Capone Decl. at ¶ 3. He explains that carbon monoxide gassing, like nitrogen gassing, denies the animal oxygen and causes death by asphyxiation. Ex. D., Capone Decl. at ¶ 4. He further explains that these animals were “in agony and incredibly frightened” and that even more than forty-five years later that the image of this suffering “affects me deeply.” Ex. D., Capone Decl. at ¶¶ 5-8. This animal gassing method is now outlawed in Louisiana and, as Dr. Capone

1, *State v. Neveaux*, No. 16-04029 (La. Dist. Ct., 24th Jud. Dist., Apr. 9, 2024). The expert testimony went to the question of whether the legislature’s approval of nitrogen hypoxia made more burdensome the punishment for a capital crime so as to constitute a prohibited ex post facto law.

³⁶ AVMA Guidelines for the Euthanasia of Animals, at 28 (2020 ed.), www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf. These guidelines are followed by major research universities, including Louisiana State University and Louisiana State University Health Sciences Center. See, e.g., LSU Health, New Orleans, Institutional Animal Care and Use Committee, <https://www.lsuohsc.edu/administration/academic/ors/iacuc/default.aspx>.

³⁷ U.N. Human Rights, Office of the High Commissioner, *United States: UN Experts Alarmed at Prospect of First-Ever Untested Execution by Nitrogen Hypoxia in Alabama* (Jan. 3, 2024), www.ohchr.org/en/press-releases/2024/01/united-states-un-experts-alarmed-prospect-first-ever-untested-execution.

³⁸ *First U.S. Nitrogen-Gas May Constitute Torture – UN Rights Office*, reuters.com (Jan. 16, 2024), www.reuters.com/world/us/first-us-nitrogen-gas-execution-may-constitute-torture-un-rights-office-2024-01-16/.

explains, it is accepted that it is inappropriate and cruel to euthanize companion animals using gas to cause death by asphyxiation. Capone Decl. at ¶ 10.

Execution by nitrogen gas deprives the condemned inmate of oxygen, which will likely cause even an otherwise healthy person to experience the feeling of suffocation, panic, and significant pain and suffering. Even for a healthy person, execution by nitrogen gassing is cruel, because it involves significantly more pain and suffering than necessary for the mere extinguishment of life. Death by nitrogen gassing is not instantaneous. *See supra* at Sec. III. Asphyxiation by nitrogen gas causes conscious terror for several minutes and excruciating sensations of being suffocated to death. *Id.* “[F]orcing a person to inhale nitrogen to execute them causes severe pain and suffering. All the accounts to date describe a prolonged death process with struggling, evident distress, irregular breathing and continued movements many minutes into the execution.” Ex. C., Bickler Decl. at 2. None of the executions by nitrogen asphyxiation have “unfolded quickly or without distress as its proponents have claimed.” *Id.* at 3. For example, during the execution of Mr. Smith in January 2024, witnesses described Mr. Smith as “very much still conscious” while he convulsed and suffocated to death on the gurney. *See supra* Sec. III. Dr. Brian McAlary, a board-certified anesthesiologist who has been practicing medicine for over 50 years, reviewed Kenneth Smith’s autopsy report and related documents and concluded that Mr. Smith was suffocated while conscious. *See* Ex. E, Decl. of Dr. Brian McAlary, *Miller v. Grayson*, No. 24-cv-376-RAH (M.D. Al.). Dr. McAlary notes that Mr. Smith’s lungs were far heavier than they should have been, indicating the presence of fluid and blood. According to Dr. McAlary:

Mr. Smith’s lungs were filled with fluid and blood at the time of his death. This is the result of negative pressure pulmonary edema (NPPE), which would not result from heart problems. Rather, NPPE occurs when inspiration is attempted against an upper airway obstruction, leading to fluid being drawn from blood vessels into the alveoli. NPPE can also occur after strangulation or smothering with a plastic bag.

Id.

NPPE can appear when someone panics while conscious and being deprived of oxygen, which triggers blood vessel constriction resulting in an upper respiratory obstruction.

Because it is notoriously difficult to keep oxygen out of the respirator mask, death by nitrogen gassing can be prolonged because the more oxygen infiltrates the mask, the more adulterated the nitrogen entering the person's lungs. This prolongs the hypoxia, increasing the risk that even a healthy person enters into a persistent vegetative state, suffers a stroke, or continues to experience the feeling of suffocation.

Moreover, because La. Rev. Stat. § 15:570(G) “ensure[s] the absolute confidentiality of the identifying information of any person, business, organization, or other entity directly or indirectly involved in the execution of a death sentence within this state” and because the State has thus far refused to disclose its execution protocol, Mr. Hoffman has no way of knowing whether DOC has actually obtained and will use pure nitrogen gas certified as medical grade, as opposed to some substandard substance that could increase or prolong any pain and suffering.

Mr. Hoffman also suffers from PTSD and Psychotic Disorder, resulting from exposure to “extremely high levels of childhood abuse and domestic violence” as well as “extremely high levels of neighborhood violence and homicide” and being the victim of an armed robbery. *See Ex. F, Declaration of Frederic James Sautter, Jr., Ph.D. (“Sautter Decl.”) at ¶¶ 5, 6.* Mr. Hoffman was diagnosed with PTSD and Psychotic Disorder as early as 2003 when Dr. Sautter first conducted a psychological evaluation of him. *Id.* at ¶ 5. A recent evaluation confirmed the diagnoses and found that Mr. Hoffman had learned to “manage his psychological dysregulation” and “regain control over his emotional and cognitive well-being, including his complex PTSD, in substantial part through his commitment to Buddhism” and “the ancient practice of Buddhist breathing

techniques.” *Id.* at ¶¶ 9, 10. These Buddhist meditative breathing techniques “allow him to center himself in the present moment and manage his thoughts and emotions effectively.” *Id.* at ¶ 10. Forcing a respirator mask upon his face that will deny him oxygen will interfere with his ability to utilize the breathing techniques that he practices to control his PTSD and cause him to suffer. *Id.* at ¶ 12 (during an execution by nitrogen asphyxiation, Mr. Hoffman would be “restrained, forced to wear a mask, and made to inhale pure nitrogen. Nitrogen without oxygen will likely increase feelings of panic and cause a panic attack. People with PTSD are highly vulnerable to panic attacks, and it is highly likely that [Mr. Hoffman] would experience traumatic memories and flashbacks as he is forced to inhale nitrogen prior to dying.”); ¶ 15 (“executing Mr. Hoffman by nitrogen gas will very likely cause him to experience extreme psychological distress and panic. An individual experiencing panic while also being denied oxygen will experience a constricted airway like an upper airway obstruction. Mr. Hoffman may vomit, convulse, experience an inability to breathe, and otherwise suffer severe psychological pain.”).

Accordingly, there is a substantial likelihood that Mr. Hoffman will experience superadded pain and suffering as compared to his pleaded alternative methods of execution as explained in the accompanying declarations, including that of Dr. Bickler. Dr. Bickler is a leading medical expert on the effects of hypoxia and is prepared to testify, as set forth in the attached declaration, to the severe pain and suffering very likely to be experienced from execution by forced nitrogen gassing. Ex. C., Bickler Decl. at ¶ 19. As explained by Dr. Bickler, an anesthesiologist and leading expert on hypoxia and the ethical use of laboratory animals in research, the “cruel effects of nitrogen breathing led the American Veterinary Medical Association (AVMA) to condemn its use for euthanasia in dogs and other animals. Nitrogen for euthanasia is prohibited at my institution, the University of California at San Francisco, and other major academic centers.” *Id.* at ¶ 17. Although

the recognized suffering caused by forced nitrogen gassing is too much to inflict upon a dying pet, it is exactly how the State intends to execute Mr. Hoffman.

Further, the forced nitrogen gassing method will subject Mr. Hoffman to further superadded pain and suffering due to the PTSD that he suffers, which he controls to avoid panic attacks with Buddhist meditative breathing practices. Ex. F., Sautter Decl. at ¶ 10. Neither of his pleaded alternatives would trigger his PTSD and prevent him from utilizing the method he has developed to cope with it and thus, by comparison, present a substantially lesser risk of additional superadded pain and suffering. *Bucklew*, 587 U.S. at 141.

Execution by firing squad: The firing squad is a “known and available” method of execution. *Baze*, 553 U.S. 35 at 61.

Death by firing squad is currently approved by five States: Mississippi, MS Code § 99-19-51; Oklahoma, 22 OK Stat § 1014; Utah, UT Code § 77-18-113; South Carolina, SC Code § 24-3-530; and Idaho, ID Code § 19-2716. “Point[ing] to a well-established protocol in another State as a potentially viable option” is acceptable in identifying an alternative method. *Nance v. Ward*, 597 U.S. 159, 165 (2022) (citing *Bucklew*, 587 U.S. at 140).

Defendants could easily identify qualified personnel to carry out an execution by firing squad. The weapons and ammunition necessary to carry out an execution by firing squad are easily obtainable. And Defendants could also easily borrow from other States, including Utah, or the United States Army in creating and implementing a protocol. Ex. G, Report of Dr. Williams at 11-13. All that is required is approximately 10 individuals armed with rifles. The prisoner would be fastened to chair or secured in a standing position, and the shooters would aim at his heart. *Id.* at 11-12. Some of the rifles would be loaded with blanks to ensure each rifleman a “plausible deniability.” *Id.* at 14. This would ensure a fast and painless death. *Id.* at 12.

Execution by firing squad is both swift and virtually painless. *Id.* 5-6 (explaining all cognitive activity would cease within seconds). Evidence and recent experience strongly suggest that “the firing squad is significantly more reliable” than lethal injection. *Glossip*, 135 S. Ct. at 2796 (Sotomayor, J., dissenting). Historically, the firing squad has resulted in significantly fewer “botched” executions. “Botched executions are those involving unanticipated problems or delays that caused, at least arguably, unnecessary agony for the prisoner or that reflect gross incompetence of the executioner.” Austin Sarat, *Gruesome Spectacles: Botched Executions and America's Death Penalty*, p. 5 (2014) (quotations omitted). A study, which analyzed the contemporaneous news reports of all executions in the United States from 1900 to 2010, found that 7.12% of the 1,054 executions by lethal injection had been “botched,” but none of the 34 executions by firing squad had been botched. *Id.* at App. A, p. 177. Accordingly, execution by firing squad is a known and available alternative method that presents a substantially lower risk of pain and suffering than Defendants’ flawed protocol.

Execution by administration of DDMAPh: DDMAPh is the most commonly used regimen for medical-aid-in-dying in the United States. *See* Ex. H., Report of Dr. Blanke at 4. The study and regular use of the regimen means that Mr. Hoffman is able to present evidence on “essential questions” like what drugs should be administered and in what quantities. *Bucklew*, 587 U.S. at 141. This is not merely “a proposal for more research,” but a readily implemented alternative. *Id.* at 142.

DDMAPh is the administration of digonxin, diazepam, morphine, amtirtipyline and phenobarbital. Ex. H., Report of Dr. Blanke at 2. Dr. Charles Blanke, MD, has provided his precise recommendations for administering the protocol. *See generally* Ex. H., Report of Dr. Blanke. Specifically, for a quick death in the execution setting, the DDMAPh protocol consists of 100 mg

of digoxin, 2,000 mg of diazepam, 15,000 mg of morphine, 8,000 mg of amitriptyline, and 10,000 mg of phenobarbital. *Id.* at 5. The medications are simply mixed with apple juice/apple syrup and administered to the prisoner. *Id.* at 5-6. He has also explained that no specialized training is required to administer DDMAPh and that each of the drugs in DDMAPh can be obtained from a variety of compounding pharmacies. *Id.* at 2. DDMAPh effectively causes death without any risk of prolonged pain or suffering. *Id.* at 1.

Each alternative proposed by Mr. Hoffman is “sufficiently detailed to permit a finding that the State could carry it out ‘relatively easily and reasonably quickly.’” *Bucklew*, 587 U.S. at 141 (citing *McGehee v. Hutchinson*, 854 F.3d 488, 493 (8th Cir. 2017)). Each produces a reliable and painless death. *See* Ex. H., Report of Dr. Blanke at ¶ 5 (“Administration of the [MAID combination of drugs] digoxin, diazepam, morphine, amitriptyline and phenobarbital (DDMAPh) . . . would cause death and would do so reliably and painlessly.”); ¶ 9 (“All patients taking the lethal medication that I prescribed or recommended through consultation died, and they uniformly did so peacefully and without suffering.”); ¶ 20 (“First, the morphine, diazepam, and phenobarbital induce a state of relaxation and loss of awareness, and within minutes, a deep coma. Then, the digoxin and amitriptyline cause an irregular heartbeat and lowering of the blood pressure, resulting in death. The patient is unaware and does not experience pain.”); *see also* Ex. G., Report of Dr. James S. Williams, M.D. M. Sc. at 4 (“the experience of pain and suffering from a . . . lethal gunshot wound to the chest is relatively minor, if not in fact completely absent.”); *id.* at 6 (“By targeting the cardiovascular bundle, the firing squad causes death with minimal pain and suffering.”). The MAID drug cocktail is made up of readily available drugs, Ex. H., Report of Dr. Blanke at ¶ 6, and existing State of Utah and U.S. Military firing squad protocols that may be easily implemented in Louisiana. Ex. G., Report of Dr. Williams at 12.

2. Mr. Hoffman Has a Substantial Likelihood of Success on His Free Exercise of Religion Claim.

Mr. Hoffman is likely to succeed on his claim that his right to the free exercise of religion will be violated if he is executed via nitrogen gassing. The Religious Land Use and Institutionalized Persons Act of 2000 (“RLUIPA”), 42 U.S.C. § 2000cc *et seq.* governs religious exercise by institutionalized persons and “allows prisoners to seek religious accommodations.” “In RLUIPA, in an obvious effort to effect a complete separation from the First Amendment case law, Congress deleted reference to the First Amendment and defined the ‘exercise of religion’ to include ‘any exercise of religion, whether or not compelled by, or central to, a system of religious belief.’” *Burwell v. Hobby Lobby Stores*, 573 U.S. 682, 696 (2014) (quoting 42 U.S.C. § 2000cc-5(7)(A)). Executing Mr. Hoffman by placing a respirator mask over his face to force him to breathe pure nitrogen and deny him air violates his free exercise of religion under RLUIPA.³⁹

Mr. Hoffman practices Buddhism. *See* Ex. I, Declaration of Michaela Bono (“Bono Decl.”). Michaela Bono is a Buddhist priest who served as a Buddhist chaplain at LSP from 2018-2020 when she conducted Buddhist services with Mr. Hoffman. *Id.* at ¶¶ 1, 2, 3, 4. Pursuant to Buddhist tradition, “breathing is the essential way of practicing.” *Id.* at ¶ 5. “Breathing is the constant connection with [Buddhists’] deepest faith and a direct expression of [Buddhists’] spirituality” and mindfulness of breathing “has always claimed a special prestige as the royal road to awakening.” *Id.* There is simply no way to square forcing a nitrogen mask upon Mr. Hoffman with his ability to practice Buddhism according to his sincerely held beliefs. Rather, the forced

³⁹ Mr. Hoffman filed an emergency grievance with the DOC on February 11, 2025. In response, the DOC informed Mr. Hoffman that his grievance was accepted and that a response to the grievance would be provided within forty (40) days, *i.e.* after the date the State intends to execute Mr. Hoffman. Accordingly, the DOC has effectively made its internal grievance procedure unavailable to Mr. Hoffman.

inhalation of nitrogen will “take away [his] ability to breathe air as he dies [and] will prevent him from practicing Buddhism at the time of his transition from life to death.” *Id.* at ¶ 6. The “transition from life to death is of particular importance in Buddhism, as it impacts the next life.” *Id.*

Thus, executing Mr. Hoffman by the forced inhalation of nitrogen gas will interfere with his right to freely exercise his religious beliefs at that particularly important time of transition. *Id.* at ¶ 7 (“Breathing in Buddhism is taking in air and letting it go; one must focus on the human breath in order to practice meditation. Gassing [Mr. Hoffman] with pure nitrogen would prevent [him] from practicing Buddhism at the time of death due to the deprivation of air.”) Mr. Hoffman’s right to freely exercise Buddhism will be violated by the State’s apparent plan to use some sort of mask or device to forcibly gas him with nitrogen. *See, e.g., Ramirez v. Collier*, 595 U.S. 411, 427–30 (2022) (ban on audible prayer in execution chamber violates RLUIPA).

The Buddhist meditative breathing practices that Mr. Hoffman uses are fundamental to the practice of his faith. Denying Mr. Hoffman the right to engage in Buddhist meditative breathing in the execution chamber and at the time of death would be a violation of the Free Exercise clause of the First Amendment, applicable to the State through the Fourteenth Amendment. *Butts v. Martin*, 877 F.3d 571, 584 (5th Cir. 2017) (“Lawful incarceration inherently involves the limitation of many privileges and rights, but prisoners still benefit from some constitutional protections, including the First Amendment ‘directive that no law shall prohibit the free exercise of religion.’”) (quoting *O’Lone v. Estate of Shabazz*, 482 U.S. 342, 348 (1987)); *Smith v. Comm’r, Ala. Dep’t of Corr.*, 844 Fed. Appx. 286, 291 (11th Cir. 2021) (finding the prohibition on allowing a pastor to be physically present with a condemned inmate at the time of execution amounted to a “required change in the way [the inmate] carries out his religious practices . . . [and] is enough for [him] to demonstrate the exercise of his religion is substantially burdened.”).

3. Mr. Hoffman Has a Substantial Likelihood of Success on His Due Process and Access to Counsel Claims.

Mr. Hoffman has a real and immediate concern that the State will prevent him from being able to access his counsel and, in turn, access the courts. Mr. Hoffman has a right under the Sixth Amendment to the United States Constitution to access counsel at all “critical” stages of criminal proceedings. *United States v. Wade*, 388 U.S. 218, 227-28 (1967).⁴⁰ This includes the right to access counsel throughout the execution procedure, including during the execution. *See Harbison v. Bell*, 556 U.S. 180, 194 (2009). Mr. Hoffman further has the right under the First and Fourteenth Amendments to access the courts. *See, e.g., Lewis v. Casey*, 518 U.S. 343, 350-51 (1996). In order to access the courts, he must be able to communicate with his counsel and obtain basic disclosure about how he will be executed such that counsel has the opportunity to access the courts on his behalf. To date, as described above, the State has denied Mr. Hoffman basic information about the manner in which he will be imminently executed and has moved to schedule his execution while fighting his right to even have a fair day in this Court to resolve his constitutional challenges. Mr. Hoffman needs the basic information the State is withholding, including the execution protocol and what has been done to implement it, in order to effectively seek the advice of counsel to protect his constitutional rights.

Moreover, abridgement of either prisoner-counsel communication or counsel’s access to the courts violates Mr. Hoffman’s right to access to counsel and the courts. In this way, Mr. Hoffman’s right to access counsel up to the execution has been and will continue to be violated. Moreover, Mr. Hoffman’s right to access counsel during the lead up to and at the execution also would appear to be threatened even though no protocol has been provided.

⁴⁰ The Sixth Amendment applies to the State through the Fourteenth Amendment.

Without attorney access during the execution procedure, there is no way to ensure that the execution will be carried out as directed or to limit the substantial risk that Mr. Hoffman will suffer cruelly superadded pain and suffering. In other words, it is essential that Mr. Hoffman have access to counsel throughout the execution procedure to allow for an application for an emergency stay to be made to the courts should something go awry during the execution process. While the State has yet to provide Mr. Hoffman or his counsel with a new execution protocol under which an execution by nitrogen asphyxiation will take place, the most recent execution protocol prepared in 2014 allowed attorneys to remain with the prisoner only “until the visit is terminated at the discretion of the Warden.” Thus, the protocol provided no right to access counsel throughout the execution procedure, as required under the Sixth Amendment. *See Wade*, 388 U.S. at 227-28. Without an updated protocol that expressly provides for the required attorney access, Mr. Hoffman has an entirely plausible concern that the State will prevent his constitutional right to access counsel and the courts throughout the execution process.

Furthermore, the State’s failure to provide Mr. Hoffman or his counsel with an execution protocol that will be utilized in his execution by nitrogen asphyxiation and the entirety of its dilatory, run-out-the-clock strategy violates his right to due process and further denies him his right to effective access to counsel. The “concept of due process is premised upon fairness and reasonableness in light of the totality of circumstances.” *Ingraham v. Wright*, 525 F.2d 909, 917 (5th Cir. 1976). Rather than cooperating with Mr. Hoffman, the State has stonewalled, even going so far as to oppose his Rule 60(b)(6) Motion following the change in Louisiana law, impeding his ability to obtain discovery regarding the State’s intended execution protocol and procedures, and then swiftly moving for a warrant to execute him on March 18, 2025 before his claims can even be litigated or his DOC grievance can be resolved. And at the same time it has strenuously opposed

reopening the Related Case to allow Mr. Hoffman’s constitutional claims to be fairly litigated, it withheld from Mr. Hoffman both the method that will be utilized to kill him until mere weeks before the execution date, and to this day, the protocol that will be used for this novel-to-Louisiana execution method. This Court should put an end to the stonewalling and prevent the State from executing Mr. Hoffman before his constitutional claims can be fairly litigated.

4. Mr. Hoffman Has a Substantial Likelihood of Success on His Claim That Forced Nitrogen Gassing Violates the Ex Post Facto Clause of the Constitution.

The United States Constitution prohibits the States from passing any “ex post facto law.” U.S. Const. art. I, § 10, ¶ 1. “Two critical elements must be present for a law to fall within the ex post facto prohibition: first, the law must be retrospective, that is, it must apply to events occurring before its enactment; and second, it must disadvantage the offender affected by it.” *Henderson v. Scott*, 260 F.3d 1213, 1215 (10th Cir. 2001) (internal citation omitted). To sustain a claim under the ex post facto clause, the petitioner has the burden of demonstrating that a law creates “a significant risk” of increased punishment. *Garner v. Jones*, 529 U.S. 244, 255, 120 S.Ct. 1362 (2000). Where, as here, a change in method of execution increases the punishment, the change violates the Constitution’s ex post facto prohibition. *See Weaver v. Graham*, 450 U.S. 24 (1981); *see also Hines v. Martel*, 2024 U.S. Dist. LEXIS 31395, at *125 (E.D. Cal. Feb. 22, 2024) (a change in the manner of execution “may reflect an ex post facto violation if the new method is less humane than that utilized at the time the defendant committed the capital crime”).

At the time of the offenses for which Mr. Hoffman has been sentenced to death, and at the time Mr. Hoffman was sentenced to death, La. Rev. Stat. § 15:569 provided that “[e]very sentence of death executed on or after September 15, 1991, shall be by lethal injection; that is, by the

intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead.” La. Rev. Stat. § 15:569 (1991).

The 2024 amendments to § 15:569, however, added the new method of execution by nitrogen gassing, and that new method purports to apply to all executions regardless of the date of offense or imposition of sentence. That violates the Ex Post Facto clause of the U.S. Constitution. The *Neveaux* decision issued by Judge June Berry Darensburg of Louisiana’s 24th Judicial District is instructive on this point. In that case, the condemned prisoner challenged, among other things, nitrogen gassing as violative of Louisiana’s *ex post facto* clause. In support, he presented expert affidavits opining that nitrogen gassing is more inhumane than lethal injection (the method of execution available at the time of his crime and sentencing), because gassing can cause the condemned prisoner to “enter[] a persistent vegetative state, experience[s] [a] stroke, or experienc[e] painful suffocation instead of dying,” as well as “distress, panic, pain, and suffocation by vomit.” Supp. to Mot. to Declare La. R.S. 15:569(A)(2) & (3) Unconstitutional As Applied to Mr. Neveaux, at 10, *State v. Neveaux*, No. 16-04029 (La. Dist. Ct., 24th Jud. Dist., Apr. 9, 2024) . Judge Darensburg agreed and declared the statute unconstitutional. *See Minute Order, State v. Neveaux*, No. 16-04029 (La. Dist. Ct., 24th Jud. Dist., Apr. 19, 2024) (“Def Motion to Declare La RS 15:569(A)(2) & (3) Unconstitutional – GRANTED by the Court, State objection noted for the record.”).

Here too, executing Mr. Hoffman by nitrogen gassing subjects him to increased punishment for a crime after which he was already sentenced. That after the fact change violates the federal Ex Post Facto clause. As explained above, there is a substantial likelihood that execution by nitrogen gassing will cause Mr. Hoffman to experience superadded pain and suffering caused by a PTSD-induced panic attack while he is unable to utilize the breathing techniques that

allow him to control his symptoms. Subjecting Mr. Hoffman to this superadded pain and suffering is certainly less humane, particularly as applied to Mr. Hoffman, than the execution method applicable at the time of Mr. Hoffman's sentencing.

C. Mr. Hoffman Will Be Irreparably Harmed if He is Executed Before this Case is Resolved on the Merits.

Mr. Hoffman will suffer irreparable injury if he is executed before the merits of his claims are resolved. "An injury is 'irreparable' only if it cannot be undone through monetary remedies." *Yorktown Sys. Grp. Inc. v. Threat Tec LLC*, 108 F.4th 1287, 1296 (11th Cir. 2024) (citation omitted). The harm here is evident and irreparable – Mr. Hoffman will be executed in violation of his constitutional rights and his suit will be moot. Nothing is more final and irreversible than death. This factor weighs heavily in favor of granting a preliminary injunction. Here, it is dispositive. *See D.T.*, 942 F.3d at 327 ("When one factor is dispositive, a district court need not consider the others.").

D. The Public Has an Interest in Ensuring a Merits Determination.

"It is always in the public interest to prevent the violation of a party's constitutional rights." *Hobby Lobby Stores, Inc. v. Sebelius*, 723 F.3d 1114, 1145 (10th Cir. 2013). Indeed, "the public interest has never been and could never be served by rushing to judgment at the expense of a condemned inmate's constitutional rights." *In re Ohio Execution Protocol Litig.*, 840 F. Supp. 2d 1044, 1059 (S.D. Ohio 2012) (citation omitted). This factor weighs heavily in favor of a preliminary injunction. The public interest also favors proceeding orderly here on the development and resolution of serious challenges to novel execution methods and not allowing the State's dilatory practices to moot these claims before they may be presented.

E. The Balance of Equities Favors Plaintiff.

The balance of equities indisputably favors Mr. Hoffman. The State has an interest in enforcing criminal judgments, *see Jones v. Allen*, 485 F.3d 635, 638 (11th Cir. 2007), but it does not have an interest in carrying out an unconstitutional execution. Here, any delay that would accompany a preliminary injunction is minimal, is due in no small part to the State's own dilatory and secretive practices, and Defendants would not be prejudiced.

The State told Mr. Hoffman that it would seek to execute him by nitrogen hypoxia – forced nitrogen gassing asphyxiation – only twenty-six Edays before his execution date. By contrast, Mr. Hoffman has acted promptly seeking to re-open the Related Case and when delayed by the State's dilatory tactics, filing his lawsuit, motion for preliminary injunction and expedited discovery. The short stay sought here will have little adverse effect on the State's interest and will ensure that the State does not perform an unconstitutional execution. *See Gomez v. U.S. Dist. Ct. for N. Dist. Of Cal.*, 966 F.2d 460, 462 (9th Cir. 1992) (Noonan, J. dissenting from grant of writ of mandate) (“The state will get its man in the end. In contrast, if persons are put to death in a manner that is determined to be cruel, they suffer injury that can never be undone, and the Constitution suffers an injury that can never be repaired.”). Here, equity favors the issuance of a preliminary injunction that will prevent Mr. Hoffman from being executed before final judgment is entered on his claims.

V. LIMITED EXPEDITED DISCOVERY IS NEEDED IN AID OF THE PRELIMINARY INJUNCTION MOTION

Good cause exists to order limited expedited discovery in aid of Mr. Hoffman's motion for preliminary injunction. Mr. Hoffman submits that such expedited discovery should include a deposition pursuant to Federal Rule of Civil Procedure 30(b)(6) with no more than ten (10) topics of examination, two (2) individual depositions, a video-recorded site inspection of the execution chamber, including the supplies intended to be utilized in the execution, pursuant to

Federal Rule of Civil Procedure 34(a)(2), no more than ten (10) interrogatories, and no more than ten (10) requests for production of documents, with responses due five (5) days after service of the requests.

Mr. Hoffman is currently facing a March 18, 2025, execution date and, accordingly, time is of the essence for discovery to be had in aid of Mr. Hoffman's motion for preliminary injunction. *See Doe*, 2016 U.S. Dist. LEXIS 156156, at *9 (finding good cause for expedited discovery where the "normal course of discovery would not provide enough time to conduct the discovery prior to the Court's consideration of [a] motion for preliminary injunction."). Without expedited discovery, the State would not need to respond to any discovery requests at all prior to Mr. Hoffman's execution date. That looming execution date and the pending motion for preliminary injunction counsel in favor of allowing limited expedited discovery. Mr. Hoffman's need for such discovery far outweighs any potential prejudice to the State of responding to a limited number of requests on an expedited timeframe. *See Planned Parenthood Gulf Coast, Inc.*, 2018 U.S. Dist. LEXIS 248849, at *50 (good cause for expedited discovery exists where the need for it outweighs the prejudice to responding party).

VI. CONCLUSION

Expedited discovery and a preliminary injunction is necessary to prevent the violation of Mr. Hoffman's constitutional and statutory rights by the novel-to-Louisiana forced nitrogen gassing method of execution. The Court should enjoin Defendants from executing Mr. Hoffman during the pendency of this litigation.

Dated: February 26, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the above and foregoing was filed electronically with the Clerk of Court using CM/ECF on this 26th day of February, 2025. Notice of this filing as generated by the electronic filing system constitutes service of the filed document on counsel of record for Defendants.

/s/ Samantha Bosalavage Pourciau
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UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, *et al.*,

Defendants.

CIVIL ACTION No. 25-169-SDD-SDJ
CHIEF JUDGE SHELLY D. DICK

MAGISTRATE JUDGE
SCOTT D. JOHNSON

**UNOPPOSED MOTION FOR LEAVE TO EXCEED PAGE LIMITS TO FILE
OPPOSITION TO MOTION FOR PRELIMINARY INJUNCTION**

NOW COME Defendants, Gary Westcott, Secretary for the Louisiana Department of Public Safety and Corrections (“DPSC”); Darrel Vannoy, Warden of the Louisiana State Penitentiary; and John Does, unknown executioners (hereinafter, collectively, “Defendants” or “the State”), who respectfully request leave of Court to exceed the 25-page limit that is set forth within Local Rule 7(g) of the United States District Court for the Middle District of Louisiana to file their Opposition to the Motion for Preliminary Injunction.

1.

On February 26, 2025, Plaintiff, Jessie Hoffman, filed a Complaint for Declaratory Judgment and Injunctive Relief and a Motion for a Preliminary Injunction. In support of his Motion for Preliminary Injunction, Plaintiff filed a 35-

page memorandum, in excess of the 25-page limit set forth within Local Rule 7(g) of the United States District Court for the Middle District of Louisiana.

2.

On March 3, 2025, counsel for Defendants contacted Plaintiff's counsel to obtain his consent to a 35-page limit for Defendants' Opposition to the Motion for Preliminary Injunction. Plaintiff consented on the condition that Defendants consent to Plaintiff having a 15-page limit for his reply memorandum in support of the Motion for Preliminary Injunction. On March 4, 2025, counsel for Defendants informed Plaintiff's counsel that Defendants would consent to a 15-page limit for Plaintiff's reply memorandum, in excess of the 10-page limited allowed by the local rules. Therefore, the instant motion is unopposed.

3.

Accordingly, Defendants now seek leave of this Court to exceed the 25-page limit that is set forth within Local Rule 7(g) of the United States District Court for the Middle District of Louisiana and file the attached 33-page Opposition to Preliminary Injunction in order to sufficiently respond to Plaintiff's Motion for Preliminary Injunction.

WHEREFORE, Defendants respectfully request leave to exceed the 25-page limit so that they may file the attached Opposition to Motion for Preliminary Injunction.

Respectfully Submitted:

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on March 4, 2025, a copy of the foregoing was filed electronically with the Clerk of Court using the CM/ECF system, and notice will be sent to all counsel for Plaintiff by operation of the court's electronic filing system.

/s/ Caroline M. Tomeny

CAROLINE M. TOMENY

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, *et al.*,

Defendants.

CIVIL ACTION No. 25-169-SDD-SDJ
CHIEF JUDGE SHELLY D. DICK

MAGISTRATE JUDGE
SCOTT D. JOHNSON

ORDER

Considering the foregoing Unopposed Motion for Leave to Exceed Page Limit for Opposition to Motion for Preliminary Injunction,

IT IS HEREBY ORDERED that the Motion for Leave is **GRANTED** and that Defendants Gary Westcott, Secretary for the Louisiana Department of Public Safety and Corrections (“DPSC”); Darrel Vannoy, Warden of the Louisiana State Penitentiary; and John Does, unknown executioners, are permitted to file their Opposition to Plaintiff’s Motion for Preliminary Injunction in excess of the 25-page limit that is set forth in Local Rule 7(g) of the United States District Court for the Middle District of Louisiana.

Baton Rouge, Louisiana, this _____ day of _____, 2025.

CHIEF JUDGE SHELLY D. DICK

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, *et al.*,

Defendants.

CIVIL ACTION No. 25-169-SDD-SDJ
CHIEF JUDGE SHELLY D. DICK

MAGISTRATE JUDGE
SCOTT D. JOHNSON

**MEMORANDUM IN OPPOSITION TO PLAINTIFF'S MOTION FOR
A PRELIMINARY INJUNCTION AND IN SUPPORT OF DEFENDANTS'
MOTION TO DISMISS**

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INTRODUCTION AND BACKGROUND

On the night before Thanksgiving Day in 1996, Plaintiff kidnapped, robbed, and raped Mary “Molly” Elliot. He then marched her—still naked—“down a dirt path which was overgrown with vegetation and in an area full of trash used as a dump.” *State v. Hoffman*, 768 So. 2d 542, 550 (La. 2000). “Her death march ultimately ended at a small, makeshift dock” on Middle Pearl River, where Plaintiff “forced [her] to kneel” and “shot [her] in the head, execution style.” *Id.* She “likely survived for a few minutes after being shot.” *Id.* But she was not discovered until Thanksgiving Day, when a duck hunter came across her naked body on the dock. *Id.* at 549. For his part, Plaintiff “soon thereafter” took his girlfriend shopping with Molly’s money. *Id.* at 550.

On March 18, 2025, the State of Louisiana will execute Plaintiff by nitrogen hypoxia for Molly’s murder. Nearly a year after the Louisiana Legislature adopted nitrogen hypoxia as a method of execution—and eight months after Plaintiff filed a motion to reopen *Hoffman v. Jindal*, No. 12-cv-796 (M.D. La.), to press the claims he now presses here—Plaintiff opted to file this lawsuit, 20 days before his execution. Virtually all of his claims are unexhausted and non-cognizable. And the eleventh-hour nature of this lawsuit (notwithstanding his representation that the controversy in this case has been live *for eight months*) confirms that any injunction against, or stay of, Plaintiff’s execution would be improper. *See* Mem. in Support of Mot. for Relief from J. at 1, No. 12-cv-796 (M.D. La. June 14, 2024), ECF 318-1 (“[T]here has since been a material and extraordinary change of circumstances that gives rise to a live

controversy between the parties.”). The Court should deny Plaintiff’s Motion for Preliminary Injunction, if not dismiss his Complaint outright.

ARGUMENT

“A preliminary injunction is an ‘extraordinary remedy,’ and the ‘burden of persuasion on all ... requirements’ is on the movant party.” *Mock v. Garland*, 75 F.4th 563, 587 (5th Cir. 2023) (ellipsis in original) (quoting *Big Tyme Invs., L.L.C. v. Edwards*, 985 F.3d 456, 464 (5th Cir. 2021)). “The district court should deny relief ‘unless the party seeking it has clearly carried the burden of persuasion’ by” satisfying four factors: “(1) it is likely to succeed on the merits, (2) it is likely to suffer irreparable harm without an injunction, (3) the balance of equities tips in its favor, and (4) an injunction is in the public interest.” *United States v. Abbott*, 110 F.4th 700, 706 (5th Cir. 2024) (footnote omitted) (first quoting *Dennis Melancon, Inc. v. City of New Orleans*, 703 F.3d 262, 268 (5th Cir. 2012), then citing *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008)). And where, as here, “the Government is the opposing party,” the equities and public-interest factors “merge.” *Nken v. Holder*, 556 U.S. 418, 435 (2009). Plaintiff has failed to carry his burden. The Court thus should at least deny his Motion, if not dismiss his Complaint outright. *See, e.g., Stratta v. Roe*, 961 F.3d 340, 349 (5th Cir. 2020) (To survive a motion to dismiss, “[a] plaintiff’s complaint ‘must contain sufficient factual matter, accepted as true, to state a claim to relief that is plausible on its face.’”).

I. PLAINTIFF IS NOT LIKELY TO SUCCEED ON THE MERITS.

“The first factor—likelihood of success on the merits—is ‘the most important.’” *Abbott*, 110 F.4th at 706 (quoting *Mock*, 75 F.4th at 587 n.60). Here, that most

important factor is also the last. For Plaintiff is not likely to succeed on any of his claims. Nearly all of them are unexhausted. And even if they were exhausted, they are unlikely to succeed on the merits.

A. Virtually All of Plaintiff's Claims Are Unexhausted.

The Prison Litigation Reform Act provides that “[n]o action shall be brought with respect to prison conditions ... by a prisoner confined in any jail, prison, or other correctional facility until such administrative remedies as are available are exhausted.” 42 U.S.C. § 1997e(a). The prisoner “must have ‘pursue[d] the grievance remedy to conclusion’—substantial compliance with administrative procedures is not enough.” *Bargher v. White*, 928 F.3d 439, 447 (5th Cir. 2019). Relevant here, the essential first step of “Louisiana’s Administrative Remedy Procedure” is to “submit[] a request to the warden briefly setting out the basis for the claim and the relief sought.” *Id.* This obligation applies full bore in method-of-execution lawsuits, including where a plaintiff challenges potential procedures for administering a longstanding method of execution. *See, e.g., White v. Johnson*, 429 F.3d 572, 574 n.1 (5th Cir. 2005) (rejecting as unexhausted claim that “the State might use a cut-down procedure to gain venous access” in administering lethal injection).

As of today, Plaintiff has only two pending grievances—one filed on February 11 and one filed on February 14—and neither of them exhausts the claims he now presses (save perhaps one¹). Ex. A, Oliveaux Decl., Exs. 1 and 2. That ends this case.

¹ Consistent with his grievances, Count V asserts that Plaintiff has a due process right to the nitrogen protocol. Compl. ¶¶ 228–32. As discussed below, that claim is moot and foreclosed by Fifth Circuit precedent, which renders exhaustion beside the point.

Eighth Amendment Claims (Counts I and II). Beginning with the Eighth Amendment claims, as discussed more fully below, Plaintiff bears the burden of claiming, and then showing, that there is “a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain and that the State has refused to adopt without a legitimate penological reason.” *Bucklew v. Precythe*, 587 U.S. 119, 134 (2019). Plaintiff’s grievances, however, never so much as mention an alternative method of execution, let alone suggest that it would significantly reduce a substantial risk of severe pain from nitrogen hypoxia. Indeed, insofar as Plaintiff’s grievances raise Eighth Amendment claims at all, they vaguely assert that Louisiana’s three methods of execution—lethal injection, nitrogen hypoxia, and electrocution—are all unconstitutional and will be unconstitutionally administered. Oliveaux Decl., Exs. 1 and 2.

It was not until Plaintiff filed his Complaint last week that he identified, for the first time, what his Eighth Amendment claim is: that the firing squad and a drug cocktail known as DDMAPh are feasible and readily implemented alternatives that render nitrogen hypoxia unconstitutional. To reiterate, this claim and these alternatives appear nowhere in Plaintiff’s grievances. This is a textbook example of failure to exhaust—and thus, Plaintiff’s Eighth Amendment claims (Counts I and II) are barred under binding Fifth Circuit precedent. *See White*, 429 F.3d at 574.

Ex Post Facto Clause Claim (Count III). Count III asserts an Ex Post Facto Clause violation, citing Louisiana’s addition of nitrogen hypoxia as a method of execution. Compl. ¶¶ 206–14. Plaintiff’s grievances nowhere mention the Ex Post

Facto Clause or articulate this claim. Oliveaux Decl., Exs. 1 and 2. Count III is thus unexhausted.

Access to Counsel/Courts Claim (Count IV). Count IV asserts that Plaintiff has a First, Sixth, and Fourteenth Amendment right to counsel in the execution chamber. Compl. ¶¶ 215–27. Plaintiff’s grievances nowhere articulate this claim (or even mention the Sixth Amendment). Oliveaux Decl., Exs. 1 and 2. Count IV is thus unexhausted.

Religious Land Use and Institutionalized Persons Act (RLUIPA) Claim (Count VI). Count VI asserts that executing Plaintiff with nitrogen would violate RLUIPA because he allegedly will be unable to conduct Buddhist breathing exercises as he passes away. Compl. ¶¶ 233–38. Because RLUIPA establishes an accommodation framework, however, the Supreme Court has made clear in the execution context that, where “relief is appropriate under RLUIPA, the proper remedy is an injunction ordering the accommodation, not a stay of execution.” *Ramirez v. Collier*, 595 U.S. 411, 436 (2022). Here, Plaintiff’s February 14 grievance references his Buddhist breathing practice, but he has never requested an accommodation for it. Instead, the grievance simply requests (as relevant here) a declaration that all Louisiana methods of execution are unconstitutional and “[a]n injunction preventing the State of Louisiana from carrying out my sentence.”

Oliveaux Decl., Ex. 2. That relief is unavailable under *Ramirez*. By failing to request an accommodation, therefore, Plaintiff has failed to exhaust his RLUIPA claim.²

Free Exercise Clause Claim (Count VII). Count VII repurposes the RLUIPA claim as a Free Exercise Clause violation. Compl. ¶¶ 239–44. But Plaintiff’s grievances never mention the Free Exercise Clause, let alone claim a Free Exercise Clause violation. *Cf.* Oliveaux Decl., Ex. 2. (mentioning RLUIPA, the Free Speech Clause, and the Free Press Clause). This claim, too, is thus unexhausted.

* * *

Perhaps sensing his exhaustion problem, Plaintiff claims in a footnote (Mot. 27 n.39) that Louisiana’s grievance system is unavailable to him because the prison will not answer his grievances until after his execution date. That is misdirection. Plaintiff failed to raise the claims above in his grievances—so, it does not matter whether those grievances are resolved before his execution or not. Either way, they do not reflect or preserve the claims above. This case thus does not get off the ground.

B. In Any Event, Plaintiff’s Eighth Amendment Claims (Counts I and II) Are Not Likely to Succeed on the Merits.

If the Court reaches the merits, however, it should start with the Eighth Amendment claims in holding that Plaintiff is not likely to succeed on the merits. Every level of the federal courts—from Alabama district courts, to the Eleventh Circuit, to the Supreme Court—has repeatedly rejected Eighth Amendment challenges based on virtually the same method of execution and virtually the same

² This exhaustion defect likewise may be characterized as a merits defect, since, even if Plaintiff’s RLUIPA claim were considered exhausted, it would not be viable under *Ramirez* absent a request for an accommodation. Either way, the claim fails.

expert testimony. *See Frazier v. Hamm*, 2025 WL 361172 (M.D. Ala. Jan. 31, 2025) (no appeal); *Grayson v. Hamm*, 2024 WL 4701875 (M.D. Ala. Nov. 6, 2024), *aff'd*, *Grayson v. Comm’r, Ala. Dep’t of Corr.*, 121 F.4th 894 (11th Cir. 2024), *stay of execution denied*, *Grayson v. Hamm*, 145 S. Ct. 586 (2024) (no noted dissents); *Smith v. Hamm*, 2024 WL 1160303 (M.D. Ala. Jan. 10, 2024), *aff’d*, *Smith v. Comm’r, Ala. Dep’t of Corr.*, 2024 WL 266027 (M.D. Ala. Jan. 24, 2024), *stay of execution denied*, *Smith v. Hamm*, 144 S. Ct. 414 (2024) (Sotomayor, Kagan, Jackson, JJ., dissenting). The Court should do the same here.

“The Constitution allows capital punishment.” *Bucklew*, 587 U.S. at 129. Indeed, “the Eighth Amendment does not guarantee a prisoner a painless death.” *Id.* at 132. Instead, it bars only those “forms of punishment that intensify] the sentence of death with a (cruel) superaddition of terror, pain, or disgrace.” *Id.* at 133 (cleaned up). And “perhaps” for that reason the Supreme Court “has yet to hold that a State’s method of execution qualifies as cruel and unusual.” *Id.*

To that end, “where (as here) the question in dispute is whether the State’s chosen method of execution cruelly superadds pain to the death sentence, a prisoner must show a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain and that the State has refused to adopt without a legitimate penological reason.” *Id.* at 134; *see id.* at 136–37 (“[W]hen it comes to determining whether a punishment is unconstitutionally cruel because of the pain involved, the law has always asked whether the punishment ‘superadds’ pain well beyond what’s needed to effectuate a death sentence.”).

Requiring a plaintiff to show that the challenged method “is sure or very likely to result in needless suffering,” *Glossip v. Gross*, 576 U.S. 863, 881 (2015), is, as Justice Kagan has put it, an “extremely demanding standard,” *Smith*, 144 S. Ct. at 416 (Kagan, J., dissenting from the denial of application for stay and denial of certiorari).

Here, Plaintiff has failed to (1) show that Louisiana’s nitrogen method of execution cruelly superadds pain, or (2) identify a feasible and readily implemented alternative that would significantly reduce a substantial risk of severe pain and show the State refused to adopt the alternative without a legitimate penological reason. For either reason, therefore, his Eighth Amendment claims are not likely to succeed.

1. Nitrogen does not cruelly superadd pain.

a. Execution by nitrogen hypoxia may well be the most humane and reliable method of execution in existence today. For that fact, look no further than Dr. Antognini, whom numerous courts have credited for his considered opinions on the nature of execution through nitrogen hypoxia. His core opinion—supported by a wealth of research and studies, as well as his own testing of Louisiana’s system—is that the system “will cause unconsciousness within 35-40 sec[onds] (and perhaps sooner) once the inmate inhales 90-100% nitrogen gas.” Ex. B, Antognini Decl. ¶¶ 9, 54. In addition, the system “will result in death rapidly, within 10-15 minutes,” and it “will not cause significant suffering or pain.” *Id.*

As recently as a month ago, courts have credited Dr. Antognini’s opinion over that of Plaintiff’s expert, Dr. McAlary. *See Frazier*, 2025 WL 361172, at *11 (“[T]he Court assigns greater weight to Dr. Antognini’s expert opinion that an inmate loses

consciousness closer to thirty to forty seconds after nitrogen gas is introduced.”); *id.* at *13 (“According to Dr. Antognini, whose opinion the Court credits, the period between the nitrogen’s activation and loss of consciousness is likely less than a minute.”); *Grayson*, 121 F.4th at 900 (affirming district court’s finding that “Dr. Antognini’s opinions [including that the nitrogen flow ‘will lead to unconsciousness within 10 to 40 seconds’] ... were ‘more credible and persuasive than those of Dr. McAlary”). This Court should do the same, recognizing two overarching indicia of the reliability and superiority of Dr. Antognini’s opinions.

First, Dr. Antognini is the only expert before this Court who has tested Louisiana’s nitrogen system. Specifically, he wore the mask “while air was delivered at 70, 50, and 30 LPM, and [he] was able to breathe easily.” Antognini Decl. ¶ 19. He ensured that “[t]he mask did not loosen or become dislodged while [he] was talking or after vigorous head movements.” *Id.* And he confirmed that “the 70 LPM gas flow”—the rate at which both oxygen and nitrogen are delivered—“is adequate to provide for normal breathing patterns.” *Id.* On that last point, the “high gas flow rate” is important because it “quickly and efficiently removes exhaled carbon dioxide and minimizes rebreathing of carbon dioxide.” *Id.* ¶ 17. And that, in turn, is important because, without a carbon dioxide buildup, the condemned inmate will not experience “a sense of breathlessness” that would signal to the inmate that he is not breathing oxygen. *Id.* ¶ 29. As Dr. Antognini explains (quoting the Occupational Safety and Health Administration), this means that a condemned inmate will have “little

warning before losing consciousness”: He “is fooled because there is no clear indication that anything is amiss. Blackout occurs quickly, without warning.” *Id.*

Dr. Antognini also cycled the nitrogen system with a mannequin to confirm his opinion—and that test “documented how quickly the oxygen decreased in the mask after the introduction of nitrogen,” even without a human actively inhaling the remaining oxygen in the mask. *Id.* ¶ 21. In particular, “from the initiation of the nitrogen at time 0, it took 40 seconds to reach <2%” oxygen and 30 seconds to reach 4.4% oxygen. *Id.* Cited scientific evidence establishes that “[t]he time to unconsciousness at 5% oxygen is about 10-12 seconds.” *Id.* So, Dr. Antognini “expect[s] unconsciousness to occur within 35-40 seconds after the inhalation of 95-100% nitrogen.” *Id.* Again, Dr. Antognini is the only expert in this case that has conducted these in-depth tests of Louisiana’s system to form his opinion.

Second, Dr. Antognini’s declaration is the only expert declaration regarding nitrogen before this Court that is based on scientific studies and evidence. *See Grayson*, 2024 WL 4701875, at *12 (“In support of his opinions, Dr. Antognini relies upon multiple scientific studies and articles. The Court credits Dr. Antognini’s opinions and affords them great weight.”). Most significantly, Dr. Antognini thoroughly catalogues how “[t]he lethality of nitrogen (and other inert gases) is well documented by suicides and industrial accidents.” Antognini Decl. ¶ 11; Ex. G, Tomeny Decl., Exs. 1–20 (scientific literature regarding the lethality of nitrogen and other inert gases).

For example, he explains how one study addressing suicide by helium (another inert gas) led to unconsciousness “within 36-55 sec[onds]” and death “in 5-10 minutes” at a flow rate “much lower than those anticipated in the Louisiana protocol.” *Id.* He explains that one subject in the study died much later “most likely due to inadequate placement of the breathing mask, which permitted the patient to breathe room air.” *Id.* And he emphasizes that here “the prison staff can adjust the mask to minimize leaks, if needed,” *id.*, and in fact, Louisiana’s mask has a “strapping mechanism that ensures a virtual airtight fit which minimizes air entrainment and which makes it nearly impossible to dislodge the mask,” *id.* ¶ 18.

Dr. Antognini also assesses other reports regarding suicide by helium (in “large plastic bags”) and by nitrogen (in a “breathing tent”). *Id.* ¶ 12. In both reports, “there was no evidence of pain.” *Id.* And in the helium report, he notes that the subjects lost consciousness “at 10-12 seconds.” *Id.*

Similarly, Dr. Antognini emphasizes that “[n]umerous industrial accidents have resulted in worker deaths due to inhalation of inert gases, such as nitrogen and argon.” *Id.* ¶ 13. In looking at OSHA’s reports, Dr. Antognini finds it “noteworthy that these reports do not describe any evidence that the workers attempted to self-rescue to escape the dangerous environment, as would be expected if they felt pain or distress.” *Id.* Again, this is not surprising as to “[v]ictims wearing respirators connected to inert gas lines” because, as OSHA says, they “are in a zero percent oxygen atmosphere and unconsciousness can occur in about 12 seconds and death in a matter of minutes.” *Id.* ¶ 29 (footnote omitted).

Finally, Dr. Antognini emphasizes the consistency between the facts above and a study regarding “the effects of nitrogen inhalation as a method of euthanasia in dogs.” *Id.* ¶ 14. In that study, “[l]oss of consciousness occurred at about 40 seconds on average,” with blood pressure reaching zero “at “about 204 seconds” (nearly four minutes). *Id.* As Dr. Antognini recognizes, that time to unconsciousness and death “comport[s] with what has been observed in human suicides as described above.” *Id.*

In short, Dr. Antognini’s opinion—that Plaintiff will be unconscious within 30 to 40 seconds of his inhaling pure nitrogen (without breath-holding), that Plaintiff will have virtually no warning alerting him to the lack of oxygen, that Plaintiff will die in a matter of minutes, and that he will not suffer significant pain or suffering—is directly based on scientific studies and evidence.

b. In response, Plaintiff’s Motion appears to assert three distinct theories suggesting that nitrogen nonetheless “superadds’ pain well beyond what’s needed to effectuate a death sentence,” *Bucklew*, 587 U.S. at 137: (i) eyewitness accounts of the four Alabama executions suggest as much; (ii) Plaintiff is particularly at risk of experiencing such pain because he allegedly has PTSD; and (iii) veterinary guidelines prohibit euthanasia by inert gas for animals. None of these theories works.

i. Alabama Executions. Begin with “what [has been] generally uncontested” by litigants in Alabama: Alabama’s nitrogen protocol—which essentially mirrors Louisiana’s, *see* Ex. C, Smith Decl. ¶¶ 23–28—“has been successfully used” four times, and each time “it resulted in a death within a matter of minutes.” *Grayson*, 2024 WL 4701875, at *22. Plaintiff’s tack here is to cite a litany of news articles that,

by Plaintiff's telling, reflect eyewitness "observations of extreme suffering" in these four executions and statements that the condemned prisoners moved their bodies for minutes after the nitrogen began flowing. Mot.10. Dr. McAlary likewise emphasizes that he watched Mr. Grayson "shaking, convulsing, writhing, and gasping for air for more than four minutes," "indicat[ing] ... considerable pain and agony." Ex. D, McAlary Decl. ¶ 5. Like the plaintiffs in the Alabama cases, Plaintiff here paints these accounts as "evidence that the inmates remained conscious after the nitrogen began flowing and were distressed and in pain." *Frazier*, 2025 WL 361172, at *11.

Plaintiff omits that these assertions have been repeatedly discredited and rejected by the courts. Specifically, the courts have rejected those accounts (including specifically Dr. McAlary's) as "insufficiently reliable because [the eyewitnesses] d[id] not know"—and could not know—"when the nitrogen began to flow." *Id.* at *11 (footnote omitted). Because they did not know time zero, therefore, the witnesses could not "reliably pinpoint" how soon after the introduction of nitrogen "an inmate los[t] consciousness." *Id.* On top of that, the courts have recognized that—as Dr. Antognini explains here, Antognini Decl. ¶ 22— "unconscious individuals experience involuntary movements," such as "muscle tremors and convulsion-like activity," *Frazier*, 2025 WL 361172, at *12. It is thus "not surpris[ing]" that the condemned inmates exhibited "breaths and even convulsions[] after the introduction of an inert gas—when a person is unconscious and unable to feel pain." *Id.* For that reason, "the evidence of Smith's, Miller's, and Grayson's movements during their respective executions does not support a finding that any of them experienced severe

psychological pain or distress over and above what is inherent in any execution.” *Id.* Plaintiff’s attempt to relitigate that issue here gets him nowhere.

Because of Plaintiff’s and Dr. McAlary’s focus on the Smith execution in particular, that focus merits a direct response. *First*, “for as much as Smith’s execution was painted in the violent manner that it was, Miller’s execution was not”—so, the Court should not lose sight of the fact that Miller’s execution “was quick, unconsciousness reached in less than 2 minutes, was void of struggles against the restraints, and with minimal body movement as compared to the Smith execution.” *Grayson*, 2024 WL 4701875, at *21.

Second, as Dr. Antognini explains (and as Smith’s own expert witness agreed), the Smith execution was principally complicated by Smith’s “non-cooperation with the execution process,” specifically his “breath-holding,” which “would have increased the level of carbon dioxide in his body, acidifying his blood and increasing discomfort and distress.” Antognini Decl. ¶ 31. As the Alabama courts recognized, the evidence from the Smith execution showed that Smith refused to inhale the nitrogen, which caused the reaction Plaintiff now highlights. *Frazier*, 2025 WL 361172, at *5 & nn.9–10, *11 n.20; *Grayson*, 2024 WL 4701875, at *21 (“Smith held his breath and struggled against the restraints while Miller did not.”). On top of that, Smith’s autopsy showed that he had “a synthetic cannabinoid” in his blood that “can cause hallucinations, vomiting, paranoia, and convulsions (seizures)” —which, in turn, may have made Smith’s “convulsions more likely and pronounced.” Antognini Decl. ¶ 32; *Grayson*, 2024 WL 4701875, at *17 n.18. None of this has anything to do with

nitrogen’s constitutionality or efficacy as a method of execution—it has everything to do with Smith’s own actions.

Third, Dr. McAlary emphasizes that Smith’s autopsy report indicates pulmonary edema (too much fluid in the lungs). In particular, he claims that Smith “almost certainly suffered from” *negative pressure* pulmonary edema, which he finds significant because that occurs when “the individual has an upper airway obstruction.” McAlary Decl. ¶¶ 13–14. That upper airway obstruction then “lead[s] to fluid being drawn from blood vessels into the alveoli as seen in cases of strangulation or smothering with a plastic bag.” *Id.* ¶ 14. But Dr. McAlary has changed nothing about his erroneous opinion since the last time it was rejected.

“Smith’s autopsy report only indicates pulmonary edema, not *negative pressure* pulmonary edema.” *Grayson*, 2024 WL 4701875, at *20 n.21 (emphasis added). And in fact, Smith’s autopsy “found no anatomic or foreign body (e.g., vomit or food) upper airway obstruction.” Antognini Decl. ¶ 36; *see Grayson*, 2024 WL 4701875, at *16 (“Dr. McAlary acknowledged that Smith’s medical examiner ... did not find any obstruction of Smith’s airway at autopsy and did not attribute the pulmonary edema to an upper airway obstruction or negative pressure. And Dr. McAlary offered no case studies or articles supporting his opinions.”). Moreover, pulmonary edema at autopsy “is common,” *id.* ¶ 37, and “Dr. McAlary provides no evidence other than his belief of the existence of negative pressure edema,” *Grayson*, 2024 WL 4701875, at *20. Dr. McAlary’s unfounded attempt to equate nitrogen hypoxia with “forms of suffocation,

such as smothering with a pillow,” *Frazier*, 2025 WL 361172, at *10, should be rejected yet again.

Finally, it bears mentioning that Dr. McAlary’s most recent declaration finally adds one citation to “relevant academic literature”—and then he misrepresents it. McAlary Mar. 3 Decl. ¶ 7 & n.1. “According to the relevant academic literature,” he says, “an individual inhaling pure nitrogen gas may remain conscious for as long as 6 minutes.” *Id.*

The cited five-page editorial by authors who “consider the death penalty barbaric and unnecessary” says no such thing. McAlary Decl., Ex. C at 1013. Rather, it says that a human body’s *oxygen stores*—not *consciousness*—could last for two to six minutes. *Id.* The editorial also says that “while breathing 100% nitrogen[,] the brain will become [oxygen] deprived *far more rapidly*,” leading to unconsciousness. *Id.* (emphasis added) And in this respect, the editorial *agrees with Dr. Antognini and his cited study* that dogs subjected to 100% nitrogen lost consciousness in approximately 40 seconds. *Id.* Not only that, but the editorial also goes on to emphasize that, “[a]fter they became unconscious, some dogs yelped, whereas others gasped, convulsed and/or displayed muscular tremors. *These latter behaviors occurred after sensibility had been lost, and they were thus judged to be insensitive to painful stimuli, such as pinching the foot webbing.*” *Id.* (emphasis added); accord *id.* at 1012 (“the 17-20 s elapsed before Ernsting’s subjects lost consciousness allows for at least four or five breaths”). In other words: All the *unconscious* movement that witnesses observed in the four Alabama executions and mistook for signs of *conscious*

pain and suffering was just that—unconscious “behavior after sensibility had been lost.” Dr. McAlary’s attempt for the first time to find a scientific basis for his opinion, therefore, provides a damning attack on Plaintiff’s own theory of the case.

Here, as in the Alabama cases, Dr. McAlary “finds himself without any real foundational support other than an unsupported opinion—no supporting articles or case studies, reliance upon highly questionable hearsay witness accounts, no support in Smith’s autopsy report for an upper airway obstruction that led to negative pressure pulmonary edema,” and so on. *Grayson*, 2024 WL 4701875, at *22. Given Dr. McAlary’s repeated inability to substantiate his opinions, it is unsurprising that the courts have credited Dr. Antognini’s opinions over his. *Frazier*, 2025 WL 361172, at *10 (“[T]he Court credits Dr. Antognini’s expert opinions over the expert opinions Dr. McAlary offered in Grayson’s litigation because Dr. McAlary’s opinions were not sufficiently supported by research, scientific studies, or articles.”); *Grayson*, 2024 WL 4701875, at *22 (“[T]he Court finds Dr. Antognini and his opinions on these subjects more credible and persuasive than those of Dr. McAlary.”). This Court should do the same here.

ii. PTSD. Plaintiff tries to distance himself from the string of Alabama losses by asserting that he, unlike the Alabam plaintiffs, “also suffers from PTSD and Psychotic Disorder.” Mot.22. He then complains that “[f]orcing a respirator mask upon his face that will deny him oxygen will interfere with his ability to utilize the breathing techniques that he practices to control his PTSD and cause him to suffer.” *Id.* at 23.

As discussed above, this argument rests on a flawed premise—that Plaintiff will be unable to breathe as he wishes. Smith’s execution demonstrates that Plaintiff *can and should* breathe, rather than holding his breath as Smith did. There is no record evidence suggesting that Plaintiff will be unable to breathe. To the contrary, Dr. Antognini confirmed that he “was able to breathe easily” while “air was delivered at 70, 50, and 30 LPM.” Antognini Decl. ¶ 19. And as Dr. McAlary’s cited editorial explains, the extremely brief period of time between nitrogen flow and unconsciousness “allows for at least four or five breaths.” McAlary Decl., Ex. C at 1012. Plaintiff thus can and should breathe as he wishes, which, he acknowledges, moots this entire line of argument.

Plaintiff’s and his expert’s speculative claims that he may panic and experience “an upper airway obstruction” like “vomit” also were aired and dismissed in the Alabama cases. *See Grayson*, 2024 WL 4701875, at *19 n.20 (“Smith claimed that the Protocol subjected him to a substantial risk of asphyxiation on his own vomit, and his medical expert characterized that as an almost certainty. But that certainty never happened. Nor did it happen with the Miller execution.” (cleaned up)). So, too, with Dr. Bickler’s claim (without relying on scientific literature) that “the experience of suffocation” will trigger Plaintiff’s alleged PTSD and claustrophobia “creating a loop of terror.” Ex. E, Bickler Decl. ¶¶ 11–14. Once again, the “suffocation” premise is flatly inaccurate, and there is no basis for it. *See Frazier*, 2025 WL 361172, at *11 (“It is undisputed that, under the Protocol, Frazier will be deprived of oxygen while conscious after the nitrogen gas is introduced. But according to Dr. Antognini, Frazier

will not experience the same pain and suffering as might occur with other types of suffocation, such as smothering and choking *because the Protocol does not prevent Frazier from taking normal breaths and exhaling carbon dioxide.*” (emphasis added)).

iii. Animals. Last, Plaintiff’s gestures (Mot.19–21) at euthanasia for animals are misplaced, irrelevant, and appear to have been intended only to generate sensational headlines. The Capone declaration (cited at Mot.20) describes a situation nowhere close to the facts here. There, animal euthanasia using carbon monoxide occurred in a large “20 feet x 20 feet x 4 feet” chamber. Antognini Decl. ¶ 42. The apparent animal suffering in that chamber thus “likely” stemmed from the “improper use of carbon monoxide” and the “relatively long time [it would take] for the carbon monoxide to build up” in the huge chamber. *Id.* That, of course, is nothing like the nitrogen system here, which will be administered through a mask at a high flow rate that almost immediately achieves unconsciousness.

The Capone declaration also misstates the American Veterinary Medical Association guidelines in suggesting that they would not permit carbon monoxide (or even nitrogen) euthanasia of animals. Dr. Antognini explains that this is false: The guidelines actually *permit* such euthanasia (via both carbon monoxide and nitrogen) depending on whether the particular animal species finds the gas aversive. *Id.* ¶¶ 42–43. If yes, then the guidelines recommend another method of rendering the animal unconscious; but if no, then the guidelines permit use of the gas. *Id.* And that distinction is directly relevant here because, as demonstrated by the literature cited by Dr. Antognini, “humans do not find inert gas exposure aversive.” *Id.* ¶ 43.

2. Plaintiff has not identified a suitable alternative.

Plaintiff's failure to establish "a substantial risk of severe pain" from nitrogen hypoxia leads directly to his failure to "show a feasible and readily implemented alternative method of execution that would significantly reduce" any such risk "and that the State has refused to adopt without a legitimate penological reason." *Bucklew*, 587 U.S. at 134. He suggests two methods: (a) firing squad, and (b) DDMAPh (which Plaintiff characterizes as "the most commonly used regimen for medical-aid-in-dying in the United States," Mot.25). Neither suffices.

a. Firing Squad. Beginning with the firing squad, neither Plaintiff nor his experts seriously claim that execution by firing squad would "significantly reduce" any risk of severe pain from nitrogen (if such risk even existed). As Dr. Antognini observes, Plaintiff's "Dr. Williams does not make any comparative analysis of the pain and suffering that occurs with the firing squad and any pain and suffering that might occur with the administration of nitrogen." Antognini Decl. *Id.* ¶ 51. The reality of firing squads, as Dr. Antognini explains (based on scientific evidence), is that, for somewhere between "4-13 sec[onds]," the condemned is conscious and subject to pain and suffering. *Id.* ¶ 50. And that assumes the firing squad did its job. As Dr. Antognini notes, if the condemned nonetheless remains alive after a first round of shots, he is generally then executed by a second volley of shots (in Utah) or a "coup de grace" gunshot to the head (in the Army). *Id.* ¶ 49; ECF 4-9 at 12–13.

These basic facts demonstrate Plaintiff's failure to meet the *Bucklew* standard. Given the profound pain and suffering a condemned prisoner will suffer by firing

squad, the complete absence of any scientific evidence suggesting similar pain and suffering under Louisiana’s nitrogen system means Plaintiff, by definition, cannot show that use of the firing squad would “significantly reduce a substantial risk of severe pain” from nitrogen hypoxia. *Bucklew*, 587 U.S. at 134.

Even if that were not so, Louisiana plainly has “a legitimate penological reason” to adopt nitrogen hypoxia over the firing squad. For example, the Legislature reasonably could have determined that nitrogen hypoxia presents “an arguably more humane method” than the firing squad—and indeed, the Supreme Court has expressly recognized a State’s “legitimate interest in selecting a method it regards as ‘preserving the dignity of the procedure.’” *Id.*

By any measure of the alternative-method requirement, therefore, Plaintiff has failed to show that the firing squad meets it.³

b. DDMAPh. Plaintiff fares no better with DDMAPh, which he says is “the most commonly used regimen for medical-aid-in-dying in the United States.” Mot.25. By his telling, DDMAPh is an apple juice cocktail with lethal doses of “digonxin, diazepam, morphine, amtirtipyline [sic], and phenobarbital.” *Id.* at 25–26. Setting aside his failure to show that this cocktail would “significantly reduce” a non-existent “substantial risk of severe pain” from nitrogen hypoxia, *Bucklew*, 587 U.S. at 134, Plaintiff has a bigger problem.

³ Although not necessary here, Dr. Antognini’s response to Plaintiff’s invocation (Mot.25) of the bizarre Sarat “study” warrants mentioning—including Sarat’s reliance on the tragic story of Mary the Elephant in a discourse on “America’s Death Penalty.” See Antognini Decl. ¶ 52.

As Plaintiff knows, the State cannot use those drugs for execution purposes. His own recent grievance expresses “worry” that, if the State attempted lethal injection, the State will “use manufactured drugs against the manufacturer’s intended use.” Oliveaux Decl., Exs. 1 and 2. And as this Court and the Supreme Court have recognized, that is a serious problem. Indeed, Chief of Operations, Seth Smith, explains that the State has received numerous demands from pharmaceutical companies “prohibiting the use of their products” for execution purposes—or else the State “will be cut off from receiving their medications for the delivery of medical care to inmates.” Smith Decl. ¶¶ 8, 34. Relevant here, diazepam and phenobarbital—two drugs in DDMAPh—have been the subject of such demands. *Id.* ¶¶ 39–44. Thus, “should DPSC use diazepam and phenobarbital to make the DDMAPh cocktail requested by [Plaintiff] as an alternative method of execution, it will likely result in DPSC not having those drugs available for the legitimate medical care needs of its inmate population.” *Id.* ¶ 43.

Under *Bucklew*, therefore, Louisiana has at least one legitimate penological reason for not adopting DDMAPh. As the Supreme Court said, “a State can’t be faulted for failing to use lethal injection drugs that it’s unable to procure through good-faith efforts.” *Bucklew*, 587 U.S. at 134; see *Glossip v. Gross*, 576 U.S. 863, 869–70 (2015) (“[A] practical obstacle soon emerged, as anti-death-penalty advocates pressured pharmaceutical companies to refuse to supply the drugs used to carry out death sentences.”). So, too, where a State’s use of such drugs would result in the State being blacklisted, which, in turn, would detrimentally impact the State’s medical care

for its prisoners. Indeed, for the same reason, the State’s choice of nitrogen precisely because “[n]o supply concerns exist for nitrogen” is a “valid penological reason to decline to adopt [Plaintiff’s] proposed alternative method.” *Frazier*, 2025 WL 361172, at *13–14.

And there is more. While a plaintiff may be able to identify a feasible alternative method by “point[ing] to a well-established protocol in another State,” *Bucklew*, 587 U.S. at 140, Plaintiff appears to concede (Mot.25) that no State has ever executed someone with DDMAPh. Not only that, but there are also good reasons why a State would not do so, especially for Plaintiff. For one, as Dr. Antognini explains, death can take one, two, or even 67 hours. Antognini Decl. ¶ 45. No rational State would opt for such a protracted execution. For another, the “Academy of Aid-in-Dying Medicine website lists several red flags” regarding protracted deaths—including the relative youth of the individual (like Plaintiff who is in his 40s), for whom “the potential for a prolonged time to death is increased compared to the typical person who takes DDMAPh for assisted suicide (elderly and debilitated with a terminal disease).” *Id.* ¶ 47. And for yet another, DDMAPh is reputed to be “extremely bitter.” *Id.* ¶ 46. All this goes to show that Plaintiff has not identified sufficient alternative methods of execution—and thus, his Eighth Amendment claims are extraordinarily unlikely to succeed.

C. Plaintiff’s Religious-Exercise Claims (Counts VI and VII) Are Not Likely to Succeed.

Plaintiff also is unlikely to succeed on his religious-exercise claims—both under the Free Exercise Clause and under RLUIPA.

1. Plaintiff's Free Exercise claim is foreclosed by *Smith*.

In one paragraph, Plaintiff asserts that “[d]enying [him] the right to engage in Buddhist meditative breathing in the execution chamber and at the time of death would be a violation of the Free Exercise [C]lause[.]” Mot.28. His premise regarding a supposed denial of his right to engage in meditative breathing is wrong. *See infra* Section II.C(2). But more fundamentally, he rightly addresses the Free Exercise Clause only in passing because it is foreclosed by *Employment Division, Department of Human Resources of Oregon v. Smith*, 494 U.S. 872 (1990). “*Smith* held that laws incidentally burdening religion are ordinarily not subject to strict scrutiny under the Free Exercise Clause so long as they are neutral and generally applicable.” *Fulton v. City of Phila.*, 593 U.S. 522, 533 (2021). Plaintiff does not even try to meet that standard—nor could he, for Louisiana’s method-of-execution of law is plainly neutral and generally applicable. He has no chance of success on this claim.

2. Plaintiff's RLUIPA claim is foreclosed and meritless.

So, too, with Plaintiff’s RLUIPA claim. RLUIPA generally provides that the State shall not “impose a substantial burden on the religious exercise” of a prisoner, unless the burden is “in furtherance of a compelling governmental interest” and “the least restrictive means of furthering that compelling governmental interest.” 42 U.S.C. § 2000cc-1(a). Here, Plaintiff claims that “placing a respirator mask over his face to breathe pure nitrogen and deny him air violates his free exercise of religion under RLUIPA.” Mot.27. Specifically, he asserts that, “[p]ursuant to Buddhist tradition, ‘breathing is the essential way of practicing’” his religion. *Id.* This claim is both foreclosed and not cognizable on the merits.

First, it is foreclosed because—as explained above—the Supreme Court has held in the execution context that, where “relief is appropriate under RLUIPA, the proper remedy is an injunction ordering the accommodation, not a stay of execution.” *Ramirez*, 595 U.S. at 436. Because Plaintiff has never requested a religious accommodation and instead seeks only a stay of his execution, *Ramirez* forecloses his RLUIPA claim.

Second, even if the Court reached the merits, Plaintiff’s RLUIPA claim does not get off the ground—not least because he has failed to identify a substantial burden on his religious exercise. He asserts that Louisiana will deny him “the right to engage in Buddhist meditative breathing.” Mot.28. But the opposite is true. As Dr. McAlary’s own cited editorial explains, Plaintiff will be able to breathe until he becomes unconscious. McAlary Decl., Ex. C at 1012. In fact, as the Smith execution illustrates and as emphasized above, Plaintiff *should* breathe, rather than (like Smith) hold his breath. And to that end, Louisiana has granted Plaintiff’s untimely request to have his spiritual advisor present with him in the execution chamber, so that he may engage in his breathing practices as he wishes. *See* Ex. F, Vannoy Decl.

For this reason, Plaintiff appears to fundamentally misunderstand execution by nitrogen hypoxia—perhaps encouraged by his counsel’s and experts’ mischaracterization of the execution as akin to suffocation and smothering. As the Alabama courts have recognized and as Dr. Antognini confirms, there is no scientific basis for that mischaracterization. Accordingly, Plaintiff faces no substantial burden on his religious exercise and thus has no RLUIPA claim.

Finally, even if Plaintiff had identified a substantial burden, the State would satisfy strict scrutiny—and Plaintiff (Mot.27–28) does not even preserve a strict-scrutiny argument. There is no serious question that the State has a compelling interest in pursuing justice by carrying out executions. *Cf. Dunn v. Smith*, 141 S. Ct. 725, 726 (2021) (Kavanaugh, J., dissenting from denial of application to vacate injunction) (referencing “the State’s compelling interests in ensuring the safety, security, and solemnity of the execution room”); *Ramirez*, 595 U.S. at 433 (“Both the State and the victims of crime have an important interest in the timely enforcement of a sentence.” (quoting *Hill v. McDonough*, 547 U.S. 573, 584 (2006))). Moreover, Plaintiff has not identified any less restrictive means of furthering that interest. There certainly is none under Louisiana law. In addition, for the reasons explained above, DDMAPh is off the table—and Plaintiff could not seriously argue that he would be able to conduct his breathing exercises in the 4 to 13 seconds during which he would be conscious after being shot by a firing squad. Even on strict scrutiny, therefore, Plaintiff’s RLUIPA claim would fail.

D. Plaintiff’s Access-to-Counsel, Access-to-Courts, and Access-to-Protocol Claims (Counts IV and V) Are Not Likely to Succeed.

Plaintiff’s various “access” claims are also likely to fail. That is principally so on mootness grounds. Plaintiff complains, for example, that he has been “denied ... basic information about the manner in which he will be imminently executed”—including “the execution protocol and what has been done to implement it.” Mot.29–30. But, on Saturday, March 1, 2025, Plaintiff’s counsel received an unredacted execution protocol and answers to 30 discovery requests related to it. *See* ECF No. 29.

And the parties stipulated to allow Plaintiff to see the unredacted protocol that same day. Nothing thus remains of any claim premised on a “failure to provide Mr. Hoffman or his counsel with an execution protocol.” Mot.30. In all events, the Fifth Circuit has squarely foreclosed such a due process claim because there is no “cognizable liberty interest” in access to an execution protocol. *Sepulvado v. Jindal*, 729 F.3d 413, 419–20 (5th Cir. 2013) (“There is no violation of the Due Process Clause from the uncertainty that Louisiana has imposed on Sepulvado by withholding the details of its execution protocol.”).

All that remains is a stray claim for “attorney access during the execution procedure” predicated on either the Sixth Amendment right to counsel or the Due Process Clause. Mot.29–30 & n.40. That, too, will fail. The “Sixth Amendment right to counsel only ‘extends to the first appeal of right, and no further’”—Plaintiff is far beyond that first appeal. *Whitaker v. Collier*, 862 F.3d 490, 501 (5th Cir. 2017). And Plaintiff “has no constitutionally protected interest in having counsel present throughout his execution.” *Mills v. Hamm*, 102 F.4th 1245, 1250 (11th Cir.), *cert. denied*, 144 S. Ct. 2601 (2024); *see Mills v. Hamm*, 734 F. Supp. 3d 1226, 1257 (M.D. Ala. 2024), *appeal dismissed*, No. 24-11689, 2024 WL 3897483 (11th Cir. June 12, 2024) (rejecting the same arguments and tag-along “access to courts” claim).

E. Plaintiff’s Ex Post Facto Clause Claim (Count III) Is Not Likely to Succeed.

Finally, Plaintiff has no viable Ex Post Facto Clause claim. *See* Mot.31–33. Such a violation lies where—as relevant here—a new State law “inflicts greater punishment for an offense than was inflicted by the law in existence at the time the

offense was committed.” *United States v. Rose*, 153 F.3d 208, 210 (5th Cir. 1998). The Supreme Court has long held, however, that there is no such increase in punishment where “[t]he statute under consideration d[oes] not change the penalty—death—for murder, but only the mode of producing this.” *See Malloy v. South Carolina*, 237 U.S. 180, 185 (1915); *see also id.* at 183 (“The constitutional inhibition of ex post facto laws was intended to secure substantial personal rights against arbitrary and oppressive legislative action, and not to obstruct mere alteration in conditions deemed necessary for the orderly infliction of humane punishment.”).

That is the case here. From the start, “the punishment—death—has remained the same.” *Zink v. Lombardi*, 783 F.3d 1089, 1108 (8th Cir. 2015); *accord Poland v. Stewart*, 117 F.3d 1094, 1105 (9th Cir. 1997) (no ex post facto violation where “sentence was death, and that sentence remains in place”). Louisiana’s addition of nitrogen as a method of execution does “not increase the punishment, but would only provide for the method by which the punishment would be carried out; a change in procedure, not the sentence.” *United States v. Chandler*, 996 F.2d 1073, 1096 (11th Cir. 1993), *as modified* (Sept. 30, 1993), *aff’d*, 218 F.3d 1305 (11th Cir. 2000). This “change in method” alone “does not make the sentence more burdensome and so does not violate the Ex Post Facto Clause.” *Id.*; *see also United States v. Tipton*, 90 F.3d 861, 903 (4th Cir. 1996) (rejecting as foreclosed ex post facto challenge to means by which death sentence was to be carried out); *Jones v. Crow*, No. 21-6139, 2021 WL 5277462, at *7 (10th Cir. Nov. 12, 2021) (“It is well established that a procedural change in execution protocol does not violate the ex post facto clause because the

penalty—death—remains the same.”); *Matter of Fed. Bureau of Prisons’ Execution Protocol Cases*, No. 05-CV-2337, 2021 WL 127602, at *2 (D.D.C. Jan. 13, 2021) (“[M]ultiple Circuits have found that a change in the method of execution does not increase a condemned inmate’s punishment and, thus, does not implicate the Ex Post Facto Clause.”); *Johnson v. Bell*, 457 F. Supp. 2d 839, 841–42 (M.D. Tenn. 2006) (agreeing with *Poland* and denying inmate’s ex post facto challenge to choice of method of execution).

Ignoring this settled law, Plaintiff argues that nitrogen “is more inhumane than lethal injection” in violation of the Ex Post Facto Clause. Mot.32. But Plaintiff’s argument presupposes a win on his Eighth Amendment claims, which, as explained above, will likely fail. Even if his proffered “more inhumane” standard were the law, therefore, he cannot show the required “significant risk of increased punishment” to support his claim. *See Garner v. Jones*, 529 U.S. 244, 252 (2000); *see also Miller v. Parker*, 910 F.3d 259, 261 (6th Cir. 2018) (requiring plaintiff to show that “the new protocol is ‘sure or very likely’ to be less humane” to implicate the Ex Post Facto Clause). And in all events, the law is clear: Where a capital statute specifies only a new mode of execution, the sentence itself is not altered, and so there is no ex post facto problem. *See Chandler*, 996 F.2d at 1096.

* * *

All of the above arguments demonstrate why Plaintiff is not entitled to preliminary-injunction relief. But they also establish that Plaintiff has not plausibly

stated claims for relief. Accordingly, the Court’s decision on the merits should both deny Plaintiff’s Motion and dismiss the Complaint.⁴

II. THE EQUITIES FAVOR DEFENDANTS.

Plaintiff’s failure to establish a likelihood of success on the merits for any of his claims ends the analysis for all practical purposes. For the remaining factors cannot make up the slack on the merits—the “most important” factor. *Abbott*, 110 F.4th at 706 (quoting *Mock*, 75 F.4th at 587 n.60). But, even if the Court reaches the remaining factors, they weigh heavily in favor of Defendants.

First, Plaintiff’s delay in filing this suit places the equities and the public interest squarely on the State’s side. The Supreme Court has emphasized that federal courts 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.” *Nelson v. Campbell*, 541 U.S. 637, 650 (2004). Indeed, “[l]ast-minute stays should be the extreme exception, not the norm, 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). For that reason, federal 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’

⁴ Because of the current time constraints, Defendants have not raised a qualified-immunity defense in this memorandum. *See* Compl. ¶¶ 14, 15 (purporting to sue Defendants in both their individual and official capacities). They reserve the right to raise that defense if this case proceeds beyond the preliminary-injunction stage.

fashion or based on ‘speculative’ theories.” *Id.* at 151 (quoting *Hill*, 547 U.S. at 584–85).

That precisely describes this case. As the Court is aware, for eight months now, Plaintiff has told this Court that he has a live controversy. *See* Mem. in Support of Mot. for Relief from J. at 1, No. 12-cv-796 (M.D. La. June 14, 2024), ECF 318-1 (“[T]here has since been a material and extraordinary change of circumstances that gives rise to a live controversy between the parties.”). Yet he refused to file this lawsuit. Instead, he put all his eggs in a basket of hope that this Court would reopen his long-dismissed suit and allow him to skip the hassle of filing a new lawsuit. That strategy is inexplicable—but it is also an undisputed fact. Plaintiff now tries to turn his delay on the State by protesting (Mot.3–4) that the State should have just allowed his procedurally wrong invocation of Rule 60(b)(6) to proceed apace. But, as the Court reiterated at last Friday’s conference, all parties here must play by the rules. And the rules in the Fifth Circuit’s caselaw say that Plaintiff cannot use Rule 60(b)(6). That is not the State’s fault. He, the State, and the Court are in this eleventh-hour time crunch solely because he refused to file *this* lawsuit eight months ago. Whether the Court deems that delay or manipulation, it is a fact that tilts the equities in the State’s favor.

Second, the State (and therefore also the public because the factors merge) has an unquestionable compelling interest in Plaintiff’s execution. *See Bucklew*, 587 U.S. at 150 (“Under our Constitution, the question of capital punishment belongs to the people and their representatives”); *Nelson*, 541 U.S. at 644 (“[A] State retains a

significant interest in meting out a sentence of death in a timely fashion.”); *In re Blodgett*, 502 U.S. 236, 239 (1992) (The State’s “sovereign power to enforce [its] criminal law” carries “great weight.”); *Calderon v. Thompson*, 523 U.S. 538, 556 (1998) (“To unsettle these expectations [of finality] is to inflict a profound injury to the ‘powerful and legitimate interest in punishing the guilty,’ an interest shared by the State and the victims of crime alike.” (quoting *Herrera v. Collins*, 506 U.S. 390, 421 (1993) (O’Connor, J., concurring))); *Moran v. Burbine*, 475 U.S. 412, 426 (1986) (recognizing “society’s compelling interest in finding, convicting, and punishing those who violate the law”); *Turner v. Epps*, 460 F. App’x 322, 331 (5th Cir. 2012) (emphasizing that courts must “give appropriate weight to . . . the State’s interests in carrying out [an] execution as scheduled . . .”).

And *third*, Plaintiff has no viable assertion of irreparable harm on the other side of the ledger. His only theory of irreparable harm is that he “will be executed in violation of his constitutional rights.” Mot.33. But that theory falls apart since he has no likelihood of success on the merits. Moreover, to the extent that he suggests his showing of irreparable harm would alone be “dispositive,” he is wrong. Mot.33 (citing *D.T. v. Sumner Cnty. Sch.*, 942 F.3d 324, 327 (6th Cir. 2019)). What the Sixth Circuit actually held in *D.T.* was that the *absence* of irreparable harm was dispositive. *See* 942 F.3d at 327 (“Was the district court wrong to stop the inquiry after finding no irreparable injury? No. When one factor is dispositive, a district court need not consider the others.”). In addition, the Fifth Circuit has rejected limiting the preliminary-injunction inquiry to irreparable harm. *See White v. Carlucci*, 862 F.2d

1209, 1211 n.1 (5th Cir. 1989) (“Plaintiff would have us ... order the injunction to issue if we find that irreparable injury was either established or need not be. Such a result would be inappropriate.”); accord § 73:96, 14A Cyc. of Federal Proc. § 73:96 (3d ed.) (“[E]nforcement of a constitutional state statute will not be enjoined by a federal court merely because it will cause irreparable injury.” (citing *Ala. Pub. Serv. Comm’n v. S. Ry. Co.*, 341 U.S. 341 (1951); *Lawson v. Aetna Ins. Co.*, 41 F.2d 316 (4th Cir. 1930))). And for good reason: Plaintiff’s theory would entitle every prisoner with a death warrant to a preliminary injunction based on nothing more than the warrant’s existence. That is not the law.

In all, therefore, the remaining preliminary-injunction factors warrant the denial of Plaintiff’s Motion.

CONCLUSION

For these reasons, the Court should deny Plaintiff’s Motion for a Preliminary Injunction, if not grant Defendants’ Motion to Dismiss outright. If the Court were to grant a preliminary injunction against Plaintiff’s execution, however, Defendants respectfully request that the Court make clear that it would deny a stay of that injunction, in order to facilitate appellate review.

Respectfully Submitted:

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on March 4, 2025, a copy of the foregoing was filed electronically with the Clerk of Court using the CM/ECF system, and notice will be sent to all counsel for Plaintiff by operation of the court's electronic filing system.

/s/ Caroline M. Tomeny

CAROLINE M. TOMENY

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, *et al.*,

Defendants.

CIVIL ACTION No. 25-169-SDD-SDJ
CHIEF JUDGE SHELLY D. DICK

MAGISTRATE JUDGE
SCOTT D. JOHNSON

.....
EXHIBIT LIST

Exhibit A	Declaration of Ashli Oliveaux
Exhibit B	March 3, 2025, Declaration of Joseph F. Antognini, M.D., M.B.A.
Exhibit C	March 4, 2025, Declaration of Seth Smith
Exhibit D	March 3, 2025, Declaration of Brian McAlary, M.D. and Exhibit C attached thereto (David C. Poole & Damian M. Bailey, <i>Death by Nitrogen Anoxia: On the integrated physiology of human execution</i> , Experimental Physiology (2024))
Exhibit E	March 3, 2025, Declaration of Bickler
Exhibit F	March 3, 2025, Declaration of Darrel Vannoy
Exhibit G	March 4, 2025, Declaration of Caroline Tomeny

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/s/ Caroline M. Tomeny

CAROLINE M. TOMENY

Exhibit A

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana
State Penitentiary; and JOHN DOES,
unknown executioners,

Defendants.

Civil Action No. 25-169

DECLARATION OF ASHLI OLIVEAUX

Ashli Oliveaux, does hereby declare and state:

1. I am the Deputy Warden over Quality Management and Assurance at Louisiana State Penitentiary (“LSP”).
2. In that capacity, the Legal Programs Department falls under my direction and supervisor.
3. Attached hereto as Exhibit 1 is a true and correct copy of the Request for Administrative Remedy Procedure, No. 2025-0240, submitted by Jessie Hoffman (DOC #400473) on February 10, 2025 to the Legal Programs Department.
4. Attached hereto as Exhibit 2 is a true and correct copy of the Emergency Request for Administrative Remedy Procedure submitted by Jessie Hoffman (DOC #400473) on February 14, 2025 to the Legal Programs Department.

Date:

March 4, 2025



Ashli Oliveaux
Deputy Warden

ADMINISTRATIVE REMEDY PROCEDURE & PROPERTY CLAIMS

INPUT SCREEN

CASE NUMBER: LSP-2025-0240

EVACUEE:

DOC #: 400473 BACKLOG:
 LAST NAME: HOFFMAN FIRST NAME: JESSIE
 RECORD TYPE: A SUBJECT CODE: 1099 - OTHER
 INCIDENT DATE: 2/10/2025 SUBJECT TYPE :
 LSP Only
 LSP RESPONDENT: Death Row Warden

LSP HOUSING: DEATH ROW

	DATE RECEIVED	ACCEPTED DATE	DISPOSITION DATE	DISPOSITION CODE
STEP 1:	02/11/2025	02/11/2025		
STEP 2:				

COMPLAINT: FIRST STEP : INMATE COMPLAINT IS AGAINST THE EXECUTION PROCEDURE.
 IF REJECTED REASON:

//AG/Jessie Hoffman v. D. Vannoy, et al USDC MD 25-169-SDD-SDJ

02/11/2025

02/11/2025

LOUISIANA DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONS
CORRECTIONS SERVICES
OFFENDERS RELIEF REQUEST FORM

CASE NUMBER: LSP-2025 -0240

TO: JESSIE HOFFMAN 400473
Offender's Name and Number

DR B TIER
Living Quarters

2/10/2025
Date of Incident

X ACCEPTED: This request comes to you from the Wardens Office. A response will be issued within 40 days of this date.

REJECTED: Your request has been rejected for the following reason(s):

02/11/2025
Date

TRISH FOSTER
Warden's Signature or Designee

2025-0240

1099/DR

To: Warden Vannoy
From: Jessie Hoffman
Date:
Re: Execution Protocol Grievance

**THIS IS AN EMERGENCY REQUEST FOR ADMINISTRATIVE REMEDIES (ARP)
brought under La. Admin. Code tit. 22 § I-325(H)(1)(a):**

I am an inmate currently sentenced to death at Angola. I bring this complaint against the Department of Public Safety and Corrections, Secretary Gary Westcott, Warden Darrel Vannoy, and all participants in the execution process at Angola Louisiana State Penitentiary, many of whose identities are not known to me.

On February 10, 2025, a death warrant was issued for my execution for March 18, 2025. Louisiana's administrative remedy procedure allows for Louisiana State Penitentiary to take 40 days to respond to my grievance, issuing a "First Step Response," five days for me to appeal a denial, and 45 days for the Department of Corrections to respond to my appeal and issue a "Second Step Response." *See* La. Admin. Code tit. 22 § I-325(J)(1). The code requires a second step on the merits to exhaust. *See* La. Admin. Code tit. 22 § I-325(F)(3)(a)(vii). My grievance cannot be processed before my execution date through the regular procedure. I am therefore bringing this ARP as an emergency ARP under La. Admin. Code tit. 22 § I-325(H)(1)(a), which states:

H. Emergency or Sensitive Issues

1. In instances where the offender's request is of an emergency or sensitive issue as defined below, the following procedures will apply.

a. If an offender feels he is subjected to emergency conditions, he must send an emergency request to the shift supervisor. The shift supervisor shall immediately review the request to determine the appropriate corrective action to be taken. All emergency requests shall be documented on an unusual occurrence report (form C-05-001-W-1) by the appropriate staff member.

The State and its agents have indicated that they will carry out my execution through use of nitrogen hypoxia, one of the three permissible methods under the State's statute. However, I have not been informed of the precise process or protocol the State will use to carry out my sentence. I worry that the protocol has not been approved or designed with the help of a certified medical professional and that it does not include adequate safeguards to protect my constitutional rights against torture, pain, and suffering.

I believe the execution team has not been properly trained in executions, that there is insufficient medical supervision over the procedures, and that the procedures themselves don't include adequate safeguards to protect me from cruel and unusual punishment. I worry that the

execution team will cause me severe pain and suffering in their attempt to start an IV line due to a lack of training.

I worry that those who might be selected to carry out the execution lack the qualifications, training, and competence to do so in a constitutional manner. I worry that I will be tortured to death. I am worried that I will experience substantial pain and suffering, including conscious paralysis, suffocation, or conscious cardiac arrest. I worry that if the method of execution is not administered properly, my execution will become torture. I worry that I may be tortured and survive my execution, causing post-traumatic stress disorder and other issues, and lasting damage to my brain, heart, lungs, kidneys, and other organs, and other disabling and painful conditions.

I am aggrieved that the DOC will use a “nitrogen hypoxia” (suffocation) protocol that will cause me severe pain, torture, and suffering upon my execution. I believe there is a substantial risk that I will remain alive, conscious, and sensate for some period of time during the suffocation process and, as a result, will experience the excruciating agony associated with consciously suffocating to death. I worry that I will aspirate my own vomit. I worry that I will suffer a seizure. I worry that I will suffer agonizing pain associated with ischemic damage as my organs are deprived of oxygen. I worry that the equipment used in a suffocation protocol will not be tailored for my body and will malfunction. I worry that the equipment will allow nitrogen to escape and harm others around me, such as corrections staff, media representatives, victim’s family, my attorneys, and my spiritual advisor.

I also have reason to believe that, if the State chooses instead to use lethal injection and the old lethal injection protocol is still in place, the State intends to carry out the execution using expired drugs since the drugs in the old protocol are no longer available. I am also concerned that the protocol has not been and will not be consistently adhered to. I worry that the state may substitute different drugs into the previous lethal injection protocol without creating a new protocol to address the change of drugs. I worry that the DOC will buy drugs from unregulated compounding pharmacies, compound its own chemicals without any oversight or testing, or use manufactured drugs against the manufacturer’s intended use. I worry that any compounded drugs or chemicals will lack purity, quality, potency, or sterility, due to a lack of oversight and testing. I worry that the DOC will obtain drugs or chemicals in violation of state or federal regulatory law.

I am aggrieved that if the State chooses instead to utilize electrocution, the DOC will use an electrocution protocol that will cause me severe pain, torture, and suffering upon my execution. I believe there is a substantial risk that I will remain alive, conscious, and sensate for some period of time during the electrocution process and, as a result, will experience the excruciating pain and suffering associated with my body’s contact with a high-voltage electrical current. I worry that I will retain consciousness while my body suffers severe and disfiguring electrical burns, and internal damage to my organs and brain caused by electrocution. I worry that the electrical wiring will malfunction, causing burns or a fire.

I also believe the execution protocols should be subject to public review and/or public oversight to ensure there is due process of law and to help ensure that the procedures contain adequate safeguards. I believe I am entitled to full notice of the protocol which will be in place for my execution, and an opportunity to be heard and challenge it, under due process of law. I am

concerned the protocols are arbitrary and capricious. I believe that the proper administrative law procedures were not adhered to and that the power to establish the execution protocols were unlawfully delegated to the Department of Corrections or not delegated at all.

I worry that the Secretary will choose different methods of execution arbitrarily, and I will be subject to a more painful execution than other inmates for no compelling reason. I worry that I will suffer from severe anxiety caused by not being told how I will be executed until 7 days after an execution warrant is received by the Secretary. I worry that the lack of guidance as to how a method of execution is selected will violate my right to equal protection.

The foregoing amounts to violations of my rights under the equal protection clause of the Fourteenth Amendment, the cruel and unusual punishment clauses of the Eighth Amendment, rights to free speech and free press under the First Amendment, and the due process clause of the Fifth and Fourteenth Amendments of the United States Constitution, and analogous provisions of the Louisiana Constitution.

Requests for Relief

I respectfully request the following relief:

1. A copy of the unusual occurrence report (form C-05-001-W-1) generated as a result of this Emergency ARP
2. A copy of all past and current protocols, guidelines, rules and procedures related to executions by lethal injection, nitrogen hypoxia, and/or electrocution in Louisiana. This request includes all drafts of these documents.
3. Information about the type, quantity, manufacturer, and source of all drugs to be used in the lethal injection process, as well as any documentation of FDA approval for the drugs, whether they are approved for human or veterinary use, the expiration dates of all drugs.
4. Information about the type, quantity, manufacture and source of nitrogen and other gases, and other equipment to be used in the nitrogen hypoxia process.
5. Information about the amount, duration, and method of application of electric current for electrocution, and other materials or equipment to be used in the electrocution process.
6. The results of testing of all drugs, gas, electric chair, and any other equipment or materials to be used in my execution.
7. Documentation of the qualifications and training for all members of the execution team, and those involved in manufacturing or compounding execution drugs.
8. A declaratory judgment that the current plan for execution by lethal injection, nitrogen hypoxia, and/or electrocution in Louisiana is unconstitutional.

Form AM-I-4-w-2
31 October 2021

DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONS
CORRECTIONS SERVICES
UNUSUAL OCCURRENCE REPORT
(Miscellaneous)

INSTITUTION: LSP

NAME Hoffman, Jesse	NUMBER 400473	DORM/CB DR B TIER	DATE OF INCIDENT 02/11/2025	TIME 11:37 AM
LOCATION OF INCIDENT		WITNESSES		
TYPE OF INCIDENT - CHECK APPROPRIATE BOXES				
<input type="checkbox"/> Accidents <input type="checkbox"/> Employee Accident <input type="checkbox"/> Offender Accident <input type="checkbox"/> Vehicle Accident <input type="checkbox"/> Contraband <input type="checkbox"/> Inside Facility <input type="checkbox"/> Outside Facility <input type="checkbox"/> Drug Screen <input type="checkbox"/> Maintenance <input type="checkbox"/> Use of Body Camera or other RMD <input type="checkbox"/> Request to Remove Service Dog		<input type="checkbox"/> Medical <input type="checkbox"/> Mental Health <input type="checkbox"/> Protection Request <input type="checkbox"/> Security Inspections <input type="checkbox"/> Shakedowns <input type="checkbox"/> Routine <input type="checkbox"/> Staff <input type="checkbox"/> Visitor <input type="checkbox"/> Offender <input type="checkbox"/> Target <input type="checkbox"/> Staff <input type="checkbox"/> Visitor <input type="checkbox"/> Offender <input type="checkbox"/> Use of Tact Team and Chase Team as outside assistance		
<input checked="" type="checkbox"/> Other: Emergency Administrative Remedy				
DESCRIPTION OF INCIDENT (ATTACH ADDITIONAL INFORMATION IF NEEDED)				
On the above date and approximate time I received service of an Emergency Administrative Remedy Procedure on behalf of Jessie Hoffman from Caroline Tillman. As outlined in Penitentiary Directive 14.006 Administrative Remedy Procedure, I have provided the attached Emergency Administrative Remedy Procedure to the legal programs office.				

Maghen Shipley
REPORTING OFFICER

02/11/2025
DATE COMPLETED

11:41 AM
TIME COMPLETED

OFFICER'S SIGNATURE

Status: Pending Approval By Ashli Oliveaux Status Date:

To: Warden Vannoy
From: Jessie Hoffman
Date: 2/14/25
Re: Execution Protocol Grievance

**THIS IS AN EMERGENCY REQUEST FOR ADMINISTRATIVE REMEDIES (ARP)
brought under La. Admin. Code tit. 22 § I-325(H)(1)(a):**

I am an inmate currently sentenced to death at Angola. I bring this complaint against the Department of Public Safety and Corrections, Secretary Gary Westcott, Warden Darrel Vannoy, and all participants in the execution process at Angola Louisiana State Penitentiary, many of whose identities are not known to me.

On February 10, 2025, a death warrant was issued for my execution for March 18, 2025. Louisiana's administrative remedy procedure allows for Louisiana State Penitentiary to take 40 days to respond to my grievance, issuing a "First Step Response," five days for me to appeal a denial, and 45 days for the Department of Corrections to respond to my appeal and issue a "Second Step Response." *See* La. Admin. Code tit. 22 § I-325(J)(1). The code requires a second step on the merits to exhaust. *See* La. Admin. Code tit. 22 § I-325(F)(3)(a)(vii). My grievance cannot be processed before my execution date through the regular procedure. I am therefore bringing this ARP as an emergency ARP under La. Admin. Code tit. 22 § I-325(H)(1)(a), which states:

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The State and its agents have indicated that they will carry out my execution through use of nitrogen hypoxia, one of the three permissible methods under the State's statute. However, I have not been informed of the precise process or protocol the State will use to carry out my sentence. AI worry that the protocol has not been approved or designed with the help of a certified medical professional and that it does not include adequate safeguards to protect my constitutional rights against torture, pain, and suffering.

I believe the execution team has not been properly trained in executions, that there is insufficient medical supervision over the procedures, and that the procedures themselves don't include adequate safeguards to protect me from cruel and unusual punishment. I worry that the

execution team will cause me severe pain and suffering in their attempt to start an IV line due to a lack of training.

I worry that those who might be selected to carry out the execution lack the qualifications, training, and competence to do so in a constitutional manner. I worry that I will be tortured to death. I am worried that I will experience substantial pain and suffering, including conscious paralysis, suffocation, or conscious cardiac arrest. I worry that if the method of execution is not administered properly, my execution will become torture. I worry that I may be tortured and survive my execution, causing post-traumatic stress disorder and other issues, and lasting damage to my brain, heart, lungs, kidneys, and other organs, and other disabling and painful conditions.

I am aggrieved that the DOC will use a "nitrogen hypoxia" (suffocation) protocol that will cause me severe pain, torture, and suffering upon my execution. I believe there is a substantial risk that I will remain alive, conscious, and sensate for some period of time during the suffocation process and, as a result, will experience the excruciating agony associated with consciously suffocating to death. I worry that I will aspirate my own vomit. I worry that I will suffer a seizure. I worry that I will suffer agonizing pain associated with ischemic damage as my organs are deprived of oxygen. I worry that the equipment used in a suffocation protocol will not be tailored for my body and will malfunction. I worry that the equipment will allow nitrogen to escape and harm others around me, such as corrections staff, media representatives, victim's family, my attorneys, and my spiritual advisor.

I also have reason to believe that, if the State chooses instead to use lethal injection and the old lethal injection protocol is still in place, the State intends to carry out the execution using expired drugs since the drugs in the old protocol are no longer available. I am also concerned that the protocol has not been and will not be consistently adhered to. I worry that the state may substitute different drugs into the previous lethal injection protocol without creating a new protocol to address the change of drugs. I worry that the DOC will buy drugs from unregulated compounding pharmacies, compound its own chemicals without any oversight or testing, or use manufactured drugs against the manufacturer's intended use. I worry that any compounded drugs or chemicals will lack purity, quality, potency, or sterility, due to a lack of oversight and testing. I worry that the DOC will obtain drugs or chemicals in violation of state or federal regulatory law.

I am aggrieved that if the State chooses instead to utilize electrocution, the DOC will use an electrocution protocol that will cause me severe pain, torture, and suffering upon my execution. I believe there is a substantial risk that I will remain alive, conscious, and sensate for some period of time during the electrocution process and, as a result, will experience the excruciating pain and suffering associated with my body's contact with a high-voltage electrical current. I worry that I will retain consciousness while my body suffers severe and disfiguring electrical burns, and internal damage to my organs and brain caused by electrocution. I worry that the electrical wiring will malfunction, causing burns or a fire.

I also believe the execution protocols should be subject to public review and/or public oversight to ensure there is due process of law and to help ensure that the procedures contain adequate safeguards. I believe I am entitled to full notice of the protocol which will be in place for my execution, and an opportunity to be heard and challenge it, under due process of law. I am

concerned the protocols are arbitrary and capricious. I believe that the proper administrative law procedures were not adhered to and that the power to establish the execution protocols were unlawfully delegated to the Department of Corrections or not delegated at all.

I worry that the Secretary will choose different methods of execution arbitrarily, and I will be subject to a more painful execution than other inmates for no compelling reason. I worry that I will suffer from severe anxiety caused by not being told how I will be executed until 7 days after an execution warrant is received by the Secretary. I worry that the lack of guidance as to how a method of execution is selected will violate my right to equal protection.

I am aggrieved that my religious beliefs will be violated by the gassing protocol. I am a devote Buddhist, and central to my religious beliefs is my breathing practice. Execution by suffocation through the introduction of nitrogen hypoxia will make it impossible for me to practice my religion at the most important moment, when I transition to my death.

I have a history of PTSD and have coped by breathing techniques. If I am strapped down and forced to wear a mask that causes me to inhale pure nitrogen,, I will not be able to cope by breathing. This will result in high anxiety, panic, needless suffering and extreme emotional pain.

The foregoing amounts to violations of my rights under the equal protection clause of the Fourteenth Amendment, the cruel and unusual punishment clauses of the Eighth Amendment, rights to free speech and free press under the First Amendment, and the due process clause of the Fifth and Fourteenth Amendments of the United States Constitution, and analogous provisions of the Louisiana Constitution. It also violates my rights under the Religious Land Use and Institutionalized Persons Act, Pub. L. 106-274, codified as 42 U.S.C. § 2000cc et seq.,

Requests for Relief

I respectfully request the following relief:

1. A copy of the unusual occurrence report (form C-05-001-W-1) generated as a result of this Emergency ARP
2. A copy of all past and current protocols, guidelines, rules and procedures related to executions by lethal injection, nitrogen hypoxia, and/or electrocution in Louisiana. This request includes all drafts of these documents.
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4. Information about the type, quantity, manufacture and source of nitrogen and other gases, and other equipment to be used in the nitrogen hypoxia process.

5. Information about the amount, duration, and method of application of electric current for electrocution, and other materials or equipment to be used in the electrocution process.
6. The results of testing of all drugs, gas, electric chair, and any other equipment or materials to be used in my execution.
7. Documentation of the qualifications and training for all members of the execution team, and those involved in manufacturing or compounding execution drugs.
8. A declaratory judgment that the current plan for execution by lethal injection, nitrogen hypoxia, and/or electrocution in Louisiana is unconstitutional.
9. An injunction preventing the State of Louisiana from carrying out my sentence.
10. I also request any other equitable relief that might be appropriate.

Submitted by:

Exhibit B

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana
State Penitentiary; and JOHN DOES,
unknown executioners,

Defendants.

Civil Action No. 25-169

DECLARATION OF JOSEPH F. ANTOGNINI, M.D., M.B.A.

JOSEPH F. ANTOGNINI, does hereby declare and say:

1. My name is Joseph F. Antognini. I am a medical doctor, board-certified in anesthesiology. I received a B.A. degree from the University of California, Berkeley in Economics in 1980. I received my M.D. degree from the University of Southern California in 1984. I also received an M.B.A. from California State University, Sacramento in 2010. I was previously the Director of Peri-operative Services at the University of California, Davis Health System and a Professor of Anesthesiology and Pain Medicine and Professor of Neurobiology, Physiology and Behavior at the University of California, Davis. I am licensed to practice medicine in the State of California

and the State of Georgia. I have over 30 years of experience practicing anesthesiology since 1984 when I began my residency at the University of California, Davis Health System. I am the author or co-author of over 200 publications (peer-reviewed papers, case reports, abstracts, book chapters and letters). My area of research has focused on anesthetic mechanisms, specifically related to where anesthetics produce unconsciousness, amnesia and immobility. I am Chief Scientific Officer for a start-up pharmaceutical company. I also perform clinical research. A true and correct copy of my curriculum vitae is attached hereto as Exhibit A.

2. I have reviewed, and am familiar with, the allegations made in the Complaint dated February 25, 2025 and additional information in the documents described below (References Cited section).

Scope of Engagement

3. I have been asked to render expert opinions in the fields of general medicine and anesthesiology, especially regarding the use, actions and efficacy of nitrogen, in relation to Louisiana's nitrogen hypoxia protocol, the effectiveness of the procedures therein, and personnel safety. My engagement is strictly limited to this area of inquiry, as I will not, and cannot, offer expert opinions that would have the direct effect of assisting the State of Louisiana with the development or improvement of its nitrogen hypoxia protocol, nor am I permitted to assist with an execution. This report

contains a complete statement of my opinions, and the basis and reasons therefore, including the facts or data I have considered in forming them. I may supplement this report as appropriate. The opinions that I do provide are within my field of anesthesiology and such fields as are necessarily related to anesthesiology, including general medicine, pharmacology and physiology, and fall within the scope of my expertise. All opinions expressed herein are stated to a reasonable degree of medical and scientific certainty unless otherwise noted.

4. My fee schedule for this engagement is: \$575/hour for phone consultation, research, report preparation; \$675/hour for deposition; \$7000/day for courtroom appearance; \$287/hour for travel time plus travel expenses at cost.

Materials Reviewed

5. I have conferred with attorneys for Defendants. Among the documents I have reviewed in connection with this case are Louisiana's execution protocol (dated February 2025) and publications and materials in the "References Cited and Materials Reviewed" section. Regarding the execution protocol, I mainly focused on those sections related to executions using nitrogen hypoxia.

6. Should additional documents or information be provided to me for

review and analysis, I may take those additional materials into account, and modify and/or supplement my opinions accordingly. If I am present at hearings and/or trial in this case, I may take into account any testimony or other evidence to the extent related to my opinions and modify and/or supplement my opinions accordingly. In performing my analysis, I have relied on my professional training, education and experience. The opinions presented in this report are my opinions and mine alone. I have reviewed and considered documents and information and identified those materials above. These documents and other information that I reviewed and considered are of a type reasonably relied upon by experts in the field of anesthesiology, general medicine, physiology and pharmacology in forming opinions or inferences on questions in this area.

7. I have testified and submitted expert reports in the following cases in the past four years: 1) I have submitted reports and given testimony *In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases* (No. 19-mc-00145-TSC); 2) I have submitted reports and have testified in *Glossip et al. v. Chandler et al.*, Case No. CIV-14-665-F, in the United States District Court for the Western District of Oklahoma; 3) I have submitted reports and have testified in *Bigler Stouffer. v. Scott Crow*, Case No. 21-cv-1000-F, in the United States District Court for the Western District of Oklahoma; 4) I have submitted reports and have been deposed in *Terry Lynn King v. Tony Parker*,

Case No. 3:18-cv-01234, in the United States District Court for the Middle District of Tennessee; 5) I have submitted reports and testified in *Michael Nance v. Oliver & Caldwell*, Case No. 1:20-CV-107-JPB, in the United States District Court for the Northern District of Georgia, Atlanta Division; 6) I have submitted reports and testified in *Kenneth Eugene Smith v John Q. Hamm*, 2:22-cv-00497-RAH, in the United States District Court for the Middle District of Alabama; 7) I have submitted reports and been deposed in *Martin v Oliver & Caldwell*, 1:18-cv-4615-MLB in the US District Court, Northern District of Georgia, Atlanta Division; 8) I have submitted a report and been deposed in *Miller v. Marshall et al.* 2:24-cv-197 in the United States District Court for the Middle District of Alabama; 9) I have submitted a report and testified in *Grayson v. Hamm et al.*, 2:24-cv-00376-RAH-KFP in the United States District Court for the Middle District of Alabama; 10) I have submitted a report and testified in *Frazier v. Hamm et al.*, 2:24-cv-00732 in the United States District Court for the Middle District of Alabama.

Discussion

8. Nitrogen is the most abundant atmospheric gas and constitutes nearly 78% of air. Nitrogen does not chemically change and is not altered when humans breathe it and thus it is not harmful under normal circumstances. However, if nitrogen is introduced into a closed area and thereby displaces oxygen that is normally present, humans can be harmed and can die if the

oxygen concentration (or more accurately, partial pressure) decreases to critical lethal levels.

9. The Louisiana protocol involves placement of a virtually air-tight mask on the inmate while air flows into the mask. The air flow is sufficient to remove the carbon dioxide that is exhaled by the inmate. Once the decision is made to execute the inmate, the nitrogen flow to the mask is turned on, and the air flow to the mask is turned off. Nitrogen quickly enters the mask, and, in the absence of breath-holding, within 4-5 breaths the inmate is breathing nearly 100% nitrogen. Because the oxygen stores in the body are limited, the inmate will quickly become unconscious (within 30-40 seconds after the inspired nitrogen is >90% and the inmate is inhaling, i.e., there is no breath holding). After several minutes the inmate's heart will stop (although there might be a few irregular beats for 10-15 minutes after nitrogen affects the heart).

10. The flow rate of air before execution, and the flow rate of nitrogen during the execution, are high (70 liters per minute, LPM) and would remove carbon dioxide exhaled by the inmate. The excess breathing gases (including waste gases such as carbon dioxide) would be vented into the execution

chamber via a one-way exhalation valve on the mask. Thus, there would be minimal-to-no rebreathing of carbon dioxide by the inmate.¹

11. The lethality of nitrogen (and other inert gases) is well documented by suicides and industrial accidents. Ogden et al. (2010) described four patients who committed suicide using helium gas (an otherwise inert gas that, like nitrogen, can displace oxygen). The gas was administered at flow rates much lower than those anticipated in the Louisiana protocol and into a mask that permitted entrainment of air, the point being that the development of hypoxia was slower than that which would likely occur with the Louisiana protocol. Even under these conditions, Ogden et al. (2010) reported that unconsciousness occurred within 36-55 sec and death occurred in 5-10 minutes in three patients. The fourth patient died after 40 minutes, most likely due to inadequate placement of the breathing mask, which permitted the patient to breathe room air. In their report, Ogden et al. (2010) specifically point out that there was variable mask placement which likely lead to gaps between the mask and face, thereby allowing room air to be entrained and breathed. However, the attendants present did not readjust any mask, most likely because of the risk of criminal liability insofar as they

¹ When humans re-breathe carbon dioxide, they can have a sense of breathlessness, as occurs with exercise (see paragraph 33 for further information). It is the build-up of carbon dioxide, and not hypoxia *per se*, that predominantly causes the sense of breathlessness—see paragraph 27 for further information.

could not assist with the suicide process. In the setting of an execution, and as outlined in the Louisiana protocol, the prison staff can adjust the mask to minimize leaks, if needed.

12. In another report, Ogden (2010) described two patients who used helium inhalation for suicide. These patients used large plastic bags that were likely to be more air-tight than the medical masks described in Ogden et al. (2010). These two patients had loss of consciousness at 10-12 seconds, and death occurred probably at 9-12 minutes (based on his report that the last terminal breaths occurred at 8 minutes 36 seconds and 11 minutes 11 seconds, respectively). In one patient who had a pulse oximetry reading = 98% while breathing room air, the pulse oximetry reading was 39% at 1 minute after inhaling helium, indicating rapid desaturation; at 2 and 3 minutes, the pulse oximeter could not detect pulses, likely due to low blood pressure and cardiovascular collapse. Ogden (2010) and Ogden et al. (2010) reported that there was no evidence of pain in the subjects who died from helium inhalation. Furthermore, Ogden and colleagues did not report any observations of airway obstruction during the inhalation of the inert gas. Also, Harding & Wolf (2008) reported on a man who committed suicide by nitrogen inhalation and the man's body was found with his arms at his side and the "breathing tent" intact, indicating that he did not seem to suffer

insofar as there was no evidence that he attempted to remove the breathing tent.

13. Numerous industrial accidents have resulted in worker deaths due to inhalation of inert gases, such as nitrogen and argon. A search of the Occupational and Safety Health Administration website using the terms “nitrogen” and “argon” returned over fifty reports of people who died as the result of asphyxia (see Fatality and Catastrophe Investigation Summaries | Occupational Safety and Health Administration osha.gov accessed 1-9-25). Some of the deaths due to inert gases are detailed in an OSHA report (see Deaths Involving the Inadvertent Connection of Air-line Respirators.FINAL (osha.gov) accessed 1-9-25) and in Hudnall et al (1993). It is noteworthy that these reports do not describe any evidence that the workers attempted self-rescue to escape the dangerous environment, as would be expected if they felt pain or distress.

14. Herin et al. (1978) reported the effects of nitrogen inhalation as a method of euthanasia in dogs. Loss of consciousness occurred at about 40 seconds on average (range: 16 to 76 seconds), the electroencephalogram (brain wave monitor) became flat at 80 seconds (range: 36 to 132 seconds) and blood pressure was zero at about 204 seconds (range: 83 to 288 seconds).

These data from animals comport with what has been observed in human suicides as described above.

15. Various reports in both humans and animals describe muscular movements, including muscle tremors and convulsion-like activity, after initiation of hypoxia (Herin et al. 1978, Ogden et al. 2010, Ogden 2010, Ernsting, 1963). I am aware that various media accounts and witnesses have reported that inmates executed by nitrogen hypoxia made similar movements after losing consciousness. Such movements should not be construed as indicating any suffering as the movements occurred as a result of central nervous system (brain and spinal cord) hypoxia and after the subject had become unconscious. Ernsting (1963) reported that convulsions occurred in subjects that inhaled 100% nitrogen for about 17-20 seconds, at the time that the subjects lost consciousness. Ogden et al. (2010) and Ogden (2010) reported that convulsions occurred around the time that unconsciousness occurred.

16. The Louisiana nitrogen hypoxia system permits nitrogen to flow through the one-way valve of the mask and into the execution chamber. However, the air volume of the room is so large that the risk of significant low oxygen concentrations in the room sufficient to be a risk to others is

minimal.² Also, the ventilation system would further dilute excess nitrogen in the execution chamber. The Louisiana protocol contains numerous provisions to ensure the safety of personnel and others. For example, there are procedures to measure oxygen concentrations at various areas of the execution chamber and adjoining rooms. In addition, the LSP has several portable oxygen monitors that personnel will use to warn them of low oxygen concentrations. There are detailed procedures governing the sequence of valve openings and closings. These procedures will minimize risk to personnel and visitors.

17. The high gas flow rate through the mask quickly and efficiently removes exhaled carbon dioxide and minimizes rebreathing of carbon dioxide. It is because of the high gas flow rates that a supplied air respirator does not require any other mechanism to remove carbon dioxide, such as a “scrubber”. The mask, tubing and gas system used in the Louisiana execution set-up is like the types of breathing systems sometimes used in anesthesia, e.g., the Mapleson breathing systems (Dorsch & Dorsch, 2008). During spontaneous breathing the minimal fresh gas flow rates to prevent rebreathing of carbon dioxide with these Mapleson systems are in the range of 12-18 LPM (2-3 x minute ventilation, which is normally 5-6 LPM; see Dorsch & Dorsch, 2008).

2. Based on measurements that I made while in the execution chamber on March 1, 2025: the air volume in the execution chamber is about 2400 cubic feet. So the risk to personnel due to excess nitrogen exposure is minimal.

The gas flow rate in the Louisiana set-up is 70 LPM, which substantially exceeds that range.

18. Supplied air respirator masks are designed to permit the wearer to talk and move their head without compromising the integrity of the virtually airtight seal of the mask, in part due to the strapping mechanism that ensures a virtual airtight fit which minimizes air entrainment and which makes it nearly impossible to dislodge the mask.

19. On March 1, 2025 I evaluated the Louisiana nitrogen hypoxia system. I wore the mask while air was delivered at 70, 50 and 30 LPM, and I was able to breathe easily. The mask did not loosen or become dislodged while I was talking or after vigorous head movements. Thus, it is my opinion that the mask on the inmate would not become dislodged even if the inmate moves his head or is talking. Furthermore, the straps and mask are designed to accommodate various facial features. Lastly, the 70 LPM gas flow is adequate to provide for normal breathing patterns.

20. The Louisiana nitrogen hypoxia system uses a Type C supplied air respirator mask, which is commonly used for industrial purposes in environments that would be hazardous (such as spray-painting). The air supplied to the system is Grade D, which is the air quality used for industrial work. Medical grade gasses are not required in industrial settings.

21. A demonstration at LSP on March 1, 2025 documented how quickly the oxygen decreased in the mask after the introduction of nitrogen. A sampling tube of an oxygen monitor was placed in the mask that had been placed on a mannequin. The nitrogen was turned on at 70 LPM and the air flow was turned off at the same time. The oxygen concentration precipitously decreased in less than a minute, as shown in the data in the table below:

O ₂ conc	20.9%	20%	10.9%	4.4%	1.8%	1%	0.8%
Time(sec)	0	10	20	30	40	50	60

It took 20 seconds to reach 10.9%, 30 seconds to reach 4.4%, etc. Thus, from the initiation of the nitrogen at time 0, it took 40 seconds to reach <2%. The time to unconsciousness at 5% oxygen is about 10-12 seconds (Miller & Mazur, 1983), so I would expect unconsciousness to occur within 35-40 seconds after the inhalation of 95-100% nitrogen.

22. I am aware that observers of the four prior executions by nitrogen hypoxia have described various movements, including vigorous movements. Some of these could have occurred because of the conscious attempt by the inmate to dislodge the mask, before the nitrogen gas was administered. Other movements after the onset of unconsciousness are likely due to involuntary movements associated with hypoxia in the central nervous system. Convulsions have been described during the delivery of hypoxic gas mixtures (Ernsting, 1963). Likewise, Ogden (2010) and Ogden et al. (2010) reported

movements after onset of inert-gas hypoxia. It is important to note that the patients described in those reports were mostly female (who have less muscle mass than men), elderly and infirm. These factors would make the patients less likely to generate strong involuntary movements. The four inmates executed thus far with nitrogen hypoxia were men, relatively younger than the patients described in the Ogden reports, and without significant debilitating chronic disease. Thus, I am not surprised that the four inmates demonstrated more involuntary movements than those reported by Ogden and colleagues.

23. Neurons are the important cells in the nervous system. If neurons do not receive adequate amounts of oxygen, then the neurons start to discharge erratically, and eventually, if the hypoxia (low oxygen) persists, the neurons will stop altogether. But, importantly, during the initial period of hypoxia, the neurons can have increased firing rates (Haddad & Donnelly, 1990), which would result in involuntary movements, as have been observed in prior executions by nitrogen hypoxia.

24. The supplied air respirator mask used by Louisiana is the type commonly used and approved for use in industrial work settings. The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) set standards for

masks and respirators. Among the standards established by OSHA and NIOSH are the protection factors required of such masks and respirators.

25. The protection factor of a mask is defined as the concentration of a contaminant on the outside of the mask (C_o) that would be present in the ambient environment, divided by the concentration of the contaminant inside the mask (C_i):

$$\text{Protection factor} = C_o/C_i.$$

Thus, if a mask has an approved protection factor = 1000, and if the concentration of a contaminant in the ambient environment is 1%, then the mask can provide protection by having a contaminant concentration inside the mask = $1\%/1000 = 0.001\%$ (a 1000-fold reduction). Such contamination occurs because of small leaks around the edges of the mask where the mask meets the skin of the face.

26. The mask used by Louisiana has an assigned protection factor = 1000.^{3,4} If, in the context of an execution, one considers the oxygen in the air as the “contaminant”, then any small leaks around the mask would not result in any significant leakage or entrainment of room air and oxygen. For example, given that the concentration of oxygen in the air is 21%, and that

³ Because of confidentiality issues related to divulging the manufacturer, I attest that I viewed the specifications on 3-2-2025.

⁴ [A Guide to Atmosphere-Supplying Respirators \(cdc.gov\)](#) accessed 9-13-24. In the absence of fit testing, a supplied air mask is assigned a protection factor = 25, which would still result in oxygen concentrations <1% in the mask.

the protection factor of the mask is 1000, then the concentration of the oxygen in the mask due to leaks would be $21\%/1000 = 0.021\%$.

27. Even if there were significant leaks around the mask, and the mask only provided a protection factor = 10, then the concentration of oxygen in the mask would be $\approx 2.1\%$, a concentration that would rapidly cause death.

Furthermore, the air in the immediate vicinity of the mask would have low oxygen concentrations because of the excess nitrogen exhausted from the mask. So, any air entrainment because of a leak would have less than 21% oxygen, which would further lessen the impact of a leak.

28. The nitrogen flow rates are high, compared to the volume of the system that contains common piping and tubing through which both air and nitrogen flow, and the residual air would quickly enter and exit the mask. The rapidity of the removal of the residual air is shown by the data in the table of paragraph 21 above, when the system was tested.

29. Regarding the issues of hypoxia, carbon dioxide rebreathing, onset of unconsciousness and death, information promulgated by OSHA is particularly informative:

“When a respirator’s air line is connected to a source of inert gas rather than to breathable air, the respirator wearer who trusts his/her sense of breathlessness to determine whether he/she is connected to breathing air has little warning before losing consciousness. This is because the buildup of carbon dioxide, not a lack of oxygen, ordinarily causes the sensation of breathlessness that may alert the individual wearing the respirator. Consequently, the victim is fooled because there is no clear

indication that anything is amiss. Blackout occurs quickly, without warning. Victims wearing respirators connected to inert gas lines are in a zero percent oxygen atmosphere, and unconsciousness can occur in about 12 seconds² and death in a matter of minutes. The situation continues to be critical because victims are still wearing respirators and continue to breathe inert gas after they collapse.”⁵

The above OSHA information comports with the idea that, after introduction of nitrogen, an inmate would rapidly lose consciousness, would not suffer as a result of carbon dioxide retention or a sense of breathlessness, and that death would occur quickly.

30. Nothing in the Louisiana protocol or the nitrogen hypoxia system developed by Louisiana would lead to the inmate suffering pain, aside from pain that would be associated with the inmate struggling while being moved to the execution chamber and being secured to the gurney and any attempts by the inmate to remove the mask by violent shaking of his head from side-to-side. Put another way, Louisiana’s method of execution using nitrogen hypoxia does not cause pain itself. Furthermore, I have no reason to believe that the inmate would exhibit behavior that would inflict pain and suffering upon himself.

31. Dr. Philip Nitschke, an expert witness for Kenneth Smith’s challenge to execution by nitrogen, wrote after Smith’s execution: ⁶

⁵ [Deaths Involving the Inadvertent Connection of Air-line Respirators.FINAL \(osha.gov\)](#) accessed 9-13-24. Ref. 2 cited in the quoted statement is Hudnall et al. (1993), which is listed in the references cited section of this report.

⁶ [The Peaceful Pill Handbook](#) accessed 7-16-2024

--“The convulsions that Kenny experienced were almost certainly accentuated by his obvious (and understandable) non-cooperation with the execution process”

--“breath-holding would have increased the level of carbon dioxide in his body, acidifying his blood and increasing discomfort and distress.”

--“By the time of the convulsions, Kenny would not have been aware of what was happening to him.”

Dr. Nitschke and I agree that an inmate who voluntarily holds his breath would experience some degree of discomfort due, in large part, to the increasing carbon dioxide levels. Such discomfort entirely would be the result of the inmate’s voluntary actions, and not because of the nitrogen gas itself.

32. At autopsy, Kenneth Smith had MDMB-4en-PINACA in his blood.

MDMB-4en-PINACA is a synthetic cannabinoid and can cause hallucinations, vomiting, paranoia, and convulsions (seizures) (Goncalves et al., 2022). The various movements described by eyewitnesses to Smith’s execution could be related to his consumption of MDMB-4en-PINACA.

Because profound hypoxia can cause convulsions, the presence of MDMB-4en-PINACA could make such convulsions more likely and pronounced.

33. Ottestad et al. (2017) studied individuals subjected to profound hypoxic conditions (to simulate high-altitude airdrop). Arterial blood oxygen saturations were profoundly low in the 48-67% range; one individual lost

consciousness, while others reported “lightheadedness, blurred vision, paresthesia, labored breathing, euphoria, and confusion.”. So, while labored breathing can occur with hypoxia, euphoria can also occur. None of the subjects were reported to have experienced pain and anxiety.

34. Symptoms of shortness of breath that might occur during hypoxia should be taken into context. For example, people become short of breath during exercise, and investigators usually report subjects’ rating of shortness of breath on a scale of 0 (none) to 10 (unbearable, or, “the most severe breathing discomfort that you have ever experienced or can imagine experiencing”) (Ekstrom et al., 2024; Crisafulli & Clini, 2010). During exercise, about 75% of subjects report the shortness of breath in the range “intense” to “unbearable”. Also, it is important to point out that these symptoms are present during the several minutes of exercise, as opposed to the brief period of consciousness between the inhalation of nitrogen to unconsciousness. So, a person subjected to profound hypoxia, if they did develop shortness of breath, would have symptoms (albeit for a brief period) akin to someone who is exercising.

35. While an inmate will likely have anxiety related to the impending execution, there is nothing that makes execution by nitrogen hypoxia different from other forms of execution in regard to panic and anxiety.

36. The Motion for Preliminary Injunction (page 21, at bottom) claims that the pulmonary edema found at autopsy of Kenneth Smith was due to negative pressure pulmonary edema (NPPE) and was due to nitrogen causing upper airway obstruction and thereby resulting in NPPE during Smith's efforts to breathe. But Dr. McAlary offers no evidence or references that nitrogen hypoxia (or panic and anxiety due to impending execution) would cause upper airway obstruction. And the autopsy of Kenneth Smith found no anatomic or foreign body (e.g., vomit or food) upper airway obstruction. Ogden and colleagues did not report airway obstruction or bronchoconstriction in people who committed suicide by breathing hypoxic gas mixtures, as noted above.

37. Pulmonary edema at autopsy is common and is a non-specific finding in a variety of causes of death (Saukko & Knight, 2004). So, the presence of pulmonary edema found at autopsy of Kenneth Smith is not indicative of any specific process. In addition, pulmonary edema is likely to occur in the moments preceding death, or post-mortem (Shiotani et al., 2011; Swann, 1964, Ishida et al., 2014).

38. In his JAMA opinion paper (2024), Dr. Bickler opined that "when faced with an impending forced withdrawal of oxygen, humans are likely to breath irregularly or breath hold" leading to various complications. (Bickler, 2024).

But breath holding or changing one's breathing pattern is a "self-inflicted" choice, not something inherent to the method of execution.

39. Dr. Bickler opines that humans experience "significant distress and shortness of breath" when exposed to a low oxygen environment (see his JAMA opinion paper). Yet, in his review paper on hypoxia (Bickler et al., 2017), he writes "Aside from the expected physiologic responses to hypoxia in healthy individuals such as increased respiratory rate or tachycardia, the incidence of other effects such as headache, nausea, or anxiety occur at rates <1%". Furthermore, he writes that he and his co-authors have personally been exposed to a low oxygen environment (resulting in oxygen saturations of 45%), but he makes no comment on experiencing distress or shortness of breath. If severe hypoxia is so distressing, I would have expected him to have mentioned it in his review. To the contrary, he reports that "As far as we are aware, there has not been a single significant complication related to hypoxia in any of these studies."

40. Hypoxia studies often subject the participants to low oxygen for several minutes (see Figure in Dr. Bickler's review, 2017). If subjects do develop shortness of breath or other distressing symptoms, it is due, in part, to the time spent at those low oxygen saturations. In the execution setting, however, hypoxia is so sudden and severe that the window of time in which a person might suffer is small, i.e., the time at which a person develops

symptoms to the time of unconsciousness is small, in the order of seconds, not minutes. Finally, Dr. Bickler and others have studied thousands of subjects using hypoxic conditions. If hypoxia is so stressful and pain-inducing, it would be unethical to do these studies—yet human subjects committees continue to approve these studies.

41. It is important to put symptoms that might occur due to hypoxia into proper perspective. Sausen et al. (2001) studied individuals who were subjected to hypoxic conditions for 10 minutes (as low as inspired oxygen = 6.2%—just sufficient to maintain consciousness). The subjects were asked to rate symptoms, if present (if a particular symptom did not occur, the subject assigned a score = 1; if the symptom was mild, score = 2, moderate = 3, severe = 4). As seen in the summary Table II from the paper (below), breathlessness was scored on average at 1.42 (between absent and mild). The highest scored symptom at 2.58 was euphoria.

ROB HYPOXIA TRAINING—SAUSEN ET AL.

TABLE II. SUBJECTIVE HYPOXIA SYMPTOMS REPORTED DURING TEST GAS EXPOSURE.

	6.20/93.80	7.00/93.00	7.85/92.15	20.85/79.15
Tingling	2.17 (0.24)*	2.25 (0.33)*	2.25 (0.28)*	1.00 (0)
Hot Flashes	1.50 (0.15)*	1.18 (0.12)	1.58 (0.19)*	1.00 (0)
Cold Flashes	1.00 (0)	1.00 (0)	1.00 (0)	1.00 (0)
Dizziness	1.92 (0.26)*	2.18 (0.26)*	2.08 (0.26)*	1.00 (0)
Tunnel Vision	1.58 (0.26)	1.45 (0.25)	1.17 (0.11)	1.00 (0)
Trouble Concentrating	2.17 (0.34)*	1.64 (0.28)	1.92 (0.19)*	1.00 (0)
Light Dimming	1.33 (0.26)	1.36 (0.28)	1.17 (0.17)	1.00 (0)
Euphoria	2.58 (0.36)*	2.09 (0.31)*	2.08 (0.34)*	1.00 (0)
Loss of Coordination	1.92 (0.31)*	1.73 (0.27)	1.42 (0.19)	1.00 (0)
Headache	1.25 (0.18)	1.45 (0.25)	1.08 (0.08)	1.08 (0.08)
Fatigue	1.00 (0)	1.00 (0)	1.00 (0)	1.00 (0)
Breathlessness	1.42 (0.23)	1.55 (0.21)	1.42 (0.23)	1.00 (0)
Blurred Vision	1.83 (0.27)*	1.45 (0.31)	1.17 (0.11)	1.00 (0)
Nausea	1.17 (0.17)	1.00 (0)	1.08 (0.08)	1.00 (0)
Apprehension	1.42 (0.23)	1.27 (0.19)	1.42 (0.15)	1.08 (0.08)
Other	1.17 (0.11)	1.45 (0.31)	1.58 (0.31)	1.08 (0.08)

Column headings refer to %O₂/%N₂ of the test gas. HSQ data are displayed as means (SEM) of HSQ ratings. HSQ ratings: 1 = not observed, 2 = mild, 3 = moderate, or 4 = severe. * = p < 0.02.

42. Dr. Capone describes his observations of animal euthanasia using carbon monoxide. According to his report, the chamber used for this purpose was large (20 feet x 20 feet x 4 feet). Thus, it would take a relatively long time for the carbon monoxide to build up, as compared to a smaller chamber. Furthermore, contrary to his assertions and those in the Complaint, the American Veterinary Medical Association (AVMA) guidelines state that “Carbon monoxide is acceptable with conditions for euthanasia”.⁷ (Section MI.4, page 27 of guidelines). While the Louisiana protocol will use nitrogen, Dr. Capone’s experience is nevertheless misplaced since it seems that it was more likely that the animal suffering was due to improper use of carbon monoxide.

43. The AVMA guidelines relate to euthanasia of animals. The AVMA guidelines explicitly state that “...they are intended to apply only to nonhuman species.”⁸ Furthermore, with respect to inert gas inhalation, the guidelines make distinctions among species primarily because some species (such as rats, mice and minks) display aversive behavior when exposed to hypoxic conditions,⁹ most likely due to hypoxia survival mechanisms (Makowska et al., 2008). Also, the guidelines specify that “in some species

⁷ The guidelines go on to list contingencies that must be met for carbon monoxide use, but those contingencies primarily relate to personnel safety and administration of carbon monoxide.

⁸ First paragraph, section I2.3, 2020 AVMA Euthanasia Guidelines

⁹ Penultimate paragraph, section M1.5, 2020 AVMA Euthanasia Guidelines

and under some circumstances, the most humane and pragmatic option may be exposure to an aversive agent or condition that results in rapid unconsciousness with few or no outward signs of distress.”¹⁰ There is clear evidence from the inert gas suicide literature (cited in this report) that humans do not find inert gas exposure aversive.

44. The proposed alternative methods in the Complaint are incomplete and lack important details. For ethical reasons, however, I cannot point out every flaw and omission as doing so would potentially provide guidance on how to develop a protocol. Nonetheless, I do provide some responses to the alternative methods.

45. The first proposed alternative method involves the use of drugs used for medical-aid-in-dying (MAID). These drugs include digoxin (100 mg), diazepam (2000 mg), morphine (15,000 mg), amitriptyline (8000 mg) and phenobarbital (10,000 mg). Macmillan et al. (2025) list time to death for the DDMAPh protocol (see Table 2 from the Macmillan paper, reproduced below). As Dr. Blanke reports, about 75% of patients died within 2 hours.

¹⁰ 5th paragraph, section M1.1, 2020 AVMA Euthanasia Guidelines

4

MACMILLAN ET AL.

TABLE 2. MEDICATION PROTOCOLS AND TIMES TO SLEEP AND DEATH

	Overall	Secobarbital	DDMP2	DDMA	DDMAPh	p
Number of ingestions	3332	383	432	525	1992	
Mean time to sleep, minutes (SD)	6.3 (5.4)	5.7 (3.9)	9.2 (10.9)	6.0 (3.5)	5.8 (3.8)	
Median time to sleep, minutes (Q1–Q3 ^a)	5.0 (4.0–7.0)	5.0 (4.0–6.0)	7.0 (5.0–10.0)	5.0 (4.0–7.0)	5.0 (4.0–7.0)	$p < 0.001^b$
Mean time to death, hours (SD)	1.8 (3.5)	1.0 (2.6)	3.5 (6.2)	1.5 (2.1)	1.6 (3.0)	
Median time to death, hours (Q1–Q3 ^a)	0.8 (0.4–1.7)	0.4 (0.3–0.8)	1.0 (0.5–3.5)	0.8 (0.4–1.8)	0.8 (0.4–1.6)	$p < 0.001^c$
Maximum time to death, hours/days	67.5/2.8	27.0/1.1	61.8/2.6	15.9/0.7	67.5/2.8	

^aQ denotes quartile.^bComparison of only DDMA/DDMAPh median time to sleep; $p = 0.05$.^cComparison of only DDMA/DDMAPh median time to death; $p = 0.99$.

DDMA, digitalis, diazepam, morphine, amitriptyline; DDMP2, digitalis, diazepam, morphine, propranolol; DDMAPh, digitalis, diazepam, morphine, phenobarbital.

The data for DDMAPh are in the red box. The median time to death was 0.8 hours, or about 48 minutes. Note that the maximum time to death was 67.5 hours. The DDMAPh method can hardly be endorsed as one that results in a rapid death (see below).

46. Furthermore, Macmillan *et al.* (2025) point out that 1) younger patients had longer time to death; 2) rectal administration of these drugs lead to prolonged times to death. Also, the DDMAPh mixture is described as being “extremely bitter”.¹¹

47. The Academy of Aid-in-Dying Medicine website lists several red flags related to “prolonged or complicated Aid-in-dying deaths”.¹² Among these are subjects who are healthy and less than 55 years of age (Jessie Hoffman is 46 years old). If anything, because inmate Hoffman is relatively young, the

11 [DEATH-WITH-DIGNITY-INSTRUCTIONS EOLWA_Dec-2020.pdf](#) accessed 3-2-2025

12 [Factors for Prolonged Deaths \(Red Flags\) | Academy of Aid-in-Dying Medicine](#) accessed 2-28-2025

potential for a prolonged time to death is increased compared to the typical person who takes DDMAPh for assisted suicide (elderly and debilitated with a terminal disease).

48. The DDMAPh mixture consists of five medications. States have had significant problems obtaining drugs used for one-drug lethal injection protocols (e.g., pentobarbital). An alternative that requires five drugs would seem to be even more problematic.

49. The second method involves the firing squad. Individuals who are shot through the chest, with the bullets exiting the back and shattering the spine, would not survive. But, for the 8-10 seconds of consciousness after bullet entry, the injury would be severely painful, especially related to shattering of bone and damage to the spinal cord. As an example of the injuries that occur from the firing squad, see the recording of the execution of Anton Dostler, a German general in World War II. In one camera angle, bullets exit through his back and through the wooden post to which he is tied

(<https://www.youtube.com/watch?v=d0lRSxAPdpM&t=365s> accessed 3-1-

2025). Furthermore, not all firing squad executions go ‘smoothly’: see the execution of two men in Guatemala in which both men initially survive the volley of bullets and are subsequently killed by shots to the head

(<https://www.youtube.com/watch?v=6Ugd6UgLIXM> accessed 3-1-2025). In

my opinion, execution by firing squad would not significantly reduce the risk of severe pain that Plaintiffs claim is inherent in the Louisiana protocol.

50. Unconsciousness typically begins about 8-10 sec after cessation of cardiac activity, although it can be as short as 4-5 sec and as long as 13 sec (Wieling et al., 2009). Thus, the range of 4-13 sec is the potential period of pain and suffering as the result of execution by firing squad.

51. Dr. Williams admits that “Gunshot wounds may be painful in certain circumstances, as is the case with any traumatic injury” (page 3 of his February 19, 2025 report). Dr. Williams does not make any comparative analysis of the pain and suffering that occurs with the firing squad and any pain and suffering that might occur with the administration of nitrogen.

52. The Complaint cites Sarat’s “Gruesome Spectacles” book (2014) as evidence for the superiority of the firing squad relative to other execution methods (Complaint, page 25). Sarat’s book has received well-deserved criticism, including his methods.¹³ Sarat does not include the botched firing squad execution of Eliseo Mares in 1951, for example. Furthermore, Sarat “inflates” the botch rate for some methods, such as lethal injection, by including struggling by the inmate. Also, Sarat defines deaths beyond 14 minutes after drug administration as “botched”. Because the DDMAPh

¹³ [Botched Statistics on Botched Executions: Refuting Austin Sarat’s Claims - Mitchell Hamline Law Review](#) accessed 3-2-25

alternative would almost certainly cause death well beyond 14 minutes (see Macmillan statistics cited above), the DDMAPh execution would automatically be considered botched. But perhaps the most absurd inclusion of a “botched” execution in Sarat’s book is the hanging of Mary the Elephant: number 80 of his list of botched executions (page 187). It is unclear why Sarat would include the execution by hanging of a circus animal in his statistics.

53. Nothing in this report should be construed as an endorsement or approval of the Louisiana protocol or providing instructions, advice or assistance to the State of Louisiana or any other entity to carry out a legal judicial execution.

Conclusion

54. It is my opinion, to a reasonable medical and scientific certainty, that the nitrogen hypoxia system developed by Louisiana: 1) will cause unconsciousness within 35-40 sec (and perhaps sooner) once the inmate inhales 90-100% nitrogen gas; 2) will result in death rapidly, within 10-15 minutes; 3) will not cause carbon dioxide rebreathing; 4) will not have significant leakage that causes air to enter the mask; 5) will not cause significant suffering or pain.

Furthermore, the proposed alternatives are not feasible for various reasons, including 1) drug availability, and route of administration (potentially

rectally, with risk of prolonged drug action); 2) the firing squad causes significant pain prior to unconsciousness.

55. Should additional information become available I reserve the opportunity to amend my statements herein.

Date: March 2, 2025

A handwritten signature in black ink, appearing to read "J. Antognini", written over a horizontal line.

Joseph F. Antognini, M.D., M.B.A.

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- Declarations of Drs. Williams (dated 2-19-25), Bickler (dated 2-23-25) Capone (dated 2-25-25) and Blanke (dated 2-23-25)

EXHIBIT A

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EDUCATION:

1980	University of California, Berkeley (B.A., Economics)
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INTERNSHIP/RESIDENCY:

1984-1987	Anesthesiology, UC Davis Medical Center
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6/24-present	Chief Scientific Officer/Interim Chief Medical Officer Expanesthetics, Inc Davis, CA
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7/17-present	Director Emeritus University of California, Davis
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9/21-7/23	Surgical Wound Specialist Advantage Surgical and Wound Care El Segundo, CA
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2011-2020	Clinical Professor of Anesthesiology and Pain Medicine (Volunteer Clinical Faculty appointment) University of California, Davis—School of Medicine
11/10-6/16	Director of Peri-operative Services UC Davis Health System
7/00-7/11	Professor of Anesthesiology and Pain Medicine ¹⁴ (with tenure) Department of Anesthesiology and Pain Medicine University of California, Davis—School of Medicine
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¹⁴ My research publications place me in the top 1.5% of scientists worldwide based on number of citations of my papers (October 2023 data-update for "Updated science-wide author databases of standardized citation indicators" - Elsevier BV (digitalcommonsdata.com) accessed 5-17-2024). Also, I am in the category of "outstanding scientist" based on the h-index (h-index = 42 as of 1-9-25, with >5600 citations according to Google Scholar). The h-index is a measure of how often a person's work is cited. See: Hirsch JE. An index to quantify an individual's scientific output. PNAS 2005; 103:16569-572

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Department of Anesthesiology
University of California, Davis—School of Medicine

7/87-9/91 Staff Anesthesiologist (Private Practice)
American River Hospital
Department of Anesthesiology
Carmichael, CA

7/87-9/91 Assistant Clinical Professor (volunteer)
Department of Anesthesiology
University of California, Davis—School of Medicine

LICENSURE & CERTIFICATIONS:

State of California #G55662 (expires 7-31-2025)
State of Georgia #100252 (expires 7-31-2025)
DEA certificate BA0948870 (expires 6-30-2027)
Diplomate, National Board of Medical Examiners (1985)
Diplomate, American Board of Anesthesiology (1989; Life-time, not time limited)
Certificate of Recertification, American Board of Anesthesiology (1999, 2009)
Certified Yellow Belt, 2017

PROFESSIONAL SOCIETIES AND RECOGNITION:

American Society of Anesthesiologists 1987--present
California Society of Anesthesiologists 1987—present
Fellow of the American Society of Anesthesiologists 2018—present

ADVOCACY

ASA Grassroots Network (ASA Team 535) 2018
ASAPAC Donor—2018
FAER Donor—1999-2022

RESEARCH INTERESTS:

Mechanisms of anesthesia; factors influencing anesthetic requirements; OR efficiency

AWARDS AND HONORS

Dean's Mentoring Award, UC Davis School of Medicine, 2006

Associated Students of UC Davis "Excellence in Education Award" College of Biological Sciences, 2007

Associated Students of UC Davis "Excellence in Education Award" Outstanding Educator, 2007

Foundation for Anesthesia Education and Research, Mentor Academy, 2008

Phi Kappa Phi Honor Society, 2010

GRANTS

1. UC Davis Faculty Research Grant 1991-92—The effect of intrathecal aspirin on anesthetic requirements in rabbits, \$2500
2. UC Davis Faculty Research Grant 1993-94—Validation of a preferentially anesthetized goat brain model, \$1500
3. Foundation for Anesthesia Education and Research 1994—Determination of gross anatomic sites of anesthetic action, \$25,000 (\$25,000 matching departmental funds)
4. UC Davis Faculty Research Grant 1994-95—The effects of general anesthesia on cerebral blood flow patterns as assessed by functional magnetic resonance imaging, \$1500
5. UC Davis Faculty Research Grant 1996-97—The effect of differential isoflurane delivery to brain and spinal cord on inhibitory and excitatory output from the brain, \$10,000
6. Foundation for Anesthesia Education and Research 1997-99—The effect of differential isoflurane delivery to brain and spinal cord on inhibitory and excitatory output from the brain, \$70,000 (\$70,000 matching departmental funds)
7. NIH R01 GM57970 Brain and Spinal Cord Contributions to Anesthetic Action 8/98-4/02 (Priority Score 120, Percentile 1.0). Total costs \$713,026
8. NIH R01 GM61283 Anesthetic Effects on Sensorimotor Integration 2/01-2/06 (Priority Score 194, Percentile 16.9). Total costs \$672,791
9. U.C. Davis Faculty Research Grant. Indirect effect of isoflurane and lidocaine on EEG activation. 7/1/01-6/30/02, \$4,000
10. NIH R01 GM57970-4A1 Brain and Spinal Cord Contributions to Anesthetic Action 4/02-12/05 (Priority Score 197, Percentile 20). Total costs \$1,284,689
11. NIH 3R01GM057970-05S1 Brain and Spinal Cord Contributions to Anesthetic Action. Minority Supplement grant. 7/03-7/04. Total costs \$55,932
12. NIH P01 GM47818 Anesthetic Effects on Spinal Nociceptive Processing 8/04-7/09 (Priority Score 185). Total costs \$804,325
13. NIH R01 GM61283A1 Anesthetic Effects on Sensorimotor Integration 12/05-12/9 (Priority Score 158, Percentile 9). Total costs \$748,432

TEACHINGPost-Graduate:

1. Resident lectures on neuroanesthesia, anesthetic mechanisms, malignant hyperthermia, neuromuscular blocking drugs, volatile anesthetics, anesthesia research. 1991-2019
2. Anesthesiology Department Journal Club 2013-2016
3. UCSF Changing Practice of Anesthesia—Faculty. September 2014: Perioperative Medicine and Healthcare Reform: Challenges and Opportunities for Anesthesiology

Graduate:

- Guest lecturer for NPB 219 (E. Carstens, Instructor). 1998-2003
- Guest lecturer for NPB 112 (E. Carstens, Instructor). 2001-2008
- Guest lecturer for first year medical students—pain physiology 2002-2003
- Facilitator, Application of Medical Principles 2002-2008
- Guest Lecturer, 210B (Systemic Physiology) January 2006
- Instructor of Record, Applied Physiology and Pharmacology 2007, 2008

Undergraduate:

- NPB 10—Elementary Human Physiology (4 units). 2001-2009
- Freshman Seminar: The Supreme Court and You. (2 units) 1998-2010
- Human Physiology (Los Medanos College) 2020
- Biology of Health (Los Medanos College) 2020-22
- Epidemiology (Holy Names University) 2020

MENTORED STUDENTS, RESIDENTS AND POST-DOCTORAL SCHOLARS

- | | | |
|-------------------------|-----------------------|-----------|
| 1. Kevin Schwartz, M.D. | Resident | 1993 |
| 2. Michael Borges, M.D. | Resident | 1994 |
| 3. Agi Melton, M.D. | Resident | 1994 |
| 4. Etsuo Tabo, M.D. | Post-Doctoral Scholar | 1997 |
| 5. Steven Jinks | Graduate Student | 1998-2001 |
| 6. Chris Simons | Graduate Student | 1998 |
| 7. Xiao Wei Wang, M.D. | Post-Doctoral Scholar | 1999 |
| 8. Xiaoguang Chen, M.D. | Post-Doctoral Scholar | 2000 |
| 9. Makoto Sudo, M.D. | Post-Doctoral Scholar | 2000 |

10. Satoko Sudo, M.D.	Post-Doctoral Scholar	2000
11. Alison Fitzgerald	Undergraduate Student	2000-2001
12. Andrew Hall	Undergraduate Student	2001
13. John Martin, M.D.	Resident	2001
14. Steve Jinks, PhD.	Post-Doctoral Scholar	2001-2004
15. Jason Cuellar, BS	Graduate Student	2003-2004
16. Linda Barter, MsVM	Graduate Student	2004-2007
17. Mashawn Orth	Graduate Student	2004-2005
18. Carmen Dominguez, MD	Assistant Professor	2003-2005
19. Lauire Mark	Undergraduate Student	2005-2006
20. Matthew LeDuc	Medical Student	2005
21. Toshi Mitsuyo, M.D.	Post-Doctoral Scholar	2004-2005
22. Kevin Ng, M.D.	Resident	2005-2006
23. JongBun Kim, M.D.	Post-Doctoral Scholar	2006
24. Sean Shargh	Undergraduate Student	2006-2007
25. Aubrey Yao, M.D.	Resident	2006-2007
26. Alana Sulger	Undergraduate Student	2006-2007
27. Gudrun Kungys, M.D.	Resident	2007-2008
28. Jason Talavera	Medical student	2007
29. Onkar Judge	Medical student	2008
30. Andrew Cunningham	Undergraduate Student	2008
31. Lauren Boudewyn	Undergraduate Student	2008
32. Austin Kim	Undergraduate Student	2008
33. Jason Andrada	Graduate Student	2009-2010
34. Jun Ye	Graduate Student	2014-2015
35. Reihaneh Forghany	Resident/Faculty	2018-2021

SPECIAL ACTIVITIES:

Staff Anesthesiologist, American River Hospital, 1987-1992

Medical Advisor, CMT International (Charcot-Marie-Tooth), 1991-2000

Director, Case Conferences, Department of Anesthesiology, April-June, 1992

Proctor, Medical Board of California, 1992

Staff Membership, Sutter Davis Hospital, Davis, CA, 1992-1995

Consultant, Malignant Hyperthermia Hotline, Malignant Hyperthermia Association of the United States (MHAUS), 1992-2002

Associate, UC Davis Diagnostic Malignant Hyperthermia Laboratory, 1992-2010

Member, Subcommittee on Experimental Neuroscience and Biochemistry, American Society of Anesthesiologists, 1996

Finance and Executive Committees, UC Davis Department of Anesthesiology, 1996-2002
Quality Assurance Committee, U.C. Davis Department of Anesthesiology, 1998-2004

Course Director, Annual U.C. Davis Anesthesiology Update (CME meeting), 1996-2003
California Society of Anesthesiologists: Educational Programs Committee, 1998-2000

Coordinator, Grand Rounds, Department of Anesthesiology, 1996

Professional Billing Workgroup, U.C. Davis, 1996-98

Question Writer, American Board of Anesthesiology, 1998-2001

Member, UC Davis Animal Care Committee, 2000-2003

Member, UC Davis School of Medicine Personnel Committee, 2003—2007; Chair 2007

Member, UCD Committee on Academic Personnel (Appellate Sub-committee) 2009-11

Management Advisory Committee, Department of Anesthesiology, 2007

Ad Hoc Reviewer for *Anesthesiology*, *Hospital Topics*, *Journal of Clinical Anesthesia*, *Journal of Comparative Neurology*, *Regional Anesthesia and Pain Medicine*, *Pain*, *Brain Research*, *Journal of Neuroscience*, *Anesthesia and Analgesia*, *British Journal of Anaesthesia*, *Neuroscience*, *Cephalgia*, *Neuroscience Letters*, *Journal of Chromatography*, *Basic & Clinical Pharmacology & Toxicology*, *Therapeutics and Clinical Risk Management*.

Member, VA Merit Review Subcommittee, Alcohol and Drug Dependence, 2002-2005

Editor, American Board of Anesthesiology/ American Society of Anesthesiologists In-Training Examination 2003-2008

Associate Editor, *Anesthesiology* 2005—2011

Faculty Executive Committee, School of Medicine 2009-2010

Chair, Faculty Executive Committee, School of Medicine 2010-2011

Member of various hospital committees 2011-2016: Medical Staff Executive Committee, Quality Safety Committee, OR Committee, Surgical Services Steering Committee, Hospital Billing Group

BIBLIOGRAPHY

EDITED BOOKS

1. Antognini JF, Carstens EE, Raines DE. Neural Mechanisms of Anesthesia, Humana Press, Totowa, NJ, 2002.

PUBLICATIONS

1. Antognini JF. Anaesthesia for Charcot-Marie-Tooth disease: a review of 86 cases. Canadian Journal of Anaesthesia 1992; 39(4):398-400.
2. Antognini JF and ND Kien. Cardiopulmonary bypass does not alter canine enflurane requirements. Anesthesiology 1992; 76:953-957.
3. Antognini JF. Intrathecal acetylsalicylic acid and indomethacin are not analgesic for a supramaximal stimulus. Anesthesia and Analgesia 1993; 76:1079-1082.
4. Antognini JF. Hypothermia eliminates isoflurane requirements at 20°C. Anesthesiology 1993; 78:1152-1156.
5. Antognini JF and GA Gronert. Succinylcholine causes profound hyperkalemia in hemorrhagic, acidotic rabbits. Anesthesia and Analgesia 1993; 77:585-588.
6. Melton AT, JF Antognini and GA Gronert. Prolonged duration of succinylcholine in patients receiving anticonvulsants: evidence for mild up-regulation of acetylcholine receptors? Canadian Journal of Anaesthesia 1993; 40(10):939-942.
7. Antognini JF and K Schwartz. Exaggerated anesthetic requirements in the preferentially anesthetized brain. Anesthesiology 1993; 79:1244-1249.
8. Antognini JF and PH Eisele. Anesthetic potency and cardiopulmonary effects of enflurane, halothane, and isoflurane in goats. Laboratory Animal Science 1993; 43(6):607-610.
9. Antognini JF. Splanchnic release of potassium after hemorrhage and succinylcholine in rabbits. Anesthesia and Analgesia 1994; 78:687-690.

10. Antognini JF, M Anderson, M Cronan, JP McGahan and GA Gronert. Ultrasonography: not useful in detecting susceptibility to malignant hyperthermia. *Journal of Ultrasound in Medicine* 1994; 13:371-374.
11. Antognini JF and ND Kien. A method for preferential delivery of volatile anesthetics to the *in situ* goat brain. *Anesthesiology* 1994; 80:1148-1154.
12. Antognini JF, BK Lewis and JA Reitan. Hypothermia minimally decreases nitrous oxide anesthetic requirements. *Anesthesia and Analgesia* 1994; 79:980-982.
13. Borges M and JF Antognini. Does the brain influence somatic responses to noxious stimuli during isoflurane anesthesia? *Anesthesiology* 1994; 81:1511-1515.
14. Antognini JF and ND Kien. Potency (minimum alveolar anesthetic concentration) of isoflurane is independent of peripheral anesthetic effects. *Anesthesia and Analgesia* 1995; 81:69-72.
15. Antognini JF and K Berg. Cardiovascular responses to noxious stimuli during isoflurane anesthesia are minimally affected by anesthetic action in the brain. *Anesthesia and Analgesia* 1995; 81:843-848.
16. Antognini JF. Creatine kinase alterations after acute malignant hyperthermia episodes and common surgical procedures. *Anesthesia and Analgesia* 1995; 81:1039-1042.
17. Gronert GA, NW Fleming and JF Antognini. Aberrant responses to muscle relaxants produced by diseases or drugs. *Seminars in Anesthesia* 1995; 14(4):283-290.
18. Hwang F, K Chun, JF Antognini and GA Gronert. Caffeine-halothane accuracy in MH testing. *Acta Anaesthesiologica Scandinavica* 1995; 39:1036-1040.
19. Antognini JF and K Mark. Hyperkalaemia associated with haemorrhagic shock in rabbits: modification by succinylcholine, vecuronium and blood transfusion. *Acta Anaesthesiologica Scandinavica* 1995; 39:1125-1127.
20. Antognini JF, R Wood and GA Gronert. Metocurine pharmacokinetics and pharmacodynamics in goats. *Journal of Veterinary Pharmacology and Therapeutics* 1995; 18:464-467.

21. Antognini JF. Movement associated with high cerebral concentrations of isoflurane: no evidence of seizure activity. *Canadian Journal of Anaesthesia* 1996; 43(3):310-314.
22. Antognini JF and GA Gronert. Extra-junctional receptors and neuromuscular blocking drugs. *Current Opinion in Anaesthesiology* 1996; 9:344-347.
23. Kien ND, JF Antognini, DA Reilly and PG Moore. Small-volume resuscitation using hypertonic saline improves organ perfusion in burned rats. *Anesthesia and Analgesia* 1996; 83:782-788.
24. Fleming NW, S Macres, JF Antognini and J Vengco. Neuromuscular blocking action of suxamethonium after antagonism of vecuronium by edrophonium, pyridostigmine or neostigmine. *British Journal of Anaesthesia* 1996; 77:492-495.
25. Antognini JF, PH Eisele and GA Gronert. Evaluation for malignant hyperthermia susceptibility in black-tailed deer. *Journal of Wildlife Diseases* 1996; 32(4): 678-681.
26. Antognini JF. The relationship among brain, spinal cord and anesthetic requirements. *Medical Hypotheses* 1997; 48:83-87.
27. Antognini JF and GA Gronert. Continued puzzles in malignant hyperthermia. *Journal of Clinical Anesthesia* 1997; 9:1-3.
28. Antognini JF and GA Gronert. Effect of temperature variation (22°C-44°C) on halothane and caffeine contracture testing in normal humans. *Acta Anaesthesiologica Scandinavica* 1997; 41: 639-642.
29. Antognini JF, MH Buonocore, EA Disbrow and E Carstens. Isoflurane anesthesia blunts cerebral responses to noxious and innocuous stimuli: a fMRI study. *Life Sciences* 1997; 61:PL349-354.
30. Antognini JF. Isoflurane potentiates metocurine via peripheral not central nervous system action. *Journal of Veterinary Anaesthesia* 1997; 24:6-9.
31. Disbrow E, M Buonocore, J Antognini, E Carstens and HA Rowley. The

somatosensory cortex: a comparison of the response to noxious thermal, mechanical and electrical stimuli using functional magnetic resonance imaging. *Human Brain Mapping* 1998; 6:150-59.

32. Antognini JF, E Carstens, E Tabo and V Buzin. Effect of differential delivery of isoflurane to head and torso on lumbar dorsal horn activity. *Anesthesiology* 1998; 88:1055-61
33. Antognini JF, E. Carstens. A simple, quantifiable, and accurate method for applying a noxious mechanical stimulus. *Anesthesia and Analgesia* 1998; 87:1446-9.
34. Antognini JF, S. Jinks, V. Buzin, E. Carstens. A method for differential delivery of intravenous drugs to the head and torso of the goat. *Anesthesia and Analgesia* 1998; 87:1450-2.
35. Antognini JF, E. Carstens. Macroscopic sites of anesthetic action: brain versus spinal cord. *Toxicology Letters* 1998; 100-101:51-58.
36. Antognini JF, E Carstens. Increasing isoflurane from 0.9 to 1.1 minimum alveolar concentration minimally affects dorsal horn cell responses to noxious stimulation. *Anesthesiology* 1999; 90:208-14.
37. Antognini JF, E Carstens, V Buzin. Isoflurane depresses motoneuron excitability by a direct spinal action: an F-wave study. *Anesthesia and Analgesia* 1999; 88:681-5.
38. Jinks S, JF Antognini, E Carstens V Buzin, C Simons. Isoflurane can indirectly depress lumbar dorsal horn activity via action within the brain. *British Journal of Anaesthesia* 1999; 82:244-49
39. Antognini JF, XW Wang. Isoflurane can indirectly depress auditory evoked potentials by action in the spinal cord. *Canadian Journal of Anaesthesia* 1999; 46:692-95
40. Melton AT, JF Antognini, GA Gronert. Caffeine- or halothane-induced contractures of masseter muscle are similar to those of vastus muscle in normal humans. *Acta Anaesthesiologica Scandinavica* 1999; 43:764-69
41. Antognini JF, XW Wang, E Carstens. Quantitative and qualitative effects of isoflurane on movement occurring after noxious stimulation. *Anesthesiology* 1999; 91:1064-71

42. Antognini JF, E Carstens. Isoflurane blunts electroencephalographic and thalamic/reticular formation responses to noxious stimulation in goats. *Anesthesiology* 1999; 91:1770-9
43. Antognini JF, XW Wang, E Carstens. Isoflurane action in the spinal cord blunts electroencephalographic and thalamic-reticular formation responses to noxious stimulation in goats. *Anesthesiology* 2000; 92:559-66
44. Antognini JF, XW Wang, M Piercy, E Carstens. Propofol directly depresses lumbar dorsal horn neuronal responses to noxious stimulation. *Canadian Journal of Anesthesia* 2000; 47:273-79
45. Antognini JF, Saadi J, Wang XW, Carstens E, Piercy M. Propofol action in both spinal cord and brain blunts electroencephalographic responses to noxious stimulation in goats. *Sleep* 2000; 24:26-31
46. Antognini JF, XW Wang, E Carstens. Isoflurane anaesthetic depth in goats monitored using the bispectral index of the electroencephalogram. *Veterinary Research Communications* 2000; 24:361-370
47. Antognini JF, Sudo M, Sudo S, Carstens E. Isoflurane depresses electroencephalographic and medial thalamic responses to noxious stimulation via an indirect spinal action. *Anesthesia and Analgesia* 2000; 91:1282-8
48. Sudo M, Sudo S, Chen XG, Piercy M, Carstens E, Antognini JF. Thiopental directly depresses lumbar dorsal horn neuronal responses to noxious mechanical stimulation. *Acta Anaesthesiologica Scandinavica* 2001; 45:823-829
49. Antognini JF, Chen XG, Sudo M, Sudo S, Carstens E. Variable effects of nitrous oxide at multiple levels of the central nervous system in goats. *Veterinary Research Communications* 2001; 25:523-538
50. Rosenberg H, Antognini JF, Muldoon S. Testing for malignant hyperthermia. *Anesthesiology* 2002; 96:232-37

51. Antognini JF, Carstens E, Atherley R. Does the immobilizing effect of thiopental in brain exceed that of halothane? *Anesthesiology* 2002; 96:980-6
52. Jinks SL, Antognini JF, Martin JT, Jung S, Carstens E, Atherley R. Isoflurane, but not halothane, depresses c-fos expression in rat spinal cord at concentrations that suppress reflex movement after supramaximal noxious stimulation. *Anesth Analg* 2002; 95:1622-8
53. Martin JT, Tautz TJ, Antognini JF. Safety of regional anesthesia in Eisenmenger's syndrome. *Reg Anesth Pain Med*. 2002;27:509-13.
54. Antognini JF, Carstens E. In vivo characterization of clinical anaesthesia and its components. *Br J Anaesth*. 2002;89:156-66.
55. Jinks SL, Simons CT, Dessirier JM, Carstens MI, Antognini JF, Carstens E. C-fos induction in rat superficial dorsal horn following cutaneous application of noxious chemical or mechanical stimuli. *Exp Brain Res*. 2002;145:261-9.
56. Jinks SL, Martin JT, Carstens E, Jung SW, Antognini JF. Peri-mac depression of a nociceptive withdrawal reflex is accompanied by reduced dorsal horn activity with halothane but not isoflurane. *Anesthesiology* 2003; 98:1128-38
57. Antognini JF, Atherley RJ, Carstens E. Isoflurane action in spinal cord indirectly depresses cortical activity associated with electrical stimulation of the reticular formation. *Anesthesia Analgesia* 2003; 96:999-1003
58. Jinks SL, Antognini JF, Carstens E. Isoflurane depresses diffuse noxious inhibitory controls in rats between 0.8-1.2 MAC. *Anesthesia Analgesia* 2003; 97:111-116
59. Eger EI 2nd, Xing Y, Laster M, Sonner J, Antognini JF, Carstens E. Halothane and isoflurane have additive minimum alveolar concentration (MAC) effects in rats. *Anesth Analg*. 2003;96:1350-3
60. Antognini JF, Jinks SL, Atherley R, Clayton C, Carstens E. Spinal anaesthesia indirectly depresses cortical activity associated with electrical stimulation of the reticular formation. *Br J Anaesth*. 2003;91:233-8

61. Sonner JM, Antognini JF, Dutton RC, Flood P, Gray AT, Harris RA, Homanics GE, Kendig J, Orser B, Raines DE, Trudell J, Vissel B, Eger EI 2nd. Inhaled anesthetics and immobility: mechanisms, mysteries, and minimum alveolar anesthetic concentration. *Anesth Analg*. 2003;97:718-40.
62. Jinks SL, Antognini JF, Carstens E. Spectral analysis of movement patterns during anesthesia. *Anesth Analg*. 2004; 98:698-702.
63. Jinks SJ, Antognini JF, Dutton RC, Carstens E, Eger EI. Isoflurane depresses windup of c-fiber evoked limb withdrawal with variable effects on nociceptive lumbar spinal neurons in rats. *Anesth Analg* 2004; 99:1413-9
64. Atherley RJ, Antognini JF. A rapid and simple method for determination of halothane, isoflurane and sevoflurane in blood using gas chromatography. *Biomedical Chromatography* 2004; 18:714-8
65. Jinks SJ, Antognini JF, Carstens E. Isoflurane differentially modulates medullary on and off neurons while suppressing hind-limb motor withdrawals. *Anesthesiology* 2004; 100:1224-34
66. Antognini JF, Jinks SJ, Carstens E, Atherley RJ. Preserved reticular neuronal activity during selective delivery of supra-clinical isoflurane concentrations to brain in goats and its association with spontaneous movement. *Neuroscience Letters* 2004; 361:94-7
67. Cuellar JC, Antognini JF, Carstens E. An in vivo method for recording single unit activity in lumbar spinal cord in mice anesthetized with a volatile anesthetic. *Brain Res Prot* 2004; 13:126-34
68. Cuellar JC, Antognini JF, Eger EI, Carstens E. Halothane depresses C-fiber-evoked windup of deep dorsal horn neurons in mice. *Neurosci Letters* 2004; 363:207-11
69. Atherley RJ, Weatherford V, Antognini JF, Jinks SL, Carstens E. A model for differential volatile anesthetic delivery to the upper and lower torso of the rabbit. *J Pharmacol Tox Methods* 2004; 50:145-52

70. Dominguez CL, Carstens E, Antognini JF. Carbon dioxide depresses the f-wave by a central, not peripheral, mechanism during isoflurane anesthesia. *Anesth Analg* 2005; 100:398-403
71. Jinks SL, Dominguez CL, Antognini JF. Drastic decreases in isoflurane MAC and limb movement force following acute reversible spinal cold-block and chronic spinalization in rats. *Anesthesiology* 2005; 102:624-32
72. Cuellar JM, Dutton RC, Antognini JF, Carstens E. Differential effects of halothane and isoflurane on lumbar dorsal horn neuronal windup and excitability. *Brit J Anaesth* 2005; 94:617-25
73. Antognini JF, Carstens E. Anesthesia, Amnesia and the Amygdala: reducing the fear of intraoperative awareness. (Editorial) *Anesthesiology* 2005; 102:711-2
74. Cuellar JM, Montesano PX, Antognini JF, Carstens E. Application of nucleus pulposus to L5 dorsal root ganglion in rats enhances nociceptive dorsal horn neuronal windup. *J Neurophysiol* 2005 Mar 2.
75. Barter L, Dominguez CL, Carstens E, Antognini JF. The effect of isoflurane and halothane on electroencephalographic activation elicited by repetitive noxious c-fiber stimulation. *Neurosci Lett* 2005 382:242-7.
76. Dominguez CL, Barter LS, Antognini JF. Intrathecal picrotoxin minimally alters electroencephalographic responses to noxious stimulation during halothane and isoflurane anesthesia. *Acta Anaesth Scan* 2005; 49:763-70
77. Orth M, Barter L, Dominguez C, Atherley R, Carstens E, Antognini JF. Halothane and propofol differentially affect electroencephalographic responses to noxious stimulation. *Brit J Anaesth* 2005; 95:477-84
78. Jinks SL, Atherley RJ, Dominguez CL, Sigvardt KA, Antognini JF. Isoflurane disrupts central pattern generator activity and coordination in the lamprey isolated spinal cord. *Anesthesiology* 2005; 103:567-75.

79. Antognini JF, Jinks SL, Carstens EE. The spinal cord, anesthesia and immobility: a re-examination. International Congress Series 2005
80. Carstens E, Antognini JF. Anesthetic effects on the thalamus, reticular formation and related systems. Thalamus and Related Systems. 2005
81. Antognini JF, Barter L, Carstens E. Overview movement as an index of anesthetic depth in humans and experimental animals. Comp Med, 2005; 55(5): 413-8.
82. Antognini JF, Carstens E. Measuring minimum alveolar concentration: more than meets the tail. Anesthesiology, 2005; 103(4): 679-80.
83. LeDuc ML, Atherley RJ, Jinks SL, Antognini JF. Nitrous oxide depresses electroencephalographic responses to repetitive noxious stimulation in the rat. Brit J Anaesth 2006; 96:216-21.
84. Barter LS, Hawkins MG, Brosnan RJ, Antognini JF, Pypendop BH.
Median effective dose of isoflurane, sevoflurane, and desflurane in green iguanas. Am J Vet Res. 2006; 67:392-7.
85. Mitsuyo T, Antognini JF, Carstens E. Etomidate depresses lumbar dorsal horn neuronal responses to noxious thermal stimulation in rats. Anesth Analg. 2006; 102:1169-73.
86. Orth M, Bravo E, Barter L, Carstens E, Antognini JF. The differential effects of halothane and isoflurane on electroencephalographic responses to electrical microstimulation of the reticular formation. Anesth Analg. 2006; 102:1709-14.
87. Hemmings HC, Jr, , Antognini JF. Do general anesthetics add up? Anesthesiology. 2006; 104:1120-2.

88. Merrill AW, Barter LS, Rudolph U, Eger EI 2nd, Antognini JF Carstens MI, Carstens E,. Propofol's effects on nociceptive behavior and spinal c-fos expression after intraplantar formalin injection in mice with a mutation in the gamma-aminobutyric acid-type(A) receptor beta3 subunit. *Anesth Analg*. 2006; 103:478-83
89. Antognini JF, Atherley RJ, Laster MJ, Carstens E, Dutton RC, Eger EI. A method for recording single unit activity in lumbar spinal cord in rats anesthetized with nitrous oxide in a hyperbaric chamber. *J Neurosci Methods*, 2006; 160(2): 215-22.
90. Ng KP, Antognini JF. Isoflurane and propofol have similar effects on spinal neuronal windup at concentrations that block movement. *Anesth Analg*, 2006, 103(6): 1453-8.
91. Antognini JF, Bravo E, Atherley R, Carstens E. Propofol, more than halothane, depresses electroencephalographic activation resulting from electrical stimulation in reticular formation. *Acta Anaesthesiol Scand*, 2006, 50(8): 993-8.
92. Mitsuyo T, Dutton RC, Antognini JF, Carstens E. The differential effects of halothane and isoflurane on windup of dorsal horn neurons selected in unanesthetized decerebrated rats. *Anesth Analg*, 2006, 103(3): 753-60.
93. Dutton RC, Carstens MI, Antognini JF, Carstens E. Long ascending propriospinal projections from lumbosacral to upper cervical spinal cord in the rat. *Brain Res*, 2006; 1119(1): 76-85.
94. Barter LS, Mark LO, Smith AC, Antognini JF. Isoflurane potency in the Northern Leopard Frog *Rana pipiens* is similar to that in mammalian species and is unaffected by decerebration. *Vet Res Commun*, 2007; 31(6): 757-63.
95. Antognini JF, Atherley RJ, Dutton RC, Laster MJ, Eger EI, Carstens E. The excitatory and inhibitory effects of nitrous oxide on spinal neuronal responses to noxious stimulation. *Anesth Analg*, 2007; 104(4): 829-35.
96. Antognini JF, Raines DE, Solt K, Barter LS, Atherley RJ, Bravo E, Laster MJ, Jankowska K, Eger EI. Hexafluorobenzene acts in the spinal cord, whereas o-difluorobenzene acts in both brain and spinal cord, to produce immobility. *Anesth*

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Exhibit C

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana
State Penitentiary; and JOHN DOES,
unknown executioners,

Defendants.

Civil Action No. 25-169

DECLARATION OF SETH HENRY SMITH, JR.

SETH HENRY SMITH, JR., does hereby declare and say:

1. I have been employed by the state of Louisiana Department of Public Safety and Corrections (“DPSC”) since 2000. I have been the Chief of Operations for DPSC since December 8, 2014. Prior to that, I had occupied the position of Warden at Elayn Hunt Correctional Center (“EHCC”) since February 2014. Before that, I worked as Deputy Warden at EHCC from 2008 – 2014. Prior to that I was Director of Nursing at Louisiana State Penitentiary (“LSP”). Before that, I had worked as a staff registered nurse (“RN”) within the Mental Health Department at LSP. Prior to working for DPSC I was an Intensive Care Unit staff nurse and shift supervisor.
2. I obtained a Bachelor of Science degree in Nursing from Alcorn State University in 1997. I no longer hold an active RN license by choice.
3. As Chief of Operations, I provide administrative oversight over and support for the operational programs of the adult institutions and provide technical assistance to local jail

facilities. I lead and direct the DPSC's operational audit teams, which conduct audits of all adult institutions, non-secure contract facilities, and community work release centers and assist all units with matters relative to the maintenance of American Correctional Association (ACA) accreditation. There are eight adult institutions, including LSP, under the broad authority of the Chief of Operations.

4. I reviewed the Complaint filed by Plaintiff Jessie Hoffman ("Hoffman") in the above-captioned matter.

5. I am aware of the historical background and reasons for why DPSC has implemented nitrogen hypoxia as a method of execution.

6. Up until July 2024, Louisiana's exclusive method of execution was lethal injection. As part of my duties at DPSC, I was previously tasked with attempting to locate suppliers of lethal injection drugs.

7. The last execution by lethal injection in Louisiana occurred on January 7, 2010.

8. In 2014 – 2015, and again in 2017, I or one of DPSC's head pharmacists at my direction made contact with pharmaceutical manufacturers and/or suppliers seeking to procure drugs for use in executions; however, those efforts were not fruitful. Aside from direct communications, I have also relied upon the knowledge of DPSC's head pharmacists who are generally aware of the unavailability of execution drugs. DPSC has received multiple correspondence from pharmaceutical companies prohibiting the use of their products for lethal injection.

9. The lack of access to the necessary lethal injection drugs has rendered DPSC's ability to implement an execution by lethal injection impossible for several years.

10. In 2014, the Louisiana Legislature issued House Resolution No. 142, in which DPSC was asked to study different methods of execution to determine the best practices for administering the

death penalty in the most humane manner and to issue a written report to the House Committee on the Administration of Criminal Justice.

11. On February 18, 2015, the study committee organized by DPSC issued a report recommending that hypoxia induced by the inhalation of nitrogen be considered for adoption as an alternative method of administering capital punishment.

12. Part of that recommendation was based upon legislation that was filed in Oklahoma that supported nitrogen hypoxia as a humane method which does not require the assistance of licensed medical professionals. The report attached the research used by the committee in Oklahoma to recommend this method of execution.

13. While the report determined that nitrogen hypoxia was a humane method, implementing that method would still require amending state law.

14. State law was amended nearly ten years later during the 2024 Second Extraordinary Session when La. R.S. 15:569 was amended to include nitrogen hypoxia as an additional method of execution. *See* Acts 2024, 2nd Ex. Sess., No. 5, §1, eff. July 1, 2024.

15. In approximately March of 2024, DPSC first began considering how to build a nitrogen hypoxia system for use in LSP's Death Chamber.

16. Meetings were held at that time among myself and other DPSC officials considering how best to go about developing and installing the nitrogen hypoxia system.

17. In March 2024, I and LSP's Warden went to Attmore, Alabama, to see the nitrogen hypoxia system used by the Alabama Department of Corrections ("ADOC").

18. Following the visit to Alabama, DPSC requested LSP to begin discussions with its staff on constructing a nitrogen hypoxia system for use in the Death Chamber at LSP's Camp F, E (entrance) building.

19. At some point afterward, LSP's Warden began discussing with LSP Maintenance Personnel the construction of the nitrogen hypoxia system; however, they were not to begin procuring supplies until the next fiscal year, i.e., July 1, 2024.

20. At some point after July 1, 2024, LSP began to procure equipment and supplies for use in constructing the nitrogen hypoxia system. The supplies initially included oxygen and nitrogen gauges, black iron piping, various fittings, and valves. LSP already had some of this equipment on hand. LSP Maintenance Personnel began construction of the nitrogen hypoxia system that same month.

21. Later in July 2024, I visited LSP to see how the nitrogen hypoxia system was progressing. While the system was partially completed at that time, it did not include the automatic manifolds or a mask as I had observed in the nitrogen hypoxia system used by ADOC.

22. At my instruction, LSP Maintenance Personnel ordered a supplied air respirator mask for use in LSP's nitrogen hypoxia system on or about July 16, 2024.

23. I determined that LSP Maintenance Personnel also needed to inspect ADOC's nitrogen hypoxia system in order to be able to replicate the same system at LSP.

24. LSP Maintenance Personnel traveled to Attmore, Alabama on August 7-8, 2024, to see ADOC's nitrogen hypoxia system. During that trip, LSP Maintenance Personnel were allowed to inspect every feature of ADOC's nitrogen hypoxia system to obtain a complete understanding of its setup and function. They were not allowed to take any photographs or video of the system.

25. Approximately two weeks after returning from Alabama, LSP Maintenance Personnel ordered automatic manifolds, copper piping, two exhaust fans, three permanent wall-mounted O₂ sensors, and various fittings in order for LSP's system to more closely mirror that of ADOC's nitrogen hypoxia system.

26. By September 2024, the work on LSP's nitrogen hypoxia system was completed. At that time, LSP Maintenance Personnel performed a pressure test at 75 psi, which is one and a half times the designed operating pressure. The designed operating pressure information of 45-55 psi was gathered from ADOC. The system was checked for leaks with a solution of soap and water.

27. The LSP Maintenance Personnel primarily responsible for the construction of LSP's nitrogen hypoxia system have certifications in pipefitting, plumbing, HVAC, and electrical systems. At least one of them has previously received a national gas certification.

28. On August 12, 2024, LSP began training using both the prior March 2014 lethal injection protocol and ADOC's redacted nitrogen hypoxia protocol.

29. I personally viewed personnel conduct training on LSP's nitrogen hypoxia system in late summer or early fall of 2024. I even placed the mask on my face to test the seal. Even though I have facial hair, the seal of the mask was airtight.

30. On February 3, 2025, a new protocol was executed by Secretary Gary Westcott that includes the procedures for implementation of LSP's nitrogen hypoxia system. The protocol was a blend of DPSC's 2014 lethal injection protocol, provisions of ADOC's redacted nitrogen hypoxia protocol, and a form for acknowledging the condemned inmate's spiritual advisor.

31. That protocol was later superseded by a protocol that was executed on February 7, 2025, to address some inconsistencies and minor grammatical errors in the protocol.

32. Today, DPSC remains unable to implement any execution protocol that involves drugs that are traditionally used for lethal injection.

33. From time to time, DPSC receives correspondence from pharmaceutical companies requesting DPSC to certify that their products will not be used in the administration of capital

punishment. The list of restricted products that may not be used for capital punishment includes Midazolam and Hydromorphone, which are currently authorized by DPSC's execution protocol.

34. Most, if not all, of the requests from pharmaceutical companies indicate that DPSC will be cut off from receiving their medications for the delivery of medical care to inmates if DPSC were to use any of their drugs for executions.

35. For example, in 2018, DPSC executed a certification to Pfizer and its wholesaler (Morris & Dickson) in order to access potential execution drugs solely for the medical care needs of its inmate population, which, if violated, could jeopardize DPSC's ability to utilize these drugs for medical care.

36. While the same state law that was amended in 2024 also authorizes electrocution as a method of execution, that is not an available option for DPSC because there is currently no functional electric chair and/or system that may be used for that purpose.

37. I previously contacted various electrical engineering firms concerning the prospect of contracting them to build an electric chair at LSP to be used for electrocution; however, no companies were interested in doing the work.

38. Therefore, the only available means of implementing an execution in Louisiana currently is by nitrogen hypoxia.

39. With regard to the DDMAPh cocktail that Hoffman puts forth as a potential alternative method of execution, I have confirmed that LSP does have those specific drugs (i.e., digoxin, diazepam, morphine, amirtipiline and phenobarbitalin) currently in stock for ordinary medical use.

40. In addition to the drugs that are currently authorized within its execution protocol, DPSC has previously been asked to certify to pharmaceutical companies that it will not use diazepam for

capital punishment. Diazepam is one of the drugs that is required for Hoffman’s proposed alternative method of execution – DDMAPh.

41. DPSC has also previously received correspondence from Hikma Pharmaceuticals PLC (“Hikma”) stating that it objected to DPSC’s use of any of its drugs for capital punishment, including any restricted drugs listed on its website. According to Hikma’s website, it specifically objects to the use of phenobarbital for capital punishment. *See Hikma Pharmaceuticals strongly objects to the use of its products in capital punishment*, HIKMA (May 15, 2013), <https://www.hikma.com/news/hikma-pharmaceuticals-strongly-objects-to-the-use-of-its-products-in-capital-punishment>.

42. Phenobarbital is another one of the drugs that is required for Hoffman’s proposed alternative method of execution – DDMAPh.

43. Therefore, should DPSC use diazepam and phenobarbital to make the DDMAPh cocktail requested by Hoffman as an alternative method of execution, it will likely result in DPSC not having those drugs available for the ordinary medical care needs of its inmate population.

44. At its core, the DDMAPh cocktail method of execution is not a feasible execution method for DPSC because of the same supply issues that DPSC faces in obtaining drugs for lethal injection.

Date: March 4, 2025

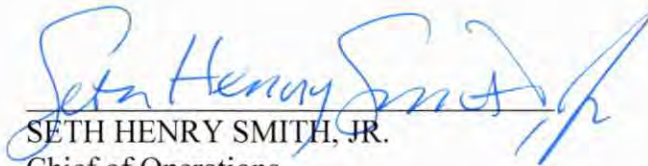

SETH HENRY SMITH, JR.
Chief of Operations
Louisiana Department of Public Safety & Corrections

Exhibit D

DECLARATION OF BRIAN MCALARY, M.D.

I, Brian McAlary, M.D., state and declare as follows:

1. I am over the age of 21 and am competent to make this declaration.

2. My name is Brian McAlary, M.D. I reside in Virginia. I am over the age of eighteen, fully capable and competent of making this declaration and have personal knowledge of the facts set forth herein.

I. PROFESSIONAL BACKGROUND AND QUALIFICATIONS

3. I have been licensed to practice medicine since 1970. I am a Board-certified anesthesiologist. I received my medical degree from Harvard Medical School in 1967. I did my residency in anesthesiology at the National Naval Medical Center in Bethesda, Maryland between 1968 and 1971. I currently practice as an anesthesiologist. I also currently serve as a clinical associate professor with the Edward Via College of Osteopathic Medicine. I have attached, as Exhibit A, my current curriculum vitae which details further my expertise, including professional licenses and memberships and publications.

4. In the preparation of this declaration, I have reviewed documents beyond the Louisiana Execution Protocol, and attach a list of those documents to this declaration as Exhibit B. Further, incorporated herein are the opinions set forth in my affidavits submitted in the Carey Grayson and Demetrius Frazier cases.

5. In addition to my extensive experience as an anesthesiologist, I am also in the unique position as an expert having witnessed an execution by nitrogen gas asphyxiation. On November 21, 2024, I witnessed the execution of Carey Grayson in Alabama. Mr. Grayson was executed via inhalation of nitrogen gas. Contrary to assertions made by the State of Alabama, that such a death would be painless, I observed Mr. Grayson shaking, convulsing, writhing, and gasping

for air for more than four minutes. Such actions indicate that Mr. Smith experienced considerable pain and agony.

6. Thus, in my medical opinion, there is an almost certain risk of undue emotional and/or psychological pain and suffering due to the deliberate deprivation of oxygen that will occur under the current confidential Louisiana Execution Protocol. I note at the outset that I have not been able to physically view the instruments involved in the process, however, I have been able to review photographs and video footage of the proposed execution chamber as well as the instruments that will be used in the execution. Regardless, the materials I have reviewed, including the Louisiana Execution Protocol and those documents contained in Exhibit B, indicate that unnecessary suffering and agony is nearly certain to arise during an execution under the proposed Louisiana Execution Protocol.

II. MR. HOFFMAN WILL LIKELY REMAIN CONSCIOUS AND EXPERIENCING PAIN AND SUFFERING FOR NEARLY 4-6 MINUTES

7. In my opinion, Mr. Hoffman will almost certainly remain conscious for a considerable duration prior to his death under the Louisiana Execution Protocol. Further, the longer Mr. Hoffman remains conscious, the greater the risk of undue pain and suffering. According to the relevant academic literature, an individual inhaling pure nitrogen gas may remain conscious for as long as 6 minutes.¹

8. It is my opinion that, to a degree of medical certainty, Mr. Hoffman will be exposed to substantial pain and suffering while conscious for a period of likely voluntary or involuntary breath holding. Such voluntary or involuntary holding of one's breath, could last anywhere from

¹ See, Poole, D. C., & Bailey, D. M. (2024). Death by nitrogen anoxia: On the integrated physiology of human execution. *Experimental Physiology*, 109(7), 1009. ("At rest, the human body uses ~3.5 mL O₂/kg/min, known as 1 MET (metabolic equivalent or standard metabolic rate), which equates to ~0.25 L O₂/min for a 70 kg individual. As estimated in Table 1, if completely depleted these stores would last 1.55 (total O₂ stores)/0.25 (1 MET) = 372 s or 6 min 12 s.") Ex. C.

30 seconds to as much as about 1.5 minutes depending on the health of the individual. Based on my experience, including my personal observations of the Grayson execution, once breathing of nitrogen begins that Mr. Hoffman would be subjected to a period of 4-6 minutes of substantial pain and suffering before losing consciousness.

9. Various factors are pertinent in the analysis of how long an individual will remain conscious enduring intolerable emotional and/or psychological pain and agony while involuntarily inhaling nitrogen gas. Such factors include breathing rate and pattern, age and overall health of the individual, as well as the presence of any upper airway obstructions.

10. Breathing pure nitrogen will wash the oxygen (O₂) stores out of the lungs at a rate dependent upon the ventilation (the process of moving air in and out of the lungs) and the breathing pattern. As O₂ is sapped from individual's lungs and replaced with nitrogen, that individual will become progressively more hypoxic leading to reflexive and uncontrollable hyperventilation (i.e., an increased rate and depth of breathing, resulting in an excessive elimination of carbon dioxide (CO₂) from the body). This will certainly be accompanied by an intense air hunger with involuntary gasps for oxygen that signify the physiological break-point and ensuing struggle phase observed in extreme voluntary breath-holds and during involuntary suffocation. Depending on the ventilatory response, the individual could suffer in this state for anywhere from 2 to 6 minutes.

11. Indeed, I was physically present and viewed the execution of Carey Grayson in Alabama. With an unobstructed and clear view of Mr. Grayson, I personally observed him retain consciousness for over four minutes before being rendered unconscious. I observed evidence of distress and hyperventilation.

12. Executing someone utilizing nitrogen requires the person to inhale the nitrogen gas. If someone has an upper airway obstruction, the process will take longer, creating additional panic

and fear and resulting in a more painful process. Upper airway obstruction is an occlusion or narrowing of the airways leading to compromised ventilation. Obstructive sleep apnea is the most common cause of chronic upper airway obstruction in adults, but there are other illnesses and acquired causes that can result in upper airway obstruction.

13. If the individual has an upper airway obstruction, there is an increased risk of incurring negative pressure pulmonary edema (NPPE). NPPE occurs when inspiration is attempted against an upper airway obstruction, leading to fluid being drawn from blood vessels into the alveoli as seen in cases of strangulation or smothering with a plastic bag.

14. An individual experiencing panic and the sensation of the inability to breathe while also being denied oxygen will have a high probability of experiencing a constricted upper airway. In my opinion, Mr. Smith almost certainly suffered from NPPE and based on the likelihood that Mr. Hoffman will similarly struggle in the face of hypoxia, it is also nearly certain that he will also suffer NPPE.

III. THE HIGH FLOW RATE OF THE NITROGEN GAS WILL LIKELY RESULT IN INCREASED ANXIETY AND LARYNGOSPASM

15. According to the Louisiana Execution Protocol proffered by the State of Louisiana, the flow rate for the nitrogen gas will be set at 70 liters/minute. In my experience as an anesthesiologist, the necessary flow rate used in administering oxygen to a patient is *only* 5 liters/minute.

16. In my opinion, the excessively high flow rate in the Louisiana State Execution Protocol enhances the risk that Mr. Hoffman experiences severe anxiety and/or laryngospasm (i.e., a sudden, involuntary contraction of the vocal cords that makes it difficult to breathe). If that were to occur, Mr. Hoffman would suffer further severe and undue psychological stress and pain.

IV. INVOLUNTARY NITROGEN ASPHYXIATION IS NOT COMPARABLE TO VOLUNTARY SUICIDE OR INDUSTRIAL ACCIDENTS

17. In my experience, voluntary suicide by gas inhalation is not comparable to forced nitrogen asphyxiation and any suggestion that the two events are analogous is not only logically but also medically invalid. Not only is suicide most often entered into voluntarily, but it is also almost always accompanied with sedatives and/or pain medication. In my experience, most individuals that opt for death by gas inhalation will be more likely to remain calm and practice deep breathing. Contrast that to being strapped to a gurney, forced to wear a mask that covers the nose and mouth, and thereby involuntarily breathing lethal concentrations of nitrogen gas. The two scenarios are hardly comparable.

18. Some level of psychological pain is inherent in the process-as anyone facing certain death is likely to experience fear, anxiety, and panic. That panic under the current Louisiana Execution Protocol, which requires the inmate to participate in their execution by inhaling, actually increases the psychological pain experienced by the inmate. The sensation of the inability to breath will almost certainly create panic.

19. Such panic will only prolong the process and increase the psychological anguish experienced.

20. An additional concern for Mr. Hoffman specifically is that he has a history of post-traumatic stress disorder (PTSD) resulting from his tumultuous and abusive childhood which includes claustrophobia. Because Mr. Hoffman has those conditions, he is more likely to become overtly distressed during the process and consequently induce panic including nausea and vomiting.

21. Lastly, execution by nitrogen gas is also not comparable to industrial accidents involving nitrogen. By their very nature, these accidents are neither planned or willfully wanted. Most obviously, there is no way to compare the two situations because the victim of the accident expires before anyone could witness the experience. Thus, nobody can attest to the circumstances of the accident and report any potential pain and agony suffered by the accident victim.

22. The opinions expressed herein are to a reasonable degree of medical certainty, unless otherwise noted. As noted above, my opinions are informed by the Louisiana Execution Protocol, Mr. Hoffman's medical records as well as being a direct witness to the proposed execution protocol and to my training, knowledge, and expertise regarding the impact of hypoxia. All in all, I have grave concerns that the Louisiana Execution Protocol creates significant risks of excessive psychological pain, prolonged suffering, and/ or potential hypoxic injury rather than death.

DATED: March 3, 2025


Dr. Brian McAlary

EXHIBIT C

EDITORIAL

Death by nitrogen anoxia: On the integrated physiology of human execution

1 | INTRODUCTION

In opposition to any stated opinion that the death penalty and state execution are somehow humane, we demonstrate herein that the latest method, nitrogen anoxia, invoked by the state of Alabama is inherently inhumane. From a respiratory and cerebral bioenergetics approach, we show that both the methods used and their application are flawed with physiological and forensic misconceptions. We are in lock-step with the leagues of death penalty opponents and consider that its use should be discontinued immediately. However, given that it appears that several US states will simply not stop killing their citizens, based on physiological considerations, might they at least consider a less painful method than nitrogen anoxia, although none may be considered humane?

2 | THE CHEQUERED HISTORY OF EXECUTION

The Athenian philosopher Socrates, an unconventional thinker who openly challenged the legitimacy and authority of the warlike gods promoted by the state, was found guilty of corrupting the youth with his ideas. Sentenced to death in 399 BC, he was required to carry out his own execution by consuming a deadly concoction thought, by some, to contain the poisonous plant *Conium maculatum*, known popularly as hemlock, causing death by respiratory paralysis and suffocation. Socrates' last request was for an offering to thank the physician god Asklepios for providing such an effective poison (Bailey, 2018). With rotten descent of democracy into mob rule, Athens lost one of its greatest thinkers owing to a perceived threat. Fast forward almost two and a half millennia to the case of Kenneth Smith, an alleged contract killer in the state of Alabama (Andone et al., 2024) who became the first person known to be executed by nitrogen anoxia, and you will be forgiven for thinking that little has changed. With a misinformed, some may say delusional, focus on improving the means (supposedly more humane) rather than questioning its underlying ethos, Smith's case achieves nothing more than to highlight the ongoing barbarity of state execution, an atavistic relic from the past with a chequered history.

In bygone eras, public executions by extended torture, crucifixion, burning and disembowelling, or by hanging, drawing and quartering, for

example, served as painful warnings to the public against bad behaviour or incurring political (as Socrates) or religious disfavour, with death secondary to the infliction of pain and retribution. Society has sought supposedly more humane and dignified means of killing its unwanted citizens, looking to lessen the suffering of the condemned. Practices such as hanging, decapitation (e.g. by sword, Louisette or guillotine), electrocution (proposed by none other than Thomas Edison himself), shooting, gassing or lethal injection of a fast-acting anaesthetic (sodium thiopental), muscle-paralysing agent (pancuronium bromide) and cardiotoxin (potassium chloride, reviewed by Quine et al., 1988), either directly or indirectly, arrest O₂ delivery to the brain, resulting in rapid loss of consciousness and subsequent death.

On Thursday 25 January 2024, Kenneth Smith was executed by being forced to inhale supposedly pure nitrogen gas supplied into a mask (Andone et al., 2024). Smith was pronounced dead at 8:25 pm, and the Alabama Department of Corrections Commissioner, John Hamm, reported that nitrogen was running into Smith's mask for ~15 min and he thought that Smith held his breath for the initial 4 min. Eyewitnesses observed that Smith seemed to be conscious for 'several' minutes into the execution before ~2 min of shaking and writhing on the gurney followed by several more minutes of deep breathing prior to breathing slowing progressively until it was 'no longer perceptible for (sic) media witnesses'.

America is unusual among Western countries in still enforcing the death penalty since it was reinstated by the Supreme Court in 1976. Whether the killing of citizens is viewed as just punishment or as a moral, judicial and societal failing, the claim has been made by the state of Alabama that so-called 'nitrogen hypoxia', which is, in fact, nitrogen anoxia, is 'perhaps the most humane method of execution ever devised'. This statement runs contrary to the opinion of Smith's spiritual adviser, Reverend Jeff Hood, who had watched previous executions by lethal injection, commenting that Smith's death was 'the most horrible thing I have ever seen' (Andone et al., 2024).

It is pertinent that the state's published nitrogen anoxia execution protocol is heavily redacted to shield explicit details from public scrutiny. That said, the indication is that room air, containing 20.9% O₂, balance (78%) nitrogen, is replaced at the turn of a valve by pure (100%) nitrogen. As physiologists, it is our imperative to examine all facets of physiological regulation and how nitrogen anoxia impacts the body until death. Drawing on an extensive literature in both humans

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TABLE 1 Body O₂ stores.

Compartment	O ₂ concentration (mL/L)	Relevant volume (L)	O ₂ store (L)
Lung (at FRC)	150	2.5	0.4
Blood (arterial)	200	1.5	0.3
Blood (venous)	150	3.5	0.5
Muscle myoglobin	11	30	0.3
Dissolved	0.9	50	0.05
Total O ₂ stores			1.55

Note: Values presented are for a 70 kg individual. Calculations assume that blood haemoglobin concentration is 15 g/100 mL, arterial blood is 97% saturated and venous blood is 75% saturated, muscle myoglobin concentration is 0.5 mM, and intramyocyte and 'average' tissue/extracellular fluid O₂ partial pressure is 30 mmHg. Abbreviation: FRC, functional residual capacity.

and animals (euthanasia), the science of judo's *shime waza* strangles (used also in Brazilian jiu-jitsu) and fundamentals of systemic and cerebral bioenergetics, this examination provides integrated insights into the events preceding death by nitrogen anoxia. This analysis also brings sharply into question whether, as claimed by the state of Alabama, nitrogen anoxia is the most humane method of execution possible.

3 | RESPIRATORY PHYSIOLOGY OF NITROGEN ANOXIA

3.1 | What and where are body oxygen stores, and how long could they last while breathing pure nitrogen?

At rest, the human body uses ~3.5 mL O₂/kg/min, known as 1 MET (metabolic equivalent or standard metabolic rate), which equates to ~0.25 L O₂/min for a 70 kg individual. As estimated in Table 1, if completely depleted these stores would last 1.55 (total O₂ stores)/0.25 (1 MET) = 372 s or 6 min 12 s.

That said, a substantial portion of these O₂ stores is not accessible for supporting systemic metabolism. Specifically, breathing pure nitrogen will wash the O₂ stores out of the lungs into the expiration at a rate dependent upon the extant ventilation and the breathing pattern (i.e., faster washout at higher ventilation and tidal volumes). As the arterial blood becomes progressively more hypoxic, especially below an O₂ partial pressure (P_{O_2}) of 60 mmHg (Iturriaga et al., 2021; West, 1995), the peripheral chemoreceptors drive a powerful hyperventilation such that far less than 0.4 L of lung O₂ stores will be available to support metabolism. This is accompanied by an intense air hunger with involuntary diaphragmatic contractions that signify the physiological break-point and ensuing struggle phase observed in extreme voluntary breath-holds and during involuntary suffocation. It is also pertinent that myoglobin stores release their O₂ only at extremely low values of P_{O_2} (myoglobin P_{50} is ~2.5 mmHg), and this O₂ will not be available to the rest of the organs, including the brain.

Consequently, depending on the ventilatory response, the individual's specific functional residual capacity and whether the

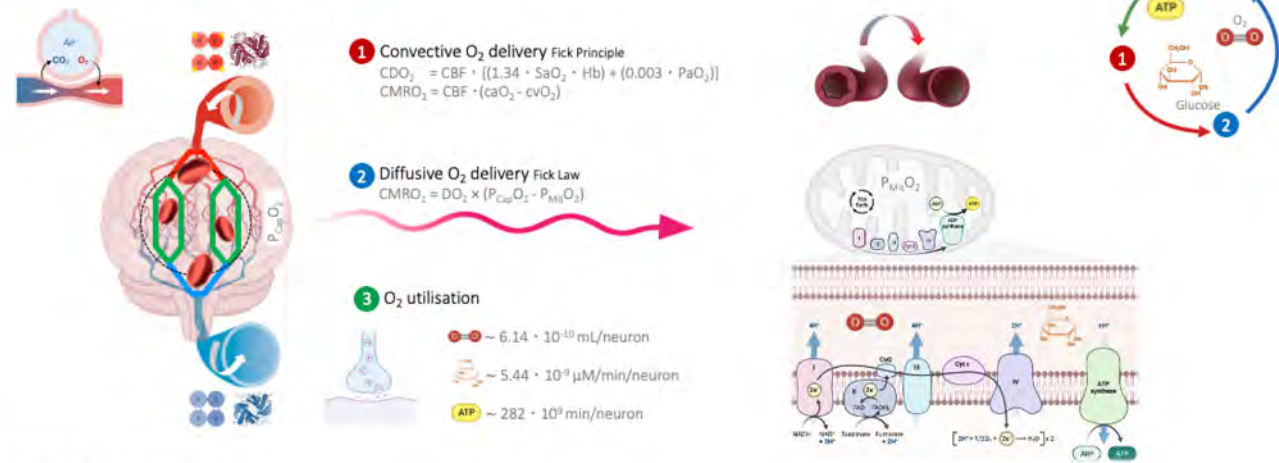
room air-to-nitrogen switch is made at the end of a quiet exhalation (i.e., at functional residual capacity) and the precise metabolic rate (O₂ uptake), the accessible O₂ stores could be expended within 2–6 min or less. However, as seen in the next subsection, while breathing 100% nitrogen the brain will become O₂ deprived far more rapidly.

The O₂ expenditure rationale based on Table 1 is broadly consistent with observations in animals that have a higher metabolic rate than humans. Specifically, when Herin et al. (1978) used 100% nitrogen flushing to reduce inspired O₂ from 21% to <1.5% within 45–60 s, dogs lost consciousness in ~40 s and were clinically dead, as assessed by flat EEG (80 s), zero blood pressure and lack of spontaneous respiration in 204 s. Initially, the dogs hyperventilated, presumably owing to carotid body stimulation by lowered arterial P_{O_2} , but subsequently, after the onset of high-amplitude, slow EEG this ventilatory pattern was not evident. After they became unconscious, some dogs yelped, whereas others gasped, convulsed and/or displayed muscular tremors. These latter behaviours occurred after sensibility had been lost, and they were thus judged to be insensitive to painful stimuli, such as pinching the foot webbing.

3.2 | Cerebral bioenergetics and vulnerability to failure

Unlike most other organs, an evolutionary 'drive for size' means that the human brain is committed to a continually active state, relying on a constant supply of blood, given that it has little to no glucose or glycogen reserves and is constrained by a relatively modest capillary density (Bailey, 2016; Bailey et al., 2017). Preservation of cerebral O₂ consumption is achieved by the maintenance of cerebral O₂ delivery and involves tight coupling between cerebral blood flow and O₂ supply/demand, incorporating convective and diffusive components (Figure 1a). Given its meagre energy stores and despite weighing <1/50th of the total body mass, the brain allocates a disproportionate 20%–25% of the basal systemic O₂ budget (Kety, 1957) to fuel the maintenance of ionic equilibria and uptake of neurotransmitters for synaptic transmission (Figure 1a), with neural tissue 'costing' ≤16 times more to maintain compared with skeletal muscle (at rest) and other tissues.

(a) Cerebral bioenergetics: Basics



(b) Cerebral bioenergetics: Limits

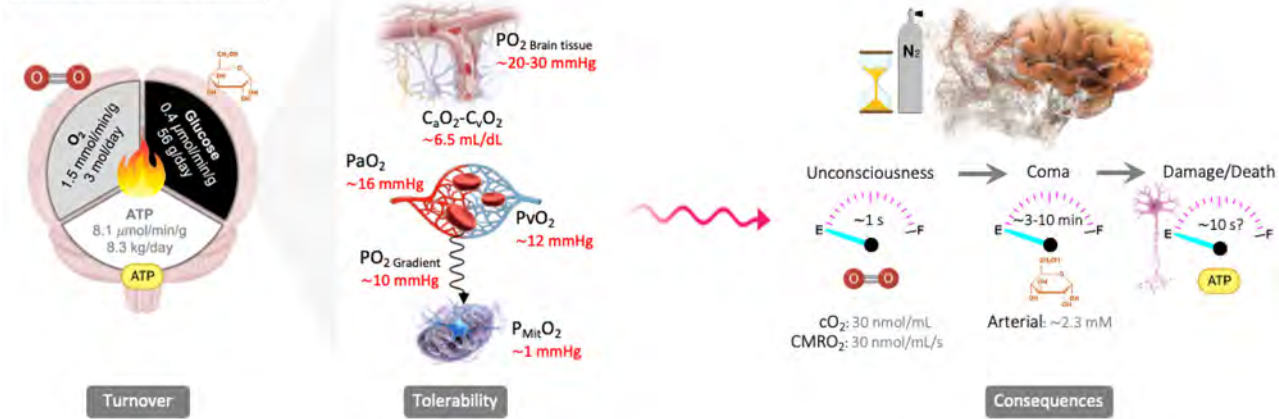


FIGURE 1 Cerebral bioenergetics: from basics to limits. (a) Schematic diagram highlighting the neurovascular unit and composite interactions between convective (bulk delivery of O₂) and diffusive (movement of O₂ from haemoglobin to mitochondria) elements underlying cerebrovascular O₂ transport and utilization. (b) Given its disproportionately high neuronal ATP turnover to support synaptic transmission combined with limited O₂/glucose/glycogen reserves, the human brain has evolved exquisite sensitivity to anoxia (pure nitrogen breathing). Note theoretical estimation of critical ‘tolerable’ limits (thresholds highlighted in red) in the cerebral O₂ cascade thought to precede unconsciousness based on prior boundary calculations (Bailey et al. 2016; Bailey, 2019a). Abbreviations: a, arterial; CBF, cerebral blood flow; CDO₂, cerebral delivery of oxygen; CMRO₂, cerebral metabolic rate of O₂; cO₂, oxygen content; DO₂, diffusion incorporating surface area, thickness of the diffusion barrier and O₂ pressure gradient; Hb, haemoglobin; P_{Cap}O₂, capillary partial pressure of O₂; P_{Mit}O₂, mitochondrial partial pressure of O₂; SaO₂, arterial oxyhaemoglobin saturation; v, venous. Figure created using Biorender, adapted from Bailey (2019a,b) and Bailey et al. (2019).

However, its inability to compromise on such an excessive energy budget, with substrate turnover involving a staggering 8.3 kg of ATP/day, equivalent to six times the brain’s own mass (Zhu et al., 2018), comes at a cost, rendering the brain exquisitely vulnerable to bioenergetic failure (Figure 1b). Simple division of its metabolic rate(s) by energy content (Figure 1b) highlights how quickly the meagre fuel reserves would be depleted if exposed to an anoxic nitrogen inspiration such that brain O₂ delivery ceases. The first ‘fuel’ to suffer is O₂, with its limited reserves depleted in a single second, followed swiftly by its ‘sister substrate’, glucose. Note the ‘critical’ values of P_{O₂} and corresponding concentrations that serve as theoretical boundary thresholds, preceding loss of consciousness, coma and, ultimately, neuronal damage and death. The cerebral cortex, hippocampus, basal ganglia and cerebellum are especially sensitive to the ravages of anoxia (Figure 1b).

3.3 | Physiological responses to breathing pure nitrogen

The first inhalation of pure nitrogen will lower the alveolar P_{O₂}, impair lung–blood O₂ diffusion and progressively compound arterial hypoxaemia (i.e., low arterial P_{O₂} and O₂ content). A few seconds downstream of the lung, at the bifurcation of the common carotid arteries, lie the carotid bodies, which are the only chemoreceptors that respond to low arterial blood P_{O₂} by stimulating ventilation. When the arterial P_{O₂} falls from 90–100 mmHg in normoxia to <60 mmHg while breathing pure nitrogen, the carotid bodies stimulate a marked hyperpnoea and concomitant dyspnoea (Iturriaga et al., 2021; Ward & Whipp, 1989). This will increase ventilation further, effectively helping to wash out any O₂ remaining in the lungs and reducing arterial P_{O₂} to a greater extent. The P_{O₂} in the lung might fall well below that

in the venous blood, causing a paradoxical blood-to-lung movement of O_2 and accelerating the lowering of arterial P_{O_2} (Ernsting, 1963). As demonstrated from animal studies (in cats, rabbits and dogs) of severe hypoxia (not anoxia as with 100% nitrogen breathing) when the O_2 concentration in the chamber was lowered rapidly, the vast majority of animals collapsed within 60 s, resulting in reflex anoxic myoclonus and seizures and respiratory arrest within 120 s thereafter, followed swiftly by circulatory arrest at 360 s (Quine et al., 1988). The convulsions followed a patterned sequence, with extensions of the front legs and flexion of the hind legs, occasionally accompanied by vocalizations. In humans, Ernsting found that breathing pure nitrogen induced collapse, convulsions and unconsciousness within 17–20 s (Ernsting, 1963) which was accompanied by a 5- to 6-fold elevation in ventilation and increase in heart rate and blood pressure. There will probably also be a substantial sympathetic (flight or fight) response raising blood catecholamines. Thus, together with any overt struggling, the O_2 uptake demand will increase owing to elevated respiratory and cardiac muscle work and the metabolic stimulation from the rise in blood catecholamines. These demands will shorten the time elapsed to critical depletion of body O_2 reserves (Figure 1b).

4 | LEGAL AND FORENSIC MISINFORMATION

Given the politically charged nature of exacting the death penalty and that it is clearly an infraction of the Hippocratic oath, it is not surprising that legal reports and the medical literature are rife with misinformation. For instance, a report entitled '*Nitrogen-induced hypoxia as a form of capital punishment*' was instigated by Oklahoma State Representative Mike Christian (Copeland et al., 2015). Written by two doctors of jurisprudence (Michael Copeland and Christine C. Pappas) and a Masters degree holder in human resources/criminal justice (Thomas M. Parr), this document claimed that 'nitrogen hypoxia' was humane and assured a 'quick and painless death'.

Copeland et al. (2015) based their report, in part, on the work of Ernsting (1963) and posited further that 'inhalation of only 1–2 breaths of pure nitrogen will cause a sudden loss of consciousness'. Considering that the one to two breaths were normal tidal volumes of 0.5 L, these would dilute the initial ~16% O_2 in the lungs to 14% on the first breath and 12% on the second breath. This might lower arterial P_{O_2} from its normal 95–100 mmHg to ~50 and 36 mmHg, respectively, but would certainly not reduce the arterial O_2 to the level that might result in a loss of consciousness. However, both values are consistent with providing an intense respiratory stimulation and dyspnoea via the carotid bodies. Moreover, at a normal breathing frequency of ~15 breaths/min, the 17–20 s elapsed before Ernsting's subjects lost consciousness allows for at least four or five breaths, and far more if the subject is hyperpnoeic and hyperventilating owing to nervousness and the carotid body response to the falling arterial P_{O_2} .

The report by Copeland et al. (2015) seems very concerned that the carotid bodies are not stimulated by respiratory acidosis as breathing continues to offload carbon dioxide. But, crucially, they fail

to appreciate that low arterial P_{O_2} provides its intensely dyspnoeic response via the carotid bodies in and of itself. Lest the reader have any doubt regarding the inadequacy of physiological understanding or dubious qualifications of Copeland et al. (2015) as respiratory physiologists, they also state that 'Altitude hypoxia has similar effects as the hypoxia one gets from breathing inert gases although it is caused by the inability of the lungs to absorb the oxygen in the air rather than a lack of oxygen in the air'. As illustrated below (see last paragraph of this subsection), the effects of altitude hypoxia are most certainly from the low values of P_{O_2} in the inspired air and thus lungs, to which the cerebral circulation is consequently exposed.

Copeland et al. (2015) also cited Ernsting (1963) that 'there was no reported physical discomfort' and went so far as to opine that 'low levels (sic) of hypoxia' produce euphoria and that the anxiety that presents with asphyxiation (a proposed alternative that could be achieved simply by placing a plastic bag over the victim's head) would not be present. The latter point is disingenuous, because Ernsting (1963) did not comment at all on physical comfort or lack thereof. More importantly, those physiologists among us who have studied the effects of breathing nitrogen anoxia know that it is an intensely disturbing and discomforting experience.

With respect to the (forensic) literature dedicated to nitrogen anoxia/asphyxiation in the context of suicide, there are some equally shocking misinformed physiological statements. Belying the observation that climbers without supplemental O_2 have summited Mount Everest, where the inspired P_{O_2} (~42 mmHg) is almost exactly equivalent to breathing 6% inspired O_2 at sea level, Madentzoglou et al. (2013) opine that 'Death occurs when O_2 is present in less than 6% of the atmospheric air'. And even more specious is the claim that '(Death) can even be delayed and occur at or after 60 minutes if the atmospheric O_2 stays at 20%'. The fact that millions of humans live at altitudes such as Mexico City, Mexico, Johannesburg, South Africa or high in the Andes and Himalayas, where the inspired P_{O_2} is far lower (≤ 67 mmHg) than provided by 20% of sea-level atmospheric pressure (i.e., 143 mmHg) further falsifies the statements made by Madentzoglou et al. (2013).

5 | TECHNIQUES THAT RENDER HUMANS UNCONSCIOUS WITHOUT PAIN

As discussed above, the impact of breathing pure nitrogen on arterial P_{O_2} , hence brain arterial O_2 content, is contingent on the lung volume at which the inspirate is switched and on the ensuing ventilation and breathing pattern. These factors introduce delays and variability into the time when consciousness is lost and, by lowering arterial P_{O_2} , intensely stimulate the carotid bodies, evoking a profound dyspnoea and air hunger. In contrast, sudden occlusion of the cerebral circulation renders the human unconscious in a mere 7–8 s (Nimura et al., 2022; Rossen et al., 1943), without invoking either hyperpnoea or the carotid sinus baroreceptor reflex, as evidenced by lack of major changes in heart rate, blood pressure, myocardial contractility, stroke volume or cardiac output (Mitchell et al., 2012; reviewed by Nimura et al., 2022).

The judo technique of *shime waza* or strangleholds, also used in Brazilian jiu-jitsu and sometimes referred to as chokes, is designed to elicit a submission within seconds of application. If the judoka opponent does not submit and loses consciousness, upon restoration of carotid artery flow, revival takes ≤ 12 s. Application of *shime waza* decreases mid-cerebellar and internal carotid artery blood flow by 80%–90% (Nimura et al., 2022; Reay & Holloway, 1982); brain oxygenation plummets (Haga et al., 2016) and is attended by tonic and clonic convulsions at loss of consciousness, when the EEG demonstrates high-amplitude slow waves (delta waves) (Ikai et al., 1958; Ogawa et al., 1958; Shibayama & Ebashi, 1978). Loss of consciousness occurs with a reduction of mid-cerebellar arterial blood flow velocity of $>50\%$ (Mitchell et al., 2012; Njemanze, 1992). Despite these anoxic convulsions after fainting, upon restoration of brain blood flow subjects can stand, walk and proceed with their work within 1–2 min after regaining consciousness (Nimura et al., 2022). Repeated fainting consequent to *shime waza* has been considered to be safe and to lack acute or delayed side effects (Matsunaga et al., 2021; Mitchell et al., 2012; Rossen et al., 1943; reviewed by Nimura et al., 2022), although there might be some chronic effects, including adaptive neuroprotection (Stacey et al., 2021). For nearly a century of judo practice and competition, from 1882 to 1979, no deaths attributable to *shime waza* were recorded (Koiwa, 1987), and for jiu-jitsu exponents, who typically experience more frequent strangulation, no indication of cognitive impairment is evident (Stacey et al., 2021).

As a means to study the impact of acute cerebral anoxia in humans, the Kabat–Rossen–Anderson cuff was developed to increase cervical pressure to 600 mmHg within 0.15 s (Rossen et al., 1943 reviewed by Nimura et al., 2022). By occluding the carotid arteries, inflation of the Kabat–Rossen–Anderson cuff induces acute brain anoxia without affecting breathing or evoking the dyspnoea that attends carotid body stimulation via breathing pure nitrogen. Like *shime waza*, the acute procedure resulting in loss of consciousness is well tolerated, followed by rapid and uneventful recovery upon release, and can be repeated without apparent gross injury to the subjects (Rossen et al., 1943; Smith et al., 2011). This conclusion is also substantiated by the judo (and jiu-jitsu) communities, in which loss of consciousness from *shime waza* is not uncommon during training and competition and can be followed by a feeling of reperfusion-induced euphoria. The popularity of judo and especially jiu-jitsu, despite the regular imposition of strangles/neck chokes ($>70\%$ of jiu-jitsu exponents have been choked more than 100 times, with 28% losing consciousness) attests to the perception that this technique is relatively benign in nature (Stacey et al., 2021; Stellpflug et al., 2020).

Prolonged application of the Kabat–Rossen–Anderson cuff would induce rapid unconsciousness with, for the purposes of execution, the cuff remaining inflated until death was confirmed.

6 | CONCLUSION

Rather than becoming unconscious within a few breaths and dying within 1 min as stated in the Copeland Report, Smith would have

been expected to show signs of severe discomfort and distress with intolerable air hunger for ~ 1 min and dying within 5–6 min had he been switched to 100% nitrogen in his mask. Although the exact timing is dependent, in part, upon his breathing pattern and the rate of decreased brain O_2 supply and metabolism, the eyewitness reports that claim otherwise raise the possibility that the inspired gas was not pure nitrogen, either because the gas cylinder supplying nitrogen did not contain 100% nitrogen or because leaks in the system permitted the entry of O_2 . Like Socrates, we as scientists are obliged continually to challenge the authority of the state when it comes to questions relating to the human body and health, particularly when this authority encompasses deciding over life and death. Regardless of whether one supports the use of state execution as a penalty, this case shows that the reasoning for using nitrogen anoxia as a ‘humane’ method of execution is flawed by physiological and forensic misconceptions and misinformation.

In closing, please be absolutely clear that we consider the death penalty barbaric and unnecessary. We unequivocally oppose its presence in a just society.

AUTHOR CONTRIBUTIONS

David C. Poole conceived the idea and wrote the first draft of the manuscript with input from Damian M. Bailey, David C. Poole and Damian M. Bailey edited and revised the manuscript. David C. Poole and Damian M. Bailey approved the final version submitted for publication and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All persons designated as authors qualify for authorship, and all those who qualify for authorship are listed.

CONFLICT OF INTEREST

D.C.P. is Deputy Editor-in-Chief (USA) of Experimental Physiology. D.M.B. is Editor-in-Chief of Experimental Physiology and affiliated to the companies FloTBI, Inc. and Bexorg, Inc. focused on the technological development of novel biomarkers of cerebral bioenergetic function and structural damage in humans. D.C.P. and D.M.B. were blinded from the review process and from making any editorial decisions for this manuscript.

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Exhibit E

DECLARATION OF PHILLIP E. BICKLER, M.D., PhD

I, Philip E. Bickler, state and declare as follows:

1. I am over the age of eighteen, fully capable and competent of making this declaration and have personal knowledge of the facts set forth herein.

I. PROFESSIONAL BACKGROUND AND QUALIFICATIONS

2. I received a B.A. in Chemistry in 1984 from The Johns Hopkins University and a Ph.D. in Biophysical Chemistry in 1989 from the University of California, Berkeley. I am a Medical Doctor. I have worked as a practicing physician since 1986. I am a Board-certified anesthesiologist. While pursuing my Ph.D., I received the Bruce Mahan Memorial Teaching Award from the University of California Berkeley's Department of Chemistry. I am the Director of the Hypoxia Research Laboratory at UCSF. I have attached, as Exhibit A, my current curriculum vitae which details further my expertise, including professional licenses and memberships and publications.

3. I incorporate herein all findings and opinions stated in my earlier declaration dated February 23, 2025, and attachments.

4. In the preparation of this declaration, I have reviewed the State of Louisiana's Execution Protocol and additional documents. For example, I have reviewed Mr. Hoffman's medical records as well as photographs and video footage taken of the proposed execution chamber as well as the instruments that will be used in the execution. In addition, I have also reviewed the reports of Dr. Sautter outlining Mr. Hoffman's PTSD diagnosis. Taken together, it is my opinion, that unnecessary and severe pain and suffering is nearly certain to arise during an execution under this Protocol.

II. **PHYSIOLOGICAL EFFECTS OF NITROGEN HYPOXIA**

5. My expertise includes studying the effects of oxygen deprivation (hypoxia) on humans. Nitrogen hypoxia induces unconsciousness and death by depriving the brain of oxygen. While proponents argue that this process is painless, the physiological reality is far more complex.

6. As an anesthesiologist and someone who has experienced hypoxia myself, I can attest that experiencing oxygen deprivation causes anxiety, panic, and fear.

7. The onset of hypoxia triggers a cascade of physiological responses mediated by the sympathetic nervous system. This "fight-or-flight" response includes increased heart rate and blood pressure while the body attempts to compensate for the lack of oxygen by increasing circulation. Hypoxia also causes rapid and labored breathing as the respiratory system struggles to obtain oxygen, leading to air hunger (dyspnea), a profoundly distressing sensation.

8. In my experience, the onset of hypoxia also results in anxiety and panic. The higher brain functions are the first to be affected, leading to confusion, disorientation, and severe anxiety. Because the brain's oxygen deprivation triggers intense fear and panic, the sympathetic response will be exacerbated. As oxygen levels plummet, the brain's control over motor function deteriorates leading to involuntary muscle spasms and convulsions.

9. Moreover, in my experience, the sensation of air hunger is not simply a feeling of being out of breath, rather it is a primal, overwhelming sensation of suffocation. The body's chemoreceptors, which monitor oxygen and carbon dioxide levels, trigger intense distress as oxygen levels decline.

10. In my opinion, the claim that unconsciousness occurs rapidly is misleading. While loss of consciousness may occur within a few minutes or longer, the preceding period is characterized by intense suffering. The exact duration of consciousness is highly variable and depends on individual physiology, including lung capacity and overall health.

III. IMPACT OF POST-TRAUMATIC STRESS DISORDER AND CLAUSTROPHOBIA IN NITROGEN HYPOXIA

11. I have reviewed Dr. Sautter's declaration and evaluation of Jessie Hoffman and diagnosis of PTSD. I also note that his medical records confirm that he has claustrophobia. Because Mr. Hoffman has PTSD and claustrophobia, he will almost certainly experience an amplified and qualitatively different suffering during nitrogen hypoxia.

12. For example, PTSD heightens Mr. Hoffman's vulnerability to psychological trauma. Thus, the experience of suffocation will trigger flashbacks and intrusive memories of past traumatic events, compounding the suffering. The hyperarousal associated with PTSD will amplify the sympathetic nervous system response, making the experience even more agonizing.

13. Claustrophobia will be acutely triggered by the execution chamber and the application of the breathing apparatus. The feeling of being confined and restricted will induce a state of extreme panic, exacerbating the physiological effects of hypoxia.

14. The feeling of suffocation will likely be interpreted by Mr. Hoffman as a re-experiencing of past traumas, creating a loop of terror.

IV. PROLONGATION OF CONSCIOUSNESS AND SUFFERING

15. My experience with hypoxia involves studies of hypoxia in my research laboratory in human subjects, my own experience studying and experiencing high altitude hypoxia and in my clinical work as an anesthesiologist. It is crucial to distinguish between controlled experimental settings and the highly uncontrolled environment of a prison execution. For example, a controlled experiment usually involves voluntary participants, often with informed consent and a degree of psychological preparation. In other words, the environment is designed to minimize distress. Even under these controlled conditions, designed to minimize stress, subjects still can experience

anxiety and fear. On the other hand, involuntary hypoxia experienced in a prison setting execution is vastly different and the pain and suffering that would be experienced far greater. Specifically, involuntary hypoxia caused by the inhalation of pure nitrogen involves an individual facing imminent death. Further, the execution chamber itself is a highly charged, fear-inducing environment. For instance, Mr. Hoffman will be subject to significant physical restraints, including strapping to a gurney and the application of a mask covering his nose and mouth, conditions that will further exacerbate his distress.

16. In my opinion, the anxiety and terror experienced by Mr. Hoffman will cause severe and superadded psychological pain and will drastically alter physiological responses.

17. Ironically, the general good health of Mr. Hoffman could prolong the time before unconsciousness occurs. A healthy cardiovascular system and lungs will allow the body to compensate for hypoxia for a longer period, thus prolonging the period of suffering.

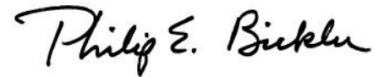
18. Additionally, Mr. Hoffman's religious practice of Buddhist breathing techniques, while intended to calm mental health issues, may also contribute to a prolonged period of conscious suffering. These techniques, while not designed for this purpose, can increase the efficiency of oxygen utilization, potentially delaying the onset of unconsciousness. The learned ability to control breathing may also mean the prisoner fights the hypoxia longer than someone without that training.

19. In my opinion, a practicing Buddhist may be more aware of their body and breathing than the average person. This heightened awareness will make the sensations of air hunger and suffocation even more pronounced and distressing.

20. Based on my expertise and the available medical evidence, I conclude that execution by nitrogen hypoxia will cause intolerable pain and suffering, particularly in the case of Mr. Hoffman as an individual with PTSD and claustrophobia. The physiological and psychological

effects of hypoxia, combined with the individual's pre-existing conditions, will result in a profoundly distressing and inhumane experience.

DATED: March 3, 2025

A handwritten signature in black ink that reads "Philip E. Bickler". The signature is written in a cursive style with a large initial "P".

Philip E. Bickler, MD, PhD

Exhibit F

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN,

Plaintiff,

v.

**GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana
State Penitentiary; and JOHN DOES,
unknown executioners,**

Defendants.

Civil Action No. 25-169

DECLARATION OF DARREL VANNOY

Darrel Vannoy, does hereby declare and say:

1. I am the Warden of Louisiana State Penitentiary. I have held this position since November 27, 2024.
2. On February 20, 2025, Jessie Hoffman (DOC #400473) was provided in my presence with written notice regarding the procedure for selecting a spiritual advisor, a true and correct copy of which is attached hereto as Exhibit 1.
3. In my presence, Mr. Hoffman signed a receipt acknowledging that he received written notice regarding the procedure for selecting a spiritual advisor. *See* Exhibit 1.
4. He verbally advised me that he did not intend to have a spiritual advisor present for his execution.
5. The written notice provides, in part, that Mr. Hoffman may select a spiritual advisor to be present with him in the execution chamber and that his selection, if any, of a spiritual advisor and

alternate spiritual advisor must be communicated to me within five (5) days, i.e. February 25, 2025. *See* Exhibit 1.

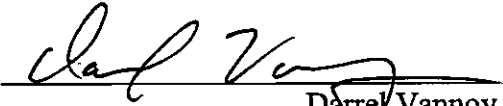
6. On March 2, 2025, Caroline Tillman, counsel for Mr. Hoffman, submitted a request on his behalf to have a spiritual advisor present. A true and correct copy of Ms. Tillman's communication is attached hereto as Exhibit 2.

7. Although this request was untimely, I decided to honor his request and change in position regarding the presence of a spiritual advisor to ensure that Mr. Hoffman's religious beliefs and exercise are fully accommodated.

8. Therefore, on March 3, 2025, I notified Ms. Tillman via email that Mr. Hoffman's untimely request for a spiritual advisor will be honored and that Brother Reimoku Gregory Smith will be permitted to be present in the execution chamber with Mr. Hoffman, provided that Brother Reimoku Gregory Smith (1) submits a written plan to me by Thursday, March 6, "setting forth how [he] intends to assist [] in the exercise of [Mr. Hoffman's] spiritual beliefs"; (2) meets with me to review the plan and conduct orientation and training; and (3) reviews and signs the Spiritual Advisor Acknowledgement Form and Agreement to Witness Execution Form. A true and correct copy of my communication to Ms. Hudsmith is attached hereto as Exhibit 3.

Date:

March 3, 2025


Darrel Vannoy
Warden, Louisiana State Penitentiary

DEPARTMENT OF PUBLIC SAFETY & CORRECTIONS
STATE OF LOUISIANA

JEFF M. LANDRY
GOVERNOR



GARY E. WESTCOTT
SECRETARY

February 20, 2025

To: Jessie D. Hoffman (DOC #400473)

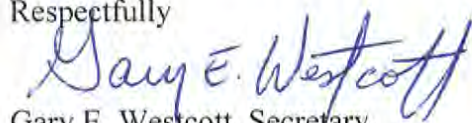
You may select a spiritual advisor who may be present with you in the execution chamber at the time of your execution. You may select an alternate spiritual advisor to serve in the event that the spiritual advisor you initially select cannot serve, or elects not to serve, at the time of your execution. Your choice of spiritual advisor and alternate spiritual advisor must be made and communicated to LSP Warden Darrel Vannoy within five (5) days.

Your spiritual advisor or alternate spiritual advisor is required to submit a written plan to LSP Warden Vannoy setting forth how your spiritual advisor intends to assist you in the exercise of your spiritual beliefs for the purpose of ensuring that such assistance will not interfere with the conduct of your execution. This written plan must be submitted to LSP Warden Vannoy for approval within fourteen (14) days.

LSP Warden Vannoy will meet with your selected spiritual advisor and/or alternate spiritual advisor to review the plan and conduct orientation and training in advance of your execution. Your selected spiritual advisor and alternate spiritual advisor must contact LSP Warden Vannoy to schedule the orientation and training. LSP Warden Vannoy may conduct the review of the plan and orientation by phone, teleconference, or by other means.

Your spiritual advisor or alternative spiritual advisor will not be allowed in the execution chamber unless he/she has reviewed and signed the Spiritual Advisor Acknowledgement Form and Agreement to Witness to Execution Form.

Respectfully



Gary E. Westcott, Secretary,
Department of Public Safety and Correction, Corrections Services

DEPARTMENT OF PUBLIC SAFETY & CORRECTIONS
STATE OF LOUISIANA

JEFF M. LANDRY
GOVERNOR



GARY E. WESTCOTT
SECRETARY

RECEIPT OF NOTICE OF SPIRITUAL ADVISOR INFORMATION

I, Jessie D. Hoffman (DOC #400473) acknowledge receipt of the written notice regarding the procedure for selecting a spiritual advisor.

Jessie Hoffman
Jessie D. Hoffman (DOC #400473) Signature

2/20/2025
Date

Paul King
Employee Witness Name and Signature

2/20/2025
Date

Jessie D. Hoffman (DOC #400473) refused to sign for receipt of the written notice regarding the procedure for selecting a spiritual advisor.

Employee Witness Name and Signature

Date

Employee Witness Name and Signature

Date

Jonathan Vining

From: Betty Thompson on behalf of Darrel Vannoy
Sent: Monday, March 3, 2025 9:48 AM
To: Jonathan Vining
Subject: FW: Jessie Hoffman #400473 Spiritual Adviser
Attachments: Brother Reimoku Spiritual Advisor Letter of Rec.pdf

From: Caroline Tillman <Caroline_Tillman@fd.org>
Sent: Sunday, March 2, 2025 6:25 PM
To: Darrel Vannoy <Darrel.Vannoy@la.gov>
Cc: Rebecca Hudsmith <Rebecca_Hudsmith@fd.org>
Subject: FW: Jessie Hoffman #400473 Spiritual Adviser

EXTERNAL EMAIL: Please do not click on links or attachments unless you know the content is safe.

Dear Warden Vannoy,

I am one of Jessie Hoffman's attorneys.

I wanted to let you know that Jessie Hoffman (DOC #400473) has a spiritual adviser and would like him to support and prepare him for his execution scheduled March 18, 2025.

I spoke to [REDACTED] on Thursday, and she advised me to let her know the name of the spiritual adviser within the next couple of days.

I emailed her on Friday with the name, but I wanted to make sure that you also had it so that we could proceed with authorization, the orientation etc.

He is Brother Reimoku Gregory Smith.

I am attaching a copy of a letter of recommendation for Brother Reimoku that was sent to the Chaplain.

I understand that Brother Reimoku will need to submit a spiritual adviser plan this week.

Please let me know how I can help facilitate this further.

Sincerely,
Caroline Tillman

[REDACTED]
[REDACTED]
Caroline W. Tillman
Office of the Federal Public Defender
Middle and Western Districts of Louisiana
Tel: (337) 804 0453
Email: Caroline_Tillman@fd.org

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From: Caroline Tillman
Sent: Friday, February 28, 2025 5:14 PM
To: [REDACTED] <[REDACTED]@la.gov>
Cc: Rebecca Hudsmith <Rebecca_Hudsmith@fd.org>
Subject: Jessie Hoffman #400473 Spiritual Adviser

Dear [REDACTED],

Thank you for your ongoing help with arrangements.

Jessie Hoffman would like to have a spiritual adviser: Brother Reimoku Gregory Smith. The attached letter of recommendation is being sent to the Chaplain's office. I know that Brother Reimoku will have to submit a "plan" within 14 days from the date the warrant was served, which by my count is next Thursday March 6th.

I'm not sure what other procedures are necessary to get this authorized. Please let me know. I can get his DOB, SS#, copy of DL etc, or whatever else is needed.

Many thanks,
Caroline

Caroline W. Tillman
Office of the Federal Public Defender
Middle and Western Districts of Louisiana
Tel: (337) 804 0453
Email: Caroline_Tillman@fd.org

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From: [Darrel Vannoy](#)
To: [Caroline Tillman](#)
Cc: [Rebecca Hudsmith](#); [Jonathan Vining](#); [Adrienne Aucoin \(DOC\)](#)
Subject: RE: Jessie Hoffman #400473 Spiritual Adviser
Date: Monday, March 3, 2025 2:08:10 PM

Dear Ms. Caroline Tillman,

This request is untimely because, pursuant to the notice Mr. Hoffman signed and acknowledged on February 20, a request for a spiritual advisor's presence was due February 25. In addition, Mr. Hoffman waived such a request on February 20 when he advised me that he did not wish to have a spiritual advisor present. Nevertheless, we will honor this untimely request and change in position to ensure that Mr. Hoffman's religious beliefs and exercise are fully accommodated. As the February 20 notice states, Brother Reimoku Gregory Smith must submit a written plan to me by Thursday, March 6th, "setting forth how [he] intends to assist [] in the exercise of [Mr. Hoffman's] spiritual beliefs." I will subsequently meet with Brother Reimoku Gregory Smith to review the plan and conduct orientation and training. Finally, as the notice states, the advisor will not be allowed in the execution chamber unless he/she has reviewed and signed the Spiritual Advisor Acknowledgement Form and Agreement to Witness to Execution Form.

Sincerely,

Warden Vannoy

From: Caroline Tillman <Caroline_Tillman@fd.org>
Sent: Sunday, March 2, 2025 6:25 PM
To: Darrel Vannoy <Darrel.Vannoy@la.gov>
Cc: Rebecca Hudsmith <Rebecca_Hudsmith@fd.org>
Subject: FW: Jessie Hoffman #400473 Spiritual Adviser

EXTERNAL EMAIL: Please do not click on links or attachments unless you know the content is safe.

Dear Warden Vannoy,

I am one of Jessie Hoffman's attorneys.

I wanted to let you know you that Jessie Hoffman (DOC #400473) has a spiritual adviser and would like him to support and prepare him for his execution scheduled March 18, 2025.

I spoke to [REDACTED] on Thursday, and she advised me to let her know the name of the spiritual adviser within the next couple of days.

I emailed her on Friday with the name, but I wanted to make sure that you also had it so that we could proceed with authorization, the orientation etc.

He is Brother Reimoku Gregory Smith.

I am attaching a copy of a letter of recommendation for Brother Reimoku that was sent to the Chaplain.

I understand that Brother Reimoku will need to submit a spiritual adviser plan this week.

Please let me know how I can help facilitate this further.

Sincerely,
Caroline Tillman

██████████
Caroline W. Tillman
Office of the Federal Public Defender
Middle and Western Districts of Louisiana
Tel: (337) 804 0453
Email: Caroline_Tillman@fd.org

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From: Caroline Tillman
Sent: Friday, February 28, 2025 5:14 PM
To: ██████████, ██████████@la.gov>
Cc: Rebecca Hudsmith <Rebecca_Hudsmith@fd.org>
Subject: Jessie Hoffman #400473 Spiritual Adviser

Dear ██████████,

Thank you for your ongoing help with arrangements.

Jessie Hoffman would like to have a spiritual adviser: Brother Reimoku Gregory Smith. The attached letter of recommendation is being sent to the Chaplain's office. I know that Brother Reimoku will have to submit a "plan" within 14 days from the date the warrant was served, which by my count is next Thursday March 6th.

I'm not sure what other procedures are necessary to get this authorized.

Please let me know. I can get his DOB, SS#, copy of DL etc, or whatever else is needed.

Many thanks,
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Exhibit G

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana
State Penitentiary; and JOHN DOES,
unknown executioners,

Defendants.

Civil Action No. 25-169

DECLARATION OF CAROLINE TOMENY

Caroline Tomeny, does hereby declare and state:

1. I am a partner in the law firm of Shows, Cali, & Walsh, LLP. My firm represents Defendants in this matter. I submit the following declaration in support of Defendants' Opposition to Plaintiff's Motion for Preliminary Injunction. I have personal knowledge of the contents of this declaration.
2. Attached hereto as Exhibit 1 is a true and correct copy of the following article:
William Ottestad, et al., *Acute Hypoxia in a simulated high-altitude airdrop scenario due to oxygen system failure*, J. Appl. Physiol., 123:1443-1450 (2017).
3. Attached hereto as Exhibit 2 is a true and correct copy of the following article:
F. Caliskan Tur & E. Aksay, *Asphyxia due to accidental nitrogen gas inhalation: a case report*, Hong Kong Journal of Emergency Medicine, Vol. 19(1) (2012).
4. Attached hereto as Exhibit 3 is a true and correct copy of the following article:
Russel D. Ogden, et al., *Assisted suicide by oxygen deprivation with helium at Swiss right-to-die organization*, J. Medical Ethics, 36: 174-179 (2010).
5. Attached hereto as Exhibit 4 is a true and correct copy of the following article:
Sung-Wook Park, M.D., et al., *Attempted Suicide by Nitrogen Gas Asphyxiation: a case report*, Journal of the Korean Society of Clinical Toxicology, 47.
6. Attached hereto as Exhibit 5 is a true and correct copy of the following article:
Brett E. Harding, M.B.A. & Barbara C. Wolf, M.D., *Case report of suicide by inhalation of nitrogen gas*, Am. J. Forensic Med. Pathol, 29:235-237 (2008).
7. Attached hereto as Exhibit 6 is a true and correct copy of the following article:

- Toshihiko Yoshizawa, et al., *Computed tomography findings of asphyxia suicide by inhalation of helium inside a plastic bag*, Toxicology Communications, Vol. 2, No., 1: 75-77 (2018).
8. Attached hereto as Exhibit 7 is a true and correct copy of the following article:
R.V. Peelen, et al., *The dangers of argon, an inert industrial gas: beware of asphyxia*, Neth. J. Crit. Care, Vol. 27, No. 4 (2018).
 9. Attached hereto as Exhibit 8 is a true and correct copy of the following article:
Joachim Frost, *Death by self-inflicted asphyxia with helium – first case reports from Norway and review of the literature*, Scandinavian Journal of Forensic Science, Vol. 19, No. 2: 52-54 (2013).
 10. Attached hereto as Exhibit 9 is a true and correct copy of the following article:
J.B. Hudnall, et al., *Deaths involving air-line respirators connected to inert gas sources*, American Industrial Hygiene Association, Vol. 54, No. 1 (1993).
 11. Attached hereto as Exhibit 10 is a true and correct copy of the following article:
U.S. Department of Labor, Occupational Safety and Health Administration, Directorate of Science, Technology, & Medicine, Office of Science and Technology Assessment, *Deaths involving the inadvertent connection of air-line respirators to inert gas supplies*, 2004.
 12. Attached hereto as Exhibit 11 is a true and correct copy of the following article:
J. Ernesting, *The effect of brief profound hypoxia upon the arterial and venous oxygen tension in man*, J. Physiol., 169 (1963).
 13. Attached hereto as Exhibit 12 is a true and correct copy of the following article:
Young-eun Kim, et al., *Brain MRI findings of nitrogen gas inhalation for suicide attempt: a case report*, iMRI Investigative Magnetic Resonance Imaging, 21:264-268 (2017).
 14. Attached hereto as Exhibit 13 is a true and correct copy of the following article:
Roger W. Byard, *Nitrogen inhalation suicide pacts*, Medicine, Science, and the Law (2019).
 15. Attached hereto as Exhibit 14 is a true and correct copy of the following article:
Magnus Ekstrom, et al., *Normative reference equations for breathlessness intensity during incremental cardiopulmonary cycle exercise testing*, Ann. Am. Thorac. Soc., Vol. 21, No. 1:56-67 (2024).
 16. Attached hereto as Exhibit 15 is a true and correct copy of the following article:
T.M. Miller & P.O. Mazur, *Oxygen deficiency hazards associated with liquefied gas systems development of a program of controls*, TM-1163, 1310.000 (1983).
 17. Attached hereto as Exhibit 16 is a true and correct copy of the following article:
Lubomir Straka, et al., *Suicidal nitrogen inhalation by use of scuba full-face diving mask*, J. Forensic Sci. (2013).
 18. Attached hereto as Exhibit 17 is a true and correct copy of the following article:
Jae Cheon Jeon, et al., *Suicide attempt by inhalation of argon gas*, Keimyung Medical Journal, 40(1):48-51 (2021).
 19. Attached hereto as Exhibit 18 is a true and correct copy of the following article:

Matthew O. Howard, PhD, et al., *Suicide by asphyxiation due to helium inhalation*, Am. J. Forensic Med. Pathol., Vol XX, No. X (2010).

20. Attached hereto as Exhibit 19 is a true and correct copy of the following article:

Massimiliano Etteri, et al., *Survivor from asphyxiation due to helium inhalation*, Emergency Care Journal, Vol. 12: 5597 (2016).

21. Attached hereto as Exhibit 20 is a true and correct copy of the following article:

22. Russel D. Ogden, MA, *Observation of two suicides by helium inhalation in a prefilled environment*, Am. J. Forensic Med. Pathol., Vol. 31:156-161 (2010).

March 4, 2025

Caroline M. Tomery

Caroline M. Tomery
La. Bar. No. 34120

RESEARCH ARTICLE | Hypoxia 2017

DEFENDANT'S
EXHIBIT

—31

Acute hypoxia in a simulated high-altitude airdrop scenario due to oxygen system failure

William Ottestad,^{1,2} Tor Are Hansen,¹ Gaurav Pradhan,³ Jan Stepanek,³ Lars Øivind Høiseith,⁴ and Jan Ivar Kåsin⁵

¹Norwegian Special Operations Command (NORSOC), Oslo, Norway; ²Air Ambulance Department, Oslo University Hospital, Oslo, Norway; ³Aerospace Medicine Program, Department of Otolaryngology, Mayo Clinic, Phoenix, Arizona; ⁴Department of Anaesthesiology, Division of Emergencies and Critical Care, and Section of Vascular Investigations, Department of Vascular Surgery, Oslo University Hospital, Oslo, Norway; and ⁵Norwegian Defence Medical Services, Institute of Aviation Medicine, Oslo, Norway

Submitted 22 February 2017; accepted in final form 15 August 2017

Ottestad W, Hansen TA, Pradhan G, Stepanek J, Høiseith LØ, Kåsin JI. Acute hypoxia in a simulated high-altitude airdrop scenario due to oxygen system failure. *J Appl Physiol* 123: 1443–1450, 2017. First published August 24, 2017; doi:10.1152/jappphysiol.00169.2017.—High-Altitude High Opening (HAHO) is a military operational procedure in which parachute jumps are performed at high altitude requiring supplemental oxygen, putting personnel at risk of acute hypoxia in the event of oxygen equipment failure. This study was initiated by the Norwegian Army to evaluate potential outcomes during failure of oxygen supply, and to explore physiology during acute severe hypobaric hypoxia. A simulated HAHO without supplemental oxygen was carried out in a hypobaric chamber with decompression to 30,000 ft (9,144 m) and then recompression to ground level with a descent rate of 1,000 ft/min (305 m/min). Nine subjects were studied. Repeated arterial blood gas samples were drawn throughout the entire hypoxic exposure. Additionally, pulse oximetry, cerebral oximetry, and hemodynamic variables were monitored. Desaturation evolved rapidly and the arterial oxygen tensions are among the lowest ever reported in volunteers during acute hypoxia. Pa_O₂ decreased from baseline 18.4 (17.3–19.1) kPa, 138.0 (133.5–143.3) mmHg, to a minimum value of 3.3 (2.9–3.7) kPa, 24.8 (21.6–27.8) mmHg, after 180 (60–210) s, [median (range)], *N* = 9. Hyperventilation with ensuing hypocapnia was associated with both increased arterial oxygen saturation and cerebral oximetry values, and potentially improved tolerance to severe hypoxia. One subject had a sharp drop in heart rate and cardiac index and lost consciousness 4 min into the hypoxic exposure. A simulated high-altitude airdrop scenario without supplemental oxygen results in extreme hypoxemia and may result in loss of consciousness in some individuals.

NEW & NOTEWORTHY This is the first study to investigate physiology and clinical outcome of oxygen system failure in a simulated HAHO scenario. The acquired knowledge is of great value to make valid risk-benefit analyses during HAHO training or operations. The arterial oxygen tensions reported in this hypobaric chamber study are among the lowest ever reported during acute hypoxia.

acute hypoxia; altitude; blood gas; HAHO; hypoxic syncope

HIGH-ALTITUDE airdrop missions are carried out to deliver personnel and equipment into enemy territory. High-Altitude High Opening (HAHO) is a military operational procedure in which

parachutists exit the aircraft and deploy their parachutes at high altitude. Modern parachutes are efficient wings, and depending on exit altitude, wind direction, and speed, distances of more than 60 km (40 miles) can be attained by the parachutist. HAHO allows the deployment of military personnel from a significant standoff range, reducing the risk of detection by the enemy. HAHO operations are carried out at altitudes between 20,000 ft (6,096 m) and 35,000 ft (10,668 m) and require supplemental oxygen, putting personnel at risk for acute hypoxia in the event of oxygen equipment failure. During HAHO training in the Norwegian Army, incidents have been reported wherein the oxygen mask and hose have been accidentally disconnected due to interaction with the parachute during deployment. In a regular HAHO from 30,000 ft (9,144 m), parachutes are deployed 7–10 s into free fall, and are fully deployed at altitudes ranging from 28,000 to 29,000 ft (8,534–8,839 m). After deployment, return to a physiologically safe altitude is determined by the parachute's descent rate [~1,000 ft/min (305 m/min)]. Exposure to severe hypoxia might be sustained if equipment failure were to occur. Hypoxic syncope could lead to loss of airway patency and potentially fatal outcome. In a scenario with a failed oxygen supply system, cut-away of the main parachute and rapid descent in free fall to a safe altitude is an option; however, this will increase other operational risks. The aim of the present study was to investigate the physiology, timing, and severity of ensuing hypoxia in a HAHO flight profile from 30,000 ft (9,144 m) simulating a complete failure of the oxygen supply system.

METHODS

Subjects. After regional ethics committee approval and written informed consent, nine volunteers were recruited from the Norwegian Special Operations Command. All were healthy nonsmokers, age 31(27–48) yr, weight 85 (75–95) kg, height 183 (174–193) cm, and a body mass index 26 (23–28) kg/m² [median (range)]. Subjects abstained from solid foods for 4 h, clear liquids 2 h, and physical exercise and any analgesics 24 h before the hypobaric exposure. None of the subjects were acclimatized to altitude before hypobaric exposure.

Hypobaric chamber and flight profile. Global positioning system data from 11 actual HAHO jumps from 30,000 ft (9,144 m) were reviewed to create a 30-min flight profile for this chamber experiment. The experiment was carried out in a hypobaric chamber (Aeroform

Address for reprint requests and other correspondence: W. Ottestad, Air Ambulance Dept., Oslo University Hospital, PO Box 4956 Nydalen, NO-0424 Oslo, Norway (e-mail: williamottestad@gmail.com).

Poole, Dorset, UK) at the Institute of Aviation Medicine, Oslo, Norway. The experiment was performed with one subject in the chamber at the time with the subject placed in the sitting position. The incidence of decompression sickness during hypoxia training at altitudes ranging from 25,000 to 35,000 ft is low. To facilitate denitrogenation and to decrease the risk of decompression sickness, a 60-min oxygen prebreathe started at ground level [1,017 (1,004–1,023) hPa], [763 (753–767) mmHg] [median (range)] (12, 18). The 60-min prebreathe complies with both standard operation procedures during hypoxia training in the Norwegian army and in NATO (1). The subjects breathed 100% oxygen using an oxygen mask (Gentex MBU 20, Gentex, Carbondale, PA) on a pressure demand regulator (CRU-73, Cobham Life Support, Davenport, IA). Approximately 40 min into the denitrogenation, pressure was reduced to 753 hPa (565 mmHg, 8,000 ft), simulating standard cabin pressure during flight. Baseline measurements for hemodynamics were completed, and a safety brief performed. When the 60-min prebreathe was completed, the chamber was decompressed from 753 hPa (565 mmHg) to 301 hPa (226 mmHg, 30,000 ft) at 4,000 ft/min. At an ambient pressure of 301 hPa (565 mmHg) while breathing oxygen, each subject was instructed to do 30 deep squats, and then to sit down, to simulate the workload associated with exiting the airplane. Immediately after seated rest we started a 15-s countdown, and the oxygen mask was removed by one of the attending anesthesiologists, and the regulator was switched off. The chamber was repressurized at 4,000 ft/min for 15 s to simulate the free fall phase before parachute deployment at a pressure of 314.9 hPa (236.2 mmHg) corresponding to 29,000 ft in the international standard atmosphere (2). The rate of descent was set to 1,000 ft/min for the remaining flight profile. Hemodynamic monitoring, oximetry, and blood gas sampling were continued to ground level. The pressure profile is illustrated in Fig. 1.

Arterial cannulation and blood sampling. An arterial catheter was placed in the left radial artery 30 min before the start of the chamber experiment. The arterial cannulation was performed with local infiltration anesthesia (xylocaine 1%). The catheter was filled with 0.1 ml heparin (100 IE/ml) to avoid clotting, and no extension tubing was attached. At 301 hPa (226 mmHg, 30,000 ft), while breathing oxygen, three blood gas samples were drawn for baseline measurements and brought out via the chamber lock for immediate analysis. The blood gas samples were drawn according to the time intervals illustrated in Fig. 1. Samples were immediately put on ice and brought out through the chamber lock every 4 min thereafter. All blood gas samples were analyzed using an automated self-calibrating blood gas analyzer (Radiometer ABL 90 FLEX, Brønshøj, Denmark), within 10 min of sampling. According to the manufacturer's user manual, the ABL 90 is validated for P_{aO_2} values as low as 1.9 kPa (14.3 mmHg).

Monitoring. Each subject underwent monitoring with pulse oximetry [finger probe (LNOP DC-I; Masimo, Irvine, CA)] from a Masimo Radical 7, software 7.3.1.1 (Masimo) placed on the right index finger. Data from the pulse oximeter were extracted using the TrendCom software (Masimo) at a 0.5-Hz resolution. Cerebral oximetry was performed using a near-infrared spectroscopy (NIRS) tissue oximeter (Invos 5100C cerebral/somatic oximeter; Somanetics, Troy, MI). Sensors (Adult SomaSensor; Covidien, Mansfield, MA) were attached to the left and right forehead (cerebral oximetry, ScO_2). Measurements from the cerebral oximeter were extracted via the serial port every 7–8 s. Cerebral tissue oximetry values are presented relative to baseline values at ground level breathing ambient air at the end of the experiment. Cardiac stroke volume was obtained by thoracic impedance (PhysioFlow PF07 Enduro; Manatec Biomedical, Paris, France). The chamber atmosphere was

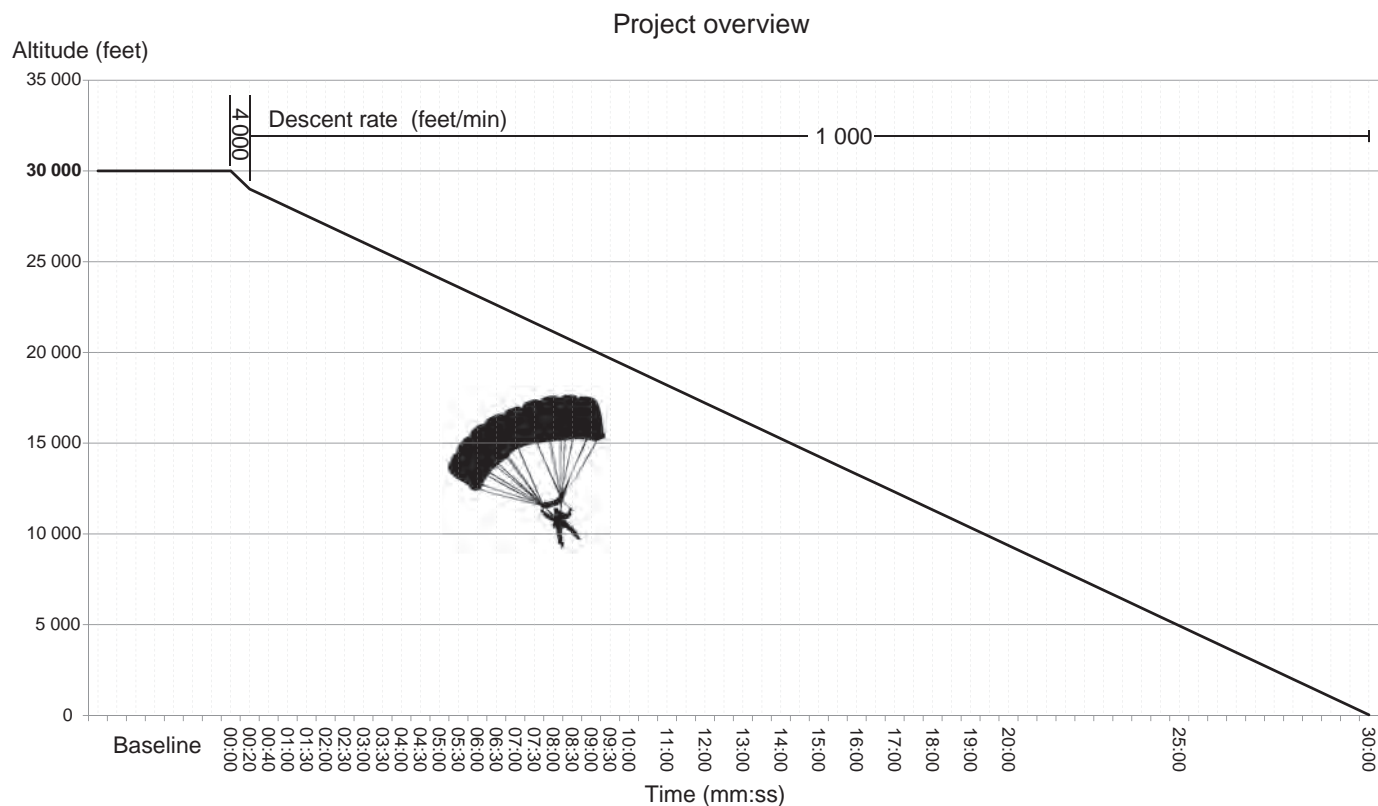


Fig. 1. The chamber flight profile. The first 15 s simulated the free fall phase before parachute deployment with a descent rate of 4,000 ft/min, followed by a descent of 1,000 ft/min after parachute deployment. Arterial blood was sampled at the indicated time points: every 20 s the first minute; every 30 s the next 9 min; every minute the next 10 min, and every 5 min the last 10 min.

Table 1. Minimum Pa_O₂ value for each person and the corresponding blood gas and oximetry values, while breathing ambient air

ID	Min Pa _O ₂	Time	Altitude	Pa _{CO} ₂	pH	P ₅₀	Sa _O ₂	ScO ₂	SpO ₂
1	3.1 (23.3)	210	25 900	3.8 (28.5)	7.46	3.1 (23.3)	51	45	35
2	2.9 (21.8)	180	26 400	3.7 (27.8)	7.50	2.9 (21.8)	51	54	28
3	3.5 (26.3)	210	25 900	3.4 (25.5)	7.55	2.8 (21.0)	63	69	55
4	3.3 (24.8)	210	25 900	3.6 (27.0)	7.46	3.0 (22.5)	57	53	39
5	3.0 (22.5)	180	26 400	3.9 (29.3)	7.47	3.0 (22.5)	48	46	20
6	3.7 (27.8)	120	27 350	3.0 (22.5)	7.55	2.9 (21.8)	67	71	60
7	3.2 (24.0)	60	28 400	3.6 (27.0)	7.52	3.0 (22.5)	54	69	62
8	3.4 (25.5)	180	26 400	3.2 (24.0)	7.51	2.9 (21.8)	59	65	49
9	3.7 (27.8)	90	27 900	3.6 (27.0)	7.55	2.8 (21.0)	67	63	65

Time in seconds, cerebral oximetry (ScO₂) and arterial oxygen saturation (Sa_O₂) in %, and all other values in kPa (mmHg). SpO₂, pulse oximetry.

monitored using a gas analyzer (Hitech Instruments ZIR 125, Eaton, Houston, TX). The gas sample was extracted ~10–15 cm behind the head of each test subject, using a flexible sample hose. The chamber was ventilated to maintain ambient oxygen and carbon dioxide within normal ranges.

Statistics. Unless otherwise specified, values are presented as mean (min–max). Regression analyses were performed using linear mixed-models (random intercept) with subject as random effect. Analyses were performed in JMP 11.2.1, (SAS Institute, Cary, NC). *P* values < 0.05 were considered statistically significant. The individual dissociation curves reported are strictly empirical and not based on any calculations or extrapolation of data.

Safety and scientific justification. HAHO training puts personnel at risk for decompression sickness, hypoxia, and potentially severe trauma due to parachute-related accidents. There is a need to better understand the physiological and occupational risks involved in the case of oxygen equipment failure during HAHO training. To ensure optimum medical safety, two anesthesiologists trained in emergency medicine were inside the hypobaric chamber during the experiment. The chamber personnel breathed 100% oxygen throughout the experiment after denitrogenation. Emergency procedures were briefed to all chamber personnel before each run in a standardized fashion. Existing evidence supports the notion that transient hypoxia is safe, and several studies report that even acute profound hypoxia is well tolerated in healthy subjects (4).

RESULTS

Eight subjects completed the entire flight profile, and they were alert and responsive throughout the entire exposure. All subjects reported symptoms of hypoxia ranging from light-headedness, blurred vision, paresthesia, labored breathing, euphoria, and confusion. *Subject 2* lost consciousness after 4 min of hypoxic exposure [Pa_O₂ = 3.3 kPa (24.8 mmHg), Pa_{CO}₂ = 3.7 kPa (27.8 mmHg), Sa_O₂ = 58%] at a pressure of 370 hPa (278 mmHg) corresponding to an altitude of 25,400 ft. He needed assistance to maintain a patent airway, and was given oxygen through a demand system. He breathed spontaneously and regained full consciousness after ~90 s of oxygen-breathing, when he resumed responsiveness to verbal commands.

Arterial oxygen tension. After oxygen system failure and start of the simulated descent to ground (recompression), Pa_O₂ decreased from baseline 18.4 (17.3–19.1) kPa, 138.0 (129.8–143.3) mmHg to a minimum value of 3.3 (2.9–3.7) kPa, 24.8 (21.8–27.8) mmHg, at a time of 180 (60–210) s, [median (range)] (*N* = 9). Minimum Pa_O₂ value with corresponding Pa_{CO}₂, Sa_O₂, p₅₀, and ScO₂ are shown in Table 1. The temporal patterns of Pa_O₂, Pa_{CO}₂, Sa_O₂, and ScO₂ for each subject are presented in Figs. 2 and 3. In Supplemental Material available with the online version of this article, we have provided the complete set of blood gas data, and a table with mean (SD) values.

Oxyhemoglobin dissociation curve. The p₅₀ calculated from the blood-gas analyses were tightly associated with Pa_{CO}₂ (Spearman's rho = 0.88; *P* < 0.001). In a linear mixed model with subject as random effect, and Pa_{CO}₂ as explanatory variable; p₅₀ decreased with 0.28 kPa (95% confidence interval: 0.26–0.30, *P* < 0.001) per kilopascal increase in Pa_{CO}₂ (*R*² = 0.86, *P* < 0.0001). There was a broad range of Sa_O₂ values for a specific Pa_O₂ value, reflecting the large variability in p₅₀ values and thereby the degree of left shift of the oxyhemoglobin dissociation curve (Fig. 4). At 21,000 ft, Sa_O₂ ranged from 55% to 91%. The calculated p₅₀ corresponding to the minimum Pa_O₂ for each subject is presented in Table 1. We plotted the measured Pa_O₂ and Sa_O₂ values from every time

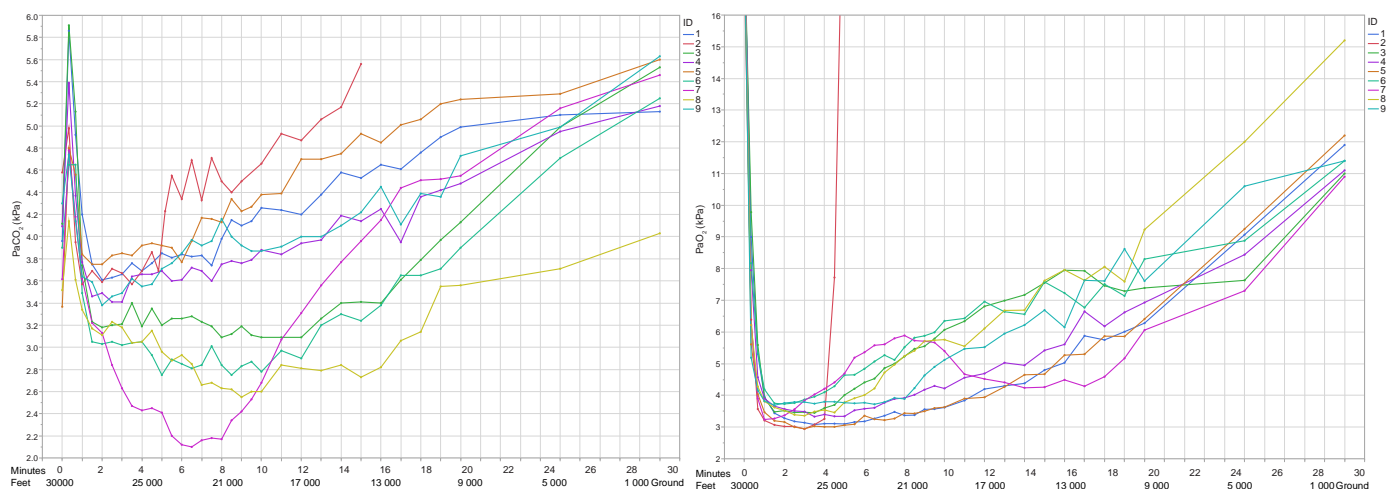


Fig. 2. Pa_O₂ and Pa_{CO}₂ through the simulated flight profile. *Subject 2* was given supplemental oxygen after ~4 min.

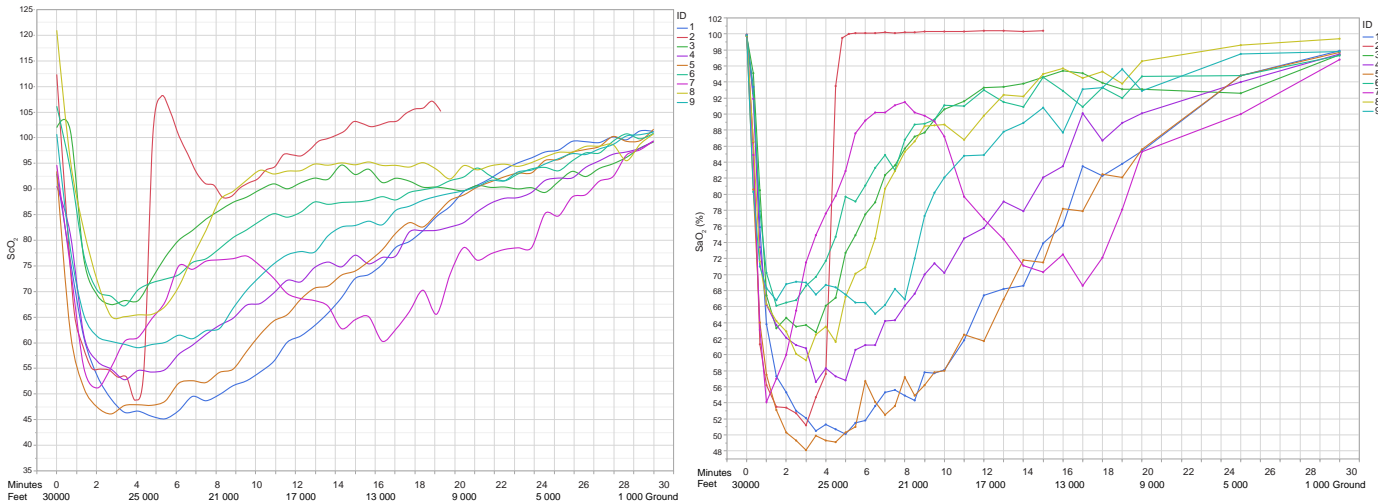


Fig. 3. SaO₂ and ScO₂ through the simulated flight profile. Subject 2 was given supplemental oxygen after ~4 min.

point throughout the flight profile to illustrate the actual dissociation curve for each individual over the entire range of PaO₂ values recorded. The subject who experienced syncope appeared to have the most leftward shifted dissociation curve during the initial phase (Fig. 4).

Relationship between PaCO₂, PaO₂, SaO₂, and ScO₂. The respiratory response and corresponding PaCO₂ changed rapidly due to the dynamic nature of our experiment. We explored the

effect of PaCO₂ on PaO₂, SaO₂, and ScO₂ at 7 and 15 min, corresponding to 22,000 and 14,000 ft respectively. At these two time points we recorded the widest range of PaCO₂ values, in the context of both severe and moderate hypoxia; PaCO₂ = 3.46 kPa (2.16–4.17), 26.95 (15.20 –31.28) mmHg with corresponding PaO₂ = 4.26 kPa (3.22–5.61), 31.95 (24.15–42.08) mmHg and PaCO₂ = 4.05 kPa (2.73–4.93), 30.38

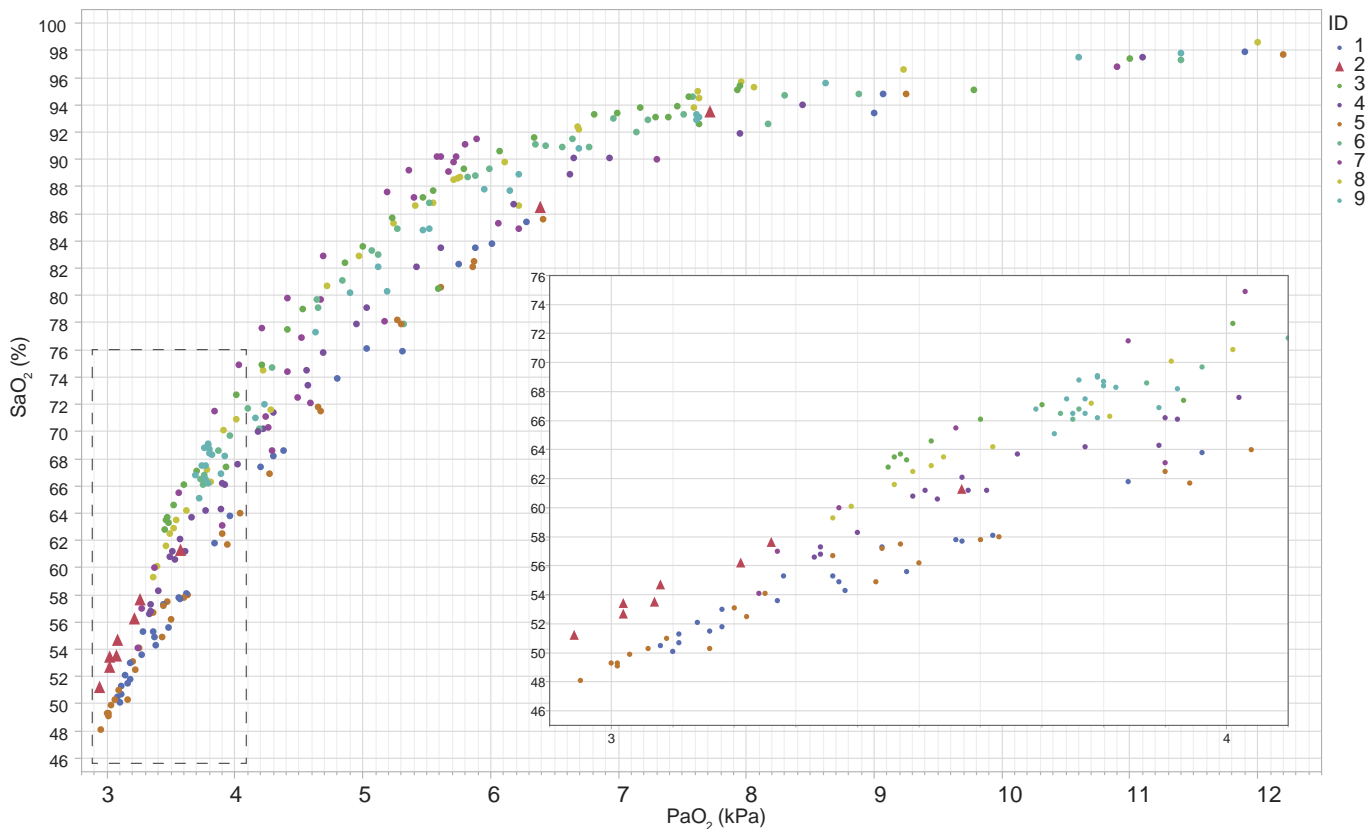


Fig. 4. Scatterplot of SaO₂ vs. PaO₂, illustrating the oxygen dissociation. The lowest values in the dashed rectangle have been highlighted for clarity. Subject 2 experiencing syncope appeared to have the most leftward-shifted oxygen-hemoglobin dissociation curve.

(20.48–36.98) mmHg with corresponding $\text{PaO}_2 = 6.06$ kPa (4.26–7.62), 45.45 (31.95–57.15) mmHg [median (range)] ($N = 8$, at 7 and 15 min, respectively). Linear regression was performed to explore the relationship between PaCO_2 and PaO_2 , SaO_2 and ScO_2 . Subject 2 was excluded from the model. There was an inverse relationship between PaCO_2 and PaO_2 , SaO_2 and ScO_2 , but more pronounced during severe hypoxia (7 min) compared with moderate hypoxia (15 min) (Fig. 5).

Hemodynamic response. Among the eight subjects who completed the experiment without supplemental oxygen, heart rate increased from baseline [65 (41–90) beats/min] to a peak value at start of recompression [119 (96–154) beats/min] and gradually decreased back toward baseline values at 25 min [68 (52–89) beats/min] [median (range)]. Sampling of thoracic impedance data was unstable, and we lost signal in four subjects. In five subjects with uninterrupted signal acquisition, cardiac index (CI) increased from baseline [3.6 (2.6–4.4) $\text{l}\cdot\text{min}^{-1}\cdot\text{m}^{-2}$] to peak values at start of recompression [6.1 (5.0–7.6) $\text{l}\cdot\text{min}^{-1}\cdot\text{m}^{-2}$] and returned back toward baseline values at 25 min [3.2 (2.6–3.7) $\text{l}\cdot\text{min}^{-1}\cdot\text{m}^{-2}$] [median (range)]. The reduction in cardiac output through the hypoxic exposure seems to be mainly caused by a reduction in heart rate as stroke volume was quite stable. It should be noted that the hemodynamic response was not only a response to hypoxia, but also to the squats performed before the hypoxic exposure. Heart rate and cardiac index from the five subjects where stroke volume was successfully measured are presented in Fig. 6.

In subject 2, peak heart rate decreased from 136 beats/min at start of recompression to 55 beats/min at 4 min with loss of consciousness. Cardiac index decreased rapidly in the same time span from 5.6 to 1.7 $\text{l}\cdot\text{min}^{-1}\cdot\text{m}^{-2}$.

DISCUSSION

This study was initiated by the Norwegian Special Operations Command to examine the physiology and evaluate the risk of hypoxic syncope in the event of oxygen system failure during military HAHO training. In this chamber experiment we demonstrated rapid desaturation and severe hypoxemia when simulating a failure in the oxygen delivery system in a HAHO flight profile from 30,000 ft (9,144 m). Impressive compensatory mechanisms enabled eight of our subjects to maintain consciousness despite extreme hypoxia. To the best of our knowledge the attained PaO_2 readings in our subjects, 2.9–3.7 kPa (21.8–27.8 mmHg), are among the lowest arterial oxygen tensions reported in volunteers with no acclimatization to altitude (8). At an ambient pressure of 301 hPa (226 mmHg) corresponding to 30,000 ft (9,144 m), the inspiratory oxygen pressure is 5.0 kPa (37.5 mmHg), and alveolar oxygen tension falls below the level in mixed venous blood, resulting in reversal of the arterial-alveolar diffusion gradient for oxygen, leading to accelerated desaturation.

In one subject, loss of consciousness occurred at 25,400 ft (7,742 m), 4 min into the hypoxic exposure. Loss of consciousness seemed to be caused by a cardiovascular collapse, evident by a rapid fall in heart rate and cardiac output, followed by a sharp drop in cerebral oximetry values. The subject breathed spontaneously, but he needed assistance to maintain a patent airway, and he regained full consciousness after 90 s of oxygen breathing. Hypoxic incapacitation during military operations is

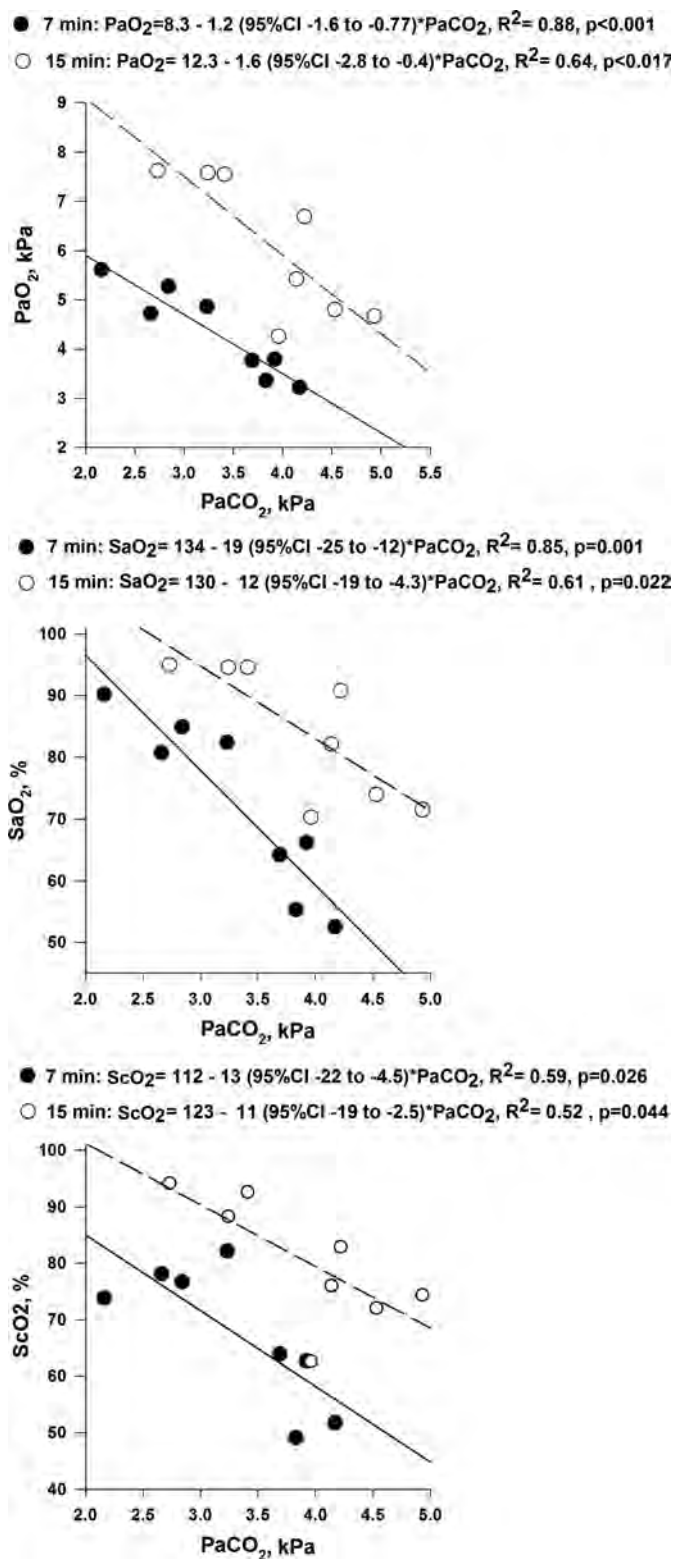


Fig. 5. Scatterplots of blood-gas analyses at 7 and 15 min with regression equations. Confidence intervals and P values are for the slope coefficients.

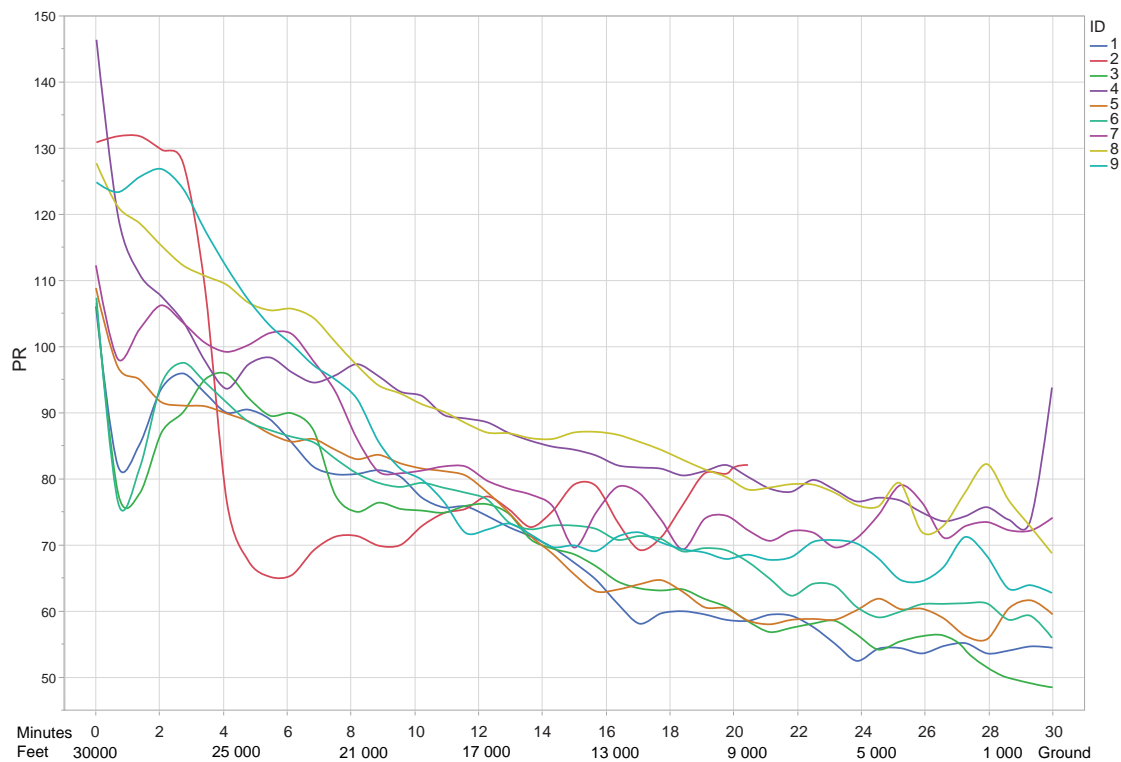
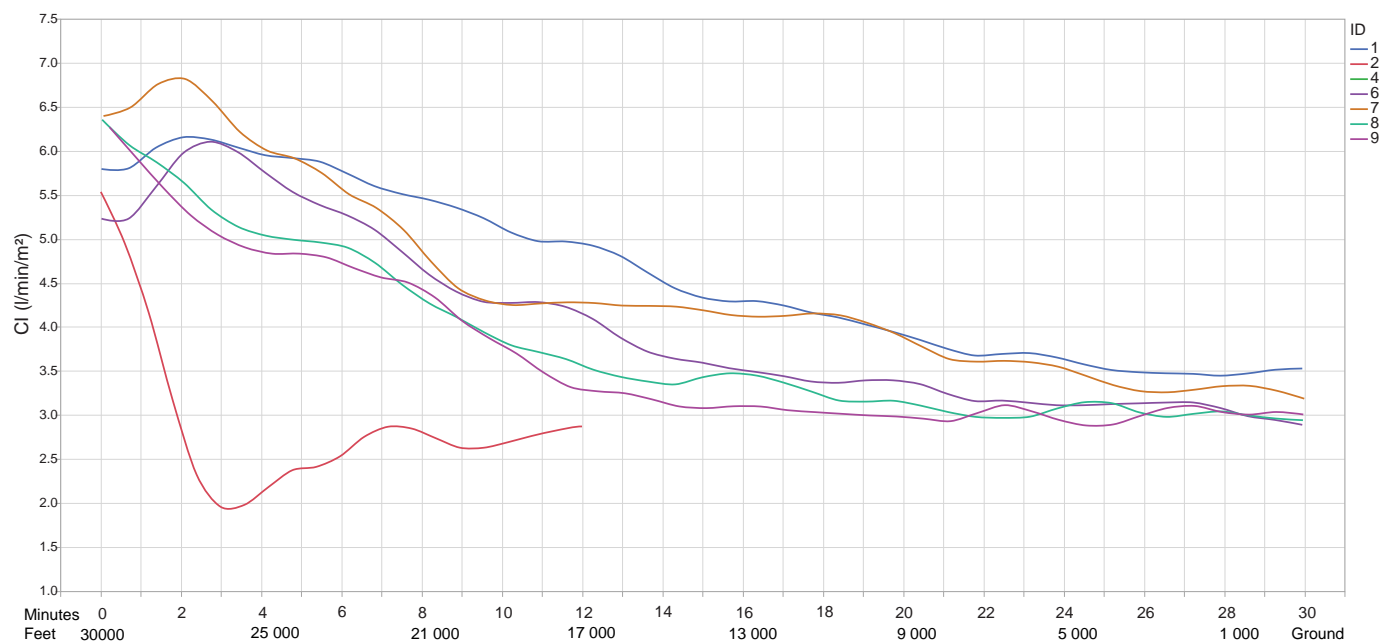


Fig. 6. Cardiac index and heart rate through the simulated flight profile.

not uncommon and represents a serious threat to aviators. Fatalities are rare but have been reported (5, 6). The risk of hypoxic syncope is difficult to assess and depends on degree of hypoxia, its duration, and individual responses. Westendorp et al. (19) reported hypoxic syncope with a short period of asystole in 2% of 120 hypobaric exposures at 20,000 ft (6,096 m); however, oxygen breathing was administered as soon as

heart rate decreased more than 20%. Robust assumptions about absolute risk of hypoxic syncope in this flight profile cannot be made due to our small number of exposures. However, the rapid desaturation and severe hypoxemia observed in this flight profile and loss of consciousness in one of our subjects justifies a major concern for the parachutists' safety in the event of oxygen system failure.

Hypoxia triggers the carotid chemoreceptors sparking of a brisk respiratory response with ensuing hypocapnia and respiratory alkalosis (10, 13), shifting the oxyhemoglobin dissociation curve to the left, thereby increasing hemoglobin affinity, evident by a decrease in p_{50} value. The classic alveolar gas equation is not valid when inspired oxygen pressure is < 5 kPa (38 mmHg), as it will predict a negative P_{aO_2} (6a). However, in steady state, the alveolar gas equation predicts decreasing P_{aO_2} with increasing P_{aCO_2} , compatible with our results. We found a negative correlation between P_{aCO_2} and P_{aO_2} , SaO_2 and ScO_2 . Hypercapnia has been demonstrated to counter hypoxic symptoms and improve both cognitive and oculometric performance in the context of moderate hypoxia (13, 16). The proposed underlying mechanisms are hypercapnic cerebral vasodilation and enhanced tissue oxygen delivery. Hypocapnia will induce cerebral vasoconstriction, hence reducing cerebral perfusion (3). However, there are conflicting data in the context of hypobaric hypoxia (9, 16). The effects of P_{aCO_2} on cerebral oxygenation may thus be competing, as hypocapnia may both increase P_{aO_2} , but also decrease cerebral blood flow. In our experiment during severe acute hypoxia the effect on P_{aO_2} seems to dominate, as high ScO_2 values tended to be associated with high P_{aO_2} and low P_{aCO_2} levels. This effect appeared to explain the biphasic course of *subject 7*, who between 6 and 8 min into the flight profile had high P_{aO_2} and ScO_2 values and extremely low P_{aCO_2} values. Later in the run, P_{aCO_2} increased and P_{aO_2} and ScO_2 decreased. The subject who experienced loss of consciousness had among the lowest nadir values of P_{aO_2}/ScO_2 and among the highest recorded P_{aCO_2} values. There seems to be a hypoxic threshold where hypoxic vasodilatation overrides the cerebral vasoconstrictive effects of hypocapnia (9, 11). However, we have not measured cerebral blood flow directly, and utilizing cerebral oximetry as a surrogate introduces a major limitation to the conclusions that can be drawn from this small study (7, 15). The impact of the ventilatory response on the SaO_2 was impressive. This is clearly demonstrated in *subject 7* with a $SaO_2 = 90\%$ at 21,000 ft (6,400 m) and a decrease to 54% at 13,000 ft (3,962 m), with corresponding $P_{aCO_2} = 2.2$ kPa (15.5 mmHg) and 4.2 kPa (31.5 mmHg), respectively. Hyperventilation with ensuing hypocapnia increased both arterial oxygen saturation and cerebral oximetry values, and potentially improved tolerance to severe hypoxia.

We were not able to completely reproduce the complex reality of a HAHO procedure in the hypobaric chamber. In a real-life HAHO scenario, the parachutists will be in the upright position suspended in a parachute harness, which represents a severe hemodynamic challenge in the context of hypoxia-induced bradycardia and concomitant loss of consciousness (14). Suspension trauma and impingement caused by the harness will restrict venous return from the lower extremities and decrease cardiac preload. Suspended in a parachute harness with a failed oxygen supply, the parachutists' ability to spontaneously recover is limited, and under these circumstances we believe that hypoxic syncope might lead to a fatal outcome. Our experiment was done during seated rest, and the workload associated with steering of the parachute, and a potential effort to solve problems with the oxygen system in flight, could not be adequately simulated. It is reasonable to assume that all these factors will further increase the risk of hypoxic syncope

compared with the conditions in our controlled chamber experiment.

Conclusions. Failure in oxygen delivery systems during high-altitude airdrops at 30,000 ft (9,144 m) will lead to rapid desaturation and severe hypoxemia. Hypoxic syncope occurred within 4 min in one of our subjects and illustrates the marginal window of opportunity to solve problems in-flight during oxygen supply failure. However, when heart rate and cardiac output are maintained, healthy, fit subjects will transiently tolerate extremely low oxygen tensions. Loss of consciousness occurred in 1 of 9 exposures. We urge personnel engaged in HAHO training to carefully consider the risk-benefit of training at altitudes above 25,000 ft, due to the risk of hypoxic syncope in the event of equipment failure. Proper training in emergency procedures related to problems with oxygen equipment should be implemented in HAHO training.

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DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the authors.

AUTHOR CONTRIBUTIONS

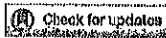
W.O., T.A.H., L.Ø.H., and J.I.K. conceived and designed research; W.O., L.Ø.H., and J.I.K. performed experiments; W.O., T.A.H., G.N.P., J.S., L.Ø.H., and J.I.K. analyzed data; W.O., T.A.H., G.N.P., J.S., L.Ø.H., and J.I.K. interpreted results of experiments; W.O., L.Ø.H., and J.I.K. prepared figures; W.O., T.A.H., L.Ø.H., and J.I.K. drafted manuscript; W.O., T.A.H., G.N.P., J.S., L.Ø.H., and J.I.K. edited and revised manuscript; W.O., T.A.H., G.N.P., J.S., L.Ø.H., and J.I.K. approved final version of manuscript.

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Hong Kong Journal of Emergency Medicine

Asphyxia due to accidental nitrogen gas inhalation: a case report

一個不慎吸入氮氣引致窒息的個案

F Çalışkan Tür and E Aksay

Intoxications resulting from asphyxiate gases, such as nitrogen can cause hypoxia and even death. We present a case of a patient with nitrogen intoxication due to inadvertent industrial exposure. In this case, the patient survived and the outcome was different from those reported in the literature. For patients presenting to the emergency department from a workplace with a history of loss of consciousness after using of self-contained breathing apparatus, possibility of nitrogen or other simple asphyxiate gas intoxication should be considered seriously. (Hong Kong j.emerg.med. 2012;19:46-48)

窒息性氣體中毒例如氮氣能導致缺氧甚至死亡。我們發表了一個由於工業上的疏忽接觸造成氮氣中毒的個案。這個案例中的病人能存活其結果有異於文獻中的其他病人。在急症室，有些從工作地點來看病的病人，如果有一個曾經使用過獨立式呼吸器並有昏迷的病史，那麼我們就要認真地考慮他患有氮氣和其他簡單的窒息性氣體中毒的可能性。

Keywords: Inert gas narcosis, nitrogen narcosis, occupational exposure, petroleum, poisoning

關鍵詞：惰性氣體的麻醉、氮氣麻醉、工業上的接觸、石油、中毒

Introduction

Nitrogen is an inert, gas which is heavier than air. It is also colourless, odorless and tasteless gas and constitutes to approximately 78% of the Earth's atmosphere. Nitrogen like argon, methane, propane and carbon dioxide considered to be a simple asphyxiate gas. It displaces oxygen from the inhaled air causing life threatening condition. Reduction of atmospheric oxygen to less than 25% of normal can produce unconsciousness in seconds and death within minutes.¹ Toxicity and deaths related to nitrogen inhalation in underwater diving with self-contained underwater-breathing apparatus (SCUBA) and suicide victims have been reported in the early literature.² However, there is a limited incidence of asphyxiation in work-related industrial incidents due to

nitrogen. We presented a workplace incident in an oil refinery, resulting from the inhalation of pure nitrogen gas, and potential risk factor for toxic gas inhalations is emphasized.

Case

A 41-year-old oil refinery worker with the initial diagnosis of 'harmful gas intoxication' in workplace was referred to our hospital from a small community hospital. The patient had used a self-contained breathing apparatus combined with a helmet inside a closed tent during sand blasting for metal surface cleaning. The patient was suspected to connect by fault his air-respirator to nitrogen source instead of oxygen. According to his colleagues, the patient was found collapsed inside the tent though the down time was not known. Initial first aid was provided on site by the co-workers and the patient was sent to a nearby emergency department. He was found to have difficulty of breathing and altered mental status. His initial vital signs were reported as blood pressure 140/90 mmHg, SpO₂ 87% on room air, and blood glucose 9.9 mmol/L. The patient was started on high flow O₂ and was given

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nebulised salbutamol (5 mg) and intravenous (IV) methylprednisolone (160 mg) prior to the transfer to our hospital.

The patient's vital signs upon presenting to our emergency department (ED), approximately 3 hours after the incident, were as follows: blood pressure 117/71 mmHg, pulse 111 bpm, respiratory was laboured and rate was 30 per/minute, SpO₂ 93% on room air (if he was deoxygenated) and he was lethargic with a Glasgow Coma Scale of 10. No fever was noted. Involuntary movement in the form of rapid sitting up from a supine position was observed. On physical examination his breathing sounds were clear and equal bilaterally. Bilateral subconjunctival haemorrhage was noted. No sign of head trauma were observed. Laboratory results including cardiac markers and electrolytes were normal except for the following: glucose at 10.6 mmol/L, urea 16.1 mmol/L, aspartate transaminase 41 U/L (range <35 U/L), creatin kinase 403 U/L (range 171 U/L), amylase 229 U/L (28-100 U/L), white blood cell 23.9 K/uL (range 4-10 K/uL). Venous blood gas analysis revealed the following: pH 7.37, pCO₂ 39 mmHg, pO₂ 35 mmHg, HCO₃ 22.5 mmol/L, BE -2.8 mmol/L. Computed thorax tomography revealed pneumonic consolidation in the bilateral posterior segments of lower lobe (Figure 1). Cranial computed tomography was normal. Five milligram of midazolam was administered intravenously for agitation. The patient's vital signs two hours after the arrival on our ED were as follow: blood pressure 99/56 mmHg, pulse 106 bpm, respiratory rate 24 per/minute and SpO₂ 97% with supplemental oxygen (10 L/min via face mask).

A neurosurgery consultation was undertaken 10 hours post incident and the patient was noted to be alert, awake and oriented with no neurological deficit. There was no need of neurosurgical intervention. The patient was evaluated by an anesthesiologist due to high respirator rate and lethargy and was initially considered admitting to ICU. Owing to the lack of intensive care unit beds, the patient was transferred to a specialised chest disease hospital.

He was fully alert next day but he had no recall of the event with anterograde amnesia of the subsequent 24 hours. He was treated with cefuroxime 750 mg q8H intravenously and clarithromycin 500 mg/per day orally for 14 days. Patient did not develop any fever. He had paracardiac heterogenic hyperdensity shown on his first

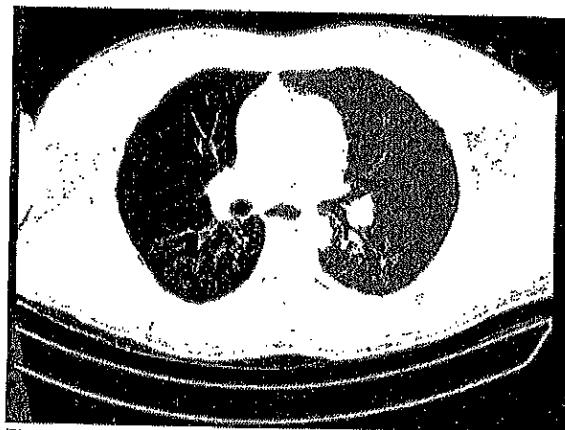


Figure 1. Computed thorax tomography revealed pneumonic consolidation in bilateral lower lobe posterior segments. A manikin study to compare video-optical intubation stylet versus Macintosh laryngoscope used by novice in normal and simulated difficult airway intubation.

chest X-ray and multiple basal atelectasis shown on the thorax tomography examination. The abnormality resolved on follow up chest X-ray examination. The clinician had investigated him for tuberculosis for 3 weeks. The patient was discharged without any permanent sequel or complication.

Discussion

In industrialised nations, contact with chemicals has a serious potential risk of intoxication. Simple asphyxiates, such as acetylene, hydrogen, neon, argon and nitrogen are used in petro-chemical, aviation and automobile industries in welding and illumination gases. They can reach dangerous levels in closed and poorly ventilated quarters.¹⁻⁵ However reports related to asphyxiate gas inhalation toxicity in the literature are mainly associated with divers using scuba equipment and suicide victims. Dorevitch et al reported fatal asphyxiation incidents of the construction workers in the United States between 1990 and 1999, toxic gas inhalation.⁵ It was mentioned that nitrogen and argon were the most frequently encountered asphyxiate gases (10.3% and 4.6% respectively). The rescuers were also exposed to excessive asphyxiate gases death rate of the rescued workers was stated as 10.3%. The most common mechanism cause of the incidents was similar to our case: wrong connection of the air and the victimized workers were exposed to excessive asphyxiate gases.

Although nitrogen is considered to be nontoxic to humans, it does not support life and may rapidly lead to asphyxia (2-3 minutes) through the depletion and displacement of oxygen. Nitrogen is therefore a suffocating gas that results in depression of the central nervous system, similar to carbon dioxide.⁶ The pathophysiology would vary according to the inhaled oxygen concentration. An oxygen concentration from: 6-8% would cause fainting within a few minutes. An oxygen concentration below 6% would lead to fainting within a few seconds, with possible severe brain damage or even death if unattended.^{5,7} Severe convulsions have been observed with pure nitrogen asphyxia after 2-3 minutes⁷ In the animals, vigorous jumping (possible avoidance movement) have been observed due to asphyxia with nitrogen. This was also seen in our patient. Subconjunctival haemorrhage due to compression of the neck veins by the face mask had also been described.⁸

Our patient presented to the emergency department with the classical symptoms of nitrogen toxicity findings: sudden loss of consciousness, desaturation, lethargy, involuntary movement, dyspnoea, and subconjunctival haemorrhage. Although, hypoxia and lethargy could occur due to disease conditions like epilepsy and substance/ drug exposure, the patient's history was highly compatible with simple asphyxiate gas intoxication.

The recommended treatment is as follows: patient should be placed in clean, well-ventilated area and prompt resuscitation should be started.⁹ There is no specific antidote for nitrogen gas intoxication. For those patients who could be promptly evacuated, they usually have mild exposure and good prognosis. However, prolonged exposure may result in complications (like inhalation injury, seizures, coma, and cardiac arrest) and is associated with a poor prognosis. Bronchodilators can be given in patients with bronchospasm. Use of corticosteroids is controversial because it increases the incidence of bacterial pneumonia as a late complication of inhalation injury. In our patient, unnecessary high dose of methylprednisolone had been administered in community hospital (that could be related to the heavy body weight and state of bronchospasm of the patient). Patients are proposed for observation for up to 24 hours due to upper airway obstruction or lower airway complications. In our case, treatment with supplemental oxygen and nebuliser therapy led to good outcome of lung symptoms.

Notably, this type of work incident and poisoning is completely preventable. The use of direct reading instruments with alarms for hydrogen sulfide, carbon monoxide, and oxygen or other asphyxiate gases could have prevented the majority of poisoning fatalities.⁵ Checking the compressed air sources should be done before the use of air-line respirators. Using colour codes, writing the content and pin systems (different gas cylinders with different connection pins) may prevent misconnection and the tragic events. Training on the use of air-supplied respirators is a must for these workers.

Conclusion

Gases with asphyxiate properties are used in a variety of industries and services. They are nontoxic to humans in low concentrations. However, it can be life threatening in cases of severe exposure. In workplace accident, for patient who presents to the emergency department with a history of loss of consciousness while using self-contained breathing apparatus, nitrogen or other simple asphyxiate gas exposure should be taken into consideration seriously.

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Assisted suicide by oxygen deprivation with helium at a Swiss right-to-die organisation

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ABSTRACT

Background In Switzerland, right-to-die organisations assist their members with suicide by lethal drugs, usually barbiturates. One organisation, Dignitas, has experimented with oxygen deprivation as an alternative to sodium pentobarbital.

Objective To analyse the process of assisted suicide by oxygen deprivation with helium and a common face mask and reservoir bag.

Method This study examined four cases of assisted suicide by oxygen deprivation using helium delivered via a face mask. Videos of the deaths were provided by the Zurich police. Dignitas provided protocol and consent information.

Results One man and three women were assisted to death by oxygen deprivation. There was wide variation in the time to unconsciousness and the time to death, probably due to the poor mask fit. Swiss law prevented attendants from effectively managing the face mask apparatus. Purposeless movements of the extremities were disconcerting for Dignitas attendants, who are accustomed to assisting suicide with barbiturates. None of the dying individuals attempted self-rescue.

Conclusions The dying process of oxygen deprivation with helium is potentially quick and appears painless. It also bypasses the prescribing role of physicians, effectively demedicalising assisted suicide. Oxygen deprivation with a face mask is not acceptable because leaks are difficult to control and it may not eliminate rebreathing. These factors will extend time to unconsciousness and time to death. A hood method could reduce the problem of mask fit. With a hood, a flow rate of helium sufficient to provide continuous washout of expired gases would remedy problems observed with the mask.

In Switzerland, Article 115 of the Penal Code makes assisted suicide punishable only if it is performed with selfish motives.^{1–3} While this legal situation makes it possible for anyone to assist in suicide, as long as there is no selfish motive, right-to-die organisations have led the development of an open practice that ensures routine reporting of assisted suicides to the authorities for criminal investigation.^{2–3} Every year there are several hundred such deaths and prosecutions are very rare.¹

The two largest Swiss right-to-die organisations were established in 1982. In Zurich, Exit Deutsche Schweiz was founded for German-speaking members. In Geneva, Exit ADMD (Association pour le droit de mourir) was founded for French-speaking members.¹ In 1998, Ludwig A Minelli, a human rights lawyer, founded Dignitas—To live with dignity—To die with dignity. Foreigners make up the majority of suicides assisted by Zurich-based

Dignitas, thus the organisation is frequently characterised as a destination for ‘suicide tourism’ (table 1).³ This suicide tourism was the subject of an acclaimed 2007 documentary, ‘The suicide tourist’, which aired on television networks in several countries. The documentary showed the assisted suicide of a terminally ill man who drank sodium pentobarbital.⁴

There is a fundamental difference between Switzerland and other jurisdictions that permit assisted suicide. In Belgium, The Netherlands, Oregon and Washington, patients must request assistance from a physician, who then evaluates the patient’s eligibility with regard to terminal illness or unbearable suffering.^{5–7} In Switzerland, it is right-to-die groups that evaluate requests for suicide assistance in accordance with the person’s prognosis, suffering and disability.^{1–3} Under the Swiss model, the role of physicians in suicide assistance is generally limited to assessing competence and prescribing a lethal dose of sodium pentobarbital. The drug is usually stored by the right-to-die organisation. Someone from the organisation, who is normally not a doctor or nurse, assists by preparing the drug and handing it to the patient/member to drink.³

In some cases, patients who have difficulty swallowing have self-administered the drug through a stomach tube or a percutaneous endoscopic gastrostomy catheter.⁸ Swiss law allows an assistant to engage in preparatory activities such as setting up an intravenous drip, but it is legally critical that the individual member who wishes to die must carry out the final act independently.^{1–8} Right-to-die organisations ensure that there is a witness to the final act, and in the case of Dignitas, it is routine to provide video evidence to the police, which helps to speed the criminal investigation.

On 31 January 2008 the medical director of the Canton of Zurich took the position that physicians must consult with patients more than once before prescribing sodium pentobarbital. Dignitas interpreted this as a signal that the cantonal medical director intended to restrict suicide assistance. It was also viewed as an obstacle to Dignitas’ foreign members, particularly those who would delay their travel to Switzerland to a point at which return trips for further medical consultations were out of the question.⁹

Dignitas believed that the cantonal medical director’s position infringed on a person’s right to self-determination and the freedom of its resident physician to prescribe sodium pentobarbital. Therefore, Dignitas explored oxygen deprivation with helium as an alternative to an active pharmaceutical such as sodium pentobarbital. The application of a non-drug method would help Dignitas establish that medical control over assisted suicide is not necessary.⁹

Table 1 Number of assisted suicides by country and year (May 1998–31 December 2009)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total	Total
Neighbouring countries														
Switzerland	6	4	3	11	17	9	14	12	15	6	10	4	111	11.66
Germany		1	4	31	50	45	66	78	120	75	59	35	564	59.24
Great Britain					1	15	10	15	26	17	23	27	134	14.08
France				2	4	12	3	12	16	18	19	7	93	9.77
Austria				1	2	2	2	3	2	3	4	3	22	2.31
Italy				1		2		4	2	1	1	4	15	1.58
Other countries														
Australia						1	1	1	1	4	1		9	0.95
Belgium						1					1		2	0.21
Czech Republic									1	1		1	3	0.32
Denmark									1			1	2	0.21
Greece				1									1	0.11
Hong Kong							1						1	0.11
Ireland						1	1	3				1	6	0.63
Israel				1	4		1			2	3	2	13	1.37
Canada							1		1	1	5	1	9	0.95
Hungary									1				1	0.11
Lebanon				1									1	0.11
Morocco								1			1		2	0.21
Mexico								1					1	0.11
Netherlands					1	1		1	2	2	1		8	0.84
New Zealand												1	1	0.11
Peru										1			1	0.11
Poland												1	1	0.11
Portugal												1	1	0.11
Spain				1		1	1	2	3	3	2		13	1.37
Sweden					2			2	3	2	2		11	1.16
Thailand									1				1	0.11
Uruguay							1						1	0.11
USA					1	4	3	3		2			13	1.37
													1041	100%

PHYSIOLOGY OF SUICIDE AND OXYGEN DEFICIENCY

Humans require sufficient oxygen to live. Without it, the body's oxygen cycle will break down and death will occur.¹⁰ The effects of hypoxia (oxygen deficiency) are well known (table 2); sudden exposure to severe oxygen deficiency will result in loss of consciousness within 5–10 s and within 2 minutes permanent brain injury is probable.¹¹

Dignitas intended to achieve oxygen deprivation by introducing near 100% of the inert gas helium into a mask, to replace the atmospheric air that participants are normally breathing. The composition of air is approximately 21% oxygen and 78% nitrogen, and thus the gas expired in the first few breaths may add sufficient oxygen to the inspired mixture to delay the effects of oxygen deficiency. To obtain the maximum advantage, the replacement of atmospheric air with helium must occur very rapidly. Humans can 'live' for several minutes while breathing very low concentrations of oxygen, so the system must almost immediately exclude expired breath, which normally contains approximately 14% oxygen.

This may be accomplished by one of two methods. One is to have a reservoir bag and mask apparatus similar to that used in clinical anaesthesia. To exclude expired breath totally, a system of two unidirectional valves directs expired gas to the atmosphere and allows helium to fill the reservoir bag, from which inspiration occurs. The other method is to introduce continuously into the reservoir a steady volume of 100% helium equal to or greater than two and a half times the individual's normal minute volume (approximately 10 litres per minute in an average adult).¹² This requires a flow metre in the system. Normal

minute volumes for humans can be found in physiology texts. This continuous flow of helium acts to 'air condition' the reservoir bag by totally washing out expired gas. A critical necessity of these methods is a perfect fit of the mask to the face so that room air will not enter the system. This is an important matter—maintaining such a good fit often requires considerable expertise. Straps and harnesses are helpful, but they add a dangerous possibility of facilitating respiratory obstruction.

The use of inert gas, such as helium, for suicide and assisted suicide is a relatively recent trend.^{13–20} Helium is non-flammable and non-toxic, and it is often chosen for suicide because its low odour and low viscosity make it very easy to breathe.²¹ This gas is also widely available, given its applications in industry and for party balloons.

Table 2 Progressive human response to oxygen-deficient atmosphere

Oxygen concentration (%)	Symptoms
12–16	Increase breathing/heart rate; slightly disturbed muscular coordination
10–14	Emotional upset; fatigue on exertion; breathing is disturbed; consciousness is not lost
6–10	Nausea; loss of free movement; possible collapse; may be aware but unable to move or speak; may lose consciousness
>6	Convulsive movement; gasping breaths; cessation of respiration and heart rate

Adapted from Clayton and Clayton.¹¹

Law, ethics and medicine

In brief, helium is used to replace oxygen. Human exposure to a 100% helium environment will result in the sudden loss of consciousness without warning.^{11 20} Continued exposure will result in death from anoxia within a very few minutes.^{11 20}

The suicide guidebook, 'Final exit', did not discuss inert gas methods when it was first published in 1991.²² The 2002 edition, however, offers illustrated instructions on suicide with a plastic bag 'hood' filled with helium.²³

METHODS

Materials

This study is based on videos of four assisted suicides by oxygen deprivation with helium, which occurred at Dignitas in the first quarter of 2008. Dignitas routinely provides video evidence of assisted suicides to the the Kantonspolizei Zurich (cantonal police), and the police return the videos after their investigation. In this instance, the copies returned by the police contained a technical malfunction that interfered with the playback. In April 2008, Dignitas' Ludwig Minelli arranged an appointment with the police so that the principal researcher could view the videos at the police station. At that time, the police corrected the technical error and provided copies of the videos to Minelli and the researcher. Dignitas also provided a German language copy of its client information sheet, the protocol for helium, and a blank copy of the client consent.

It is important to bear in mind that the videos are used to establish that the assisted suicides are lawful. As such, the videos are Dignitas property, shared for the purpose of researching the technical aspects of oxygen deprivation with helium. The Dignitas informed consent included the following clause, to which its members agreed:

"I hereby declare that I am prepared to assist Dignitas in assembling its own data on the helium method, in my own interests as well as the interests of other members of Dignitas, and am therefore prepared to take these risks to myself into account." (translated from German)

Before data collection, the principal researcher submitted an ethics application to the Research Ethics Board (REB) at Kwantlen Polytechnic University, British Columbia, Canada. The REB responded with a series of questions about privacy, anonymity, terminal illness, Swiss right-to-die groups and secondary use of data. The researcher appeared before the REB to explain that the identities of persons receiving assisted suicide was not known and anonymity would be protected. In private, the REB deliberated and decided that secondary video analysis did 'not deal with human participants and so is not appropriate for review by the REB'. Therefore, the research was exempted from REB review.

The process of suicide by oxygen deprivation with helium

Dignitas members choosing to die from this method received training in two stages. First, they received a document entitled, 'Instructions and terms and conditions for informed consent'. This consent process explained why helium was being used instead of sodium pentobarbital, the known effects of helium, and a caution that Dignitas had little experience with this method for assisted suicide.

The second stage required that Dignitas members choosing to die by oxygen deprivation practise the correct placement of a mask that covered their nose, mouth and chin, in what was called the 'working position'. With the tubing disconnected from the helium tank, the mask would next be placed in a 'preparatory position' with the elastic band positioned over the ears and



Figure 1 Mask in 'working position'. Mask is similar to type used by Dignitas for breathing helium (photo RD Ogden).

around the back of the head, and with the mask resting on the member's forehead. The member would practise moving the mask from the preparatory position to the working position (figure 1). Once the mask was in the working position, the member was instructed to place his or her hands at the sides of the body. The above process would be repeated until the Dignitas assistant was confident that the member could carry out the steps competently.

An additional instruction was that the member should exhale deeply immediately before placing the mask in the working position. According to Dignitas' protocol, this would have the effect of 'clearing the lungs of all used air so that the breathing with helium functions properly'. We believe that this forced expiration, although it may result in a deeper inhalation, would have little or no significant effect on the process of oxygen deprivation.

The protocol required that the member confirm that she or he was confident with the process. If not, then Dignitas would inform the member that the suicide could proceed at a later date with sodium pentobarbital, after another physician consultation.

If the member was both confident with the process and capable of positioning the mask correctly, the Dignitas protocol required that the assistant explain the following:

"[T]he assistant must explain to the member that, when the member places the mask in the prescribed and practiced manner over his or her own nose, mouth, and chin, and begins to breathe helium, he or she will, after few breaths, lose consciousness. Because breathing will continue without difficulty, the resulting oxygen deprivation will cause a breakdown of brain function. Should this breakdown persist for longer than three minutes, the consequence is virtually certain severe, permanent brain damage. Oxygen deprivation to the brain results finally in death, which will occur without the conscious realization of the member, as he or she will have long before passed out, and his or her consciousness terminated...."

The informed consent process for assisted suicide by oxygen deprivation noted that despite what had been published about the use of helium, Dignitas was inexperienced with the method and there could be 'unexpected consequences'. Members agreed that they were willing to assume these risks and that they were 'prepared to assist Dignitas in assembling its own data on the helium method', for the benefit of themselves and others (translated from German).

Variables

The main attributes for observation are time to unconsciousness, breathing patterns, movements of the extremities, eye and eyelid movements and time to reach death.

RESULTS

We present four cases of assisted suicide using helium as an alternative to sodium pentobarbital. Specific health information was not provided, but the decedents were one man and three women (aged 61, 73, 73 and 89 years). Each death took place in bed with the members resting on their backs as shown in figure 1. Data are summarised in table 3.

In each case, helium flow was initiated before the mask was put in the working position. Time is recorded with 0 s marking the moment when the member finished placing the mask in the working position.

Case 1 (male)

In accordance with the Dignitas protocol, the member exhaled deeply before placing the mask in the working position. Subsequent breathing appeared normal for approximately 35 s, and then the breathing rate accelerated. At this point (36 s), the eyelids opened, the eyeballs rolled, and the head tilted back. It is estimated that consciousness was lost approximately 36 s after the face mask was in place.

At approximately 60 s, there were purposeless movements in the arms. The left arm extended upward and reached about involuntarily. The right hand was held by an attendant, for support. The attendant appeared surprised at the arm movements. Without struggle, the attendant continued to hold the member's right hand. Gross arm movements and fine tremors lasted for approximately 1 minute. Eventually, both arms relaxed and the left arm rested with the hand under the lower back.

Approximately 3 minutes after the start of the procedure, breathing appeared to stop, except for six gasps between 3:05 and 6:30. There were two faint breaths at 7:16 and 7:55. The helium flow was shut off at 8:25. After the gas was stopped, there were four gurgled snorts at 8:38, 9:07, 9:17 and 10:15.

Case 2 (female)

After exhaling deeply and placing the mask in the working position, the member appeared to breathe normally for approximately 50 s, after which the breathing rate accelerated and the eyelids blinked rapidly. It is estimated that consciousness was lost approximately 47 s after the face mask was in place. At approximately 58 s the eyelids fixed open. At 1:05 there were tremors in the arms, arching of the back and the head tilted back. At 1:18 the neck relaxed and at 1:36 the back-arch relaxed. At 1:37 the left arm contracted at the elbow, relaxing 15 s later, and then contracting/relaxing two more times over the next 45 s. There were two more slight movements in the left arm at 6:33 and 6:46.

At 2:14 the member exhaled deeply and this was accompanied with a moaning sound that lasted for 12 s. From 2:45 through to 8:35 there were 21 short gasps, spaced apart by as few as 6 s and as long as 47 s. At 11:47 the gas flow was stopped, more than 3 minutes after the final gasp.

Case 3 (female)

This member exhaled before applying the mask to her face, but she then spoke a few words, which suggests that she may have inhaled room air before the mask was in the working position. She spent 11 s adjusting the mask in the working position and approximately 3 s after releasing her hand from the mask she uttered a few indistinct words. After the mask had been in the

working position for at least 26 s, the Dignitas attendant spoke to the member. The member nodded affirmatively, indicating that she was conscious. At 52 s, the member's breathing rate began to accelerate and her eyelids fluttered and blinked. Loss of consciousness is estimated to be approximately 52 s after the face mask was in place. At 1:06 her eyelids fixed open, her head tilted back and her quickened breathing continued. At 1:21 the left hand clenched into a fist and at 2:33 the left arm slowly extended for 10 s. During this same period the member's lips vibrated with her exhaled breaths, implying relaxation of facial muscles.

At 2:23 there was a contraction of the left arm, a deep exhalation at 2:30, a contraction of the left arm at 2:50, and at 3:17 there was a big snort and extension of the left arm. At 4:03 breathing paused and then at 4:17 there were seven quick short breaths lasting to 4:33. At 4:48, 4:43 and 4:56 there were three final breaths.

Case 4 (female)

The member exhaled before placing the mask in the working position and after 30 s she appeared conscious. At 33 s she nodded 'yes' to an attendant's query whether she was breathing. Immediately afterwards the member's eyelids blinked rapidly. It is estimated that consciousness was lost 55 s after the mask was put in place. At 1:11 her eyeballs rolled and there were tremors in both hands. The tremors continued to 2:06 and then the body appeared relaxed. At 2:09 the breathing rate quickened for approximately 6 s. At 3:03 there was a slow extension and contraction of both arms, which then relaxed at the member's sides at 3:26.

At 3:58 breathing began to accelerate, pausing occasionally, and then accelerating again. From 5:36 to 10:12 there was intermittent moaning. During this same period the eyelids were open and the eyeballs were moving, but without appearance of control. Between 10:13 and 38:16, intermittent patterns of accelerated breathing, relaxed breathing and moaning continued. During this period a number of movements occurred: at 26:03 the head tilted back; at 30:41 the shoulders shrugged and left arm contracted; at 34:55 the left shoulder shrugged; at 37:06 both arms contracted for 10 s after which the member appeared quite inert.

At 38:16 the camera was turned off, to replace the video tape. The time elapsed for this is not known. The duration of the second tape is 26:57. At 0:49 of part 2 the member let out a deep gasp and the head tilted back to 0:57. At 1:31 the tongue extended slightly and withdrew. This tongue movement continued at 15–20 s intervals until 3:45, after which no further signs of life were apparent. The camera continued to run from 3:45 to 26:57, but the member appeared dead.

The recorded time from the start of the procedure to cessation of all signs of life was approximately 42 minutes. The actual time from start to finish is not known due to the change of video tape. The changes in breathing patterns, moaning and longer dying time appeared to concern and confuse the Dignitas attendants.

Table 3 Summary of findings

Case	Estimated time to loss of consciousness	Intermittent, gross extremity movements (start/finish)	Time to cessation of breathing	Terminal gasps/breaths (time/number)
1	36 s	1 min; 2 min	3 min	3:05–6:30; 8
2	47 s	1:05; 2:37	2:45 min	2:45–8:35; 21
3	52 s	1:21; 3:17	4:03 min	4:03–4:56; 10
4	55 s	1:11; 37:16	37:16 min	Post 38 minutes*; 1

*A change of video tape prevents exact recording of time. Only one gasp is noted, but others may have occurred in the interim of tape change.

CONCLUSION

The estimated time to unconsciousness ranges from 36 to 55 s, which varies greatly from 5 to 10 s noted by Clayton and Clayton.¹¹ Precise determination of unconsciousness onset is not possible, but it appeared to coincide with blinking eyelids, rolling eyeballs and increased breathing rate. In general, arm movements were limited to uncoordinated contractions or extensions at the elbow. Neither attendants nor members touched the mask once it was placed in the working position. There were no attempts at self-rescue, which implies that each member was unconscious.

While the camera was focused on the dying member, the attendants could occasionally be observed, and they appeared anxious about the process. One attendant later stated that the sudden change in skin colour (cyanosis), and wide open eyelids were unexpected, because with sodium pentobarbital the loss of consciousness is slower and the eyelids tend to remain closed.

The time to death in cases 1–3 was approximately 5–10 minutes, and in case 4 it was over 40 minutes. In case 4, it is probable that sufficient oxygen was leaking into the breathing system to sustain breathing and heart function.

Although each member followed the same breathing protocol, variances in breathing patterns and total time to death can be attributed to health differences, variable rebreathing, inspiratory leaks and dilution of the inhaled mixture with room air (which would include 21% oxygen). While health information and flow rate data are unavailable, the video image reveals variances in the fit of the mask. Gaps noted between face and mask would have allowed room air to enter into the breathing environment, thereby extending the time to unconsciousness and the time to death. Even if the Dignitas attendants were trained to recognise a poor mask fit, they probably could not make adjustments without running foul of the law. This is because Swiss law requires the dying individual to perform the final act, and a third party intervention to adjust the mask would probably constitute an offence.

We conclude that much of the variability in time to unconsciousness and death can be attributed to differences in the mask fit. A hood method could reduce the problems of fit. The fit at the collar must be loose enough to serve as an exhaust port, but tight enough to ensure that the flow of gas will maintain inflation of the hood.

DISCUSSION

In these four cases, oxygen deprivation by breathing helium through a mask proved lethal. Nevertheless, we believe a mask breathing apparatus is problematical because it is very difficult to achieve and maintain a gas-tight seal between the face and the mask. Even if the initial mask fit is gas tight, subsequent involuntary movements of the head, neck and facial muscles are likely to spoil the fit. In anaesthesia, it is well known that achieving a continual airtight fit is technically difficult. Even tiny leaks may substantially allow the ingress of oxygen into the breathing environment.¹² By enhancing the video images, gaps are visible around the nose bridge and under the chin, thus room air could easily prevent an oxygen-free environment. Gaps of some degree may well have been present in all four cases.

The inspired concentration of air, and therefore oxygen, will be determined by the relative amounts of added helium and expired gas. To replace expired air completely, and thus ensure the highest possible concentration of helium, the flow rate of added gas (helium) has been determined to be a volume of at least two and a half times the individual's minute volume.¹² This would be true with either the bag and mask as used by



Figure 2 'Exit-bag' hood. Apparatus is similar to that described in 'Final exit' (photo RD Ogden).

Dignitas, or with the use of a large hood. This flow rate would require tubing of an adequate internal diameter to deliver helium from the tank to the inhalation system.

'Final exit' offers detailed information about using a plastic bag hood and helium for suicide.²³ For aesthetic reasons, Dignitas chose a mask instead of a hood. A hood, however, may be easier to manage than any mask that we know. The elastic collar on a hood provides an exhaust port.

Sudden exposure to a completely oxygen-deficient environment should result in loss of consciousness within 5–10 s.¹¹ Given the visibly poor mask fit, and that the estimated time to unconsciousness ranged between 36 and 55 s, it is probable that the breathing environment was not completely oxygen deficient. In two case reports of sudden exposure to a helium environment inside a hood, Ogden²⁰ reported loss of consciousness within 10–12 s.

Assistance with suicide is not necessarily a medical procedure and these cases of oxygen deprivation show that the prescribing role of physicians and the use of drugs can be bypassed. Ziegler² recently noted that the Swiss model of assisted suicide has significant potential to inform the debate over the right to die, and that it 'could also help demedicalize the way that we die'. The transparency of the Swiss model and the boldness of organisations such as Dignitas provide unique opportunities to shed light upon otherwise hidden behaviours. Switzerland is probably unique in that its right-to-die organisations can account for nearly 5% of all suicides.²⁴ Given the nature of Swiss law and the good faith transparency and accountability of right-to-die groups in that country, the Swiss model offers unique opportunities for the observation and measurement of a phenomenon that cries out for empirical enquiry and understanding.

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Competing interests None.

Ethics approval Ethics exemption was obtained at the corresponding author's place of employment on 16 April 2008.

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질소 가스를 사용한 자살 시도 1례: 증례보고

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박성욱 · 엄석란 · 한상균 · 김형빈 · 조영모 · 배병관 · 왕일재



Attempted Suicide by Nitrogen Gas Asphyxiation: A Case Report

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Nitrogen is an inert gas that is harmless to humans under normal conditions. While it is not inherently toxic, nitrogen gas becomes dangerous when it displaces oxygen, resulting in suffocation. Herein, we report a case of a 34-year-old man who attempted suicide by nitrogen asphyxiation who presenting with decreased mental function and agitation. Lactic acidosis and hyperammonemia were observed on presentation at the emergency department, but these improved after a few hours. After 2 days, the patient regained full consciousness, and was discharged without any complications. Survival after asphyxiation due to nitrogen gas is very rare, and these patients are more likely to have poorer outcomes. There is a potential for the increasing use of nitrogen gas as a method of committing suicide because of the ease of access to this gas.

Key Words: Nitrogen, Asphyxia, Suicide, Gas poisoning

Introduction

Atmospheric air is composed primarily of nitrogen gas, accounting for 78% of the atmosphere. In its standard state, nitrogen is colorless, odorless, tasteless, and inert gas¹⁾. Nitrogen gas is generally regarded as harmless; however, it can be an asphyxiant such as the gases, methane, propane, and carbon dioxide²⁾. Several nitrogen-related deaths have been reported in scuba diving accidents, laboratories,

anesthetic accidents, and suicide attempts³⁻⁶⁾. There are however, very few reports of patients surviving after nitrogen gas asphyxiation. Here, we report the case of patient who survived without complications after attempting suicide using nitrogen gas.

Case Report

A 34-year-old man presented to the emergency department with decreased mental function. One hour before arrival at the emergency department, the passenger reported that someone is shouting in the car. When 119 paramedics arrived, the door of the car was locked and the patient was shouting. The paramedic crashed the car window and rescued the patient, and a nitrogen gas cylinder was found in the car (Fig. 1). It took 10 minutes from report to arrival. At presentation in emergency room, he was con-

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fused with a Glasgow Coma Scale of B4V3M5. Both fully dilated pupils were observed and light reflex was intact. He yelled loudly and did not obey commands. His initial vital signs were as follows: blood pressure: 140/80 mmHg, heart rate: 155 beats/minute, respiratory rate: 30 breaths/minute, temperature: 36.8°C, and oxygen saturation measured using pulse oximetry: 96% with room air. Electrocardiogram showed marked sinus tachycardia without any ST segment changes, while computed tomographic scans of brain did not show any structural abnormalities. Initial laboratory tests revealed mild rhabdomyolysis (creatinine kinase: 227.8 U/L, and myoglobin: 152.5 ng/mL), and hyperammonemia (ammonia: 144 µg/dL). Initial arterial blood gas analysis showed metabolic acidosis (pH: 7.27, PCO₂: 26.8, PO₂: 94.6, HCO₃: 12.5) with increased lactic acid (14.1 mmol/L). Methemoglobin (0.2%) and carboxyhemoglobin (0.5%) were within normal ranges, and serum ethanol was 0.6 mg/dL. Neuron-specific enolase was 33.14 ng/mL (normal range: 0-16.3 ng/mL). We administered intravenous lorazepam and haloperidol for his severe agi-

tation, and then started high flow oxygen via non-rebreather face mask. After 3 hours, acidosis was normalized (pH: 7.36, PCO₂: 38.5, PO₂: 316.8, HCO₃: 22.1, lactic acid: 0.9 mmol/L). Hyperammonemia also improved without lactulose enema. Thereafter, the patient was admitted to the intensive care unit, wherein, on the following day, his consciousness improved, although he could not remember the doctor's face, and repeatedly asked which day of the week it was, and why he was there. Two days after admission, his consciousness had recovered fully. He had an economic problem and decided to commit suicide. He easily gained information through various suicide internet sites. He was informed that the method of suicide using nitrogen gas was painless, easy to obtain, and had a high success rates. He bought the nitrogen gas cylinder through the web shopping site without difficulty. According to the information on the site, he put a plastic bag on his head. Then, gas was injected into the bag using a rubber hose. After that, he lost consciousness and restored his consciousness today. Five days after admission, he was discharged without any complications.



Fig. 1. Nitrogen gas cylinder found in car.

Discussion

Death due to nitrogen gas poisoning was reported occasionally. However, reports of survivors after nitrogen gas poisoning are very rare. Our case showed the clinical course of patient with nitrogen gas asphyxiation. It included lactic acidosis, hyperammonemia, delirium, rhabdomyolysis.

Asphyxia is defined as the absence, or lack of oxygen exchange, and can be divided into three categories: suffocation, strangulation and chemical asphyxiation^{5,6}. Nitrogen is an asphyxiant, and can cause suffocation, similar to other asphyxiant gases such as propane, helium, hydrogen, methane. Nitrogen gas is inert and is not inherently toxic. However, it is dangerous with the displacement of oxygen, effectively diluting the concentration of oxygen in the air⁷. If pure nitrogen is inhaled, the alveolar spaces gradually become filled with nitrogen, and alveolar oxygen concentration decreases⁸.

박성욱 외: 질소 가스를 사용한 자살 시도 1례: 증례보고

Symptoms of nitrogen gas inhalation vary with the degree of oxygen deficiency⁹⁾. At an oxygen concentration of 15-20% in inhaled air, work performance may be decreased, while at 8-10%, loss of consciousness may occur, and an oxygen concentration of less than 8% can be fatal. According to animal studies, death can occur within a few seconds to a few minutes, and this is determined not only by the initial concentration of oxygen, but also by the rate at which the oxygen concentration is decreased¹⁰⁾. When oxygen is absent, asphyxiation occurs within 2 to 3 minutes, while when oxygen is gradually reduced, asphyxiation develops within 20 to 25 minutes¹⁰⁾. These animals tend to display vigorous jumping (possibly an avoidance movement), and develop severe convulsions¹⁰⁾. Treatment is symptomatic, as there is no antidote to nitrogen asphyxiation¹¹⁾. For patient with bronchospasm, bronchodilators can be used. There are no specific tests that can diagnose nitrogen gas asphyxiation. So thorough history taking is most important if a patient suspected of asphyxiation by nitrogen gas is in the emergency room. Because of nitrogen gas itself is not toxic, clinical symptoms are likely to be associated with hypoxia.

Death due to nitrogen gas asphyxiation has been occasionally reported; however, reports of survival are very rare. A case report by Tur and Aksay¹²⁾ described a non-fatal incident of nitrogen asphyxiation, in which the patient was exposed to nitrogen gas accidentally in an oil refinery and experienced anterograde amnesia, and was eventually discharged in a fully alert state. In our case, in addition to decreased consciousness, transient lactic acidosis, transient hyperammonemia, and rhabdomyolysis were also observed. The patient is presumed to have a seizure induced by hypoxia. Transient lactic acidosis and transient hyperammonemia can be caused by seizure¹³⁻⁶⁾. And dilated pupils can be associated with postictal state¹⁷⁾.

The patient eventually fully recovered without complications, and this good result may be a result of the situation in which the attempted suicide took place. The patient used a nitrogen cylinder, which was attached to an unsealed plastic bag on his head. Thus, the atmospheric oxygen decreased gradually

and he lost consciousness. Thereafter, the nitrogen gas may not have been continuously injected into the bag, resulting in a decrease in the concentration of the inhaled nitrogen gas, thereby increasing the oxygen concentration.

Our patient was a suicide attempt patient. Information regarding suicide methods is readily available, with more than 100,000 websites containing such information¹⁸⁾. The current patient also gathered information through suicide information websites. Quick and painless suicide can be attained with nitrogen gas, as most people lose consciousness within 12 seconds, and can die within minutes⁶⁾. In addition, nitrogen gas can be easily purchased over the Internet throughout the world, and although implementation of strict regulations regarding the usage of nitrogen gas is difficult, the potential increase in suicide rates by nitrogen gas should be considered to revise legal regulation.

Conclusion

Nitrogen gas inhalation causes oxygen deficiency by displacing the atmospheric oxygen, which can be fatal. In our case, the symptoms may be reversible. Appropriate initial treatment and rapid rescue from the nitrogen gas is very important. Suicide attempts using nitrogen gas will increase due to the easy availability and fast and painless effects of this gas. The emergency physician should be aware of the potentially fatal misuse of nitrogen gas as method of suicide.

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Case Report of Suicide by Inhalation of Nitrogen Gas

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Abstract: Nitrogen is an inert gas that is a normal constituent of the air that we breathe. It is a suffocating gas that does not support life and that can be a cause of death by the displacement of oxygen in the atmosphere. The majority of deaths associated with nitrogen have occurred in the setting of scuba diving. Although other suffocating gases have been used as a means of committing suicide, the literature contains little information about the use of nitrogen as a suicidal agent. A case of a 50-year-old man who committed suicide using a homemade suicide device and nitrogen gas is presented.

Key Words: nitrogen, suffocating gas, suicide

(Am J Forensic Med Pathol 2008;29: 235–237)

Nitrogen is a colorless, odorless nontoxic, and generally inert gas that comprises 78% of the air that we breathe.¹ Nitrogen gas is used commercially in the chemical, petroleum, electronic, and metal industries. Although cylinders of nitrogen can be bought without restriction in the United States and Canada, there have been few deaths attributed to the effects of nitrogen.

The majority of deaths in which nitrogen has played a role have occurred in scuba diving accidents. Although asphyxia due to nitrous oxide fumes has been reported as a means of suicide, as an accidental death during the administration of general anesthesia, and rarely as the cause of death in autoerotic asphyxia, gaseous nitrogen as an agent of suicide has not been widely described.^{2–5} We report the death of a man who committed suicide with a do-it-yourself suicide device that employed gaseous nitrogen.

CASE HISTORY

A 50-year-old man sent an e-mail message to his employer indicating that he planned to commit suicide. He had been divorced for a year and a half and lived alone in a trailer park. The employer attempted to call the decedent, but found that his telephone had been forwarded to his daughter's phone. The daughter contacted law enforcement, who made entry into the unlocked trailer and found the subject deceased,

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supine on his bed. A sign on the bedroom door stated "Warning Asphyxiation Hazard Nitrogen Gas Weapon is Loaded Safety off."

The decedent was fully clothed, and his head, neck and upper body were covered by a homemade breathing tent constructed from a plastic milk crate covered with a clear plastic shower curtain that was secured with duct tape (Fig. 1). A tube that entered the box under the shower curtain was connected to a valve on a large cylinder of industrial nitrogen gas next to the bed (Fig. 2). A loaded .22 caliber semi automatic handgun was found on the bed adjacent to a partially hand written and partially typed suicide note. Additional suicide notes were found among his personal papers, and a 7 page document containing detailed instructions for the construction of a nitrogen gas suicide device termed "the Expirator." He had apparently been despondent over his divorce and a personal identity struggle over his sexuality. He had also been under investigation for child molestation, and a warrant for his arrest was imminent. A notebook was found in a garbage can with a "To Do List." Items that were checked off on the list included "get N tank & hose & fittings," "funeral arrangement," and "make sign for door."

Postmortem examination revealed a 70 inch, 196 pound male appearing older than his stated age of 50 years. There were no injuries to the body. Internal examination revealed an unusual odor to the body cavities. The heart was enlarged, weighing 520 g, and showed concentric left ventricular hypertrophy and mild coronary arteriosclerosis. Diffuse visceral congestion and mild cerebral edema were present. Additionally, there were conjunctival petechiae bilaterally. Postmortem toxicologic studies revealed a blood ethanol concentration of 0.036 G/dL, and nicotine and caffeine were found in the urine. No other drugs or volatile substances were detected. The cause of death was attributed to asphyxia due to nitrogen gas inhalation and the manner of death was certified as suicide.

DISCUSSION

Although nitrogen is considered to be nontoxic to humans, it does not support life and may rapidly produce a hazardous atmosphere through the depletion and replacement of oxygen.² Reduction of atmospheric oxygen to less than 25% of normal can produce unconsciousness in seconds and death within minutes.⁶ Symptoms of an oxygen deficient atmosphere may include nausea, vomiting, dizziness, confusion, and impaired judgment.⁷ Nitrogen is therefore a suffocating gas that results in depression of the central nervous system by exclusion of oxygen, similar to the more commonly encountered gases carbon dioxide and methane. There



FIGURE 1. The homemade breathing tent at the scene of death.



FIGURE 2. The do-it-yourself suicide machine attached to a tank of nitrogen gas.

are no specific findings at autopsy.⁶ Additionally, because nitrogen is a normal component of the blood, postmortem toxicologic studies cannot be used to determine the cause of death.

Nitrogen gas can be a hazard to scuba divers,^{2,7} during which air is supplied at increased pressure at depth, resulting in nitrogen being progressively dissolved in plasma and tissues based upon its partial pressure. This can result in nitrogen narcosis, in which disorientation and impaired judgment resembles ethanol intoxication and can lead to death due to drowning.⁸ Alternatively, if a diver who has nitrogen dissolved in his tissues surfaces too quickly, the dissolved nitrogen can re-enter the blood stream, resulting in gas bubbles in the circulation that can lead to decompression sickness, or “the bends.”⁹ This potentially fatal condition can lead to joint pain as well as infarction of vital organs including the brain and spinal cord, and can also result in disseminated intravascular coagulation.²

Accidental deaths due to environmental suffocation have involved predominately carbon dioxide and methane.^{6,7} Excess carbon dioxide may accumulate in manholes, silos and wells, as well as in small spaces where oxygen is depleted due to its consumption. Sudden death may occur upon entering such an environment.^{10,11} Before the development of safer refrigerator designs a number of young children died when they became trapped in a discarded airtight refrig-

erator.⁶ Methane is a principle component of natural gas, and forms naturally due to decomposition of organic matter.⁶ It may be the cause of death in coal mine entrapments.

Suffocating gases have been employed as agents of suicidal deaths, and have been implicated in accidental deaths occurring during anesthesia and autoerotic activity.²⁻⁵ The Hemlock Society recommends the use of a plastic bag over the head in addition to sleeping pills to alleviate discomfort by inducing sleep or unconsciousness.^{10,12} However, suffocating gases have been used to commit suicide.¹¹ Nitrous oxide is an anesthetic gas with euphoric and narcotic effects.³ Leadbetter and coworkers⁴ reported the death of a dentist who died during autoerotic activity using an anesthetic machine filled with nitrous oxide. Nitrous oxide has been used, in addition to a plastic bag over the head, to heighten sexual gratification by inducing hypoxia in cases of autoerotic asphyxia.^{3,5,13}

Despite its widespread availability, the forensic literature contains no reports of the use of nitrogen gas as a suicidal agent. However, the so-called “right to die” advocates have long recognized the use of nitrogen as a means of self aid-in-dying. The Dying Well Network was a nonprofit organization created to supply information to terminally individuals and their families and to provide information to help an individual control his or her own dying.¹⁴ In a secret convention in Seattle in November of 1999 do-it-yourself suicide devices were demonstrated.¹⁵ The “Debreather” was a mask that recycled air, gradually removing oxygen until the user lost consciousness and suffocated. In contrast, the “Expirator” delivered nitrogen gas. The Expirator was invented by Rob Neils of the Dying Well Network as a potential means of bypassing legislation that prohibited assisted suicide. The document found in the decedent’s residence in our case described the “Expirator” as a means of inhaling nitrogen from a tank through a mask, and explained that death would be without discomfort. There was also a detailed description of the unnamed author’s personal experience experimenting with inhaling oxygen to the point of unconsciousness.



It is likely that a number of suicides employing suffocating gases are not recognized, particularly if the individual has significant underlying medical illnesses. The cause of death in such cases may be impossible to determine if the scene of death is altered by a loved one who removes the apparatus, leaving a death that seems natural. Because suffocating gases leave no specific autopsy findings, and because nitrogen is a normal constituent of the blood, rendering postmortem toxicologic studies unhelpful, the determination of the cause and manner of death in a case involving nitrogen gas necessitates a thorough investigation of the scene and the circumstances surrounding the death.

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CASE REPORT

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Computed tomography findings of asphyxial suicide by the inhalation of helium inside a plastic bag

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ABSTRACT

A 20-year-old man was found by his family in a state of cardiac arrest. His face was covered with a plastic bag connected to a helium tank through a hose. Although advanced cardiac life support was performed, resuscitation attempts were unsuccessful. Computed tomography from his head to pelvis demonstrated diffuse brain swelling and lung edema. The massive inspiration of pure helium gas and/or hypoxia appeared to have induced lung edema by breaching the blood gas barrier in the lung.

KEYWORDS

Helium; asphyxiation; suicide; computed tomography

1. Introduction

Helium is a light, odorless, tasteless, and colorless noble gas with a strong safety profile except for oxygen deficiency. It has multiple applications in medicine [1]. Helium is commercially available. Helium/oxygen mixture (HeliOx) is used to prevent nitrogen narcosis or the bends in deep-sea divers. Helium has not been shown to have an anesthetic or narcotic effect on divers at depth breathing compressed gases [2]. People may use it to alter their voices at a party or inflate balloons. Inhaling helium rarely but occasionally results in rupturing of alveoli, pneumomediastinum, or embolization [3, 4]. We herein present the computed tomography (CT) findings of asphyxial suicide by the inhalation of helium inside a plastic bag.

2. Case presentation


The protocol of this retrospective case study was approved by the review board of Juntendo Shizuoka Hospital, and all examinations were conducted according to the standards of good clinical practice and the Helsinki Declaration.

A 20-year-old male, who had shown a pessimistic outlook, dropped out of college, cancelled his apartment contract, and continually remained inside his home. His family found him in a state of cardiac

arrest. A plastic bag connected to a helium tank through a hose, covered his face. When emergency technicians reached him, his initial rhythm was asystole. After securing his airway by an endotracheal tube and an infusional administration of adrenalin through the venous route, the patient was transferred to our hospital. However, resuscitation attempts were unsuccessful. Computed tomography from his head to pelvis demonstrated diffuse brain swelling and lung edema within a few minutes after termination of resuscitation (Figures 1 and 2). His body was transferred to the police department to investigate his death according to the Japanese law. However, an autopsy was not performed.

3. Discussion

This case demonstrated marked brain swelling and lung edema. Brain swelling induced by hypoxia is frequently observed, particularly in patients under cardiopulmonary arrest. However, hypoxia does not always induce lung edema. One of the mechanisms underlying hypoxia-induced lung edema is pulmonary vasoconstriction that occurs with prolonged exposure to hypoxia [5]. Pulmonary vascular pressures subsequently increase and can stress the delicate alveolar capillary barrier and induce mechanical stress failure. This pulmonary vascular response likely has multiple driving mechanisms involving the

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Figure 1. Postmortem pulmonary cranial computed tomography (CT) findings. CT reveals the loss of cerebral sulcus, suggesting diffuse brain edema.



Figure 2. Postmortem pulmonary thoracic CT findings. CT reveals diffuse lung edema.

Table 1. Case reports of patients who became symptomatic due to helium exposure, excluding diving.

Year	Reporter	Age (years)	Sex	Mechanism	Method	Outcome
2017	Kato	20	Male	Suicide	Plastic bag	Survived
2017	Hayashi	22	Female	Suicide	Balloon	Survived
2016	Yamamura	30	Male	Suicide	Plastic bag	Died
2016	Doi	12	Female	Accident	Aspiration	Survived
2002	Yoshitome	16	Male	Unknown	Balloon	Died

sympathetic tone, elevated endothelin 1 levels, or decreased levels of exhaled nitric oxide [5]. These complicated mechanisms may result in differences in the susceptibility of lungs to hypoxia. Although helium is nontoxic, it should still be considered dangerous, as any gas breathed at near 100% saturation can cause hypoxia/anoxia. Autopsy findings in a similar case also revealed cerebral swelling and lung edema by helium [6]. Another possible mechanism underlying the lung edema in the present case was

negative pressure pulmonary edema [6–9], which can rarely develop in patients with labored breathing in association with upper airway obstruction, subsequently inducing alveolar damage. The upper airway obstruction due to the plastic bag in the present case can cause negative pressure lung edema [6–9]. Yoshitome et al. previously reported a case of hypoxial death due to helium gas when a drunken 14-year-old boy inserted the upper half of his body into an advertising balloon filled with helium gas [10]. It seems difficult to confirm whether this case was an accident or suicide attempt [10]. The autopsy findings of this case also revealed marked lung edema, although the upper airway remained clear. Accordingly, the massive inspiration of pure helium gas and/or hypoxia appears to have induced lung edema by breaching the blood gas barrier in the lung.

Recently, increasing trends of suicide through the inhalation of helium gas, probably due to the influence of the Internet, have been reported [11, 12]. An Ichushi search (Japan's Central Revue Medicine), which collects summaries of Japanese medical articles, was performed to identify articles from 1964 to 2018 using the keyword "helium". We ultimately found five case reports of patients who became symptomatic by exposure to helium, excluding any diving-related reports (Table 1) [10, 13–16]. Three of these five cases were suicide attempts, and all three reports were published after 2016. This reflects the fact that suicide attempts by helium have recently been increasing in frequency in Japan. The rate of suicidal death using helium suddenly increased from 29 in 2007 to 1056 in 2008 due to the publication on the Internet of information on how to die using helium and mass media reports based on white paper of suicide countermeasures from the Cabinet Office, Government of Japan in 2011 [17]. The National Police Agency & Ministry of Health, Labor and Welfare thus established regulations on the sale of helium and information on helium's use for suicide attempts on the Internet and in the media in 2008 [18]. With the introduction of these efforts, the rate of suicide using helium dramatically decreased [19]. Accordingly, to prevent suicide through the inhalation of helium gas, the commercial availability of helium and information on how to commit suicide using helium on the Internet should be more strictly regulated.

Disclosure statement

No potential conflict of interest was reported by the author.

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CASE REPORT

The dangers of argon, an inert industrial gas: beware of asphyxiation

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Keywords - inert gases, industrial accidents, argon, asphyxiation, resuscitation, hypoxia, hypoxemia.**Abstract**

We describe the case of an industrial welder who died due to hypoxaemic hypoxia as a result of argon inhalation. Extensive resuscitation attempts could not prevent fatal organ damage, probably due to prolonged hypoxaemic hypoxia. Work-related accidents with industrial gases are rare. Nonetheless we feel that it is important to create awareness for this potentially life-threatening danger. Especially the combination of characteristics of the gases (colourless, tasteless and odourless), and the absence of alarming symptoms make it an easy to miss cause of a cardiac arrest. We describe the case in detail and discuss the danger of inert gases, especially argon, and their properties.

Introduction

In the Netherlands, work-related accidents result in approximately 50 deaths every year, mostly caused by trauma.^[1,2] A less common cause is the inappropriate use of industrial gases (e.g. argon, helium, carbon dioxide and nitrogen). These gases have numerous applications, from shielding gas, and fire extinguishing gas to insulation and chemical protection gas.^[3] In recent years, several of these gases have also been used in suicide attempts.^[4,5] So far only four case reports describe human asphyxiation due to argon inhalation.^[6,7] In 1987, unintentional refilling of a hospital oxygen supply with argon was the cause of death in three patients, who developed hypoxaemic cyanosis during routine surgical procedures.^[8] Second, in a nuclear power station reactor two people suffocated due to argon inhalation in 1992.^[9] Third, a welder's helper asphyxiated in 1994 while working with a argon welding installation in pipe during construction of a crude oil pipeline.^[10] And fourth, an engineer died in a small reaction vessel of a bulb factory in 2003 due to exposure to argon.^[12]

In this case report we describe a 48-year-old industrial welder who died of asphyxiation due to argon-induced hypoxaemia while welding.

Case report

A 48-year-old industrial welder, with mild obesity (32.8 kg/m²) but no other medical history, presented to the emergency department after a cardiac arrest. The patient was found unconscious, sitting on the floor just outside a small room near a working station where he had been welding just before. There were no signs of epilepsy (no tongue bite, no urinary incontinence, no signs of vomiting or airway obstruction) let alone a subsequent asphyxia as a cause. The chest X-ray did not show any significant abnormalities, especially no signs of aspiration. We cannot exclude cardiac arrhythmia as the primary reason for the out-of-hospital cardiac arrest; however, the patient had no cardiac history, and the position in which he was found did not suggest collapse without prodromal signs. The patient was last seen at least 10 minutes before he was found and the ambulance was called. In retrospect, co-workers found him acting strangely at that moment. After an initial 10 minutes of basic life support by colleagues, advanced life support was initiated by paramedics. The initial evaluation showed asystole with return of spontaneous circulation (ROSC) after 20 minutes, followed a few minutes later by a period of pulseless electrical activity. Upon arrival in the emergency room the patient (E1 V tube M 1) was resuscitated for another 30 minutes; with periods of pulseless electrical activity, asystole, and a single block of ventricular fibrillation. The total time of resuscitation was approximately 50 minutes. After ROSC, the patient had severe bradycardia at 30 beats/min. Since the aetiology of this cardiac arrest was unknown, we decided to insert an external pacemaker. During CPR, we evaluated all possible causes using the '4Hs and 4Ts'.^[12] Laboratory results ruled out glycaemic and electrolyte disorders using point of care measurements. We found a pH of <6.75 and a lactate of 24 mmol/l. Together with an initial PaCO₂ of 13.8 kPa we concluded there was a combined respiratory and metabolic acidosis during resuscitation. The patient had a normal temperature and was treated for possible hypovolaemia. There were no signs of trauma. The ECG

showed no signs of ischaemia. An echocardiography performed by the cardiologist during a period of bradycardia and after treatment with adrenaline showed normal contractility of the heart without signs of cardiac tamponade or right ventricular failure. There were no signs of hypoxaemia as seen in *table 1*. A cerebral CT scan ruled out intracranial haemorrhage as seen in *figure 1*. However, this scan showed severe diffuse cerebral oedema and did not rule out cerebral herniation. Next, the patient was admitted to the ICU where he was treated with increasingly high doses of norepinephrine and dobutamine (0.8 gamma and 8 gamma respectively) to maintain tissue perfusion. As the patient's condition further deteriorated we decided to withdraw treatment.

The local authorities informed us later that there was a problem with the welding equipment at the place of the incident. For no known reason, the argon flow was set a factor 10 higher than usual while welding in a small and insufficiently ventilated space.

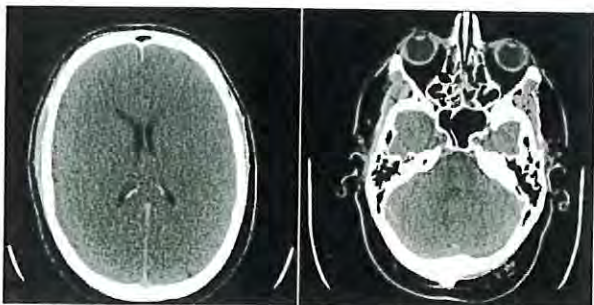


Figure 1. CT scan

A Cross-section at the level of the eyes. No visible sulci. There is no visible differentiation between the white and grey matter

B Cross-section at the level of the lateral ventricles. The ventricles are very small, no focal lesions or visible demarcation of white and grey matter is seen, and there is a complete loss of gyri and sulci pattern. These findings suggest diffuse signs of acute deterioration due to global brain ischaemia or swelling

Table 1. Initial laboratory findings in the emergency room

Unit (normal values)	Initial ER laboratory results	After resuscitation in ER
pH (7.35 - 7.45)	<6.75	6.95
PaCO ₂ , kPa (4.7 - 6.4)	13.8	9.7
PaO ₂ , kPa (10.0 - 13.3)	30.3	24.6
Bicarbonate, mmol/l (22 - 29)	-	16
Base excess, mEq/l (-3.0 - 3.0)	-	-15.3
Sodium, mmol/l (135 - 145)	143	143
Potassium, mmol/l (3.5 - 5)	4.8	5.3
Lactate, mmol/l (<2.2)	24	18
Glucose, mmol/l (3.5 - 7.8)	19.8	15.7
Haemoglobin, mmol/l (8.5-11.0)	8.3	7.2

Post-mortem analysis

The autopsy suggested hypoxaemic hypoxia as the cause of death. Overall there were signs of severe hypoxia in the heart (lactate dehydrogenase reaction, without signs of coronary artery disease), which occurred just a few hours before death, severe pulmonary oedema (probably due to acute heart failure), and severe swelling of the brain (acute hypoxic encephalopathy). By exclusion the pathologist concluded hypoxaemic hypoxia as the cause of death. Although argon possibly could have been detected in the lung, no additional research was performed by the forensic pathologist.^[11]

Discussion

Argon is an inert gas, colourless, tasteless and odourless. In the earth atmosphere, it accounts for 0.934% of the total volume, which makes it the most common inert gas.^[3] Argon is used for numerous industrial applications, such as shielding gas in welding but also as fire extinguishing gas. Argon gas can displace oxygen and other gas molecules due to its higher volumetric mass density and its relative inertia.^[3] Despite its inert properties, argon shows biological reactions under special circumstances. Argon is known for its anaesthetic properties under hyperbaric conditions (>4 ATM).^[14] The exact mechanism of action is unclear and it is assumed that under hyperbaric conditions argon acts as a GABA_A agonist.^[15,16] Under normobaric conditions the medical use of argon is currently the subject of research for its possible neuroprotective properties.^[17]

Bulk-used industrial gas, such argon, could easily lead to situations of hypoxaemic hypoxia.^[11,18] These inert gases do not take an active role in our alveolar gas exchange, but displace the regular air. Due to the abundance of available gas, in this case argon, the partial air pressure rises at the expense of other partial pressures, most importantly the PaO₂. The process of displacement is increased when the density of the gas is higher than regular air, as this decreases the degree of evaporation. Gases with these characteristics are used in numerous industrial applications. For example, nitrogen oxide is often used in industrial refrigerators to obtain inert atmospheres or as propellant, whereas carbon dioxide is used for extinguishing fires, for anaesthesia in slaughterhouses, and as dry ice in commercial, industrial and scientific applications. For commonly used industrial gases and their properties and applications see *table 2*.^[3,19,20]

Table 2. Commonly used industrial gases and their properties and applications

Gas	Density (normal air: 1.293)	Additional dangers	Example of Applications
Nitrogen (N ₂)	1.169	Anaesthetic properties in hyperbaric situations	Coolant Packaging Fire extinguishing Diving Fertiliser
Nitrous oxide	1.53	Anaesthetic	Anaesthetic Oxidiser Propellant
Oxygen	1.429	Corrosive Explosive	Welding Diving Medicine
Helium	0.179		Coolant Diving Shielding gas Aviation
Argon	1.782	Anaesthetic properties in hyperbaric situations	Shielding gas Fire extinguishing Thermal insulation Laboratory gas
Xenon	5.88	Anaesthetic properties	Gas-discharge lamps Anaesthetic
Hydrogen	0.089	Highly explosive	Fuel Coolant
Carbon dioxide	1.98		Dry-ice Fire extinguishing Side product
Carbon monoxide	1.14	Toxic; binding to haemoglobin	Feedstock Side product
Acetylene	1.1	Highly explosive	Feedstock Welding fuel

Symptoms

In the presence of an inert gas in high concentration, oxygen and carbon dioxide (CO₂) will be displaced, creating alveolar hypoxia. Since the pH and P_a[CO₂] are our main respiratory stimuli, the human respiratory system will give minimal if any alarm signals in conditions of low PaO₂.^[21] Even for trained professionals such as pilots, hypoxia is difficult to recognise. Nonetheless, patients do show warning symptoms such as passiveness, fatigue, confusion and finally fainting and bystanders could be alarmed by altered behaviour.^[7,11,18] Even when the oxygen content of the air decreases to just below 21 vol.% tiredness is experienced accompanied by an increased heart rate. Until 11 vol.% movement will be limited and intellectual performance will decrease rapidly.^[11] Lower oxygen content will lead to headaches, dizziness and fainting after some time. In environments where the oxygen concentration has fallen below 6 vol.%, the person would almost immediately faint, after which irreversible damage to vital organs, most significantly the brain, occurs.^[11,18,22] Much research has been performed on the time of useful consciousness in the aviation industry. At an oxygen content of 12 vol.%, it would take 3-5 minutes before a person is no longer able to implement proper corrective or protective measures, due to rapid decrease of the intellectual

level.^[23] The combination of rapid increasing damage and growing inability to react is potentially lethal.

Treatment

Treatment of hypoxia due to inhalation of an inert gas consists of discontinuing the causative agent and support with adequate oxygenation.^[18]

In contrast to carbon monoxide intoxication, where high levels of oxygen are necessary to counteract the haemoglobin binding, inert gases such as argon only reduce the alveolar oxygen fraction, causing hypoxaemic hypoxia. Nonetheless, in both cases a non-rebreathing mask could be adequate, if the patient has spontaneous adequate ventilation; otherwise non-invasive or when unconscious invasive ventilation may be necessary.^[18] In this case the primary hypoxaemia led to severe tissue-hypoxia resulting in cardiac arrest. The combination of hypoxia, the delay in adequate oxygen administration and the extended duration of CPR caused irreversible damage to the organs, in particular the brain.

Post mortem analysis

Proving argon-related asphyxiation may be difficult, due to the inert properties of argon and its natural presence in the atmosphere and the human body. Argon wash out from the tissue can be augmented by the length of oxygen administration and resuscitation. Nonetheless Auwärter described a technique which enables us to prove excessive argon inhalation. Gas chromatography can detect elevated tissue concentrations of argon in the respiratory and circulatory tract, stomach, liver and lung.^[11]

Conclusion

Work-related accidents or suicide attempts with industrial gases are rare. Nonetheless, the combination of the characteristics of inert gases (colourless, tasteless and odourless), and the absence of alarming symptoms, is potentially lethal. When using the 4 Hs and 4 Ts any physician working in the emergency room or ICU should think of hypoxia as a cause, also when the arterial blood gas analysis shows normal or high PaO₂ (in the presence of oxygen therapy). If asphyxia due to inert gases is suspected, high flow oxygen therapy is required. In case of an unconscious patient, the airway should be secured. Preventive measures are key to prevent subsequent incidents. Reliable and portable oxygen meters are available and would possibly have prevented this tragic accident.

Disclosures

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Death by self-inflicted asphyxia with helium – First case reports from Norway and review of the literature

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ABSTRACT

An increasing number of asphyxia suicides by inhalation of inert gases have been reported from different parts of the world over the last decade. So far this phenomenon has not been described in our country. This article presents the first two case reports from Norway of presumed suicide by asphyxiation due to helium inhalation from a closed plastic bag over the head. In both cases a forensic autopsy, which included comprehensive toxicological analysis, was requested and performed. In the two cases death was attributed to asphyxia due to helium inhalation, and suffocation due to a plastic bag over the head and aspiration of gastric contents, respectively. Toxicological analysis revealed no findings contributing to the deaths. The absence of toxicological and autopsy findings to determine the cause of death in such cases may represent challenges of clinical and forensic significance. In contrast to the promotion of this method by euthanasia interest groups for the terminally ill reported suicides by helium asphyxiation primarily involve relatively young individuals suffering from psychiatric and/or substance use disorders, and not from terminal illness.

Keywords:

Suicide, asphyxia, helium, gas, toxicology

INTRODUCTION

Over the last decade an increasing number of asphyxia suicides by inhalation of inert gases have been reported from different parts of the Western world. Case reports of suicides by this method have been published from the United States, Australia and Europe [1-5]. A few cases from Sweden and Denmark have been described, but not from the other Nordic countries, including Norway [1,2]. Interest groups advocating euthanasia, e.g. so-called "right-to-die"-organizations, have promoted this method on the internet and in books, magazines and films as a way of "self-deliverance" for the terminally ill. Arguably the most widespread source is *Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying*, a controversial book giving practical guidance and detailed instructions on how to plan and commit suicide, including the use of inert gases in a plastic bag over the head [6].

Inhalation of pure helium gas under atmospheric pressure may cause asphyxia through the displacement of O₂ and CO₂. Because of effective removal of CO₂, respiratory drive is inhibited. Continued inhalation of helium is reported to induce loss of consciousness within 5-10 s and hypoxic death within few minutes [7-9].

In this article the first two case reports from Norway of presumed suicide by asphyxiation due to helium inhalation from a closed plastic bag over the head are presented, and aspects of clinical and forensic relevance are discussed. The article provides a brief overview of the current literature on self-inflicted asphyxia with helium.

The deaths took place in Central Norway in the period 2009-2011.

Case reports

Case 1. A 43 year old male was found dead in his apartment with two gas cylinders labeled helium next to him. Two plastic tubes were connected to the gas cylinders and placed under a plastic bag over his head. The plastic bag was fastened with tape and a cord around the neck. No suicide note was found. The police were at the scene when the deceased was found. A forensic autopsy was requested and performed, which showed decompositional changes, but no injuries or diseases that could explain the death. Toxicological analysis showed ethanol and tetrahydrocannabinolic acid in urine, but no positive findings in blood. It was not excluded that the detected level of ethanol in urine was a result of post-mortem microbial formation. No certain cause of death could be established. Based on the external circumstances death was attributed to asphyxia due to helium inhalation and the presumed manner of death was suicide.

Case 2. A 31 year old male was found dead by his wife in their home with a plastic bag over his head and two helium cylinders next to him. The cylinders were connected to the plastic bag with tubes. The plastic bag had an integrated, adjustable cord in the opening. Paramedics, who were first at the scene, reportedly found the gas cylinder valves open. A suicide note was found on a table in the living room. The police was notified about the death and investigated the scene. A forensic autopsy was requested and performed, showing bilateral eyelid petechiae and large amounts of gastric content in the esophagus, pharynx and large and small airways. No injuries or diseases were found. Toxicological analysis showed non-toxic/therapeutic concentrations of lamotrigine (2.6 mg/L), citalopram (0.17 mg/L) and

diazepam (0.017 mg/L). The medical examiner's conclusion as to the cause of death was suffocation due to a plastic bag over the head and aspiration of gastric contents. Based on autopsy findings and outer circumstances the death was presumed to be a suicide.

DISCUSSION

The reported cases illustrate the absence of specific findings at autopsy and routine toxicological analysis in deaths assumed to be caused by asphyxiation with an inert gas. The detection of helium in specimens from the deceased in such cases may be of value to tentatively distinguish between helium exposure, exposure to a merely oxygen-deficient atmosphere and external obstruction as the mechanism of death, but there are, to the author's knowledge, no established procedures for quantitative measurement and interpretation of helium levels in body fluids or tissues. Several methods for helium detection in bronchopulmonary air samples have been published, using headspace gas chromatography-mass spectrometry with nitrogen or hydrogen as carrier gas [10-12]. These methods, however, require special techniques and equipment at autopsy and laboratory analyses, and have not been refined and validated for routine application. A recently published gas chromatography-thermal conductivity detection method for helium in post-mortem blood and lung, brain and liver tissue specimens provides a simpler sampling procedure, but the authors emphasize that the method is solely for screening purposes, and that it was not possible to establish an incontrovertible identification of helium [13]. Accordingly, the cause of death in such cases generally has to be assessed from investigations of the circumstances and scene of death. This raises the question whether this death method may be used to conceal murder, e.g. by removing necessary equipment after death or leave behind a scene seemingly implying suicide. As interest groups for euthanasia refer to this method for assisted suicide for the terminally ill, and even provide practical advice of how to cover such acts, concern has been raised about the event and possible neglect of concealed suicides as well, in which the deceased has been aided by one or more persons in the practical procedures and subsequent disposal of applied implements [5,14,15]. If death in such cases is attributed to the underlying disease, this may have practical implications with regard to insurance settlements, cause of death statistics etc., as well as a more socio-religious aspect by the possible omission of stigmata often associated with suicides.

In Switzerland assisted suicide is permitted by law, providing that it is performed "without selfish motives", and that the individual who wishes to die carries out the final act (e.g. drug administration, mask application, helium inhalation, etc.) independently [9]. Following these terms and conditions Swiss law allows anyone to assist in suicide. In practice, "right-to-die"-organizations have led this activity with routine reporting of these deaths to the authorities [9]. One of these organizations has evaluated helium asphyxiation as an alternative to drug-induced euthanasia (usually performed with barbiturates), seeking to establish a method for assisted suicide not requiring the presence and assistance of medical personnel. This has facilitated studies of the course of such deaths. An examination of video recordings of four assisted suicides by oxygen deprivation with helium and a face mask with reservoir bag has been published [9]. In this study the authors reported wide variation in both time to unconsciousness and time to death. Time to unconsciousness ranged from 36 to 55 seconds, whereas time to

death was 5-10 minutes in three of the cases and more than 40 minutes in one. These variations were attributed to differences in mask fit. No attempts to adjust the masks were made by the assistants once it had been positioned, since this would likely be in conflict with the law, which prohibited assistance in the final act. Seemingly uncoordinated movements were observed, but none of the dying individuals touched the mask or attempted self-rescue. In a different study two cases of self-asphyxiation with helium and a plastic bag over the head instead of a mask were observed and described [8]. In this study the reported time to unconsciousness was 10-12 seconds. In our case 2 autopsy revealed bilateral eyelid petechiae and large amounts of gastric content in the airways. These findings challenge the assumption that death by this method is painless and without air hunger, as asserted in Final Exit.

Our two cases were both relatively young, white men with no documented diseases. In particular, they did not fulfill any criteria for terminal illness. Toxicological analysis revealed psychoactive substances in blood in one case, and an inactive cannabis metabolite in urine in the second case; both common findings without any particular negative prognostic significance. This conflicts with the promotion of this method by euthanasia interest groups for terminally ill patients, and is in concordance with most previously published cases. In a systematic investigation of asphyxia suicides involving helium from North Carolina a majority of the decedents were not terminally ill, but suffered from psychiatric and/or substance use disorders [16]. The suicides involving helium in this material also tended to occur almost exclusively in relatively young white males [16].

The link between the description of this suicide method in Final Exit and the sudden increase in reported cases has also been investigated. In 2003 seven fatalities involving plastic bag suffocation in conjunction with helium use was reported from Arizona [4]. These fatalities coincided with the first account of the method in Final Exit. Such deaths had not been previously observed in this region, and although right-to-die literature was absent from all scenes the authors concluded that the deaths likely reflected exposure to this information. A retrospective review of helium-related suicides in Australia over a 25-year period from 1985 to 2009 and Swedish data obtained between 2001 and 2009 showed recent and striking increases of such cases in all investigated areas, with no identified cases before 2000 [1]. In light of the availability of helium and the promotion of this method of suicide, the authors stated that this might represent a newly emerging trend in suicide deaths. An earlier study from New York City found a substantial increase in the number of asphyxiations by plastic bag (without inert gas) in the year after the first publication of Final Exit, but insignificant changes in the number of suicides by other methods and the overall suicide rate [17]. Final Exit was found at the scene of 9 of the 33 suicides by asphyxiation in this material. Very few of those who had probably consulted the book had a history of terminal disease or evidence of this at autopsy, and at least one third of all suicide cases where Final Exit probably was consulted had a psychiatric history that included a previous suicide attempt, hospitalization or treatment. This further corroborates the apprehension that the promotion of this method by "right-to-die"-societies impinges deeply troubled or mentally ill persons, who may otherwise have benefited from therapy, rather than the terminally ill. Interestingly, an investigation of the prevalence and correlates of helium inhalation in adolescents under residential treatment for delinquent behavior in Missouri showed that helium users were significantly more likely to be Caucasian, live in rural/small town areas, and to have histories of mental illness, auditory hallucinations, and alcohol and

marijuana use than nonusers [18]. Helium users in this material also reported significantly more current psychiatric distress, suicidality, traumatic life experiences, and antisocial attitudes, traits and behaviors than nonusers. How this relates to suicidal asphyxiation with helium, however, is not known.

Herein, we have presented the first two case reports from Norway of presumed suicide by asphyxiation due to helium inhalation from a closed plastic bag over the head. These cases add to an increasing number of asphyxia suicides by inhalation of inert gases reported from different parts of the world over the last decade. Considering the striking rise in reported cases, recognition of this phenomenon and its potential pitfalls for clinical and forensic practice is of importance, particularly for medical

examiners, toxicologists and crime scene investigators. In contrast to the promotion of this method by euthanasia interest groups for the terminally ill reported suicides by helium asphyxiation primarily involve relatively young individuals suffering from psychiatric and/or substance use disorders, and not from terminal illness.

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Deaths involving air-line respirators connected to inert gas sources

Hudnall, J B; Suruda, A; Campbell, D L

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ABSTRACT

During 1984-1988, the US Occupational Health and Safety Administration (OSHA) investigated 10 incidents, with 11 fatalities, involving the inadvertent connection of air-line respirators to inert gas supplies. Seven deaths resulted from connecting an air-line respirator supply hose to a line that normally carried inert gas. Four deaths were caused by leakage or backfill of inert gas into a line that normally carried breathable air. Ten of the deaths were from nitrogen and one from argon. The circumstances of the 11 deaths indicated that coupling compatibility and supervisory oversight were major factors in the inappropriate supply of irrespirable gas to the respirators worn by these workers. Conscientiousness among safety personnel to the hazards of asphyxiation by inert gas, and compliance with current OSHA regulations, the ANSI Z88.2 standard, and NIOSH respirator certification approval regulations would have prevented these fatalities.

FULL TEXT

In 1989, the U.S. Department of Energy reported a near-fatal incident in which a worker's respirator air line was connected to nitrogen instead of the plant air supply.(1) In this incident, the plant couplings for nitrogen and for breathable air were identical, and the area had recently been repainted white, including all previously color-coded piping. In Britain, Bond reported 14 fatalities over an unspecified period of time from asphyxiation by nitrogen.(2) One of these fatalities was due to connecting a respirator air-line hose to a nitrogen supply line instead of a breathing air supply. Suruda and Agnew examined U.S. Occupational Safety and Health Administration (OSHA) fatality reports of work-related asphyxiations and found five deaths in the three-year period 1984 through 1986 due to the inadvertent supply of inert gas to air-line respirators.(3) The present study examines these five deaths, and additional deaths investigated by OSHA in 1987 and 1988, to analyze the circumstances of asphyxiation involving air-line respirators.

BACKGROUND

A supplied-air respirator, whether configured with hood, helmet, coverall or facepiece, must have a hose with terminal detachable couplings. Air supply to these respirators is required to be Grade D breathable air or higher quality.(4,5) These types of respirators are typically used in sandblasting, painting, cleaning and some manufacturing processes. It is estimated that in 1980 approximately 513,000 supplied-air respirators were in use.(6) Inert gases such as argon, helium and nitrogen are widely used in industrial settings. They are used as fire suppression blankets for flammable work in confined spaces, to operate pneumatic equipment and to prevent oxidation in industrial processes.(7) Nitrogen, although not strictly inert, in the absence of oxygen will cause asphyxiation and is included in this discussion.

When a respirator's air line is connected to a source of inert gas rather than to breathable air, the victim, trusting his sense of breathlessness to determine that he is not connected to breathing air, has little warning before losing consciousness. Except in persons with severe lung disease, the sensation of breathlessness is driven primarily by the carbon dioxide level in arterial blood rather than by the level of oxygen. When air in the lungs is replaced by an inert gas, carbon dioxide is still being removed from the blood and exhaled so there is little sensation of

"breathlessness." The victim is fooled because there are no clear indications that something is amiss, and blackout occurs quickly, without warning.(7,8) Intentions by the victim to self rescue may be limited by the irrationality of hypoxia.

METHODS

Data sources which allow examination of work-related deaths include death certificates, workers' compensation reports, medical examiner records, and regulatory agency investigation records, such as those of OSHA. OSHA reports contain more detail than other sources.(9) To determine the circumstances of deaths related to supply of inert gas to respirators, a printout of all fatality investigations conducted by OSHA from 1984 through 1988 was reviewed. For the five years, all reports of asphyxiation involving gases were reviewed for mention of air-line respirators.

RESULTS

During the five-year period, 11 occupational fatalities associated with respirators connected to inert gas sources were identified. Ten of the workers were male and one was female with a mean age of 32 and standard deviation of 9 years. There were five deaths in the construction industry and six in manufacturing. Of the 11 fatalities, eight were painters/sandblasters. Summaries of the case histories from the OSHA investigation records are presented below.

CASE 1

A 30-year-old painter was assigned the task of painting the inside of a potable water tank located on shipboard. The painter removed some water from the tank, then connected an air hose to an air manifold aboard the vessel. He then connected the other end of the hose to a board that had outlets for his spray guns. Another outlet on this same board had an air filter to which he connected his full-face respirator. The painter was found dead between 90 and 150 minutes later. Investigation showed that the air manifold had been attached to an argon gas outlet on the pier and that the argon gas outlet had been fitted with a breathing-air-type fitting.

CASE 2

A 22-year-old steel foundry employee worked on a platform as a pourer. An unmarked plant air line was brought to the platform by a co-worker to provide air for the worker's respirator. He donned the respirator and connected to the plant line which contained nitrogen rather than compressed air. The worker was asphyxiated.

CASE 3

A 34-year-old employee was assigned to perform an operation in a blender room of a manufacturing facility. The victim was wearing a respirator-hooded coverall. An air hose was tapped into the respirator and the other end was connected to a nitrogen gas line with a quick-disconnect fitting. The quick-disconnect fittings in the blender room were the same size and type for nitrogen gas lines as they were for compressed air lines. In addition, the nitrogen and compressed air gas lines were of the same color and of similar labeling except the identifying name. The county coroner determined the cause of death to be nitrogen inhalation.

CASE 4

A 31-year-old contract painter was asphyxiated as he prepared to spray paint overhead pipe racks from a mobile platform at a chemical plant. He donned a supplied-air respirator and connected the air line to an outlet at the chemical plant labeled "tool air--do not breathe." The employee had been instructed not to use any of the plant's air lines for breathing air. The line the painter connected to had been mislabeled and actually contained nitrogen.

CASE 5

A contractor crew was assigned to sandblast inside a reactor vessel at a petrochemical refinery . Although verbal company policy called for contractors to supply all breathing air, this crew, with supervisor's knowledge, had on several occasions used plant air to supply breathing air. A 56-year-old crew member mistakenly hooked up his air-line respirator to an unlabeled nitrogen line (only the shut-off valve was labeled) used by the refinery for purging confined spaces. Plant nitrogen and air lines were identical and both had couplings compatible with the coupler on the respirator.

CASE 6

A 33-year-old sandblaster at an air separation plant could not obtain breathing air from an installed line. He adapted

unapproved hoses with quick-disconnect couplers so he could connect an abrasive-blasting respirator to a gas line supplying the blasting pot. This piping was not color-coded nor labeled in accordance with company policy. The employee died because he did not know he was connecting to a nitrogen line instead of to compressed air. Nitrogen is a separation by-product at this plant and is piped to operate pneumatic equipment.

CASE 7

A 39-year-old sandblaster wearing a suitable sandblasting respirator died when he connected his respirator to a compressed air line which contained nitrogen. An interim maintenance routine called for alternately piping nitrogen and breathing air through the same distribution lines to operate pneumatic machinery and sandblasting equipment. The compressed air was used during the day shift and nitrogen during the night shift. Investigation showed that the victim knew of the interim gas distribution plan and was aware that the gas had not been switched when he reported to his sandblasting task site before his shift started. The victim was by himself for approximately 15 minutes when co-workers found him unconscious and wearing the blasting respirator connected to the gas distribution line which contained nitrogen gas.

CASE 8

Two employees, aged 30 and 25, were sandblasting in a pit under a weighing scale at a chemical plant. The workers were employed by a painting contractor. Their blasting equipment was connected to a diesel-powered mobile air compressor and their respirators were connected to a compressed air line in a building at the chemical plant. The plant lost electrical power to its air compressors the day of the incident and the compressed air lines of the building were backfilled with pressurized nitrogen. The workers were asphyxiated by nitrogen supplied to their respirators.

CASE 9

A 27-year-old contract employee was sandblasting and painting gratings and railings. The air line from the abrasive-blasting respirator was hooked into the plant air supply. The plant air supply was not Grade D breathing air and was to be used only for valve gauges and pneumatic tools. The air compressor was shut down for maintenance so nitrogen was backfed into the plant air lines. No one from the company informed the contract employee that the lines now contained nitrogen. When the sand blaster donned the abrasive-blasting respirator he inhaled the nitrogen and was asphyxiated.

CASE 10

A 25-year-old employee at a manufacturing facility entered and cleaned bell jars while wearing an air-line respirator. Management anticipated a need for nitrogen gas in the area so a bypass to feed nitrogen into air line piping was completed. The employee entered a bell jar and connected the respirator to the air supply. Nitrogen gas was fed to the respirator; death occurred from nitrogen inhalation.

DISCUSSION

Victims wearing respirators connected to inert gas lines are in a 0% oxygen atmosphere and unconsciousness can occur in about 12 seconds.(8) The situation continues to be critical because after colliapse victims are still wearing respirators and continue to breathe inert gas.

The circumstances of the 11 deaths indicate that coupling compatibility with irrespirable gas and supervisory oversight were major factors in the inappropriate supply of air to the res-pirators worn by these workers. OSHA regulations (29 CFR 1910. 134, d, 3) and the ANSI Z88.2-1980 standard, "Practices for Respiratory Protection," specify that respirator air-line couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of air-line respirators with nonrespirable gases or oxygen.(10,11) If coupling regulations had been followed, 7 of these 11 fatalities would not have occurred. The NIOSH approval label found on all supplied-air respirators specifies that approval is valid only when supplied with Grade D breathing air or equivalent. (12) The remaining four fatalities would have been prevented if the integrity of the breathing air system had been maintained and Grade D air provided as required by the general provisions of OSHA regulations, the ANSI Z88.2 standard, and NIOSH respirator certification approval regulations.

Those individuals responsible for the use of air-line respirators are urged to review their respiratory protection programs to ensure that the couplings of the respirator air lines are incompatible with any other fitting used at the

worksite. It must be the nonrespirator connections that are changed to ensure this. The fittings on an air-line respirator are tested and approved by NIOSH as part of the unit. A user cannot make an unapproved change to the respirator. Additionally, safety personnel should witness that under no circumstances can anything other than Grade D air enter the breathing air system. Persons who maintain or design pneumatic tool systems should be aware of the hazard of tool gas that may be tapped for breathing air or interconnected with breathing air gas lines. There should be a concerted engineering effort to design and maintain separate gas distribution systems for breathable air, for pneumatic tools, fire suppression, and other work-related needs so that improper gas interconnections cannot be made.

The actual number of fatal cases in the 5-year period could be more than the 11 reported here, since OSHA does not investigate all work-related deaths. (13, The safety and industrial hygiene community needs to conscientiously reduce the potential for asphyxiation by inert gas and use their influence to ensure that supervisors and workers connect air-line respirators only to safe breathing air supplies.

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DETAILS

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 Occupational Safety and Health Administration
 Directorate of Science, Technology & Medicine
 Office of Science and Technology Assessment



Deaths Involving the Inadvertent Connection of Air-line
 Respirators to Inert Gas Supplies

Safety and Health Information Bulletin

SHIB 04-27-2004

Introduction

The National Institute for Occupational Safety and Health (NIOSH) and the Bureau of Labor Statistics (BLS) have recently completed a national survey of respirator use in the private sector.¹ The results of that survey are currently being analyzed and prepared for publication. However, one finding suggests that many employers may not be exercising the proper care necessary to prevent a type of fatal accident that can result from improper use of air-line respirators. This Safety and Health Information Bulletin is to alert the reader to fatalities that have occurred due to the inadvertent connection of air-line respirators to inert gas supplies.

Background

Based on information obtained from Occupational Safety and Health Administration (OSHA) investigation reports from 1984 through 1995 and more recently from the BLS, OSHA determined that most worker fatalities involved regulatory and procedural violations and could have been prevented by proper training and compliance with existing regulations.^{1,2,3} A number of the deaths indicated that coupling compatibility problems and lax supervisory oversight were major factors in the inappropriate supply of non-respirable gas to the respirators worn by these workers.

This Safety and Health Information Bulletin is **not** a standard or regulation, and it creates no new legal obligations. The Bulletin is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with hazard-specific safety and health standards. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement any recommendations in this Safety and Health Information Bulletin is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause.

OSHA regulation (29 CFR 1910.134(i)(8)) and the American National Standards Institute (ANSI) standard Z88.2, "Practices for Respiratory Protection," specify that respirator air-line couplings must be **incompatible** with outlets for other gas systems to prevent inadvertent servicing of air-line respirators with non-respirable gases or oxygen.

If an inert gas (e.g., helium, argon, nitrogen) is inadvertently supplied to an air-line respirator rather than breathable air, the results can be fatal. Inert gases such as helium, argon, and nitrogen are widely used in industrial settings as fire suppression blankets for flammable work in confined spaces, to operate pneumatic equipment, and to prevent oxidation in industrial processes.

Air-line respirators are typically used in painting, cleaning, some manufacturing operations, and abrasive blasting. An air-line respirator, whether configured with a hood, helmet, coverall, or facepiece, must have a hose with terminal detachable couplings. When a respirator's air line is connected to a source of inert gas rather than to breathable air, the respirator wearer who trusts his/her sense of breathlessness to determine whether he/she is connected to breathing air has little warning before losing consciousness.

This is because the buildup of carbon dioxide, not a lack of oxygen, ordinarily causes the sensation of breathlessness that may alert the individual wearing the respirator. Consequently, the victim is fooled because there is no clear indication that anything is amiss. Blackout occurs quickly, without warning.

Victims wearing respirators connected to inert gas lines are in a zero percent oxygen atmosphere, and unconsciousness can occur in about 12 seconds² and death in a matter of minutes. The situation continues to be critical because victims are still wearing respirators and continue to breathe inert gas after they collapse.

Case Histories

Some case histories that appeared in the referenced articles are presented below:

Case #1

An employee was using an air hammer to chip residue out of a furnace at an aluminum foundry. He was wearing an air-line respirator. Two

compressed gas lines with universal access couplings were attached to a nearby post. The one on the right was labeled "natural gas." The gas line on the left had a paper tag attached with the word "air" handwritten on it; however, this line actually contained pure nitrogen. A splitter diverted one part of the gas stream to the air hammer and the other part of the stream to the air-line respirator. The employee was asphyxiated and killed when exposed to pure nitrogen.

Case #2

A contractor crew was assigned to abrasively blast inside a reactor vessel at a petrochemical refinery. Although verbal company policy called for contractors to supply all breathing air, this crew, with supervisor's knowledge, had on several occasions used plant air to supply breathing air. A crew member mistakenly hooked up his air-line respirator to an unlabeled nitrogen line (only the shut-off valve was labeled) used by the refinery for purging confined spaces. Plant nitrogen and air lines were identical, and both had couplings compatible with the coupler on the respirator.

Case #3

An employee hooked the fresh air line of his supplied-air respirator into a plant's compressed air lines and began abrasive blasting. The plant operators, unaware that their plant air was being used as breathing air, shut down the fresh air compressor for routine, scheduled maintenance and pumped nitrogen into the system to maintain pressure and control the valves in the refinery. The employee was overcome by the nitrogen in the air lines and died of nitrogen asphyxia.

Case #4

An abrasive blaster at an air separation plant could not obtain breathing air from an installed line. He adapted unapproved hoses with quick-disconnect couplers so he could connect an abrasive-blasting

respirator to a gas line supplying the blasting pot. This piping was not color coded nor labeled in accordance with company policy. The employee died because he did not know he was connecting to a nitrogen line instead of to compressed air. Nitrogen was a separation by-product at this plant and was piped to operate pneumatic equipment.

Case #5

A contract employee was abrasive blasting and painting gratings and railings. The air-line from the abrasive blasting respirator was hooked into the plant air supply. The plant air supply was not Grade D breathing air and was to be used only for valve gauges and pneumatic tools. The air compressor was shut down for maintenance, so nitrogen was backfed into the plant air lines. No one from the company informed the contract employee that the lines now contained nitrogen. When the abrasive blaster donned the abrasive-blasting respirator, he inhaled the nitrogen and was asphyxiated.

Discussion

Individuals responsible for the use of air-line respirators are urged to review their respiratory protection programs to ensure that the couplings of the respirator air lines are incompatible with any other fittings used at the worksite. To ensure this

requirement is met, the non-respirator connections must be changed. (The fittings of an air-line respirator are tested and approved by NIOSH as part of the unit. A user cannot make an unapproved change to the respirator.)

Plant safety and health personnel should ensure (determine) that nothing other than Grade D air can enter the breathing air system. The NIOSH approval label found on all air-line respirators specifies that approval is valid only when supplied with Grade D breathing air or equivalent. This is also required by the OSHA respiratory standard and the ANSI Z88.2 standard.

There must be a concerted engineering effort to design and maintain separate gas distribution systems for breathable air, and for pneumatic tools, fire suppression, and other work-related needs, so that improper gas interconnections cannot be made. Implementing color coding and labeling for all gas lines is a good safety practice that should be followed to ensure that mix-ups do not occur.

Quick Connectors

The diagram in Figure 1 shows the proper method of coupling sections of air supply hose using locking quick disconnects, which are easily connected by pushing the plug and socket together. To separate, the plug and socket must be pushed

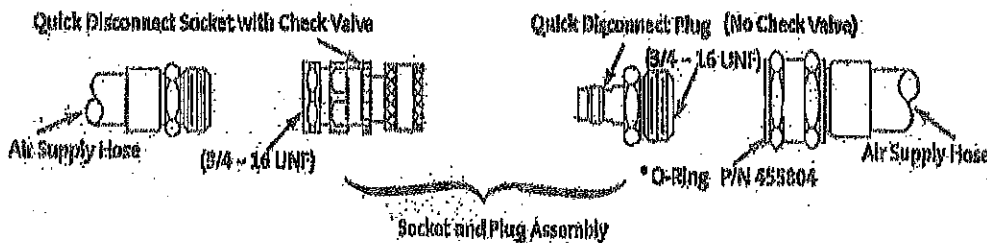


Figure 1. Quick Connector Diagram

Quick connectors allow the supply hoses to be connected to specific gas connection points. Insertion into an incorrect outlet is prevented by the use of different shapes for mating portions, different spacing of mating portions, or some combination of these.

together and the sleeve on the socket retracted from the plug.

Conclusion

To help ensure that workers do not inadvertently hook up to inert gas supplies, the following recommendations should be implemented:

- Ensure that all requirements related to respiratory protection as outlined in 29 CFR 1910.134 are met. Written standard operating procedures governing the selection and use of respirators must be developed and implemented. Requirements for training and instruction in the proper use of respirators and their limitations must be met at all facilities.
- Ensure (determine) that the couplings of the respirator air lines are incompatible with any other couplings/fittings for non-respirable air or gas delivery systems. Replace couplings on non-breathing air systems with another, incompatible type of coupling.
- Ensure that breathable air systems are not in any way interconnected to non-breathable air systems.
- Develop a maintenance procedure to address supply-line identification (labeling) and painting. Stress the purpose of color coding and the importance of completing detail painting in a timely fashion to ensure that this visual cue is always available to aid workers.

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THE EFFECT OF BRIEF PROFOUND HYPOXIA UPON THE ARTERIAL AND VENOUS OXYGEN TENSIONS IN MAN

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The partial pressure of oxygen in the alveolar gas may be reduced either by decreasing the total pressure of the environment or by replacing the oxygen normally present in the inspired air by an inert gas. The severe anoxia induced by rapid decompression from 565 to 155 mm Hg absolute, whilst breathing air, may be terminated by the delivery of 100 % oxygen to the respiratory tract. The effects of such brief profound anoxia upon the alveolar and arterial gas tensions and upon the central nervous system have been studied extensively (Ernsting & McHardy, 1963; Ernsting, Gedye & McHardy, 1960; Ernsting, 1962). The effect of the resultant severe but short-lived arterial hypoxaemia upon the supply of oxygen to various organs of the body is of considerable interest. The oxygen content of the venous blood flowing from a region reflects the balance between the supply of oxygen to it and its metabolic oxygen consumption. Continuous measurements of the oxygen content of the venous blood flowing from several regions have been made in subjects exposed to brief but profound hypoxia. In the experiments described in this paper a short period of over-ventilation, nitrogen being used as the inspired gas, was employed in place of rapid decompression to induce hypoxia. This method allowed more extensive observations to be made than were considered practical in a decompression chamber.

METHODS

Induction of hypoxia. Three healthy men, aged from 33 to 38 years, were used. The subject lay on a couch and breathed through a valve box, to the inlet of which two taps were connected in series. The side arm of the tap next to the box was open to the atmosphere. One arm of the second tap was connected to a demand valve which was supplied with nitrogen, whilst the other arm was connected to a second demand valve supplied with oxygen. Before the experiment was started the hoses between the two demand regulators and the second tap were purged with the gas delivered by the corresponding regulator. The dead space between the two taps was purged with nitrogen to ensure that 100 % nitrogen was delivered directly the first tap was operated. During each rest period the first tap was positioned so that the subject breathed air. Nitrogen was administered by instructing the subject to expire maximally at the end of a normal expiration, and at this instant the first tap was turned so that the subject breathed from the demand valve which supplied nitrogen.

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During the period of breathing nitrogen the subject was instructed to breathe as deeply as possible at a rate of about 20 breaths per minute. After 7–20 sec over-ventilation with nitrogen the first tap was returned to its original position so that air was breathed again. At the same time the subject was told to cease over-breathing.

Respired gas tensions. The partial pressures of oxygen and carbon dioxide in the gas passing the subject's lips were recorded continuously in all the experiments by means of a respiratory mass spectrometer (Fowler & Hugh-Jones, 1957). Preliminary studies showed that the output of the instrument was linearly related to the partial pressure of each of these gases. The delay between a sudden change of partial pressure of either at the sampling tip and the beginning of the response of the recording pen motor was 0.2 sec and 90% of the total response occurred in a further 0.1 sec. Calibrations employing gas mixtures of known composition were performed at intervals throughout each experiment. Over a 30 min period no significant change occurred in the sensitivity of the instrument. The pulmonary ventilation was recorded in some of the experiments by collecting the expired gas in a recording Tissot spirometer.

Blood sampling. In separate experiments blood was sampled continuously from various sites in the cardiovascular system. Blood was obtained from the brachial artery and the femoral vein through a Courmand needle introduced into the vessel after local analgesia had been produced with 2% lignocaine. A catheter was introduced into the right side of the heart through a large-bore needle which had been inserted into a vein in the antecubital fossa. The position of the catheter was determined during its introduction by recording the pressure at the tip by means of a strain-gauge pressure transducer. The catheter was advanced until its tip lay in the pulmonary artery. Blood flowing through the internal jugular vein was sampled by means of a radio-opaque catheter which was introduced into a vein which had been exposed through an incision in the right antecubital fossa. This catheter was advanced under direct fluoroscopic control with the subject's head held against his left shoulder. The catheter entered the right internal jugular vein and was placed so that its end lay above the level of the tip of the right mastoid process. When in place, the patency of the Courmand needle or the intravascular catheter was maintained when sampling was not in progress by a flow of sterile physiological saline (NaCl 0.9 g/100 ml.), approximately 2 ml./min containing heparin (200 i.u./100 ml.).

Recording of blood oxygen saturation and pH. The blood from the intravascular needle or catheter flowed through a tubular cuvette oximeter (Fig. 1) and was then diluted 1:10 with neutral physiological saline to which heparin had been added (Sherwood-Jones, Robinson & Cooke, 1960). The diluted suspension of blood was then passed through a microflow-glass-electrode-calomel-reference-electrode system. The saline reservoir and microflow-electrode system were immersed in a water-bath which was maintained at 38° C. The flow of blood and the desired dilution of the blood with saline were produced by means of a two-cylinder pump with a single piston, the velocity of which could be varied. The pump was constructed so that the cross-sectional area of one cylinder, which was charged with saline, was 10/11 of that of the other cylinder into which the mixture of saline and blood was drawn after it had passed through the glass-electrode system. In all the experiments a blood sampling rate of 20 ml./min was used.

The outputs of the oximeter amplifier and of the pH meter were fed on to two of the pen motors of a recorder. Preliminary experiments showed that the output of the oximeter amplifier was linearly related to the oxygen saturation of the blood flowing through the cuvette. At the beginning and end of each period of recording the output of the oximeter was calibrated by drawing a fully saturated sample of blood and a second sample of a known degree of unsaturation through the cuvette. A linear relation was also found between the pH of the blood and the output of the pH meter. The output of the latter was calibrated at intervals by using two phosphate buffers (pH 6.84 and 7.60). The time course of the response of the entire measuring system to a sudden change in the oxygen saturation and pH of the blood entering the sampling system was determined at the end of each experiment.

When sampling was required the drip of heparinized saline was turned off and the speed of the sampling pump was increased until blood was withdrawn at 20 ml./min. Sampling was continued for 1 min before the subject breathed nitrogen and was maintained until all the disturbances produced by the procedure had subsided.

Electroencephalogram (e.e.g.) and electrocardiogram (e.c.g.) recording. In many of the experiments the e.e.g. was recorded. Two pairs of saline pad electrodes were placed on the scalp over the frontal and occipital regions of the left side of the head. The potential changes from each pair of electrodes were amplified and recorded at a high paper speed. In addition, lead II of the e.c.g. was recorded.

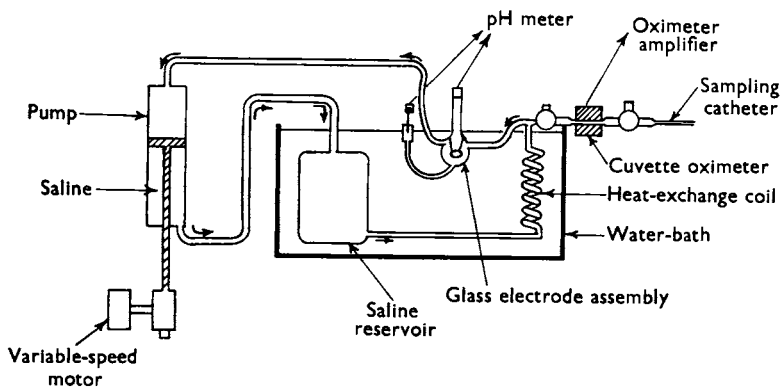


Fig. 1. Apparatus for the continuous measurement of the oxygen saturation and pH of blood. Blood is drawn into the apparatus through a catheter and then it passes through the cuvette oximeter. Saline at 38° C driven by the pump in the direction indicated by the arrows mixes with the blood and the diluted blood flows through the pH electrode assembly back to the pump.

Arterial pressure and calf blood flow. The arterial blood pressure was recorded through a Riley needle by means of an unbonded strain-gauge pressure transducer which was filled with physiological saline containing heparin. The needle was connected to the transducer by means of a 3 cm length of polyethylene tubing with an internal diameter of 1 mm. Preliminary measurements demonstrated that the complete recording system faithfully reproduced the magnitude and phase of sinusoidal pressure fluctuations at frequencies of up to 20 c/s. The Riley needle was inserted into the brachial artery and the transducer was placed on the same horizontal plane as the tip of the needle. The output of the amplifier connected to the transducer, which was fed to one channel of the recorder, was calibrated by means of a mercury manometer before and after each series of measurements. Blood flow through the calf was measured by means of venous occlusion plethysmography, with a mercury-in-rubber strain gauge (Whitney, 1958) to measure changes in the circumference of the calf. The lower limb was supported so that the lower border of the calf was just above the horizontal level of the sternal angle. The circulation to the foot was occluded by means of a cuff placed around the ankle, which was inflated to 250 mm Hg 1 min before the calf blood-flow measurements were started. The venous outflow from the calf was obstructed for 5 sec of every 10 sec period by inflating the cuff placed around the lower part of the thigh to between 30 and 40 mm Hg. The exact pressure used in the venous cuff was adjusted at the beginning of each experiment so that the circumference of the calf increased at a constant rate during each collection period. The output of the gauge was calibrated while it was in position by producing a known reduction of its length. The circumference of the calf at the level at which the gauge was fixed was measured at the end of each experiment.

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In all the experiments the subject was carefully observed during and following the period of over-ventilation with nitrogen. If any severe disturbance of consciousness or respiration occurred, oxygen was administered.

RESULTS

Effect upon consciousness. The increase of pulmonary ventilation achieved by each subject during nitrogen breathing was measured from the spirometer records. The mean pulmonary ventilation of the three subjects was increased to 80 l./min at b.t.p.s. during the period of over-ventilation. When the duration of over-ventilation with nitrogen was greater than 8–10 sec the subject reported a transient dimming of vision. In the experiments in which nitrogen breathing was carried out for 15–16 sec the subject experienced some general clouding of consciousness and impairment of vision. Vision was frequently lost in these experiments for a short period. In the few experiments in which nitrogen was breathed for 17–20 sec unconsciousness supervened and was accompanied on most occasions by a generalized convulsion. The duration of the interval between the start of over-ventilation with nitrogen and the onset of symptoms was 12–14 sec.

End-tidal gas tensions. A typical record of the partial pressures of oxygen and carbon dioxide in the gases flowing through the mouth-piece is presented in Fig. 2. The end-tidal oxygen tension fell very rapidly when the subject commenced over-ventilation with nitrogen. It reached a value of less than 10 mm Hg at the end of the third expiration and remained below this level until air was inspired after 16 sec of nitrogen breathing. During the over-ventilation period the end-tidal carbon dioxide tension also fell rapidly. With the restoration of air breathing and the cessation of over-breathing the end-tidal oxygen and carbon dioxide tensions rose gradually to regain their control values. Each of the three subjects over-ventilated, whilst breathing nitrogen for a period of 15–16 sec on six separate occasions. The time course of the changes of the end-tidal tensions of oxygen and carbon dioxide has been measured for each of these 18 experiments and mean curves for each of these variables are presented in Fig. 3.

Arterial blood oxygen saturation and pH. Blood was sampled from the brachial artery of each subject on three separate occasions during which the subject over-ventilated with nitrogen for 16 sec. The records of the response of the entire system to a sudden change in the composition of blood at the tip of the Cournand needle showed a mean delay of 0.7 sec to the beginning of the response of the pen motor recording oxygen saturation and a further 0.9 sec elapsed before 90 % of the total response had occurred. The corresponding times for the response of the pH recording system were 1.4 sec and 2.0 sec respectively. Corrections for these delays in response were applied to the recorded values of oxygen saturation and pH. A

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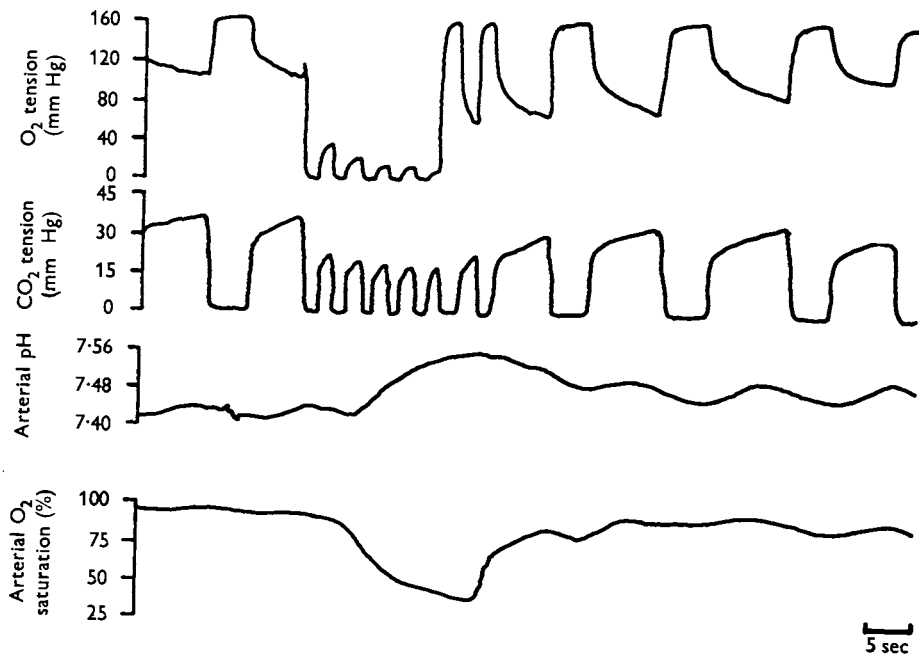


Fig. 2. Respiratory gas tensions and systemic arterial oxygen saturation and pH before, during and after 16 sec over-ventilation with nitrogen. The tensions of oxygen and carbon dioxide were recorded at the lips, whilst the blood was sampled continuously from the brachial artery. Delay time of oxygen saturation record, 0.7 sec of pH record, 1.5 sec.

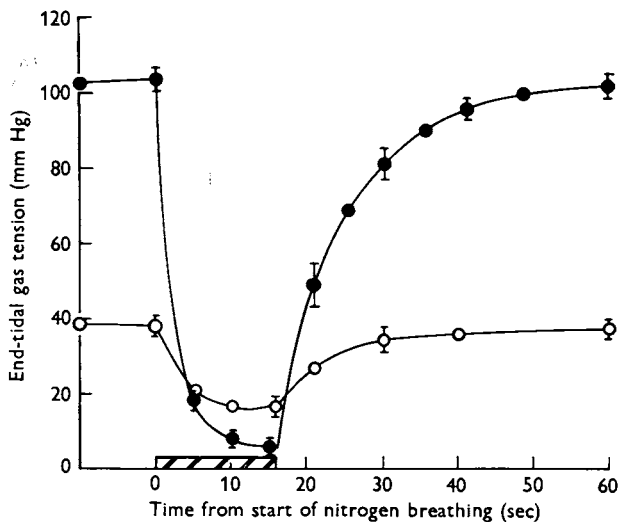


Fig. 3. Effect of over-ventilation with nitrogen upon end-tidal tensions of oxygen (●) and carbon dioxide (○). Each point represents the mean of eighteen values from three subjects; each bar represents ± 1 s.e. of the mean. The period of over-ventilation with nitrogen is indicated by the hatched bar.

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typical experimental record of the arterial oxygen saturation and pH is presented in Fig. 2. The arterial oxygen saturation and hydrogen-ion concentration began to fall 4–5 sec after the commencement of nitrogen breathing and both fell very rapidly at first and then more slowly until air breathing was started again at 16 sec. The oxygen saturation then increased rapidly whilst the pH gradually returned to its control value. The mean time courses of the changes of arterial oxygen saturation and pH have been calculated for the nine experiments and these values together with their standard errors are shown in Fig. 4.

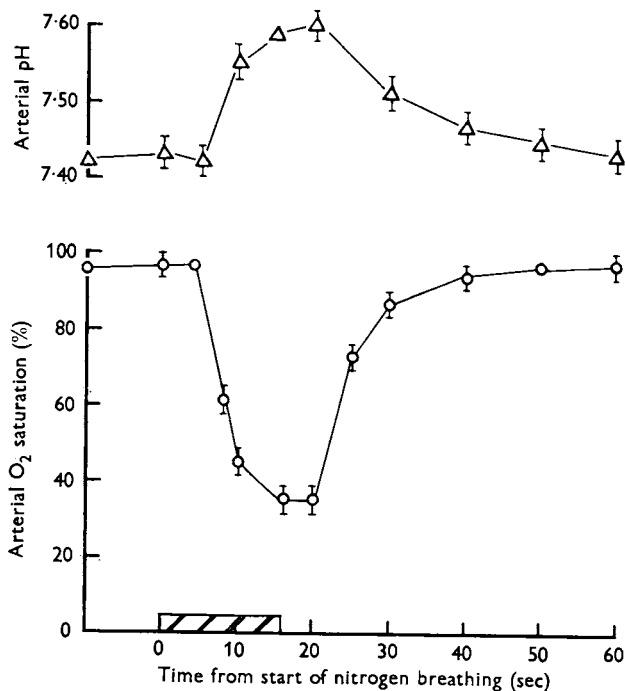


Fig. 4. Effect of over-ventilation with nitrogen upon arterial oxygen saturation (○) and arterial pH (Δ). Each point represents the mean of nine values from three subjects; each bar represents ± 1 s.e. of the mean.

Venous blood oxygen saturation and pH. Blood was sampled from the femoral vein, the pulmonary artery and the right jugular bulb on separate occasions in each of the subjects. The delay in the response of the recording systems was lengthened considerably when intravascular catheters were employed. On none of these occasions did any significant change of pH occur during the period of nitrogen breathing. The mean time courses of the oxygen saturation of the venous blood drawn from these three sites are presented in Fig. 5.

Electroencephalogram changes. The resting e.e.g. shows no specific electrical activity and no change occurred in any experiment until 15–18 sec after the beginning of the period of over-ventilation with nitrogen. When nitrogen over-breathing was carried out for 8–12 sec low voltage

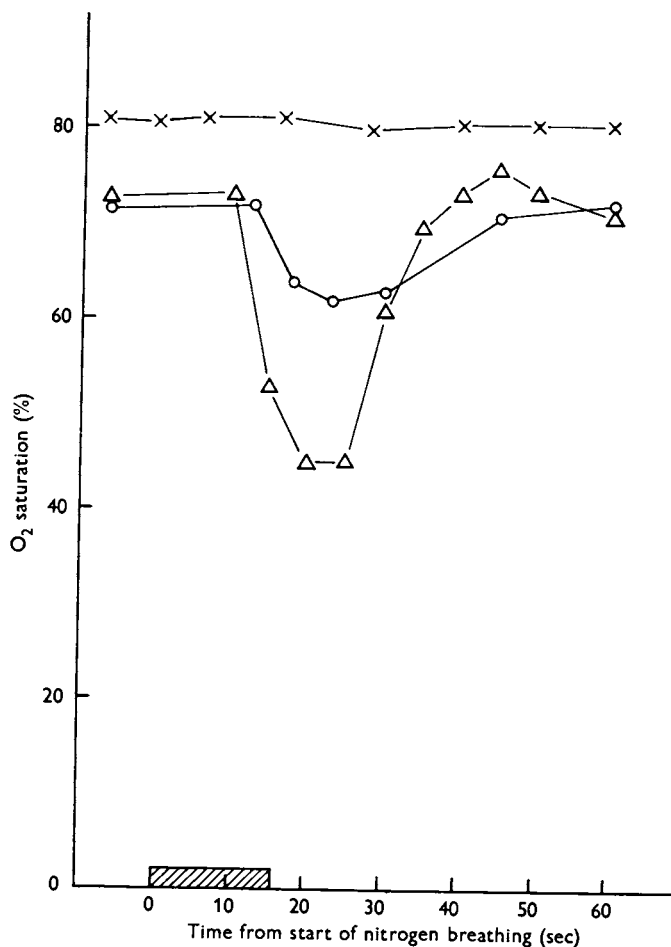


Fig. 5. Effect of over-ventilation with nitrogen upon the oxygen saturation of blood flowing through the femoral (x) and internal jugular (Δ) veins and the pulmonary artery (○). Each point represents the mean of three values obtained from three subjects.

activity at 11–13 c/s appeared in both channels of the e.e.g. 15 sec after the beginning of the procedure and persisted for 7–9 sec. When the duration of nitrogen over-ventilation was extended to 15–16 sec, similar changes arose in the e.e.g. but they persisted for slightly longer. Occasionally the

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11-13 c/s activity was replaced by high-voltage 2-4 c/s activity, which appeared 4-6 sec after the beginning of the change of the e.e.g. This slow activity generally persisted for 4-6 sec. When nitrogen breathing was extended to 18-20 sec the initial fast, low-voltage activity was always replaced by high-voltage 2-4 c/s activity after 5 sec, which lasted for about 10 sec. Control experiments in which a subject over-ventilated for a similar period whilst breathing air produced no change of e.e.g. activity.

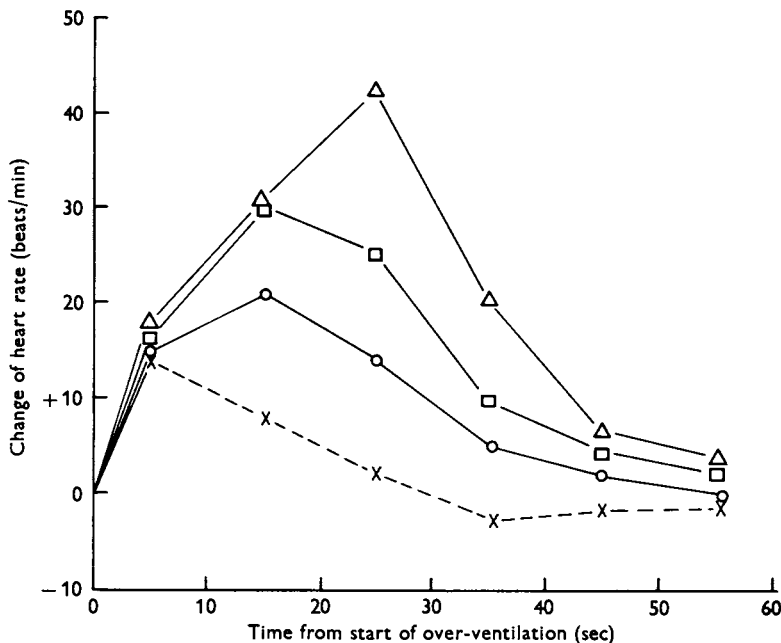


Fig. 6. Effect of over-ventilation with nitrogen for various periods upon the heart rate. Δ , nitrogen for 17 sec; \square , nitrogen for 11 sec; \circ , nitrogen for 8 sec; \times , air for 15 sec. Each point represents the mean of three values obtained from three subjects.

Cardiovascular changes. The period of over-ventilation with nitrogen produced a transient acceleration of the heart rate. This commenced at the beginning of the period of over-ventilation and reached a maximum about 30 sec later. The magnitude of the increase varied directly with the duration of the nitrogen over-ventilation. The mean changes of the heart rate for the three subjects when they over-ventilated with nitrogen for various periods are presented in Fig. 6. There were no consistent changes in the shape of the e.c.g. in these experiments. In one subject, however, there was a transient flattening of the 'T' wave, which started 5 sec after the beginning of the nitrogen over-ventilation and persisted for 10 sec. In

several experiments the subjects over-ventilated whilst breathing air. This caused a relatively small and transient increase of heart rate which had subsided 10 sec after the end of the over-ventilation period (Fig. 6).

The period of over-ventilation produced marked respiratory variations of the arterial blood pressure. The mean and pulse pressure were both increased during the deep expiratory efforts and decreased during each inspiration. The mean blood pressure was increased by about 20 mm Hg during the period of over-breathing. Directly the subject ceased over-ventilation the arterial pressure fell and reached a minimum after some 15 sec from the beginning of nitrogen breathing. The minimal value was less than the mean blood pressure before the over-ventilation period. The fall of mean pressure was accompanied by a reduction of the pulse pressure. It was followed by a secondary rise of pressure and an increase of pulse pressure, both of which reached a maximum at about 30 sec after the beginning of the period of over-ventilation with nitrogen. In all, two separate periods of over-ventilation with nitrogen were studied for each of the three subjects and the mean values of arterial pressure before, during and after the period of over-ventilation with nitrogen are presented in Fig. 7. The blood flow through the calf was calculated from the rate at which the circumference of the part increased during each venous-congestion period (Whitney, 1953). The mean value for the calf blood flow obtained in twelve separate periods of over-ventilation with nitrogen in the three subjects are shown in Fig. 7. The flow of blood into the calf was increased during the period of over-ventilation, following which it returned to the resting level, to increase again between 20 and 40 sec after the beginning of over-ventilation.

DISCUSSION

Preliminary experiments in which the subjects over-ventilated with nitrogen for various periods showed that unconsciousness supervened if the duration of this procedure exceeded 16–17 sec. In the majority of these experiments, therefore, the period of over-ventilation with nitrogen was limited to 16 sec. This period of nitrogen over-breathing produced only a transient disturbance of the e.e.g. The low-voltage 8–13 c/s activity was generally associated with a transient dimming of vision and could not be distinguished from that produced by closure of the eyelids. Further, apart from a transient flattening of the 'T' wave on one occasion, no significant change was seen in the e.e.g., although only a standard limb lead (II) was recorded. In view of these findings it was considered that the degree of hypoxia induced by over-ventilation with nitrogen for 15–16 sec was within acceptable limits for resting subjects.

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The concentration of oxygen in the gas contained within the respiratory tract at the beginning of the nitrogen breathing period was reduced very rapidly by the very large voluntary increase of pulmonary ventilation. The reduction of the lung volume to a minimum before the first breath of nitrogen was taken decreased the quantity of oxygen to be washed out. The combination of these two manoeuvres resulted in a very rapid fall of end-tidal oxygen tension to 10 mm Hg after 8 sec of over-ventilation. The rate of rise of the end-tidal oxygen tension following the cessation of nitrogen over-ventilation and the return to breathing air was considerably less than the rate at which it had fallen. This difference reflects the reduction of alveolar ventilation associated with the resumption of a more normal breathing pattern.

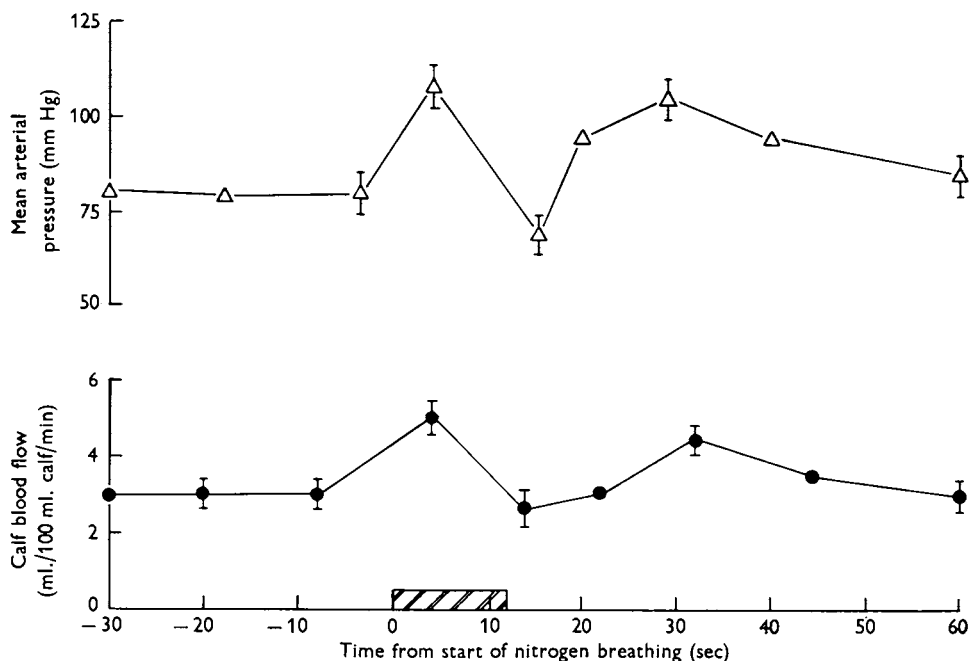


Fig. 7. Effect of over-ventilation with nitrogen upon the mean systemic arterial pressure (Δ) and the blood flow through the calf (\bullet). The results are from three subjects, each pressure point representing the mean of six values whilst each blood flow point is the mean of twelve values; each bar depicts ± 1 s.e. of the mean value.

Arterial oxygen saturation and pH

The delay of 4-5 sec between the beginning of nitrogen breathing and the reduction of the oxygen saturation of the brachial artery blood was a reflexion of the circulation time from the pulmonary capillaries to the sampling point in the systemic arterial tree. A similar delay occurred

between the restitution of air breathing and the subsequent increase of the arterial oxygen saturation. The reduction of the end-tidal oxygen tension to below 10 mm Hg was associated with an arterial oxygen saturation of less than 40%. The increase of the pH of the arterial blood was related to the fall of the alveolar carbon-dioxide tension and the reduction of the blood oxygen saturation (Christiansen, Douglas & Haldane, 1914). The mean increase of the arterial pH produced by the over-ventilation amounted to 0.18 unit. This gave a calculated value for the minimal arterial carbon-dioxide tension of 22.5 mm Hg as compared with the observed end-tidal value of 17 mm Hg. The changes of arterial oxygen tension produced by over-breathing with nitrogen have been calculated from the simultaneous measurements of the oxygen saturation and pH of the arterial blood by means of standard oxygen dissociation curves (Dill, 1944). The mean time course of the oxygen tension for all the experiments is presented in Fig. 8. together with the curve for the end-tidal oxygen tension. During over-ventilation the end-tidal oxygen tension may be taken as representative of the mean alveolar tension of this gas. When allowance is made for the 4 sec delay between the change of alveolar gas composition and the resultant change of the oxygen tension of the arterial blood at the sampling point, it is apparent that the arterial oxygen tension fell in the same manner as the alveolar oxygen tension until this was less than 16 mm Hg. Beyond this point the systemic arterial oxygen tension was consistently greater than that of the alveolar gas until air breathing was restored. There was a statistically significant difference ($P < 0.01$; $n = 9$) between the oxygen tensions of the arterial blood and of the alveolar gas for the last 7 sec of the period of nitrogen breathing. The oxygen tension of the mixed venous blood during nitrogen breathing was between 35 and 40 mm Hg (Fig. 9), and hence the oxygen tension of the alveolar gas was less than that of the blood entering the pulmonary capillaries for nearly the whole period of nitrogen over-ventilation. During this procedure, therefore, there was a reversal of the normal oxygen-tension gradient between the alveolar gas and the mixed venous blood. Since the oxygen saturation of the systemic arterial blood was considerably less than that of the mixed venous blood, oxygen must have passed from the blood flowing through the pulmonary capillaries into the alveolar gas during the latter part of the nitrogen-breathing period. Such a reversal of the normal direction of passage of oxygen across the alveolar capillary membrane has been demonstrated following rapid decompression to high altitude (Luft, Clamann & Adler, 1949; Ernsting & McHardy, 1960) and during rapid ascent following a breath-holding dive to a water depth of 60–100 ft. (18–30 m; Rahn, 1963). In both these situations the oxygen tension of the alveolar gas is reduced rapidly below that of the mixed venous blood.

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Venous pH and oxygen saturation

The absence of any detectable change of the pH of the blood sampled from the three venous sites following the period of over-ventilation with nitrogen demonstrated the marked carbon dioxide buffering power of the peripheral tissues and the rapid diffusibility of this gas. The constancy of the venous pH was unexpected, since the reduction of the oxygen saturation of the venous blood would of itself have produced an increase of pH (Christiansen *et al.* 1914). At a constant carbon-dioxide tension the greatest increase of pH due to this mechanism, associated with the decrease of

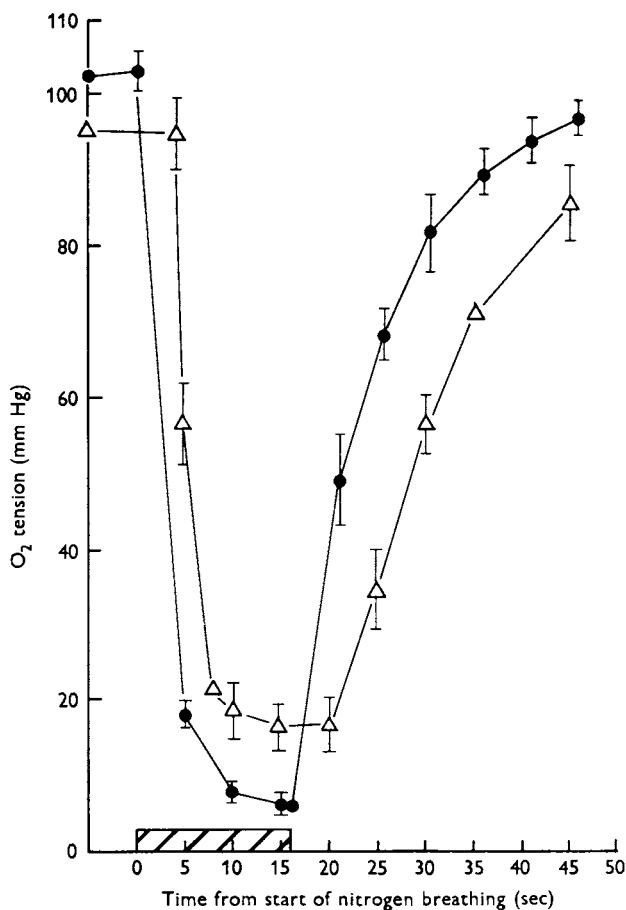


Fig. 8. Effect of over-ventilation with nitrogen upon end-tidal oxygen tension (●) and systemic arterial oxygen tension (Δ). Each point represents the mean of eighteen end-tidal values and nine arterial values. Each bar denotes ± 1 s.e. of the mean value.

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oxygen saturation of the cerebral venous blood by 27 %, was calculated to be of the order of 0.012 unit. The over-all sensitivity of the system used for the measurement of the pH of the venous blood was such, however, that a change of this magnitude might not have been detected.

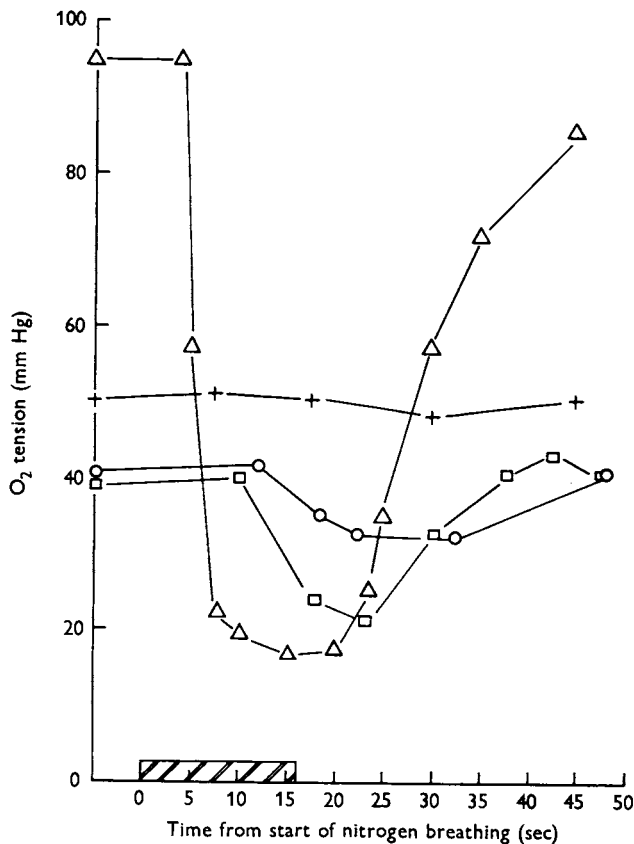


Fig. 9. Effect of over-ventilation with nitrogen upon the oxygen tension of the systemic arterial (Δ), femoral venous (+), internal jugular (\square) and pulmonary arterial (\circ) blood. Each point represents the mean of the values obtained from three subjects.

The pattern of the reduction of the oxygen saturation of the venous blood produced by the period of nitrogen breathing varies markedly with the site of sampling (Fig. 5). The oxygen content of the jugular venous blood was the first to change and it exhibited the greatest reduction and the most rapid recovery. In contrast the oxygen saturation of the femoral venous blood started to fall last, was reduced by the smallest amount and recovered the most slowly. Mixed venous blood showed changes which

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were intermediate between those of the jugular and femoral venous bloods. The maximal fall of the oxygen saturation of the femoral venous blood was half that which occurred in the blood sampled from the pulmonary artery, whilst the maximal reduction of the oxygen content of the jugular blood was more than twice the latter. The changes of the oxygen tension of the blood sampled from these venous sites have been calculated from the measured values of oxygen saturation and pH and the mean curves are presented in Fig. 9, together with the mean curve for the arterial oxygen tension. It is apparent that during the period of severe hypoxia the oxygen tension of the blood flowing from the lower limbs, the brain and the whole body was greater than that of the arterial blood flowing into these regions.

Cardiovascular effects of profound hypoxia

The limited measurements made in this study demonstrate that the period of over-ventilation with nitrogen produced significant changes in the cardiovascular system. The control experiments in which the subject over-breathed with air make it possible to distinguish two phases in the cardiovascular response. First, during the period in which the pulmonary ventilation was increased there was a moderate rise of heart rate and the arterial pressure and calf blood flow were raised (Fig. 7). Immediately the over-ventilation ceased the arterial pressure and calf blood flow returned to their resting values. These changes occurred when either air or nitrogen was breathed. When the over-breathing was performed with nitrogen the rise of heart rate persisted for considerably longer and there was a secondary increase of arterial pressure and calf blood flow. These secondary changes were absent when air was substituted for nitrogen and were due, therefore, to the severe hypoxia induced by the nitrogen. Throughout each experiment the calf blood flow was directly proportional to the mean systemic arterial pressure. Thus the observed changes of calf blood flow were a result of the concomitant changes of arterial pressure. The secondary changes which occurred after over-ventilation with nitrogen were probably the result of an increase of cardiac output and of systemic arteriolar constriction which were produced reflexly by chemoreceptor stimulation. It is apparent that the arterioles of the calf did not contribute to this vasoconstriction, and the most probable sites for the increase of peripheral resistance were the splanchnic and cutaneous circulations. The rise of the oxygen saturation of the jugular venous blood above the control value when air breathing was restored (Fig. 5) suggests that there was an increase of the over-all cerebral blood flow at this time. In the steady state moderate arterial hypoxaemia, even when accompanied by hypocapnia, is known to produce a dilatation of the cerebral vessels (Kety &

Schmidt, 1948). The rate at which the cerebral vasodilatation develops when arterial hypoxaemia is induced suddenly is not known, but the present experiments suggest that the cerebral vessels respond to a fall of arterial oxygen tension within 20 sec.

Pulmonary gas exchange in profound hypoxia

The arterial oxygen-tension values derived in this study demonstrated that during over-ventilation with nitrogen the oxygen tension of the arterial blood was significantly greater than that of the alveolar gas. The time for which this state existed was only 7–8 sec, although during this period the rates of change of alveolar and arterial oxygen tensions were relatively slow. Furthermore, this length of time is large relative to the average transit time of 0.73 sec (Roughton, 1945; Roughton & Forster, 1957) for a red cell through the pulmonary capillaries lining ventilated alveoli. It would appear, therefore, that the observed difference between systemic arterial and alveolar oxygen tensions cannot be accounted for on the basis of the short period for which the condition existed. Such a difference could be produced by the presence of either a shunt of venous blood into the systemic arterial tree or a higher tension of oxygen in the blood leaving the pulmonary capillaries than in the alveolar gas. Mixed venous blood flowing into the systemic arterial tree without having transversed the capillaries of ventilated alveoli would raise the oxygen tension of the systemic arterial blood above that of the alveolar gas. The effect of the normal quantity of venous admixture upon the arterial oxygen tension would be insignificant, because of the relative steepness of the blood-oxygen dissociation curve over the range concerned here. If, however, the proportion of the cardiac output perfusing ventilated alveoli was reduced during nitrogen breathing, this effect could become significant. In order for this mechanism to account for the total observed oxygen-tension gradient the venous-arterial shunt would have to amount to at least half of the total cardiac output. There is at present no evidence in favour of such a degree of shunting during severe hypoxia. It would appear probable, therefore, that the tension of oxygen in the blood leaving the pulmonary capillaries is considerably greater than that in the alveolar gas during over-ventilation with nitrogen.

Since no measurements were made of the rate of gaseous exchange during the period of over-ventilation with nitrogen it is impossible to examine quantitatively the factors affecting the exchange of oxygen between the pulmonary capillary blood and the alveolar gas. It is of value, however, to compare the effects of over-ventilation with nitrogen with those produced by moderate hypoxia in the steady state. Thus, Lilienthal, Riley, Proemmel & Franke (1946) found that at an alveolar

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oxygen tension of 46 mm Hg at rest the difference between the tensions of oxygen in the alveolar gas and the systemic arterial blood amounted to 9.1 mm Hg. They calculated that under these circumstances the oxygen tension of the mixed venous blood was 19 mm Hg less than that of the alveolar gas and that the oxygen tension of the blood leaving the pulmonary capillaries was about 8 mm Hg less than that of the alveolar gas. Although in the nitrogen over-ventilation experiments the oxygen tension gradient between the alveolar gas and the mixed venous blood was reversed, it was of the same order as that which existed in the experiments performed by Lilienthal *et al.* (1946). Furthermore, the mean difference between the oxygen tensions of the arterial blood and the alveolar gas obtained in the present study, which amounted to 11 mm Hg, was only slightly greater than that found in moderate hypoxia by Lilienthal *et al.* (1946). The arterial-alveolar oxygen-tension difference observed in nitrogen over-ventilation experiments was probably due, therefore, to a mechanism analogous to that which was deduced by Lilienthal *et al.* (1946) to be responsible for the existence of an alveolar to end-pulmonary capillary blood-oxygen tension difference in moderate hypoxia. The limited rate at which oxygen was transferred from chemical combination in the pulmonary blood into the alveolar gas under the circumstances which existed in the nitrogen-breathing experiments gave rise to a large oxygen-tension difference between the blood leaving the pulmonary capillaries and the alveolar gas.

Exchange of oxygen between blood and peripheral tissues in profound hypoxia

The reduction in the rate at which oxygen is carried to a part caused by a short period of arterial hypoxaemia depends upon the degree and duration of the desaturation of the arterial blood and the arterial flow to the part. In the resting state the total blood flow to the brain is over twice that to the lower limbs. Thus in the present experiments the deficit of the oxygen supply to the brain was twice that to the lower limbs. The effect of such a deficit in the oxygen supply to a region upon the oxygen content of the blood flowing from it will be determined in part by the relation between the magnitude and nature of its oxygen store and its metabolic oxygen consumption. Where the available oxygen store is small in relation to the oxygen uptake, the venous oxygen saturation will be reduced to a greater extent than when the store is large in relation to the oxygen consumption. Quantitatively the most important oxygen store is that contained by the blood, and the greater proportion of this resides in the small and large veins. Muscle possesses in addition a specific oxygen storage mechanism in the form of oxymyoglobin. The amount of oxygen stored in this manner in man is, however, relatively small (Drabkin, 1950)

and the oxygen tension in muscle must be reduced below 10 mm Hg before a significant proportion of the oxygen held in this form is liberated (Hill, 1936). Finally, all tissues contain oxygen in simple physical solution, although quantitatively this store is relatively small. The brain, in contrast to the lower limbs and the body as a whole, has a high arterial inflow, a high oxygen consumption and a small oxygen store. For a specified transient arterial hypoxaemia all these factors tend to produce a greater fall of the oxygen saturation in the jugular blood than in the blood flowing from the lower limbs.

The pattern of the fall of the saturation of venous blood caused by a transient arterial hypoxaemia will be modified by changes of blood flow into the region and of the capacity of its vascular bed. In the present experiments there were transient changes of calf blood flow during and after the period of hypoxaemia. There was also evidence which suggested that the cerebral blood flow changed, although no direct measurements of this quantity were made. If an increase of blood flow occurred during the period of hypoxaemia, the deficit of the oxygen supply would have been increased. If, however, the increase of blood flow did not occur until the arterial oxygen saturation was rising, it would have produced a more rapid recovery of the venous oxygen saturation, or even a rise to above the control value. Although no direct measurements of the capacity of the vessels of the calf were made, it was noted that the volume of this region was decreased by the period of over-ventilation with nitrogen. Eckstein, Hamilton & McCammond (1958) have shown that the reflex reduction of the distensibility of the capacity vessels produced by over-ventilation is in part due to the hypocapnia and in part a result of the intrathoracic pressure changes associated with the over-ventilation. Such a reduction of the blood content of the calf would have tended to increase the venous desaturation produced by the arterial hypoxaemia.

During the period of over-ventilation with nitrogen, the oxygen tension of the arterial blood was reduced to 20–30 mm Hg below that of the venous blood normally flowing from the regions studied. Thus the oxygen tension of the arterial blood during this period was lower than the mean capillary oxygen tension (Barcroft, 1938) which existed before nitrogen breathing was commenced. Furthermore, during the period of profound hypoxaemia the oxygen tension of the blood flowing from the regions under investigation was greater than that of the arterial blood perfusing them. Although the oxygen content of the blood leaving the tissue capillaries was probably raised by admixture with the blood already present in the venules and veins of the part, it is apparent that during the period of severe hypoxaemia the oxygen tension of the capillary blood was markedly reduced. Thus the diffusion of oxygen into the various tissues from the blood flowing through

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them was severely reduced by the period of hypoxia. Indeed, in some areas, especially those with a relatively high capillary blood flow, the capillary oxygen tension may have been reduced below that of the surrounding tissues, so that oxygen actually diffused into the blood as it flowed through them. Thus direct measurements of the oxygen tension of the grey matter of the cerebral cortex in animals breathing air have given values of the order of 18–25 mm Hg (Cater, Garattini, Marina & Silver, 1962), whilst in the present experiments the arterial oxygen tension was reduced to about 17 mm Hg. The effect of a given reduction of the rate at which oxygen diffuses into a tissue upon the cellular oxygen tension will depend upon the relation between the cellular oxygen consumption and the extravascular oxygen store. There is considerable evidence that the cellular oxidative enzyme systems will continue to function normally until the local oxygen tension is reduced to below 5 mm Hg (Keilin, 1930). Thus the cellular metabolic oxygen uptake will probably remain unchanged until severe hypoxia is induced. In the brain, where the only extravascular oxygen store is oxygen dissolved in tissue fluid, and the metabolic oxygen uptake is high, sudden arterial hypoxaemia will produce a very rapid fall of the cellular oxygen tension.

In the present series of experiments it was found that unconsciousness ensued if over-ventilation with nitrogen was continued for longer than 17 sec. A more rapid fall of arterial oxygen tension can be produced by sudden reduction of the environmental pressure to below 140 mm Hg whilst air is breathed. Thus in one series of experiments in which the arterial oxygen tension was reduced to below 20 mm Hg in about 1 sec, unconsciousness ensued 8 sec after the induction of arterial hypoxaemia (Ernsting *et al.* 1960). The delay between a sudden occlusion of the cerebral circulation and loss of consciousness in man also amounts to between 7 and 8 sec (Rossen, Kabat & Anderson, 1943). Thus the time which elapses between a sudden reduction of the arterial oxygen tension to below 20 mm Hg and the onset of unconsciousness is very similar to the interval which occurs between sudden occlusion of the cerebral circulation and loss of consciousness. Kety (1950) has calculated that at any one moment the total oxygen content of the brain and of the cerebral capillary blood is about 7 ml. Thus at the normal level of cerebral oxygen consumption the oxygen tension of the brain following cessation of the supply of this substance would be reduced to zero in about 8 sec. These results suggest that when unconsciousness supervenes following the sudden induction of severe cerebral hypoxia the cellular oxygen tension in many regions of the brain will be virtually zero. This conclusion is in close agreement with the results of calculations made by Thews (1962) with respect to hypoxia of slow onset. His calculations suggest that when the arterial oxygen tension is

reduced to the level which produces unconsciousness, the oxygen tension of the neurones which are furthest from their vascular supply will be of the order of 2–4 mm Hg.

SUMMARY

1. Brief profound hypoxia was induced by voluntary over-ventilation whilst breathing nitrogen. Unconsciousness ensued when this procedure was performed for longer than 16 sec. Voluntary over-ventilation with nitrogen for 16 sec reduced the end-tidal oxygen tension to below 10 mm Hg for 8 sec.

2. Continuous recordings were made of the systemic arterial oxygen saturation and pH during 16 sec of nitrogen over-ventilation. The calculated minimal arterial oxygen tension was 16 mm Hg. There was therefore a reversal of the normal alveolar-arterial oxygen tension difference.

3. The oxygen saturation and pH of venous blood flowing through the jugular bulb, the femoral vein and the pulmonary artery were recorded continuously. The oxygen tension of the jugular blood exhibited the most rapid and most profound reduction when nitrogen was breathed. The femoral-vein oxygen tension exhibited only a very transient and slight fall, whilst the oxygen tension of the blood flowing through the pulmonary artery exhibited a moderate fall.

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Brain MRI Findings of Nitrogen Gas Inhalation for Suicide Attempt: a Case Report

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Case Report

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South Korea has the highest reported suicide rate among all countries belonging to the Organization for Economic Cooperation and Development. Nitrogen is a colorless, odorless and nontoxic gas. Nitrogen gas has, however, been recently used as a method of attempted suicide, its nontoxicity notwithstanding. We herein report on an unusual case involving a 30-year-old male who presented with symptoms after a suicide attempt by nitrogen inhalation. Diffusion-weighted imaging of his brain was showed curvilinear high signal intensity in the bilateral frontal and right occipital cortices, with subtle low apparent diffusion coefficient value. In addition, T2-weighted images and fluid attenuated inversion recovery images revealed subtle high signal intensity in the bilateral frontal cortices, basal ganglia and occipital cortices with contrast enhancement.

Keywords: Nitrogen; Suicide; Magnetic resonance imaging

INTRODUCTION

According to the Organization for Economic Cooperation and Development (OECD) report in 2015, South Korea had the highest suicide rate among all countries that belong to the OECD.

In contrast to the pattern in most OECD countries, death rates from suicide in Korea have risen significantly in the last decade (1). Recently, several organizations and internet communities in favor of assisted suicide have promoted the use of nitrogen (N₂) gas to that end (2). Nitrogen gas has caused accidental deaths in industrial or laboratory explosion, and during scuba diving and anesthesia (2). Although it is reported that industrial nitrogen asphyxiation hazards resulted in 80 deaths during the period 1992 through 2002, there is a paucity of documentation regarding nitrogen gas as a means of committing suicide (2, 3). Nitrogen is a colorless, odorless, nontoxic, and generally inert gas that is a normal component (78.09%) of the atmosphere, at standard temperature and pressure (4). However, nitrogen can be hazardous when it displaces oxygen resulting in hypoxic damage (2, 3). Nitrogen intoxication manifests with various symptoms such as progressive fatigue, loss of coordination, purposeful movement and balance, nausea, a complete inability to move and unconsciousness (2, 4). Here, we describe a case of brain magnetic resonance imaging (MRI) findings associated with nitrogen gas inhalation, which have been rarely reported previously.

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CASE REPORT

A 30-year-old man visited the emergency department with complaint of numbness of the bilateral upper extremities. He had a past medical history of a diagnosed "gambling disorder". He reported that a week before, he attempted suicide by inhaling pure nitrogen gas with people he had met through an internet suicidal community, however, he did not present with any symptoms. His stated reason for attempting suicide was financial difficulty. He reported that five days prior to the emergency room visit, he attempted suicide again, on this occasion by inhaling nitrogen gas through a plastic bag. And after that he lost consciousness for a while. A few hours later, he recovered consciousness but awoke with symptoms of diplopia, headache and stiffness of both hands with slow progression

over the course of the past three days. On hospital visiting day, he presented with complaint of numbness and cramping of both hands.

His vital signs were stable on admission. His laboratory tests were all within normal range including the hemoglobin level (13.8 g/dL), partial pressure of oxygen in the arterial blood (PaO₂) (107 mmHg), and saturation of oxygen in the arterial blood (SaO₂) (98.4%).

An initial brain computed tomography (CT) was obtained and revealed no significant abnormality. Diffusion-weighted imaging (DWI) of the brain (Magnetom Avanto 1.5T, Siemens, Erlangen, Germany) was obtained and showed curvilinear high signal intensity in the bilateral frontal and right occipital cortices with subtle low apparent diffusion coefficient (ADC) value (Fig. 1).

On hospital day five, electroencephalography was

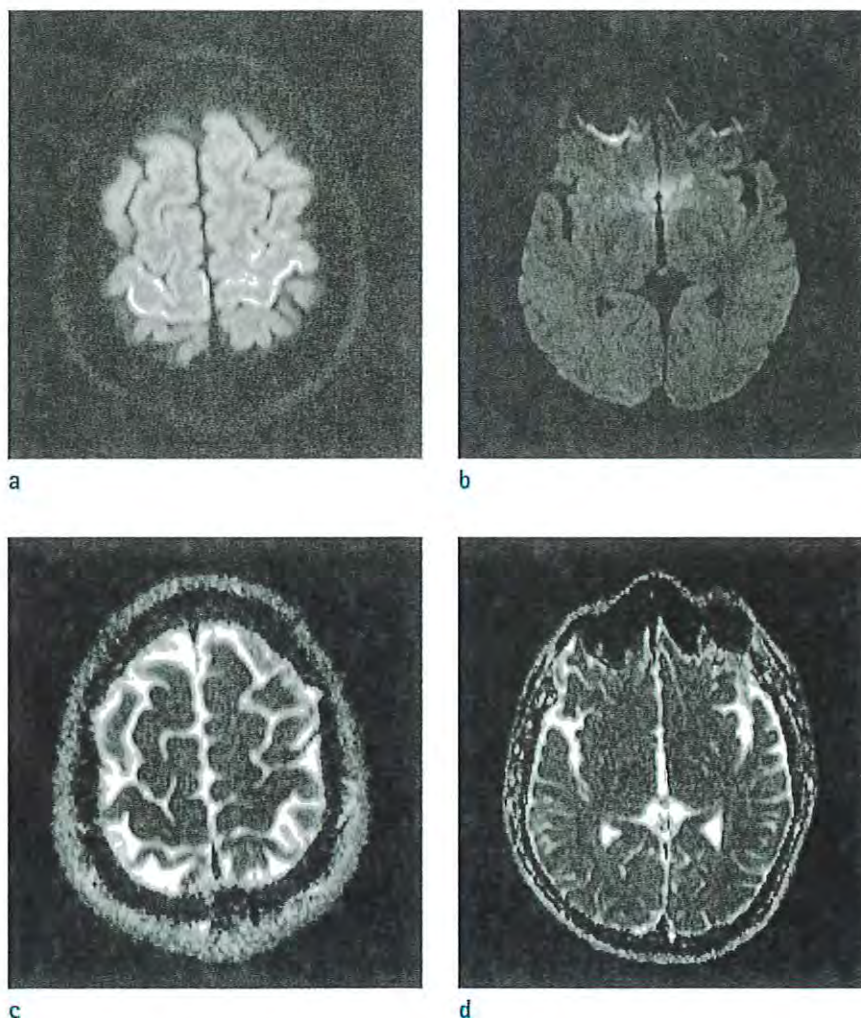


Fig. 1. A 30-year-old man after suicide attempt by nitrogen inhalation through a plastic bag. (a, b) Diffusion-weighted image shows curvilinear high signal intensity (SI) in the bilateral frontal and right occipital cortices. (c, d) Apparent diffusion coefficient map shows low value in the bilateral frontal and right occipital cortices.

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performed and showed no abnormality.

MRI was obtained on a 3.0T system (Achieva, Philips Healthcare, Best, The Netherlands) on hospital day ten. T2-weighted images (T2WI) and fluid attenuated inversion recovery (FLAIR) images revealed subtle high signal intensity in the bilateral frontal cortices, basal ganglia (Fig. 2) and occipital cortices (Fig. 3). The lesions of the occipital cortex show irregular enhancement on the contrast-enhanced T1-weighted images (T1WI) (Fig. 3).

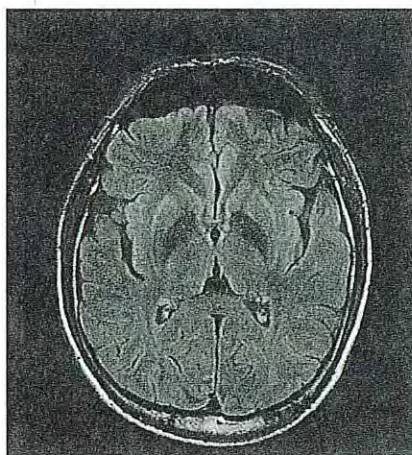
The patient's symptoms improved with supportive care and psychiatric management. He was discharged, without any documented neurological deficits, on hospital day fifteen.

DISCUSSION

Suicide has become a critical issue in South Korea, according to the OECD report (1). Potential means and methods of suicide commonly appear on web searches and are easily accessed over the internet (5). Nitrogen gas as a means of suicide was invented by Dr. Philip Nitschke in 2007, and has been frequently and widely described since that time (2). Last year, suicide by nitrogen gas received coverage on the news in Korea. Nitrogen is safe to breathe only when mixed with the appropriate amount of oxygen. Nitrogen is a colorless, odorless, nontoxic and generally inert gas that is a normal component (78.09%) of the atmosphere, at standard temperature and pressure (4). However commercial nitrogen gas is usually stored in large



a

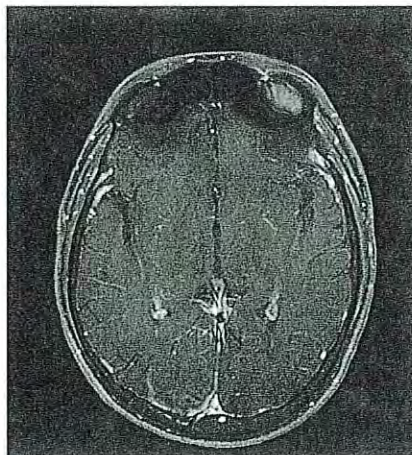


b

Fig. 2. Follow-up MRI (ten days later), FLAIR image shows curvilinear high signal intensity in the bilateral frontal and bilateral basal ganglia. FLAIR = fluid-attenuated inversion recovery



a



b

Fig. 3. Follow-up MRI (ten days later). (a) Axial T1-weighted MR image shows iso-signal intensity in the bilateral occipital cortices. (b) Axial contrast-enhanced T1-weighted MR image shows irregular enhancement in the bilateral occipital cortices.

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cylinders (2). These pure nitrogen gas can be hazardous when it replaces oxygen and causes various symptoms such as progressive fatigue, nausea, partial or complete physical paralysis and/or unconsciousness (2, 3). Nitrogen gas has caused accidental deaths in industrial settings and laboratory explosions, as well as during scuba diving and surgical anesthesia (2). When a diver rapidly ascends from depth, nitrogen gas bubbles form in the tissues and bloodstream (nitrogen narcosis). Nitrogen gas embolisms usually present, radiographically and clinically, with a stroke-like appearance of the gray matter, and can also cause white matter abnormalities due to the high lipid-solubility of nitrogen (6). There are, however, few if any radiographic reports reflecting MRI findings arising, purely and solely, from nitrogen gas inhalation. Furthermore, the incident of nitrogen gas inhalation related to the suicidal attempt was reported from a medical-legal perspective. These reports have described only autopsy - postmortem - findings and there are very few reports regarding survivors of nitrogen gas inhalation in the standard atmosphere (2, 4). The hypoxia triggered by pure nitrogen inhalation is associated with serious complications affecting the brain, and it is critical to recognize the imaging findings which are specific to nitrogen intoxication (7).

In our case, DWI and FLAIR high signal intensity lesions were observed in the brain cortex. These MRI findings are identical when compared with those produced by the hypoxic injury. In moderate-to-severe cases of hypoxic encephalopathy, vulnerable areas are the brain cortex, especially the perirolandic, and medial occipital cortices with precentral gyri, and these findings are probably due to cytotoxic edema (7, 8). Cortical enhancement is usually seen after a few weeks, and is likely due to breakdown of the blood-brain barrier and impaired autoregulation. However, it is thought that early gyral contrast enhancement could be related to the severity, or extent, of the hypoxic brain damage leading to the breakdown of the blood brain barrier and reperfusion of the hypoxic ischemic brain (9).

Tur et al. (10) reported on a case of nitrogen gas inhalation which occurred in the context of an industrial accident. It was noted that the patient initially presented with altered mental status and involuntary movement. After high-flow oxygen therapy, the patient was awake and alert ten hours after the incident, and was eventually discharged without residual neurologic deficit. It is similar to our patient's clinical presentation. Treatment of nitrogen intoxication mainly consists of supportive care and a concerted effort to prevent or obviate any additional or

ongoing injury (8). In addition, nitrogen gas is lighter than air. Therefore, it disperses quickly in the atmosphere. Therefore and although nitrogen gas may serve as an effective means of committing suicide, this method of self-murder would not prove inimical to the health of, or fatal, to anyone that might happen to stand next to the body during recovery (2). Furthermore, any patient who has attempted suicide, should receive appropriate psychiatric intervention and treatment (5).

Other gases used in suffocation and suicide are more commonly-encountered gases such as carbon dioxide, carbon monoxide and methane that result in depression of the central nervous system by exclusion of oxygen (4, 5). In some cases, the method of the attempted suicide is difficult to determine as often, would-be suicide victims arrive in a state of unconsciousness or if conscious, they are embarrassed or otherwise unwilling to provide a complete or truthful medical history or explanation for their current condition. However, some gases do produce specific and characteristic imaging findings on brain MRI. Carbon monoxide most often involves the globus pallidus, although the cerebral white matter and basal ganglia are frequently involved as well (5). If brain MRI findings of carbon monoxide inhalation involve other basal ganglia, it is difficult to make a differential diagnosis, from possible nitrogen inhalation or other deep anoxic injury. It has been determined that the caudate and putamen are the most vulnerable in hypoxic insult (5, 7).

In conclusion, we are reporting on a rare case of nitrogen inhalation occasioned by a failed suicide attempt which, on radiographic examination, presented as DWI and FLAIR high signal intensity in the frontal and occipital cortices with contrast enhancement of occipital cortices. Awareness and sensitivity to these attributes, these specific characteristics, will hopefully allow for earlier diagnosis and optimal management of the sequelae of acute nitrogen inhalation brain injury.

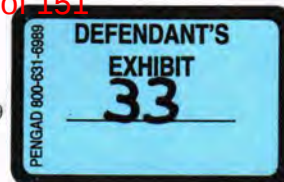
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Intended for healthcare professionals

Medicine, Science and the Law

Nitrogen inhalation suicide pacts

Roger W. Byard, Carl Winskog, Karen Heath

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Abstract

Suicide pacts usually result in simultaneous deaths by mutual arrangement. While nitrogen and helium gas inhalation are being increasingly used in solitary suicide attempts, for some reason they have been rarely utilised in suicide pacts. A search of autopsy files at Forensic Science SA over a 15-year period (2003–2017) was undertaken to determine how often this method of joint suicide occurs. Only two cases were found. Case 1 comprised a 64-year-old husband and wife (who had a history of multiple sclerosis). They were found deceased in a vehicle with two empty cylinders of nitrogen gas. Case 2 comprised an 87-year-old man (who had a history of ischaemic heart disease) and his 81-year-old wife who were found deceased with plastic bags over their heads, with plastic tubes connecting the bags to opened cylinders of nitrogen. The deaths in all cases were due to nitrogen-induced asphyxiation, in the latter instance augmenting plastic-bag asphyxia. Although suicide pacts have previously usually involved carbon-monoxide toxicity or drug overdose, it is possible that dissemination of information on the use of inert gases in individual suicide attempts may alter the methods used in future.

Keywords

Nitrogen, helium, suicide pact, double suicide, plastic bag, asphyxia, suicide, autopsy, medicolegal death investigation, forensic pathology

Introduction

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While most suicides are solitary events, on occasion, two or more individuals may decide to commit suicide together. Known as suicide pacts, these situations have been well described in the literature, for example by Shakespeare in *Romeo and Juliet* and by Ovid in *Pyramus and Thisbe*, and often involve the theme of unhappy lovers.^{1,2} Such deaths are rare compared to standard suicides and most often involve an aging married couple with health or financial problems who elect to terminate their lives together, most often using carbon-monoxide inhalation or drug overdose.^{3,4} Given the emphasis that has been placed in recent times in suicide-assistance literature and related websites on the use of inert gas such as helium and nitrogen to facilitate suicide,⁵⁻⁷ the following study was undertaken to determine how common, or not, suicide pacts utilising these gases are.

Methods

The files of Forensic Science SA were searched over a 15-year period (2003–2017) for all cases of suicide in which helium or nitrogen might have been used in a suicide pact. All identified cases had full police investigations, autopsies and toxicological assessments. The age, sex and circumstances of death were documented.

Cases

Case 1

A 64-year-old man and his 64-year-old wife were found deceased in a vehicle. The man was sitting in the driver's seat, and his wife was located in the front passenger seat. In the back of the car were two empty cylinders of nitrogen gas with the valves turned fully on. A bottle of wine was present next to the bodies. There was no evidence of violence at the scene, and a suicide note in the nearby house addressed to the police had been signed by both decedents. A review of their medical histories revealed that the female decedent had a 20-year history of multiple sclerosis and had reached the stage of requiring full-time hospital care.

At autopsy, minor coronary artery atherosclerosis was found in the male, with a blood alcohol concentration of 0.141%. Minor coronary artery atherosclerosis was also present in the female, with well defined areas of demyelination throughout the brain, characteristic of multiple sclerosis. Her blood alcohol concentration was 0.033%. There was no evidence of organic disease in either decedent which could have caused death.

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Toxicological examination of blood did not reveal any common prescription or non-prescription drugs. The deaths were due to nitrogen-induced asphyxiation.

Case 2

An 87-year-old man and his 81-year-old wife were found deceased at their home address. Both were sitting in lounge chairs with plastic bags over their heads, fastened around their necks, with plastic tubes connecting the bags to opened cylinders of nitrogen. Suicide notes were present. The male had a medical history of hyperlipidaemia with ischaemic heart disease and previous bilateral carotid endarterectomies. The week before death, he had been admitted to hospital with an acute myocardial infarct. Angiography revealed severe triple-vessel coronary artery disease, and coronary artery bypass surgery had been recommended. The following day, he had discharged himself from hospital.

At autopsy, there was extensive severe coronary artery atherosclerosis in the male decedent with prior stenting. The heart showed scarring of the left ventricle from previous ischaemic damage, with more recent areas of ventricular granulation tissue in keeping with an acute myocardial infarct. A small unruptured infra-renal aortic aneurysm was also present. The female decedent had only mild coronary artery atherosclerosis and uncomplicated cholelithiasis. No alcohol or common prescription or non-prescription drugs were identified, except for a therapeutic level of paracetamol in the female decedent. Deaths were due to nitrogen-induced asphyxiation, augmenting plastic-bag asphyxia. Both cases had full police and coronial investigations. Specifically, the death scenes in both cases underwent full standard police investigations with seizing of the gas cylinders. The circumstances and histories, lack of injuries/evidence of coercion, negative toxicology for sedative drugs and the presence of notes were all supportive of suicide as the manner of death.

Discussion

Suicide pacts are much less common than single suicides and represent only 0.6% of all cases, with a declining rate.^{8,9} Although most cases, as in the present report, involve only two victims,^{4,10} on occasion this may be far greater, as in the Jonestown deaths in 1978.¹¹ An ever-present difficulty with multiple deaths, as was clearly exemplified in the hundreds of victims in Jonestown, is in trying to determine the manner of death in each case.¹² Even with just two decedents in a reasonably uncomplicated incident, there is usually not a suicide note, although one was present in both of the reported cases (even

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being signed by both victims in one instance). Suicide notes tend to be present in only 10–30% of cases of suicide.^{13,14} There has to be evidence of mutual consent in these cases, or at least no evidence of coercion.^{15,16}

Other possibilities that must be considered in the case of two or more decedents at one location are a double/multiple homicide inflicted by a third person, or an accident in cases of inadvertent carbon-monoxide poisoning. The possibility of a murder suicide should be evaluated, particularly if the decedents are well known to each other, or a murder accident if there has been a miscalculation on the part of the perpetrator leading to his/her unintentional death.¹⁷ Natural diseases may even play a role if a carer dies and dependants who are unable to fend for themselves are left for some time unsupported.¹⁸

Victims in suicide pacts have often been older, lonely and socially isolated, married with no children and from higher social classes.^{3,4} The male-to-female ratio has also been equal, contrasting with a male:female ratio of 3:1 in single suicides. Significant illness, including depression, or financial hardships may be present.^{8,19–22} In the reported cases, the ages were 64, 81 and 87 years, the decedents were married and one partner in each case had a significant debilitating and chronic illness. Variations among populations may occur, with suicide pacts between friends being more common in India; occasional cases may involve siblings.^{10,23,24}

A recent development with suicide pacts has been the use of the Internet to connect strangers with others who also wish to die. Termed 'net suicides', the most dramatic case occurred in Japan involving seven individuals.²⁵ Connections are made on message boards or in chat rooms that promote suicide.²⁶ In China, victims have been younger than more traditional cases of suicide pacts (20s to 30s), with deaths occurring in hotels or rental properties involving carbon-monoxide toxicity from charcoal burning.²⁷ How widespread this phenomenon will become is yet to be determined.

Individuals who die in suicide pacts often use less violent methods than those committing solitary suicide, or those who are victims of murder suicides.^{28,29} In the past, methods that have been favoured have included carbon-monoxide poisoning using vehicle exhaust, or drug overdose.³ This is not, of course, always the case, with a study from France showing that among six cases of suicide pacts, gunshot wounds were the most common cause of death.²¹ This may be partly explained by the rural location of the study in an area

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where hunting was popular, as accessibility often determines which technique may be used.³⁰

In the current study, the decedents in the two cases had chosen an unusual method of self-termination for a suicide pact – that of inhalation of nitrogen gas, in the second case augmenting plastic-bag asphyxia. These identical, non-violent methods of death could be taken as an indicator of mutual consent, occurring against a background of significantly worsening chronic disease in one of the partners, which precipitated the action. The use of non-chemically reactive ‘inert’ gases such as helium and nitrogen for suicides has increased in recent years in a number of countries, the lethal mechanism involving the displacement of oxygen. This is often related to information provided in books and on websites on reliable and non-painful methods of suicide.^{6,31–38} For example, in a study of 56 suicides in South Australia involving helium or nitrogen inhalation, the numbers of deaths increased steadily from five in 2003–2007 to 31 in 2013–2017.⁷ However, although the literature has focused on individual suicides utilising these methods, it is possible that inert-gas inhalation may also become the preferred option in the much less common cases of suicide pacts.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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ORIGINAL ARTICLE

Suicide By Asphyxiation Due to Helium Inhalation

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Abstract: Suicide by asphyxiation using helium is the most widely promoted method of "self-deliverance" by right-to-die advocates. However, little is known about persons committing such suicides or the circumstances and manner in which they are completed. Prior reports of suicides by asphyxiation involving helium were reviewed and deaths determined by the North Carolina Office of the Chief Medical Examiner to be helium-associated asphyxial suicides occurring between January 1, 2000 and December 31, 2008 were included in a new case series examined in this article. The 10 asphyxial suicides involving helium identified in North Carolina tended to occur almost exclusively in non-Hispanic, white men who were relatively young (M age = 41.1 ± 11.6). In 6 of 10 cases, decedents suffered from significant psychiatric dysfunction; in 3 of these 6 cases, psychiatric disorders were present comorbidly with substance abuse. In none these cases were decedents suffering from terminal illness. Most persons committing suicide with helium were free of terminal illness but suffered from psychiatric and/or substance use disorders.

Key Words: asphyxia, helium, suicide, right-to-life

(*Am J Forensic Med Pathol* 2010;XX: 000–000)

Publication, in 1991, of the right-to-die manifesto and suicide "how-to" guide, *Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying*,¹ raised a maelstrom of controversy regarding the appropriateness of suicide as a response to terminal or "hopeless" physical illness and exposed divisions within the right-to-die movement itself. In the 1990s, many right-to-die advocates were engaged in public education as to the purported virtues of advanced directives, living wills, and legalized physician-assisted suicide.² At the same time, other elements of this movement, including the Self-Deliverance New Technology (NuTech) Group, were developing technologies to "empower people to die on their own terms by controlling the timing and manner of their own death."² (p. 8) NuTech members, including Derek Humphry, author of *Final Exit*, sought to identify multiple suicide methods that were swift, painless, failure-proof, inexpensive, and nondisfiguring. The group also considered it vital that the method be simple, leave little or no indication that the death was unnatural in nature, and not require a physician's assistance or prescription.²

With its detailed descriptions of diverse suicide methods and specific endorsement of the plastic bag asphyxiation method, publication of *Final Exit* brought an easily understood and generally

effective suicide method to the masses. The book was a commercial success, appearing on the New York Times bestseller list and selling more than 1.5 million copies in the decade following its publication. In 2007, *Final Exit* was named one of the 25 most influential books of the past quarter-century by book critics and editors of USA Today.³

Concerns that suicides in nonterminally ill depressed persons might follow exposure to methods elucidated in *Final Exit* were soon raised,⁴ and dramatic increases in plastic bag asphyxial suicides were observed in New York City⁵ and the United States⁶ in the year following publication of *Final Exit*. Investigators concluded that "most persons exposed to *Final Exit* were not terminally ill and had used it as a suicide manual ... (and that) it is likely that a psychiatric disorder would have been diagnosed in most of these people."⁵ (p. 1509)

Efforts by NuTech and others to develop a more effective suicide method and widely disseminate it to the public have continued to the present. In 2000, a supplement to *Final Exit* was published that presented the first description of helium-assisted plastic bag asphyxiation.⁷ Advocates emphasized the enhanced lethality of this approach, reduction in time required for death to occur to less than 5 minutes, and elimination of the need for a sedative prescription. Proponents of the method also noted that materials needed to complete such suicides are readily accessible and that asphyxiation due to helium inhalation is often undetected by autopsy (where findings are typically nonspecific) or toxicological analysis (because special sampling and assay methods are required). Thus, such suicides are likely to remain undetected in cases where the helium delivery apparatus and plastic bag are removed before the death scene is examined and no other information is available implicating death by helium-assisted asphyxiation. Modifications of the helium method were published in 2002⁸ and 2009,⁹ a DVD including a step-by-step demonstration of the method is available for purchase,¹⁰ and instructional videos depicting the method are accessible on the internet. A schematic of the helium delivery apparatus is presented in Figure 1.⁹

Given the recent development, broad dissemination, and notable lethality of helium-assisted suicide, we endeavored to better understand characteristics of suicides by this method. First, we reviewed findings of extant studies examining suicides by asphyxiation due to helium inhalation. Second, we report new findings from the largest series of these suicides heretofore examined. Results of this investigation may lead to improved identification of helium-assisted suicides by medical examiners, enhanced screening and prevention efforts on the part of physicians and other professionals treating individuals at risk for suicide, and shed new light on unintended deleterious consequences of widespread dissemination of detailed suicide methods to the general public.

MATERIALS AND METHODS

The current report presents findings from 2 related studies. The first is a review of published investigations of suicides by asphyxiation due to helium inhalation. The second is a case series of suicides by asphyxiation due to helium inhalation occurring in North Carolina between 2000 (the year in which the method was first described) and December 31, 2008.

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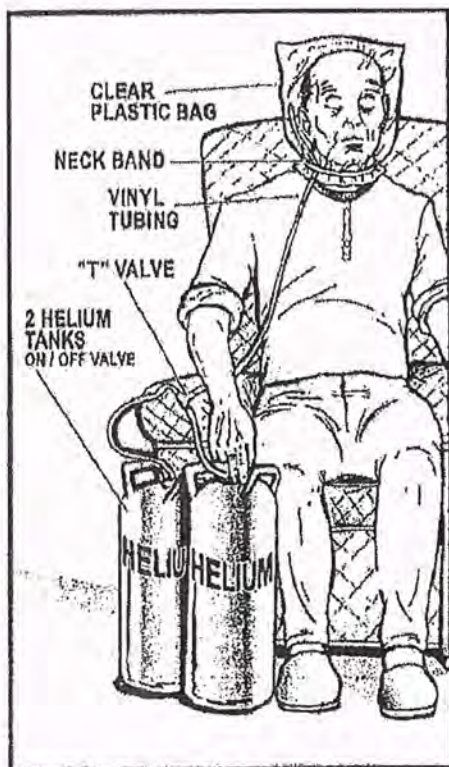


FIGURE 1. Schematic of plastic bag asphyxiation suicide using helium gas in final exit. Reprinted with permission from *Final Exit: The Practicalities of Self-deliverance and Assisted Suicide for the Dying*.⁹ (p.4)

Identification of Published Reports

A broad search of the general medical literature was undertaken for any relevant reports addressing suicide by asphyxiation due to helium inhalation. This process entailed searching the PubMed database for the period January 1, 1957 to November 1, 2009 using the search phrase "suicide and helium." Seven pertinent records were identified as follows: 6 English-language case studies¹¹⁻¹⁶ and a Danish-language case study.¹⁷ A search of EMBASE using the identical approach for the period January 1, 1988 to November 1, 2009 identified the same 7 reports. The 6 English-language reports relevant to this review were published between 2002 and 2007 and present a total of 14 cases.¹¹⁻¹⁶ The Danish study included a synoptic abstract in English indicating that the decedent was a 35-year-old man who had committed suicide with a plastic bag and helium using a "new and highly lethal technique."¹⁷ The case reports included in this review constitute the entirety of published research on helium-assisted suicide and are presented in Table 1.

Identification of Suicides by Asphyxiation Due to Helium Inhalation in North Carolina

All deaths determined by the North Carolina Office of the Chief Medical Examiner (NCOCME) to be asphyxial suicides due to helium inhalation that occurred between January 1, 2000 and December 31, 2008, were included in this study. These suicides were identified through a search of the manner and cause of death fields of the electronic records maintained by the NCOCME. The presence of helium was confirmed by toxicological testing in 9 of 10 identified cases.

Only the first reported case (ie, 2001) was not subjected to toxicological testing for helium. Specimens from suspected helium asphyxiation cases autopsied at the NCOCME are collected in 20 mL headspace vials. In some cases, given that one central laboratory conducts testing for all medical examiner cases in the state, blood samples are delivered to the NCOCME in standard collection vials. Immediately upon arrival, 5 mL of blood from the standard autopsy vial is transferred to a headspace vial for later analysis. Medical records associated with these deaths were manually reviewed and abstracted including the OCME Report of Investigation, State of North Carolina Death Certificate, Report of Autopsy, Toxicology Report, Case Encounter Form, Pathologist's Notes, and Supplemental Report of Cause of Death. On January 5, 2010, the University of North Carolina Institutional Review Board determined that the reported research does not require Institutional Review Board approval under pertinent federal regulations. Characteristics of the 10 cases identified are presented in Table 2.

RESULTS

Review of Published Cases

The first death attributed to suicide by asphyxiation due to helium inhalation reported in the medical literature occurred in September 2000,¹¹ shortly after the description of the method was published. Several investigators asserted that suicides by the helium method had not been seen in their localities prior to publication of the 2000 Supplement to *Final Exit*.^{11,12,15,16}

The 14 decedents whose cases were presented in the 6 published reports ranged in age from 19 to 81 (M age = 50.0, SD = 21.8, median = 48.5). Between these extremes, decedents were approximately evenly divided between those in their 20s, 30s, 40s, 60s, and 70s. Medical and psychiatric histories were scant or entirely unreported for some cases, but revealed a history of depression, prior suicide attempt(s), paranoid schizophrenia, or some combination thereof in 4 (25.6%) cases. In 4 (25.6%) additional cases, psychiatric dysfunction may have contributed to the suicide, given that 3 of these decedents were determined to be in good health (ages 49, 49, and 76) and one mentioned the recent death of his wife as a reason for his suicide in a note left at the death scene. In 5 other cases (including 4 decedents in their 20s or 30s), no medical or psychiatric histories were reported. A terminal disease process was present in only 2 of 14 (14.3%) cases. In 2 (14.3%) additional cases involving men ages 71 and 78, "failing health" and "unspecified health problems" were possible contributing factors. Medical disorders were not implicated in 10 of 14 (71.4%) suicides.

In all reported cases, routine toxicological testing did not reveal the presence of helium and manner and cause of death determinations relied heavily on death scene investigations. Autopsy findings tended to be absent or nonspecific in the 12 cases that involved an autopsy.

In 8 cases (57.1%), a suicide note was found, and in 4 cases (28.6%) right-to-die literature was found at the death scene.

A number of helium delivery devices were employed. Five cases involved use of a mask; 4 of these cases were reported in 2002 or 2003, before plastic bag asphyxiation (without use of a mask) became preferred by advocates of the helium method.⁸ Characteristics of the plastic tubing used, use of rubber bands and Velcro straps to secure plastic bags to the neck, types of helium canisters employed, and use of multiple plastic bags in 1 case were consistent with published descriptions of helium-assisted suicide.⁸

Characteristics of Suicides by Asphyxiation due to Helium Inhalation in North Carolina

Asphyxial suicides in North Carolina involving helium inhalation tended to occur almost exclusively in non-Hispanic, white

TABLE 1. Published Case Reports of Suicides by Asphyxia Due to Helium Inhalation

Authors/Date/Location	Characteristics of Decedent	Medical/Psychiatric History	Helium-Delivery Apparatus	Death Scene	Autopsy Findings	Toxicology Findings
Ogden and Wooten (2002), South Carolina ¹¹	Woman, 60, white, suffering from adenoid cystic carcinoma with related eye involvement and diplopia. Death occurred 9/2000	History of depression and a prior suicide attempt. Unclear whether depression/suicide attempt antedated carcinoma diagnosis.	Found with surgical mask over face and clear plastic bag over head. Next to body was refillable industrial tank of helium. Clear plastic tube led from plastic bag to helium tank valve.	Decedent discovered on living room floor of home with suicide note and copy of her will. The book <i>Final Exit, Final Exit videotape, and Spring 2000 Hemlock society newsletter</i> were found on a nearby coffee table.	Does not appear an autopsy was conducted. It was noted at death scene that decedent's skin color was unremarkable and no external signs of poisoning were observed.	Blood/urine tests for medications and psychoactive substances were negative.
Gilson et al. (2003) Tucson, Arizona ¹²	Cases 1 and 2: man, 49 and woman, 48, who were common-law married. Cases 3 and 4: husband, 78; wife, 76	No specific information presented; decedents were reportedly in good health. Motivation for suicide unclear. Husband reportedly in "falling health" and "depressed"; wife in "good health" other than a recent minor elective surgery. Advanced squamous cell carcinoma of throat, esophageal.	Each decedent had 3 plastic bags over their heads, which were secured by elastic straps around their necks. Both decedents were wearing filler cartridge-style masks attached to helium tanks with plastic tubing. Plastic bag over head with plastic tube running from inside plastic bag to helium tank.	Couple found lying supine by police on floor of master bedroom in their residence. Couples' attorney had called police after receiving a mailed suicide note. No right-to-die materials found. Couple found dead in bed by neighbor. Suicide notes were found close to bodies. Notes referring to the Hemlock society were found in apartment. No other right-to-die materials found. Found by daughter in bed. Family unable to provide information as to whether "right-to-die" literature or suicide note were found at death scene.	Remarkable only for early decompositional changes.	Unremarkable for both decedents.
Gilson et al. (2003) Tucson, Arizona (continued)	Case 5: man, 81	Decedent mentioned unspecified health problems and the recent death of his wife as principal reasons for his suicide.	Plastic bag over head secured with elastic band and Velcro strap at neck. Plastic tube from helium tank connected to the mask inside plastic bag. Plastic bag over head with helium tank to bag with tube passing through a sink where warm water was running.	Found expired in chair in living room of home by police. A suicide note found, but no right-to-die literature.	External exam unremarkable except for decomposition.	Negative for ethanol, medications, and illicit drugs for both decedents. Blood and urine tests were negative, but it was not clear what substances were assayed. Toxicology tests not performed due to decomposition.
Gallagher et al. (2003), Indiana ¹³	Woman, 19, well-nourished	Medical history unknown; motivation for suicide unclear. History of prior suicide attempts (number and nature not described). No description of medical history. Had searched methods of suicide on the internet.	Decedent wore air filter gas mask coated with a substance similar to correction fluid. A helium tank obtained from a local supply company was attached via clear plastic tubing to the mask. Duct tape sealed mask to skin of face covering nose and mouth. A helium gas canister was connected to a plastic bag with polypropylene tubing. The bag was over the decedent's head and affixed to neck with a rubber band.	Found dead in empty bathtub of his apartment by landlord. Right-to-die literature and suicide note were not found. Decedent found supine in backseat of car with helium tank on floor and valve between knees. Many signed suicide notes and a page from the "Church of Euthanasia" website entitled "How to kill yourself" were left in an envelope on the driver's seat. A hand-written map to a local general store was also found in the envelope with a list including tubing, mask and duct tape. A letter was found in decedent's residence describing where her body was located. Decedent was found dead in "lying" position in unidentified location. A nearby empty bottle of tequila, blister pack of travel sickness medication, and pack of Ibuprofen tablets were found.	Unremarkable except for decompositional changes.	Remarkable only for ethanol (234 mg/dL) in decomposition fluid.
Auwarter et al. (2007) Freiburg, Germany ¹⁴	Man, 23	No information presented.	Conjunctival petechial hemorrhages bilaterally. Nares and oral cavity contained frothy white edema fluid. R lung = 670 g; L lung = 620 g. Lungs congested with severe pulmonary edema. No evidence of trauma, injury, or explanation for death other than helium inhalation. Nonspecific findings included "an aqueous swelling of the brain and of the lungs and an acute hyperemia of the kidneys." No evidence of severe illness or injury.	Unremarkable except for decompositional changes.	Routine toxicology unremarkable. Presents a method by which specimens can be collected and analyzed for the presence of helium. Routine tests revealed a BAC of 0.9 mg/g; diphenhydramine in heart serum (0.81 µg/mL) and urine (2.2 µg/mL). Ibuprofen found in urine and gastric content. A positive test for helium by novel assay method was reported.	

(Continued)

Normative Reference Equations for Breathlessness Intensity during Incremental Cardiopulmonary Cycle Exercise Testing

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Abstract

Rationale: Cardiopulmonary exercise testing (CPET) is the gold standard to evaluate exertional breathlessness, a common and disabling symptom. However, the interpretation of breathlessness responses to CPET is limited by a scarcity of normative data.

Objectives: We aimed to develop normative reference equations for breathlessness intensity (Borg 0–10 category ratio) response in men and women aged ≥ 40 years during CPET, in relation to power output (watts), oxygen uptake, and minute ventilation.

Methods: Analysis of ostensibly healthy people aged ≥ 40 years undergoing symptom-limited incremental cycle CPET (10 W/min) in the CanCOLD (Canadian Cohort Obstructive Lung Disease) study. Participants had smoking histories < 5 pack-years and normal lung function and exercise capacity. The probability of each Borg 0–10 category ratio breathlessness intensity rating by power output, oxygen uptake, and minute ventilation (as an absolute or a relative value [percentage of predicted maximum])

was predicted using ordinal multinomial logistic regression. Model performance was evaluated by fit, calibration, and discrimination (C statistic) and externally validated in an independent sample ($n = 86$) of healthy Canadian adults.

Results: We included 156 participants (43% women) from CanCOLD; the mean age was 65 (range, 42–91) years, and the mean body mass index was 26.3 (standard deviation, 3.8) kg/m². Reference equations were developed for women and men separately, accounting for age and/or body mass. Model performance was high across all equations, including in the validation sample (C statistic for men = 0.81–0.92, C statistic for women = 0.81–0.96).

Conclusions: Normative reference equations are provided to compare exertional breathlessness intensity ratings among individuals or groups and to identify and quantify abnormal breathlessness responses (scores greater than the upper limit of normal) during CPET.

Keywords: dyspnea; exercise capacity; normal values

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A complete list of CanCOLD Collaborative Research Group members may be found before the beginning of the REFERENCES.

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ORIGINAL RESEARCH

Breathlessness on exertion (1, 2) is one of the leading causes of chronic suffering and disability and the cardinal symptom in people with cardiorespiratory disease (3). The symptom trajectory is often progressive, leading to a vicious cycle of impaired activity, deconditioning, and worsening of breathlessness at progressively lower degrees of exertion (4). As people reduce their physical activity to avoid the symptom, exertional breathlessness should be measured in relation to a given symptom stimulus, such as at a standardized degree of exertion or ventilation (5).

Cardiopulmonary exercise testing (CPET) is valuable for assessing exertional breathlessness in clinical care and research (6–8), including symptom intensity (measured on the Borg 0–10 category ratio [CR10] scale) (9) and its relation to physiological responses such as power output (watts), rate of oxygen uptake ($\dot{V}O_2$), and minute ventilation (\dot{V}_E). This enables evaluation of 1) underlying pathophysiological mechanisms that may be contributing to breathlessness and 2) interventional efficacy in clinical trials (8, 10, 11).

However, interpretation of breathlessness responses to CPET is limited by the scarcity of normative reference equations. The ability to predict the normal breathlessness response to any given submaximal or maximal power output, $\dot{V}O_2$, and/or \dot{V}_E for an individual is important; it would improve the ability to identify the presence and degree of an abnormal exertional breathlessness response. Reference equations for breathlessness intensity during incremental cycle testing were recently reported by ElMBERG and colleagues (12). However, that study pertained to people referred for exercise

testing in clinical practice, who did not constitute a population-based sample of healthy people, and the study did not include any measurements of gas exchange (such as $\dot{V}O_2$) or \dot{V}_E during the test. Two studies provided data on the normative breathlessness response to symptom-limited incremental CPET on a stationary cycle ergometer. Killian and colleagues reported reference equations for breathlessness intensity in 460 healthy individuals aged 20–70 years (13). However, those equations were limited, as they assumed normally distributed residuals and used linear regression, which can yield predicted scores outside the CR10 scale. In addition, the reference values of Killian and colleagues were calculated in relation to the percentage of a person's achieved peak power output, which is problematic, as 1) in a symptom-limited test, people will stop exercise at similar degrees of breathlessness across health and disease, and 2) a given percentage (such as 75%) of the achieved peak power output can correspond to widely different absolute power outputs, for example, when comparing a person with severe respiratory disease with a healthy athlete. Therefore, those equations have not been adopted for use in clinical care or research (7, 13). NEDER and colleagues reported the distribution of breathlessness intensities during CPET in 275 healthy people (14), including the 95th percentile, which could be used for defining the upper limit of normal (ULN) and abnormal values (greater than the ULN). Breathlessness responses were tabulated in relation to absolute power output and \dot{V}_E but not $\dot{V}O_2$, and, importantly, reference equations were not developed.

Reference equations to predict the normal breathlessness intensity response during CPET are crucial, as they would

enable clinicians and researchers to identify an abnormal exertional breathlessness (score greater than or equal to the ULN) response in individual subjects. Reference equations would further quantify the severity of the breathlessness experienced and compare symptom intensity among individuals and groups. The aim of this study was to develop normative reference equations for breathlessness intensity in healthy women and men aged ≥ 40 years during symptom-limited incremental cycle CPET, in relation to absolute and relative (percentage predicted peak) values of power output, $\dot{V}O_2$, and \dot{V}_E .

Methods

Study Design and Development Sample

This was an analysis of the CanCOLD (Canadian Cohort Obstructive Lung Disease) study (15). CanCOLD is a prospective, population-based study conducted across nine communities in Canada (NCT 00920348). Participants were noninstitutionalized male or female adults aged ≥ 40 years identified using random telephone digit dialing (15).

The inclusion criterion for this analysis was available CPET data from the CanCOLD baseline visit. Exclusion criteria were as follows (Figure 1): known respiratory, cardiovascular, or metabolic disease (self-report of physician-diagnosed asthma, chronic bronchitis, chronic obstructive pulmonary disease, angina pectoris, myocardial infection, any other cardiovascular or cerebrovascular disease, or diabetes mellitus); treatment with a β -blocker; ≥ 5 pack-years of cigarette smoke exposure; abnormally low or high exercise capacity, defined as peak $\dot{V}O_2$ below the lower limit of

The CanCOLD study (NCT 00920348) has received support from the Canadian Respiratory Research Network, the Canadian Institutes of Health Research (CIHR/Rx&D Collaborative Research Program Operating Grant 93326), the Respiratory Health Research Network of Fonds de la Recherche en Santé du Québec, the Foundation of the McGill University Health Centre, and industry partners, including AstraZeneca Canada Ltd., Boehringer Ingelheim Canada Ltd., GlaxoSmithKline Canada Ltd., Novartis, Almirall, Merck, Nycomed, Pfizer Canada Ltd., and Theratechnologies. M.E. was supported by an unrestricted grant from the Swedish Research Council (Dnr: 2019-02081). D.J. holds a Canada Research Chair, Tier II, in Clinical Exercise & Respiratory Physiology from the Canadian Institutes of Health Research. The funders had no role in any aspect of the manuscript.

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This article has a data supplement, which is accessible from this issue's table of contents at www.atsjournals.org.

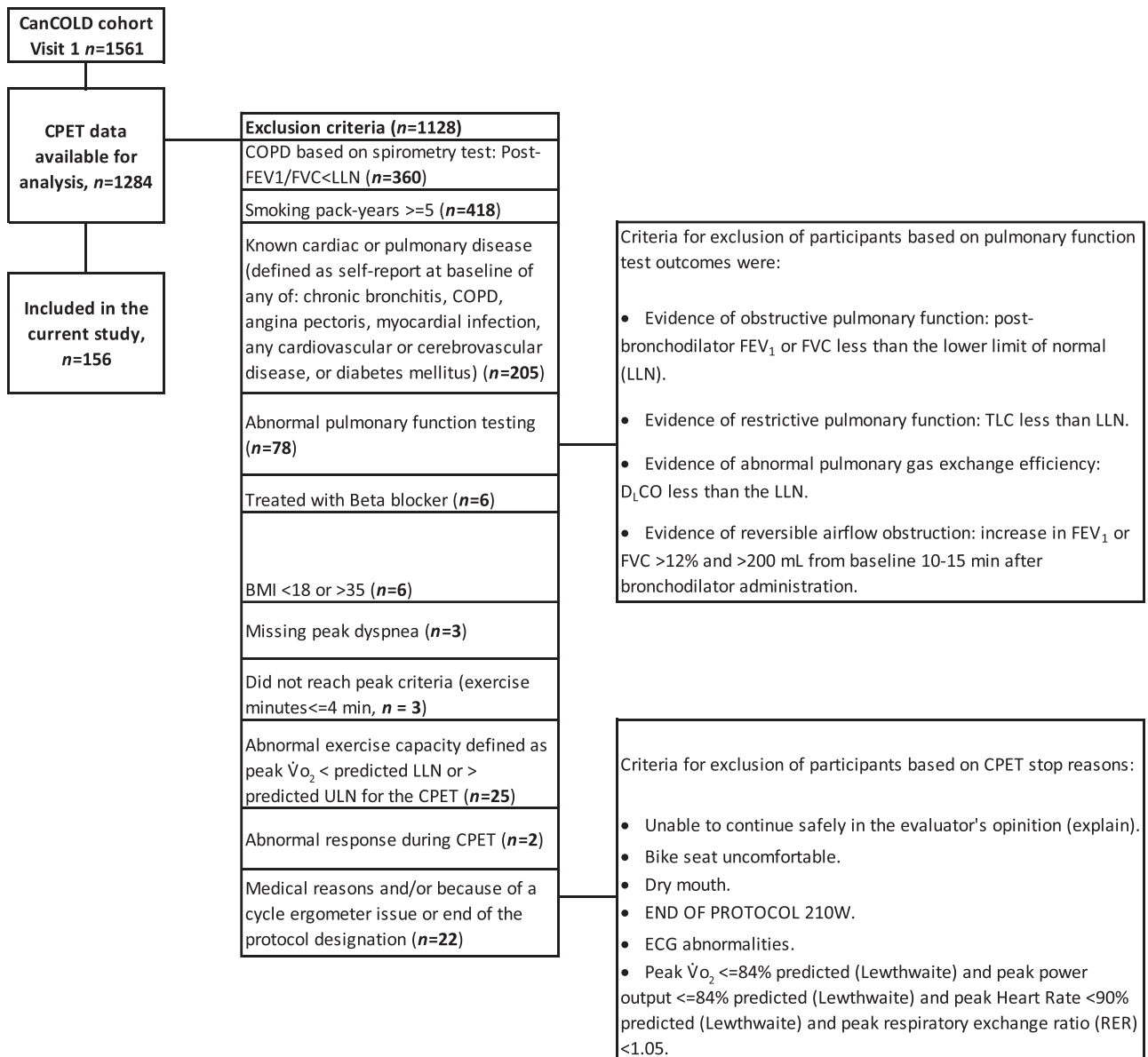


Figure 1. Participant flowchart in the CanCOLD development sample. BMI = body mass index; CanCOLD = Canadian Cohort Obstructive Lung Disease; COPD = chronic obstructive pulmonary disease; CPET = cardiopulmonary exercise testing; DL_{CO} = diffusing capacity of the lungs for carbon monoxide; ECG = electrocardiogram; FEV₁ = forced expiratory volume in 1 second; FVC = forced vital capacity; LLN = lower limit of normal; TLC = total lung capacity; ULN = upper limit of normal; $\dot{V}O_2$ = oxygen uptake.

normal [LLN] or greater than the ULN, respectively (16); impaired lung function at rest, defined as a postbronchodilator value less than the LLN for any of the following: forced expiratory volume in 1 second (FEV₁), forced vital capacity (FVC) (17), FEV₁:FVC ratio, total lung capacity (18), or diffusing capacity of the lungs for carbon monoxide (19); or an increase in FEV₁ or FVC of >12% and >200 ml from baseline 10–15 minutes after the inhalation of 200 µg salbutamol

administered using a spacer. Further exclusion criteria were a body mass index (BMI) <18 or >35 kg/m², inability to reach peak exercise criteria (see Appendix E1 in the data supplement), exercise time < 4 minutes, abnormal response during CPET as judged by the supervising physician, missing peak breathlessness intensity, or termination of CPET by the supervising physician for medical or technical reasons (e.g., a participant reached the end of a

predetermined exercise period before reaching a symptom limitation).

All participants provided written informed consent before completing study assessments. The research ethics board for each participating institution approved the study protocol. The present CanCOLD substudy is reported in accordance with the Transparent Reporting of a Multivariable Prediction Model for Individual Prognosis or Diagnosis statement (20).

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Procedures

Participants in CanCOLD self-reported data on sociodemographics and health (e.g., smoking history, self-reported health conditions) via structured interviews with trained researchers. Body height and mass were measured. Assessments included pre- and postbronchodilator spirometry, diffusing capacity of the lungs for carbon monoxide, and lung volumes measured on body plethysmography using automated equipment in accordance with American Thoracic Society and European Respiratory Society recommendations (15, 21, 22). Predicted lung function values were calculated using Global Lung Function Initiative references (17–19).

CPET

CPET was performed in accordance with recognized guidelines (23) on an electronically braked cycle ergometer using a computerized CPET system (Vmax, SensorMedics [seven sites], $n = 138$ [88.5%]; TrueOne, Parvo Medics [one site], and Ergocard, Medisoft [one site], $n = 18$ [11.5%]). The CPET protocol was standardized across sites, consisting of a steady-state rest period of 3–10 minutes, 1 minute of unloaded pedaling, and then a 10-W increase in power output every minute (starting at 10 W) until symptom limitation. Participants were encouraged to maintain a pedal cadence of 50–70 rpm, and testing was stopped if pedal cadence fell below 40 rpm.

Gas exchange and breathing pattern parameters were collected breath by breath with participants breathing through a mouthpiece and flow transducer while wearing a nose clip. The 12-lead electrocardiogram was monitored to assess heart rate and rhythm; peripheral oxyhemoglobin saturation was monitored using finger pulse oximetry.

Before CPET, breathlessness was defined for each participant as “breathing discomfort” and leg discomfort as “the level of discomfort experienced during pedaling,” and participants were familiarized with the CR10 scale such that 0 represented “no breathing [leg] discomfort” and 10 represented “the most severe breathing [leg] discomfort that you have ever experienced or can imagine experiencing.” Every two minutes during exercise and at peak exercise, blood pressure was assessed, and participants rated their breathlessness and leg discomfort on the CR10 scale. All procedures were the same across the study sites (9).

Physiological variables were averaged over the first 30-second period of every 2-minute interval during CPET and linked with symptom intensity ratings collected over the latter 30 seconds of the same minute. Peak \dot{V}_{O_2} and \dot{V}_E were taken as averages of the last 30 seconds of loaded pedaling, whereas peak power output was taken as the highest power output a participant was able to sustain for at least 30 seconds. Predicted values for peak CPET parameters were calculated using published CanCOLD references (16).

External Validation Sample

Validation was performed on a convenience sample of 86 (49% women) ostensibly healthy participants (i.e., without self-reported conditions or clinical evidence of disease) aged ≥ 40 years, who performed incremental cycle CPET to symptom limitation as part of studies independent from CanCOLD at the institutions of M.K.S. ($n = 27$ from previous studies [24, 25]) and D.J. ($n = 59$; not included in previous studies). Exclusion criteria were abnormal lung function at rest (postbronchodilator $FEV_1:FVC$ ratio or FEV_1 less than the LLN), $BMI < 18$ or > 35 kg/m², peak \dot{V}_{O_2} less than the LLN (16), or missing data on peak breathlessness intensity. Symptom-limited incremental CPET was performed on an electronically braked cycle ergometer using a Vmax SensorMedics metabolic cart and included increments in power output of 15 W/2 min ($n = 1$), 20 W/2 min ($n = 50$), 20 W/3 min ($n = 32$), and 25 W/2 min ($n = 3$), depending on the original study designs. Standardized physiological and symptom assessments were performed similarly as in the CanCOLD development sample.

Statistical Analyses

Baseline participant characteristics are summarized using mean with standard deviation (SD) and median with range or interquartile range (IQR) for continuous variables, as appropriate. Categorical variables are expressed as frequencies and percentages. No data were imputed.

Breathlessness intensity ratings (CR10) were analyzed separately for women and men and by the three CPET parameters (power output, \dot{V}_{O_2} and \dot{V}_E), each evaluated as absolute values or as a percentage of each participant’s predicted maximal value (%pred_{max}) in separate models (16).

Normative reference equations were developed using CanCOLD data and

marginal ordinal multinomial logistic regression. The models were fitted using a generalized estimating equation procedure with cumulative logits link and multinomial distribution, to obtain population-average (marginal) predictions. This method predicts the cumulative probability of reporting an equal or lower score for each of the CR10 scores (0, 0.5, 1, 2, . . . 10). The ULN was calculated using linear interpolation of the linear predictor of the responses closest to below and above a probability of 0.95. The prediction equation was based on the CPET parameter and covariates (specified below) and accounted for the correlation between repeated measurements on the same participant over the exercise time. In this way, no predictions fall outside the CR10 scale range. We used locally estimated scatterplot smoothing plots to check the patterns between the CR10 breathlessness intensity ratings and each of the three CPET parameters. If the trend indicated nonlinearity, restricted cubic splines (26) were applied with four knots, selected on the basis of the distribution of the variables located at the 5th, 35th, 65th, and 95th percentile for men and women separately, constructed using the SAS macro %RCSPLINE (27). Details on how to construct splines are given in the data supplement.

The models were specified, and variables to include were selected using the independence model criterion (QIC), including comparing models with linear variables and cubic splines with four knots. Models with the lowest QICs were preferred. Results indicated that the models with four knots had better fit for most of the variables (see Table E1). Additional factors that may influence the breathlessness response (12) (age, height, body mass, and their interaction terms with the CPET parameter [power output, \dot{V}_{O_2} , or \dot{V}_E]) with P values < 0.05 were also included in the final multivariate reference equations. For use in future validation studies, the distribution of each included variable according to the four knot cut points is shown in Table E2.

Model performance in the development and validation samples was evaluated as calibration (agreement between predicted and observed probabilities for the different breathlessness scores) and discrimination. Calibration plots were created using the predicted probability by deciles on the x -axis and the observed rates by deciles on the y -axis. A

good calibration should lie close to the diagonal line of identify. The models were also validated by calculating average absolute difference (observed minus predicted, as a percentage) between the predicted probabilities and observed frequencies. The discriminative ability of the model was assessed as the area under the curve (C statistic) of receiver operating characteristic analysis, indicating the probability of correct prediction of the different breathlessness intensity ratings. Statistical significance was defined as a two-sided P value < 0.05 . Statistical analyses were conducted using SAS version 9.4 (TS1M5) (SAS Institute Inc.).

Results

Development of the Reference Equations

Data from 156 CanCOLD participants (43% women) were used to develop the normative reference equations (Figure 1). Participant characteristics are shown in Table 1. The mean age was 65 years (range, 42–91 yr), the mean BMI was 26.3 kg/m² (SD, 3.8 kg/m²), and lung function and peak physiological responses during CPET were within normal ranges (Table 1). Breathlessness intensity ratings at peak exercise were similar between men (median, 5 [IQR, 3–7]) and women (median, 5 [IQR, 4–7]).

A penalized B-spline was used to fit a smooth curve for the observed and expected breathlessness intensity ratings, as well as the ULN in men and women by each relative CPET parameter in Figure 2. The distribution of breathlessness intensity responses across each CPET parameter is shown in Figure E1.

In the multivariable modeling, factors that improved the prediction of breathlessness intensity (and thus were included in the final equations) were age, and/or body mass, and/or significant interactions between age and the three CPET parameters (power output, \dot{V}_{O_2} , and \dot{V}_E). The estimates for each factor are shown in Table E3, and the goodness of fit for each model (assessed using the QIC) is shown in Table E1.

The final normative reference equations, with the highest fit for men and women, are provided in Table E4. These equations can be used to predict, for a given absolute or relative (%pred_{max}) value of power output, \dot{V}_{O_2} , or \dot{V}_E , the 1) probability (p) of

reporting each CR10 breathlessness intensity rating among healthy people; 2) probability of breathlessness normality (the predicted probability of having an equal or greater CR10 rating among healthy people); 3) the expected normal breathlessness intensity (which is an anticipated average breathlessness intensity, calculated as the sum of all possible Borg scores, each multiplied by its predicted probability); and 4) the ULN for breathlessness intensity (corresponding to the 95th percentile among healthy people). A spreadsheet for obtaining the calculations is provided in the data supplement.

Internal Validation

The prediction equations showed excellent performance in terms of agreement (calibration) between predicted and observed probability (see Table E5 and Figure E2) and discriminative ability of the models (receiver operating characteristic curves are shown in Figure E3), with C statistics ranging from 0.84 to 0.92 for men and from 0.87 to 0.98 for women. The models performed similarly well in men and women and when using the different CPET parameters (power output, \dot{V}_{O_2} , and \dot{V}_E) as either the absolute value or %pred_{max}.

External Validation

The normative reference equations were applied to the validation sample of 86 healthy adults (see Figure E4): mean age of 68 (SD, 9.9) years, 49% woman, mean BMI of 26.0 (SD, 3.3) kg/m², and lung function and exercise capacity within normal ranges (see Table E6).

Performance of the normative reference equations in the validation sample was high and similar to that observed in the CanCOLD development sample for all the equations (see Table E7 and Figures E5 and E6): the model fit was high, with most differences between observed and predicted probabilities within $\pm 5\%$ (see Table E7). The normal reference values were also well calibrated (see Figure E5), with high discriminative ability to predict the breathlessness intensity ratings (Figure E6): C statistics ranged from 0.81 to 0.92 for men and from 0.81 to 0.96 for women.

Discussion

This study presents normative reference equations for the breathlessness intensity

(CR10) response during symptom-limited incremental cycle CPET. The equations were developed and internally validated in healthy Canadian men and women aged ≥ 40 years and externally validated in an independent sample. The equations can be used to predict 1) the normative breathlessness intensity response during incremental CPET; 2) the breathlessness intensity ULN for a given individual in relation to absolute and relative power output, \dot{V}_{O_2} , and \dot{V}_E , accounting for sex, age, and/or body mass; and 3) the presence of abnormal exertional breathlessness intensity, which can be defined as a CR10 rating greater than the ULN. These parameters enable clinicians and researchers to quantify the normality of breathlessness responses to exercise provocation in individuals and to compare the exertional breathlessness response among individuals and groups. All the normative reference equations showed very high performance in internal and external validation.

Importantly, the normative reference equations can be used to evaluate breathlessness at any point of measurement during CPET, throughout submaximal and peak values for power output, \dot{V}_{O_2} , and/or \dot{V}_E . This enables the evaluation of the exertional breathlessness response in people unwilling or unable to perform a maximal exercise test to the point of symptom limitation.

For the equations using relative power output, \dot{V}_{O_2} , or \dot{V}_E (%pred_{max}), the predicted maximum should be based on the best representative reference material for the underlying population, similarly to the practice for spirometry (22). Expressing breathlessness intensity in relation to %pred_{max}, which accounts for individual differences in age, sex, and height, can simplify visualization of comparisons among individuals or groups.

How the Normative Reference Equations Can Be Used

The normative reference equations developed in this study enable the evaluation and comparison of breathlessness intensity ratings at a standardized degree of exertion or \dot{V}_E during incremental CPET (5). An example of how they can be used to compare breathlessness between a 50-year-old man and a 75-year-old woman is given in Figure 3.

The equations enable the evaluation of a number of important clinical and research questions:

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Table 1. Characteristics of ostensibly healthy participants in the development (Canadian Cohort Obstructive Lung Disease) sample

Characteristic	All	Male	Female
Participants, <i>n</i> (%)	156 (100)	89 (57)	67 (43)
Age, yr, mean (SD)	64.8 (9.5)	65.8 (9.5)	63.6 (9.3)
Range	42.0–91.0	47.0–91.0	42.0–81.0
Height, cm	168.3 (9.5)	173.8 (7.4)	161.0 (6.5)
Body mass, kg	74.7 (14.1)	81.8 (12.3)	65.2 (10.3)
Body mass index, kg/m ²	26.3 (3.8)	27.1 (3.8)	25.1 (3.6)
Cigarette ever-smoker, <i>n</i> (%)	26 (16.7)	13 (14.6)	13 (19.4)
Cigarette smoker pack-years	0.4 (1.1)	0.3 (1.1)	0.4 (1.1)
Hypertension, <i>n</i> (%)	33 (21.2)	20 (22.5)	13 (19.4)
Lung function			
FEV ₁ , %pred	102.9 (13.4)	101.4 (12.0)	104.9 (14.9)
FVC, %pred	106.6 (14.2)	106.0 (13.5)	107.3 (15.1)
FEV ₁ :FVC ratio, %	75.1 (6.7)	73.8 (7.2)	76.9 (5.6)
TLC, %pred	105.5 (13.1)	102.0 (11.5)	110.1 (13.6)
RV, %pred	111.0 (26.8)	104.5 (26.6)	119.7 (24.7)
RV:TLC ratio, % predicted	104.5 (18.4)	101.9 (19.9)	107.9 (15.7)
D _{LCO} , %pred	102.7 (16.6)	104.5 (17.3)	100.3 (15.5)
CPET values at peak exercise			
Work rate, W	131.0 (40.8)	150.4 (37.1)	105.2 (29.7)
W, %pred	102.2 (19.2)	101.8 (17.6)	102.7 (21.2)
HR, beats/min	148 (20.4)	146 (21.8)	150 (18.4)
HR, %pred	100.6 (12.1)	99.9 (13.2)	101.6 (10.3)
V _{O₂} , L/min	1.9 (0.6)	2.2 (0.5)	1.5 (0.4)
V _{O₂} , %pred	100.3 (18.5)	98.1 (16.0)	103.2 (21.2)
V _{O₂} , ml/kg/min	25.4 (6.2)	27.2 (5.7)	22.9 (6.0)
V _E , L/min	66.9 (19.8)	77.0 (18.2)	53.4 (12.4)
V _E , %pred	99.1 (23.2)	102.7 (23.8)	94.2 (21.6)
SBP, mm Hg	185.9 (27.1)	193.3 (24.4)	176.4 (27.7)
DBP, mm Hg	81 (12.1)	82 (12.2)	81 (12.1)
SpO ₂ , %	96.8 (3.1)	96.3 (2.8)	97.4 (3.2)
RER	1.1 (0.1)	1.1 (0.1)	1.2 (0.1)
Breathlessness (CR10), median (IQR)	5.0 (3.5–7.0)	5.0 (3.0–7.0)	5.0 (4.0–7.0)
0, <i>n</i> (%)	3 (1.9)	1 (1.1)	2 (3.0)
0.5, <i>n</i> (%)	4 (2.6)	0 (0.0)	4 (6.0)
1, <i>n</i> (%)	4 (2.6)	4 (4.5)	0 (0.0)
2, <i>n</i> (%)	9 (5.8)	6 (6.7)	3 (4.5)
3, <i>n</i> (%)	19 (12.2)	12 (13.5)	7 (10.4)
4, <i>n</i> (%)	22 (14.1)	12 (13.5)	10 (14.9)
5, <i>n</i> (%)	31 (19.9)	18 (20.2)	13 (19.4)
6, <i>n</i> (%)	8 (5.1)	3 (3.4)	5 (7.5)
7, <i>n</i> (%)	22 (14.1)	11 (12.4)	11 (16.4)
8, <i>n</i> (%)	5 (3.2)	5 (5.6)	0 (0.0)
9, <i>n</i> (%)	23 (14.7)	12 (13.5)	11 (16.4)
10, <i>n</i> (%)	6 (3.8)	5 (5.6)	1 (1.5)
Leg discomfort (CR10), median (IQR)	6.0 (4.0–9.0)	6.0 (5.0–9.0)	6.0 (4.0–9.0)
0, <i>n</i> (%)	1 (0.6)	0 (0.0)	1 (1.5)
0.5, <i>n</i> (%)	1 (0.6)	1 (1.1)	0 (0.0)
1, <i>n</i> (%)	5 (3.2)	4 (4.5)	1 (1.5)
2, <i>n</i> (%)	4 (2.6)	1 (1.1)	3 (4.5)
3, <i>n</i> (%)	14 (9.0)	7 (7.9)	7 (10.4)
4, <i>n</i> (%)	18 (11.5)	6 (6.7)	12 (17.9)
5, <i>n</i> (%)	28 (17.9)	21 (23.6)	7 (10.4)
6, <i>n</i> (%)	8 (5.1)	5 (5.6)	3 (4.5)
7, <i>n</i> (%)	25 (16.0)	14 (15.7)	11 (16.4)
8, <i>n</i> (%)	6 (3.8)	3 (3.4)	3 (4.5)
9, <i>n</i> (%)	24 (15.4)	15 (16.9)	9 (13.4)
10, <i>n</i> (%)	22 (14.1)	12 (13.5)	10 (14.9)

Definition of abbreviations: CPET = cardiopulmonary exercise testing; CR10 = Borg 0–10 category ratio; DBP = diastolic blood pressure; D_{LCO} = diffusing capacity of the lungs for carbon monoxide; FEV₁ = forced expired volume in 1 second; FVC = forced vital capacity; HR = heart rate; IQR = interquartile range; %pred = percentage predicted; RER = respiratory exchange ratio; RV = residual volume; SBP = systolic blood pressure; SD = standard deviation; SpO₂ = oxygen saturation as measured by pulse oximetry; TLC = total lung capacity; V_E = minute ventilation; V_{O₂} = volume of oxygen uptake.

Data are presented as mean (standard deviation) unless otherwise specified.

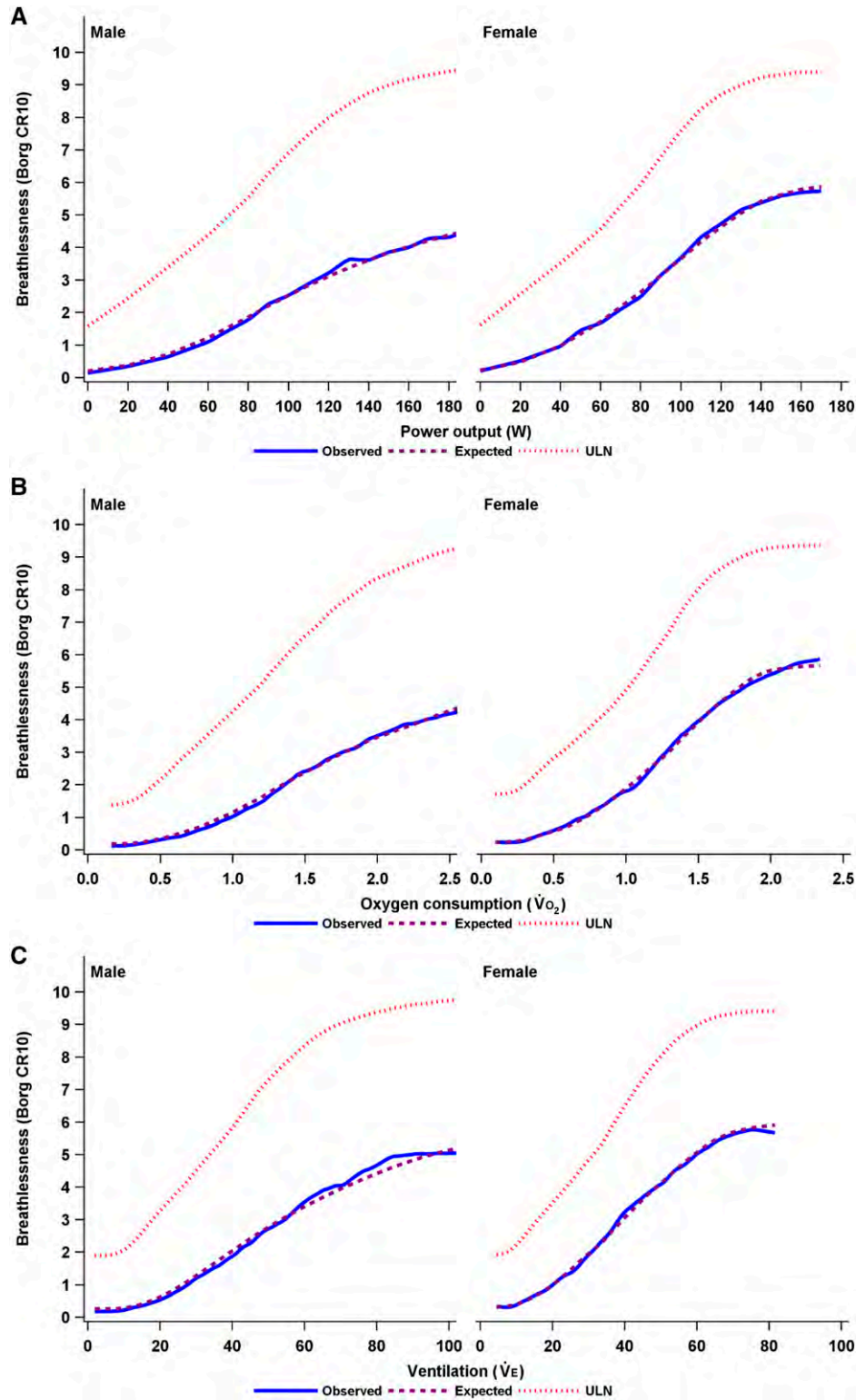


Figure 2. (A–F) Observed and expected breathlessness intensity and the ULN during incremental cycle cardiopulmonary exercise testing in men and women, plotted using penalized B-spline by (A) power output (watts), (B) oxygen uptake ($\dot{V}O_2$), (C) minute ventilation (\dot{V}_E), (D) W % Predmax, (E) $\dot{V}O_2$ % Predmax, and (F) \dot{V}_E % Predmax. The expected breathlessness intensity is an anticipated average breathlessness intensity, calculated as the sum of all possible Borg scores, each multiplied by its predicted probability. CR10=Borg 0–10 category ratio; ULN=upper limit of normal; \dot{V}_E % Predmax= \dot{V}_E expressed as a percentage of the predicted maximal value; $\dot{V}O_2$ % Predmax= $\dot{V}O_2$ expressed as a percentage of the predicted maximal value; W % Predmax=power output expressed as a percentage of the predicted maximal value.

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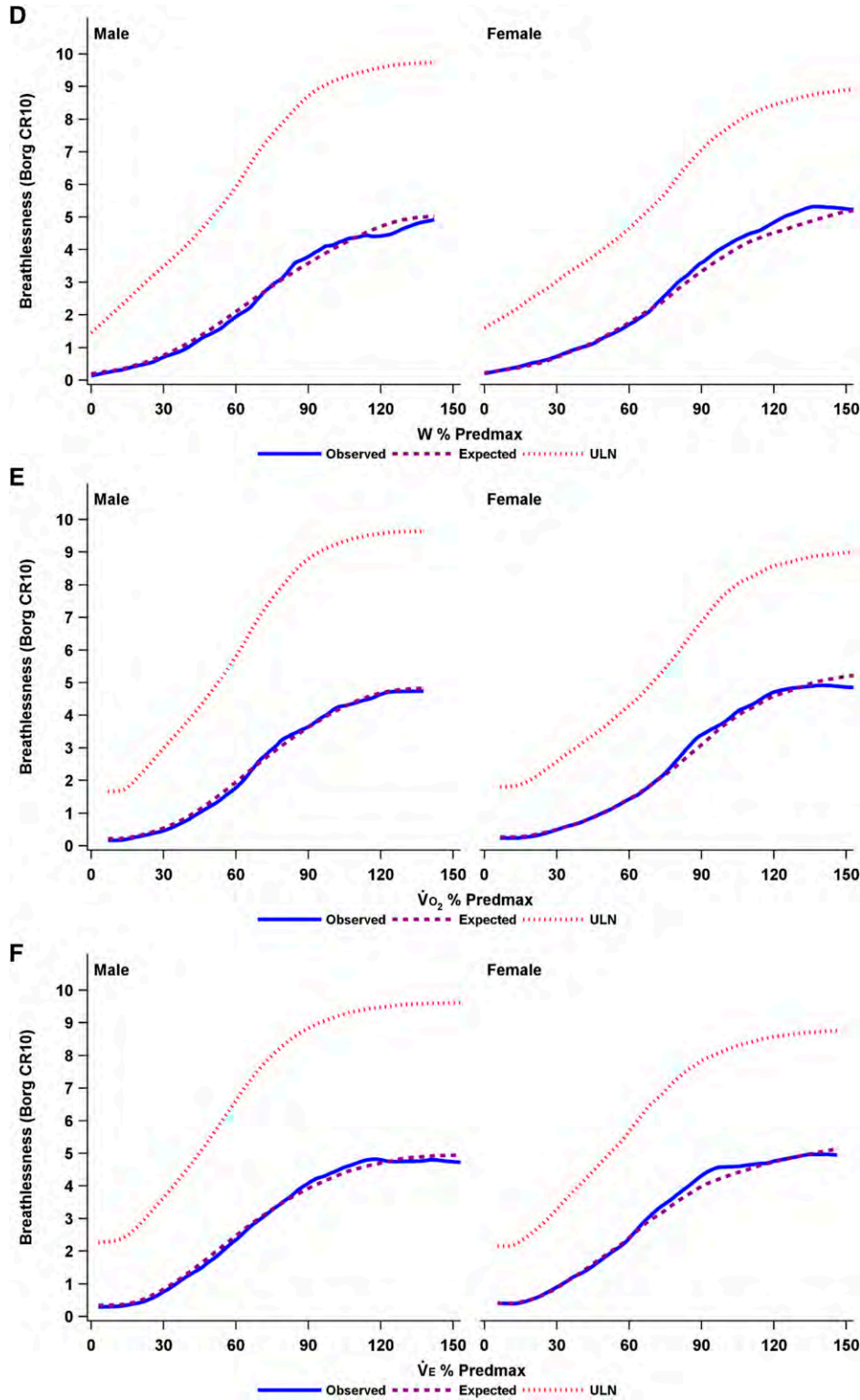


Figure 2. (Continued)

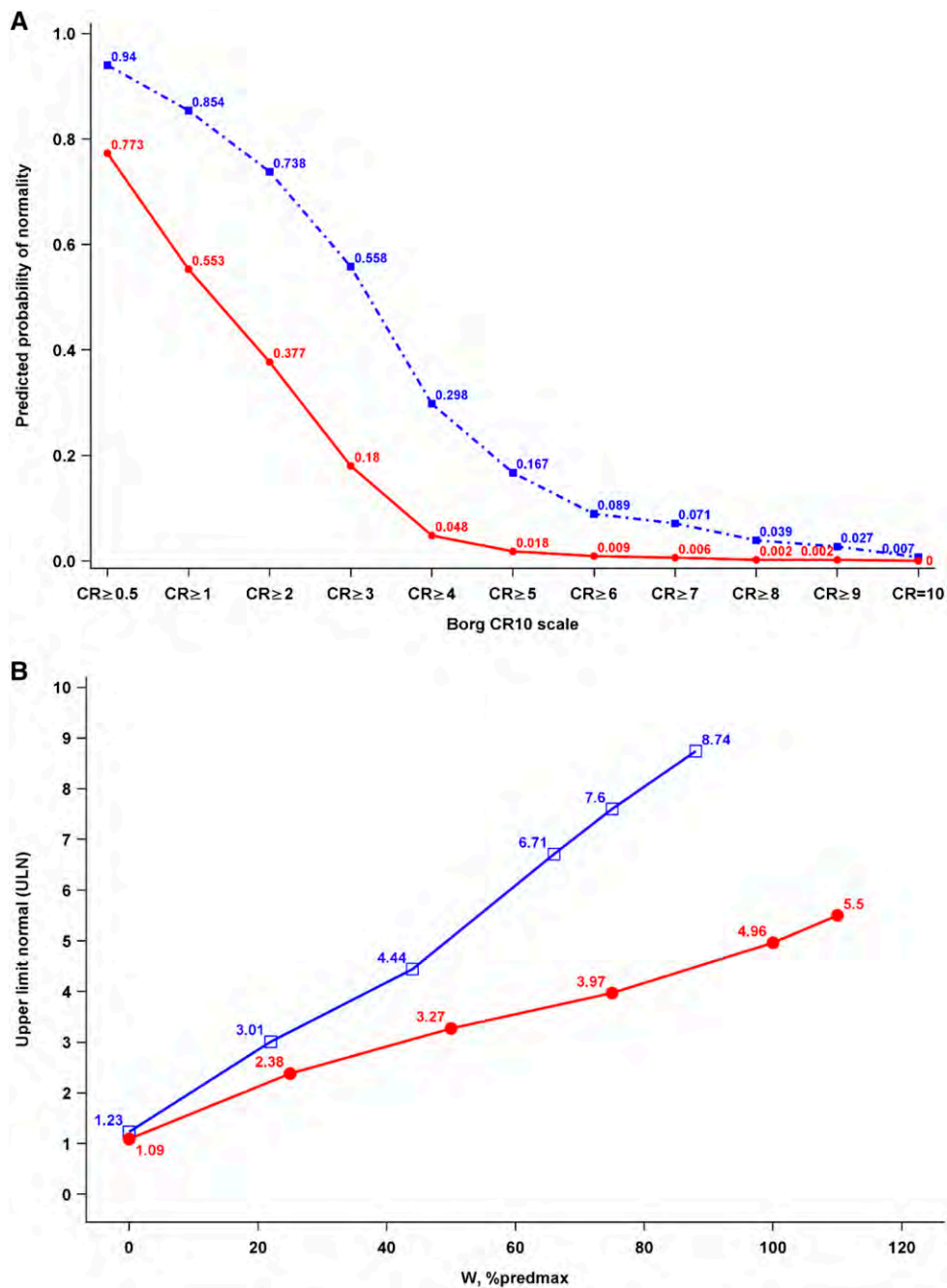


Figure 3. (A and B) Example of the predicted normal breathlessness response to incremental cycle cardiopulmonary exercise testing in terms of (A) probability of normality (defined as the probability of having an equal or greater score among healthy people) for each possible Borg 0–10 category ratio (CR10) score at a power output (watts) of 75% predmax for the individual and (B) the ULN for breathlessness (CR10) intensity at different power outputs. Blue lines are values for a man (age 50 years, body mass 80 kg, height 180 cm) and red lines for a woman (age 75 years, body mass 60 kg, height 170 cm). Both reported a breathlessness intensity of 6 of 10 at power output 75% predmax. That breathlessness intensity had a probability of normality of 8.9% for the man and 0.9% for the woman (A), which was within normal predicted ranges (less than or equal to the ULN) for the man but abnormal (greater than the ULN) for the woman (B). CR = category ratio; % predmax = percentage of the predicted maximal value. ULN = upper limit of normal.

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1. How breathless is a “normal” healthy person? The normal breathlessness intensity response can be predicted in terms of the probability of each CR10 score among healthy people at any absolute or relative power output, \dot{V}_{O_2} , and \dot{V}_E during CPET.
2. How breathless is an individual compared with normal? The intensity of breathlessness compared with the normal reference is given by a score’s probability of normality, which can be interpreted as the predicted percentage of people having equal or greater scores among healthy individuals. In studies without healthy control populations, the reference equations can also be used to create breathlessness intensity ratings for a “healthy comparison group.”
3. Is an individual’s exertional breathlessness response abnormal? An abnormal exertional breathlessness intensity can be defined as a score greater than the ULN (95th percentile or scores, corresponding to a probability of normality of <0.05), similarly to current recommendations for interpreting spirometry values and physiological responses during CPET (16, 22, 28). Of note, the cutoff used to define abnormality can be determined by the user as needed, for example, as a probability of normality <0.90 or <0.99 . The presence of abnormal exertional breathlessness, or the degree of breathlessness severity (probability of normality), can be used to select and characterize participants in clinical breathlessness trials.
4. Is there a difference in breathlessness severity when expressed in relation to power output, \dot{V}_{O_2} , and/or \dot{V}_E ? Differences in breathlessness intensity ratings relative to power output, \dot{V}_{O_2} , and \dot{V}_E may indicate different underlying pathophysiological mechanisms of abnormally high exertional breathlessness, where abnormality in relation to \dot{V}_E might indicate greater critical inspiratory constraints that warrant further investigation and may be amenable to targeted intervention (8, 29).

Strengths and Limitations

CanCOLD is a well-characterized, population-based sample of men and women

undergoing standardized symptom-limited incremental CPET (15). The dataset is unique in its combination of a large-scale population design and detailed physiological assessments, including lung function and CPET performed in accordance with American Thoracic Society and European Respiratory Society standards (21, 22). An extensive set of eligibility criteria were applied to identify a healthy reference sample.

A limitation is the relatively small study sample size. However, the performance of the normative reference equations was also very high in the independent validation sample, which supports the internal and external validity of the current references. The findings pertain to breathlessness intensity measured during incremental CPET on a cycle ergometer in people aged ≥ 40 years, using standardized instructions on the symptom and the CR10 scale.

Next Steps

We suggest that the present normative reference equations be used to evaluate the exertional breathlessness intensity response to CPET. They enable a range of novel studies on validation in clinical populations such as cardiopulmonary diseases and obesity; the development of reference equations for other populations (pediatrics, non-Canadian adults) and breathlessness dimensions (30) such as the degree of unpleasantness and qualities such as “work or effort” or “unsatisfied inspiration or air hunger” (7, 31, 32); the prevalence, degree, and predictors of abnormally high exertional breathlessness in different populations and patient groups; comparing the classification of exertional breathlessness with questionnaires (e.g., the modified Medical Research Council dyspnea scale) commonly used to categorize symptom severity (5) and to select participants for inclusion in clinical trials (33); and the prognostic utility of abnormal breathlessness during CPET for predicting clinical outcomes such as incident disease, hospitalization, and premature death.

Conclusions

This study provides the first reference equations to predict the normal breathlessness intensity response at any standardized relative or absolute power

output, \dot{V}_{O_2} , and \dot{V}_E during symptom-limited incremental cycle CPET, developed and validated for men and women aged ≥ 40 years. The equations can be used to predict the normal exertional breathlessness intensity rating(s) for a given individual, categorize the presence and degree of abnormal exertional breathlessness, and compare the intensity of exertional breathlessness among individuals or groups. ■

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OXYGEN DEFICIENCY HAZARDS ASSOCIATED WITH LIQUEFIED GAS SYSTEMS
DEVELOPMENT OF A PROGRAM OF CONTROLS

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The use of liquefied gases in industry and research has become commonplace. Release into the atmosphere of these gases, whether intentional or not, will result in a displacement of air and a reduction in the oxygen concentration. Exposure to reduced levels of oxygen levels may cause reduced abilities, unconsciousness, or death.

This paper describes the derivation of a novel program of controls for oxygen deficiency hazards. The key to this approach is a quantitative assessment of risk for each planned operation and the application of control measures to reduce that risk to an acceptable level. Five risk levels evolve which are based on the probability of fatality. Controls such as training, oxygen monitoring equipment, self-rescue respirators, and medical surveillance, are required when the probability of fatality exceeds 10^{-7} per hour. The quantitative nature of this program ensures an appropriate level of control without undue burden or expense.

introduction

The release of a liquefied gas to the atmosphere results in a rapid evaporation and expansion to about 700 times its initial volume. Therefore, even small leaks in liquefied gas systems can cause the surrounding atmosphere to become oxygen deficient, explosive, or toxic; depending on the properties of the gas. This paper is concerned only with potential oxygen deficiencies generated from accidental releases of gases which are non-toxic and non-explosive such as the noble gases. Persons exposed to a reduced-oxygen atmosphere may experience reduced abilities, unconsciousness, or even death.

The heretofore accepted control procedure for this hazard involves the calculation of the oxygen concentration which would result from the worst possible accident. If it is possible for personnel to be exposed to an oxygen-deficient atmosphere, then appropriate measures are taken; usually some sort of confined space protocol. Except for the calculation of the lowest possible oxygen concentration, this process is subjective, depending largely on the experience of the evaluator and the safety posture of the employer. Therefore, it is difficult to determine if the level of control is appropriate. Usually this is not a problem since fatalities are rare and the exposed population is typically small. But with a large

exposed population it is necessary to implement an appropriate level of control. Too little control and the rate of injuries and fatalities will be unacceptably high. Too much control and the cost of doing the job may be restrictive.

At Fermilab large quantities of liquefied gases are employed in high energy physics research. Those most commonly used are liquid nitrogen (LN2), liquid helium (LHe), and liquid argon. A major program presently is underway to construct, install, and operate a proton synchrotron ring consisting of about 1000 superconducting magnets, the incorporation of which will increase the maximum energy of accelerated protons from 400 GeV, attainable with presently installed conventional magnets, to 1000 GeV (1 TeV). The 2 km diameter ring will contain about 20,000 liters of LHe and 12,000 liters of LN2. The associated helium reliquefaction plant will contain approximately 5000 liters of LHe and 48,000 liters of LN2 for a system total of 25,000 liters of LHe and 60,000 liters of LN2. Other operations at Fermilab which employ liquefied gases in quantities between 200 and 40,000 liquid liters each include:

1. Superconducting magnets for beam transport,
2. Superconducting spectrometer magnets for high energy physics experiments,
3. Liquid argon calorimeters for high energy physics experiments,

4. Component testing for superconducting systems,
5. Liquefaction of helium for use elsewhere on site, and
6. Materials applications (e.g., purge gas source).

In the majority of instances the liquefied gases are stored or used within enclosed habitable structures, which compounds the potential for an oxygen deficiency. It is estimated that 400-500 persons will be involved in liquefied gas operations which present a significant risk of oxygen deficiency.

Although Fermilab is a large user of liquefied gases, its use represents only a small fraction of the total. The largest quantities are found in air separation plants and in food freezing. Other large particle accelerators also have or plan applications similar to those of Fermilab. In addition, there are many potential large applications of superconductivity which are presently in the development stage. These include magnets for medical NMR imaging, magnetically confined nuclear fusion, magnetic levitation, and electrical power generation, transmission, and storage.

This paper describes the derivation of the Fermilab Oxygen Deficiency Hazards (ODH) Program, which is intended to protect persons from potential oxygen deficiencies which may arise from the operation of large liquefied gas systems. It is based on an analysis of the the following: effects of exposure, existing standards, fatality rates for

various activities, failure mechanisms in liquefied gas systems, and hazard control techniques. Application of the program generally involves the assessment of fatality rates for persons engaged in operations near liquefied gas systems. Protective measures are prescribed which reduce the fatality rate to an acceptable level. This approach is quantitative and it allows for an appropriate set of controls to be implemented.

effects of exposure

Air normally contains about 21% oxygen with the remainder consisting mostly of nitrogen. Individuals exposed to reduced oxygen atmospheres stand to suffer a variety of harmful effects. Table I contains a list of some of these effects and the sea level oxygen concentrations at which they occur.

At even higher altitudes the same effects generally will occur at greater volume concentrations since the partial pressure of oxygen is decreased. This statement must be qualified since persons can become acclimatized to moderate reductions in oxygen. The effects of exposure to reduced oxygen generally are reversible if exposure is terminated early enough. If not, permanent central nervous system damage or lethality result. Perhaps the most important effect, as far as preventing escape from the

vicinity of an oxygen deficiency, is unconsciousness. Figure 1 is a plot of time of useful consciousness versus %O₂ for seated individuals (sea level). The threshold for this effect is about 11%. Between 0 and 5% only a 10-15 s exposure is required to produce unconsciousness. The threshold of unconsciousness for active persons is higher, about 13%⁽⁷⁾, because the rate of oxygen consumption in the body is increased with exercise.

In general, the intensity of the effects increases rapidly with decreasing oxygen concentration and increasing exposure duration: first a reduction of abilities (senses, judgment, motor skills) occurs, then unconsciousness, and finally death. It is concluded that any acute exposure to an atmosphere containing less than 17% oxygen presents a risk.

program derivation

The program must address two broad types of exposure: one in which an oxygen deficiency exists and another in which there is not an oxygen deficiency, but where the potential exists for one to occur. The following discussion will describe the logical development of procedures for each of these exposure situations as well as escape and rescue procedures.

The first step in developing procedures for operations

occurring in oxygen deficient atmospheres was to define what is meant by "oxygen deficiency". Federal regulations and national consensus standards provide a variety of values (Table II). Ranging from 16.0 to 19.5%, most are presented in terms of volume percent of oxygen at sea level, and none is universally accepted. Therefore it was necessary to investigate the problem further in order to derive an appropriate value.

For the purposes of optimizing safety, it is desirable to maximize the oxygen concentration used as the definition of "oxygen deficiency". As was mentioned in the previous effects discussion that the first harmful effects occur at about 17%, therefore the adopted value should certainly be greater than or equal to this. Other national laboratories contacted use 19.5% (Argonne National Laboratory, Brookhaven National Laboratory, Lawrence Livermore Laboratory, and Los Alamos National Laboratory). Our experience with oxygen monitoring equipment suggested that an instrument drift of at least $\pm 1\%$ oxygen could be expected. Therefore, the trip level on oxygen monitoring equipment would necessarily have to be set 1% higher than the truly hazardous level.

For operational convenience, it is desirable to minimize the selected value. There would be situations where operations would be shut down because the oxygen concentration was below the deficiency level. The lower

the deficiency level was defined, the fewer the operations that would be interrupted. In addition, we experienced weekly false alarms when trip levels of the oxygen monitoring equipment were set at 19.5%. The operational inconvenience resulting from these false alarms was considerable. Typically access to buildings in which oxygen levels below 19.5% were indicated would be prohibited until a specified individual arrived on the scene to declare the alarm to be false (usually on off-hours). Also, personnel were becoming inured to the oxygen alarms.

A level of 18% oxygen was adopted as the Fermilab standard. This value provided the 1% margin of safety over the threshold for any harmful effects and completely eliminated the false alarms. The 18% value falls in the range of recommended standards and is the one recommended by the ACGIH.

According to previously existing Fermilab Policy, work in atmospheres containing less than 19.5% oxygen required the use of a self contained breathing apparatus (SCBA) or an airline respirator with an escape bottle. The policy was amended to decrease the oxygen concentration from 19.5 to 18% with the procedures left unchanged. Additionally, at Fermilab the following are preconditions to allow the use of an SCBA: prior medical approval, prior (and periodic) training in its use, and direct Fire Department

supervision of the operation. These procedures are adequate to allow persons to be exposed to an oxygen deficient atmosphere.

At the outset of the operation the oxygen concentration is usually greater than 18%, but it may decrease. In such cases, it is generally impractical to enforce the control measures which are used for oxygen deficient conditions. It was a better approach to provide protective measures in a graduated fashion, i.e., provide protective measures which compensate for the increased risk of fatality from exposure to reduced atmospheric oxygen. This approach requires that:

1. An acceptable fatality rate be defined,
2. A method be devised for determining the excess fatality rate from exposure to reduced atmospheric oxygen, and
3. A scheme of protective measures be devised.

It was decided to use excess fatality rate as the hazard index since death is the primary non-reversible effect of exposure to an oxygen deficiency; most other effects are completely reversible. After careful consideration, it was decided that the national industrial working average fatality rate, 6.5×10^{-8} per hr, would be an acceptable rate. It was concluded that operations near liquified gas systems should be as safe as general industry. It was further decided to "round up" the acceptable value to

1×10^{-7} per hour.

It was established that the fatality rates should be assigned on an operation-by-operation basis and should be averaged over the duration of each operation. For any operation there may be several events which may cause an oxygen deficiency. Each event has a probability of occurrence and each occurrence has a probability of killing someone. We defined the oxygen deficiency hazard fatality rate as

$$\phi = \sum_i P_i F_i$$

where ϕ = the ODH fatality rate (per hour),

P_i = the probability of the i^{th} event (per hour), and

F_i = the fatality factor for the i^{th} event.

The summation is over all events which may occur and result in fatality. The value of P_i is determined by operating experience at Fermilab when possible. If no such operating experience is available, then data from similar systems elsewhere, or other relevant data, are used⁽⁹⁾. Most often direct operating experience is not available and we make frequent use of failure data compiled by the nuclear industry.

The value of F_i is the probability that a person will

die if the event "i" occurs. It depends on how low the oxygen concentration gets and duration of exposure, as well as the difficulty of escape. It often is possible to estimate the value of F_i based on the accident scenario and an understanding of the effects of exposure. For convenience of calculation, a relationship between the value of F_i and the lowest attainable oxygen concentration was defined. It was decided to use the lowest oxygen concentration rather than some average value since this approach was conservative and not enough was understood to allow the definition of an averaging period (for instance). If the lowest oxygen concentration was greater than 18% then the value of F_i would be zero. That is, all exposures above 18% were defined to be "safe" and exposures in this range did not contribute to fatality. However, it was assumed that all exposures to 18% oxygen or lower do contribute to fatality. At very low oxygen concentrations, oxygen deficiency kills directly. At low concentrations unconsciousness occurs, which substantially reduces the probability that an individual will survive the event. At concentrations just below 18%, the senses are dulled and there is a higher than normal probability that the exposed persons will be involved in a fatal accident. Therefore, as the oxygen concentration gets lower, the probability of dying gets much greater. The value of F_i was defined to reflect this dependence.

If the lowest attainable oxygen concentration was 18% then the value of F_i should be 1×10^{-7} . This particular value would cause ϕ to equal 1×10^{-7} per hour if the probability of the event were 1 per hour. If the probability was essentially unity, and the oxygen concentration was equal to 18%, then this operation would be at the threshold for an unacceptable fatality rate. At lower concentrations the value of F_i should increase. At some point the probability of dying will be unity. At 8.8% oxygen, only about one minute of consciousness is expected and F_i was defined to be unity at this point. The selected function is exponential. The value of F_i as a function of lowest attainable oxygen concentration during an event is shown in Figure 2.

The protective measures are implemented in a fashion which reduces the excess risk of fatality from exposure to an oxygen deficient atmosphere to no more than 1×10^{-7} per hour. Something is done whenever this rate is exceeded. The first step is to provide some sort of oxygen monitoring equipment since an oxygen deficient atmosphere is not obvious to the senses. The choice is made whether to use area oxygen monitors, personal oxygen monitors, or some combination of both. Area monitors can provide continuous monitoring and can be connected to access interlock systems or to data acquisition systems to yield failure data. In addition, area monitors provide protection to untrained

bystanders. There are several disadvantages to the use of area monitors. It is inconvenient to calibrate area monitors at intervals which would preclude drift in excess of $\pm 1\%$ oxygen. It may be economically unfeasible to install enough sensors to insure all occupied locations are monitored. The advantage of providing coverage for bystanders is not great if bystanders do not know what to do if they hear the alarm.

Personal oxygen monitors have the distinct advantage of measuring the oxygen concentration at the worker. In addition, these devices could be calibrated daily or more frequently which would minimize instrument drift. Personal monitors also are easy to make failsafe since they would be tested at least daily in a normal atmosphere. Failures would be readily noticed. However, they cannot insure coverage for bystanders and cannot be connected to security interlocks.

Personal monitors were selected for use largely because they measure the concentration of oxygen at the worker, are frequently calibrated, and are easy to make failsafe. In addition, they are less expensive than a system of area monitors which provide equal protection.

A failure probability of 0.01 per demand was assigned to personal oxygen monitors based on the expected error-of-omission rate, i.e., failure to put them on, failure to turn them on, etc. The rate at which the oxygen

monitor itself would fail with no indication was estimated to be less than 0.0001, and thus was neglected. Therefore, if a person were equipped with a personal oxygen monitor, he would reliably be warned of an oxygen deficient condition 99 out of 100 times. If the warning always resulted in safe escape, then work could be allowed for operations which had an ODH fatality rate up to 1×10^{-5} per hour. In some situations, a self-rescue supplied atmosphere respirator may be necessary to escape.

In order to allow work which had an ODH fatality rate of up to 1×10^{-3} per hour, it was decided to require at least two trained and equipped persons be present at the operation. They would each have an oxygen monitor with a failure frequency of 0.01 per demand; the combined failure rate would be 0.0001 (assuming two monitors and independent failures of the monitors). All the personnel would be exposed to the hazard, which reduces their ability to survive. However, they would not be in exactly the same place and the critical failure in this case is in the ability to monitor the oxygen concentration. It was concluded that the multiple oxygen monitor argument could not be extended beyond two monitors because the probability of escape becomes the limiting factor and not the probability of knowing an oxygen deficiency exists.

To permit participation in operations which had ODH fatality rates up to 1×10^{-1} per hour, the requirement for

an unexposed observer was added. This observer would maintain continuous surveillance of the operation and summon help if needed. The observer must not be exposed to the hazard and must not attempt to rescue workers himself. The people engaged in the operation must be appropriately trained and equipped with personal oxygen monitors and, if appropriate, self-rescue supplied atmosphere respirators. Participation in an operation with an ODH fatality rate in excess of 1×10^{-1} per hour requires the same controls as those for an oxygen deficient environment.

These stepped control procedures readily lend themselves to a hazard class system. Table III lists the ODH Class as a function of the ODH fatality rate. For each ODH Class there is a specific set of control measures which reduces the probability of excess fatalities from exposure to reduced atmospheric oxygen to 1×10^{-7} per hour or less.

The foregoing presumes that there is a high probability that workers will escape from an oxygen deficient situation when properly warned. In order to insure this, a program of medical surveillance was established. It was concluded that the following minimum abilities would allow workers to perform satisfactorily in any necessary escape and rescue procedures:

1. Sufficiently acute hearing to recognize an audible oxygen alarm and understand instructions shouted in an emergency;

2. Sufficiently acute vision to see an escape route and any visual emergency escape information;

3. Cardio-pulmonary function adequate to allow the following:

- * Brief exposure to an atmosphere with an oxygen concentration less than 18%,

- * Physical exertion as required for escape, and/or

- * Use of a self-rescue supplied atmosphere respirator;

(The duration of exposure to reduced oxygen would be limited by the time to escape or the time to activate and don a self-rescue respirator.)

4. Sufficient ambulatory capabilities to permit escape;

5. Emotional stability sufficient to preclude panic in the event of an oxygen deficiency.

It is likely that personnel engaged in Class 1 or greater operations will be exposed to reduced oxygen atmospheres more frequently than will other personnel. These uncontrolled exposures to atmospheres containing oxygen concentrations as low as 18% must not significantly increase the probability of fatality, either through direct or indirect mechanisms. At Fermilab, medical surveillance for ODH work is provided by the medical department.

Warning signs were developed which state the requirements explicitly for each of the ODH Classes. These signs, shown in Figure 3, comply with the ANSI standard for safety signs⁽¹⁰⁾. They are required to be posted at all entry points to an operation which is ODH Class 1 or greater.

The emergency evacuation and rescue plan is shown in a flow diagram in Figure 4. The basis of the procedures is that the Fermilab Fire Department is to conduct all rescues. The personnel engaged in the operation are primarily responsible to see that they, themselves, escape. Personnel may assist others while they are leaving the area, but only to the extent that they do not significantly endanger themselves. This is important, since persons not trained and equipped to conduct rescue quite often wind up as victims themselves. Please note that the first two boxes are procedures which occur before personnel are exposed to the operation.

It often is difficult to predict the occurrence of small leaks from cryogenic systems. In order to prevent an oxygen deficiency from occurring due to these leaks, a minimum ventilation rate requirement of one volume change per hour was established for Class 1 or greater operations. Such a ventilation requirement also provides a recovery mechanism from oxygen deficiencies resulting from large releases of inert gases. One volume change per hour is the minimum recommended for any occupied space in an industrial setting⁽¹¹⁾.

operating experience

The oxygen deficiency hazard program discussed above

has been in effect for about one year at Fermilab. ODH analyses have been carried out for over 50 operations occurring in 20 locations. About one-fourth were found to be ODH Class 0, one-half ODH Class 1, and one-fourth ODH Class 2 through 4. In general the guidelines have been readily accepted and conscientiously observed by laboratory personnel. This is due in part to the objective and quantitative nature of the program, an approach which is palatable to the scientific community. In addition, this quantitative approach readily allows the design and implementation of engineering controls which can reduce the risk of fatality to an acceptable level.

As a result of this program, Fermilab has had to investigate oxygen monitoring equipment. After extensive review of commercially available portable monitors, it was found that none performed well enough to meet the requirements of the laboratory. The laboratory re-engineered a commercial unit in cooperation with the manufacturer. This device is shown in Figure 5. Changes included the addition of an on-off switch which can not be accidentally turned off, the moving of the alarm speaker to the outside of the case, improvement of the belt clip to reduce the likelihood of accidental dropping, changing of the display from continuous to intermittent to extend the life of the batteries, and changing the batteries from single use to rechargeable. The laboratory has purchased

about 150 of these portable oxygen monitors to date. They are inexpensive and no failures without alarms have occurred to date.

Although many of the bases for the Fermilab ODH program were arbitrarily selected, they were done so by persons with experience and training in safety and the technology of liquified gas systems. Within these limits the program allows resources to be properly invested: with a balance between getting the job done and making the job safe. It is believed that the approach discussed in this paper can be adopted by other industries which employ large liquified gas systems.

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TABLE I

Effect Thresholds for Exposure to Reduced Oxygen⁽¹⁻⁴⁾
(Healthy Individuals at Sea Level)

Volume % Oxygen	Effect
17	Night Vision Reduced Increased Breathing Volume Accelerated Heartbeat
16	Dizziness
15	Impaired Attention Impaired Judgment Impaired Coordination Intermittant Breathing Rapid Fatigue Loss of Muscle Control
12	Very Faulty Judgment Very Poor Muscular Coordination Loss of Consciousness Permanent Brain Damage
10	Inability to Move Nausea Vomiting
6	Spasmodic Breathing Convulsive Movements Death in 5-8 Minutes

TABLE II
Definitions of an Oxygen Deficient Atmosphere

Source	Standard	Volume % at Fermilab *
ACGIH 1982 TLV's	135 mmHg in air	18.2%
ANSI A10.16-1981 (Tunnel Construction)	19.5 volume %	19.5%
ANSI K13.1-1973 (Respirator Cartridges)	19.5 volume % at sea level	20.0%
ANSI Z9.1-1977 (Open-surface Tanks)	19.5 volume % at sea level	20.0%
ANSI Z88.2-1980 (Respiratory Protection)	19.5 volume % at sea level	20.0%
ANSI Z117.1-1977 (Confined Spaces)	18 volume %	18.0%
29 CFR 1910.94 (Ventilation)	19.5 volume %	19.5%
29 CFR 1910.134 (Respiratory Protection)	16.0 volume %	16.0%
29 CFR 1915.81 (Maritime)	16.5 volume %	16.5%
30 CFR 11 (Respirator Approval)	148 mmHg in air	20.0%
NIOSH ⁽⁴⁾ (Confined Spaces)	132 mmHg in air	17.9%

*Based on an average barometric pressure of 740 mmHg.

TABLE III
Oxygen Deficiency Hazard Classes

ODH Class	ϕ , ODH Fatality Rate (per hour)
0	less than 10^{-7}
1	10^{-7} to 10^{-5}
2	10^{-5} to 10^{-3}
3	10^{-3} to 10^{-1}
4	more than 10^{-1}

Figure Captions

Figure 1 -- Approximate time of useful consciousness as a function of oxygen concentration for seated subjects at sea level.

- Duration of useful consciousness⁽⁵⁾
- Duration of useful consciousness⁽⁶⁾
- △ Time to coma⁽⁵⁾
- ▲ "Threshold" for unconsciousness⁽⁷⁾
- Time to unconsciousness⁽⁸⁾

The results from (5) and (6) were converted from high altitude data by the authors.

Figure 2 -- Graph of the logarithm of the fatality factor (F_i) versus the lowest attainable oxygen concentration which can result from a given event. This relationship may be used when no better estimate of the probability of fatality from a given event is available.

Figure 3 -- Oxygen deficiency hazard warning signs used at Fermilab.

Figure 4 -- Oxygen deficiency hazard escape and rescue plan used at Fermilab. (SRSAR = Self-Rescue Supplied Atmosphere Respirator)

Figure 5 -- The personal oxygen monitor engineered and used at Fermilab (Lumidor LP-COM-30).

Figure 1

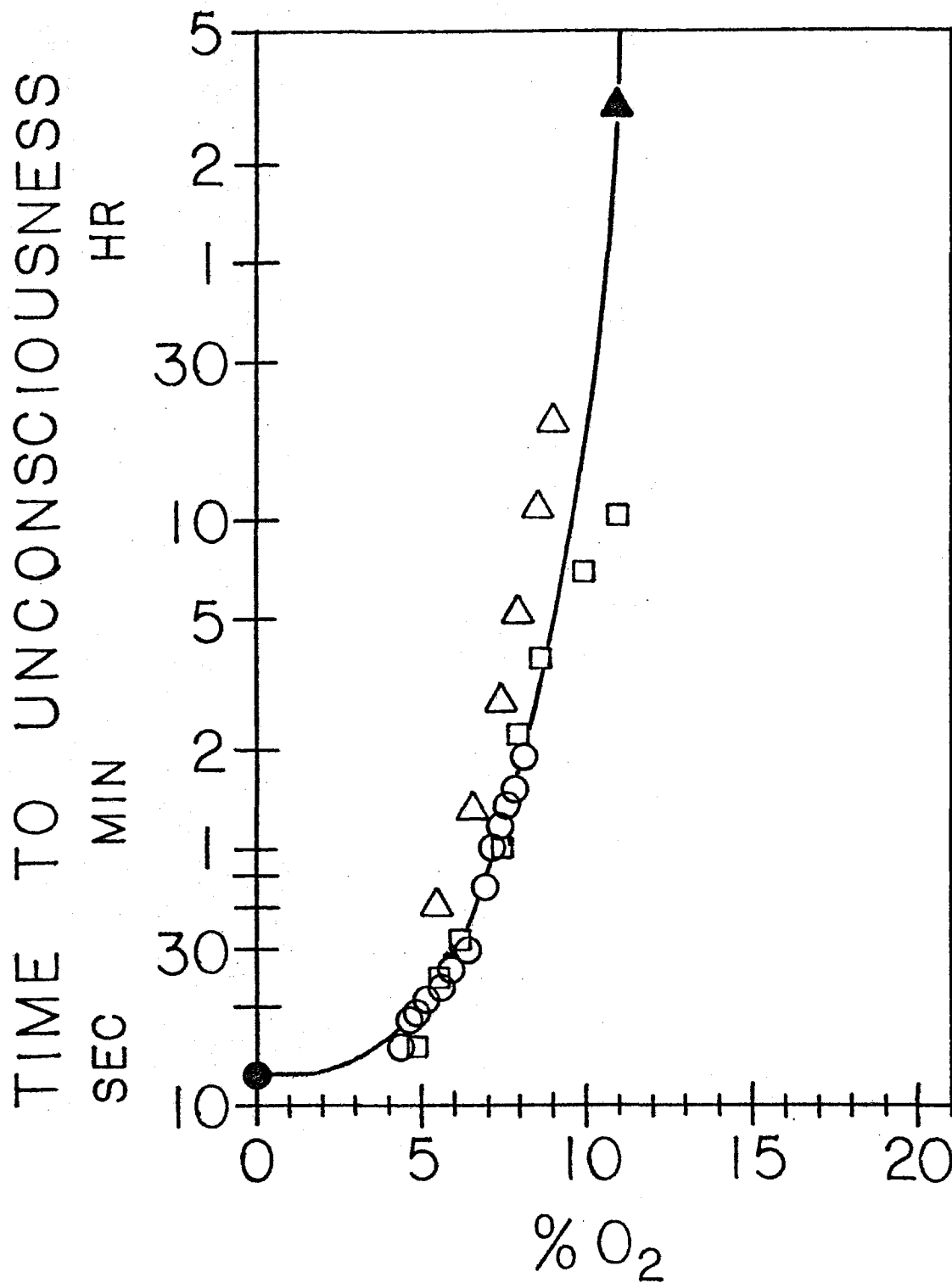
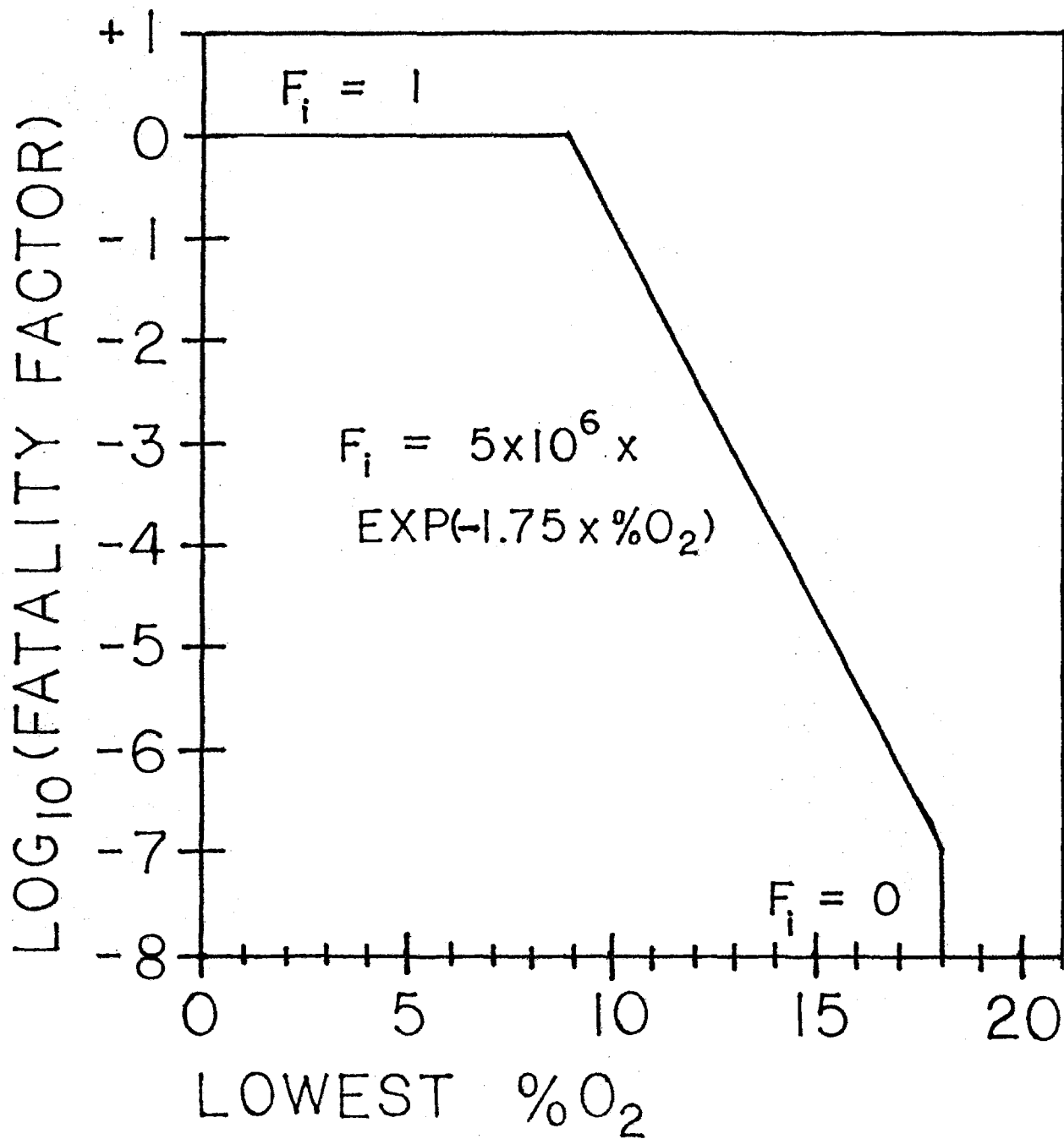


Figure 2



CAUTION

OXYGEN DEFICIENCY HAZARD

1

PRIOR TO ENTRY, ALL PERSONNEL MUST HAVE THE FOLLOWING:

- . A PERSONAL OXYGEN MONITOR
- . A SELF-RESCUE SUPPLIED ATMOSPHERE RESPIRATOR
- . OXYGEN DEFICIENCY HAZARD TRAINING
- . MEDICAL APPROVAL FOR OXYGEN DEFICIENCY HAZARD WORK

ACTIVATE VENTILATION PRIOR TO OCCUPATION.

CAUTION

OXYGEN DEFICIENCY HAZARD

2

PRIOR TO ENTRY, ALL PERSONNEL MUST HAVE THE FOLLOWING:

- . A PERSONAL OXYGEN MONITOR
- . A SELF-RESCUE SUPPLIED ATMOSPHERE RESPIRATOR
- . OXYGEN DEFICIENCY HAZARD TRAINING
- . MEDICAL APPROVAL FOR OXYGEN DEFICIENCY HAZARD WORK

MULTIPLE PERSONNEL IN CONTINUOUS COMMUNICATION REQUIRED.
ACTIVATE VENTILATION PRIOR TO OCCUPATION.

DANGER

OXYGEN DEFICIENCY HAZARD

3

PRIOR TO ENTRY, ALL PERSONNEL MUST HAVE THE FOLLOWING:

- . A PERSONAL OXYGEN MONITOR
- . A SELF-RESCUE SUPPLIED ATMOSPHERE RESPIRATOR
- . OXYGEN DEFICIENCY HAZARD TRAINING
- . MEDICAL APPROVAL FOR OXYGEN DEFICIENCY HAZARD WORK

RULES FOR ENTRY INTO CONFINED SPACES MUST BE FOLLOWED.
ACTIVATE VENTILATION PRIOR TO OCCUPATION.

DANGER

OXYGEN DEFICIENCY HAZARD

4

ENTRY AND OCCUPANCY MUST BE SUPERVISED BY THE FIRE DEPARTMENT.
PRIOR TO ENTRY, ALL PERSONNEL MUST HAVE THE FOLLOWING:

- . A PERSONAL OXYGEN MONITOR
- . A SELF-CONTAINED BREATHING APPARATUS (SCBA)
- . TRAINING IN OXYGEN DEFICIENCY HAZARDS AND USE OF SCBA'S
- . MEDICAL APPROVAL FOR OXYGEN DEFICIENCY HAZARD WORK AND SCBA USE.

ACTIVATE VENTILATION PRIOR TO OCCUPATION.

Figure 3

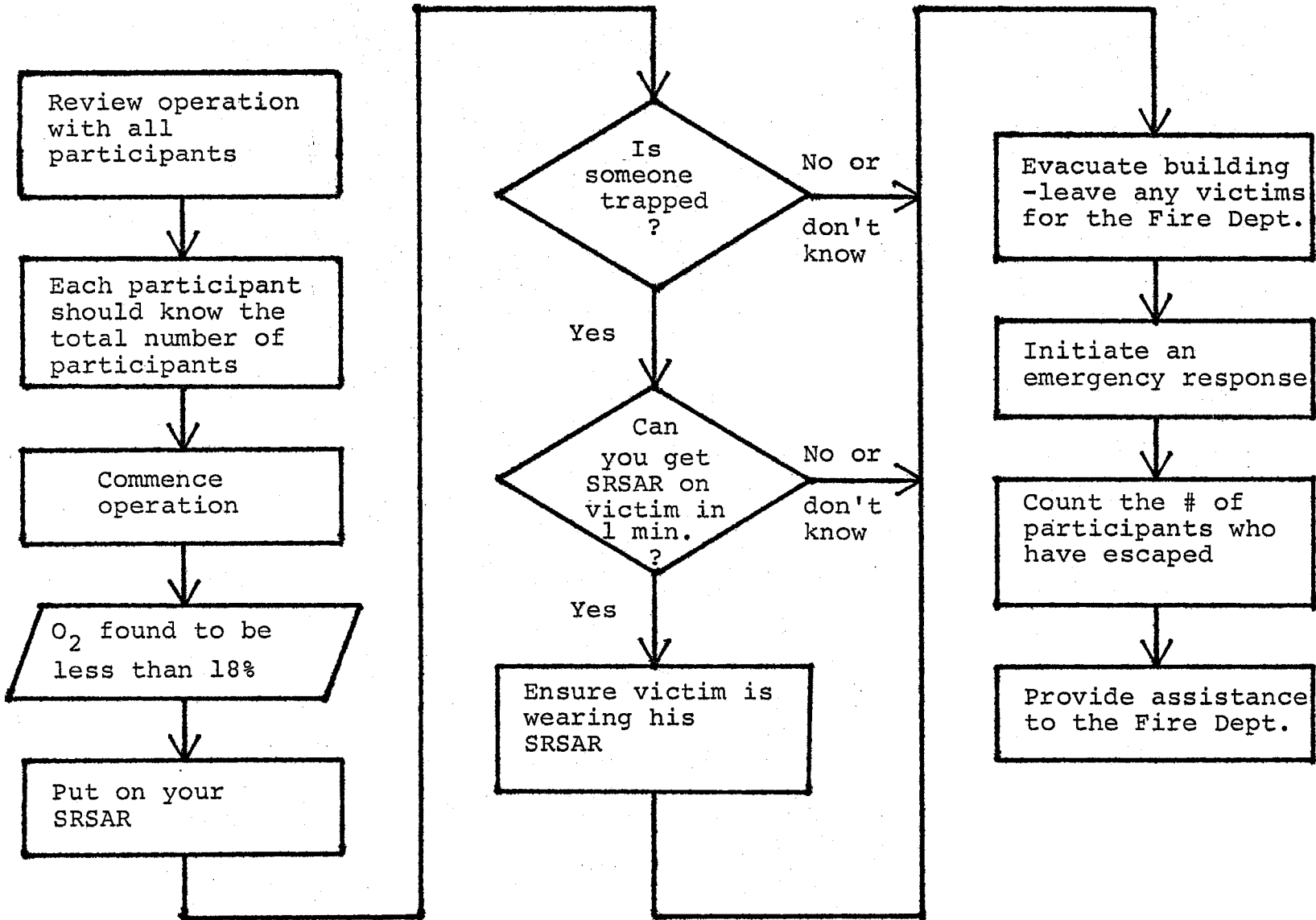
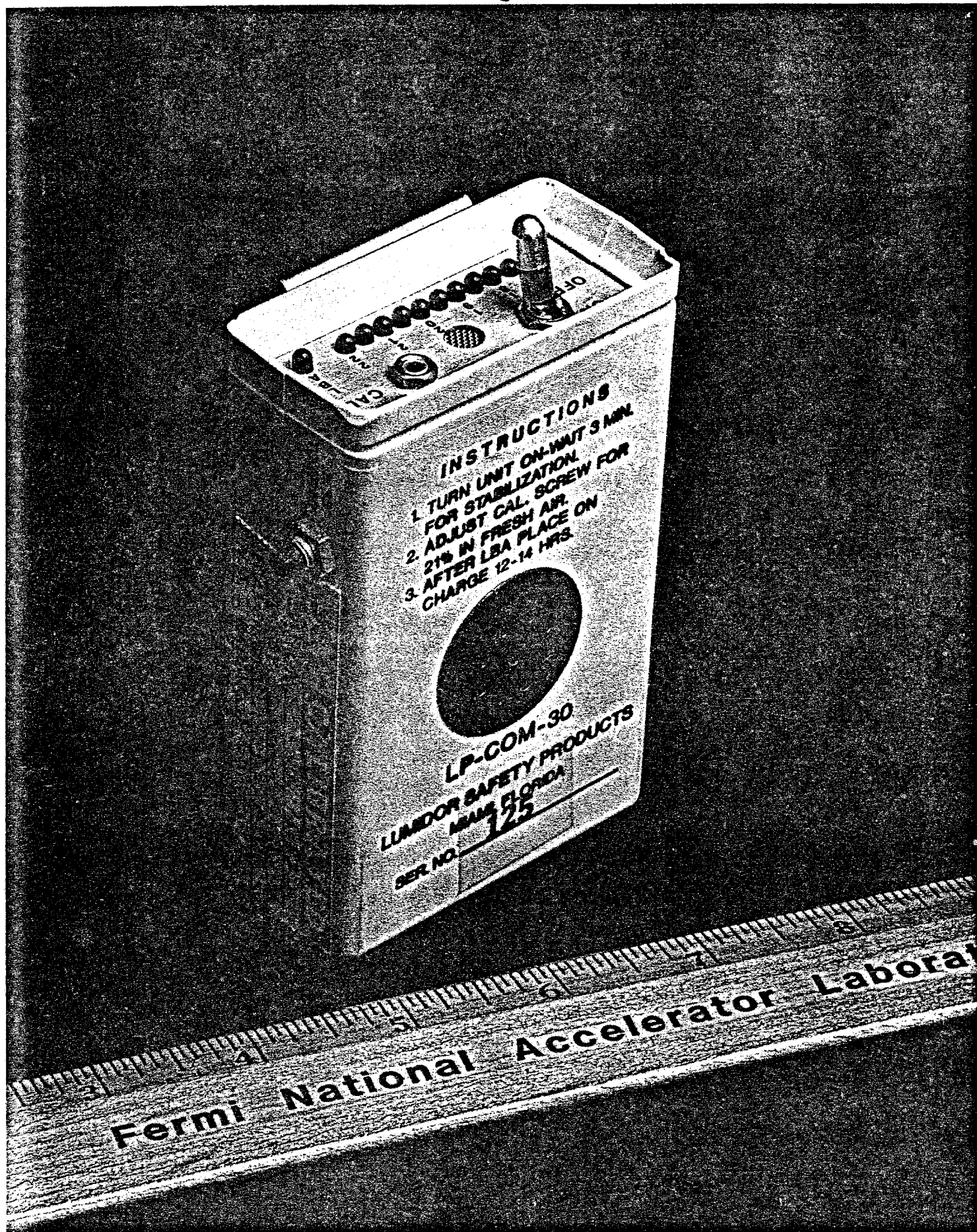


Figure 4

Figure 5



INSTRUCTIONS
1. TURN UNIT ON-WAIT 3 MIN FOR STABILIZATION
2. ADJUST CAL. SCREW FOR 21% IN FRESH AIR
3. AFTER LBA PLACE ON CHARGE 12-14 HRS.

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**CASE REPORT****PATHOLOGY/BIOLOGY; TOXICOLOGY**

Lubomir Straka,¹ M.D., Ph.D.; Frantisek Novomesky,¹ M.D., Ph.D.; Anton Gavel,² M.D.; Juraj Mlynar,³ Ing., C.Sc.; and Petr Hejna,⁴ M.D., Ph.D.

Suicidal Nitrogen Inhalation by use of Scuba Full-Face Diving Mask

ABSTRACT: A 29-year-old man was found dead lying on the bed in a hotel room in a famous Slovak mountain resort. He had a full-face diving mask on his face, connected through a diving breath regulator to a valve of an industrial (nondiving) high-pressure tank containing pure 100% nitrogen. The breath regulator (open-circuit type) used allowed inhalation of nitrogen without addition of open air, and the full-face diving mask assured aspiration of the gas even during the time of unconsciousness. At autopsy, we found the typical signs of suffocation. Toxicological analysis revealed 94.7% content of nitrogen in alveolar air. Following the completion of the police investigation, the manner of death was classified as a suicide. Within the medico-legal literature, there has been only one similar case of suicidal nitrogen inhalation described (1).

KEYWORDS: forensic science, forensic pathology, suicide, nitrogen, nitrogen asphyxiation, gaseous suffocation, full-face diving mask, sudden sniffing death, analysis of alveolar air

Nitrogen (N₂) as a separate gas element was discovered in 1772 independently by D. Rutherford and H. Cavendish. Later, A. Lavoisier declared nitrogen as the principle component of Earth's atmosphere. Nitrogen is physiologically an inert, nontoxic gas, not involved in human metabolism. In water and soils, nitrogen can be found in the form of nitrates and nitrites. In the human body, nitrogen is a constituent element of amino acids and thus of proteins and nucleic acids (DNA and RNA).

Nitrogen, like argon, methane, propane, and carbon dioxide, is considered to be a simple asphyxiate gas. It may displace oxygen from the inhaled air causing a life-threatening condition. Reduction in atmospheric oxygen to less than 25% of normal value can lead to rapid unconsciousness and death in minutes.

In this paper, we report on the analysis of a suicide of a 29-year-old man committed by inhalation of 100% nitrogen. In the medico-legal literature, there has been only one similar case of suicide by inhalation of nitrogen described (1).

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Case Report

Case History

A 29-year-old student from Germany was found dead in a hotel room on the last day of his 3-day biking tour at a mountain resort. According to hotel staff, he had been unaccompanied, he was only in obligatory contact with the reception desk and was last seen in the evening several hours prior to his death. His undressed body was found by a cleaning staff lying on a bed in the supine position with his upper arms extended sideways (Fig. 1).

There was a full-face diving mask (CRESSI-SUB, Genoa, Italy) found on the face of the victim, being snugly sealed by rubber straps (Fig. 2). The glass of the full-face mask was covered with tiny droplets of the condensed vapor on the inner side. The full-face diving mask was connected with a second stage of standard open-circuit scuba (self-contained underwater breathing apparatus, NOAA) diving regulator (Seemann-Sub, Germany). The 2nd stage of the above-mentioned regulator was connected via a flexible medium-pressure rubber hose with the 1st stage of the scuba breathing system used. Finally, the 1st stage of the regulator was firmly screwed into the orifice of a valve of a high-pressure industrial gas tank (inner capacity 6 L, remaining pressure 87 bars; Lübke, Germany), filled with pure nitrogen. Both regulators were in the open position.

There was also a notebook, tourist map, navigational instruments, wallet (with credit cards and a large amount of cash), and a cellular phone on the table besides the body. In the lobby of the room was a mountain bike. The police investigator, after consultation with a public prosecutor and forensic expert, asked for a medico-legal autopsy of the deceased (Fig. 3).

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FIG. 1—The body of deceased with a diving full-face mask fixed on the face.



FIG. 3—Diving mask connected to a high-pressure tank.



FIG. 2—Diving full-face mask tightly fixed on the face.



FIG. 4—Tiny hemorrhagic foci on the pleura of both lung lobes.

Autopsy Findings

The male deceased was 183 cm tall and weighed 90 kg. On external examination, there was intensive postmortem lividity, hyperemia and pin-point hemorrhages, and multiple petechiae on the skin of the shoulders. There was no evidence of trauma.

The internal examination revealed the following findings: the brain of the deceased was swollen with dilatation and congestion of blood vessels in the leptomeninges. Both lungs were enlarged, congested, and edematous (left lung weight 750 g; right lung weight 950 g). Tiny hemorrhagic foci were found on the pleura of both lungs (Fig. 4). There was a pinkish mucous froth in the airways. The heart was excessively dilated, and the muscular walls were flaccid, with a total loss of tonus. The abdominal organs were congested, and the liver was slightly enlarged (1670 g) without, however, visible morphological changes. The blood within the whole body was dark red and fluid. The remainder of autopsy was unremarkable.

Microscopic Findings

Microscopy of the lungs revealed diffuse foci of intra-alveolar hemorrhagic edema, together with acute emphysema of alveoli

and passive congestion of septal vasculature. A microscopic examination of the brain revealed pericellular and perivascular edema with passive congestion of the capillaries. The microscopic structure of the other parenchymatous organs was found to be normal and appropriate to the age of the deceased. All the organs were congested due to terminal circulation failure.

Toxicological Analyses

Samples of blood, urine, brain, lungs, suprarenal gland, and adipose tissue were investigated using screening (thin layer chromatography; immunochromatographic assay) and specific methods (gas chromatography with head-space injection; gas chromatography with mass selective detector). Analyses were focused on drugs, drugs of abuse, ethyl alcohol, and other volatile compounds.

Alcohol and volatile compounds in blood and drugs testing resulted in negative findings.

Isolation of the alveolar air from the lungs to special plastic bags (2–4) was performed immediately after isolation of the lung samples at the autopsy. Analysis of the air isolated from both lungs was performed separately, in a specialized accredited testing laboratory, focused to nitrogen, oxygen, and carbon oxide

determination and quantification. The analysis of basic instrumental conditions (accredited method) included the following:

Method: gas chromatography

Column(s): a system of six molecular sieve-based packed columns and four valves in combination

Temperature: 60°C, isothermal chromatography

Carrier gas: helium, purity 5.0

Detector: TCD

Injection volume: 1000 µL and 250 µL, respectively

Expanded uncertainty of measurement (% of the determined concentrations): 1% for nitrogen; 3% for oxygen; 10% for carbon oxide.

The results were as follows:

Right lung: nitrogen—91.0% (v/v), oxygen—8.51% (v/v), carbon oxide—0.49% (v/v).

Left lung: nitrogen—94.7% (v/v), oxygen—4.71% (v/v), carbon oxide—0.59% (v/v).

Postmortem toxicology revealed nitrogen in both the lungs at extreme levels.

Following the completion of laboratory examination and autopsy, the cause of death was attributed to nitrogen asphyxiation. Further investigation provided by the German police revealed that the deceased man had made suicidal declarations in the past and that the diving equipment was his own. Furthermore, his close relatives confirmed suicidal ideations of the deceased; however, an apparent reason remained unclear. Following the completion of the police investigation (both German and Slovak), the manner of death was classified as a suicide.

Discussion

In the medico-legal practice, lethal episodes of breathing gas mixtures with a low percentage of oxygen (or even no oxygen in the mixture at all) should appear in situations as follows:

- Autoerotic maneuvers, where the lack of oxygen stimulates the libido of the subject (5-7).
- Accidental entrance of the subject to places with low-oxygen atmosphere (corroded steel tanks, tunnels, mines) or places where the oxygen was partly/totally displaced by another nontoxic gas (laboratories, volcanic fumaroles; 8-13).
- Deep diving, when the diver in the process of decompression by mistake switches and starts to breathe a low-oxygen gas mixture (bottom mix; 14-16).
- Suicidal attempts where the subject voluntarily breathes inert gas (e.g., nitrogen, helium, propane-butane mixture) from a separate container (5,17-22).

Nitrogen inhalation fatalities are very rare. From the described cases, most are accidents (8,10,13,23). Accidental nitrogen asphyxiation causes about eight deaths per year in the U.S.A. (23), which is asserted to be the highest number of intoxications than by any other industrial gas. In 1981, shortly before the launch of the first space shuttle mission, two technicians lost consciousness, and one of them died after they entered the orbiter aft compartment, which was pressurized with pure nitrogen as a precaution against fire (8). A laboratory assistant died in Scotland in 1999, apparently from nitrogen asphyxiation, after entering the basement storage room where liquid nitrogen had spilled (10). A similar case was referred to by Kernbach-Wighton (13). In similar episodes of collapse, suffocation and

death may be encountered where workers enter ship cargo spaces or when cleaning or inspecting fuel tanks of ships, as some industrial tanks contain high concentrations of nitrogen (11). Deliberate nitrogen asphyxiation is also viewed by some as a more humane way to end human life (24). Nevertheless, execution by nitrogen asphyxiation is not used by any nation in the world. Suicidal nitrogen inhalation is an extremely rare event. There has been only one case published in the medico-legal literature (1). In the case mentioned, 50-year-old man committed suicide with a do-it-yourself suicide device: homemade breathing tent constructed from a plastic milk crate covered with a clear plastic shower curtain sealed with the duct tape. The tent was connected by the tube to a valve on a large cylinder of industrial nitrogen gas.

If pure nitrogen is being breathed, the alveolar oxygen content from the previously breathed air decreases very fast. Mathematically speaking, breathing of pure nitrogen leads to the situation where an even less number of oxygen molecules pass through alveolar-capillary membranes in the lungs; thus, the capillary blood is less saturated by oxygen. After a few breaths, the alveolar spaces become completely filled with pure nitrogen, and hence, the fatal asphyxia of the victim develops.

Deaths from suffocating gases are caused not by the toxic nature of the gases, but rather by displacement of oxygen from the breathed gas mix (e.g., atmospheric air; 11,12,18-20,25-27). Determination of the cause of death in such cases is enhanced by knowledge of the circumstances surrounding the death (5,8-10,12,17-20). There are no specific findings at autopsy, save for the signs of suffocation, and deep asphyxia. Thus, it is not the inert gas itself, but a lack of oxygen that kills.

While analyzing the presented case, the authors were convinced that the above-mentioned information concerning the effects of pure nitrogen breathing as a way to end one's life was available to the deceased. The hypothesis of suicide in the case reported seems to be confirmed by the following facts:

- Use of the full-face diving mask, fixed in the occipital region of the head by three rubber straps (spider), thus providing continual inhalation of the pure nitrogen even after loss of consciousness of the victim (no mouthpiece on the diving regulator used),
- No evidence of sexual paraphilia at the place of death (no pornographic materials, no erotic devices, adverse achievement from interrogation of the cell phone and the notebook, no signs of spermatism, his nakedness is explainable by high ambient temperature in the hotel room (detected at the time of examination at the place),
- Demonstrative, organized placement of his personal property (money, credit cards, passport, documents, etc.) on the table in the hotel room,
- Suicidal ideations and declarations of the deceased, confirmed later by his close relatives.

The unanswered question still remains concerning the use of a scuba diving regulator, which suggests some knowledge of the victim concerning scuba (self-contained underwater breathing apparatus) diving. This probability was not confirmed by the authors, even with close cooperation with police authorities of both the countries involved in the case. However, if the victim had even basic scuba diving training (the scuba gear was his own), he was thoroughly informed about the effects of nitrogen, which is a gas treated very seriously due to its narcotic effects in elevated pressure (14,28,29) even in recreational diving practice.

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The authors did not find any information concerning a case of nitrogen sniffing in the literature; however, there are several cases of death due to other breathing gases (suicide, autoerotic maneuvers) in the literature (5–7,17–22).

The presented case seems to be remarkable for several reasons:

- An unusual and literally curious way of nitrogen asphyxiation via scuba diving equipment (full-face mask).
- The manner of the suicide indicating long-term planning (knowledge of nitrogen effects and also of diving gear).
- Nonspecific autopsy finding, confirmed by special alveolar air analysis.
- The open unresolved question why a German citizen chose a Slovak mountain resort (where there was no possibility to dive), very far from his home, to commit suicide by a rather bizarre and complicated way.

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Suicide Attempt by Inhalation of Argon Gas

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Suicide attempts using asphyxiants have been increasing compared to the past. Argon is an inert gases which is harmless to the human body, but when inhaled, can causes suffocation due to lack of oxygen. A 24-year-old man was admitted to the emergency department after an attempted suicide using argon gas. At the time of arrival, his mental status was drowsy and hematologic data indicated lactic acidosis. Consciousness was recovered after 3 hours and he was discharged without complications. He stated that he had discovered about argon gas through a suicide website and proceeded to make his purchase online. Nowadays, such websites with information on suicides are exposed to the general public without discretion and has become a major social issue. Therefore, although current suicide rates using argon gas are low in Korea, it is a suicide method to take note of in the future.

Keywords: Argon, Asphyxia; Inert gas; Suicide

Introduction

Asphyxiation is a state of insufficient oxygen supply to the body. While it typically is caused by low oxygen concentration in air it can occur in normal oxygen concentrations, if there is an impairment to the oxygen transportation system, such as in carbon monoxide poisoning. Asphyxiant gases can be divided into chemical asphyxiants (such as carbon monoxide and hydrogen sulfide) which have a direct toxic effect, and simple asphyxiants (such as nitrogen, helium, and argon) which are not directly toxic to the human body. Simple asphyxiants, such as inert gases, cause asphyxiation by reducing oxygen concentration in air and in severe cases can cause death [1,2].

In Korea, suicides using asphyxiants have rapidly increased since 2008, following a celebrity death by carbon monoxide poisoning [3,4]. Argon, an inert gas used in welding, can be obtained relatively easily and inexpensively [5,6]. Although in Korea there have been reports of domestic suicide attempts using inert gases, attempts using argon gas are rare. Therefore, the authors report the first experience of suicide attempts using argon gas in Korea with a review of the literature.

Case

A 24-year-old man, with a history of depression, was brought into the emergency room with impaired consciousness. On arrival, his vital signs were as follows: blood pressure, 140/90 mmHg; pulse rate, 145 beats/min; respiratory rate, 29 breaths/min; body temperature, 37.4°C; oxygen saturation (using a non-rebreather mask), 97%. He was drowsy, Glasgow Coma Scale (GCS) 13/15, the pupils were equal in size (3 mm) and reactive to light. According to his par-

ents, they had left the house for about one hour and returned to find their son next to a cylinder of argon gas (Fig. 1). He was seated in a chair with a plastic bag over his face which was connected to the cylinder by a rubber pipe. There was condensation on the inside of the bag, and the mouth of the bag had a string that could be tightened around the neck to prevent gas leakage (Fig. 2). A suicide note and a receipt for the purchase of argon gas were found near the patient.

Initial, arterial blood gas analysis showed: pH, 7.265; pCO₂, 34.0 mmHg; pO₂, 101.4 mmHg; bicarbonate, 12.1 mmol/L; base excess, -10.6 mmol/L; lactic acid, 9.1 mmol/L; methemoglobin, 0.2% and carboxyhemoglobin, 0.5%. Blood tests showed: white cell count, 8,571/uL; hemoglobin, 13.6 g/dL; sodium, 134 mmol/L; potassium, 4.1 mmol/L; chloride 91 mmol/L; aspartate transaminase (AST), 42 U/L; alanine transaminase (ALT), 21 U/L; blood urea nitrogen (BUN), 11.0 mg/dL; creatinine, 0.85 mg/dL and glucose, 102 mg/dL. The patient was administered oxygen at 12 L/min via a non-re-

breather mask, and normal saline infusion was commenced. Computed tomography of the brain was performed to exclude other causes of impaired consciousness; no acute lesions were observed. After three hours, the patient's GCS score was normal (15/15), and he had a residual mild headache. Arterial blood gases and lactate levels normalized. The patient revealed he had attempted suicide following a deterioration in his depressive symptoms. He had learned about this method of suicide, and purchased the argon gas online. He was discharged without complications 2 days.

Discussion

Although inert gases are considered safe and easy to handle as they are unreactive, they can act as simple asphyxiants. These gases are typically defined as Group 18 (VIIIa) in the periodic table, and consist of helium (He), neon (Ne), argon (Ar), krypton (Kr), xenon (Xe), and radon (Rn). Nitrogen may also be considered an unreactive gas [5,6]. The incidence of suicide by inert gas asphyxiation is increasing worldwide, and there have been several reports in Korea [7-9].



Fig. 1. An argon gas cylinder was found in the patient's living room.



Fig. 2. The patient was sitting in a chair with a plastic bag over his head, which was connected to the argon gas cylinder.

Table 1. Previous report of suicide due to inert gas inhalation in Korea

Reference	Year	Patient information	Gas	Co-ingestion	Used plastic bag	Outcome
Lim et al. [8] (Author's case)	2013	22/F	Helium	Unknown	Yes	Death
Ha et al. [9]	2014	47/M	Helium	Alcohol, citalopram, alprazolam	Yes	Death
		26/F	Helium	No	Yes	Death
		47/M	Helium	No	Yes	Death
		33/M	Helium	No	Yes	Death
		37/M	Helium	No	Yes	Death
Park et al. [18]	2017	34/F	Nitrogen	Unknown	Yes	Fully recovered

Argon is the most abundant inert gas on Earth, accounting for around 0.93% of the Earth's atmosphere. It has a molecular weight of 39.95 g/mol, which is heavier than air (28.8 g/mol), and its specific gravity relative to air is 1.35 [5]. Argon is stable at high temperatures and is commonly used in steel and iron manufacturing, welding, and cutting. It is colorless and odorless making it difficult to detect. While it is not by itself toxic, in enclosed spaces asphyxiation can occur, as its higher density relative to air causes oxygen displacement [5,6]. According to Yoo et al. [10], eight workers suffered asphyxiation injuries due to argon gas while working in enclosed spaces, between 1999 and 2007 in Korea.

Studies show that suicide attempts using argon are less common than those using helium or nitrogen. Azrael et al. [11] analyzed suicides in the United States between 2005 and 2012, and reported that 4% of deaths were caused by gas inhalation, of which carbon monoxide was most common (73%), followed by helium (21%), hydrogen sulfide (1%), and nitrogen (1%). Gunnell et al. [12] reported that of 2,495 suicide cases using gas between 2001 and 2011 in England, there were three deaths due to argon. Yau and Paschall [13] investigated 968 suicides, using chemical substances or gas between 2005 and 2014, and found six caused by argon gas poisoning; fewer than those caused by helium or nitrogen. However, experimental studies have reported that argon is a stronger asphyxiant than helium or nitrogen. Altland et al. [14] discovered that rats that had been exposed to helium, nitrogen, or argon showed survival rates after one hour of 92%, 60%, and 12% respectively, demonstrating that argon was the strongest asphyxiant. Another study identified that argon gas has a sedative effect via actions on GABA_A, the receptor targeted by benzodiazepines [15]. Thus, argon could present a more attractive option for those considering suicide as it may help alleviate fear. In Korea, argon gas is inexpensive and easily accessible online without any regard for intended use, so more concerns are arising.

The normal concentration of oxygen in air is 21%. Follow-

ing argon gas inhalation, manifestations of oxygen deficiency appear when oxygen concentration drops below 16%; these include quickening of the pulse and respiratory rate, vomiting and headache. At oxygen concentrations below 10%, the patient may experience a loss of consciousness, seizure, and a dramatic decrease in pulse, ultimately resulting in death by asphyxiation. Prolonged resuscitation, beyond six minutes, could result in severe neurological sequelae [6,16]. The treatment priority is to establish a rapid and plentiful oxygen supply, which may include mechanical ventilation [6]. In this case the patient's suicide attempt was not successful, probably due to incomplete sealing of the plastic bag allowing outside oxygen to enter, and a fairly short duration of exposure to the argon.

Suicide using inert gas first gained public awareness in 2002, when Derek Humphry's suicide manual, "Final Exit", described a method involving helium and a plastic bag [17]. This 'pain-free method' has since spread indiscriminately on suicide websites. In an analysis of suicides involving inert gases in Korea, all cases used a plastic bag (Table 1). Lim et al. [8] analyzed 17 suicides using helium. The mean age was 30.6 years, with ten cases aged 20-29 years, three aged 30-39 years, and four aged 40-49 years. Younger individuals, who may be more familiar with the Internet, have easier access to suicide information online. Korea takes pride in its status as a world leader in information technology, though easily obtained suicide information could increase the risk of inert gas suicides. Prevention strategies must include strict monitoring of suicide websites and the introduction of robust systems for checking the identity and qualifications of those purchasing inert gases.

Conflict of interest

All authors declare no conflicts-of-interest related to this article.

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ORIGINAL ARTICLE

Suicide By Asphyxiation Due to Helium Inhalation

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Abstract: Suicide by asphyxiation using helium is the most widely promoted method of "self-deliverance" by right-to-die advocates. However, little is known about persons committing such suicides or the circumstances and manner in which they are completed. Prior reports of suicides by asphyxiation involving helium were reviewed and deaths determined by the North Carolina Office of the Chief Medical Examiner to be helium-associated asphyxial suicides occurring between January 1, 2000 and December 31, 2008 were included in a new case series examined in this article. The 10 asphyxial suicides involving helium identified in North Carolina tended to occur almost exclusively in non-Hispanic, white men who were relatively young (Mean age = 41.1 ± 11.6). In 6 of 10 cases, decedents suffered from significant psychiatric dysfunction; in 3 of these 6 cases, psychiatric disorders were present comorbidly with substance abuse. In none these cases were decedents suffering from terminal illness. Most persons committing suicide with helium were free of terminal illness but suffered from psychiatric and/or substance use disorders.

Key Words: asphyxia, helium, suicide, right-to-life

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Publication, in 1991, of the right-to-die manifesto and suicide "how-to" guide, *Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying*,¹ raised a maelstrom of controversy regarding the appropriateness of suicide as a response to terminal or "hopeless" physical illness and exposed divisions within the right-to-die movement itself. In the 1990s, many right-to-die advocates were engaged in public education as to the purported virtues of advanced directives, living wills, and legalized physician-assisted suicide.² At the same time, other elements of this movement, including the Self-Deliverance New Technology (NuTech) Group, were developing technologies to "empower people to die on their own terms by controlling the timing and manner of their own death."² NuTech members, including Derek Humphry, author of *Final Exit*, sought to identify multiple suicide methods that were swift, painless, failure-proof, inexpensive, and nondisfiguring. The group also considered it vital that the method be simple, leave little or no indication that the death was unnatural in nature, and not require a physician's assistance or prescription.²

With its detailed descriptions of diverse suicide methods and specific endorsement of the plastic bag asphyxiation method, publication of *Final Exit* brought an easily understood and generally

effective suicide method to the masses. The book was a commercial success, appearing on the New York Times bestseller list and selling more than 1.5 million copies in the decade following its publication. In 2007, *Final Exit* was named one of the 25 most influential books of the past quarter-century by book critics and editors of *USA Today*.³

Concerns that suicides in nonterminally ill depressed persons might follow exposure to methods elucidated in *Final Exit* were soon raised,⁴ and dramatic increases in plastic bag asphyxial suicides were observed in New York City⁵ and the United States⁶ in the year following publication of *Final Exit*. Investigators concluded that "most persons exposed to *Final Exit* were not terminally ill and had used it as a suicide manual ... (and that) it is likely that a psychiatric disorder would have been diagnosed in most of these people."⁵ (p. 1509)

Efforts by NuTech and others to develop a more effective suicide method and widely disseminate it to the public have continued to the present. In 2000, a supplement to *Final Exit* was published that presented the first description of helium-assisted plastic bag asphyxiation.⁷ Advocates emphasized the enhanced lethality of this approach, reduction in time required for death to occur to less than 5 minutes, and elimination of the need for a sedative prescription. Proponents of the method also noted that materials needed to complete such suicides are readily accessible and that asphyxiation due to helium inhalation is often undetected by autopsy (where findings are typically nonspecific) or toxicological analysis (because special sampling and assay methods are required). Thus, such suicides are likely to remain undetected in cases where the helium delivery apparatus and plastic bag are removed before the death scene is examined and no other information is available implicating death by helium-assisted asphyxiation. Modifications of the helium method were published in 2002⁸ and 2009,⁹ a DVD including a step-by-step demonstration of the method is available for purchase,¹⁰ and instructional videos depicting the method are accessible on the internet. A schematic of the helium delivery apparatus is presented in Figure 1.⁹

Given the recent development, broad dissemination, and notable lethality of helium-assisted suicide, we endeavored to better understand characteristics of suicides by this method. First, we reviewed findings of extant studies examining suicides by asphyxiation due to helium inhalation. Second, we report new findings from the largest series of these suicides heretofore examined. Results of this investigation may lead to improved identification of helium-assisted suicides by medical examiners, enhanced screening and prevention efforts on the part of physicians and other professionals treating individuals at risk for suicide, and shed new light on unintended deleterious consequences of widespread dissemination of detailed suicide methods to the general public.

MATERIALS AND METHODS

The current report presents findings from 2 related studies. The first is a review of published investigations of suicides by asphyxiation due to helium inhalation. The second is a case series of suicides by asphyxiation due to helium inhalation occurring in North Carolina between 2000 (the year in which the method was first described) and December 31, 2008.

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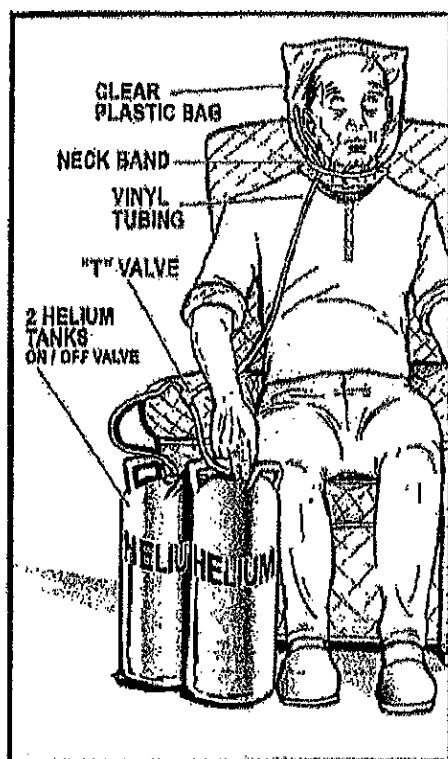


FIGURE 1. Schematic of plastic bag asphyxiation suicide using helium gas in final exit. Reprinted with permission from *Final Exit: The Practicalities of Self-deliverance and Assisted Suicide for the Dying*.⁹ (p. 4)

Identification of Published Reports

A broad search of the general medical literature was undertaken for any relevant reports addressing suicide by asphyxiation due to helium inhalation. This process entailed searching the PubMed database for the period January 1, 1957 to November 1, 2009 using the search phrase "suicide and helium." Seven pertinent records were identified as follows: 6 English-language case studies¹¹⁻¹⁶ and a Danish-language case study.¹⁷ A search of EMBASE using the identical approach for the period January 1, 1988 to November 1, 2009 identified the same 7 reports. The 6 English-language reports relevant to this review were published between 2002 and 2007 and present a total of 14 cases.¹¹⁻¹⁶ The Danish study included a synoptic abstract in English indicating that the decedent was a 35-year-old man who had committed suicide with a plastic bag and helium using a "new and highly lethal technique."¹⁷ The case reports included in this review constitute the entirety of published research on helium-assisted suicide and are presented in Table 1.

Identification of Suicides by Asphyxiation Due to Helium Inhalation in North Carolina

All deaths determined by the North Carolina Office of the Chief Medical Examiner (NCOCME) to be asphyxial suicides due to helium inhalation that occurred between January 1, 2000 and December 31, 2008, were included in this study. These suicides were identified through a search of the manner and cause of death fields of the electronic records maintained by the NCOCME. The presence of helium was confirmed by toxicological testing in 9 of 10 identi-

fied cases. Only the first reported case (ie, 2001) was not subjected to toxicological testing for helium. Specimens from suspected helium asphyxiation cases autopsied at the NCOCME are collected in 20 mL headspace vials. In some cases, given that one central laboratory conducts testing for all medical examiner cases in the state, blood samples are delivered to the NCOCME in standard collection vials. Immediately upon arrival, 5 mL of blood from the standard autopsy vial is transferred to a headspace vial for later analysis. Medical records associated with these deaths were manually reviewed and abstracted including the OCME Report of Investigation, State of North Carolina Death Certificate, Report of Autopsy, Toxicology Report, Case Encounter Form, Pathologist's Notes, and Supplemental Report of Cause of Death. On January 5, 2010, the University of North Carolina Institutional Review Board determined that the reported research does not require Institutional Review Board approval under pertinent federal regulations. Characteristics of the 10 cases identified are presented in Table 2.

RESULTS

Review of Published Cases

The first death attributed to suicide by asphyxiation due to helium inhalation reported in the medical literature occurred in September 2000,¹¹ shortly after the description of the method was published. Several investigators asserted that suicides by the helium method had not been seen in their localities prior to publication of the 2000 Supplement to *Final Exit*.^{11,12,15,16}

The 14 decedents whose cases were presented in the 6 published reports ranged in age from 19 to 81 (M age = 50.0, SD = 21.8, median = 48.5). Between these extremes, decedents were approximately evenly divided between those in their 20s, 30s, 40s, 60s, and 70s. Medical and psychiatric histories were scant or entirely unreported for some cases, but revealed a history of depression, prior suicide attempt(s), paranoid schizophrenia, or some combination thereof in 4 (25.6%) cases. In 4 (25.6%) additional cases, psychiatric dysfunction may have contributed to the suicide, given that 3 of these decedents were determined to be in good health (ages 49, 49, and 76) and one mentioned the recent death of his wife as a reason for his suicide in a note left at the death scene. In 5 other cases (including 4 decedents in their 20s or 30s), no medical or psychiatric histories were reported. A terminal disease process was present in only 2 of 14 (14.3%) cases. In 2 (14.3%) additional cases involving men ages 71 and 78, "failing health" and "unspecified health problems" were possible contributing factors. Medical disorders were not implicated in 10 of 14 (71.4%) suicides.

In all reported cases, routine toxicological testing did not reveal the presence of helium and manner and cause of death determinations relied heavily on death scene investigations. Autopsy findings tended to be absent or nonspecific in the 12 cases that involved an autopsy.

In 8 cases (57.1%), a suicide note was found, and in 4 cases (28.6%) right-to-die literature was found at the death scene.

A number of helium delivery devices were employed. Five cases involved use of a mask; 4 of these cases were reported in 2002 or 2003, before plastic bag asphyxiation (without use of a mask) became preferred by advocates of the helium method.⁸ Characteristics of the plastic tubing used, use of rubber bands and Velcro straps to secure plastic bags to the neck, types of helium canisters employed, and use of multiple plastic bags in 1 case were consistent with published descriptions of helium-assisted suicide.⁸

Characteristics of Suicides by Asphyxiation due to Helium Inhalation in North Carolina

Asphyxial suicides in North Carolina involving helium inhalation tended to occur almost exclusively in non-Hispanic, white

TABLE 1. Published Case Reports of Suicides by Asphyxia Due to Helium Inhalation

Authors/Date/Location	Characteristics of Decedent	Medical/Psychiatric History	Helium-Delivery Apparatus	Death Scene	Autopsy Findings	Toxicology Findings
Ogden and Wooten (2002), South Carolina ¹¹	Woman, 60, white, suffering from adenoid cystic carcinoma with related eye involvement and diplopia. Death occurred 9/20/00	History of depression and a prior suicide attempt. Unclear whether depression/suicide attempt antedated carcinoma diagnosis	Found with surgical mask over face and clear plastic bag over head. Next to body was refillable industrial tank of helium. Clear plastic tube led from plastic bag to helium tank valve.	Decedent discovered on living room floor of home with suicide note and copy of her will. The book Final Exit, Final Exit videotape, and Spring 2000 Hemlock society newsletter were found on a nearby coffee table.	Does not appear an autopsy was conducted. It was noted at death scene that decedent's skin color was unremarkable and no external signs of poisoning were observed.	Blood/urine tests for medications and psychoactive substances were negative.
Gilson et al. (2003) Tucson, Arizona ¹²	Cases 1 and 2: man, 49 and woman, 48, who were common-law married. Cases 3 and 4: husband, 78; wife, 76	No specific information presented; decedents were reportedly in good health. Motivation for suicide unclear. Husband reportedly in "falling health" and "depressed"; wife in "good health" other than a recent minor elective surgery. Advanced squamous cell carcinoma of throat, cachectic.	Each decedent had 5 plastic bags over their heads, which were secured by elastic straps around their necks. Both decedents were wearing filter cartridge-style masks attached to helium tanks with plastic tubing. Plastic bag over head with plastic tube running from inside plastic bag to helium tank.	Couple found lying supine by police on floor of master bedroom in their residence. Couples' attorney had called police after receiving a mailed suicide note. No right-to-die materials found. Couple found dead in bed by neighbor. Suicide notes were found close to bottles. Notes referring to the Hemlock society were found in apartment. No other right-to-die materials found. Found by daughter in bed. Family unable to provide information as to whether "right-to-die" literature or suicide note were found at death scenes.	Remarkable only for early decompositional changes.	Unremarkable for both decedents.
Gilson et al. (2003) Tucson, Arizona (continued)	Case 5: man, 81	Decedent unformal unspecified health problems and the recent death of his wife as principal reason for his suicide.	Plastic bag over head secured with elastic band and Velcro strap at neck. Plastic tube from helium tank connected to the mask inside plastic bag. Plastic bag over head with plastic tube running from helium tank to bag with tube passing through a slit where warm water was running.	Found expired in chair in living room of home by police. A suicide note found, but no right-to-die literature.	External exam unremarkable except for decomposition.	Toxicology tests not performed due to decomposition.
Gallagher et al. (2005), Indiana ¹³	Woman, 19, well-nourished	Medical history unknown; motivation for suicide unclear.	Decedent wore air filter gas mask coated with a substance similar to correction fluid. A helium tank obtained from a local supply company was attached via clear plastic tubing to the mask. Duct tape sealed mask to skin of face covering nose and mouth.	Found dead in empty bedroom of his apartment by landlord. Right-to-die literature and suicide note were not found.	Unremarkable except for decompositional changes.	Remarkable only for ethanol (234 mg/dL) in decomposition fluid.
Avsarlar et al. (2007) Freiburg, Germany ¹⁴	Men, 23	History of prior suicide attempts (number and nature not described). No description of medical history. Had searched methods of suicide on the internet. No information presented.	A helium gas canister was connected to a plastic bag with polypropylene tubing. The bag was over the decedent's head and affixed to neck with a rubber band.	Decedent found supine in backseat of car with helium tank on floor and valve between knees. Many signed suicide notes and a page from the "Church of Euthanasia" website entitled "How to Kill Yourself" were left in an envelope on the driver's seat. A hand-written map to a local general store was also found in the envelope with a list including tubing, mask and duct tape. A letter was found in decedent's residence describing where her body was located. Decedent was found dead in "lying" position in unidentified location. A ready copy bottle of tequila, blister pack of travel sickness medication, and pack of ibuprofen tablets were found.	Conjunctival petechial hemorrhages bilaterally. Nares and oral cavity contained frothy white edema fluid. R lung = 670 g, L lung = 620 g. Lungs congested with severe pulmonary edema. No evidence of trauma, injury, or explanation for death other than helium inhalation. Nonspecific findings included "an aqueous swelling of the brain and of the lungs and an acute hyperemia of the kidneys." No evidence of severe illness or injury.	Routine toxicology unremarkable. Presents a method by which specimens can be collected and analyzed for the presence of helium.
						Routine tests revealed a BAC of 0.9 mg/g; diphenhydramine in heart serum (0.81 µg/mL) and urine (2.2 µg/mL). Ibuprofen found in urine and gastric content. A positive test for helium by novel assay method by novel assay method was reported.

(Continued)

TABLE 1. (Continued)

Authors/Date/Location	Characteristics of Decedent	Medical/Psychiatric History	Helium-Delivery Apparatus	Death Scene	Autopsy Findings	Toxicology Findings
Grassberger & Xenakopff (2007) Vienna, Austria ¹⁵	Case 1: man, 28	History of paranoid schizophrenia; otherwise, no medical history reported.	Found with plastic bag over head sealed at neck with duct tape. A 10 L tank of party balloon helium was connected to the bag via plastic tubing.	Decedent found expired in his apartment reclining in a chair. Mouth contained frothy white edema fluid. A suicide note was left which named his mental illness as the primary reason for his suicide. No right-to-die literature found in domicile.	External exam unremarkable. Engorgement of right atrium and ventricle, pulmonary edema, and a few subpleural petechiae.	Blood/urine tests for 6 classes of illicit drugs were negative. Not clear whether ethanol was assayed.
	Case 2: man, 39	Not reported	Plastic tubing led from industrial helium tank into plastic mask.	Found expired in an empty bathroom wearing a plastic mask over face. Right-to-die literature and suicide note were found.	Autopsy unremarkable, only for early decompositional changes.	Tests of decomposition fluid identified a BAC of 1 mg/L.
	Case 3: man, 39	Not reported.	Plastic bag over head connected via plastic tubing to a 10 L helium tank affixed to neck with rubber band.	Found expired on floor of his apartment with plastic bag over head. A suicide note was found.	External/INTERNAL exams unremarkable except for advanced decompositional changes.	Negative except for traces of benzodiazepines in urine.
Schon & Kettner (2007) Bern, Switzerland ¹⁵	Man, 64, white	Not reported	A gas canister labeled "helium" was found on a table at side of room opposite from where body was found. The helium canister was not connected to the 17 L blue plastic garbage bag that was found over the decedent's head. In addition to the plastic ribbon used to tie the bag, the decedent had inserted a rubber band into the bag's collar. The bag was secured tightly around decedent's neck.	Decedent found expired in hotel room, lying supine on bed with garbage bag over head. No alcohol bottles, medications or drug paraphernalia were found. A rental receipt for the helium canister was found, but no suicide note or self-help materials. An inquiry at the decedent's home town revealed that another person in the area had committed suicide using the same method within the same week.	No external injuries/petechial hemorrhages found, except for a ligature mark impression attributed to a rubber band around neck. Nose, mouth, and airways filled with frothy reddish fluid. Lungs/brain edematous. Internal organs acutely congested. Pulmonary emphysema and hyperinflation of right atrium/ventricle noted. No other potential causes of death were identified.	No obvious evidence of alcohol/drug abuse, but no toxicology assays performed.

TABLE 2. Characteristic of Suicides by Asphyxiation due to Helium Inhalation in North Carolina: 2000–2008

Year of Death	Characteristics of Decedent	Medical/Psychiatric History	Helium-Delivery Apparatus	Death Scene Description	Autopsy Findings	Toxicology Exam Findings
2001	Man, 47, never-married, white (non-Hispanic) graduate school education	Long history of depression treated by his physician. Depression listed as a contributing cause of suicide. Little information available about medical or psychiatric history or acute precipitants of suicide.	Plastic bag over head, secured with velcro tie around neck. Plastic tubing was taped to top of head, extended down left arm under shirt sleeve and exited at left cuff. The tubing was connected to a T-valve and attached to 2 helium tanks.	Found in living room of his home by a co-worker and police. Two bottles of tenazepam and a will and suicide note found at scene.	Early decompositional changes noted at death scene; no autopsy conducted.	Trace levels of 7-aminoclozapem, and tenazepam (0.016 mg/L) were identified in a 1 mL sample of vitreous humor.
2003	Man, 31, married, white (non-Hispanic), 13 yr of education	Suicide note mentioned "chronic pain" as a reason for suicide. However, medical and psychiatric history are not known.	Clear blue, thin plastic bag over head secured with 2 large yellow rubber bands around neck. Clear plastic tube taped to inside of plastic bag, extending out of bag, looping around left arm and connected to helium tank.	Decedent found in his apartment. Had left a suicide note describing how he planned the suicide. No medications found in apartment.	Pathological diagnosis: bilateral pulmonary congestion. No significant external/forensic injuries. Lungs: R lung: 750 g; L lung: 640 g. Paracanthoma of both lungs show extensive congestion w/o obvious consolidation or focal lesions. Brain: 1500 g. L-epitomeninges thin, delicate and congested. Cerebral hemispheres unremarkable w/mild generalized edema w/o evidence of herniation. Microscopic exams of lungs, kidneys, and brain show vascular congestion. No evidence of injury.	Two 8.0 mL aortic blood samples were positive for helium, as was one lung sample. No ethanol detected in an 18.0 mL aortic blood sample.
2005	Man, 37, married, white (non-Hispanic); 16 yr of education	Medical and psychiatric history and acute precipitants of suicide are unclear.	Found with white plastic trash bag around head with tube hooked to helium tank valve at one end and the other end within the plastic bag. Tubing was connected to the helium tank with electrical tape. The bag was secured to neck with bag tie, which was knotted in a bow knot on right anterior neck. A clear vinyl plastic tube extended into the bag through a hole made in the rear of the bag space, held in place by black electrical tape.	Death occurred in motel. Decedent found supine in bed. Medications found at scene were an OTC sleep aid, Ibuprofen, and hydrocodone. Receipts from a local hardware store were found for helium tank tubing, and tape. No suicide note or right-to-die materials were found.	Pathological diagnosis: pulmonary vascular congestion and edema, slight diffuse cerebral swelling, moderate coronary atherosclerosis. R lung: 920 g; L lung: 700 g. Lungs on section demonstrate marked vascular congestion. Bronchial branches contain clear fluid and intra-alveolar edema. Brain: 1500g with mild diffuse swelling and narrowing of sulci. No evidence of acute trauma.	10 mL aortic blood sample revealed trace levels of cyclobenzaprine and propoxyphene and was positive (0.91 mg/L) for diphenhydramine, and helium. Diphenhydramine was believed to have contributed to the death. No ethanol or organic bases were identified.
2005	Man, 21, never married, white (non-Hispanic) 12 yr of education	History of symptoms, treatment, and hospitalization for paranoia/suicidal ideation. Not clear whether patient suffered from psychotic illness.	Plastic bag over head with elastic strap securing bag around neck. An empty helium canister found on floor beside decedent. A cylinder of helium and plastic tubing were found in decedent's bedroom closet.	Found in bedroom at parent's home sitting in chair. The following medications were found in home: Thioridone (100mg), Geodon (80mg), Risperdal (3mg), Tofezol (50mg), and Zolof (50mg). Found lying supine in bed at home by mother. No suicide note left, but insurance policy and will were found on coffee table.	Pathological diagnosis: pulmonary vascular congestion and edema, cerebral edema, and early decompositional changes. R lung: 640 g; L lung: 590 g. Brain: 1,500 g. Microscopic lung sections show variable degrees of pulmonary vascular congestion and intra-alveolar hemorrhage.	Post-mortem exam revealed an ethanol level of 40 mg/dL and the presence of helium in 15.0 mL and 5.0 mL aortic blood samples, respectively.
2005	Man, 39, never married, white (non-Hispanic), 12 yr of education	No history of suicide attempts per family. Little information available about medical or psychiatric history and acute precipitants of suicide.	Found with plastic bag over head secured with a metal clip to hold bag tight around neck. Plastic tubing ran from a nearby helium tank to the back of the plastic bag. Duct tape covered front of bag and had 0.5 cm circular hole in it. Tube was connected to helium tank, which was turned on and near decedent's hand.	Final anatomic diagnosis: congestion of lungs with early pulmonary edema. Brain: 1,325 g. Vessels over right hemisphere congested. R lung: 610 g; L lung: 560 g. Lungs boggy with congestion. Microscopic sections show that alveolar spaces were partially filled with clear edema fluid.	Positive for helium in 4.0 mL subclavian vessel blood sample, but negative for ethanol in 17.0 mL subclavian blood sample.	

(Continued)

TABLE 2. (Continued)

Year of Death	Characteristics of Decedent	Medical/Psychiatric History	Helium-Delivery Apparatus	Death Scene Description	Autopsy Findings	Toxicology Exam Findings
2005	Man, 54, unmarried, white (non-Hispanic), 9 yr of education	History of alcohol dependence and bipolar disorder. Prior psychiatric treatment for both disorders. Was driving in car and taking Zoloft.	Had clear plastic bag over head with tubing connecting it to a helium tank. A velcro closure secured the bag around neck.	Found dead in driver's seat of a car parked in the yard of a relative's house. A picture of his girlfriend was found on dashboard.	Pathological diagnoses: pulmonary edema and vascular congestion; atherosclerotic coronary artery disease, focal, mild to moderate. R lung: 960 g; L lung: 820 g. Lungs heavy and congested. Lung sections revealed areas of atelectasis, pulmonary edema, and collections of pigment-laden intra-alveolar macrophages.	20.0 mL and 6.0 mL aortic blood samples were positive for ethanol (70 mg/dL) and helium, respectively. Ethanol was listed as a contributing cause of suicide.
2006	Woman, 60, never married, white (non-Hispanic), 12 yr of education	Obese (5'9", 303 lbs). No medical or psychiatric history information available except that EKG leads were found on right lower leg, left lower leg and left arm. No acute precipitants of suicide were identified.	Decedent had clear plastic bag over head with 1/2 inch plastic tubing attached to helium tank in back car seat and inside of plastic bag. A tan elastic band was used to secure bag to neck. The plastic tubing was taped to lower margin of plastic bag.	Decedent found in front passenger seat of car in motel parking lot where she had stayed. Letters to different people and "a very organized" suicide note were found in car. Note referred to pages 132-137 in Final Exit 3rd edition which describe helium-assisted suicide. Decedent had set e-mail to respond to messages with "Return to Sender due to Suicide."	Pathological diagnoses: Plastic bag over head with evidence of helium inhalation; pulmonary vascular congestion (R lung: 430 g; L lung: 400 g); decomposition. Sectioned lungs showed vascular congestion with patchy intra-alveolar edema. No evidence of acute trauma.	A 20-mL blood sample from pleural cavity was positive for helium and ethanol (40 mg/dL). Elevated BAC may have been partially or totally due to decomposition.
2007	Man, 41, married (but recently separated from wife), white (non-Hispanic), 14 yr of education	Previously disabled in motor vehicle accident with neck and back injuries. Was reportedly depressed due to recent separation from wife and pending sale of home. Wife reported that decedent was taking prescribed antidepressants, Neurontin, Oxycodone, and Vicodin.	Clear blue plastic bag covered head and was wrapped with duct tape. Black tubing was connected at one end to the inside of bag and at the other end to a 65lb helium tank used to fill balloons for parties.	Found expired at home sitting in chair in basement. No suicide note left.	No autopsy.	A 13.0 mL subclavian blood sample was negative for ethanol, but positive for helium.
2007	Man, 45, never married, white (non-Hispanic)	History of alcohol and drug abuse and diabetes. Decedent has been very depressed per family's report. Family noted a history of social, medical and emotional problems. Was taking Coumadin, Clonidine, Aspirin, Venapamil, Atenolol, and Lovastatin.	Clear plastic bag was found over head. Two black tubes led from helium tank into the plastic bag. Had purchased these materials at local hardware store. The helium tank was from a party store balloon-filling kit.	Found sitting in chair in parent's home. Patient was pulseless and not breathing. The book Final Exit was lying open and face down on the bed. A suicide note was left describing how severely depressed the decedent had felt and apologizing for the suicide.	No autopsy, but blue nail beds and burst capillaries in lower legs bilaterally were observed at death scene.	19.0 mL subclavian blood sample was negative for ethanol and positive for helium.
2008	Man, 56, married, white (non-Hispanic), 12 yr of education	History of depression and substance abuse.	Decedent had a bag over his head with a tube attached to it and to a helium tank positioned on car passenger seat.	Found in car in garage at home by wife with car running and exhaust piped into the vehicle. A suicide note was found.	No autopsy.	18.0 mL subclavian blood sample was positive for helium and negative for ethanol. Carbon monoxide detected at <5.0% saturation.

OTC indicates over-the-counter; BAC, blood alcohol concentration; EKG, electrocardiogram.

men who were relatively young (M age, 41.1; SD, 11.6; range, 21–60; median, 40.0). In 6 of 10 cases, decedents suffered from significant psychiatric dysfunction; in 3 of these 6 cases, psychiatric problems were present comorbidly with substance abuse. Medical histories identified chronic pain, disability, and chronic pain associated with injuries suffered in a motor vehicle accident, and diabetes (with probable coronary artery disease in 3 decedents). One decedent was found with electrocardiogram leads attached to her body, but autopsy and toxicological findings were negative for potential explanations for the death other than helium-assisted suicide. In none of the 10 cases were decedents suffering from terminal illness.

Helium delivery devices were consistent with those recommended in *Final Exit* (eg, use of T-valves, 2 helium tanks, Velcro and other neck fasteners), and all were associated with use of a plastic bag rather than mask.⁸ In 5 cases, a suicide note was found; in 2 cases, a will was left; in 1 case, insurance papers were left; and in 2 cases, right-to-die materials were found.

Autopsies were performed in a majority of cases and typically revealed evidence of pulmonary vascular congestion and mild cerebral edema. Ethanol and diphenhydramine were considered contributing causes of death in 1 case each.

DISCUSSION

Despite reports identifying a plethora of prosuicide internet sites providing detailed instructions in methods of suicide including helium-assisted asphyxiation,¹⁸ media accounts of helium-assisted suicides,^{19–21} and the recent arrests of *Final Exit* Network members for allegedly assisting in asphyxial suicides involving helium,²² scientific investigations of such suicides are largely absent from the medical literature. This dearth of information is unfortunate given the tragic consequences of such acts and because it is possible that suicides by the helium method are underestimated and increasingly common for reasons described later in the text.

The methods by which helium-assisted suicides are carried out have been carefully detailed and widely publicized and the approach is promoted as simple, painless, and quick.⁸ Materials needed for helium-assisted suicides are easily obtained and inexpensive. One well-known internet vendor currently sells disposable helium tanks for less than \$50, and reports that customers who bought helium tanks also often bought the book *Final Exit*.²³ Unless there is a high index of suspicion for helium involvement in a death, the death may be erroneously attributed to natural causes or underlying illness because standard toxicological assays are unlikely to detect helium and autopsy findings are generally nonspecific.^{14,16} Standard toxicological assays using GC/MS employ helium as the carrier gas and therefore cannot detect helium unless another gas (eg, nitrogen) is substituted for the helium. Auwaeter et al¹⁴ and Gallagher et al¹³ developed useful methods of collecting, preserving, and analyzing gas samples taken from decedents' for qualitative detection of helium. In all North Carolina cases, helium-delivery devices were found at the death scene, and toxicological testing was conducted in 9 of 10 cases. However, it is possible that an unknown number of such suicides went undetected, if and when helium-delivery devices and plastic bags were removed from the death scene prior to investigation. The author of *Final Exit* states that a person may choose to leave right-to-die materials to be found to make an ethical statement that they are committing "rational suicide" or, conversely, make plans to have the helium delivery apparatus and plastic bag removed following their death if they prefer to keep the suicidal nature of the death concealed.⁸ Toxicological testing for helium has been conducted at the NCOCME in suspected cases since 2003 by a novel testing procedure using a dual cell thermal conductivity detector.²⁴

Of particular concern, are recent national reports of notable increases in the prevalence of suicide due to suffocation (a category that includes deaths by plastic bag asphyxiation with or without helium assistance as well as hanging and strangulation) since the 1990s and especially since 2000.^{25–27} Such increases have been observed in respondents of widely varying ages, including adolescents, and both genders. Observers have noted that the reasons for these increases are poorly understood, that declining rates of suicide observed in the 1990s have been largely reversed, and that recent increases in suicides due to suffocation account for most of the recent overall increases in rates of suicide.²⁸ It is possible that greater awareness of the plastic bag asphyxiation method and the enhanced lethality of the method when used with helium may account for the significant increases in suicides due to suffocation reported since 2000.

Given the national growth in adolescent, young adult, and adult suffocation suicides since 2000,^{25,26} and relatively young age, psychiatric dysfunction, and absence of terminal illness characteristic of many identified cases, it is possible that many persons committing suicide by the helium method are neither hopelessly nor terminally ill, but rather psychiatrically disordered. Although the author of *Final Exit* cautions readers to be certain they are hopelessly ill, and not just depressed and to talk to their doctor,⁸ depressive illness and substance dependency often impair the very capacities required to make these assessments and undertake these actions.

Prospective studies are needed to better understand the prevalence, incidence, predictors, and characteristics of asphyxial suicides due to helium inhalation. It is important to learn more about decedents' medical and psychiatric histories and the circumstances in which depressed and/or suicidal persons encounter descriptions of the helium method (eg, internet demonstrations of the process). At present, professionals working with persons at risk for suicide should routinely assess whether patients have read or viewed instructional materials describing specific methods of suicide such as helium-assisted plastic bag asphyxiation. Inquiries of this nature do not increase subsequent risk for suicide and can provide critically important information to guide appropriate preventative actions where indicated.^{29,30} Medical examiners should also increase their index of suspicion for suicides by asphyxiation associated with helium inhalation. Medical ethicists and the general public may also want to carefully weigh the unintended adverse consequences of widely disseminated suicide methods likely to appeal to some depressed persons (irrespective of their physical health status or age) against the putative benefits associated with making these methods more widely known and available.

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Survivor from asphyxiation due to helium inhalation

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Abstract

In this rare case report we describe a 27-year-old white man survived to suicide by asphyxiation using the so-called *suicide bag* (or *exit bag*) filled with helium supplied through a plastic tube. He had no previous psychiatric or organic illnesses. At the time of presentation to our Emergency Department he was awake and reported severe dyspnea with a clinical pattern of acute respiratory failure. Imaging studies showed pulmonary edema and the patient was treated with non-invasive ventilation in Intensive Care Unit. After 15 days the patient was discharged from hospital in optimal conditions. These rare cases of survivor might suggest the possible causes of death from inhaling helium.

Case Report

A 27-year-old male student was rescued at home by his father: he was found to be uncounscious with so-called *suicide bag* (or *exit bag*) filled with helium supplied through a plastic tube. Immediately he removed the bag (not really narrow neck) from the head and called the emergency number.

When the ambulance arrived he was found with prompt resumption of breathing and slow recovery of consciousness with peripheral cyanosis, pulse rate was 130/minute and blood pressure 160/90 mmHg. On arrival at the Emergency Department he was conscious with hemodynamic stability, the respiratory rate was 35/min, peripheral pulse oxymetry revealed SpO₂ of 80% in air. Past medical history was negative.

Thoracic fine crepitations were auscultated on both sides. Heart sound was normal. Hemogasanalysis showed a severe respiratory failure with PaO₂/FiO₂ value of 120. Electrocardiogram revealed non-abnormalities except sinus tachycardia. We performed a chest X-ray and a bedside lung ultrasound with convex probe 5 MHz that revealed a bilateral B-pattern typical of interstitial syndrome, mainly due to acute pulmonary edema. Inferior vena

cava and heart contractility were normal (studied with a cardiac phased array probe 2.5 MHz). Moreover it was performed a thoracic CT scan which confirmed the diagnosis of bilateral pulmonary edema that was bilateral, symmetric, ground-glass like, and not involving the anterior areas of the chest.

A non-invasive ventilation (NIV) with full-face mask was applied. Ventilatory settings were as follows: FiO₂ 50%, PEEP 10 cm of H₂O, PS 5 cm of H₂O. Blood test was normal except for a slight increase of troponins.

He was transferred to the Intensive Care Unit. On the three day of hospitalization patient was successfully weaned off the non invasive ventilator: pulse rate was 80/minute and blood pressure 120/70 mm of Hg, the respiratory rate was 15/min, SpO₂ of 98%. Then he was transferred to the pulmonology ward.

The patient remained asymptomatic over the next 10 days. Blood test was normal. Chest was clinically clear. After being subjected to a psychiatric evaluation, he was discharged from the hospital.

Discussion

Helium is one of inert gases causing physical asphyxiation, whose excess content in the breathing atmosphere reduces the partial pressure of oxygen and may be fatal after short-term exposure. When breathing a mixture of an inert gas (helium, nitrogen, argon) with a small amount of oxygen, with the possibility of exhaling carbon dioxide, no warning signs characteristic of suffocation are perceived by the subject. Freedom from discomfort and pain, effectiveness, rapid effect and relatively easy availability of required accessories have resulted in the use of inert gases for suicidal purposes. This case report a suicide attempt by using a kit consisting of the so-called *suicide bag* filled with helium supplied through a plastic tube.^{1,3} This rare case survived shows the pathophysiology of pulmonary edema from pure severe hypoxia at sea level because helium is an inert gas that only reduces the partial pressure of oxygen. The process of hypoxic pulmonary vasoconstriction (HPV) was first identified in 1894, as a rise in pulmonary arterial pressure upon asphyxia.⁴ Alveolar hypoxia leads to an adaptative vasomotor response in the form of hypoxic pulmonary vasoconstriction.⁵ The pulmonary capillary pressure increases as a result of HPV, which occurs mainly in smaller pulmonary arteries. As a result of the constriction of small pulmonary arteries, blood gets diverted away, causing elevated blood flow and raising the pressure, which consequently leads an the increase in capillary permeability mainly in areas more perfused.⁶ our pulmonary edema

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was bilateral, symmetric, ground-glass like, and not involving the anterior areas of the chest probably due to supine position of the patient.

Another mechanism involved in pulmonary edema is a sympathetic activation: an intense activation of the sympathetic nervous system and the release of catecholamines are the prime contributors to exaggerated HPV.⁷ Furthermore, severe hypoxia causes cerebral edema and elevation in intracranial pressure (ICP). Elevated ICP levels correlate with increased levels of extravascular lung water (EVLW) playing an important role in the pathogenesis of neurogenic pulmonary edema (NPE).⁸

Conclusions

To conclude, in this case we describe the beginning, evolution and resolution of a non-cardiogenic pulmonary edema due to asphyxiation caused by helium inhalation. Extreme hypoxia and sympathetic activation are the main causes of the development of pulmonary edema with high mortality and only autopsy cases *post-mortem*. Instead, in this rare case of surviving we have observed the consequences of an event such as extreme hypoxia that is a reversible process once recognized and properly treated.

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ORIGINAL ARTICLE

Observation of Two Suicides by Helium Inhalation in a Prefilled Environment

Russel D. Ogden, MA

Abstract: In recent years information about suicide with helium has spread rapidly on the Internet, in print, and even on video. Increased awareness of this suicide method means that instead of turning to a physician for aid in dying, some people will terminate their lives with this nonpharmaceutical method. Although there are many case reports of hypoxic suicide by helium inhalation, little is known about the pathophysiology of this type of death.

Pathologists should know what hypoxic suicide looks like. Carefully planned, autonomous suicides present possibilities for passive, naturalistic observation of the phenomenon. This article describes a method for direct observation of suicide and reports on 2 hypoxic suicides from inhalation of helium inside a prefilled environment.

Key Words: asphyxia, helium, inert gas, plastic bag, suicide

(*Am J Forensic Med Pathol* 2010;31: 156–161)

In 2002 the *American Journal of Forensic Medicine and Pathology* published the first case report of suicide by helium asphyxiation. A 60-year-old woman died by breathing helium gas inside a plastic bag, in accordance with “how to” literature and an instructional video.¹ Since 2002, numerous suicides by helium inhalation^{2–14} as well as accidental deaths^{15,16} have been reported around the world.

Helium is a nontoxic, noncombustible, colorless, and odorless inert gas and should be used in a well-ventilated area. The Occupational Safety and Health Administration regards helium as a simple asphyxiant, a gas that can dilute atmosphere oxygen below the partial pressure required to maintain life. Normal air contains approximately 21% volume of oxygen and the Occupational Safety and Health Administration defines an oxygen deficient atmosphere as one below 19.5%.¹⁷ The human response to oxygen deficient atmospheres is progressive. At an oxygen volume of 12% to 16% pulse and breathing rate increases and coordination is disturbed. At 10% to 14% there is abnormal fatigue and disturbed respiration. At 6% to 10% there may be nausea, vomiting, loss of free mobility, and loss of consciousness. Levels under 6% oxygen volume can cause convulsions, gasping, loss of respiration, and cessation of heart activity after only a few minutes. Sudden exposure to a severely oxygen deficient environment will cause loss of consciousness within 5 to 10 seconds and permanent brain injury within 2 minutes.¹⁸

Additional to its potential for self-destruction, helium has many practical applications. These include balloon inflation, alleviation of upper airway obstruction, cryogenics, gas chromatography, welding applications, and as an air mixture for underwater diving.

Some pathologists have noted that helium may be misunderstood as a poison, hence the motivation to use it for suicide.²

Although helium is not a poison, accidental and suicidal deaths from its inhalation are documented in several recent annual reports of the American Association of Poison Control Centers.^{4,6,8} Similarly, although helium is not classified as a volatile substance, in the United Kingdom it is included in annual death reports on volatile substance abuse.⁹

The basic mechanism of death from helium asphyxiation is oxygen deprivation. There should be no feeling of suffocation because the exclusion of oxygenated air limits carbon dioxide production and any associated feeling of the need to exhale. Furthermore, an individual who is breathing helium in a prefilled environment will lose consciousness almost immediately, and therefore have no awareness of suffocation.

THE RISE OF HELIUM IN SUICIDE

The use of helium as an agent for suicide is relatively recent. The gas receives no mention in the 1991 first edition of *Final Exit*,¹⁹ the world’s best known “self-deliverance” guidebook. *Final Exit* is famous for describing how prescription drugs and a plastic bag could be used for suicide, and the book may have temporarily influenced choices of suicide method in the United States. In the first year of its publication, suicides with plastic bags in the United States rose 30.8%, from 334 in 1990 to 437 in 1991.²⁰ Interestingly, the overall incidence for suicide in the United States for 1991 actually declined 0.9% from the previous year.²¹ Therefore, although *Final Exit* is correlated with short-term increase in the incidence of plastic bag suicide, it can be argued that the book is associated with suicide prevention because the overall suicide rate in the United States has declined during the decade after the publication of *Final Exit*.²²

The first edition of *Final Exit* dismissed gas methods for suicide. But, in 2000 detailed information about the lethality of helium asphyxiation was published in *Supplement to Final Exit*²³ and a separate video/Digital Video Disc (DVD).²⁴ By 2002 the third edition of the book had a full chapter on helium asphyxia titled, “A speedier way: Inert gases.”²⁵

It appears that the inspiration for the rise of helium as a method for suicide was a November 1999 conference of the Self-Deliverance New Technology Group, NuTech.^{25,26} At this 2 day conference in Seattle, Washington, inert asphyxial gases were discussed by “right to die” activists. Shortly after the conference, organizations in the United States and Canada started distributing print and video products with instructions on the helium suicide method.^{23,24,27,28}

Helium is not established in veterinary euthanasia, but it has been proposed as a potential hypoxic agent for laboratory animals.²⁹ There are veterinary euthanasia protocols for other inert gases, especially nitrogen and argon, which are “conditionally acceptable” for nonhuman primates.³⁰ Sudden deaths of humans inhaling nitrogen^{31–33} and argon³⁴ are reported in the forensic literature.

Death investigators have forecast increases in the number of suicides associated with inert gases, particularly helium.^{11,13} Knowledge about helium suicide has spread quickly² and the essential materials are easily purchased at toy shops, scuba and welding suppliers, and from Internet retailers.

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TABLE 1. Helium Suicides in British Columbia, Canada 1999–2006

Year	No. Suicides			Helium Suicide Literature at Scene	Assay for Helium Attempted
	Male	Female			
1999	1	1	0	0	1
2003	6	5	1	4	0
2004	3	3	0	0	0
2005	3	2	1*	2	0
2006	4	3	1	2	0
Total	17	14	3	8	1

Information is based on BC Coroner’s Judgments of Inquiry obtained pursuant to the *Freedom of Information and Protection of Privacy Act*.

*In this 2005 case, the helium and literature were found in a room separate from the deceased. The coroner’s report made no conclusion whether the apparatus may have been used and moved.

Further to the growing number of helium death reports in the forensic literature, patterns are emerging in official death records. Here in British Columbia, Canada, records obtained under the *Freedom of Information and Protection of Privacy Act* show that from 1999 to 2006, coroners investigated 17 suicides where there was scene evidence of helium (Table 1). In 8 cases literature about helium suicide was found nearby. The classification of death relied on scene evidence in all of the cases, and in only one instance was assay for helium attempted, with no resulting measure. Given that helium is the usual carrier gas in chromatography, routine toxicological analysis will not reveal helium in the tissues. Auwärter et al¹³ recently published a procedure for tissue collection and analysis for helium by gas chromatography/mass spectrometry, using nitrogen as the replacement carrier gas.

The opportunity to study helium suicide is generally limited to cases where scene evidence reveals the manner of death. Given that there are no pathognomonic signs in asphyxial deaths,³² helium asphyxiation is easily disguised by the removal of the suicide apparatus.^{1,13,26} In fact, the third edition of *Final Exit* suggests “it would be advisable to remove the helium gas apparatus, because that would intrigue the minds of the police, thus making their inquiries lengthier” (p 139).²⁴ Underreporting of helium suicides is likely if the equipment is removed by family or friends. The general stigma of suicide and the fear of being implicated for wrong doing will deter witnesses from volunteering information.

There are many questions about the pathophysiology of asphyxiation by inhalation of helium. How rapid is the loss of consciousness? Are there signs of struggle or pain? How quickly does death occur? Answers are difficult to come by because there are obvious challenges in designing protocols for the scientific observation of suicide. Nonetheless, overt naturalistic observation of the phenomenon is possible. This study describes a method to observe suicide and reports on 2 hypoxic suicides with helium.

MATERIALS AND METHODS

Certain “right to die” activists were informed about this research agenda to observe suicide. In turn, they advised selected members that they could contact the researcher for more information. Two women consented to interviews about their intentions to suicide and the observation of their deaths. Permission to video record their suicides was refused.

A finger pulse oximeter (Meditech PO₂) was used to measure the effect of helium on heart rate and blood oxygen levels. At the suicide events, a stopwatch was used to measure the time of specific observations such as loss of consciousness, breathing changes, and reflex movements, and these were recorded in handwritten notes. In

To Whom It May Concern:

It is my careful and well considered decision to end my life according to my values and beliefs. This decision was made without regard to Mr. Ogden or his research. It is my desire to have Mr. Ogden with me when I decide that it is time for me to end my life.

I am not seeking publicity. I want it known it is clear to me Mr. Ogden is not facilitating, advancing, promoting, expediting, inciting, emboldening, urging or encouraging me to end my life.

My decisions and my actions are carefully considered and I have evaluated the choices available to me. I am clearly aware that I am free to change my mind if I choose.

I understand that Mr. Ogden is an observer and his purposes are academic research, for the benefit of education and scholarship. It is my wish that no harm come to him as a consequence of his attendance.

Dated at _____, this ____ day of _____, 2007

Name (please print)

Address

Signature

FIGURE 1. Sample legal release provided to the investigating coroner/police officer.

Sometimes research participants alter their normal behaviour patterns because they are aware that they are being observed. This is known as “reactivity” to the researcher. Reactivity is defined as “atypical or artificial behaviour produced by respondent’s awareness of being studied.” It is a requirement of the Research Ethics Board (REB) that I inform you that my presence as a researcher may influence your behaviour.

I am not asking you to complete this self-chosen death. Even though I am here at your request to document this planned death, you do not have to carry through with it because I am here. You can change your mind. The REB’s ethical approval of this research in no way is intended as a statement about the ethical status of this proposed self-chosen death.

FIGURE 2. Text of statement to address participant reactivity.

the second suicide observation a micro cassette recorder was used to obtain a continuous audio recording of observations and to verify handwritten notes.

Suicide is not illegal in Canada and it is not an offense to be present at a suicide. There is no legal obligation to prevent a suicide. It is, however, a criminal offense to counsel, aid, or abet a suicide and the maximum penalty is 14 years imprisonment. On behalf of the researcher, the Canadian Association of University Teachers obtained legal advice to ensure that the research protocol was in compliance with Canada’s *Criminal Code*. The 2 participants signed a release to confirm that their decisions and actions were autonomous and voluntary (Fig. 1). In accordance with the British Columbia *Coroners Act* the facts and circumstances of the deaths were reported to the Vancouver Regional Coroner and the Vancouver Police Department.

The research protocol to conduct interviews and to observe suicide was approved by the Research Ethics Board at Kwantlen Polytechnic University, Surrey, BC, Canada. To address the issue of participant reactivity, the Research Ethics Board required that participants receive a statement about the concept of reactivity and an assurance that they could change their minds about committing suicide (Fig. 2). This statement was given repeatedly.

TWO CASE REPORTS

Background Circumstances

The 2 female decedents did not know one another. They self-identified as members of “right to die” organizations and said that they wished to terminate their lives to avoid further suffering

brought on by deteriorating health. Control, loss of independence, and quality of life were the primary factors in their decisions.

The suicides occurred in June and October 2007. Each of the women had researched methods for suicide and they eventually decided upon helium asphyxiation inside a plastic bag. Although both women said that they had access to lethal prescription medications, they rejected drug overdose methods after considering the risks associated with swallowing a large number of prescription pills. One of the women was aware of a failed suicide attempt due to vomiting lethal drugs. The other believed that her irritable stomach would not tolerate a large dose of medication. Therefore, their primary reason for choosing helium asphyxiation was the belief that it would cause a quick death and a secondary reason was that helium inhalation would not present any risk of emesis, which is associated with oral drug overdose.

In interview, both women stated that the helium technique for suicide simplified their preparations for dying. They obtained the supplies for suicide without involving other parties and without having to request any assistance from their physicians. The decedents reported that their physicians were closed to any discussion about ending their lives.

Neither decedent expressed distaste about using a plastic bag and inert gas. It is possible that desensitization about the negative esthetics of the plastic bag may have occurred over the course of their planning. They assigned substitute names to the bag; one decedent referred to it as a “mask” and the other called it “kit.”

RESULTS AND OBSERVATIONS

Case 1

The decedent was 65 years old. Her career as a registered nurse ended at age 55 when she experienced the first of several strokes that contributed to decline in health, memory, and sensory perceptions. She characterized these as “small strokes but with very big consequences.” At age 62 she had a heart attack. The decedent was single, childless, and lived independently. She could not tolerate the possibility of more strokes and institutional care.

Several months before her death the decedent researched drug and nondrug methods for suicide. In contrast to case 2, she requested that the titles of her instructional literature not be reported (Fig. 3). All materials for the suicide apparatus were purchased by the decedent several months in advance. The disposable 8.9 cu. ft. helium party balloon tank (Fig. 4) was acquired at a local toy store and the decedent joked that when she was walking home with the 7 lb. box containing the helium, someone inquired if she was planning a party, to which she replied, “It’s a going away party.”

The decedent assembled her suicide apparatus by securing one end of clear plastic tubing to the tank outlet (Fig. 4) and she taped the other end inside an 18 × 22 inch plastic bag that served as a hood to receive the helium. An elasticized hair band acted as a collar to secure the hood around her neck. In the weeks before her death, she reported practicing the steps for her suicide several times.

On the day of her death the decedent tidied up some final errands and arranged to toast her departure with a glass of red wine. She then took a quick bath and retired to her bedroom, where she had set out the helium apparatus sometime earlier. The decedent then engaged some small talk, and confirmed that I would remain with her after she had died and that her mortuary arrangements and executor information would be provided to the local coroner.

In the final minutes before her suicide the decedent recited to herself, spontaneously, a nonreligious prayer to the universe. Her concentration turned intense as she screened out all distractions, including that she was being observed, and she then narrated the steps she had planned for ending her life. She instructed herself to

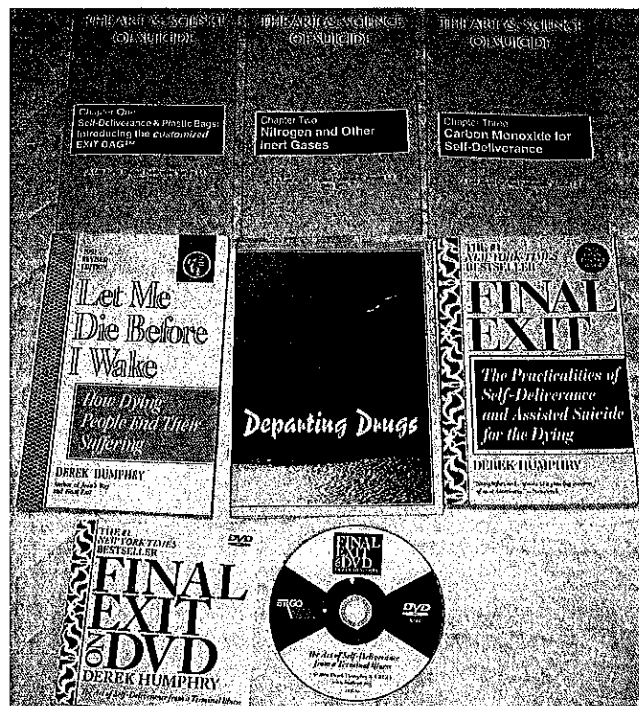


FIGURE 3. Case 2: Collection of right to die literature belonging to decedent.



FIGURE 4. Decedent in case 1, 8.9 cu. ft. helium tank in supply box with plastic tubing attached to outlet.

remain calm and to resist any urge to pull off the plastic bag hood. Drawing from her nursing knowledge, the decedent forecast that unconsciousness would come quickly and her heart, already weakened from myocardial infarction, would stop shortly afterward.

Seated upright on her bed, the decedent placed the hood on top of her head and adjusted it around her forehead, leaving her eyes, nose, and mouth exposed. She opened the valve on the helium tank and the hood inflated on top of her head. The pulse oximeter gave a heart rate reading of 90 bpm and saturation percentage of oxygen (SPO₂) was 98%. Palpating the hood with her hands, the decedent determined that the hood was inflated.



FIGURE 5. Decedent in case 1. From seated position in bed decedent fell into unconsciousness and eased into this final resting position.

To deplete residual oxygen and carbon dioxide the decedent exhaled deeply and then without hesitation pulled the hood down to her neck and adjusted the collar under her chin and jaw line. While still seated in an upright position she said, "I'm going to breathe now," which transmitted in a timbre that indicated she had already inhaled helium. Unconsciousness occurred in 10 seconds, her eyes widened and took on a contradictory appearance of surprise and blankness, the lips turned blue from lack of oxygen, and she eased backward into a final resting position (Fig. 5). Her skin quickly turned pale.

Considering the time of the first breath inside the helium environment as 0 seconds, the observations are as follows: loss of consciousness at 10 seconds (about 3 breaths); breathing then accelerated for about 40 seconds. At 1:00 the heart rate had accelerated to 114 and SPO_2 dropped to 39%. At about 2:00 breathing had stopped, the oximeter could not fix on a heart rate and SPO_2 was 37%. At 3:00 the oximeter was still not measuring any heart rate and SPO_2 was 34%, which is the minimum range for the device. At 3:45 the jaw fell slack and the tongue extended. Although breathing had ceased after 2 minutes there were 4 terminal gasps at 4:00, 4:45, 6:40, and 8:36. At no point in the dying process was there any extension or contraction reflex of the arms or legs.

Case 2

The decedent was 70 years old and since 1979 had suffered with myalgic encephalomyelitis (ME). Health decline was such that nearly all of her physical activity was oriented to basic survival needs. The decedent was divorced, childless, and lived independently, but with weekly home support service. She participated in Internet support groups for ME, primarily to lend support to younger sufferers of the illness. The decedent believed that most ME patients could make adaptations to enjoy some quality of life, but that after



FIGURE 6. Decedent in case 2. Seated in recliner chair. Two 8.9 cu. ft helium tanks connected with t-junction.

more than 25 years with the disease she believed that her better health was irretrievably lost.

For more than 15 years the decedent had collected "right to die" literature. This included *Final Exit on DVD: The Art of Self-Deliverance from a Terminal Illness* (Fig. 3). She had studied the steps in the DVD and chose to die in a reclining arm chair, exactly as demonstrated in the DVD. In the interview the decedent reported that she had rehearsed the suicide procedure several times. Approximately a year earlier she had purchased by mail a purpose built hood with an elastic neck fastener and plastic tubing for suicide with helium. The custom apparatus was designed to connect 2 helium tanks with a T-connection so that gas would be delivered to the hood with a single tube (Fig. 6). The decedent purchased 2 helium tanks. One was apparently the last in stock at a local toy shop and she obtained a second tank through an Internet purchase from a party supplies store in the United States.

In addition to updating her will and mortuary arrangements, the decedent planned a short ritual for her dying. With a champagne toast she gave a short tribute to her life. The decedent had avoided alcohol for years because it disturbed her stomach, but she had decided that this time it would not matter. When it came time to drink, she commented, "I was looking forward to this, but the taste is disappointing. I had expected more."

Prior to ending her life the decedent silently read a "Prayer for Dying" that she had written. The prayer was addressed to the "Spirit of the Universe" and stated "My life energy is drawing to a close and I feel it is the right time for me to leave this earth where I can no longer be a part of the flow of life."

After reciting her prayer, the decedent placed the hood on top of her head in line with her forehead and neckline. She opened the valves to both helium tanks and inflated the hood. After the hood was inflated the decedent spent a moment to say good-bye. Next, in accordance with the instructions in *Final Exit*, she exhaled to remove residual oxygen and carbon dioxide from her lungs and then pulled the hood down to her neck. The pulse oximeter on her left index finger shifted during this process and therefore no pulse and oxygen measures could be recorded.

Once the prefilled hood was over the decedent's head she spoke something indiscernible that sounded like "good-bye." Considering the time of the first breath inside the helium environment as 0 seconds, the following was observed: loss of consciousness at about 12 seconds followed by accelerated respiration continuing to about 55 seconds; at around 40 seconds there were reflexes in the right arm and in both legs. The reflex in the right arm was a single, slow contraction at the elbow. The extension reflex in the legs lasted approximately 15 to 20 seconds.

At 1:44 there was a loud gurgling expiratory breath, possibly due to carbon dioxide escaping (from the 2 glasses of sparkling wine consumed earlier). At this time muscle tone relaxed and the head fell slightly to the right into a final resting position (Fig. 6). Very faint gasps occurred at 3:32, 4:26, and 4:55; the tongue distended at 4:55; further faint gasps occurred at 5:15, 5:47, 6:11, 6:36, and 6:46; barely perceptible muscular twitching of the right cheek took place from about 6:50 to 7:05; at 7:25 a hardly audible snort of the sinus replaced the faint oral gasping; further faint sinus snorts occurred at 7:46, 8:29, 8:51, 9:46, and 11:11, after which all visible respiratory movement stopped.

DISCUSSION

This research protocol required observation of suicide without moral judgment. It is sufficient to say that this was personally conflicting and unsettling. It is beyond the scope of this paper to give a detailed discussion about this difficult kind of naturalistic observation.

Given that permission to video record was refused by the participants, a precise moment-by-moment analysis is not possible. Obviously, videotaping would allow for post hoc documentation of specific physical actions less stressful setting.

The Internet, however, provides independent verification of the speed by which helium can induce unconsciousness without warning. A search of YouTube, the popular video sharing website, reveals several clips of people breathing helium with the purpose of altering the timbre of their voices for amusement, but with the unexpected side effect of sudden unconsciousness. The Internet links in the reference section of this paper show "Helium girl"³⁵ losing consciousness after breathing helium from a balloon for 15 seconds and "Gabby"³⁶ falls unconscious after 18 seconds. In "Passout"³⁷ a young female inhales helium and begins to sing a song, but after 5 seconds of singing she spontaneously stops and falls unconscious to the floor. These YouTube cases involve breathing helium from a balloon, whereas the decedents breathed helium inside a prefilled environment sealed from outside air. Consequently, loss of consciousness was faster and with no chance of recovery. The individuals in the YouTube videos quickly recovered because they were in a normal air environment.

The fact of animal life being dependent upon oxygen was first verified in Joseph Priestley's 1774 demonstration of the lethal consequence for a mouse inside a bell jar with a burning candle.³⁸ Technically, all human life ends because of a lack of oxygen, but the relatively recent entry of helium into the catalogue of suicide methods intensifies the competing interests of preserving life versus respecting autonomy and self-determination. In neither case did the decedents encounter barriers to researching information, obtaining

equipment, and executing their plans. Although they said that they had attempted to discuss their intentions with their physicians, all planning and research actually occurred outside of the health care system. From their perspectives, it was much easier to carry out suicide without medical assistance. Physicians who are uncomfortable about medicalizing suicide may be inclined toward the self-help model because of the distancing it permits. Nevertheless, a model that involves consultation with family, friends, and health practitioners in end-of-life decision making probably offers greater public accountability.

Suicides from helium inhalation are probably underreported, particularly since *Final Exit* suggests that people consider removal of the apparatus. In such cases, analysis of scene evidence is paramount, particularly because toxicological analysis for helium is a complex and little known process.¹³

Toxicology data on the 2 decedent are not yet available. In response to requests for these data, the BC Coroner advised the Judgments of Inquiry are not complete. It could be some time before the information is public. It should be noted that the cases reported in Table 1 the average time for completion of the Judgments of Inquiry is 38 weeks (range, 2.43–164.14 weeks). Additionally, the process of accessing these documents under the *Freedom of Information and Protection of Privacy Act* usually takes several months. Given that neither decedent was known to take any medication prior to ending their lives, toxicology results will probably be unremarkable.

Until now the forensic literature on helium asphyxia has consisted of autopsy studies with no direct information about the pathophysiology. These 2 case reports confirm that helium inhalation inside a prefilled environment will result in rapid loss of consciousness and sudden death.

While there was no evidence that the decedents experienced any pain, it was disturbing to witness preterminal gasping in both cases. In adults, gasping is witnessed in 30% to 40% of cardiac arrests.³⁹ These 2 case reports are insufficient to determine any variability in human response to helium induced hypoxemia, but it is interesting that one decedent experienced no tremors or gross reflex, while the other one did. In an experiment using nitrogen for the euthanasia of dogs it was observed that while death in the canines occurred rapidly and humanely, there was also considerable variation in incidences of convulsion, gasping, and muscular tremor.⁴⁰ The underlying reasons for these variations should be explored.

No experimental conditions were applied to these 2 suicides because the legal environment in Canada prohibits acts of assisting in suicide and the research ethics protocol required strict legal compliance. Therefore, the protocol was for naturalistic observation only. Nevertheless, helium inhalation is the constant in these 2 suicides, and slight variations in the specific methodologies (eg, type of hood, tubing connections, volume of helium) and the physical health of the decedents require caution in drawing any generalized conclusions.

The oximeter measures in case 1, although generally consistent with what would be expected in an oxygen depleted environment, should be treated with caution because the device used was low quality and did not store retrievable data. A medical grade oximeter with data storage capacity would be more reliable.

It is possible that jurisdictions that permit assistance with suicide may also allow research protocols for controlled observation and systematic data collection. Any future research would benefit from video recording and gas analysis of the breathing environment for helium, oxygen, and carbon dioxide.

In countries that permit assisted suicide and euthanasia, it might be useful to compare helium with pharmaceutical methods for terminating life. It is already known that where assisted death is permitted, the particular practices for assisting in suicide expand

over time to the circumstances of dying individuals.^{41,42} In early 2008, one Swiss right to die organization, Dignitas, began to experiment with helium as an alternative to pentobarbital.⁴³ Given that helium is increasingly used in planned, nonimpulsive suicide, efforts to further scientific understanding of this phenomenon should be pursued.

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IN THE UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, Secretary, Louisiana
Department of Public Safety and Corrections;
DARREL VANNOY, Warden, Louisiana State
Penitentiary; and JOHN DOES, unknown
executioners

Defendants.

Civil Action No. 25-169-SDD-SDJ

(Related to Civil Action 12-796-SDD-
EWD)

EXECUTION SCHEDULED FOR MARCH 18, 2025

REPLY IN SUPPORT OF MOTION FOR PRELIMINARY INJUNCTION

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I. Introduction

Plaintiff Jessie Hoffman submits this Reply in support of his Motion for Preliminary Injunction. The Defendants' claims in opposition should be rejected by this Court. First, the procedural bars alleged by the Defendants—failure to exhaust and timeliness—are misplaced. Mr. Hoffman has been seeking to have his claims heard on the merits for nearly thirteen years. He has submitted several grievances, which have been either rejected by the prison or held for a period of time that does not permit resolution before his execution date. He sought to reopen his original challenge in light of the changes to La. R.S. 15:569-70, warning that the state would be able to resume executions, to which the Defendants responded that there was no live controversy and no protocol. Second, the Defendants seek to make Mr. Hoffman the test case for an experimental method of execution that has been shown in the handful of times it has been used to cause terror, agony, and prolonged excruciating deaths. Based on the credible expert reports submitted in support of Mr. Hoffman's Motion for Preliminary Injunction and testimony that will be adduced at the hearing on March 7, Mr. Hoffman has carried his burden of showing a likelihood of success on the merits. Executing him now, after years of Defendant-produced delay of this Court's resolution of Mr. Hoffman's claims, and then a month's notice before his execution, would serve no legitimate purpose and would cause him irreparable harm. This Court should enjoin the Defendants from executing him pending the full litigation of his Complaint on the merits.

II. Mr. Hoffman Exhausted All Available Administrative Remedies

Mr. Hoffman notes at the outset that he attempted twice in 2024 to request administrative remedies with the prison regarding his Eighth Amendment claim. Both times, the prison rejected his Administrative Remedy Procedure (ARP), on June 7, and July 3, 2024, as follows:

Plaintiff Jessie Hoffman submits this Reply in support of his Motion for Preliminary Injunction. The Defendants' claims in opposition should be rejected by this Court. First, the procedural bars alleged by the Defendants—failure to exhaust and timeliness—are misplaced. Mr. Hoffman has been seeking to have his claims heard on the merits for nearly thirteen years. He has submitted several grievances, which have been either rejected by the prison or held for a period of time that does not permit resolution before his execution date. He sought to reopen his original challenge in light of the changes to La. R.S. 15:569-70, warning that the state would be able to resume executions, to which the Defendants responded that there was no live controversy and no protocol. Now, the Defendants seek to make Mr. Hoffman the test case for an experimental method of execution that has been shown in the handful of times it has been used to cause terror, agony, and prolonged excruciating deaths. This Court should enjoin the Defendants from executing him pending the full litigation of his Complaint on the merits.

REJECTED. Your request has been rejected for the following reason(s)

YOUR GRIEVANCE ALLEGING THAT VARIOUS EXECUTION METHODS CONSTITUTE CRUEL AND UNUSUAL PUNISHMENT IN VIOLATION OF THE CONSTITUTION HAS BEEN REJECTED AS PREMATURE, AS IT CONCERNS EVENTS THAT HAVE NOT YET HAPPENED AND/OR ACTIONS OR DECISIONS THAT HAVE YET TO OCCUR. A VALID DEATH WARRANT HAS YET TO ISSUE IN YOUR CASE, AND THE LAW ENACTING THE VARIOUS EXECUTION MEANS OUTLINED IN YOUR GRIEVANCE HAS YET TO TAKE LEGAL EFFECT. FOR THE REASONS STATED ABOVE, YOUR REQUEST FOR RELIEF IS REJECTED WITHOUT CONSIDERATION ON THE MERITS. PLEASE NOTE THAT REJECTED REQUESTS FOR ADMINISTRATIVE REMEDY ARE NOT APPEALABLE TO THE SECOND STEP.¹

Ex. A (Declaration of S. Pourciau) at 8; Ex. B (Declaration of Z. David-Lang) at 8. The prison therefore made any ARP unavailable to Mr. Hoffman, both before and after the legislative changes

¹ Undersigned counsel requested that the Defendants provide copies of the April and July 2024 ARPs, but the Defendants have not responded. Only Defendants have copies of these ARPs.

to La. R.S. § 15:569-570 went into effect. Then, once the State sought an execution warrant in his case, he tried again, invoking the emergency grievance procedure pursuant to La. Admin. Code tit. 22 § I-325(H)(1)(a) but was told that he would receive a response within 40 days. *See* Rec. Doc. 56-2 at 4-5. He does not have 40 days to live, however, under the current timeline set by the State. “Where an administrative process does not facilitate addressing execution-related claims within the timeframe of a scheduled execution, it is likely not an ‘available’ remedy that must be exhausted under the PLRA.” *Ramirez v. Collier*, 595 U.S. 411, 438 (2022) (Sotomayor, J., concurring). Ultimately, where Mr. Hoffman properly followed the prison’s procedure and prison officials were responsible for the mishandling of his grievance, it cannot be said that he failed to exhaust his remedies. *See Dole v. Chandler*, 438 F.3d 804, 811 (7th Cir. 2006).

A. Mr. Hoffman has Exhausted his Eighth Amendment Claim

The Defendants complain that Mr. Hoffman did not plead an alternative method of execution in his ARP. However, the Prison Litigation Reform Act does not require this level of legal detail in a grievance. Grievances must provide a factual basis “to identify problems, but **need not necessarily advance specific legal theories.**” *Williams v. Estelle Unit Prison Officials*, 2024 WL 3026778, at *3 (5th Cir. June 17, 2024) (emphasis added). An incarcerated person “need not present legal theories in his grievance[.]” *Johnson v. Johnson*, 385 F.3d 503, 517 (5th Cir. 2004), nor must he give “adequate notice of all claims,” *Hacker v. Cain*, 2016 WL 3167176, at *18 (M.D. La. June 6, 2016) (internal quotation omitted). “Rather, an ARP must do no more than address the same inappropriate behavior by Defendants that is addressed in the later filed suit.” *Id.* (cleaned up); *see also Baker v. Ephion*, 2018 WL 1003748, at *4 (M.D. La. Feb. 21, 2018) (Jackson, J.) (finding ARP sufficient to “provide the prison with ‘fair notice’ and an opportunity to fully address the grievance” where it contained sufficient facts to allow prison officials to conduct a “full investigation”).

Defendants do not contest any of this. Instead, they propose a radical expansion of the exhaustion requirement, whereby incarcerated people would be required to detail the legal theories underlying their claims. That is far more than the law demands for access to the courts. Mr. Hoffman needed only to allege facts sufficient to alert prison officials to the problem, providing officials with fair notice and an opportunity to address the grievance. *See Baker*, 2018 WL 1003748, at *4.

The one case cited by Defendants in support of their argument that Mr. Hoffman needed to allege an alternative method in his ARP is inapposite. *White v. Johnson* was a case dismissed on timeliness grounds, and it was decided a decade before the Supreme Court ruled that condemned individuals must allege an alternative method in method of execution challenges. *See White v. Johnson*, 429 F.3d 572, 573 (5th Cir. 2005); *see also Glossip v. Gross*, 576 U.S. 863, 879 (2015) (holding that prisoners must plead an alternative that is “feasible, readily implemented, and in fact significantly reduce[s] a substantial risk of severe pain.”). Defendants have identified no case dismissing a method of execution challenge on grounds that the prisoner failed to identify a feasible and readily implemented alternative method of execution. Nor should a prisoner be expected to know what is feasible and ready to be implemented by the prison at the time of his grievance.

B. Mr. Hoffman Did Not Need to Grieve his *Ex Post Facto* or Access to the Courts Claims

As the Defendants acknowledge, the Prison Litigation Reform Act provides that “[n]o action shall be brought **with respect to prison conditions** . . . by a prisoner confined in any jail, prison, or other correctional facility until such administrative remedies as are available are exhausted.” 42 U.S.C. § 1997e(a); Rec. Doc. 41-1, at 8. Mr. Hoffman’s *ex post facto* claim is not a challenge to “prison conditions” or “prison life.” *See, e.g., Willard v. Hearn*, No. 1:19-CV-908-

RPM, 2021 WL 4099019, at *3 (S.D. Miss. Sept. 8, 2021) (“Since this claim plainly does not concern prison life or prison conditions, it is not captured by the PLRA exhaustion requirement”). Nor is his claim that his attorneys will not be able to access the courts if needed at the time of his execution. The remedy Mr. Hoffman seeks—a declaration that La. R.S. § 15:569 is unconstitutional under the *ex post facto* clause and Sixth Amendment of the U.S. Constitution — is not available through the prison. *See Ross v. Blake*, 578 U.S. 632, 639 (2016).

C. Mr. Hoffman has Exhausted his RLUIPA Claim

Mr. Hoffman has exhausted his claim under the Religious Land Use and Institutionalized Persons Act of 2000 (RLUIPA), 114 Stat. 803, 42 U.S.C. § 2000cc *et seq.* and the First Amendment.² With respect to Defendants’ claim that Mr. Hoffman failed to ask for an accommodation in his ARP, the Louisiana ARP procedure does not require that level of granular detail. Indeed, “the prison’s administrative procedures, not federal law, provide the level of factual detail that a prisoner must allege in a grievance in order to exhaust his administrative remedies.” *Copeland v. Livingston*, 464 Fed.Appx. 326, 332 (5th Cir. 2012) (citing *Jones v. Bock*, 549 U.S. 199, 218 (2007)). Much of the caselaw surrounding this area comes from Texas and discusses the TDCJ grievance process. The TDCJ ARP procedure requires that the grievant “clearly state” “the specific action required to resolve the complaint.” *Ramirez v. Collier*, 595 U.S. 411, 422 (2022) (quoting Texas Dept. of Criminal Justice, Offender Orientation Handbook 73-75 (Feb. 2017)). In contrast, the Louisiana ARP procedure simply requires that the grievance “briefly set[] out the basis for his claim, and the relief sought.” La. Admin. Code tit. 22 § I-325(G)(1)(a)(i).

“Grievances should further the goal of the exhaustion requirement, that is to give prison officials the ‘opportunity to resolve disputes ... before being haled into court.’” *Copeland*, 464

² Mr. Hoffman specifically references the First Amendment in his ARP, see Rec. Doc. 56-2 at 7.

Fed.Appx. at 332. Mr. Hoffman’s grievance did give the prison the opportunity to resolve the dispute by selecting a different execution method that allows him to breathe air freely. In any event, the accommodation Mr. Hoffman requires is execution by either of the two alternatives pled in his Complaint.³ Mr. Hoffman’s claims are either exhausted or not included within the PLRA.

III. Mr. Hoffman is Likely to Succeed on his Eighth Amendment Claim

A. The Alabama Cases are Distinguishable

Defendants assert that Mr. Hoffman is not likely to succeed on the merits because “[e]very level of the federal courts” has repeatedly rejected his Eighth Amendment challenges. Rec. Doc. 56, at 6. Of course, the rulings of the federal courts at issue—the district courts in Alabama and the Eleventh Circuit on review of those district courts—do not control this Court nor the Fifth Circuit. And, notably, there are no other federal courts addressing the Eighth Amendment issues raised by execution by nitrogen asphyxiation outside of those arising in Alabama because there is no other jurisdiction that has attempted this method of execution to date. The resolution of the Eighth Amendment issue in Alabama is hardly representative of federal courts at every level, as asserted by the Defendants, such that the issue is foreclosed in this case or this Court.

Second, the Alabama procedure is markedly different from Louisiana, as it allows condemned individuals to “opt-in” to nitrogen gas as an alternative to lethal injection. *See* Ala. Code § 15-18-82.1(b)(2). Carey Grayson, Demetrius Frazier, and Alan Eugene Miller all opted for nitrogen gas as their chosen method.⁴ Kenneth Smith pled nitrogen gas as an alternative to his

³ It is also important to note that at the time he filed his ARPs, he had not been given notice of the method of execution, which is why he grieved all of the statutory methods.

⁴ *See Miller v. Hamm*, 640 F. Supp. 3d 1220, 1244 (M.D. Ala. 2022); *Grayson v. Hamm*, No. 2:24-CV-00376-RAH, 2024 WL 4701875, at *11 (M.D. Ala. Nov. 6, 2024), *aff’d sub nom. Grayson v. Comm’r, Alabama Dep’t of Corr.*, 121 F.4th 894 (11th Cir. 2024), *cert. denied sub nom. Grayson v. Hamm*, 145 S. Ct. 586 (2024); *Frazier v. Hamm*, No. 2:24-CV-732-ECM [WO], 2025 WL 361172, at *3 (M.D. Ala. Jan. 31, 2025).

Eighth Amendment challenge to lethal injection, after Alabama conducted a failed lethal injection attempt.⁵ Their claims, therefore, were limited to tinkering with the nitrogen gas method, as the prisoners were unable to make a challenge to the method itself.⁶

Additionally, the Alabama courts resolved the Eighth Amendment claims in those cases under factual circumstances distinct from those presented in Plaintiff's case and, thus, are by no means decisive of the Eighth Amendment issue presented herein. As the Eleventh Circuit concluded in *Smith v. Commissioner*, No. 24-10095 (11th Cir. 2024) (unpublished), applying a "highly deferential standard of review," the district court's determination that Smith is not substantially likely to vomit during the execution is not clearly erroneous. *Id.*, p. 19. The federal appellate court similarly concluded that it was "bound by the district court's factual findings surrounding a substantial risk of oxygen infiltration" as a result of the Alabama mask's design and fit. *Id.*, p. 20. *See also Grayson v. Commissioner*, 121 F.4th 894 (11th Cir. 2024) (concluding that factual findings of the district court are not clearly erroneous and there is no abuse of discretion). Plaintiff's Eighth Amendment claims, in contrast to the Alabama cases, are based upon the substantial likelihood that he will have a highly traumatic and painful PTSD response to the mask and nitrogen that cannot be mitigated by Plaintiff through his long-held and long-relied upon Buddhist techniques of mindfulness and breathing. It will thereby present the risk of harm that is "sure or very likely to cause serious illness and needless suffering" and give rise to "sufficiently imminent dangers," *Baze v. Rees*, 553 U.S. 35, 50 (2008), not presented in the Alabama cases.

⁵ *Smith v. Comm'r, Alabama Dep't of Corr.*, No. 22-13781, 2022 WL 17069492, at *5 (11th Cir. Nov. 17, 2022).

⁶ *See Smith v. Hamm*, No. 2:23-CV-656-RAH, 2024 WL 116303, at *8 (M.D. Ala. Jan. 10, 2024), adhered to, No. 2:23-CV-656-RAH, 2024 WL 262867 (M.D. Ala. Jan. 24, 2024), and *aff'd sub nom. Smith v. Comm'r, Alabama Dep't of Corr.*, No. 24-10095, 2024 WL 266027 (11th Cir. Jan. 24, 2024), *cert. denied sub nom. Smith v. Hamm*, 144 S. Ct. 414 (2024) ("It is not lost on the court that Smith vehemently argued for execution by nitrogen hypoxia in his previous litigation only several months ago when he was scheduled for execution by lethal injection").

B. Gas is Not “Humane and Reliable”

Without any experience administering or witnessing any executions by nitrogen asphyxiation, the Defendants have boldly deemed this method “the most humane and reliable method of execution in existence.” Rec. Doc. 56, at 13. This is a brand new method for Louisiana. No one at the DPSC has performed a nitrogen gas execution, nor have they witnessed one. Even Dr. Antognini has never been a witness to a nitrogen gas execution.

Public reports from witnesses to the Alabama gas executions refute the Defendants’ broad characterization of this method. As described in more detail in Mr. Hoffman’s Motion, Rec. Doc. 4-1, at pp. 10-15, all four executions by nitrogen gas featured shaking, gasping, and evidence of distress and over twenty minutes from the time the execution began and the time of death. For example, media witness Lee Hedgepeth, who had witnessed four other executions in addition to the first gas execution in Alabama, stated that he had “never seen such a violent reaction to an execution.”⁷ “Both his body and his head are strapped to the gurney, so as soon as the nitrogen begins to flow his entire body begins violently writhing under the straps,’ Hedgepeth said. ‘For the next few minutes, that continues to the point that the entire gurney is moving up and down.’ The movements under the straps become gradually less violent and Smith began breathing heavily and ‘gasping and struggling for air,’ Hedgepeth said.”⁸ The execution took approximately twenty minutes to complete.

The Defendants point to a claim made by Dr. Antognini that the evidence of struggling and suffering all occurred after unconsciousness. Rec. Doc. 56, at 13. However, there has been no

⁷ Nicholas Bogel-Burroughs & Abbie VanSickle, *Alabama Carries Out First U.S. Execution by Nitrogen*, N.Y. Times (Jan. 25, 2024), www.nytimes.com/2024/01/25/us/alabama-nitrogen-execution-kenneth-smith.html.

⁸ James Finn, *Jeff Landry supports death penalty by nitrogen gas. Here's how an eyewitness described it*, THE ADVOCATE, February 20, 2024, https://www.nola.com/news/politics/legislature/witness-recounts-nitrogen-execution-supported-by-jeff-landry/article_be56ebb8-d021-11ee-8b2b-772fa7c8c892.html

evidence that the Alabama inmates were unconscious. No consciousness checks were performed by medical professionals within the time period identified by Dr. Antognini that it would take to lose consciousness. For example, a reporter provided a detailed log of observations during Carey Grayson's execution:

6:12 p.m.: The nitrogen appeared to begin flowing. Grayson's hands were tightly clenched. He took several deep gasps, shaking his head vigorously. He pulled his arms against the restraints. He took more deep gasps.

6:13 p.m.: He took several deep gasps, raising his head off the gurney.

6:14 p.m.: He raised his legs from the gurney. He took several deep breaths. His legs lowered about 30 seconds later.

6:15 to 6:17 p.m.: Grayson took several deep breaths. His hands remained tightly clenched.

6:17 p.m.: A corrections officer performed a consciousness check.

6:18 p.m.: Grayson appeared to lose consciousness; His hands relaxed.⁹

The consciousness check was not performed until at least five minutes after the nitrogen began flowing, and was not performed by a trained medical professional. There is no evidence that Mr. Grayson, or any of the other Alabama men executed by gas, were unconscious during the time that witnesses reported struggling and gasping.

Unless all of the media witnesses selected by the Alabama Department of Corrections were lying, the reports are powerful evidence that execution by nitrogen asphyxiation cause severe pain, whether psychological or physical, and prolonged suffering before death. Gassing is not "the most humane method" of killing someone.

C. Dr. Antognini's Opinions are Based on Distinguishable Anecdotes

⁹ Marty Roney, *Alabama executes Carey Dale Grayson by nitrogen gas for brutal 1999 murder*, Montgomery Advisor, Nov. 21, 2024, available at <https://www.montgomeryadvertiser.com/story/news/crime/2024/11/21/alabama-executes-carey-dale-grayson-by-gas-for-brutal-1999-murder/76465482007/>.

The fundamental problem with Dr. Antognini's opinions regarding the nitrogen gas method of execution is that it relies entirely on anecdotes and studies of people who either actively desired death, in the case of the suicide anecdotes, or are completely unaware that there has been a nitrogen gas leak, in the case of the workplace accidents referenced in the OSHA workplace reports. He has never witnessed an execution, by nitrogen or any other means. He has never studied how long it takes to become unconscious when a person is being strapped down and involuntarily asphyxiated. Dr. Antognini makes several unfounded assertions and agrees that Plaintiff's expert Dr. Bickler has greater expertise in the topic of human hypoxia. Ex. C, Antognini Dep. at 50:19-24. Dr. Antognini has never witnessed a death by asphyxiation nor a nitrogen gassing execution and has never studied how long it takes for a person to lose consciousness when strapped down and involuntarily asphyxiated.

1. Dr. Antognini's Sources Do Not Support His Opinion That A Human Will Lose Consciousness Thirty to Forty Seconds After Inhaling 100% Nitrogen

Dr. Antognini opines that a prisoner that is involuntarily strapped down and forced to inhale 100% nitrogen will be conscious for thirty to forty seconds before the lack of oxygen in the bloodstream causes him to become unconscious. Rec. Doc. 56-3 (Antognini Decl.) at ¶ 9. He posits this in an attempt to show that Mr. Hoffman will not suffer more than forty seconds if the State executes him using the nitrogen hypoxia protocol. However, Dr. Antognini cannot point to a study that confirms this assertion. He relies on a 1963 study by J. Ernsting, and two research papers by sociologist Russel D. Ogden. Ex. C, Antognini Dep. at 17:1-18:5. These studies do not substantiate the opinion that Mr. Hoffman will only be conscious and in pain for a forty second window of time.

First, the J. Ernsting study involved three healthy, young men that lost consciousness after inhaling 100% nitrogen for 17-20 seconds. Rec. Doc. 56-3 (Antognini Decl.) at ¶ 9, Rec. Doc. 56-

8. However, the men were instructed to follow specific breathing instructions while administered varying amounts of oxygen and nitrogen for research purposes. In relying on this study, Dr. Antognini suggests that Mr. Hoffman would need to refute the survival instinct of holding one's breath and voluntarily inhale 100% nitrogen for 30-40 seconds in order to evade cruel and unusual punishment. Rec. Doc. 56-3 (Antognini Decl.) at ¶ 9 (“Nitrogen quickly enters the mask, and, in the absence of breath holding, within 4-5 breaths the inmate is breathing nearly 100% nitrogen.”). The circumstances of this study simply are not present here.

Second, Dr. Antognini relies on two studies by a sociologist—not a medical doctor—who reviewed videos of assisted suicides provided by Zurich police. Ex. C, Antognini Dep. at 30:13-32:24. These reports are also unreliable for the purpose of substantiating Dr. Antognini's opinions. They did not involve a medical doctor monitoring a person's consciousness in real time. *Id.* at 31:24-32:13. They involved the flow and inhalation of helium which Dr. Antognini concedes is different than the flow and inhalation of nitrogen *Id.* at 36:3-37:18. These reports also involve individuals willingly committing suicide that was later observed on video for the purpose of demonstrating that a crime hadn't been committed (as opposed to someone that is involuntarily asphyxiated). *Id.* 31:6-10.

Third, Dr. Antognini refers to reports by the Occupational and Safety Health Administration (OSHA) about industrial accidents where individuals died due to nitrogen inhalation. Rec. Doc. 56-3 (Antognini Decl.) at. ¶ 13. He opines that because these reports don't “describe any evidence that the workers attempted to self-rescue to escape the dangerous environment,” it is unlikely that they felt pain or distress. *Id.* This is an assumption about a report that Dr. Antognini did not co-author, and that he attempts to use to imply that the protocol—where Mr. Hoffman will have a masked strapped to his face involuntarily and knowledge that gas will

begin flowing at any moment—is not cruel and unusual punishment in the final moments of his life.

2. Dr. Antognini Draws Unreliable Conclusions About The Superadded Pain Of Nitrogen Inhalation Based On Research Conducted On Other Species.

Despite testifying that he only relied on the Ernsting study and the two sociological research papers by Ogden to draw the conclusion about the window of time until one loses consciousness, Dr. Antognini later testified that he looked to a report about the effects of nitrogen inhalation as a method of euthanasia for dogs Ex. C, Antognini Dep. at 42:18-25; Rec. Doc. 56-3 (Antognini Decl.) at ¶ 14. When asked about the biological differences between humans and dogs—for example, respiratory rates and the cardiac output per kilogram—he testified that one would need to know these difference to draw the conclusion that a study about dogs could be relied upon to determine the impact of nitrogen inhalation on humans. Ex. C, Antognini Dep. at 42:24-44:9. Dr. Antognini admitted that he did not have data responsive to questions about the biological differences between humans and dogs. *Id.* In this instance, his reliance on a study about the amount of time it takes for a dog to become unconscious after inhaling 100% nitrogen is not informative as to whether Mr. Hoffman will suffer if involuntarily asphyxiated.

3. Dr. Antognini’s Conclusions Are Biased By His Advocacy For The Death Penalty.

Dr. Antognini admits that he has no opinion as to how a prisoner with PTSD and claustrophobia may suffer if executed by nitrogen hypoxia, his sources prove unreliable in this matter, and he has made at least \$350,000 over the last decade acting as an expert witness for execution methods. Ex. C, Antognini Dep. at 2:19-3:1, 4:17-5:10. As of today, Dr. Antognini has never declined an opportunity to be an expert witness in an execution lawsuit because he did not agree with or support the method of execution that was being litigated. *Id.* at. 5:16-23. In the case

of *Roane v. Barr (In re Fed. Bureau of Prisons' Execution Protocol Cases)*, 514 F. Supp. 3d 136, 147-48 (D.D.C. 2021), the court found him less than credible. Like in this case, his opinions were “conclusory[.]” and he relied on inapplicable studies. *Id.* The D.C. Circuit agreed, finding his opinions “conclusory” and granting a stay. *Fed. Bureau of Prisons' Execution Protocol Cases v. Rosen*, No. 21-5004, 2021 U.S. App. LEXIS 968, at *11 (D.C. Cir. Jan. 13, 2021). *See also Bucklew v. Lombardi*, No. 14-8000-CV-W-BP, 2017 U.S. Dist. LEXIS 221707, at *16-17 (W.D. Mo. June 15, 2017) (finding that based on Dr. Antognini’s testimony, there was “no evidence suggesting that nitrogen hypoxia will be faster than pentobarbital”). In this matter, Dr. Antognini’s declaration is compiled of nothing more than biased anecdotes that support his career as an expert witness and death penalty advocate.

IV. Mr. Hoffman is Likely to Succeed on his As-Applied Eighth Amendment Claim

Defendants make two arguments in response to Mr. Hoffman’s claim that asphyxiation is perhaps the most excruciating method of execution as applied to him personally. First, the Defendants dismissively claim that he will be able to breathe normally during the course of his execution. This argument assumes that Mr. Hoffman being strapped down and having a gas mask strapped to his face will not trigger a panic response, which is belied by Dr. Sautter’s expert report. Dr. Sautter states that:

While Jessie has learned to manage his PTSD through Buddhist breathing techniques, he will be unable to manage them during an execution by nitrogen hypoxia. He will be restrained, forced to wear a mask, and made to inhale pure nitrogen. Nitrogen without oxygen will likely increase feelings of panic and cause a panic attack. People with PTSD are highly vulnerable to panic attacks, and it is highly likely that Jessie would experience traumatic memories and flashbacks as he is forced to inhale nitrogen prior to dying.

Rec. Doc. 4-8, at 2 (Report of Dr. Frederic Sautter). Dr. Sautter goes on to say that if the Defendants execute Mr. Hoffman by asphyxiation, “he will reexperience traumatic memories and emotions

that will disrupt the process of execution, and very likely cause him severe psychological harm, pain and suffering.” *Id.* The fact that Dr. Antognini, who we assume is not an individual suffering from complex PTSD, was able to “breathe normally” when he *intentionally* placed a mask on his face that was delivering *breathable air*, is entirely different from a traumatized person being involuntarily forced to breathe a gas that will kill him. *See* Rec. Doc 56, at 17-18.

The Defendants’ second argument is again based on the Alabama executions, and the false assumption that the executions went well and no suffering occurred. First, Kenneth Smith did suffer from PTSD and clearly experienced panic and terror during his execution. As his spiritual advisor reported:

His face. My God ... his face. The gurney was attached to the mask to hold it in place, but the force of Kenny’s movement mashed his face against the clear front of the mask. I kept wondering if his bulging eyeballs were going to shoot right through. Saliva, mucus, and a host of other substances shot out his mouth and started drizzling down the inside of the mask. Back and forth, Kenny kept heaving. It was now going on minutes, and Kenny was very much still conscious. I could see the horror in his eyes. I will never forget.¹⁰

Reporter Lee Hedgepeth observed the following:

Soon, for around a minute, **Smith appeared heaving and retching inside the mask.**

By around 8:00, Smith’s struggle against the restraints had lessened, though he continued to gasp for air. Each time he did so, his body lifted against the restraints.¹¹

A corrections officer who witnessed Mr. Smith’s execution reported that the pulse oximeter continued to show a steady rate of oxygen at 97-98% for “a period of time that was longer than I expected.” Ex. D (Affidavit of Brandon McKenzie). He did not notice Mr. Smith holding his

¹⁰ Jeff Hood, *As state lawmakers consider execution by nitrogen, a witness describes the horror*, available at <https://arktimes.com/arkansas-blog/2025/02/26/as-ar-lawmakers-consider-execution-by-nitrogen-a-witness-describes-the-horror>.

¹¹ Lee Hedgepeth, *‘Never Alone’: The suffocation of Kenneth Eugene Smith*, available at <https://www.treadbylee.com/p/never-alone-the-suffocation-of-kenneth>.

breath. He did notice Mr. Smith “tensing up, raising his upper body off of the gurney,” making fists, and then he “fell back onto the gurney and released a deep breath that produced a small amount of saliva into the mask shield.” *Id.*¹²

The Defendants’ primary response to the eyewitness accounts of the Alabama execution is its reference to the *Frazier* court’s finding that the eyewitnesses “did not know time zero” and therefore could not refute Dr. Antognini’s opinion that a person would lose consciousness within seconds after inhaling nitrogen. *See* Rec. Doc. 56, at 13. The problem is that, as applied to Mr. Hoffman, the fact of being strapped into a mask that will blow poison gas into his face is what will trigger his panic response. Rec. Doc. 4-8, at 2 (Report of Dr. Frederic Sautter). The Defendants’ arguments here both assume that the Alabama executions were humane, which is an unfair assumption based on all eyewitness reports and also take the untenable position that the Court should just allow the execution to proceed and then rely on self-serving accounts of prison officials to claim that the execution did not result in the suffering that the experts had predicted. Essentially the Defendants urge this Court to disregard the multiple eyewitness accounts of the past Alabama gas executions and instead credit Dr. Antognini’s opinions rendered after never having witnessed an execution. This Court should not do so.

V. Alternatives Exist that Would Significantly Reduce the Risk of Severe Pain Posed by Nitrogen Asphyxiation as Applied to Jessie Hoffman

A. Firing squad

The Defendants’ primary response to the proposed alternative of execution by firing squad is that, according to Dr. Antognini, the individual would be conscious from 4-13 seconds. Rec. Doc. 56, at 20. Dr. James Williams, a physician and firearms expert, estimates a period of

¹² Additionally, as the Defendants note, Mr. Smith was later found to have synthetic marijuana in his system which likely impacted his experience of panic or trauma, but it is unclear how much was in his system.

consciousness of “no more than 3-4 seconds.” Rec. Doc. 4-9 (Report of Dr. Williams), at 6. Either way, this period of time is far shorter than the period during which an individual being asphyxiated by gas remains conscious and suffering, even if Dr. Antognini’s unsupported estimate of 30-40 seconds is credited. *See* Rec. Doc. 56, at 10. The Defendants also characterize the period of consciousness as one of “profound pain;” however, Dr. Williams clearly states that “the experience of pain and suffering from a lethal or potentially lethal gunshot wound to the chest is relatively minor, if not in fact completely absent.” *See id.* at 20; Rec. Doc. 4-9, at 4.

The Defendants’ argument that the Legislature could have determined that execution by nitrogen asphyxiation is “more humane” than the firing squad is an unsupported assumption that is contradicted by the legislative record and statements of our elected officials. In the same bill that introduced execution by nitrogen asphyxiation, the Legislature passed a law allowing electrocution despite previous statements that electrocution “is a terribly gross way to carry out the death sentence,”¹³ and that lethal injection would be “more humane.”¹⁴ *See* Acts 2024, 2nd Ex.Sess., No. 5, § 1, eff. July 1, 2024. Moreover, Governor Jeff Landry has long endorsed the firing squad as a method of execution.¹⁵ Clearly the Governor, to whom Sec. Westcott directly reports, does not believe that nitrogen gas is needed to “preserve the dignity” of the process of killing a human being. *See* Rec. Doc 56, at 21.

B. MAID/ DDMAPh

¹³ *Lethal Injection Bill Clears Panel*, THE ADVOCATE, at 7A (June 21, 1990).

¹⁴ *Over 900 Bills Filed So Far*, THE ADVOCATE (Apr. 18, 1990).

¹⁵ *See* James Finn, *Jeff Landry to push for new death penalty methods after 14-year pause in executions*, THE ADVOCATE (Jan. 26, 2024), available at https://www.nola.com/news/politics/legislature/jeff-landry-pushes-for-new-execution-methods-in-louisiana/article_d659b8c8-bc65-11ee-ab17-a7c072b466df.html; Julie O’Donoghue, *Louisiana AG Jeff Landry pushes new execution options: gas, electrocution, firing squad, hanging*, THE ADVOCATE (Jul. 24, 2018), available at https://www.nola.com/news/politics/louisiana-ag-jeff-landry-pushes-new-execution-options-gas-electrocution-firing-squad-hanging/article_c98f228c-21a0-55c5-8f73-a7623acb01e3.html.

Defendants do not seriously contest Mr. Hoffman’s position that the Medical Aid in Dying protocol would significantly reduce the risk of his suffering severe pain and agony, as well as allow him to practice his religion and manage his PTSD. Instead, the Defendants claim that the method is not feasible because the DPSC is unable to obtain the required drugs based on the certifications it signed for Hospira/Pfizer in 2018. The certifications do not foreclose the DPSC’s ability to obtain the DDMAPh drugs. First, COO Smith as well as other officials have stated that insufficient secrecy prevented the DPSC from obtaining these drugs. *See* Related Case 12-796, Rec. Doc. 309-2, at ¶ 6 (“Lethal injection drugs, especially pentobarbital, have been difficult to obtain without a promise of confidentiality and/or a non-disclosure agreement.”). Act 5’s secrecy provisions, which shield any business entity involved in executions, were passed solely “to incentivize companies to sell death penalty drugs to Louisiana.”¹⁶ Now, the claimed barrier to the Defendants’ ability to obtain execution drugs—lack of sufficient secrecy—is no more. *See* La. R.S. § 15:570(G). Second, the certifications pointed to by Defendants as preventing them from using Pfizer drugs to execute also include a clear, separate certification that “our organization and none of its subsidiaries or affiliated organizations administer capital punishment.” Related Case 12-796, Rec. Doc. 305-10, at 3. If the Defendants’ concerns were genuine, they would not be able to execute by any method.

As to the Defendants’ other arguments against using the MAID protocol, Eighth Amendment caselaw does not require Mr. Hoffman to point to another state’s execution protocol as an alternative. The Supreme Court has not required a plaintiff to identify a protocol used by another state; instead, the Court has described the burden as pleading an alternative that is “sufficiently detailed to permit a finding that the State could carry it out ‘relatively easily and

¹⁶ Piper Hutchinson, *Execution drug secrecy mandated under Louisiana proposal*, LOUISIANA ILLUMINATOR, (Feb. 21, 2024), available at <https://lailuminator.com/2024/02/21/execution-drug-secrecy-mandated-under-louisiana-proposal/> (quoting Rep. Muscarello).

reasonably quickly.” *Bucklew v. Precythe*, 587 U.S. 119, 141 (2019). Although the *Bucklew* court explained that this “may” include another state’s protocol, the proffering of another state’s protocol, or another protocol authorized by law, is not mandatory. *See id.* at 140. MAID is undeniably less painful and easier to administer than lethal injection, a drug-based method that is authorized by statute. *See Price v. Comm’r Department of Corrections*, 920 F.3d 1317, 1328 (11th Cir. 2019) (per curiam) (a state may not statutorily authorize a particular method of execution “and simultaneously deny it as unavailable.”).

Mr. Hoffman has proposed a protocol that is “sufficiently detailed” and has been used countless times in Oregon, Washington, California, Hawai’i, Colorado, Vermont, Maine, New Jersey, Montana, Washington DC, and New Mexico, and has been endorsed by the Academy of Aid-in-Dying Medicine. *See* Rec. Doc. 4-10 (Declaration of Dr. Blanke). This method causes a painless death that renders the patient insensate to pain within seconds to minutes, and, critically for Mr. Hoffman, allows him to breathe air normally and practice his religion until the moment of unconsciousness. The median time to death is 96 minutes, with 78.5% dying in under two hours, and the extreme outlier of 67 hours theorized by the Defendants would not occur at the dosages recommended by Dr. Blanke.

VI. Mr. Hoffman is Likely to Succeed on his RLUIPA Claim

Defendants are wrong that Plaintiff is unlikely to succeed on the merits of his RLUIPA claim. Rec. Doc. 56, at 24-26. RLUIPA claims are evaluated in a two-part test: a claimant bears the burden of showing a substantial burden on his religious exercise; the burden then shifts to the government to show that it has a compelling interest in the challenged practice and that it is using the least restrictive means to further that interest. 42 U.S.C. § 2000cc–1(a). With respect to substantial burden, the U.S. Supreme Court explained that that analysis *defers* to the claimant’s subjective religious beliefs. *Holt v. Hobbs*, 574 U.S. 352, 361–62 (2015). Courts are not to gauge

the reasonableness or significance of the claimant's religious practices. *Thomas v. Review Bd. of Ind. Emp't Sec. Div.*, 450 U.S. 707, 716 (1981).

Here, Defendants do not dispute that Plaintiff sincerely believes that “[b]reathing is the constant connection with [Buddhists’] deepest faith and a direct expression of [Buddhists’] spirituality” and mindfulness of breathing “has always claimed a special prestige as the royal road to awakening.” Rec. Doc. 4-1, at 25 (citing Bono Decl. ¶ 5). Instead, Defendants claim that Plaintiff’s beliefs are not substantially burdened, because “Plaintiff *should* breathe, rather than . . . hold his breath” during the execution. Rec. Doc. 56, at 25 (emphasis in original). But Mr. Hoffman’s sincerely held religious beliefs are substantially burdened not because he will be unable to breathe, but because he will be forced to breathe deadly *nitrogen gas* as opposed to *air*. See Rec. Doc. 4-1, at 27-28 (explaining that nitrogen gassing “take[s] away [Plaintiff’s] ability to breathe air as he dies [and] will prevent him from practicing Buddhism at the time of his transition from life to death” (citing Bono Decl. ¶ 6)).

Because there is substantial burden on Mr. Hoffman’s religious exercise, Defendants must prove that they have a compelling interest that is narrowly tailored. The Supreme Court has explained that “RLUIPA requires us to scrutinize the asserted harm of granting specific exemptions to particular religious claimants and to look to the marginal interest in enforcing the challenged government action in that particular context.” *Holt*, 574 U.S. at 862–64 (alterations omitted). The least restrictive means standard, for its part, is “exceptionally demanding.” *Burwell v. Hobby Lobby Stores, Inc.*, 573 U.S. 682, 728 (2014); see also *Moussazedeh v. Texas Dep’t of Criminal Justice*, 703 F.3d 781, 795 (5th Cir. 2012) (“Requiring a State to demonstrate . . . that it has adopted the least restrictive means of achieving [a compelling] interest is the most demanding test known to constitutional law.” (quotation marks and citation omitted)).

Defendants have flipped their burden under RLUIPA on its head. Mr. Hoffman is not required to “identif[y] any less restrictive means of furthering that interest.” *See* Rec. Doc. 56, at 26. Rather, *Defendants* bear the burden of establishing a compelling interest and proving that they are using the least restrictive means to further that interest. This Defendants have not done. They have not, for example, seriously analyzed and rejected the feasibility of Plaintiff’s proposed alternative methods of execution. *See supra* Part IV *Smith v. Commissioner, Ala. Dep’t of Corrections*, 844 F. App’x 286, 292 (11th Cir. 2021) (“If a less restrictive means is available for the Government to achieve its goals, the Government must use it. . . . In deciding whether a policy is the least restrictive means, courts must inquire into whether efficacious less restrictive measures *actually exist*.” (internal quotation marks and citations omitted)). Having established a substantial burden to his sincerely held religious beliefs, Plaintiff is therefore likely to succeed on his RLUIPA claim.¹⁷

VII. Access to the Courts/Counsel

Plaintiff also has a strong likelihood of success on the merits of his claim that the current protocol violates his rights to access counsel and to petition the courts during the execution procedure itself. As it stands, the protocol does not permit counsel to be present for any aspect of the execution procedure, depriving Mr. Hoffman of the right to seek redress in the courts at precisely those points in the process when problems with the protocol’s implementation are most likely to arise. Plaintiff has requested a stipulation that Defendants will allow Mr. Hoffman’s counsel to be present at the execution with access to a phone. Ex. E (March 4, 2025, Email Jim

¹⁷ Although Defendants claim that the appropriate relief under RLUIPA is an injunction ordering the accommodation, not a stay of execution, *see* Rec. Doc. 56, at 25, the U.S. Supreme Court has issued a “stay of execution of sentence of death” to consider the merits of a condemned inmate’s RLUIPA claim. *See Murphy v. Collier*, 587 U.S. 901, 901 (2019) (granting stay); *Ramirez v. Collier*, 595 U.S. 411, 416 (2022) (noting that a stay was granted pending cert).

Stronski to Defendants’ counsel). Defendants’ assertion that Mr. Hoffman’s right to counsel ended at direct appeal is absurd and misses the point. He has a right to access the courts during his execution, particularly when the state is experimenting with a new method of execution.

VIII. Mr. Hoffman is Likely to Succeed on his Ex Post Facto Claim

Execution nitrogen asphyxiation is less humane and more painful than the method under which Mr. Hoffman was sentenced to death; therefore it violates his rights under the *ex post facto* clause. In their Opposition, Defendants entirely fail to address the *Neveaux* case, which is directly on point. In *Neveaux*, a Louisiana court found that La. Rev. Stat. § 15-569 was unconstitutional under the *ex post facto* clause.¹⁸ *See* Rec. Doc. 4-1, at 31. Instead, Defendants cite a century-old case, *Malloy v. South Carolina*, 237 U.S. 180 (1915), *see* Rec. Doc. 56, at 28, for the proposition that there is no *ex post facto* violation when the statute in question does “not change the penalty—death—for murder, but only the mode of producing this.” But, that case supports a finding of an *ex post facto* violation here. In *Malloy*, the inmate was “sentenced to death by electrocution in conformity” with a statute passed a few months earlier. 237 U.S. at 181. When the inmate committed the crime, however, the punishment for murder was death by hanging. *Id.* at 182. Notably, the Supreme Court explained that a “law that changes the punishment, and inflicts a greater punishment than the law annexed to the crime when committed” violates the *ex post facto* clause. *Id.* at 183-84. But there, the Court concluded that death by “electrocution is **less painful and more humane** than hanging. . . . The punishment was [therefore] not increased, and [in fact] some of the odious features incident to the old method were abated.” *Id.* at 184 (emphasis added).

¹⁸ *State v. Jerman Neveaux*, 16-04029 (24th J.D.C April 19, 2024); *see also* John Simerman, *When can Louisiana roll out new execution methods? One ruling raises doubts*, The Advocate, May 14, 2024 https://www.nola.com/news/courts/when-can-louisiana-roll-out-new-execution-methods-one-ruling-raises-doubts/article_4d0d9b64-0ccb-11ef-b3e1-63a3b855ce98.html.

None of Defendants' other cited cases are to the contrary. *Poland v. Stewart*, 117 F.3d 1094, 1105 (9th Cir. 1997), and *Johnson v. Bell*, 457 F. Supp. 2d 839, 841-42 (M.D. Tenn. 2006), are cases challenging a procedure whereby condemned inmates who were sentenced before the adoption of lethal injection could choose gas execution or electrocution over lethal injection. The plaintiffs there claimed that the statute violated the *ex post facto* clause because it "mak[es] him choose his method of execution" and therefore his penalty is "enlarged." *Poland*, 117 F.3d. at 1105. The courts held that giving the inmate a choice of the method of execution does not amount to a violation of the *ex post facto* clause. *Id.*; *Johnson*, 457 F. Supp. 2d at 842. This is not the claim Mr. Hoffman is making. In *United States v. Chandler*, 996 F.2d 1073, 1096 (11th Cir. 1993), the inmate was challenging the fact that the federal death penalty at the time of sentencing did not specify a method. The Eleventh Circuit rejected the argument, concluding that there was no increase in punishment. *Id.* at 1096. The case of *United States v. Tipton*, 90 F.3d 861, 903 (4th Cir. 1996) has an identical issue to *Chandler*. By contrast here, by changing the method of execution from lethal injection to nitrogen gassing, the DPSC is "mak[ing] more burdensome the punishment for a crime." *Id.*

The cases of *Zink v. Lombardi*, 783 F.3d 1089, 1108 (8th Cir. 2015), *Jones v. Crow*, No. 21-6139, 2021 WL 5277462, at *7 (10th Cir. Nov. 12, 2021), and *Matter of Fed. Bureau of Prisons' Execution Protocol Cases*, No. 05-CV-2337, 2021 WL 127602, at *2 (D.D.C. Jan. 13, 2021), deal with the substitution of lethal injection drugs. As the courts found, the *ex post facto* clause was not violated because the method of execution—lethal injection—remained the same. The substitution of drugs is nothing like the case here, where the legislature changed, and the DPSC intends to employ, a new method of execution that is less humane than the method in effect at the time Mr. Hoffman was sentenced. Finally, in *Miller v. Parker*, 910 F.3d 259, 261 (6th Cir.

2018), the inmate argued that Tennessee’s switch from electrocution to lethal injection violated the *ex post facto* clause. The Sixth Circuit explained that “[a] change in a State’s method of execution will not constitute an *ex post facto* violation **if the evidence shows the new method to be more humane.**” *Id.* (emphasis added). Here, the method of execution by nitrogen asphyxiation was added by the legislature specifically to speed up executions, not to make them more humane. Nitrogen asphyxiation is clearly less humane and more burdensome to Mr. Hoffman because of its increased pain, the enormous pain and distress on Mr. Hoffman, corrections staff and witnesses, and the cruelty and barbarism associated with actually administering the method of execution.

IX. The Equities Favor Mr. Hoffman

A. Mr. Hoffman has not Delayed Filing this Suit

Mr. Hoffman has gone above and beyond to have his claims heard timely and in a non-emergency fashion. It has been the *Defendants* who have consistently attempted to prevent his claims from being heard on the merits, particularly in the past four years. Indeed, it is difficult to imagine what Mr. Hoffman could have done differently to satisfy the Defendants’ concerns.

In the interest of brevity, Mr. Hoffman will not recount in detail what is already in the record in Related Case 12-796. Suffice to say that Mr. Hoffman filed suit in 2012 to challenge the state’s method of execution, and the suit was dismissed ten years later at the behest of the Defendants based on their claims that they were not able to execute Mr. Hoffman or any other death row inmate. Mr. Hoffman unsuccessfully moved this Court to reconsider. Related Case 12-796, Rec. Doc. 317. Less than two years after dismissal, the Legislature changed the law for the express purpose of resuming executions, and now allows electrocution and nitrogen asphyxia as methods. Even before the new law went into effect, Mr. Hoffman filed a motion to reopen the proceedings based on an extraordinary change in circumstances—the state’s newfound ability to execute him. Related Case 12-796, Rec. Doc. 318. The State responded that his motion was

“premature,” because the suit had always been about the “procedures” as opposed to the methods, and there were no new procedures over which to litigate. Related Case No. 12-796, Rec. Doc. 327, at 11. The significance of this argument—that it was too soon to challenge the state’s execution protocol because there was none—was that the Defendants were telling Mr. Hoffman to wait, that he had filed too soon, and that he must wait until the Defendants had a protocol for him to challenge. Through no fault of Mr. Hoffman, his motion to reopen remained pending for several months. The Defendants stopped responding to requests for information regarding changes in the protocol from Mr. Hoffman’s counsel. On February 10, 2025, without any prior notice, the Governor announced that Louisiana had a new protocol and would resume executions. Related Case 12-796 Rec. Doc. 335-2. Mr. Hoffman immediately alerted this Court that same day. Related Case 12-796 Rec. Doc. 335. By Friday of that week, February 14, Mr. Hoffman had a signed warrant of execution, and he updated the court and asked for expedited consideration. Related Case 12-796 Rec. Doc. 336. The prison did not give Mr. Hoffman notice as to his method of execution until February 20, and the next day this Court granted his motion to reopen, finding “now that the protocol appears viable, there is an actionable case and controversy.” Related Case 12-796 Rec. Doc. 337. Mr. Hoffman filed a motion for a status and scheduling hearing, which this Court granted and docketed a hearing for February 24. Related Case 12-796 Rec. Docs. 339, 340.

Rather than allowing Mr. Hoffman to litigate his claims in the short time period he had left, the State went to the Fifth Circuit and got a stay of the proceedings, arguing that the status hearing would cause the Defendants irreparable harm. *In re Gary Westcott, et al.*, No. 25-30088, Doc. 1 (5th Cir.). Mr. Hoffman opposed the stay and the writ of mandamus. *In re Gary Westcott, et al.*, No. 25-30088, Docs. 13, 18 (5th Cir.). The Defendant misrepresents the Fifth Circuit as “agree[ing]” with the Defendants that this Court should not have reopened the case. The Fifth

Circuit never ruled on the merits. While the stay was pending, because the Fifth Circuit has not issued a ruling, Mr. Hoffman was forced to file a new lawsuit given the extreme time constraints. However, even then, Mr. Hoffman had been denied access to the execution protocol both through his ARPs and through counsel's requests to opposing counsel. It took an order of this Court, less than a week ago on February 28, to finally obtain a copy of the state's execution protocol. Rec. Doc. 10.

It was the Defendants who argued, not that Mr. Hoffman's Rule 60(b)(6) motion was procedurally improper, but that any claims challenging the state's execution protocol were *premature* because "Defendants have yet to issue a new protocol for the new legislation." Case No. 12-796, Rec. Doc. 327, at 8. Mr. Hoffman attempted to find out when the Defendants issued a new protocol, to no avail. It is now apparent that the state only finalized an execution protocol in February, meaning that under the Defendants' position, his claims were not ripe until less than 30 days ago. Any delay was not the fault of Mr. Hoffman.

B. The Balance of the Equities Favors Mr. Hoffman

The relative harm to the parties factor also weighs heavily in Mr. Hoffman's favor. Mr. Hoffman would suffer irreparable harm without a stay. Of course, an execution is "obviously irreversible." *Evans v. Bennett*, 440 U.S. 1301, 1306 (1979) (Rhenquist, J., granting stay as circuit justice). Executing Mr. Hoffman by strapping a mask over his face and forcing him to inhale toxic gas creates a substantial risk that his last conscious memory will be the experience of excruciating terror, panic, and pain where he is prevented from practicing his religion. That risk is documented by persuasive and credible evidence, and there is no way to remedy a painful and unconstitutional execution after it has occurred. Any potential "harm" to the Defendants in a delayed execution is the fault of the Defendants themselves, for delaying Mr. Hoffman's claims from being heard on the merits until he had a pending warrant of execution.

Dated: March 6, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the above and foregoing was filed electronically with the Clerk of Court using CM/ECF on this 4th day of March, 2025. Notice of this filing as generated by the electronic filing system constitutes service of the filed document on counsel of record for Defendants.

/s/ Samantha Bosalavage Pourciau
Samantha Bosalavage Pourciau

**UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN,

Plaintiff,

v.

GARY WESTCOTT, *et al.*,

Defendants.

CIVIL ACTION No. 25-169-SDD-SDJ
CHIEF JUDGE SHELLY D. DICK

MAGISTRATE JUDGE
SCOTT D. JOHNSON

**DEFENDANTS' [PROPOSED] FINDINGS OF FACT AND
CONCLUSIONS OF LAW**

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FINDINGS OF FACT

I. PLAINTIFF WAS CONVICTED FOR THE FIRST-DEGREE MURDER OF MARY “MOLLY” ELLIOT AND SENTENCED TO DEATH.

1. On the night before Thanksgiving Day in 1996, Plaintiff, Jessie Hoffman, kidnapped, robbed, and raped Mary “Molly” Elliot. *State v. Hoffman*, 768 So. 2d 542, 550 (La. 2000). Plaintiff kidnapped Molly at gunpoint and drove her to an ATM, where he forced her to withdraw \$200 that he then robbed her of. *Id.*

2. Plaintiff subsequently raped Molly in the backseat of her own car in a remote area of St. Tammany Parish. *Id.* He then marched her—still naked—“down a dirt path which was overgrown with vegetation and in an area full of trash used as a dump.” *Id.* “Her death march ultimately ended at a small, makeshift dock” on Middle Pearl River, where Plaintiff “forced [her] to kneel” and “shot [her] in the head, execution style.” *Id.*

3. Molly “likely survived for a few minutes after being shot.” *Id.* But she was not discovered until Thanksgiving Day, when a duck hunter came across her naked body on the dock. *Id.* at 549.

4. For his part, Plaintiff “soon thereafter” took his girlfriend shopping with Molly’s money. *Id.* at 550.

5. A jury convicted him of first degree murder, and he was sentenced to death. *Id.* at 549; see ECF 1 (Complaint) ¶ 61. His direct appeal was litigated to finality. *Hoffman v. Louisiana*, 531 U.S. 946 (2000) (denying petition). And Plaintiff exhausted all of his state and federal post-conviction remedies. *State v. Hoffman*, 2020-00137 (La. 10/19/21), 326 So. 3d 232, 235–36, 242 (collecting his post-conviction

cases) (“Hoffman has now fully litigated his application for state post-conviction relief.”).

II. BECAUSE OF COMPLICATIONS WITH LETHAL-INJECTION DRUGS, LOUISIANA RESEARCHES AND ADOPTS NITROGEN HYPOXIA AS A METHOD OF EXECUTION.

6. It is no secret that drug companies have made it extraordinarily difficult for States to carry out executions by lethal injection. So, many States have turned to nitrogen. Nitrogen is the most abundant atmospheric gas and constitutes nearly 78% of the ambient air that we breathe. 1st Tr. 182:22–23. Inhalation of nitrogen displacing oxygen in the lungs can cause unconsciousness and then death—that is by nitrogen hypoxia. 2nd Tr. 46:23–47:7, 59:14–18. And for those reasons, Oklahoma, Mississippi, and Alabama have all adopted nitrogen hypoxia as a method of execution. *See* Okla. Stat. tit. 22, § 1014(B); Miss. Code § 99-19-51(1); Ala. Code § 15-18-82.1. This case represents Louisiana’s part of that story.

A. Pharmaceutical Companies Block Louisiana from Carrying Out Executions by Lethal Injection.

7. Before July 2024, Louisiana’s exclusive available statutory method of execution was lethal injection. *See* La. R.S. 15:569 (2010); 1990 La. Sess. Law Serv. 717 (S.B. 243) (adopting execution by lethal injection).

8. The Louisiana Department of Public Safety and Corrections lethal injection protocol included (and still includes) the administration of—among other drugs—Midazolam and Hydromorphone. Plfs.’ Ex. 9 at 15 (2014 protocol).

9. Beginning around 2014, DPSC officials corresponded regularly “with various pharmaceutical manufacturers and [their] wholesalers” that assured DPSC

that its “using one of their drugs” for an execution would mean the companies were “no longer going to supply drugs [DPSC] need[s] to treat people.” 1st Tr. 170:19–24.

10. Some pharmaceutical companies requested that DPSC certify in writing that their products—including Midazolam and Hydromorphone—would not be used in the administration of any capital punishment. *Id.* at 176:20–177:1. If DPSC refused to certify, the companies would withhold their medications for delivery for medical care for *all* inmates in DPSC custody. *Id.* But DPSC could “run that risk” because the prison system has “full-blown hospitals” with an “aging population” that need the “life-saving” drugs. *Id.* at 177:2–7.

11. These companies maintain that prohibition today. For example, in 2018, DPSC executed a certification to Pfizer and its wholesaler (Morris & Dickson) in order to access potential execution drugs solely for the medical care needs of its inmate population, which, if violated, could jeopardize DPSC’s ability to utilize these drugs for legitimate medical needs. *Id.* at 167:13–20. And that certification has no expiration date. *Id.* at 176:20–21. Included in that certification is diazepam, one of the drugs that is required for Plaintiff’s proposed DDMAPh alternative method of execution. Plfs.’ Ex. 135 at 2.

12. DPSC has also previously received correspondence from Hikma Pharmaceuticals PLC (“Hikma”) stating that it objected to DPSC’s use of any of its drugs for capital punishment, including any restricted drugs listed on its website. *Id.* at 168:1–4. According to Hikma’s website, it specifically objects to the use of phenobarbital for capital punishment. *Id.*; see *Hikma Pharmaceuticals strongly*

objects to the use of its products in capital punishment, HIKMA (May 15, 2013), t.ly/MkaIF. Phenobarbital is one of the drugs that is required for the proposed DDMAPh method of execution. 1st Tr. 137:4–12, 141:18–19.

13. Because of the pharmaceutical companies' actions, it has been and remains impossible for DPSC to implement its lethal injection execution protocol. 1st Tr. 159:4–6, 187:6–7.

B. Louisiana Adopts Nitrogen Hypoxia as a Method of Execution and Develops an Execution Protocol Based on Alabama's.

14. In 2014, the Louisiana Legislature issued House Resolution No. 142. *Id.* at 171:24–172:4. It directed DPSC to study different methods of execution to determine the best practices for administering the death penalty in the most humane manner and to issue a written report to the House Committee on the Administration of Criminal Justice. *Id.* at 177:23–25. The written report later led to a 2015 bill introducing inhalation of nitrogen as an alternative method of administering capital punishment. *Id.* at 178:1–3. But the bill was ultimately not passed. *Id.*

15. The first execution by nitrogen hypoxia occurred a decade later on January 25, 2024, when the State of Alabama executed Kenneth Eugene Smith at Holman Correctional Facility. *See* Ralph Chapoco, *Kenneth Eugene Smith executed by nitrogen gas for 1988 murder-for-hire scheme*, ALABAMA REFLECTOR, t.ly/UaAPK (Jan. 26, 2024).

16. Back in Louisiana, in February 2024, during a special legislative session focusing on criminal justice issues, a bipartisan majority of the Legislature considered and passed a bill to add nitrogen hypoxia as a method of execution. *See*

2024 La. Sess. Law Serv. 2nd Ex. Sess. Act 5 (H.B. 6) (codified at La. R.S. 15:569–570). On March 5, 2024, Governor Landry signed Act 5 into law to take effect on July 1, 2024. *Id.* Once effective, it amended La. R.S. 15:569 to adopt nitrogen hypoxia as a method of execution. *Id.*

17. Now, the only currently available means of carrying out an execution in Louisiana is by nitrogen hypoxia. 2nd Tr. 21:24–22:5.

C. DPSC Builds the Louisiana State Penitentiary’s Nitrogen System Based on Alabama’s.

18. DPSC subsequently began to study how to build a nitrogen hypoxia system for use in Louisiana State Penitentiary’s Death Chamber. 1st Tr. 178:16–18.

19. In March 2024, Chief of Operations for DPSC, Seth Smith, and LSP’s Warden traveled to Atmore, Alabama, to see the nitrogen hypoxia system used by the Alabama Department of Corrections (ADOC). *Id.* at 178:18–22, 179:20–23. After the Alabama visit, DPSC directed LSP to begin discussing the construction of a nitrogen hypoxia system for use in the execution chamber at LSP’s Camp F, E (entrance) building. *Id.* at 181:13–18.

20. After July 1, 2024, LSP began to procure equipment and supplies for use in constructing the nitrogen hypoxia system. *Id.* at 181:22–24. LSP personnel began construction of the nitrogen hypoxia system that same month. *Id.* at 182:9–11.

21. Mr. Smith wanted to improve the components so that Louisiana’s system more closely resembled Alabama’s, so he instructed LSP personnel to get a deeper understanding of the details of Alabama’s system by the people directly involved in piping and maintenance. *Id.* at 181:24–182:5.

22. On August 7–8, 2024, LSP personnel—those “more directly involved with piping, maintenance type work”—traveled to Atmore, Alabama, to see ADOC’s nitrogen hypoxia system. *Id.* at 182:20–182:24. During that visit, LSP personnel were allowed to inspect every feature of ADOC’s nitrogen hypoxia system to obtain a complete understanding of its setup and function. *Id.* at 183:2–5.

23. About two weeks after returning from Alabama, LSP personnel ordered automatic manifolds, copper piping, two exhaust fans, three permanent wall-mounted O₂ sensors, and various fittings in order for LSP’s system to more closely mirror those of ADOC’s nitrogen hypoxia system. *Id.* at 183:6–9.

24. In August 2024, LSP resumed trainings for staff involved in executions under both ADOC’s redacted nitrogen hypoxia protocol and DPSC’s March 2014 lethal injection protocol. *Id.* at 165:11–14, 176:2–11. Mr. Smith attended at least three such trainings and was “very satisfied” with the results. *Id.* at 189:18–23.

25. By September 2024, LSP completed construction of its nitrogen hypoxia system. *Id.* at 165:15–18.

26. LSP’s completed nitrogen hypoxia facility has three rooms—the valve and storage room, the observation room, and the execution chamber. *Id.* at 188:23–189:2, 191:11–13; *see, e.g.*, Plfs.’ Exs. 101, 108, 114, 117, 121.

27. The valve and storage room contains multiple tanks of breathing air and of nitrogen that are not in use—but are full and ready to be used. 1st Tr. 191:11–13. The tanks are “clearly labeled.” *Id.* at 191:15–16.

28. That room also contains two electronic manifolds mounted on the wall—

one for nitrogen, one for breathing air. *Id.* at 183:25–184:19. The nitrogen in the tanks is labeled with “UHP 300” because they contain ultra-high grade nitrogen (99.999%, 0.001% impurities)—not medical grade nitrogen (99.0%, 1% impurities), which is comparatively inferior. *Id.* at 175:5–22.

29. Each manifold contains two tanks connected into the system—one bottle “ready/in use,” and one on “standby.” *Id.* Each tank has a gauge measuring the pressure within it. *Id.*; *see id.* at 191:15–21. If a tank were to lose pressure, the electronic system “automatically flips” to the full tank “without a break in service.” *Id.* at 183:25–184:19. Alabama uses the same system. *Id.* at 184:20–23.

30. From each manifold come two pipes. *Id.* at 191:22–23. One goes to an exhaust vent in case of overpressures. *Id.* at 191:23–192:3. The other pipe travels through a manual pressure gauge and into opposite ends of the same T joint that feeds into a flow meter. *Id.* at 192:4–11. For redundancy, LSP personnel monitor the manual gauges to verify they stay at 50 pounds per square inch (psi). *Id.* at 192:11–13. The flow meter itself regulates the flow rate out of the T joint—no matter the psi fed into the T joint. *Id.* at 192:15–20. From the flow meter comes a single industrial tube leading to the mask. 2nd Tr. 125:12–126:7. Louisiana improved on Alabama’s system by procuring higher grade industrial tubing. 1st Tr. 193:1–8.

31. The mask used is a full-face silicon mask with a plexi-glass screen known as a “source respirator”—industrial grade and superior in quality to medical grade masks. *Id.* at 180:22–24. The thick, cushion material that straps against the face creates a “virtually air tight seal.” 2nd Tr. 126:13–127:6. The mask has a one-way

inlet valve allowing for airflow into the mask from the industrial tube. *Id.* The mask allows for exhaling through another one-way exhaust valve. *Id.* The protection factor of the mask is 1000. *Id.* at 127:7–129:12. As a result, breathing in the mask is “very comfortabl[e].” *Id.* 131:4–5. The mask is very similar, if not identical, to the one used in Alabama’s system. 1st Tr. 180:20–23.

32. When nitrogen and carbon dioxide exit the mask, they dissipate into the air in the execution chamber. *Id.* at 188:1–6. Out of an abundance of caution, DPSC installed two exhaust fans for any excess nitrogen to be taken out of the room entirely. *Id.* at 188:7–15.

33. More, DPSC has placed permanent and portable oxygen monitors in the visiting room, the valve room, and the execution chamber with alarms set for oxygen levels below 18.5%. *Id.* at 189:2–16. The monitors alert personnel and witnesses if oxygen levels happen to drop in the room. *Id.*

D. DPSC Promulgates its Nitrogen Protocol Based on its 2014 Protocol and Alabama’s.

34. On February 3, 2025, DPSC executed a new nitrogen protocol to include the procedures implementing LSP’s nitrogen hypoxia system. *See* Plfs. Ex. 11; 2nd Tr. 14:2–4.

35. On February 11, 2025, Warden Vannoy signed an updated protocol that addressed some inconsistencies and minor grammatical errors. 2nd Tr. 11:4–9; *see* Plfs.’ Exs. 1 & 3.

36. The protocol is a blend of DPSC’s 2014 lethal injection protocol and ADOC’s redacted nitrogen hypoxia protocol. 1st Tr. 176:2–11. In fact, the protocol

maintains every procedure from the 2014 protocol for what happens before the condemned inmate arrives at the table. *Id.*

37. While constructing its nitrogen hypoxia system and protocol, DPSC did not consider electrocution, lethal injection, firing squad, or medical aid in dying as alternatives because all are impossible, unauthorized by law, or both. *Id.* at 159:1–22.

38. Louisiana law determines who can witness an execution. 2nd Tr. 22:13–16. Secretary Westcott has the discretion to choose three of those witnesses, and he has chosen a member of law enforcement, a representative from the Attorney General’s Office, and a representative from the Governor’s Office. *Id.* at 23:17–22.

39. On the day of the execution, the execution will occur between 6 P.M. and 9 P.M. *Id.* at 17:18–23. The Warden can terminate the condemned inmate’s contact with his attorney and spiritual advisor at 3:00 P.M. *Id.* at 17:10–14. But Warden Vannoy will allow contact with Plaintiff’s attorneys until about 4:30. *Id.* at 17:15–17. At that point, the attorneys will be able to join Plaintiff’s family at a designated location. *Id.* at 17:24–18:3.

III. NITROGEN HYPOXIA AS APPLIED TO PLAINTIFF.

A. Louisiana Will Execute Plaintiff by Nitrogen Hypoxia on March 18, 2025.

40. On February 20, 2025, Plaintiff was served a death warrant. 1st Tr. 25:23–26:1.

41. Secretary Westcott chose the nitrogen hypoxia method of execution because it was the only one immediately available. 2nd Tr. 21:24–22:5.

B. Plaintiff is a Practicing Buddhist Who Will Use Deep Mediated Breathing During His Execution.

42. Plaintiff has been a practicing Buddhist since 2002 when his grandmother passed away. 1st Tr. 23:12–17. In his regular practice, Plaintiff does meditated breathing twice a day—at morning and at night. *Id.* at 24:12–17. That meditated breathing requires concentrated “deep breaths” by inhaling and exhaling. *Id.* at 33:15–22.

43. When exercising his meditated breathing, Plaintiff is *not* concerned with the composition of the air he is breathing. *Id.* at 34:4–9. Only when prompted by his lawyer did Plaintiff indicate that oxygen is itself essential to his religious practice. *Id.* at 40:6–8; *see id.* at 52:3–11.

44. Plaintiff plans to use meditated breathing during his execution by nitrogen hypoxia. *Id.* at 39:15–17. And on Wednesday, March 5, 2025, Plaintiff met his spiritual advisor Rev. Reimoku Gregory Smith who plans to aid in the meditated breathing and ensure a peaceful death. *Id.* at 101:3–4, 101:22–102:25.

45. Reverend Michaela O’Connor Bono explained that Plaintiff’s meditated breathing is the Buddhist practice of Anapanasati, which involves detailed breathing instructions with a focus on the breathing itself and especially the sensation of the breath traveling from the nose and mouth to the diaphragm. *Id.* at 48:17–49:3, 52:12–17, 101:10–14. While Reverend Bono maintained that air is important to the practice, she was unable to identify any doctrine within the Tibetan Buddhist tradition that required oxygen in particular. *Id.* at 52:3–9.

C. Plaintiff's Claims of PTSD and Claustrophobia Are Unsubstantiated.

1. Any "Life Threatening Event" Might Trigger Plaintiff's PTSD.

46. In 2003, Dr. Frederic Sautter observed Plaintiff and diagnosed him with Post-Traumatic Stress Disorder (PTSD) and Psychotic Disorder NOS (not otherwise specified). *Id.* at 59:11–16. He did not diagnose Plaintiff with claustrophobia. *Id.* at 61:23–62:1.

47. Plaintiff has not "sought any treatment for PTSD in over five years." *Id.* at 32:18–21.

48. Just weeks ago, Dr. Sautter again assessed Plaintiff. *Id.* at 62:23–63:1. While he testified that Plaintiff's 2003 diagnosis remained unchanged, Dr. Sautter altogether ignored Plaintiff's 22 years of intervening medical and psychiatric records. *Id.* at 63:4–6. Although he has recognized Plaintiff has improved, Dr. Sautter now describes this as "complex PTSD" from Plaintiff's "early environment"—*i.e.*, "symptom environment"—before his "personality develop[ed]." *Id.* at 83:24–84:7.

49. Dr. Sautter relied on "frequent reports of symptoms and problems that people are experiencing." *Id.* at 63:8–11. Dr. Sautter, however, has not communicated with any medical professional at LSP. For when asked to identify who reported Plaintiff's psychological problems to him, Dr. Sautter identified Plaintiff's lawyer. *Id.* at 75:7–17.

50. In general, PTSD increases the chances that one might have a panic attack if triggered. *Id.* at 60:4–9. In Plaintiff's case, a triggering event includes any "life threatening" event. *Id.* at 62:5–12. In other words, if "he thinks he is going to die,

he is going to be susceptible to having some PTSD symptoms.” *Id.* at 69:3–7. That is because he is conditioned to have a “fear of death.” 1st Tr. 71:14–21.

51. (To skip ahead in the narrative, Dr. Bickler echoed that for Plaintiff—no matter how—the “inevitability of the coming death would be a terror.” 2nd Tr. 39:4–8. Indeed, execution by any means will cause psychological pain and anxiety. *Id.* at 97:7–10.

52. And stressful experiences can be hard on PTSD patients—so much so that Dr. Bickler has to hold their hand through awake brain surgery. *Id.* at 34:7–10. The environment of the execution chamber alone would be enough to make someone with PTSD “extremely uncomfortable,” says Dr. Bickler. *Id.* at 55:21–25.)

53. Turning back to Dr. Sautter, Plaintiff being held at gunpoint, too, is an example from the “100 stimuli [Plaintiff] probably experienced that are associated with traumatic events” and “could” trigger his PTSD symptoms. *Id.* at 83:1–10. According to Dr. Sautter’s 2003 report, part of Plaintiff’s PTSD stems from twice being robbed and held at gun point. *Id.* at 78:25–79:3; *see* Defs.’ Ex. 20 at 6. So, if faced with a firing squad, Plaintiff may have a panic attack “depend[ing] on his emotion response.” 1st Tr. 80:1–4; *see id.* at 124:6–10 (Dr. Williams with no opinion on psychological pain).

54. Even so, when Plaintiff is faced with a PTSD triggering event, his meditated breathing practices help prevent any symptoms. *Id.* at 72:12–16. (Dr. Bickler says that only if that coping mechanism is interfered with will there be additional stress on Plaintiff. 2nd Tr. 59:7–9.) Moreover, Dr. Sautter testified that

Plaintiff will be able to practice his breathing techniques while he is executed, thus “decreas[ing]” any distress. 1st Tr. 72:8–16.

2. The Claustrophobia Diagnosis is Unfounded.

55. Plaintiff claims to suffer from claustrophobia stemming from being locked in a closet by his brother as a child. *Id.* at 30:18–31:1. But no one—not even Dr. Sautter—has diagnosed Plaintiff with claustrophobia. *Id.* 73:23–25. Yet Plaintiff still believes a mask over his face, the “idea of that ... you know” may “trigger” his “small space issue.” *Id.* at Tr. 31:10–14.

IV. THE EXPERT TESTIMONY SHOWS THAT PLAINTIFF’S EXECUTION BY NITROGEN HYPOXIA WILL NOT SUPERADD PAIN COMPARED TO ALTERNATIVES.

A. Nitrogen Hypoxia Is Quick and Does Not Cause Pain.

56. Louisiana’s method of nitrogen hypoxia does not itself cause any physical pain. 2nd Tr. 92:17–93:4, 160:24–1611.

57. Louisiana’s nitrogen hypoxia system will cause unconsciousness and then death. *Id.* at 46:23–47:7, 59:14–18.

58. Because the flow rate stays constant in Louisiana’s system, Plaintiff will not be able to detect when breathing air has stopped flowing into the mask and nitrogen has started flowing into the mask. *Id.* at 86:2–8. At least in “some instances,” “the victim is fooled because there is no clear indication that anything is amiss. Blackout occurs quickly without warning.” *Id.* at 76:13–16.

59. Once nitrogen is introduced, Plaintiff can continue to breathe. *Id.* at 92:2–4. Indeed, Plaintiff can calm down by doing his meditated breathing exercises. *Id.* at 96:7–10. And such deep breathing may well lead to him losing consciousness

even more quickly. *Id.* at 78:23–25.

60. Muscular movement and convulsions—both conscious and unconscious—are not surprising, given potential struggling before nitrogen begins to flow and convulsions after unconsciousness from hypoxia. *Id.* at 86:21–87:1.

61. From the initiation of the pure nitrogen, it will take just 30 seconds to reach less than 4.4% oxygen in the mask and just 60 seconds to reach 0.08% oxygen in the mask. *Id.* at 88:21–89:1.

62. The only material dispute is the total time to unconsciousness. According to Dr. Antognini, Louisiana’s nitrogen hypoxia system will cause Plaintiff to lose consciousness 10 to 40 seconds after he starts inhaling 90–100% nitrogen gas. *Id.* at 143:14–19. Dr. Antognini predicts that even a perfectly timed breath hold (the moment of nitrogen replacing breathing air) would render Plaintiff unconscious within 10 seconds after he takes his first breath because of the incredibly low concentration of oxygen in the mask once breathing resumes. *Id.* at 175:21–176:18.

63. While Dr. Bickler agrees that a full breath of nitrogen might make someone go unconscious in 30 to 40 seconds, *id.* at 53:9–13, 78:18–22, he believes that the system will cause Plaintiff to lose consciousness 3 to 5 minutes into the execution. *Id.* at 54:10–19. Critically, that is “because” he assumes Plaintiff will “hold his breath” and only “breath shallowly and then only slowly get hypoxic.” *Id.* And most people can hold their breath for 45 seconds to one minute. *Id.* at 87:7–11.

64. To support his conclusion, Dr. Bickler relied on a single article: An opinion piece he and others wrote for the Journal of the American Medical Association

(JAMA). *Id.* at 203:16–21. Even that opinion pieces acknowledges that “some studies and anecdotal reports do describe rapid loss of consciousness....” *Id.* at 85:7–17.

65. At least in the assisted-suicide context, Dr. Bickler’s view is that “allowing the free flow of a gas into the lungs but with no oxygen causes a gentle hypoxic death.” *Id.* at 98:11–12.

B. The Alternatives Are Both Unavailable and Equally, if not More, Painful.

66. Plaintiff proposed two alternatives to nitrogen hypoxia as a method of execution: DDMAPh and firing squad. *See* Compl. ¶¶ 118–43. But Plaintiff could not testify as to how he arrived as his alternative methods. 1st Tr. 35:15–19.

1. DDMAPh Method of Execution.

67. DDMAPh stands for Diazepam, Digoxin, Morphine, Amitriptyline, and Phenobarbital (DDMA). *Id.* at 135:6–9. It is a mixture of drugs used for physician-assisted suicide in the two states that recognize the practice as medical aid in dying (“MAID”) and excluded it from their suicide laws. *Id.* at 137:2–8.

68. In Louisiana, doctors are prohibited from assisting suicides. *Id.* at 143:10–13.

69. Dr. Charles Blanke has overseen the medically aided death of 500 people for \$725 each on a credit card in the northwest. *Id.* at 137:4–12, 141:18–19. The mixture identified by Dr. Charles Blanke calls for 100 milligrams of digoxin, 2,000 milligrams of valium, 8,000 milligrams of amitriptyline, 15,000 milligrams morphine, and 10,000 milligrams of phenobarbital. *Id.* at 136:17–23.

70. DDMAPh requires ingesting that mixture orally or rectally by catheter,

akin to anesthesia. *Id.* at 145:23–25. In Dr. Blanke’s patients, voluntary ingestion of the drug mixture leads to light headedness and sometimes nausea. *Id.* 146:1–3. The average time to coma is 5.8 minutes and to death is 96 minutes. *Id.* at 139:5–7. But death can take as long 67 hours. *Id.* at 145:12–15. Dr. Blanke uses and recommends a higher dose than the DDMAPh standard. *Id.* at 150:18–22. Neither timeline was made available to Plaintiff as he does not know how drawn out his death would be by DDMAPh. *Id.* at 38:14–16.

71. DDMAPh has never been used as a method of execution in the United States. *Id.* at 149:1–4.

72. Though Dr. Blanke has never applied his method to an involuntary patient (for good reason). *Id.* at 146:1–3, he acknowledges that the involuntary nature of executions would make the DDMAPh procedure more challenging. For example, oral ingestion would be unworkable because the condemned inmate would likely refuse to swallow the mixture. *Id.* at 146:4–14.

73. Rectal administration, however, requires “a rubber tube” placed “through the patient’s anus a few inches into the rectum” followed by “blow[ing] up a small balloon to secure” the catheter. *Id.* at 137:14–22. On Dr. Blanke’s telling, involuntary placement of such tubing through the anus and into the rectum involves only “brief discomfort” and is not “invasive.” *Id.* at 146:23–147:2, 147:12–14. But he “certainly could see how it would be embarrassing.” *Id.* at 147:18–23.

74. Dr. Blanke’s takeaway, as he explained it, is that he cannot predict how such an involuntary DDMAPh experience could go because the involuntary

administration “[o]f course ... never happens in medical-aid-in-dying.” *Id.* at 148:13–18. And Dr. Bickler readily agreed that medical-aid-in-dying is “not comparable ... at all” because it has “ready and willing participant[s].” 2nd Tr. 59:14–60:3.

75. For his part, Dr. Antognini testified that “the literature is very clear about if you are old and debilitated”—like the typical subjects of DDMAPh—“you’re very sensitive to drugs.” *Id.* at 163:8–10. By contrast, a young individual like Plaintiff, “just based on the age factor, [] would be relatively resistant, based on my experience with giving drugs to people, including barbiturates.” *Id.* at 163:18–21.

2. Firing Squad Method of Execution.

76. The firing squad method of execution has been used in the United States just four times since 1977. 1st Tr. 124:11–17.

77. In terms of mechanics, the firing squad method of execution requires five to eight individuals to volunteer to shoot the condemned inmate. *Id.* at 125:1–5. According to Dr. James Williams, relying on firing squad execution protocols from Utah and the United States military, *id.* at 117:24–118:9, the condemned inmate is strapped to a chair, *id.* at 126:19–23. A paper target with a bullseye is placed over his chest at which the shooters aim. *Id.* at 127:16–19.

78. Once they shoot—the first volley—the heart will “literally tear ... to pieces” if the bullet hits the target. *Id.* at 108:17–22. The bullet continues to traverse through the chest and destroys all of the “structures behind” including the spine, *id.*, which itself “would be painful,” *id.* at 122:14–17. When cardiac output stops, unconsciousness should set in within 3 to 5 seconds. *Id.* at 112:9–13. But the first

volley might not work, as contemplated by both the Utah and United States protocols. *Id.* at 127:23–128:8.

79. In that case, the pain is substantial—so much so that the Army’s protocol requires a mercy shot to the head to complete an execution that misses the cardiac bundle on the first volley. *Id.* at 128:1–4.

80. Plaintiff believes the firing squad method is not virtually painless, contrary to his allegations in his Complaint. *Id.* at 36:24–37:1. His expert, Dr. Williams, testified that gunshot wounds cause a “sensation of numbness or tingling” based on his experience treating gunshot wounds in the emergency room. *Id.* at 114:20–115:20. The ambient damage to the spinal column, however, would indisputably be painful, *id.* at 122:14–17, which is in part why medical professionals offer pain medication to gunshot wound victims in the hospital, *id.* at 123:16–18.

81. Dr. Antognini confirmed that the firing squad, indeed, can be very painful. *Id.* at 168:18–169:1. That is principally because the breaking of bones wrapped in nerves is painful. So as the sternum, ribs, spine, and spinal cord all shatter on impact of a bullet, it could be very painful—and certainly more so than nitrogen hypoxia. *Id.*

82. For the shooters’ parts, Dr. Williams disclaimed offering any opinion on the psychological effects on the shooters in firing squad executions. *Id.* at 126:11–18. But he did explain that the theory of giving one or more of the shooters a blank for plausible deniability is a myth, for anyone who has handled a firearm knows the difference between a blank round and a live round. *Id.* at 126:3–10.

V. THE STATE OF LOUISIANA WILL EXECUTE PLAINTIFFS BY NITROGEN HYPOXIA FOR MOLLY’S MURDER.

83. On March 18, 2025, the State of Louisiana will execute Plaintiff by nitrogen hypoxia for Molly’s murder.

84. Instead of filing a new lawsuit when the Legislature amended La. R.S. 15:569 in May 2024, Plaintiff filed a motion to reopen *Hoffman v. Jindal*, No. 12-cv-796 (M.D. La.) to press the claims he now presses here. The Fifth Circuit has entered an administrative stay of the Court’s order granting that motion to reopen.

85. Plaintiff also has two pending grievances—one filed on February 11 and one filed on February 14.

86. On February 25, 2025—just 20 days before his execution—Plaintiff filed this suit along with a motion for a preliminary injunction. ECF 1, 4.

87. The Court expedited discovery and consideration of Plaintiff’s motion for a preliminary injunction at a March 7 hearing. ECF 29.

88. On March 5, Defendants moved to dismiss Plaintiff’s claims. ECF 55. Upon consideration of that motion, the Court granted in part and denied in part. *See* ECF 79. The Court granted the motion with respect to the access-to-protocol, Free Exercise Clause, and RLIUPA claims (Counts V, VI and VII). The Court denied the motion with respect to the Eighth Amendment, the right-to-counsel and right-to-access-the-courts, and the Ex Post Facto clause claim (Counts I, II, III, and IV).

89. The Court conducted a preliminary-injunction hearing with live testimony on March 7.

CONCLUSIONS OF LAW

90. A preliminary injunction is an “extraordinary remedy,” and the “burden of persuasion on all ... requirements” is on the movant party. *Big Tyme Invs., L.L.C. v. Edwards*, 985 F.3d 456, 464 (5th Cir. 2021) (quoting *Dennis Melancon, Inc. v. City of New Orleans*, 703 F.3d 262, 268 (5th Cir. 2012)). Indeed, a preliminary injunction “should not be granted unless the party seeking it has clearly carried the burden of persuasion on all four requirements.” *Dennis Melancon, Inc.*, 703 F.3d at 268 (internal quotation marks and citation omitted).

91. “A preliminary injunction is warranted only ‘if the movant establishes: (1) a substantial likelihood of success on the merits, (2) a substantial threat of irreparable injury if the injunction is not issued, (3) that the threatened injury if the injunction is denied outweighs any harm that will result if the injunction is granted, and (4) that the grant of an injunction will not disserve the public interest.” *Big Tyme Invs., L.L.C.*, 985 F.3d at 463–64 (quoting *Speaks v. Kruse*, 445 F.3d 396, 399–400 (5th Cir. 2006)).

92. As discussed below, Plaintiff is not likely to succeed on any of his claims that remain live in this case: They are not likely to succeed because they are not exhausted (Section I); they are not likely to succeed on their merits (Section II: Ex Post Facto Clause Claim; Section III: Access Claims; and Section IV: Eighth Amendment Claims); and the equities factors weigh in Defendants’ favor (Section V).

I. ALL OF PLAINTIFF’S LIVE CLAIMS ARE UNEXHAUSTED.

93. The Prison Litigation Reform Act provides that “[n]o action shall be

brought with respect to prison conditions ... by a prisoner confined in any jail, prison, or other correctional facility until such administrative remedies as are available are exhausted.” 42 U.S.C. § 1997e(a). The prisoner “must have ‘pursue[d] the grievance remedy to conclusion’—substantial compliance with administrative procedures is not enough.” *Bargher v. White*, 928 F.3d 439, 447 (5th Cir. 2019). Relevant here, the essential first step of “Louisiana’s Administrative Remedy Procedure” is to “submit[] a request to the warden briefly setting out the basis for the claim and the relief sought.” *Id.* This obligation applies full bore in method-of-execution lawsuits, including where a plaintiff challenges potential procedures for administering a longstanding method of execution. *See, e.g., White v. Johnson*, 429 F.3d 572, 574 n.1 (5th Cir. 2005) (rejecting as unexhausted claim that “the State might use a cut-down procedure to gain venous access” in administering lethal injection). But Plaintiff failed to fulfill that obligation as to his remaining live claims—and there are no viable counterarguments.

A. The Eighth Amendment Claims Are Not Exhausted.

94. Regarding the Eighth Amendment claims (Counts I and II), Plaintiff bears the burden of claiming, and then showing, that there is “a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain and that the State has refused to adopt without a legitimate penological reason.” *Bucklew v. Precythe*, 587 U.S. 119, 134 (2019).

95. Plaintiff’s grievances, however, never so much as mention an alternative method of execution, let alone suggest that it would significantly reduce a substantial

risk of severe pain from nitrogen hypoxia. Indeed, insofar as Plaintiff's grievances raise Eighth Amendment claims at all, they vaguely assert that Louisiana's three methods of execution—lethal injection, nitrogen hypoxia, and electrocution—are all unconstitutional and will be unconstitutionally administered. Oliveaux Decl., Exs. 1 and 2.¹ Plaintiff does not dispute that this is not an Eighth Amendment claim under *Bucklew*.

96. It was not until Plaintiff filed his Complaint last week that he identified, for the first time, what his Eighth Amendment claim is: that the firing squad and a drug cocktail known as DDMAPh are feasible and readily implemented alternatives that render nitrogen hypoxia unconstitutional. To reiterate, this claim and these alternatives appear nowhere in Plaintiff's grievances. This is a textbook example of failure to exhaust—and thus, Plaintiff's Eighth Amendment claims (Counts I and II) are barred under binding Fifth Circuit precedent. *See White*, 429 F.3d at 574.

97. In his PI Reply, Plaintiff protested that Defendants' argument would be “a radical expansion of the exhaustion requirement, whereby incarcerated people would be required to detail the legal theories underlying their claims.” ECF 75 at 6. In the same breath, however, he admitted that he was required, at the least, “to allege facts sufficient to alert prison officials to the problem, providing officials with fair notice and an opportunity to address the grievance.” *Id.*

98. And there's the rub: Based on Plaintiff's grievances submitted last

¹ This document cites the two preliminary-injunction transcripts as well as the preliminary-injunction papers, including, as illustrated here, those exhibits attached to Defendants' preliminary-injunction opposition memorandum (ECF 56).

month, Defendants quite literally could not have addressed Plaintiff's alleged Eighth Amendment claims regarding nitrogen hypoxia—for the simple reason that Defendants had no clue that he would subsequently identify methods of execution that are not legal under Louisiana law (the firing squad and the DDMAPh cocktail). In fact, it appears that even Plaintiff himself did not know what he would claim until his attorneys later told him. 1st Tr. 35:15–19 (“Q. Mr. Hoffman, how did you decide on these two alternative methods of execution? The Court: Mr. Hoffman, are you able to answer that question without relating or referring to your lawyers? The Defendant: I cannot.”). By his own telling, therefore, Plaintiff did not adequately exhaust his new Eighth Amendment claims.

99. Moreover, Plaintiff has no way around *White*. He complains (ECF 75 at 6) that *White* “was a case dismissed on timeliness grounds.” But he omits that one of *White*'s *alternative holdings* was that the plaintiff's challenge to a cut-down procedure was “barred from federal review by [his] failure to exhaust it pursuant to the PLRA.” 429 F.3d at 574 n.1; *see Mejia-Alvarenga*, 95 F.4th 319, 326 n.2 (5th Cir. 2024) (“Alternative holdings are not dicta and are binding in this circuit.”). That is damning for Plaintiff because it was undisputed that the plaintiff in *White* at least had squarely exhausted a challenge to lethal injunction as a method of execution. *White*, 429 F.3d at 574. Yet even that was insufficient to exhaust a challenge to a cut-down procedure for obtaining venous access to administer lethal injection. Just so here.

100. Plaintiff also observes that *White* “was decided a decade before the Supreme Court ruled that condemned individuals must allege an alternative method

in method of execution challenges.” ECF 75 at 6. But that *hurts* Plaintiff. If, even before cases like *Bucklew*, the Fifth Circuit demanded precise exhaustion of claims regarding *one* method of execution, *a fortiori* the same precedents compel precise exhaustion of claims that depend on introducing *additional and different* methods of execution into the analytical framework. *White* ends Plaintiff’s Eighth Amendment claims.

B. Plaintiff’s Ex Post Facto and Access Claims Are Not Exhausted.

101. The same is true of Plaintiff’s Ex Post Facto Clause claim (Count III), Compl. ¶¶ 206–14, and Plaintiff’s access to counsel/courts claim (Count IV), *id.* ¶¶ 215–27. Plaintiff’s grievances nowhere mention the Ex Post Facto Clause or articulate these claims. Oliveaux Decl., Exs. 1 and 2. And Plaintiff’s PI Reply effectively admits that he has not exhausted the claims. *See* ECF 75 at 6 (“Mr. Hoffman did not need to grieve his Ex Post Facto or access to the courts claims.” (capitalization altered)).

102. Rather than dispute his failure to exhaust, Plaintiff claims that he did not need to do so because these claims do not present “a challenge to ‘prison conditions’ or ‘prison life’” that is governed by the PLRA’s exhaustion requirement. ECF 75 at 6. Plaintiff is profoundly wrong.

103. His demand that Defendants allow his attorney to be with him in the execution chamber and/or witness his execution is a quintessential claim about prison conditions. Indeed, it is no different than the claim in *Ramirez v. Collier*, 595 U.S. 411 (2022)—that the condemned’s pastor be permitted to touch him and pray with

him during his execution—as to which the Supreme Court specifically required and identified exhaustion under the PLRA. *See id.* at 422 (“We are persuaded—at least in the current posture of the case—that Ramirez properly exhausted these administrative remedies.”); *see also Porter v. Nussle*, 534 U.S. 516, 532 (2002) (“[T]he PLRA’s exhaustion requirement applies to all inmate suits about prison life, whether they involve general circumstances or particular episodes, and whether they allege excessive force or some other wrong.”). This claim is not exhausted.

104. Similarly, Plaintiff’s claim that execution by nitrogen hypoxia would violate the Ex Post Facto Clause is subject to PLRA exhaustion *by Plaintiff’s own concession*. He concedes, as he must, that his Eighth Amendment claim must have been exhausted. ECF 75 at 5–6. But he identifies no reason why his Ex Post Facto Clause would be treated any differently—and indeed, courts do not treat Ex Post Facto Clause claims any differently. *See, e.g., Jones v. Douglas*, 108 F. App’x 254, 255–56 (6th Cir. 2004); *Owens v. Robinson*, 2008 WL 11429426, at *7–10 (S.D. Iowa Sept. 29, 2008); *Rosales v. Hunt*, 2006 WL 3469528, at *2–3 (N.D. Ga. Nov. 30, 2006) (all rejecting unexhausted Ex Post Facto Clause claims). This claim, too, is not exhausted.

C. This Court’s Motion-to-Dismiss Ruling Is Mistaken.

105. Finally, with great respect for this Court, its exhaustion ruling from the bench at the motion-to-dismiss stage is incorrect. The Court gave two reasons for excusing Plaintiff’s failure to exhaust.

106. *First*, the Court stated that “there is no administrative process

available” to Plaintiff because the Department of Public Safety and Corrections told Plaintiff that a response to his pending grievances would be issued within a 40-day period that extends just past Plaintiff’s scheduled execution date. 1st Tr. 12:3–8. Respectfully, that holding rests on a mistaken assumption—that Plaintiff’s grievances preserve the claims above in the first place. As just explained, they do not. Accordingly, because Plaintiff has not even attempted to exhaust the claims he now brings, he cannot claim that the grievance process is unavailable to him.

107. On that point, cases like *Sapp v. Kimbrell*, 623 F.3d 813 (9th Cir. 2010), are particularly instructive. In *Sapp*, the prisoner challenged the grievance process itself, claiming that one official (Kimbrell) was improperly screening out his grievances and another official (Van Cor) failed “to give him an *Olson* review of his medical records.” *Id.* at 824. But the prisoner never exhausted a grievance challenging Kimbrell’s improper screening or Van Cor’s alleged failure to give the prisoner an *Olson* review. *Id.* And that was fatal on the Ninth Circuit’s view. In other words, even though the prisoner believed the grievance process was rigged (because of the allegedly improper screening), he was required nonetheless to exhaust that complaint. So, too, here: Just because Plaintiff believes he might not receive a response to his grievances until after he is executed does not excuse Plaintiff’s failure to even attempt to exhaust a grievance that presses the claims he now raises here.

108. *Ross v. Blake*, 578 U.S. 632 (2016), underscores this point. It reiterates that a grievance process commonly is unavailable if, for example, “it operates as a simple dead end.” *Id.* at 643. The only way to identify whether a road ends in a dead

end, however, is to actually get on that road. And to this day, Plaintiff has refused to try out in the grievance process the claims he now raises in this Court.

109. *Second*, the Court stated it would be “futile” for Plaintiff to ask the prison for relief on the claims above.” 1st Tr. 12:9–17. That is not correct. That is most clear as to Plaintiff’s access to counsel/courts claim: Plaintiff demands accommodations for his counsel to witness the execution—and those demands are not controlled by any statute that Defendants simply carry out. As Plaintiff elicited from Warden Vannoy and Secretary Westcott, that issue is solely with Warden Vannoy’s and Secretary Westcott’s discretion. 2nd Tr. 17:10–14 (“Q. Is it fair to say that if you deem it appropriate, you can terminate Mr. Hoffman’s contact with his attorney on the date of his execution? A. If I deemed it appropriate, but I wouldn’t do it that early.”) (Warden Vannoy); *id.* at 22:13–23:3 (“Q. Secretary Westcott, who decides who the witnesses to an execution will be? A. It’s set by statute and also I have some discretion... three are I guess my discretion.”). Because both Warden Vannoy and Secretary Westcott unquestionably could have acquiesced in Plaintiff’s demands (though such demands are not legally required, *see infra*), there is no question that Plaintiff’s access claims would not have been futile if they had been properly exhausted in the grievance process.

110. The same is true of Plaintiff’s Eighth Amendment and Ex Post Facto Clause claims. In his words, for example, his claims depend on such things as “having a mask on over me,” 1st Tr. 31:8, “being in a small space,” *id.* at 30:16, and his “Buddhist practice” that “allows me every day to be a better version of myself,” *id.* at

26:16–19. These central features of his legal theories quite possibly could have been accommodated, and Defendants—had they known about his proposed alternatives—could have evaluated whether his planned execution would violate the Eighth Amendment and whether the current Department protocol and regulations should be amended to account for Plaintiff’s concerns. *Cf.* 1st Tr. 165:22–166:16 (Chief of Operations Seth Smith’s testimony that the current protocol is applied uniformly).

111. For example, by proposing death by drug cocktail, Plaintiff appears to concede that he would have no constitutional objection if he were first rendered unconscious by a drug. *See, e.g.*, 1st Tr. 139:5–7 (Dr. Blanke: “So for DDMAPh across the board, the average time to sleep is 5.8 minutes, and the average time to death is about 96 minutes.”). But (again, for example) he never proposed—and thus, Defendants never considered—amending Louisiana’s nitrogen hypoxia protocol generally or his planned execution specifically to permit the front-end use of a non-lethal sedative that entirely moots his current Eighth Amendment concerns. *See* 2nd Tr. 63:18–20 (Plaintiff’s counsel suggesting that “the Louisiana protocol [could] include a[] drug or anesthetic that would relieve pain or anxiety”). Nor could Defendants consider whether this ancillary use of a medication would be permitted notwithstanding drug companies’ general refusal to allow their drugs to be used to actually execute a prisoner. *Cf.* ECF 75 at 19 (Plaintiff’s PI Reply insisting that nothing “foreclose[s] the DPSC’s ability to obtain the DDMAPh drugs”).

112. But Plaintiff short-circuited this entire exhaustion framework by failing to bring his Eighth Amendment and Ex Post Facto Clause claims to Defendants

before filing this suit. These claims are not exhausted—and in total, the Court need say nothing more in denying Plaintiff's PI motion, for he has no likelihood of success on the merits.

II. EVEN IF IT WERE EXHAUSTED, PLAINTIFF'S EX POST FACTO CLAUSE CLAIM (COUNT III) IS NOT LIKELY TO SUCCEED.

113. On the merits, Plaintiff has no viable Ex Post Facto Clause claim. *See* PI Mot.31–33. Such a violation lies where—as relevant here—a new State law “inflicts greater punishment for an offense than was inflicted by the law in existence at the time the offense was committed.” *United States v. Rose*, 153 F.3d 208, 210 (5th Cir. 1998).

114. This Court agreed at the motion-to-dismiss stage that Plaintiff's Ex Post Facto Clause claim thus rises and falls on whether execution by nitrogen hypoxia will subject Plaintiff “to an increased punishment”—that is, is “nitrogen hypoxia ... a less humane method of execution than lethal injection, which was his original method of execution”? 1st Tr. 21:1–9. And the Court denied Defendants' motion to dismiss this claim on the ground that Plaintiff had “sufficiently alleged” as much. *Id.* at 21:10.

115. But Plaintiff's steep preliminary-injunction burden is different—and he has failed to carry it. He must show—through law and evidence—“a substantial likelihood of success on the merits.” *Big Tyme Invs., L.L.C.*, 985 F.3d at 463–64.

116. The fatal error here is that Plaintiff submitted no evidence regarding lethal injection in Louisiana in the 1990s—when he committed his crimes—that would allow this Court to answer the question whether “nitrogen hypoxia ... [is] a less humane method of execution than lethal injection.” 1st Tr. 21:1–9.

117. The Court needs that baseline in order to determine whether execution by nitrogen hypoxia is more, less, or just as humane as execution by lethal injection. But Plaintiff submitted no evidence and elicited no testimony about Louisiana’s lethal injection method or protocol in the 1990s. The closest his counsel came was trying to ask *Defendants’* expert, Dr. Antognini, whether he thought lethal injection was “humane” in *other States*. 2nd Tr. 194:12–14. (Dr. Antognini declined to “comment on whether it’s humane or not. *Id.* at 194:15–16.)

118. Remember, moreover, that in 2014 Plaintiff told this Court that even Louisiana’s lethal-injection protocol *from 2013* “creates a substantial risk that [he] will suffer the wanton and unnecessary infliction of pain and torture, or a prolonged, lingering death,” including “experiencing substantial pain and suffering, conscious paralysis, suffocation, or conscious cardiac arrest.” Second Amended Complaint ¶ 101, *Hoffman v. Jindal*, No. 12-cv-796 (M.D. La. Feb. 3, 2014), ECF 118.

119. All this and yet Plaintiff did not even try to substantiate his claim in this case that lethal injection is akin to torture. To be clear—and as discussed below—that is arguably because he knew the evidence would show that execution by nitrogen hypoxia is nothing of the sort. But, setting that aside, all that matters for present purposes is that Plaintiff failed to supply an evidentiary basis regarding the nature of lethal injection in Louisiana in the 1990s (*i.e.*, the precise method of punishment in place when he committed his crimes)—and thus, as a matter of law, this Court cannot conclude that Plaintiff is likely to succeed on his claim that “nitrogen hypoxia ... [is] a less humane method of execution than lethal injection.” 1st Tr. 21:1–9. He is

not entitled to a preliminary injunction based on his Ex Post Facto Clause claim.

III. PLAINTIFF'S ACCESS CLAIMS (COUNT IV) ARE NOT LIKELY TO SUCCEED.

120. Plaintiff's remaining "access" claims are also likely to fail. All that remains are claims for access to counsel and the courts "during the execution procedure" predicated on some combination of the Sixth Amendment, due process, and other constitutional provisions. Mot.29–30 & n.40. That, too, will fail.

121. As the Court construed Plaintiff's claims at the motion-to-dismiss stage, they are that Louisiana's "protocol does not permit counsel to be present for any aspect of the execution procedure, which thereby deprives [Plaintiff] of the right to seek redress in the courts at precisely those points in the process when problems with the protocol's implementation are most likely to arise." 1st Tr. 18:16–20.

122. The Court declined to dismiss these claims, however, because, "[a]s we have learned from Alabama's failed attempts to execute Mr. Smith by lethal injection, access to the courts in an execution is of paramount importance, especially in this case where the State has no experience and has never used this method of execution before." *Id.* at 18:21–25.

123. With great respect for the Court, that holding directly contradicts binding Fifth Circuit precedent. Indeed, Defendants spent only "two sentences" (*id.* at 18:9) on that point in their PI Opposition because the outcome is so clear.

124. In *Whitaker v. Collier*, 862 F.3d 490 (5th Cir. 2017), the Fifth Circuit confronted a claim "alleg[ing] the right to counsel 'during the events leading up to and during the execution' under the First, Sixth, and Eighth Amendments." *Id.* at

501. The Fifth Circuit minced no words: “These claims are without merit.” *Id.* at 501. As the Fifth Circuit explained, “[t]he Sixth Amendment right to counsel only ‘extends to the first appeal of right, and no further.’” *Id.* (quoting *Pennsylvania v. Finley*, 481 U.S. 551, 555 (1987)); see *Mills v. Hamm*, 102 F.4th 1245, 1250 (11th Cir.), *cert. denied*, 144 S. Ct. 2601 (2024); see *Mills v. Hamm*, 734 F. Supp. 3d 1226, 1257 (M.D. Ala. 2024), *appeal dismissed*, No. 24-11689, 2024 WL 3897483 (11th Cir. June 12, 2024) (rejecting the same arguments and tag-along “access to courts” claim).

125. In the same breath, the Fifth Circuit also rejected any freestanding “access-to-the-courts assertion.” *Whitaker*, 862 F.3d at 501. For that kind of claim cannot stand alone; it requires a viable “underlying” substantive claim. *Id.*

126. Finally, to the extent this Court suggested that Alabama’s issue with a *lethal-injection* execution bears on this analysis, the Fifth Circuit addressed that line of reasoning, too. For one thing, this case of course does not involve lethal injection. But, for another thing, “the possibility of ‘botched executions’ that access to counsel could address ... is just the kind of ‘isolated mishap’ that is not cognizable via a method-of-execution claim.” *Id.*

127. Plaintiff is unlikely to succeed on his remaining access claims because binding Fifth Circuit precedent forecloses them.

IV. PLAINTIFF’S EIGHTH AMENDMENT CLAIMS ARE NOT LIKELY TO SUCCEED (COUNTS I AND II).

128. Last are Plaintiff’s facial and as-applied Eighth Amendment claims, which are subject to the same standard. See *Bucklew*, 587 U.S. at 135–40 (rejecting argument that facial and as-applied challenges should be treated differently). They

are not likely to succeed.

129. As Defendants explained in the PI Opposition, every level of the federal courts—from Alabama district courts, to the Eleventh Circuit, to the Supreme Court—has repeatedly rejected Eighth Amendment challenges based on virtually the same method of execution and virtually the same expert testimony. *See Frazier v. Hamm*, 2025 WL 361172 (M.D. Ala. Jan. 31, 2025) (no appeal); *Grayson v. Hamm*, 2024 WL 4701875 (M.D. Ala. Nov. 6, 2024), *aff'd*, *Grayson v. Comm’r, Ala. Dep’t of Corr.*, 121 F.4th 894 (11th Cir. 2024), *stay of execution denied*, *Grayson v. Hamm*, 145 S. Ct. 586 (2024) (no noted dissents); *Smith v. Hamm*, 2024 WL 1160303 (M.D. Ala. Jan. 10, 2024), *aff'd*, *Smith v. Comm’r, Ala. Dep’t of Corr.*, 2024 WL 266027 (M.D. Ala. Jan. 24, 2024), *stay of execution denied*, *Smith v. Hamm*, 144 S. Ct. 414 (2024) (Sotomayor, Kagan, Jackson, JJ., dissenting). This Court should do the same.

130. “The Constitution allows capital punishment.” *Bucklew*, 587 U.S. at 129. Indeed, “the Eighth Amendment does not guarantee a prisoner a painless death.” *Id.* at 132. Instead, it bars only those “forms of punishment that intensif[y] the sentence of death with a (cruel) superaddition of terror, pain, or disgrace.” *Id.* at 133 (cleaned up). And “perhaps” for that reason the Supreme Court “has yet to hold that a State’s method of execution qualifies as cruel and unusual.” *Id.*

131. To that end, “where (as here) the question in dispute is whether the State’s chosen method of execution cruelly superadds pain to the death sentence, a prisoner must show a feasible and readily implemented alternative method of execution that would significantly reduce a substantial risk of severe pain and that

the State has refused to adopt without a legitimate penological reason.” *Id.* at 134; *see id.* at 136–37 (“[W]hen it comes to determining whether a punishment is unconstitutionally cruel because of the pain involved, the law has always asked whether the punishment ‘superadds’ pain well beyond what’s needed to effectuate a death sentence.”). Requiring a plaintiff to show that the challenged method “is sure or very likely to result in needless suffering,” *Glossip v. Gross*, 576 U.S. 863, 881 (2015), is, as Justice Kagan has put it, an “extremely demanding standard,” *Smith*, 144 S. Ct. at 416 (Kagan, J., dissenting from the denial of application for stay and denial of certiorari).

132. Here, Plaintiff has failed at *Bucklew* Step Zero (*see infra* Section IV.A)—his burden to show that Louisiana’s nitrogen hypoxia protocol poses a substantial risk of severe pain. Having failed at that threshold step, Plaintiff has no viable Eighth Amendment claim at all, and that ends his case.

133. But, even if he had satisfied *Bucklew* Step Zero, Plaintiff independently failed to (1) identify a feasible and readily implemented alternative that would significantly reduce an alleged substantial risk of severe pain and (2) show the State refused to adopt the alternative without a legitimate penological reason. *See infra* Section IV.B(1), (2).

134. For any of these reasons, therefore, Plaintiff’s Eighth Amendment claims are not likely to succeed.

A. Plaintiff Is Unlikely to Prove that Nitrogen Hypoxia Poses a Substantial Risk of Severe Pain.

135. *Bucklew* Step Zero requires Plaintiff to show that execution by nitrogen

hypoxia poses “a substantial risk of severe pain.” *Bucklew*, 587 U.S. at 134.

136. On this score, Friday’s preliminary-injunction hearing was extraordinarily valuable because it revealed three overarching facts that make this a simple case and end Plaintiff’s claims at *Bucklew* Step Zero: (1) Plaintiff’s own elicited testimony confirmed that, as Dr. Antognini explained, Plaintiff faces no substantial risk of severe pain; (2) Plaintiff’s effort to memory hole Dr. McAlary and replace him with Dr. Bickler changes only the name and the face, not the flawed underlying opinions that every Alabama court to consider them has rejected; and (3) Plaintiff’s gestures at PTSD and the tenets of Buddhism do not affect this analysis. Plaintiff thus does not get past *Bucklew* Step Zero.

1. Plaintiff’s own elicited testimony confirms Dr. Antognini’s opinion that there is no substantial risk of severe pain.

137. a. Start with Dr. Antognini’s opinion—this is the *only* expert opinion in this case regarding nitrogen hypoxia that is based on multiple pieces of scientific literature directly addressing death by hypoxia via inert gases like nitrogen, and Dr. Antognini is the *only* expert who actually inspected and tested Louisiana’s nitrogen system. His opinion is that Louisiana’s system will cause unconsciousness within 35 to 40 seconds (or perhaps sooner) once Plaintiff begins to inhale pure nitrogen—and he expects death to follow “rapidly,” within 10 to 15 minutes. 2nd Tr. 124:19–25. Critically, there will be no carbon-dioxide buildup or air leakage, and thus “I do not believe the inmate would suffer any pain.” *Id.* at 124:24–125:4. As part of his testing, he laid on the gurney, experienced airflow at the appropriate rate of 70 L/minute, and “could breathe very comfortable with the mask on.” *Id.* at 131:1–5.

138. b. The most critical fact in this analysis is that Plaintiffs’ expert, Dr. Bickler, agrees with Dr. Antognini on the key issues. Specifically, he agrees that:

- i. “[A]n individual who is administered 100 percent nitrogen and is breathing normal will lose consciousness in less than a minute.” *Id.* at 78:18–22.
- ii. “It’s possible, yes” that “[a] person who is taking deep breaths will lose consciousness even quicker than that.” *Id.* at 78:23–25.
- iii. At least in “some instances,” “the victim is fooled because there is no clear indication that anything is amiss. Blackout occurs quickly without warning.” *Id.* at 76:13–16.
- iv. At least in the assisted-suicide context, “allowing the free flow of a gas into the lungs but with no oxygen causes a gentle hypoxic death.” *Id.* at 98:11–12.

139. Yet Dr. Bickler differs from Dr. Antognini. How? The key pivot—and the fatal problem—in Dr. Bickler’s testimony is that he bases his opinion *on the assumption that Plaintiff will hold his breath when nitrogen begins to flow*. Dr. Bickler gives the game away at page 54 of the second transcript when he opines on how long it may take Plaintiff to become unconscious: “I would say potentially three to five minutes, *because I would expect that he would hold his breath and then probably attempt to breathe shallowly and then only slowly get hypoxic, all the while experiencing the effects of the progressing hypoxia and buildup of carbon dioxide in his blood.*” *Id.* at 54:14–19 (emphasis added).

140. That assumption is how Dr. Bickler gets to his outlandish claims of terror and fear: He is assuming a carbon dioxide buildup akin to what happens when you hold your breath underwater in a near-drowning incident. Of course any normal person would experience fright in that circumstance, if it were actually relevant here.

141. But that assumption is squarely contradicted by Plaintiff's own testimony and it ignores the scientific evidence. *First*, Plaintiff specifically testified he plans to *breathe*—he “plan[s] to use [his] meditative breathing techniques” if he is executed through nitrogen hypoxia. 1st Tr. 39:15–17. There is zero testimony that he intends to hold his breath. Dr. Bickler's false assumption otherwise is thus fighting Plaintiff's own testimony in this case. *See Frazier*, 2025 WL 361172, at *11 (“It is undisputed that, under the Protocol, Frazier will be deprived of oxygen while conscious after the nitrogen gas is introduced. But according to Dr. Antognini, Frazier will not experience the same pain and suffering as might occur with other types of suffocation, such as smothering and choking *because the Protocol does not prevent Frazier from taking normal breaths and exhaling carbon dioxide.*” (emphasis added)) *Second*, the impropriety of Dr. Bickler's assumption (and then accusations of terror, panic, and drowning) is accentuated by Dr. Antognini's later testimony. Dr. Antognini explained that, in breathing an inert gas, a person is able to “exhale the carbon dioxide, then you don't necessarily have a build-up of carbon dioxide.” 2nd Tr. 155:1–5. But, “[i]f you have a strangulation or a smothering type of event and you can't breathe or you can't move the air in and out or get rid of the carbon dioxide, then you have a build-up of carbon dioxide in that setting.” *Id.* at 155:5–9. Dr. Bickler is wrongly assuming the latter to generate unfounded visions of panic and terror, when the former is the reality: that is, with normal breathing (as Plaintiff testified he intends), there is no build-up of carbon dioxide and thus no panic.

142. Moreover, even if this record said that Plaintiff intended to hold his

breath, that would not render Louisiana’s nitrogen system unconstitutional any more than Kenny Smith’s manifest resistance rendered his execution unconstitutional because of the complications he introduced—and that certainly would bar preliminary-injunctive relief. *See, e.g., State v. Biden*, 10 F.4th 538, 558 (5th Cir. 2021) (collecting authorities providing that “a party may not satisfy the irreparable harm requirement if the harm complained of is self-inflicted” (alternation and citation omitted)).

143. At bottom, therefore, Dr. Bickler is in lockstep with Dr. Antognini on the key issues—and he departs only based on an unfounded assumption about breath-holding. For that reason, Dr. Bickler’s opinions are not credible, and once again, Dr. Antognini’s opinions—as the only researched and supported opinions in this case—carry the day.

144. **c.** Sensing that Dr. Bickler could not save him, Plaintiff’s only remaining available move was to try to discredit the research and studies on which Dr. Antognini relied—to no avail.

145. (This tactic is rich given one of the most striking aspects of this case: that Dr. Bickler cited a grand total of one paper—his own “opinion” piece—to support his opinions. Said Dr. Bickler: “I think that should be sufficient.” 2nd Tr. 203:21.)

146. For example, as to OSHA’s clear guidance about immediate death without warning, Dr. Bickler complained that the OSHA reports do not say “how many situations there were where the potential victim recognized that their air supply was compromised and they were able to exit the room or tear the mask off in

time and self rescue.” 2nd Tr. 61:3–7. When asked about OSHA’s requirement “to report near misses,” however, he admitted that he’s “not suggesting what they’re saying is wrong.” *Id.* at 77:13–17.

147. As to studies of pilots who reported virtually no apprehension or breathlessness at 93.8% nitrogen (and to the contrary, euphoria), *id.* at 72:21–73:4, Dr. Bickler speculated that military aviators might have fudged their responses because they “will not complain when asked to do exercises like this” for fear of getting grounded. 2nd Tr. 63:4–12. But on cross-examination, he admitted that the pilots’ responses were anonymous; that there was a Chinese wall so that their responses could not affect their careers; and that the pilots could be told we need accurate responses to protect you and other pilots—all of which guts Dr. Bickler’s baseless speculation about the pilots supposedly lying. *Id.* at 73:19–74:16.

148. Finally, Plaintiff’s counsel tried to criticize Dr. Antognini for relying on reports and studies that are *close* to the issues in this case but not exactly identical (*i.e.*, helium versus nitrogen, or dogs versus humans). *E.g.*, *id.* at 180:9. But, as even Dr. Bickler recognized, that is because no ethical studies can be conducted on identical facts. *Id.* at 66:10–12; *id.* at 181:3–7 (Dr. Antognini: “We haven’t done studies where we’ve taken the humans and we’ve dropped them – you know, gave them a hundred percent nitrogen and studied them to see when they become unconscious, when does the heart stop and all that kind of stuff, for obvious reasons.”). Moreover, Plaintiff’s counsel’s attack is ironic given that at least Dr. Antognini did what scientists and doctors are supposed to do—extrapolate from the

best available data. In Dr. Antognini's words, "as an expert I have to collect data from other sources, I have to look at these other sources. And animal studies help inform opinions and certainly informs my opinion here." *Id.* at 181:8–11.

149. Dr. Bickler did not even try. And again, it bears noting that Dr. Bickler does not have a single study or paper identifying the supposed panic, terror, and drowning sensations that he repeatedly trumpeted in open court. He has nothing.

2. Plaintiff's halftime switch of Dr. Bickler for Dr. McAlary did not help him.

150. Next, consider the elephant in the room: The one person that the Court did not see at Friday's hearing was Dr. Brian McAlary—Plaintiff's lead expert on whom he based his PI Motion, lauding Dr. McAlary's observation of the Grayson execution and his evaluation of the Smith autopsy report. In fact, Dr. McAlary's name did not even appear one time in Plaintiff's PI Reply. *See* ECF 75.

151. Defendants cannot know why Plaintiff refused to bring Dr. McAlary on Friday. But perhaps it was because every court to hear Dr. McAlary's opinions has rejected them. *See* ECF 56 at 6–18. Or, perhaps it was because, when Dr. McAlary finally attempted to cite one article *in this case* in service of his opinions, he outright misrepresented it. *Id.* Or, perhaps it was because that same article actually confirms *Dr. Antognini's opinions. Id.* But whatever the reason—and notwithstanding Plaintiff's refusal to bring Dr. McAlary to Baton Rouge—the fact remains that this Court has Dr. McAlary's declaration in front of it. The opinions in that declaration are entirely baseless—and this is not a credibility determination because he didn't show up. The Court should say as much and reject Dr. McAlary outright, just as every

other court has.

152. So, where does that leave Plaintiff? His strategy on Friday was to substitute Dr. Bickler for Dr. McAlary and start over. That did not work. That is because Dr. Bickler's opinions were based on the same media and eyewitness reports—including Dr. McAlary's—that the Alabama courts rejected in dismissing Dr. McAlary. For all practical purposes, therefore, Dr. McAlary still took the stand on Friday.

153. Indeed, Plaintiff's counsel and Dr. Bickler were open about this point. Dr. Bickler testified that his opinions are based on "all four of the executions using nitrogen that were done by the State of Alabama." 2nd Tr. 37:11–12. "We read accounts in the popular press. We read some of the testimony" *Id.* at 38:13–14.

154. Specifically, Plaintiff's counsel walked Dr. Bickler through his reliance on Dr. McAlary's own deposition testimony—including, as noted below, the very aspects of that testimony that courts have recognized is flawed. *See id.* at 42:20–24 ("He's describing what he saw when [] after the nitrogen was apparently started. And it describes the relatively prolonged process and duration of time when the victim seemed to remain conscious, moving in purposeful ways.").

155. Plaintiff's counsel also walked Dr. Bickler through his reliance on "a few newspaper articles"—including those with accounts rejected by the courts as unreliable. *Id.* at 43:19–20; *see id.* at 64:6–16 ("Q. Doctor, just to be clear, there were four executions in Alabama using [] essentially this method. Is that right? A. Yes. Q. And you looked at data for all four? A. Yes. Q. And were they largely consistent? A.

Yes. Q. And what did you conclude from them? A. That the duration of suffering was much longer than I would consider humane.”).

156. As a result, all of the criticisms levied against this mode of analysis when presented by Dr. McAlary remain fully applicable here. The courts have rejected those accounts (including specifically Dr. McAlary’s) as “insufficiently reliable because [the eyewitnesses] d[id] not know”—and could not know—“when the nitrogen began to flow.” *Frazier*, 2025 WL 361172, at *11 (footnote omitted). Because they did not know time zero, therefore, the witnesses could not “reliably pinpoint” how soon after the introduction of nitrogen “an inmate los[t] consciousness.” *Id.* On top of that, the courts have recognized that “unconscious individuals experience involuntary movements,” such as “muscle tremors and convulsion-like activity.” *Id.* at *12. It is thus “not surpris[ing]” that the condemned inmates exhibited “breaths and even convulsions[] after the introduction of an inert gas—when a person is unconscious and unable to feel pain.” *Id.* For that reason, “the evidence of Smith’s, Miller’s, and Grayson’s movements during their respective executions does not support a finding that any of them experienced severe psychological pain or distress over and above what is inherent in any execution.” *Id.* Plaintiff’s attempt to relitigate that issue here gets him nowhere.

157. Dr. Bickler also had nothing to say about the overreliance on the Smith execution and the underreliance on the Miller execution. “[F]or as much as Smith’s execution was painted in the violent manner that it was, Miller’s execution was not”—so, the Court should not lose sight of the fact that Miller’s execution “was quick,

unconsciousness reached in less than 2 minutes, was void of struggles against the restraints, and with minimal body movement as compared to the Smith execution.” *Grayson*, 2024 WL 4701875, at *21.

158. Moreover, the Smith execution was principally complicated by Smith’s “non-cooperation with the execution process,” specifically his “breath-holding,” which “would have increased the level of carbon dioxide in his body, acidifying his blood and increasing discomfort and distress.” Antognini Decl. ¶ 31. As the Alabama courts recognized, the evidence from the Smith execution showed that Smith refused to inhale the nitrogen, which caused the reaction Plaintiff now highlights. *Frazier*, 2025 WL 361172, at *5 & nn.9–10, *11 n.20; *Grayson*, 2024 WL 4701875, at *21 (“Smith held his breath and struggled against the restraints while Miller did not.”). On top of that, Smith’s autopsy showed that he had “a synthetic cannabinoid” in his blood that “can cause hallucinations, vomiting, paranoia, and convulsions (seizures)” —which, in turn, may have made Smith’s “convulsions more likely and pronounced.” Antognini Decl. ¶ 32; *Grayson*, 2024 WL 4701875, at *17 n.18. None of this has anything to do with nitrogen’s constitutionality or efficacy as a method of execution—it has everything to do with Smith’s own actions.

159. Finally, it bears noting that Dr. Bickler tried to cite his extensive experience slowly dropping subjects’ “oxygen saturation level to about 70 percent and sometimes lower, down to 50 percent” as helpful data in this case. 2nd Tr. 65:13–18. But, again, he admitted that he has “never studied a scenario of administering nitrogen at 95 percent or higher,” as Louisiana will do here—for the simple reason

that this would be unethical. *Id.* at 65:25–66:13. He further stated that his opinions on terror and panic come from his own studies where he slowly reduces the oxygen saturation levels in his subject—but then he torpedoed his own theory. *Id.* at 66:14–20. Specifically, he admitted that his own studies say that, even in those studies, “the incidence of other effects such as headache, nausea or anxiety occur at rates of less than one percent.” *Id.* at 69:11–14. His excuse? “Well, that’s – the methods are designed to avert that.” *Id.* 69:18–19.

160. At bottom, Dr. Bickler had nothing—and that is one feature of this case that is astounding: a lead expert with quite literally no scientific basis for claiming that Plaintiff will suffer sensations akin to drowning. Not only is that opinion entirely incredible, but it also does a disservice to Plaintiff himself by instilling false images of terror in his mind.

161. Like Dr. McAlary, Dr. Bickler “finds himself without any real foundational support other than an unsupported opinion—no supporting articles or case studies, reliance upon highly questionable hearsay witness accounts,” and so on. *Grayson*, 2024 WL 4701875, at *22. Just as the courts have credited Dr. Antognini’s opinions over Dr. McAlary’s, this Court should credit Dr. Antognini’s over Dr. Bickler’s. *Frazier*, 2025 WL 361172, at *10 (“[T]he Court credits Dr. Antognini’s expert opinions over the expert opinions Dr. McAlary offered in Grayson’s litigation because Dr. McAlary’s opinions were not sufficiently supported by research, scientific studies, or articles.”); *Grayson*, 2024 WL 4701875, at *22 (“[T]he Court finds Dr. Antognini and his opinions on these subjects more credible and persuasive than those

of Dr. McAlary.”).

3. Plaintiff's gestures at PTSD and tenets of Buddhism do not affect this analysis.

162. Two final points bear mentioning: (a) although Plaintiff attempted to develop a PTSD theory, his and his witnesses' own testimony gutted that theory; and (b) although the Court permitted testimony about Buddhism out of an abundance of caution, the hearing revealed that Plaintiff's religious beliefs do not impact the Eighth Amendment analysis.

163. a. Beginning with PTSD, Plaintiff's briefing was blanketed with assertions that “he will have a highly traumatic and painful PTSD response to the mask and nitrogen.” *E.g.*, ECF 75 at 9. But he then elicited testimony at Friday's hearing saying the exact opposite.

164. He testified, for example, that he has not “sought any treatment for PTSD in over five years.” 1st Tr. 32:18–21. And he “credit[s] the Buddhist breathing techniques with [his] ability to manage [his] PTSD symptoms.” *Id.* at 32:21–24. They “help [him] feel calm” and “at peace.” *Id.* at 33:9–14. They involve “deep breaths” as he “inhale[s] and exhale[s],” and he is “not concerned with the composition of the air”—his “focus in on the inhaling and the exhaling.” *Id.* 33:15–34:9. And in fact, he “plan[s] to use [his] meditative breathing techniques” if he is executed through nitrogen hypoxia. *Id.* at 39:15–17.

165. His own PTSD expert, Dr. Sautter, then magnified that point. “[T]he most dramatic thing,” Dr. Sautter said upon seeing Plaintiff last month (for the first time in over 20 years and without reviewing his medical records), was that it “was

rather clear [] that he was managing his PTSD.” *Id.* at 64:16–17. “[V]ery few” people can do that, and Dr. Sautter “asked him, you know, how that happened.” *Id.* at 64:20–24. “And that’s when he began telling me about Buddhism and the breathing,” Dr. Sautter said. *Id.* Dr. Sautter continued on to say that “[i]t’s really amazing the extent to which, you know, he has learned to adopt practices that enable him to stop re-experiencing symptoms, which doesn’t mean that they are totally gone, but they are significantly minimized.” *Id.* at 65:19–23.

166. And that is not even when Dr. Sautter’s direct examination fully went off the rails for Plaintiff. That happened later in the following exchange (*id.* at 72:8–16):

Q. And then, finally, in your opinion, will Mr. Hoffman be able to practice Buddhist breathing techniques while under psychological distress?

A. Yes.

Q. He will be able to practice breathing techniques while under psychological distress?

A. Well, if he can practice the breathing, then he will be able to decrease his distress, if he is able to do the breathing.

167. And that is Plaintiff’s PTSD theory: Dr. Sautter gave an extraordinary endorsement of Plaintiff’s strides, including his ability to overcome PTSD through breathing exercises. Moreover, everyone agrees that Plaintiff will be able to inhale and exhale as he is executed—and Plaintiff testified that he will use his techniques. Accordingly, in Dr. Sautter’s own words, because Plaintiff is “able to do the breathing,” “then he will be able to decrease his distress.” *Id.* Plaintiff’s gestures at PTSD thus ultimately have no bearing on this case.

168. **b.** That Plaintiff’s Buddhist beliefs inform his breathing exercises likewise is not relevant to the Eighth Amendment analysis. As repeatedly explained, everyone agrees that Plaintiff physically will be capable of doing his Buddhist breathing exercises—and in fact, Plaintiff testified that he will do those exercises—during his execution.

169. The only additional testimony the Court heard was that Plaintiff is required to breathe *ambient air*—*i.e.*, with a standard percentage of oxygen—to carry out his religious practices. *E.g.*, *id.* at 49:4–6 (Reverend Bono). More than the standard percentage of nitrogen will not suffice. As Reverend Bono put it, “death by nitrogen hypoxia [would] prevent [Plaintiff] from practicing Buddhism” because, “if he is breathing nitrogen, he is not breathing air.” *Id.* at 49:17–20; *id.* at 51:24–52:1 (“You would need to be breathing in air, and, you know, I don’t know the exact composition of air. I know it has oxygen, so you would need to be breathing air.”).

170. Setting aside that Reverend Bono was unaware of “any Buddhist texts that say that meditative breathing requires oxygen to be present,” *id.* 52:5–7, this line of testimony elicited by Plaintiff’s counsel demonstrates that it has no bearing on the Eighth Amendment claims.

171. The question in the Eighth Amendment claims is whether Plaintiff will suffer unconstitutional pain and suffering—not whether he will be able to engage in the religious practice that his spiritual adviser believes is compelled by Buddhism. And whether Plaintiff’s breathing exercises satisfy the tenets of Buddhism or not, it is undisputed that he will be able—and in fact, he intends—to engage in those

exercises as he is executed. *See id.* at 39:11–17 (“Q. If you are executed with nitrogen hypoxia, are you planning to use your meditative breathing techniques? A. Yes.”); *id.* at 53:24–54:1 (Reverend Bono agreeing that Plaintiff will “be breathing in and out”).

172. Accordingly, as with the failed PTSD theory, Plaintiff’s efforts to add a religious valence to this Eighth Amendment analysis do not work.

B. In All Events, Plaintiff Is Unlikely to Prove a Sufficient Alternative.

173. For the reasons explained above, Plaintiff is unlikely to get past *Bucklew* Step Zero because he has not identified a substantial risk of severe pain from execution by nitrogen hypoxia. Without that threshold finding, therefore, it makes little sense to reach *Bucklew* Steps One and Two: (1) a feasible and readily implemented alternative method of execution that would significantly reduce any alleged substantial risk of severe pain and (2) that the State has refused to adopt without a legitimate penological reason. *Bucklew*, 587 U.S. at 134. (That is because, if nitrogen hypoxia poses no substantial risk of severe pain in the first place, then this comparative analysis is missing one side of the equation.) In any event, Plaintiff offers the firing squad and DDMAPh—neither works.

1. The firing squad is not a sufficient alternative.

174. Plaintiff’s firing squad proposal fails from the start because his own witnesses gutted any suggestion that the firing squad would “significantly reduce a substantial risk of severe pain” posed by nitrogen hypoxia. And in all events, there are legitimate penological reasons why Louisiana might not adopt the firing squad.

175. *First*, the pain inquiry. Start with physical pain. Plaintiff’s own expert,

Dr. Bickler, testified that nitrogen hypoxia “does not cause any physical pain.” 2nd Tr. 92:17–93:9. Dr. Antognini agreed. *Id.* at 168:22–25 (“It’s not painful to have the nitrogen hypoxia.”). But the firing squad carries physical pain. Based on his own experience tending to gunshot victims, Dr. Antognini testified that, “during the period where someone is still conscious after a gunshot wound like that, then that would be, in my opinion, quite painful.” *Id.* at 168:14–17. Even Plaintiff’s firing-squad expert, Dr. Williams, suggested that there at least would be “a profound numbness or stunning effect.” 1st Tr. 116:14–15. And this assumes the firing squad hits their mark, as Dr. Williams admitted. *Id.* at 123:23–124:2 (“Q. Well, you’ve got shooters who going to shoot at Mr. Hoffman, and if they miss their target, it would likely cause more pain, correct? A. If they missed the target and don’t hit the heart, that would be true, yes.”). In addition, Plaintiff himself testified that he “do[es]n’t agree” with his Complaint’s assertion that “the firing squad method would be virtually painless.” *Id.* at 36:24–37:2.

176. Moreover, only Dr. Antognini offered an opinion comparing the two methods and the physical pain involved: “the pain would be more” because, while nitrogen is “not painful,” “it would be painful to have the gunshot wound.” 2nd Tr. 168:18–169:1. Dr. Williams refused. 1st Tr. 128:9–13 (“Q. And as you sit here today, you can’t present any scientific evidence that the protocol that you suggest will result in less physical pain than the state’s nitrogen hypoxia protocol, correct? A. I offer no opinion on the nitrogen hypoxia method, sir.”).

177. As a matter of law, therefore, Plaintiff is unlikely to show that the firing

squad significantly reduces a substantial risk of severe physical pain from nitrogen hypoxia.

178. The same story plays out for psychological pain. Here, too, Plaintiff's firing-squad expert, Dr. Williams, refused to address any psychological evidence regarding the firing squad or any comparison against nitrogen hypoxia. *Id.* at 128:14–18 (“Q. Okay. And as you sit here today, you can’t present any scientific evidence that your suggested protocol will result in less psychological pain than the method elected by the state, right? A. Again, I offered no psychological evidence.”). And of course, as detailed above, Dr. Antognini’s testimony is that nitrogen hypoxia presents no substantial risk of severe psychological pain.

179. But, in a remarkable twist, Plaintiff’s Dr. Sautter provided a damning comparison between the psychological effects of nitrogen hypoxia versus the firing squad *on Plaintiff himself*. As recounted above, Dr. Sautter testified that Plaintiff will be able to “decrease” any psychological issues when Plaintiff is executed by nitrogen hypoxia because he will be able to use his breathing techniques. *Id.* at 72:8–16. But that is not true of the firing squad. After some prodding, Dr. Sautter finally admitted that one “traumatic” aspect of Plaintiff’s life that Dr. Sautter had recounted in his 2003 report is that Plaintiff “had previously experienced [] being held at gunpoint on two occasions during an armed robbery.” 1st Tr. 78:25–79:12, 81:3–82:10. Dr. Sautter was then asked: “[I]f [Plaintiff] was placed in front of a firing squad, isn’t that the same kind of stimuli that would trigger a PTSD response?” *Id.* at 82:11–13. He then gave one of the most implausible responses on Friday’s record: “Not

necessarily.” *Id.* at 82:14. So bad was that response that he eventually caved and said “[i]t is one of the stimuli that could” trigger Plaintiff’s PTSD. *Id.* at 83:13. On top of that, Plaintiff submitted no evidence that he could actually engage in his breathing exercises during the brief period of consciousness after being shot.

180. Plaintiff is thus exceedingly unlikely to show that the firing squad would significantly reduce a substantial risk of severe psychological pain from nitrogen hypoxia.

181. *Second* (and even if the firing squad were an otherwise suitable alternative), there are legitimate penological reasons why Louisiana might not adopt the firing squad. There are, of course, logistical difficulties both with setup and cleanup. But there are also other considerations, such as the fact that anyone who fires a round in the firing squad knows by feel whether they fired a live or blank round, despite the myth of blank rounds. And that introduces a layer of issues regarding psychological impacts and plausible deniability. 2nd Tr. 126:3–10. Louisiana was thus well within its rights to select a method of execution that is relatively quick, painless, and clinical.

2. DDMAPh is not a sufficient alternative.

182. Plaintiff fares no better with his DDMAPh proposal.

183. *First*, the pain inquiry. As noted above, the parties’ experts agree that nitrogen hypoxia causes no physical pain. But that is not true of DDMAPh. In a perfect world dealing with a voluntary subject seeking to end their life, Dr. Blanke testified that they will suffer a “mild level of bitterness” (if they elect to drink the

DDMAPh cocktail), 1st Tr. 138:9, or “mild pressure” (if they elect to have a “rubber tub “place[d] [] through the patient’s anus a few inches into the rectum” and then secured with “a small balloon”), *id.* at 137:20–138:4. And that pain or discomfort would increase if the subject is involuntarily forced to ingest (or have injected) the cocktail. *See id.* at 147:1–2. Accordingly, as a matter of law, Plaintiff is unlikely to succeed in showing that DDMAPh significantly reduces a substantial risk of severe physical pain from nitrogen hypoxia.

184. As for psychological pain, the testimony appears to be in equipoise. Dr. Blanke maintains that DDMAPh sends subjects off to sleep without pain or anxiety. *Id.* at 138:13–21. And for the reasons explained above, nitrogen hypoxia is a “gentle” death in Dr. Bickler’s words. So, as a matter of law, Plaintiff is unlikely to succeed in showing that DDMAPh would reduce *any* substantial risk of severe psychological pain presented by nitrogen hypoxia—much less *significantly* reduce any such risk.

185. One final note on pain: On redirect, Plaintiff’s counsel attempted to have Dr. Blanke compare the pain of placing a rectal tube against the pain of securing an IV line for lethal injection. *Id.* at 150:8–13. That is smoke and mirrors: Plaintiff’s burden here is to show that DDMAPh significantly outperforms *nitrogen hypoxia* on pain measurements, not *lethal injection*.

186. *Second*, the feasibility inquiry. DDMAPh also is not “a feasible and readily implemented alternative method of execution.” *Bucklew*, 587 U.S. at 134. Chief of Operations Seth Smith testified that the State has had extensive “correspondence ... with various pharmaceutical manufacturers and our wholesalers.

They all told us the same thing. If we get caught using one of their drugs, they are no longer going to supply drugs we need to treat people.” 1st Tr. 170:19–24; *id.* at 176:22–177:1 (drug manufacturers “have made it very clear to us that if we use any of their medication for a capital punishment case, they reserve the right to pull all of their medication off the table”). This is an untenable position for the State (*id.* at 177:2–7):

We have an aging population in the prison system. We have large infirmaries. We have full-blown hospitals. We cannot run the risk of losing access to life-saving drugs for this reason, and that’s why we did that. We quit pursuing [lethal injection]. We came out and publicly said we quit pursuing it for those reasons, and nothing has changed.

187. Because of the incredible problem posed by drug manufacturers who refuse to allow their drugs to be used in executions, DDMAPh is not a feasible and readily implemented alternative.

188. As the Supreme Court has said, “a State can’t be faulted for failing to use lethal injection drugs that it’s unable to procure through good-faith efforts.” *Bucklew*, 587 U.S. at 134; *see Glossip v. Gross*, 576 U.S. 863, 869–70 (2015) (“[A] practical obstacle soon emerged, as anti-death-penalty advocates pressured pharmaceutical companies to refuse to supply the drugs used to carry out death sentences.”). So, too, where a State’s use of such drugs would result in the State being blacklisted, which, in turn, would detrimentally impact the State’s medical care for its prisoners. Indeed, for the same reason, the State’s choice of nitrogen precisely because “[n]o supply concerns exist for nitrogen” is a “valid penological reason to decline to adopt [Plaintiff’s] proposed alternative method.” *Frazier*, 2025 WL 361172, at *13–14.

189. On direct examination, Plaintiff's counsel elicited testimony from Dr. Blanke that he purportedly spoke to an unspecified "pharmacy" that said it "would be willing" to sell the DDMAPh drugs "to a prison or a state." 1st Tr. 141:23–142:1. But he admitted on cross-examination that he does not "have any information that can confirm that Louisiana can in fact use these drugs for executions. *Id.* at 142:6–14. And he readily admitted that selling the drugs for "medical-aid-in-dying" is "clearly different" than selling drugs "in connection with executions." *Id.* at 143:6–9.

190. *Third* (and even if DDMAPh were an otherwise suitable alternative), the additional legitimate penological reasons why Louisiana might not adopt DDMAPh.

191. One, the length of time it would take to finish an execution: Dr. Blanke testified the "[t]he average time to coma is 5.8 minutes," and "[t]he average time to dying is 96 minutes." *Id.* at 139:11–12. Dr. Blanke also admitted that at least one recorded death took "up to 67 hours," although Dr. Blanke assured the Court that this was not with his proposed methods ("but it is using similar drugs, yes"). *Id.* at 145:14–15.

192. Two, risks with the administration of the cocktail. Dr. Blanke admitted that "there are issues with the oral method if a person is not willingly taking it" and is instead trying to spit it out, not swallow, and otherwise fight the administration. *Id.* at 146:1–13. Dr. Blanke likewise admitted issues with rectal administration: "If they were actively fighting, there could be some brief discomfort." *Id.* at 147:1–2.

193. Three, potential indignity. Another of the more remarkable witness

statements at Friday’s hearing was Dr. Blanke’s testimony that “sticking a tube up somebody’s behind” is “not what I would customarily think of as an invasive procedure.” *Id.* at 147:3–14. But he ultimately conceded that he “could see how some patients would be – sorry, how some convicts would be embarrassed, yes.” *Id.* at 147:18–23.

194. Four, variable risks related to the age of the subject. For his part, Dr. Blanke refused to commit, stating that this “is one of the things currently being explored.” *Id.* at 145:10–11. But Dr. Antognini testified that “the literature is very clear about if you are old and debilitated”—like the typical subjects of DDMAPh—“you’re very sensitive to drugs.” *Id.* at 163:8–10. By contrast, a young individual like Plaintiff, “just based on the age factor, [] would be relatively resistant, based on my experience with giving drugs to people, including barbiturates.” *Id.* at 163:18–21.

195. And five, as Dr. Blanke admitted, DDMAPh has never been used in the United States as a method of execution. *Id.* at 149:1–4.

196. For all of these reasons, Louisiana has any number of legitimate penological reasons for not adopting DDMAPh.

V. THE EQUITIES WEIGH IN DEFENDANTS’ FAVOR.

197. Plaintiff’s failure to establish a likelihood of success on the merits for any of his claims ends the analysis for all practical purposes. For the remaining factors cannot make up the slack on the merits—the “most important” factor. *Abbott*, 110 F.4th at 706 (quoting *Mock*, 75 F.4th at 587 n.60). But, even if the Court reaches the remaining factors, they weigh heavily in favor of Defendants.

198. *First*, Plaintiff's delay in filing this suit places the equities and the public interest squarely on the State's side. The Supreme Court has emphasized that federal courts 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." *Nelson v. Campbell*, 541 U.S. 637, 650 (2004). Indeed, "[l]ast-minute stays should be the extreme exception, not the norm, 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). For that reason, federal 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).

199. That precisely describes this case. As the Court is aware, for eight months now, Plaintiff has told this Court that he has a live controversy. *See* Mem. in Support of Mot. for Relief from J. at 1, No. 12-cv-796 (M.D. La. June 14, 2024), ECF 318-1 ("[T]here has since been a material and extraordinary change of circumstances that gives rise to a live controversy between the parties."). Yet he refused to file this lawsuit. Instead, he put all his eggs in a basket of hope that this Court would reopen his long-dismissed suit and allow him to skip the hassle of filing a new lawsuit. That strategy is inexplicable—but it is also an undisputed fact. Plaintiff now tries to turn his delay on the State by protesting (Mot.3–4) that the State should have just allowed

his procedurally wrong invocation of Rule 60(b)(6) to proceed apace. But, as the Court reiterated at last Friday's conference, all parties here must play by the rules. And the rules in the Fifth Circuit's caselaw say that Plaintiff cannot use Rule 60(b)(6). That is not the State's fault. He, the State, and the Court are in this eleventh-hour time crunch solely because he refused to file *this* lawsuit eight months ago. Whether the Court deems that delay or manipulation, it is a fact that tilts the equities in the State's favor.

200. *Second*, the State (and therefore also the public because the factors merge) has an unquestionable compelling interest in Plaintiff's execution. *See Bucklew*, 587 U.S. at 150 ("Under our Constitution, the question of capital punishment belongs to the people and their representatives"); *Nelson*, 541 U.S. at 644 ("[A] State retains a significant interest in meting out a sentence of death in a timely fashion."); *In re Blodgett*, 502 U.S. 236, 239 (1992) (The State's "sovereign power to enforce [its] criminal law" carries "great weight."); *Calderon v. Thompson*, 523 U.S. 538, 556 (1998) ("To unsettle these expectations [of finality] is to inflict a profound injury to the 'powerful and legitimate interest in punishing the guilty,' an interest shared by the State and the victims of crime alike." (quoting *Herrera v. Collins*, 506 U.S. 390, 421 (1993) (O'Connor, J., concurring))); *Moran v. Burbine*, 475 U.S. 412, 426 (1986) (recognizing "society's compelling interest in finding, convicting, and punishing those who violate the law"); *Turner v. Epps*, 460 F. App'x 322, 331 (5th Cir. 2012) (emphasizing that courts must "give appropriate weight to . . . the State's interests in carrying out [an] execution as scheduled").

201. And *third*, Plaintiff has no viable assertion of irreparable harm on the other side of the ledger. His only theory of irreparable harm is that he “will be executed in violation of his constitutional rights.” Mot.33. But that theory falls apart since he has no likelihood of success on the merits. Moreover, to the extent that he suggests his showing of irreparable harm would alone be “dispositive,” he is wrong. Mot.33 (citing *D.T. v. Sumner Cnty. Sch.*, 942 F.3d 324, 327 (6th Cir. 2019)). What the Sixth Circuit actually held in *D.T.* was that the *absence* of irreparable harm was dispositive. *See* 942 F.3d at 327 (“Was the district court wrong to stop the inquiry after finding no irreparable injury? No. When one factor is dispositive, a district court need not consider the others.”). In addition, the Fifth Circuit has rejected limiting the preliminary-injunction inquiry to irreparable harm. *See White v. Carlucci*, 862 F.2d 1209, 1211 n.1 (5th Cir. 1989) (“Plaintiff would have us ... order the injunction to issue if we find that irreparable injury was either established or need not be. Such a result would be inappropriate.”); *accord* § 73:96, 14A Cyc. of Federal Proc. § 73:96 (3d ed.) (“[E]nforcement of a constitutional state statute will not be enjoined by a federal court merely because it will cause irreparable injury.” (citing *Ala. Pub. Serv. Comm’n v. S. Ry. Co.*, 341 U.S. 341 (1951); *Lawson v. Aetna Ins. Co.*, 41 F.2d 316 (4th Cir. 1930))). And for good reason: Plaintiff’s theory would entitle every prisoner with a death warrant to a preliminary injunction based on nothing more than the warrant’s existence. That is not the law.

RELIEF

202. Accordingly, the Court denies Plaintiff’s Motion.

SO ORDERED.

Dated: March 9, 2025

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on March 9, 2025, a copy of the foregoing was filed electronically with the Clerk of Court using the CM/ECF system, and notice will be sent to all counsel for Plaintiff by operation of the court's electronic filing system.

/s/ Caroline M. Tomeny

CAROLINE M. TOMENY

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA
(BATON ROUGE)

JESSIE HOFFMAN

PLAINTIFF

VS.

CIVIL ACTION NO. 3:25CV00169-SDD-SDJ

GARY WESTCOTT, SECRETARY,
LOUISIANA DEPARTMENT OF PUBLIC
SAFETY AND CORRECTIONS;
DARREL VANNOY, WARDEN,
LOUISIANA STATE PENITENTIARY;
JOHN DOES, UNKNOWN
EXECUTIONERS

DEFENDANTS

TRANSCRIPT OF HEARING ON MOTION FOR PRELIMINARY INJUNCTION

VOLUME 1 OF 2

BEFORE THE HONORABLE SHELLY D. DICK
UNITED STATES DISTRICT JUDGE

MARCH 7, 2025
BATON ROUGE, LOUISIANA

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1 **THE COURT:** Call the case, please.

2 **DEPUTY CLERK:** This is Civil Action No. 25-169,
3 Jessie Hoffman versus Gary Westcott and others.

4 **THE COURT:** Okay. Counsel, can you please make
5 appearances for the record? If you are going to make
6 appearances, let's make appearances for people that are
7 actually going to appear. If you are taking a collateral role,
8 maybe we don't need an appearance. Go ahead, sir.

9 **MR. STRONSKI:** Yes, Your Honor, Jim Stronski for
10 Mr. Hoffman, from the law firm of Crowell & Moring.

11 **THE COURT:** And Mr. Stronski, will you be lead
12 counsel?

13 **MR. STRONSKI:** I am, Your Honor. I would ask that my
14 colleagues could introduce themselves.

15 **THE COURT:** Yes, please.

16 **MS. KAPPEL:** Good morning, Your Honor, Cecilia Kappel
17 on behalf of Mr. Hoffman.

18 **THE COURT:** Good morning, Ms. Kappel.

19 **MS. POURCIAU:** Good morning, Your Honor, Samantha
20 Pourciau on behalf of Mr. Hoffman.

21 **THE COURT:** Good morning, ma'am.

22 **MS. BARNARD:** Good morning, Your Honor. I'm April
23 Barnard on behalf of Mr. Hoffman.

24 **MR. CHAN:** Good morning, Your Honor. Hughman Chan on
25 behalf of Mr. Hoffman.

1 **THE COURT:** Good morning, Mr. Chan.

2 **MS. HALSTEAD:** Good morning, Your Honor. Ellen
3 Halstead on behalf of Mr. Hoffman.

4 **THE COURT:** Good morning. Okay. Let's hear from the
5 defendants, please.

6 **MR. CODY:** Good morning, Your Honor. Jeff Cody on
7 behalf of the defendants.

8 **THE COURT:** Good morning, Mr. Cody.

9 **MR. CODY:** I don't know if there's any preference --

10 **THE COURT:** Well, let them introduce themselves.

11 **MR. TOMENY:** Good morning, Your Honor. Caroline
12 Tomeny for the defendants.

13 **THE COURT:** Good morning, Ms. Tomeny.

14 **MR. ARCHEY:** Good morning, Your Honor. Connell
15 Archey on behalf of the defendants.

16 **THE COURT:** Good morning, Mr. Archey.

17 **MR. ROBERT:** Good morning, Your Honor. Randy Robert
18 on behalf of the defendants.

19 **THE COURT:** Good morning, Mr. Robert.

20 **MR. AGUINAGA:** Good morning, Your Honor. Benjamin
21 Aguinaga, also on behalf of the defendants.

22 **THE COURT:** Give me your name one more time.

23 **MR. AGUINAGA:** Benjamin Aguinaga.

24 **THE COURT:** Aguinaga.

25 **MR. AGUINAGA:** You nailed it. Okay. I'm doing it

1 phonetically. There you go. Thank you.

2 Okay. If that concludes all of the appearances for
3 counsel that are actually going to take a speaking role or an
4 active role in this matter, the Court will get started.

5 The Court will have a few housekeeping matters. Let me
6 just do those now because I will forget. When you are
7 examining a witness, please do so from the podium. If you make
8 an objection, please stand, and please be bold in your
9 objection.

10 We will be going kind of fast, and I don't want to miss an
11 objection because I'm taking notes or whatever, so be bold in
12 your objection. But please stand and state the grounds for
13 your objection. Are there any other questions regarding the
14 housekeeping?

15 The reason I ask you to come to the podium is that that
16 mic is recorded in the record in this matter. Because we are
17 going to need it quickly, I think it's going to be best
18 practice if you use the mic. Any questions about housekeeping?
19 Okay.

20 All right. The Court yesterday granted in part the motion
21 to dismiss filed by the defendants and denied in part the
22 motion to dismiss filed by the defendants. The Court will
23 hereby enter or give oral reasons for that judgment.

24 Before the Court is a motion to dismiss by the defendants,
25 Gary Westcott, who is the Secretary of the Louisiana Department

1 of Public Safety & Corrections, and Darrel Vannoy, the warden
2 of Louisiana State Penitentiary, and John Does, unknown
3 executioners (hereafter collectively referred to as either the
4 Defendants or the State). The Plaintiff is Mr. Jessie Hoffman,
5 who opposes the motion.

6 The Court has reviewed the allegations, the arguments of
7 the parties and the law and is prepared to rule. For the
8 following reasons, the defendants' motion to dismiss is granted
9 in part and denied in part. Specifically, the defendants'
10 motion is granted with respect to refusal to disclose the
11 execution protocol on the grounds of mootness. And the
12 religious exercise claims, Claims VI and VII, are dismissed
13 with prejudice. In all other respects, the defendants' motion
14 is denied.

15 The Court is providing its reasons orally this morning in
16 the interest of efficiency. With the exception of a few
17 instances, the Court will not provide pinpoint citations to
18 case law or the record. When citing case law, as I mentioned,
19 the Court, unless there is a noted exception, the Court will
20 not provide reporter citations. The Court will be quoting from
21 relevant case law but without orally pronouncing the beginning
22 and end of the quoted language.

23 The Court will first address the plaintiff's claim that
24 the defendants refused to disclose the execution protocol. As
25 the defendants note in their motion, the plaintiff now has

1 access to the execution protocol, both the full protocol under
2 seal and the redacted protocol, which is in the public record.
3 Accordingly, the plaintiff's claim for refusal to disclose the
4 execution protocol is dismissed as moot.

5 The Court will next address the jurisdictional argument.
6 The defendants styled their motion as a Rule 12(b)(6) motion to
7 dismiss for failure to exhaust administrative remedies under
8 the Prison Litigation Reform Act. The exhaustion argument
9 presents a jurisdictional challenge under 12(b)(1). However, a
10 motion to dismiss under 12(b)(1) is analyzed under the same
11 standard as a motion to dismiss under 12(b)(6). The Court
12 cites *Benton versus United States*, Fifth Circuit 1992.

13 The party invoking jurisdiction bears the burden of
14 proving that the Court may adjudicate this case. *Ramming*
15 *versus United States*, Fifth Circuit 2001.

16 When considering a 12(b)(1) motion, "The Court is
17 permitted to look at the evidence in the record beyond simply
18 those facts alleged in the complaint and its proper
19 attachments." *Ambraco versus Bossclip*, Fifth Circuit 2009.

20 The Court may consider the complaint alone, the complaint
21 supplemented by undisputed facts evidenced in the record or the
22 complaint supplemented by undisputed facts plus the Court's
23 resolution of disputed facts. *Williamson v. Tucker*, Fifth
24 Circuit 1981. "Ultimately, a motion to dismiss for lack of
25 subject matter jurisdiction should be granted only if it

1 appears certain that the plaintiff cannot prove any set of
2 facts in support of his claim that would entitle the plaintiff
3 relief." *Ramming*, Fifth Circuit 2001.

4 In this case, the defendants argue that all counts cannot
5 proceed because the administrative remedies are unexhausted.
6 Mr. Hoffman counters that he has exhausted all available
7 remedies.

8 The Prison Litigation Reform Act -- the Court may refer to
9 it as PLRA -- requires a prisoner to exhaust all available
10 remedies before filing suit, even in the execution context.
11 *Ramirez v. Collier*, Supreme Court 2022. Where there are no
12 available remedies, the petitioner may proceed.

13 *Gallegos-Hernandez versus United States*, Fifth Circuit 2012.

14 In July, 2024, Mr. Hoffman filed an ARP generally
15 challenging the three methods of execution that were then
16 authorized by Louisiana Revised Statute 15:569. The DPSC
17 rejected his grievance as premature.

18 On February 11, 2025, the day after the Governor publicly
19 announced that the DPSC had finalized and implemented the
20 nitrogen hypoxia protocol but before the death warrant had been
21 entered and before his execution date had been scheduled, Mr.
22 Hoffman filed Step 1 of the ARP with the DPSC. In that ARP, he
23 challenged the scheduled execution by nitrogen hypoxia. DPSC
24 responded stating, "A response will be issued within 40 days of
25 this date." Forty days from that response or the response date

1 would be March 23, 2025, after Mr. Hoffman's scheduled
2 execution.

3 Based on these facts, there is no administrative process
4 available to Mr. Hoffman to obtain any relief for the actions
5 complained of. An administrative process is not available if
6 it is not capable of use to obtain some relief for the action
7 complained of. The Court cites *Ross versus Blake*, Supreme
8 Court 2016.

9 Mr. Hoffman challenges the constitutionality and the
10 legality of the method of his scheduled execution. His claims
11 are not that the DPSC has misapplied statutory or regulatory
12 authority. The Court finds it is futile for him to seek relief
13 from those who are charged with enforcing the state laws
14 authorizing his execution by nitrogen hypoxia.
15 *Gallegos-Hernandez* case, Fifth Circuit 2012. Accordingly, the
16 motion to dismiss for failure to exhaust administrative
17 remedies is denied.

18 The defendants argue that the plaintiff has failed to
19 state a claim or state a cause of action with respect to his
20 Eighth Amendment claims, Counts I and II; his religious
21 exercise claims, Counts VI and VII; and his right to counsel
22 and access to Court claim, Count IV; and his ex post facto
23 claim, Count III. The Court will address each in turn.

24 When deciding a Rule 12(b)(6) motion to dismiss, "the
25 Court accepts all well-pleaded facts as true, viewing them in

1 the light most favorable to the plaintiff." The quote cites
2 the *Katrina Canal Breaches* case, Fifth Circuit 2007. The Court
3 may consider the complaint, its proper attachments, documents
4 incorporated into the complaint by reference and matters of
5 which a Court may take judicial notice.

6 To survive a 12(b)(6) motion, the plaintiff must plead
7 enough facts to state a plausible claim for relief that is --
8 or a claim for relief that is plausible on its face. The Court
9 cites the Supreme Court in the *Twombly* case and the *Katrina*
10 *Breaches Litigation* in the Fifth Circuit.

11 In *Twombly*, the United States Supreme Court set forth the
12 basic criteria for a complaint to survive the 12(b)(6) motion
13 to dismiss. "While the complaint attacked by Rule 12(b)(6)
14 motion to dismiss does not need detailed factual allegations, a
15 plaintiff's obligation is to provide the grounds of his
16 entitlement to relief, and it requires more than mere labels
17 and conclusions and more than a formulaic recitation of the
18 elements of a cause of action."

19 A complaint is insufficient if it merely "tenders naked
20 assertions devoid of further factual enhancement." That's the
21 *Ashcroft versus Iqbal* case, Supreme Court 2009. However, "a
22 claim has facial plausibility when the plaintiff pleads factual
23 content that allows the Court to draw a reasonable inference
24 that the defendant is liable for the misconduct alleged." Also
25 *Ashcroft*.

1 In order to satisfy the plausibility standard, the
2 plaintiff must show more than a sheer possibility that the
3 defendant has acted unlawfully. Further, while the Court must
4 accept well-pleaded facts as true, it will not strain to find
5 inferences favorable to the plaintiff. On a motion to dismiss,
6 the Courts are not bound to accept a legal conclusion that is
7 couched as a factual conclusion or is a factual allegation.

8 At the outset, the Court notes that the defendants'
9 memorandum in support of their motion to dismiss is identical
10 to their memorandum in opposition to their motion for
11 preliminary injunction. The plaintiff points out that the
12 defendants failed to conduct any analysis under the 12(b)(6)
13 legal standard in their motion to dismiss. In fact, the
14 defendants' memorandum, their 12(b)(6) memorandum, mentions
15 12(b)(6) parenthetically only one time. The defendants failed
16 to address the *Twombly* plausibility standard, and they utterly
17 failed to argue that the allegations of the complaint failed to
18 meet the 12(b)(6) plausibility requirements.

19 In short, the defendants wholly neglect to address the
20 sufficiency of the plaintiff's allegations. On this basis
21 alone, the Court could deny the defendants' motion. However,
22 in the absence of the defendants' analysis, the Court conducted
23 the pertinent 12(b)(6) analysis.

24 In turning first to the Eighth Amendment claims, it is
25 well settled, as stated by the Supreme Court, that while the

1 Eighth Amendment does not forbid capital punishment, it does
2 speak to how states may carry out that punishment, prohibiting
3 methods that are cruel and unusual. That's the *Bucklew* case,
4 Supreme Court 2019.

5 To that end, the question in dispute is whether the
6 State's chosen method of execution cruelly superadds pain to
7 the death sentence. If it does, then a prisoner must show a
8 feasible and readily implemented alternative method of
9 execution that would significantly reduce a substantial risk of
10 severe pain and that the State has refused to adopt without
11 legitimate penological reason.

12 Reading the plaintiff's allegations in the light most
13 favorable to him, as the Court must do on a motion to dismiss,
14 the plaintiff satisfies *Bucklew*. In his complaint, the
15 plaintiff pleads the process of nitrogen hypoxia and alleges
16 that this method of execution superadds pain to his death
17 sentence. He proposes two alternative methods of execution
18 that are feasible and readily available and would significantly
19 reduce a substantial risk of severe pain. These methods
20 include firing squad and execution by the administration of
21 medical-aid-in-dying, or MAID. He also alleges that the State
22 has no penological reason for implementing the method of
23 execution chosen by the State.

24 Plaintiff further alleges that nitrogen hypoxia as a
25 method of execution is unconstitutional as applied to him. He

1 explains that he has PTSD and manages it through Buddhist
2 meditative breathing techniques. As plaintiff alleges, the
3 placement of a gas mask over his face, preventing his use of
4 these breathing techniques to manage PTSD, while strapped to a
5 gurney, would trigger his PTSD that he developed from
6 claustrophobia from events in his childhood.

7 Considering the foregoing and the factual allegations of
8 the plaintiff's complaint, the Court finds that the plaintiff
9 has plausibly pled claims under the Eighth Amendment. The
10 defendants' motion to dismiss Counts I and II is denied.

11 Moving to the religious exercise claim, Counts VI and VII,
12 the plaintiff asserts two religious exercise claims based on
13 the assertion that breathing in nitrogen during his execution
14 would prevent him from practicing his Buddhist meditative
15 breathing practices at the time of his death. These claims
16 include a Religious Land Use and Institutionalized Persons Act
17 claim, the Court will call it RLUIPA, Count VI, and a First
18 Amendment claim under the free exercise clause, Count VII. The
19 plaintiff did not oppose dismissal of his free exercise claim,
20 Count VII, under the First Amendment. Accordingly, the Court
21 considers the claim abandoned, and the defendants' motion to
22 dismiss the plaintiff's free exercise claim, Count VII, is
23 granted, and that claim is dismissed.

24 Plaintiff does, however, oppose dismissal of the RLUIPA
25 claim. Under RLUIPA, no government shall impose a substantial

1 burden on the exercise of free religion of any person residing
2 or confined to an institution, even if that burden results from
3 a rule generally applicable, unless the government demonstrates
4 that the imposition of the burden on that person, number one,
5 is in furtherance of a compelling governmental interest; and,
6 number two, is the least restrictive means of furthering that
7 compelling governmental interest.

8 The defendants' move for dismissal on the grounds that Mr.
9 Hoffman's inability to engage in his Buddhist breathing
10 practices during his execution is not a substantial burden on
11 his religious exercise. The defendants submit that the
12 plaintiff will not be in fact prevented from breathing.

13 Plaintiff responds that Mr. Hoffman's sincerely held religious
14 beliefs are substantially burdened not because he will be
15 unable to breathe but because he will be unable to breath or he
16 will be forced to breathe nitrogen in lieu of ambient air.

17 In *Adkins v. Kaspar*, the Fifth Circuit in 2004 explained
18 that a government action or regulation creates a substantial
19 burden on a religious exercise if it truly pressures the
20 adherent to significantly modify his religious behavior and
21 significantly violates his religious beliefs.

22 The Court does not find it plausible that breathing
23 nitrogen instead of air substantially burdens Mr. Hoffman's
24 religious breathing practices. While it may impose some
25 burden, the Court does not find it substantial. The plaintiff

1 himself acknowledges that he will have the ability to breathe
2 as the nitrogen is administered. Mr. Hoffman, in short, will
3 not be prevented from breathing. The evidence of meditative
4 breathing may still be relevant as related to his "as applied"
5 Eighth Amendment claim, but the Court finds that the plaintiff
6 has failed to state a claim under RLUIPA, and the defendants'
7 motion to dismiss as to this issue is granted.

8 The right to counsel and access to Courts claim, which is
9 Count IV. The defendants, in two sentences, argue that the
10 plaintiff's right to counsel only extends to his first appeal
11 and that the plaintiff does not have a constitutionally
12 protected interest in having counsel present throughout his
13 execution. The plaintiff notes that the defendants completely
14 misconstrue the plaintiff's claim under Count IV. The
15 plaintiff contends that the claim stems from the fact that the
16 protocol does not permit counsel to be present for any aspect
17 of the execution procedure, which thereby deprives Mr. Hoffman
18 of the right to seek redress in the courts at precisely those
19 points in the process when problems with the protocol's
20 implementation are most likely to arise.

21 As we have learned from Alabama's failed attempts to
22 execute Mr. Smith by lethal injection, access to the courts in
23 an execution is of paramount importance, especially in this
24 case where the State has no experience and has never used this
25 method of execution before.

1 Accordingly, the defendants' motion to dismiss is denied
2 with respect to the plaintiff's right to counsel and access to
3 Courts claim, which is Count IV.

4 And finally, the ex post facto claim, the ex post facto
5 clause of the United States Constitution forbids Congress and
6 the States from enacting any law which imposes a punishment for
7 an act which was not punishable at the time it was committed or
8 imposes additional punishment to that than prescribed. *Weaver*
9 *versus Graham*, Supreme Court 1981.

10 In their argument for dismissal, defendants cite the 1915
11 Supreme Court case of *Mallory versus South Carolina*. They
12 argue that under *Mallory*, there is no ex post facto clause
13 violation when there is no change to the form of punishment, in
14 other words, death, but only a change to the mode of that
15 punishment or the mode of execution in this case. The
16 defendants' view, since there has been change only to the mode
17 of execution, that the plaintiff has not pled a claim under the
18 ex post facto clause. The Court finds that the defendants
19 misinterpret *Mallory*.

20 In *Weaver versus Graham*, in 1981, the Supreme Court
21 explained that in *Mallory* -- or explained further *Mallory*, that
22 a change in the method of execution is not ex post facto
23 because evidence showed, or was not in that case ex post facto
24 because the evidence showed the new method to be more humane.
25 In *Sepulvado v. Jindal*, the Fifth Circuit in 2013, citing the

1 Supreme Court cases of *Weaver* and *Mallory*, explained that "A
2 post offense change in the State's execution protocols would
3 violate the ex post facto prohibition unless the change in the
4 execution method is more humane than the prior method of
5 execution."

6 In *Nelson versus Campbell*, the Supreme Court, in 2004,
7 succinctly explained that it is not an ex post facto violation
8 to change a method of execution to a more humane method. The
9 Court finds that the plaintiff has sufficiently alleged that
10 the nitrogen hypoxia is an inhumane method of execution. In
11 particular, the plaintiff cites to the American Veterinary
12 Medical Association as having outlawed gassing as a method of
13 euthanasia for dogs and cats, and has cited to the United
14 Nations, which has expressed concerns that death by nitrogen
15 gas likely violates prohibitions on torture and inhumane
16 punishments.

17 The plaintiff has also set out a plethora of facts from
18 Alabama's four executions by nitrogen hypoxia to support his
19 allegation that this type of death creates terror and extreme
20 pain and suffering. In paragraphs 94 and 95 of the complaint,
21 the plaintiff alleges that there was a challenge to the
22 nitrogen gas and electrocution protocols at -- to the nitrogen
23 gas and electrocution as less humane than lethal injection.
24 The Louisiana 24th Judicial District Court held that 15:569,
25 which was the two methods available at that time, were

1 unconstitutional on ex post facto grounds. Though this is not
2 a specific factual allegation that nitrogen hypoxia is less
3 humane than lethal injection, the Court is bound to read the
4 plaintiff's allegations liberally in a light most favorable to
5 him.

6 When reading this allegation in connection with the
7 plaintiff's allegations in paragraph 211, that if executed with
8 nitrogen gas, the defendants will retroactively subject him to
9 an increased punishment for a crime after his sentence, the
10 Court finds that the plaintiff has sufficiently alleged
11 nitrogen hypoxia to be a less humane method of execution than
12 lethal injection, which was his original method of execution.

13 For these reasons, the Court finds that the plaintiff has
14 plausibly pled a claim under the ex post facto clause of the
15 United States Constitution, and the defendants' motion to
16 dismiss Count III is denied.

17 In summary, the motion to dismiss filed by the defendants
18 is granted in part and denied in part. The defendants' motion
19 is granted with respect to refusal to disclose execution
20 protocol on the grounds of mootness, Count V. The religious
21 exercise claims, Counts VI and VII, are dismissed without
22 prejudice. The motion to dismiss is denied as to the Eighth
23 Amendment claims, Counts I and II; the ex post facto claim,
24 Count III; and the right to counsel and access to Courts claim,
25 Count IV. Thus, the Court will now proceed with the hearing on

1 Counts I, II, III and IV.

2 Is there anything we need to take up before you call your
3 first witness?

4 **MR. STRONSKI:** Not right now, Your Honor.

5 **THE COURT:** Then the plaintiffs may call their first
6 witness.

7 My law clerk instructs me or pointed out that I said
8 without prejudice. The dismissals are with prejudice, as
9 mentioned in the judgment that was filed yesterday and
10 corrected. The dismissals where the motion to dismiss was
11 granted are with prejudice. You may proceed, Ms. Pourciau.

12 **MS. POURCIAU:** Good morning, Your Honor, the
13 plaintiffs call Mr. Hoffman.

14 **THE COURT:** Mr. Hoffman, if you will make your way to
15 right here, she is going to give you an oath in just a moment.

16 **DEPUTY CLERK:** If you would raise your right hand.

17 **(OATH ADMINISTERED.)**

18 **MS. POURCIAU:** Your Honor, may I approach the witness
19 to hand him water?

20 **THE COURT:** Yes. Mr. Hoffman, it is going to be
21 important that we be able to hear you. So if you need to
22 adjust the mic to do that, go ahead. Go ahead, Ms. Pourciau.

23 **THE CLERK:** Would you please state your name and
24 spell it for the record.

25 **THE DEFENDANT:** Jessie Hoffman, J-E-S-S-I-E

1 H-O-F-F-M-A-N.

2 JESSIE HOFFMAN,

3 having first been duly sworn, testified as follows:

4 DIRECT EXAMINATION

5 BY MS. POURCIAU:

6 Q. Good morning, Mr. Hoffman. Can you please introduce
7 yourself to the Court?

8 A. I am Jessie Hoffman.

9 Q. I'd like to start by asking you some questions about your
10 Buddhist faith. Do you practice Buddhism?

11 A. Yes.

12 Q. When did you begin practicing Buddhism?

13 A. In 2002.

14 Q. How is it that you came to start practicing Buddhism in
15 2002?

16 A. After the death of my grandmother, which is a difficult
17 thing for me, I found myself in a very, very dark spot. For
18 the first time in my life, I was without my ground, my solid
19 ground, so I was reaching out. I tried -- you know,
20 spiritually, I was trying to reach out to different things, but
21 eventually I received a book, "Start Where You Are. Everything
22 You Need is Inside You," based on Buddhist principles.

23 Q. And what did you learn in that book?

24 A. That everything I had was -- everything I needed to cope
25 and deal with what I was dealing with in that moment was inside

1 me.

2 Q. What, if anything, did you do next to continue a path to
3 practicing Buddhism?

4 A. That book was, you know, a foundation, and I was still
5 searching other things. But one day I was in a catalog and I
6 run across a book called, The Buddha Said, by Osho, and I ended
7 up ordering that book.

8 Q. And what did you learn in that book?

9 A. Well, based on the principles, the Buddhist principles,
10 through mindful breathing and mindfulness, that I can deal with
11 the challenges of life, in particularly my life.

12 Q. And did you begin a meditative breathing practice at that
13 time?

14 A. Yes. Yes.

15 Q. And what did that look like?

16 A. It was twice a day, when I woke every morning and once at
17 night before bed.

18 Q. Did you ever have an opportunity to practice Buddhism with
19 a teacher?

20 A. The first chance I had was I want to say 2018, when there
21 was a class that came to Death Row. It was available to Death
22 Row.

23 Q. And can you tell me a little bit about that class?

24 A. It was introduced -- actually, I signed up, and for the
25 first time I was able to talk to somebody, engage with somebody

1 who actually knew what they was doing. And so it was a guided
2 meditation. We did -- we read from a book and we did, like,
3 two different meditations.

4 **THE COURT:** One moment. Officer, would you mind
5 taking a seat, please. Thank you.

6 **BY MS. POURCIAU:**

7 Q. What was the name of the teacher that led that class?

8 A. Michaela.

9 Q. And was that the first opportunity you had to participate
10 in a Buddhist class that the prison offered?

11 A. Yes.

12 Q. They didn't offer any Buddhism classes before that?

13 A. No.

14 Q. What does the Buddhist faith believe about afterlives, if
15 anything?

16 A. They believe in reincarnation.

17 Q. Do you believe you will be reincarnated?

18 A. Yes.

19 Q. How has your Buddhist meditation practice helped you, if
20 at all?

21 A. Like I just said, the ability to embrace life challenges
22 has helped me be able to do that, to deal with that.

23 Q. Was there a time recently when you were able to use the
24 breathing practice and meditation practice to help you?

25 A. Specifically, if I needed it? Yes. February 20th, I was

1 served a death warrant, for which I signed, and immediately
2 afterwards, I was moved to a different location in isolation
3 away from what I was used to, and the circumstances or the
4 situation was a very small cell and just small confinements.
5 So with that, it was triggered anxiety of small spaces, and it
6 was in that moment, after everything was settled, that I needed
7 to practice. I did my breathing exercises.

8 Q. You mentioned that you were having anxiety of small
9 spaces?

10 A. Um-hm.

11 Q. Is that claustrophobia?

12 A. As I understand it, yes.

13 Q. In general, do you think your Buddhist practices have
14 helped you?

15 A. Absolutely.

16 Q. Is there anything else about your Buddhist practice that
17 you want the Court to know about?

18 A. That it allows me every day to be a better version of
19 myself.

20 Q. I'm pulling up what I believe has been marked as
21 Plaintiff's Exhibit 2, which bears the Bates stamp Hoffman
22 00045.

23 **THE COURT:** Counsel, are there any stipulations as to
24 the admissibility of evidence so that we don't have to -- that
25 hasn't been admitted yet. It needs to be off the public

1 screen, Suzie. Thank you.

2 Can we have a stipulation as to the admissibility of
3 evidence so that we don't have to go through this every time?

4 **MR. STRONSKI:** We stipulate.

5 **THE COURT:** Ms. Pourciau, go ahead.

6 **MS. POURCIAU:** We stipulate, Your Honor.

7 **THE COURT:** You will stipulate to the admissibility
8 of all the defendants' evidence, exhibits?

9 **MS. POURCIAU:** The plaintiffs have not seen an
10 exhibit list from the defendants, so I don't think we can say
11 that, but if we are given one and a moment to look at it --

12 **THE COURT:** Then don't stipulate. What I'm asking
13 you is, are you stipulating to the admissibility of your
14 opponent's documentary evidence. That's what I'm asking. If
15 you've not seen it, then I would think you aren't going to do
16 that.

17 **MS. POURCIAU:** We can stipulate to it if it has all
18 been disclosed in discovery in this matter.

19 **THE COURT:** Okay. At the break, you can take --
20 since we are probably not going to get to the defendants'
21 exhibits, you'll have time to do that. What about the
22 defendants, Mr. Cody?

23 **MR. CODY:** Your Honor, yeah, and I was just talking
24 to Mr. Stronski. I think we do need to compare our notes as
25 far as exhibit lists because that was one thing that neither

1 part did. I think it wasn't in the order, so I think we just
2 went with it. But I think we do need to do that because we
3 might be able to stipulate.

4 **THE COURT:** Okay. Until you stipulate, we are going
5 to go through it the hard way. That means until it is
6 admitted, it's not going to be published to the gallery. It is
7 going to slow things down. So I would suggest that since y'all
8 have a plethora of people, that you take a look and see what
9 you can agree to and what you can't agree to so that we can
10 move this along. Otherwise, we are going to be here until
11 Sunday.

12 **MR. CODY:** Your Honor, and not to try to delay
13 things, I think it will happen quickly, because I believe a lot
14 of the exhibits are going to be things that were in discovery,
15 if not all. So I think it probably won't be a contentious
16 matter.

17 **MR. STRONSKI:** I said wrongly we would stipulate, not
18 having seen things, but my assumption was that, Your Honor. so
19 I think if it's things we have seen before, to move it on, we
20 would stipulate. But we will check.

21 **THE COURT:** Yeah. I mean, I don't know what you have
22 seen. Until you tell me that we will stipulate to the
23 admissibility into the record of these exhibits, you are going
24 to have to go through it the hard way, or the old fashioned
25 way. I won't say the hard way but the old fashioned way. Be

1 seated, but I would suggest that some of you over there be
2 doing some work on this. Okay. Go ahead, Ms. Pourciau,
3 Exhibit 2.

4 **MS. POURCIAU:** Your Honor, I think defendants
5 stipulate to this exhibit.

6 **THE COURT:** Mr. Cody, no objection to Exhibit 2?

7 **MS. TOMENY:** Actually, Your Honor, that is correct.

8 **THE COURT:** No objection to Exhibit 2. It may be
9 published.

10 **BY MS. POURCIAU:**

11 Q. Mr. Hoffman, do you recognize this document?

12 A. Yes.

13 Q. What is it?

14 A. It is a refusal, medical refusal.

15 Q. Can you describe what that is for the Court?

16 A. Excuse me?

17 Q. Can you describe what a medical refusal is and what
18 happened here?

19 A. What happened, I had a medical call-out that I was made
20 aware of that morning. And they called me, got me dressed to
21 get ready to go over to the call-out. There was a
22 transportation van, what we call a dog cage. It was -- how do
23 I describe it? It was just a little small space, van with a
24 small space that you are locked in. So I tried to get in. I
25 actually got in, but once they closed the doors, I couldn't

1 breathe. I was having panic attacks. I asked the guards to
2 get me out. They immediately got me out, and I had to sign the
3 papers of refusal.

4 Q. And what did you write on the form that we can see here?

5 A. That due to claustrophobia, I couldn't breathe in the
6 space, so I was refusing medical treatment.

7 Q. And when did you sign this form?

8 A. Because I wasn't -- I couldn't be transported in that
9 vehicle.

10 **THE COURT:** It was when, not why. When?

11 A. You say when?

12 **BY MS. POURCIAU:**

13 Q. Um-hm.

14 A. I'm sorry. March 7, 2024.

15 Q. Had something like that of having a panic attack from
16 being in a small space happened to you before?

17 A. Yes.

18 Q. Where do you think your claustrophobia stems from?

19 A. An incident when I was a child, 7 or 8 years old. I had
20 told on my brother, and when my mom went to work, he locked me
21 in the kitchen pantry. I was yelling and screaming, throwing
22 stuff off the shelf, trying to get out, but it was locked, so I
23 couldn't -- at some point, I just blacked out. I don't know
24 how long. I was in there for -- I woke up when they pulled me
25 out, when they took me out. So every time since then, if I've

1 been in spaces like this, this is what I go back to.

2 Q. Do you feel like there is something about the specific
3 method of execution of gassing that is an issue for you as an
4 individual?

5 A. Yes.

6 Q. And why is that?

7 A. From what I understand, this idea of putting a mask on,
8 having a mask on over me, yeah, it's just -- I can't even think
9 of it. The idea of having a mask over my face.

10 Q. What do you think that will do, having a mask over your
11 face?

12 A. Yeah, I don't know. I think just the idea of that, you
13 know -- yeah, I believe it is going to trigger these things I
14 experienced in these small spaces, or these spaces.

15 Q. And do you think you will be able to practice your
16 Buddhist meditative breathing at that time?

17 A. No.

18 **MS. POURCIAU:** No further questions, Your Honor.

19 **THE COURT:** Cross.

20 **CROSS-EXAMINATION**

21 **BY MS. TOMENY:**

22 Q. Good morning, Mr. Hoffman. My name is Caroline Tomeny,
23 and I represent the defendants. You said earlier that you
24 experienced claustrophobia, but you don't have a medical
25 diagnosis of claustrophobia; is that right?

1 A. Not that I'm aware of. I don't know.

2 Q. Okay. And you mentioned -- I believe you actually can
3 still see it on your screen -- this medical call-out where you
4 were going to be transported in a van that you referred to as a
5 dog cage; is that right?

6 A. Yes.

7 Q. Have you had any other medical call-outs and been
8 transported in that way in the past?

9 A. No.

10 Q. All right. And you've been diagnosed with post-traumatic
11 stress disorder; is that right?

12 A. Yes.

13 Q. And you were diagnosed in 2003, correct?

14 A. Sounds correct.

15 Q. Okay. But is it fair to say that over the last 20 years,
16 you have learned to manage your PTSD symptoms?

17 A. Yes.

18 Q. Okay. And you actually haven't sought any treatment for
19 PTSD symptoms in over five years; is that right?

20 A. Yes.

21 Q. Okay. All right. And you credit the Buddhist breathing
22 techniques with your ability to manage your PTSD symptoms; is
23 that right?

24 A. Yes.

25 Q. Is it fair to say that these breathing techniques help you

1 relax?

2 A. Yes.

3 Q. Do you practice meditative breathing while you are falling
4 asleep?

5 A. No.

6 Q. Do you practice meditative breathing when you are in a
7 stressful situation?

8 A. Yes.

9 Q. All right. Is it fair to say that these breathing
10 practices help you feel calm?

11 A. Yes.

12 Q. And at peace? Do these breathing practices help you feel
13 at peace?

14 A. Yes.

15 Q. And these Buddhist breathing practices, that involves
16 inhaling and exhaling; is that right?

17 A. Yes.

18 Q. It's deep breaths, right?

19 A. Yes.

20 Q. And as long as you can inhale and exhale, you can practice
21 your breathing techniques; is that right?

22 A. Yes.

23 Q. And when you practice your Buddhist breathing techniques,
24 you are not usually concerned with the composition of the air
25 itself; is that right?

1 A. Yes, I am -- yes.

2 Q. Okay.

3 A. Yes, ma'am.

4 Q. I guess to clarify my question, you're not concerned with
5 the composition of the air, right?

6 A. No.

7 Q. Okay. Again, your focus is on the inhaling and the
8 exhaling, right?

9 A. Yes.

10 Q. All right. Mr. Hoffman, in your complaint, you've
11 proposed two alternative methods of execution to nitrogen
12 hypoxia; is that right?

13 A. Yes.

14 Q. When did you decide that you would prefer these two
15 methods over nitrogen hypoxia?

16 A. When I got a clear idea of what the method -- of what it
17 meant.

18 Q. Okay. And you got that clear method of what it meant, is
19 that when you viewed a copy of the protocol?

20 A. No.

21 Q. Okay. When was that?

22 A. I don't know exactly when was it.

23 Q. All right. How did you decide on these two methods?

24 **MS. POURCIAU:** Objection. Your Honor, defendants
25 stipulated that they wouldn't ask questions that went into

1 attorney-client privileged relationships, and this was
2 discussed in an attorney-client setting.

3 **MS. TOMENY:** Your Honor, my question was how did you
4 decide this. I'm not asking for what he discussed with his
5 attorneys, of course. I'm just asking how he decided on these.

6 **THE COURT:** I'm going to overrule this question --
7 overrule this objection. It doesn't specifically call for the
8 release of attorney-client -- or the divulging of
9 attorney-client privileged information. Sir, you can say
10 that -- well, don't say what you told your lawyers, and don't
11 say what your lawyers told you. Can you rephrase or ask your
12 question again, please.

13 **MS. TOMENY:** Yes, Your Honor.

14 **BY MS. TOMENY:**

15 Q. Mr. Hoffman, how did you decide on these two alternative
16 methods of execution?

17 **THE COURT:** Mr. Hoffman, are you able to answer that
18 question without relating or referring to your lawyers?

19 **THE DEFENDANT:** I cannot.

20 **THE COURT:** Okay. I'm going to ask you to ask the
21 next question. The objection is sustained.

22 **MS. TOMENY:** Okay.

23 **BY MS. TOMENY:**

24 Q. Mr. Hoffman, the first method you propose is a firing
25 squad; is that right?

1 A. Yes.

2 Q. Okay. And you believe that this method would result in
3 less pain and suffering than nitrogen hypoxia; is that right?

4 A. Yes.

5 Q. All right. And you believe that the firing squad method
6 is virtually painless; is that right?

7 A. I believe it's better than that, the first one.

8 Q. Okay. Were you aware that you represented in your
9 complaint that the firing squad method is virtually painless?

10 A. I don't recall.

11 Q. Okay. But you wouldn't agree that it is virtually
12 painless; is that right?

13 **MS. POURCIAU:** Objection, Your Honor. This goes into
14 attorney-client communications and legal decisions and
15 discussions on strategy. I also believe that that was an
16 expert opinion.

17 **THE COURT:** Okay. Well, it calls for his
18 understanding of whether the firing squad -- and the question
19 was virtually painless. It's not totally painless. She's
20 asking you was it your understanding that it is -- you said
21 it's -- well, I'm not going to go on. Overruled.

22 **COURT REPORTER:** I didn't get an answer.

23 **BY MS. TOMENY:**

24 Q. All right. I believe my question was, you wouldn't agree
25 that -- so you don't agree that the firing squad method would

1 be virtually painless; is that right?

2 A. No.

3 Q. Okay. You also claim that -- and I'm going to quote from
4 the complaint -- "If performed properly, a simple matter for
5 trained marksmen, the use of a firing squad will eliminate the
6 substantial risk of severe pain of nitrogen hypoxia." Do you
7 recall that from your complaint?

8 A. Yes.

9 Q. Okay. And in your complaint, you also claim that the
10 state has a history of deviating from its written protocol and
11 does not provide adequate training for execution team members.
12 Is that right?

13 A. Yes.

14 Q. Have you ever been shot?

15 A. No.

16 Q. Were you aware that with a firing squad, the bullets would
17 enter your chest and shatter your spine?

18 **MS. POURCIAU:** Objection.

19 **THE COURT:** Due to lack of foundation. Sustained.

20 **BY MS. TOMENY:**

21 Q. All right. Are you familiar with the firing squad method
22 of execution?

23 A. No.

24 Q. Okay. So you're not -- you're not aware that with a
25 firing squad, bullets would enter your chest and shatter your

1 spine; is that correct?

2 **MS. POURCIAU:** Objection, asked and answered.

3 **THE COURT:** Same result. Sustained.

4 **MS. TOMENY:** All right.

5 **BY MS. TOMENY:**

6 Q. All right. Mr. Hoffman, the second method that you
7 propose is the medical-aid-in-dying cocktail, DDMAPh; is that
8 right?

9 A. Yes.

10 Q. And you believe that this method would result in your
11 death, end of quote from your complaint, without any risk of
12 prolonged pain and suffering?

13 A. Yes.

14 Q. Okay. Do you have any knowledge as to how long death by
15 the DDMAPh cocktail could take?

16 A. No.

17 Q. Do you know if it is any longer than death with nitrogen
18 hypoxia?

19 A. No.

20 Q. All right.

21 **MS. TOMENY:** One moment.

22 **BY MS. TOMENY:**

23 Q. Are you familiar -- do you know of any complications with
24 the DDMAPh cocktail, with deaths by that cocktail?

25 A. No.

1 Q. Okay.

2 **THE COURT:** Redirect?

3 **MS. TOMENY:** Oh, I'm sorry, Your Honor. I should
4 have said something.

5 **THE COURT:** You have completed your cross,
6 Ms. Tomeny?

7 **MS. TOMENY:** No, Your Honor.

8 **THE COURT:** Okay. Ms. Pourciau, then take your seat.

9 **MR. ROBERT:** One second, Your Honor, please.

10 **BY MS. TOMENY:**

11 Q. All right, Mr. Hoffman. If you are executed with nitrogen
12 hypoxia, do you plan to use your meditative breathing
13 techniques?

14 A. Excuse me. Repeat that.

15 Q. If you are executed with nitrogen hypoxia, are you
16 planning to use your meditative breathing techniques?

17 A. Yes.

18 Q. Okay. All right. Thank you. I have completed my cross
19 now.

20 **THE COURT:** Redirect?

21 **MS. POURCIAU:** Court's indulgence.

22 **REDIRECT EXAMINATION**

23 **BY MS. POURCIAU:**

24 Q. Mr. Hoffman, as an incarcerated person, do you have access
25 to your medical records?

1 A. I do not.

2 Q. On cross-examination, you were asked about whether you've
3 sought treatment for your PTSD. Have you used your meditation
4 to cope with your PTSD over the past 20 years?

5 A. Yes.

6 Q. For your breathing meditation, is it essential that you
7 breathe in oxygen?

8 A. Yes.

9 Q. So if you are breathing in nitrogen without any oxygen,
10 you will not be able to conduct your breathing meditation.
11 Isn't that true?

12 **MS. TOMENY:** Your Honor, I would object that that
13 mischaracterizes his prior testimony.

14 **THE COURT:** Overruled. He can clarify.

15 **BY MS. POURCIAU:**

16 Q. You can answer the question. Do you want me to repeat it?

17 A. Yes.

18 Q. If you are breathing in pure nitrogen without any oxygen,
19 would you be able to conduct your breathing meditation
20 practices?

21 A. No.

22 Q. So if a mask is put on you and pure nitrogen is pumped
23 into it, at that point, will you be able to meditate?

24 A. No.

25 Q. Do you believe the firing squad would substantially reduce

1 your pain compared to nitrogen gassing?

2 A. Yes.

3 Q. Do you believe that the MAID, medical-aid-in-dying, would
4 substantially reduce your pain as compared to nitrogen gassing?

5 A. Yes.

6 **MS. POURCIAU:** No further questions, Your Honor.

7 **THE COURT:** Okay. Mr. Hoffman, you may step down,
8 sir.

9 **THE DEFENDANT:** Thank you.

10 **THE COURT:** Plaintiffs should call their next
11 witness, please.

12 **MS. POURCIAU:** Your Honor, plaintiffs call Michaela
13 Bono.

14 **THE COURT:** Ms. Bono, right up here, please.

15 **(OATH ADMINISTERED.)**

16 **THE CLERK:** If you would state your name and spell it
17 for the record.

18 **THE WITNESS:** Michaela Bono, M-I-C-H-A-E-L-A B-O-N-O.

19 **MICHAELA BONO,**

20 **having first been duly sworn, testified as follows:**

21 **DIRECT EXAMINATION**

22 **BY MS. POURCIAU:**

23 Q. Reverend Michaela, could you please introduce yourself to
24 the Court.

25 A. My name is Reverend Michaela Bono. I am a Zen Buddhist

1 priest.

2 Q. Where do you currently reside?

3 A. I currently reside in mid state New York.

4 Q. Do you live there with a family?

5 A. I live there with my husband and my 3-year-old daughter.

6 Q. Is this your first time in Louisiana?

7 A. No, it is not.

8 Q. Did you go to college here?

9 A. Yes, I went to Loyola University in New Orleans.

10 Q. When did you graduate?

11 A. I graduated in May of 2006.

12 Q. What was your senior year of college like at Loyola?

13 A. A few days before my senior year of college, Hurricane
14 Katrina hit and classes were cancelled, so I decided to move to
15 a Buddhist monastery at that time.

16 Q. Why did you choose to move to a Buddhist monastery?

17 A. I had been practicing meditation a little bit and learning
18 more about Buddhism at that time, and I was really interested
19 in deepening my studies and moving to a location where that's
20 the full-time focus.

21 Q. And briefly, I know this is a big question, but what is
22 Buddhism?

23 A. Buddhism is one of the world's major religions, originated
24 about 2500 years ago in India. We follow the teachings of what
25 you would call the historical Buddha, and there are three

1 branches that kind of spread out worldwide across Asia and the
2 entire world, but all of the disciples or all of the
3 practitioners follow kind of the mean ethical and spiritual
4 principles that were taught by the Buddha and the spiritual
5 disciplines and the teachings based largely on wisdom and
6 compassion.

7 Q. Did you ever return to the Buddhist monastery in
8 California?

9 **MS. TOMENY:** Your Honor, I'm going to object.

10 **THE COURT:** I'm listening.

11 **MS. TOMENY:** I'm going to object just on the basis of
12 relevance of Reverend Bono's testimony, given that the free
13 exercise claim was abandoned and the RLUIPA claim was dismissed
14 with prejudice yesterday in the motion to dismiss. I'm not
15 seeing the relevancy.

16 **THE COURT:** Ms. Pourciau, what's the relevance?

17 **MS. POURCIAU:** As Your Honor stated, the Buddhism
18 element of Mr. Hoffman's claim is still relevant to his "as
19 applied" challenge, and Ms. Bono has studied -- excuse me,
20 Reverend Michaela has studied Buddhism with Mr. Hoffman and can
21 speak to his practices, and that is directly relevant to his
22 Eighth Amendment claim.

23 **THE COURT:** I'm going to overrule the objection. It
24 is relevant to the Eighth Amendment claim, and it would be
25 helpful to the trier of fact to have some background

1 understanding of Buddhism. But if you would confine it to a
2 short -- give me a short, I hate to say it, thumbnail of the
3 religious practice so that I just have a baseline of
4 understanding.

5 **BY MS. POURCIAU:**

6 Q. I believe I had asked did you ever return to the Buddhist
7 monastery?

8 A. Yes, I returned after I graduated in May of 2006.

9 Q. How long were you there for?

10 A. I stayed there for about six years.

11 Q. Did you get ordained as a priest while you were there?

12 A. Yes, I was ordained in September of 2010.

13 Q. Can you describe what you had to do to become ordained?

14 A. Sure. You commit to living at the monastery full-time for
15 five years, doing rigorous study, a lot of meditation, silence,
16 communal life, and you study one-on-one with a teacher in
17 preparation to take your vows in an ordination ceremony, and
18 the vows are -- you study them deeply, and after your
19 ordination ceremony, you kind of live as a -- at the goal of
20 higher standards, kind of, than the rest of the community.

21 Q. Did you receive anything afterward to signify that you are
22 ordained?

23 A. Yes, I'm wearing my priest robe called a Rakusu,
24 R-A-K-U-S-U.

25 Q. Are there any key practices that you partake in as part of

1 your process to become ordained?

2 A. Yes. So the number one practice in Zen Buddhism is
3 breathing meditation. It's the fundamental way that the
4 entire -- it's the focus of the entire monastery. So we sit
5 meditation many hours a day. We learn scriptures that teach
6 you how to meditate. So breathing meditation is the essential
7 practice.

8 Q. During your years at the Buddhist monastery in California,
9 did you ever conduct prison visits?

10 A. I did.

11 Q. Which prison?

12 A. San Quentin.

13 Q. And what did you do during those prison visits?

14 A. I participated in the Buddhist meditation group that had
15 been already in existence there for many years where the men
16 who were incarcerated there practiced meditation and walking
17 and chanting.

18 Q. After you completed your training at the Buddhist
19 monastery, what did you do?

20 A. I returned to New Orleans to start a Zen temple in the
21 same lineage, and it was called Mid City Zen.

22 Q. Briefly, what was your role and responsibility at Mid City
23 Zen?

24 A. Pretty much everything. As the founder and director, I
25 had to do the admin. I grew the community, I taught classes,

1 took care of the temple, brought visiting monastics and
2 teachers and was responsible for the daily schedule.

3 Q. Did you teach meditation at Mid City Zen?

4 A. Yes.

5 Q. Did you teach Buddhist scripture when you were at Mid City
6 Zen?

7 A. Yes, we had classes pretty much quarterly on things like
8 important topics in Buddhism, like the Four Noble Truths,
9 Eightfold Path, and then a lot of writings from 13th Century
10 Japan.

11 Q. Did you do anything in addition to running Mid City Zen?

12 A. In late 2018, I became the Buddhist Chaplain at Louisiana
13 State Penitentiary.

14 Q. And what were you doing as the Buddhist Chaplain at
15 Louisiana State Penitentiary?

16 A. I held classes in main prison. I held a class of about 20
17 to 25 folks doing Buddhist medication, breathing practice, a
18 little bit of walking meditation and scripture study and kind
19 of group discussion, and then I also had a smaller group on
20 Death Row studying together.

21 Q. Was it easy for you to get that position as the Buddhist
22 Chaplain at Louisiana State Penitentiary?

23 **MS. TOMENY:** Excuse me, Your Honor, we will stipulate
24 to Reverend Bono's qualifications in Buddhism.

25 **MS. POURCIAU:** All right. That was going to be my

1 next proffer. The plaintiffs tender Reverend Michaela as an
2 expert in Buddhism at this time.

3 **THE COURT:** The Court will accept the witness as an
4 expert in Buddhist practices and Buddhism.

5 **MS. KAPPEL:** I do want to ask a few more questions
6 about your time at the Louisiana State Penitentiary. Was it
7 easy for you to get that position.

8 A. It was not. It took over a year of phone calls and a lot
9 of red tape and administrative barriers until I sort of gently
10 pushed that the right to practice all faiths should exist in
11 prison.

12 Q. And during the time once you were admitted and practicing
13 as the Buddhist Chaplain at Louisiana penitentiary, did you
14 meet Jessie Hoffman?

15 A. Yes.

16 Q. Do you see him in the courtroom today?

17 A. Yes, I do.

18 Q. What were your initial impressions of Jessie?

19 A. I was struck by how Jessie was very kind and calm and
20 respectful and thoughtful. I also was impressed by his
21 meditation practices. He was very comfortable with his
22 posture. He really didn't need much of instruction and usually
23 I have to give a fair amount of instruction, but he was very
24 calm and still and it really impacted our group in a positive
25 way. And it was clear that he can apply the Buddhist teachings

1 to his challenges in life, his daily situation, his mind. That
2 really struck me too.

3 Q. As the Buddhist Chaplain at Louisiana State Penitentiary,
4 how often were you going there?

5 A. I was going there once a month for about a year until
6 COVID hit, and we weren't allowed back.

7 Q. In your interactions with Jessie, did you ever learn how
8 long he had been meditating for?

9 A. Yes. He shared he had been meditating for about 20 years,
10 I believe.

11 Q. Based on your interactions with Mr. Hoffman, how was he
12 practicing Buddhism?

13 A. He was definitely practicing daily, I'm not exactly sure
14 how long per day, but he was definitely practicing the Buddhist
15 meditation every single day, and reading books, as he stated
16 earlier.

17 Q. Is breathing an essential way of practicing Buddhism?

18 A. Yes. I will try to be brief, but in every sect of
19 Buddhism, breathing meditation takes some form. In one of the
20 most revered scriptures of the Buddha called Anapanasati, it is
21 a detailed guidance on how to practice breathing meditation. I
22 bring this up only because that detailed instruction also goes
23 on to talk about how to be mindful of your feelings, your
24 emotions, your body, how to stay calm, how to have insight.
25 And the whole fundamental -- all of that is based on the

1 breath. The breath is the vehicle to liberation in Buddhism.
2 It is essential. They are kind of non -- you can't really
3 tease them apart.

4 Q. Does that breathing meditation require the ability to
5 breathe air?

6 A. Yes.

7 Q. Based on your interactions with Mr. Hoffman, was he a
8 committed and devout Buddhist?

9 A. Absolutely.

10 Q. Reverend Michaela, why are you here today?

11 A. I learned of a warrant for Jessie's execution and that it
12 was to be done by nitrogen hypoxia, and I believe that it would
13 interfere with his ability to practice Buddhism at the end of
14 his life, so I wanted to come testify.

15 Q. Are you being paid for your time on the stand today?

16 A. No.

17 Q. And how would death by nitrogen hypoxia prevent
18 Mr. Hoffman from practicing Buddhism?

19 A. So if he is breathing in nitrogen, he is not breathing in
20 air. So it's not necessarily the inhale and the exhale of any
21 old gas. It's the air that nourishes your body that keeps you
22 calm that is a function of being alive and breathing. So if
23 that is not available, he has -- he cannot put his awareness on
24 that breathing and thus cannot follow that practice.

25 Q. Have you ever had an experience where you were prevented

1 from being able to engage in that kind of breathing meditation?

2 A. At Mid City --

3 **MS. TOMENY:** Your Honor, I'm going to object to the
4 relevancy of her own experience.

5 **THE COURT:** Overruled.

6 A. When COVID-19 hit and we had -- Mid City Zen had gone to
7 to a virtual format, we wanted to return together in person.
8 So a few of us tried to meditate with our masks on, our N95s,
9 and after, we just decided there is no way we can do this. So
10 we actually decided to go back to virtual because we couldn't
11 breathe smoothly through that mask.

12 **BY MS. POURCIAU:**

13 Q. Is it especially important to practice the breathing
14 meditation at the time of death?

15 A. Yes. So in Buddhism, your final moments are very
16 important, and so they -- if you have traumatic final moments,
17 they can negatively impact what's called the Bardo, which is
18 the realm between death and then your next rebirth. So your
19 consciousness can really struggle in that realm and it can lead
20 to negative rebirth as well.

21 **MS. POURCIAU:** No further questions, Your Honor.

22 **CROSS-EXAMINATION**

23 **BY MS. TOMENY:**

24 Q. All right. Good morning, Reverend Bono. My name is
25 Caroline Tomeny. I represent the state. You don't have any

1 medical training at all, do you?

2 A. I do not.

3 Q. All right. And you do not have a degree in physiology or
4 exercise science, anatomy, anything like that?

5 A. I do not.

6 Q. You don't have any experience with full-face respirator
7 masks, do you --

8 A. Having worn one?

9 Q. Just any experience. Have you seen one?

10 A. Yes.

11 Q. Have you worn one?

12 A. I have.

13 Q. Okay. All right. So you have said that Mr. Hoffman's
14 Buddhist practice is breathing meditation; is that right?

15 A. Yes.

16 Q. All right. And you would agree that breathing is the act
17 of inhaling and exhaling into and out of the lungs; is that
18 right?

19 A. Yes.

20 Q. And as long as you can inhale and exhale, you can practice
21 meditative breathing, right?

22 A. No. You would -- can I explain?

23 **THE COURT:** You may.

24 A. You would need to be breathing in air, and, you know, I
25 don't know the exact composition of air. I know it has oxygen,

1 so you would need to be breathing air.

2 **BY MS. TOMENY:**

3 Q. Were you aware that air also contains nitrogen?

4 A. Yes.

5 Q. Okay. Are you aware of any -- can you point to any
6 Buddhist texts that say that meditative breathing requires
7 oxygen to be present?

8 A. The word -- using the word oxygen?

9 Q. Yes.

10 A. I can't think of any right now, but I can certainly search
11 and get you that.

12 Q. All right. Now, the focus of meditative breathing is on
13 the act of breathing; is that right?

14 A. It is actually on the breath itself coming in through the
15 nostrils all the way down to the body and then back up. So the
16 motion and the sensation of the air is also important in
17 noticing.

18 Q. Okay. So if something is getting pumped into you to
19 breathe in and breathe out, you can still meditate, right?

20 A. No.

21 Q. No? All right. You mentioned earlier that you had an
22 experience where you tried to practice meditative breathing
23 while wearing an N95 mask; is that right?

24 A. Yes.

25 Q. When you were wearing that mask, no air was being pumped

1 into that mask; is that right?

2 A. That's correct.

3 Q. You were just --

4 A. Correct, yeah.

5 Q. Is it possible to practice meditative breathing while
6 falling asleep?

7 A. Yes.

8 Q. Do you have any -- you mentioned that you have worn a
9 full-face respirator mask, but do you have any familiarity
10 with -- I guess with the mask that will be used for
11 Mr. Hoffman's execution?

12 A. I do not.

13 Q. And do you have any familiarity with, you know, how gas
14 will be pumped into the mask?

15 A. I understand that it would be pure nitrogen.

16 Q. Okay. And do you have any knowledge as to -- any
17 awareness that Mr. Hoffman may have when the nitrogen would be
18 turned on?

19 A. I do not.

20 Q. And do you -- do you have any information -- do you know
21 whether Mr. Hoffman would be prevented from breathing in and
22 breathing out while he is wearing the mask?

23 A. He would be breathing in nitrogen, to my understanding.

24 Q. Okay. But he will be able to -- he would be breathing in
25 and out, is that right, to your knowledge?

1 A. That's right.

2 **MS. TOMENY:** Thank you. I have no further questions.

3 **THE COURT:** Redirect?

4 **MS. POURCIAU:** No redirect, Your Honor.

5 **THE COURT:** Thank you. You may step down. Do you
6 have a quick witness? Call your next witness. We will take a
7 break about 10:45 for a few minutes.

8 **MR. CHAN:** Good morning, Your Honor. Mr. Hoffman
9 calls Dr. Frederic Sautter to the stand as the next witness.

10 **THE COURT:** You are Mr. Chan, correct?

11 **MR. CHAN:** Yes.

12 **(OATH ADMINISTERED.)**

13 **DEPUTY CLERK:** State your name and spell it for the
14 record.

15 **THE WITNESS:** I'm sorry. I didn't hear you.

16 **DEPUTY CLERK:** Please state your name and spell it
17 for the record.

18 **THE WITNESS:** Frederic, F-R-E-D-E-R-I-C, James,
19 J-A-M-E-S, Sautter, S-A-U-T-T-E-R, Jr.

20 **DR. FREDERIC SAUTTER,**
21 **having first been duly sworn, testified as follows:**

22 **DIRECT EXAMINATION**

23 **BY MR. CHAN:**

24 Q. Good morning, can you please introduce yourself to the
25 Court.

1 A. I'm Dr. Frederic James Sautter, Jr.

2 Q. Where do you currently reside, Dr. Sautter?

3 A. I live in New Orleans, Louisiana.

4 Q. How long have you been living there?

5 A. I've been living there for about 30 years.

6 Q. Dr. Sautter, where did you go to college?

7 A. As an undergraduate, I went to Bradley University.

8 Q. Where is that?

9 A. That is in Peoria, Illinois.

10 **MR. ROBERT:** Excuse me.

11 **THE COURT:** Mr. Robert?

12 **MR. ROBERT:** Yes, Your Honor. If this will move this
13 along, we are willing to stipulate that Dr. Sautter has
14 expertise in clinical psychology with an emphasis on PTSD.

15 **THE COURT:** What's your tender, Mr. Chan? What field
16 are you tendering?

17 **MR. CHAN:** Those exact fields that Mr. Robert just
18 mentioned, as well as trauma disorders.

19 **THE COURT:** Trauma disorders too, Mr. Robert?

20 **MR. ROBERT:** I don't have any objection to that, Your
21 Honor.

22 **THE COURT:** Okay. The defendants stipulate that Dr.
23 Sautter can give opinion testimony in the fields of clinical
24 psychology with specialization in PTSD and trauma disorders.
25 The Court will recognize him as an opinion witness in those

1 fields.

2 **BY MR. CHAN:**

3 Q. Dr. Sautter, do you know why you are here today?

4 A. Yes, I do.

5 Q. Why are you here?

6 A. I'm here to testify about the psychological problems that
7 Jessie Hoffman has, has had to deal with for his life.

8 Q. You are also here to testify about the impacts, if any, of
9 execution by nitrogen hypoxia would have on him?

10 A. I have some ideas.

11 Q. Okay. So we are going to talk about mental health related
12 opinions you have about Mr. Hoffman that you previously gave on
13 two occasions. Do you hold those opinions, as well as any
14 opinions that you give today, to a reasonable degree of medical
15 and scientific certainty?

16 A. Definitely, yes.

17 Q. Before we get to those opinions, can you tell us if you
18 are being paid for your time in Court today?

19 A. Yes, I'm being paid.

20 Q. Has that payment affected the opinions you are about to
21 give in any way?

22 A. No.

23 Q. Dr. Sautter, let's discuss the first time that you met
24 Mr. Hoffman. Do you recall meeting him in 2003?

25 A. Yes, I do.

1 Q. Do you see Mr. Hoffman in court today?

2 A. Yes, I do. I'm trying to find him, but he's there.

3 Q. Can you please describe to the Court how you first met
4 Mr. Hoffman?

5 A. I met Mr. Hoffman because I had been hired to conduct an
6 evaluation to determine whether he had any psychological
7 problems that might have played a role in a homicide that had
8 led to him being imprisoned.

9 **MR. CHAN:** Can you pull up Exhibit 20, but don't
10 publish it, and go to page 15 of Exhibit 20.

11 **BY MR. CHAN:**

12 Q. Dr. Sautter, beginning on page 15 of Exhibit 20 -- of
13 Plaintiff's Exhibit 20, do you see the first page of your
14 psychological evaluation from 2003?

15 A. I'm trying to do this thing here.

16 **THE COURT:** Can he make it bigger, Suzie? I can't
17 remember.

18 **DEPUTY CLERK:** No. Well, is it being admitted?

19 **MR. CHAN:** It's about to be.

20 **DEPUTY CLERK:** Well, I can't show it to the gallery.

21 **MR. ROBERT:** I have no objection to it.

22 **MR. CHAN:** I move for admission, Your Honor, of
23 Plaintiff's Exhibit 20. So that there's no confusion, it is
24 only the clinical evaluation that is part of Exhibit 20, not
25 the remainder of Exhibit 20.

1 **THE COURT:** Okay. Exhibit 20 is admitted without
2 objection.

3 **DEPUTY CLERK:** If that is all you are going to admit,
4 then you need to submit the portion that you are going to --

5 **THE COURT:** Is that all you've up loaded into JERS is
6 the part that you are admitting?

7 **MR. CHAN:** No, it is part of a larger document, but
8 we can upload a revised version that is only the admitted
9 version.

10 **THE COURT:** Mr. Robert?

11 **MR. ROBERT:** Your Honor, I'm stipulating to the
12 entirety of -- I mean, I'm not objecting to the admission of
13 the entirety of the 2003 report.

14 **THE COURT:** For the rule of completeness, the Court
15 would allow that. So the entire Exhibit 20 is admitted.

16 **MR. CHAN:** We will accept that stipulation.

17 **BY MR. CHAN:**

18 Q. Dr. Sautter, as part of your evaluation, can you tell us
19 what you learned about Mr. Hoffman's background?

20 A. I learned that he came from a family where almost everyone
21 had suffered from a diagnoseable mental illness. I learned
22 that he had been exposed to, you know, a lot of trauma, that
23 there was a lot of trauma that occurred within the family as he
24 was growing up because all of his relatives suffered from a
25 mental illness that affected their behavior, and, you know, as

1 a result, he was exposed to things that were really at times
2 life -- could threaten his life. He was beaten.

3 You know, as has been mentioned previously, he asked to
4 get into a cage and get into small spaces or kind of
5 claustrophobic as punishment, just a lot of parenting practices
6 that would meet PTSD Criteria A really for traumatic events.

7 Q. Do you recall how he was treated by his mother?

8 A. He was treated terribly by his mother. His mother really
9 did not have good parenting practices. She would punish him in
10 ways that were cruel and just abuse him.

11 Q. And what were the results of your assessment of
12 Mr. Hoffman during the evaluation?

13 A. I diagnosed Mr. Hoffman with post-traumatic stress
14 disorder, and also with -- well, the name of it is psychotic
15 disorder NOS. NOS is "not otherwise specified." You know, he
16 was psychotic.

17 Q. Did you get any impression one way or another as to
18 whether Mr. Hoffman was somehow faking the fact that he may
19 have had PTSD?

20 A. A standard part of doing a psychological evaluation on a
21 legal thing like this is to, you know, do some kind of formal
22 assessment with an instrument that has been shown to be
23 reliable and valid to identify people who are malingering. So
24 I gave one of the malingering tests, and I don't think he
25 scored a single point.

1 Q. And just for everyone's awareness, what exactly does the
2 word "malingering" mean?

3 A. Malingering means lying in order to look crazy.

4 Q. Did you conclude one way or another whether Mr. Hoffman
5 was easily susceptible to panic attacks?

6 A. Yes. I mean, clearly he has PTSD. So anybody with PTSD,
7 when people with PTSD are confronted with a stimuli that
8 reminds them of a traumatic event they experienced, they, you
9 know, develop increases in the symptoms of PTSD.

10 Q. Okay. Your 2003 evaluation, though, didn't mention
11 claustrophobia. Does that mean that he can never develop
12 claustrophobia?

13 A. No.

14 Q. And why not?

15 A. I mean, he could. He could develop claustrophobia easily.
16 There's no reason, nothing -- no reason to think that he
17 couldn't.

18 **MR. ROBERT:** Your Honor, I'm going to object to this
19 questioning. He's an expert. It's not anywhere in his
20 declaration. It's not anywhere in his 2003 report. He has
21 given no opinions on claustrophobia at any time prior to his
22 testimony today, and I think it's outside his scope of his
23 expertise.

24 **THE COURT:** Did he address it in his declaration? I
25 looked at his declaration, and I don't recall seeing

1 claustrophobia.

2 **MR. CHAN:** Your Honor, he did not, but he was here in
3 court listening to the testimony, and we are merely asking, or
4 I'm preemptively asking why -- if it's not in his evaluation,
5 if that is going to somehow mean that he can't get
6 claustrophobia at a later time, he meaning Mr. Hoffman.

7 **THE COURT:** But you retained him, he has examined
8 Mr. Hoffman twice, according to his report or his declaration,
9 and he has not addressed claustrophobia and he did not address
10 claustrophobia in his declaration. So how are the defendants
11 to make a defense with no notice?

12 **MR. CHAN:** Well, I just want to make sure that
13 there's going to be no line of questioning about, well, if he
14 didn't address it then, that necessarily means he can't have
15 claustrophobia.

16 **THE COURT:** I will allow that one question.

17 **MR. CHAN:** Yeah, and that's what I was getting at,
18 Your Honor.

19 **THE COURT:** All right. Your objection as to that
20 question is overruled, but the Court will not entertain opinion
21 testimony about claustrophobia.

22 **BY MR. CHAN:**

23 Q. Dr. Sautter, your 2003 evaluation did not diagnose
24 Mr. Hoffman with claustrophobia. Does that necessarily mean
25 that Mr. Hoffman can never have claustrophobia?

1 A. No, it doesn't exclude that from happening.

2 Q. And before we get into your next evaluation of Mr.
3 Hoffman, can you just briefly describe some symptoms of PTSD or
4 post-traumatic stress disorder?

5 A. The symptoms of post-traumatic stress disorder are, first,
6 exposure to a traumatic event, something that has to be
7 life-threatening potentially. The symptoms are hyperarousal,
8 which is an increase in, you know, strong negative emotions,
9 avoidance symptoms, avoidances, avoiding memories, things that
10 remind you of your trauma, reexperiencing symptoms are not so
11 much -- well, they're symptoms, but it's when a person is
12 exposed to a stimuli that reminds them of a traumatic event.
13 And when that occurs, because of Pavlovian classical
14 conditioning, there is a conditioned emotional response, and
15 with that conditioned emotional response, when a person sees
16 the stimuli that was present when they were traumatized, our
17 brains kind of automatically go to a previous time when, you
18 know, a threatening event occurred.

19 So people will see trauma reminders, and they will
20 remember the emotions and the memories that they had, the
21 cognitions that they had when a traumatic event occurred. That
22 is called "getting triggered."

23 Q. Dr. Sautter, let's move to your second evaluation of
24 Mr. Hoffman. Did you meet with Mr. Hoffman on February 11th of
25 2025?

1 A. Yes, I did.

2 Q. And on that date, did you assess his mental health?

3 A. Yes, I did.

4 Q. As part of your clinical assessment, did you review any
5 records related to Mr. Hoffman between 2003 and 2025?

6 A. No.

7 Q. And why not?

8 A. Well, it's standard practice with the people who are
9 involved with treating him. And, you know, if you look at any
10 medical record, you know, there are, you know, frequent reports
11 of symptoms and problems that people are experiencing. And,
12 you know, his clinicians that I know and -- were involved in
13 kind of managing him, are getting these reports on almost a
14 daily basis, certainly on a weekly basis, that report problems
15 that he would be experiencing.

16 Q. And without seeing those records, did that affect your
17 ability to assess Mr. Hoffman's mental health?

18 A. No.

19 Q. And why not?

20 A. Well, there's nothing to -- you know, there was no reason
21 to, you know -- I have no knowledge of anything that would
22 affect the testing, and I felt that any problem that was
23 relevant I would be able to pick up with my assessment
24 instruments.

25 Q. And when you saw Mr. Hoffman last month, did you conduct

1 the same or substantially similar assessment to the one you did
2 in 2003?

3 A. No.

4 Q. And why not?

5 A. Well, it wasn't necessary, you know. I know the disorder
6 he has is a chronic disorder, and I know from reports that have
7 been going to his clinicians and to the team are indicating
8 that there's no big, you know, changes in terms of what kind of
9 problems he has.

10 Q. During your clinical assessment last month, what findings
11 did you make with respect to Mr. Hoffman's mental health?

12 A. Could you repeat that question?

13 Q. Yeah. During your clinical assessment last month, what
14 findings did you make with respect to Mr. Hoffman's mental
15 health?

16 A. Well, the most dramatic thing that was rather clear was
17 that he was managing his PTSD. So, you know, he's got a
18 chronic disorder that is, you know, very difficult to manage.
19 You know, I've treated, you know, hundreds of people with
20 post-traumatic stress disorder, and, you know, very few are
21 able to be successful in managing it to the extent that he was.
22 And, you know, I was very taken by that, and I asked him, you
23 know, how that happened. And that's when he began telling me
24 about Buddhism and the breathing.

25 Q. So it's your understanding that he has been able to manage

1 his PTSD through his practice of Buddhism?

2 A. Well, at least through his practice of breathing, which he
3 tells me -- he told me that he learned that through Buddhism.
4 That was a major thing when I -- that I found out during that
5 visit.

6 Q. Okay. Can you educate us as to an example of a benefit of
7 gaining control or being able to manage your PTSD -- managing
8 PTSD?

9 A. Well, when I was talking about what the symptoms of PTSD
10 are, you know, I indicated that when a person is exposed to
11 something that reminds them of their trauma, that they begin to
12 have reexperiencing symptoms, which means that their traumatic
13 event, their memory and the emotions instantly kind of flood
14 their being, and, you know, it seemed that Jessie had learned
15 to calm himself when he started to get triggered, and, you
16 know, by doing that, he's, you know, decreasing the activity of
17 his sympathetic nervous system, his panic, his fear, that are
18 the essence of what a reexperiencing symptom is. It just gets
19 calmed down, which kind of blew my mind. It's really amazing
20 the extent to which, you know, he has learned to adopt
21 practices that enable him to stop reexperiencing symptoms,
22 which doesn't mean that they are totally gone, but they are
23 significantly minimized.

24 Q. So if Mr. Hoffman was able to manage his PTSD, does that
25 mean he was free and clear of PTSD?

1 A. No.

2 Q. And why not?

3 A. Because -- well, for many reasons. You know, I mentioned
4 that one of the symptoms is avoidance, and it's natural to not
5 want to be triggered. And -- could you repeat the question? I
6 think I'm wandering away from it.

7 Q. Okay. No problem. So with Mr. Hoffman being able to
8 control his PTSD, does that mean that he was free and clear of
9 PTSD, that he was somehow cured of PTSD?

10 A. No, because when he encounters another trauma reminder,
11 perhaps it is different, you know, he can get triggered again,
12 and that's frequently what happens. You know, I worked for 30
13 years at the Department of Veterans Affairs treating PTSD, and
14 frequently people would have an evidence-based PTSD treatment,
15 which has become the standard called prolonged exposure
16 therapy, and, you know, people will go -- veterans will go
17 through that, will get below the diagnostic threshold for PTSD,
18 and then they will walk down the street and, you know, they
19 will hear a gunshot, and that's a trauma reminder. And very
20 often that will start to increase those PTSD symptoms.

21 So the reexperiencing, you know, the hyperarousal,
22 feelings of discomfort. So if they don't have a way of dealing
23 with that, basically they start reexperiencing PTSD, the
24 criteria.

25 Q. So if Mr. Hoffman has been able to manage his PTSD, what

1 would that mean with respect to whether or not he would
2 experience panic attacks in the future?

3 A. He can easily experience panic attacks if he sees a
4 stimuli that triggers anxiety. You don't stop --
5 unfortunately, and that's why PTSD is so hard, because you can
6 make it better, but you can still be susceptible to getting
7 stimuli that will remind you of trauma and then kind of bring
8 back the entire syndrome, which doesn't mean that people can't
9 do it. People do do it. But that's one of the major things I
10 do now in my private practice.

11 Q. So Mr. Hoffman, in your opinion, is still susceptible to
12 being triggered by traumatic memories and events?

13 A. Yes, of course.

14 Q. Dr. Sautter, what is your understanding as to how the
15 State of Louisiana plans to execute Mr. Hoffman?

16 A. My understanding is that at the present time, they would
17 use the -- what is -- I'm blocking on the name. It is
18 embarrassing.

19 Q. You can use layman's terms to describe it.

20 A. Nitrogen. So they put a mask on that introduces nitrogen
21 and excludes oxygen. Nitrogen replaces oxygen. So as soon as
22 you get nitrogen in there, then they have less oxygen, and
23 because they have less oxygen, they die.

24 Q. Is the term you were looking for nitrogen hypoxia?

25 A. Yes. Hypoxia.

1 Q. Yeah. Have you read the State of Louisiana's execution
2 protocol with respect to hypoxia?

3 A. Yes, I have.

4 Q. Have you seen pictures of the gas chamber that the State
5 is going to use?

6 A. Yes.

7 **MR. ROBERT:** Objection, Your Honor, to the
8 characterization of it as a gas chamber.

9 **THE COURT:** I can make the distinction. Thank you
10 for pointing it out. Overruled.

11 **BY MR. CHAN:**

12 Q. Dr. Sautter, do you recall Mr. Hoffman telling you
13 anything about his execution by nitrogen hypoxia during your
14 meeting with him last month?

15 A. Yes, I do.

16 Q. What do you remember from that?

17 A. That he was scared and, you know, really kind of freaked
18 out by the idea of not being able to breathe and, you know,
19 actually started getting kind of panicky when he was talking
20 about it.

21 Q. Well, if Mr. Hoffman has control or is able to manage his
22 PTSD, why would he get freaked out, as you said, about being
23 executed by nitrogen hypoxia?

24 A. Because when I was using the word "getting triggered"
25 before, which is the essence of his many ways of PTSD, which

1 caused by a classical conditioned response -- it is Pavlovian
2 conditioning. So it is actually rather simple despite the fact
3 it is so deadly. And, you know, if he is triggered, then if he
4 is anxious, if he feels threatened, if his life is threatened,
5 certainly if he thinks he is going to die, he is going to
6 become susceptible to having some PTSD symptoms, to having
7 those reexperiencing symptoms.

8 The reexperiencing symptoms, as I mentioned, you know,
9 consist of, you know, almost reliving the emotions that you had
10 when you were traumatized, as well as having, like, you know,
11 visions of what happened, and it can really, like, take you
12 back there.

13 So -- and the Buddhist breathing techniques apparently
14 allowed him to kind of address those kinds of things when it
15 happened so that it would calm him down so he could stay away
16 from PTSD.

17 Q. Do you have any opinion as to whether oxygen deprivation
18 would increase or decrease the likelihood of panic attacks for
19 Mr. Hoffman?

20 A. I would think that it would, yes.

21 Q. Do you have an opinion as to whether Mr. Hoffman would
22 reexperience traumatic events and memories and emotions if he
23 were to be executed by nitrogen hypoxia?

24 A. Yes. I mean, anybody -- it's really, like, standard stuff
25 in PTSD. I don't mean to insult anybody, but it's pretty clear

1 when you have a life-threatening event, it scares the shit out
2 of you, especially if you've been previously exposed to events,
3 you know, that almost killed you.

4 Q. Yeah.

5 A. And you get triggered, so it comes back.

6 Q. Okay. What would be the impact on Mr. Hoffman of
7 reexperiencing trauma, whether it is memories or events?

8 A. He would remember -- he would reexperience the emotions.
9 The powerful negative emotions would kind of come flooding in,
10 and he would remember the -- some of the things that he
11 associates with, you know, his first experiences, when he felt
12 those strong negative emotions, negative emotions being, like,
13 you know, being terrified.

14 To be a Criteria A, traumatic event, it has to be
15 life-threatening or it doesn't count.

16 Q. Would reexperiencing trauma cause severe psychological
17 harm or pain and suffering?

18 A. Well, if you have PTSD, it means you are having a total
19 relapse into PTSD, which means you are going back to
20 life-threatening events that have ruined your life.

21 Q. Why would Mr. Hoffman reexperience trauma from execution
22 by nitrogen hypoxia if none of the trauma he experienced as a
23 child or adolescent involved choking or suffocation?

24 A. Because it's -- when you get afraid, when you have a
25 life-threatening event, it doesn't just cause you to get

1 afraid. It is life-threatening. It is kind of a natural
2 response to start to choke on yourself. I mean, that's a
3 natural response to high levels of fear and having your life
4 threatened.

5 Q. So, in your opinion, what will execution by nitrogen
6 hypoxia do to Mr. Hoffman?

7 A. Well, when somebody has PTSD, there is recent research
8 showing that, you know, besides the fact that you have a
9 vulnerability to getting triggered again, there is actually
10 areas in the brain that mediate the fear response, that those
11 areas maintain their sensitivity for very long periods of time.
12 They are somewhat permanent. And those are the areas that get
13 turned on when you see something that is a trauma reminder.

14 It is simple. It is just like Pavlov's dogs. Everybody
15 knows about the Pavlovian experiment where they start
16 salivating because they have been classically conditioned to
17 food. Well, he has been classically conditioned to fear and
18 fear of death. And the things that are associated with that,
19 with fear of death, if anybody in this room started having the
20 fear of death, you would find you would start to lose your
21 breath a little bit. I mean, it takes your breath away.

22 Q. Is it fair to say that this is all sort of psychological
23 distress that he would experience?

24 A. Yes.

25 Q. And in your opinion, is psychological distress, is that

1 real pain?

2 A. It's just the terrible emotions and losing control of your
3 emotional state, you know, which then affects your ability to
4 think logically. You know, when we say, when somebody is
5 getting mad, "they are losing it," that's what it is. They are
6 losing the ability to regulate their emotions and their
7 thoughts.

8 Q. And then, finally, in your opinion, will Mr. Hoffman be
9 able to practice Buddhist breathing techniques while under
10 psychological distress?

11 A. Yes.

12 Q. He will be able to practice breathing techniques while
13 under psychological distress?

14 A. Well, if he can practice the breathing, then he will be
15 able to decrease his distress, if he is able to do the
16 breathing.

17 Q. Will he be able to do breathing while being executed by
18 nitrogen hypoxia?

19 **MR. ROBERT:** Objection, Your Honor. This is just
20 pure speculation.

21 **THE COURT:** Beyond his expertise. Sustained.

22 **BY MR. CHAN:**

23 Q. Dr. Sautter, is it cruel to subject someone like
24 Mr. Hoffman to extreme psychological distress?

25 A. Would you repeat the question?

1 Q. Is it cruel to subject --

2 **MR. ROBERT:** Your Honor, I object again. I don't
3 know that his expertise extends to cruelty.

4 **THE COURT:** Sustained. It's the ultimate question.
5 Sustained.

6 **BY MR. CHAN:**

7 Q. Dr. Sautter, so in your opinion, what will execution by
8 nitrogen hypoxia do to Mr. Hoffman?

9 A. It will probably cause him to reexperience the worst
10 emotions and fear. Terrible life events he's ever had in his
11 life will come flooding back.

12 **MR. CHAN:** No further questions, Your Honor.

13 **THE COURT:** Cross.

14 **CROSS-EXAMINATION**

15 **BY MR. ROBERT:**

16 Q. Good morning, Mr. Sautter.

17 A. Good morning.

18 Q. In 2003, you did a clinical assessment, correct?

19 A. That's correct.

20 Q. And during that assessment, you diagnosed Mr. Hoffman as
21 having PTSD, correct?

22 A. That's true.

23 Q. And there was no mention in that report whatsoever about
24 claustrophobia, correct?

25 A. That is true.

1 Q. And there was another psychologist at or around that time,
2 Dr. Elaine Salzar, who saw Mr. Hoffman and evaluated him. Do
3 you recall that?

4 A. I recall seeing that, yes.

5 Q. Yeah. It's in your report, isn't it?

6 A. Pardon me?

7 Q. It is mentioned in your 2003 report, isn't it?

8 A. It should be.

9 Q. Okay. And Dr. Salzar didn't find that Mr. Hoffman had
10 PTSD, correct?

11 A. That was her conclusion, yes.

12 Q. That's right. And that's in your report, correct?

13 A. Yes.

14 Q. And when you saw Mr. Hoffman in 2003, you didn't recommend
15 or you don't recall recommending any course of treatment for
16 him, for his PTSD, correct?

17 A. I wasn't asked to, no.

18 Q. Okay. And you don't know if he ever asked anybody at
19 Louisiana State Penitentiary for any kind of mental health
20 treatment, correct?

21 A. No, that's false. I'm in contact with people who are --
22 you know, see the medical reports that come in on a daily
23 basis --

24 Q. Who were you in contact with?

25 A. I was in contact -- I hate to, like, not remember names of

1 people when I'm looking at them, but -- so I'm looking at her
2 right there, and I'm blocking on her name. There are any
3 number of people.

4 Q. Were you in contact with any of the mental health
5 professionals at Angola?

6 A. Pardon? I didn't get that.

7 Q. Did you have any conversation or communication with any of
8 the mental health professionals at Angola about Mr. Hoffman?

9 A. Not until this case became relevant.

10 Q. And who did you talk to that was a mental health
11 professional that worked for Angola?

12 A. I didn't say they worked for Angola. I said the people
13 who would have access to be able to look at records.

14 Q. Okay. And what people would that be?

15 A. One of them is the woman I'm looking -- I'm pointing --

16 **THE COURT:** So for the record, Mr. Hoffman's lawyer,
17 one of Mr. Hoffman's lawyers.

18 A. Yeah.

19 **BY MR. ROBERT:**

20 Q. Did you actually review any mental health records of
21 Mr. Hoffman after 2003?

22 A. No, I didn't.

23 Q. Okay. And you had had no contact and no follow-up with
24 Mr. Hoffman between the time you issued that report in 2003
25 until the time that you saw him in February of 2005, correct?

1 A. No, that's not true.

2 Q. Okay. When did you have contact or communication with him
3 in that interim?

4 A. Well, I can find out about how he is doing without coming
5 into contact with him. I know two of the -- probably the
6 biggest experts in the world in post-traumatic stress disorder
7 who did evaluations of him, and you know, I've read those
8 evaluations. They have more validity and reliability than any
9 observation of anybody else I know.

10 Q. Mr. Sautter, my question was pretty simple. My question
11 was, did you have any contact or communication with Mr. Hoffman
12 between 2003 and February of 2025?

13 A. No, I didn't.

14 Q. Now, after 20-plus years, you met with Mr. Hoffman again
15 in February of 2025; is that correct?

16 A. That is true.

17 Q. And you interviewed him at that time, correct?

18 A. Yes.

19 Q. And he reported to you that he was capable of
20 self-regulating his emotions, thoughts and behavior, correct?

21 A. That's what I heard. He didn't use those words.

22 Q. Well, that's what you put in your declaration, isn't it?

23 A. I put my words because I know what it means. So if
24 somebody says they can't -- that they are increasing their
25 ability to manage their emotions and their thoughts and they're

1 having less behavioral problems, then any licensed psychologist
2 ought to know that they are beginning to get better at emotion
3 regulation because that underlies that type of thing.

4 Q. So that's what he related to you, correct?

5 A. He related the information that allowed me to make that
6 inference.

7 Q. And you made that inference in your report, correct?

8 A. I believe so.

9 Q. Or your declaration. I'm sorry. I don't know if you
10 termed it a report or a declaration.

11 A. Declaration.

12 Q. But either one, you submitted something in connection with
13 this litigation, right?

14 A. Yes.

15 Q. And you also said in that declaration that his clinical
16 presentation had improved. Isn't that correct?

17 A. Could you repeat that?

18 Q. You also said in your declaration that his clinical
19 presentation had improved, correct?

20 A. Yes.

21 Q. And you also said in your declaration that it had improved
22 through a commitment to Buddhism and Buddhist breathing
23 techniques, correct?

24 A. That is absolutely correct, and I would still say that.

25 Q. Now, let's talk about PTSD. And you've given some

1 opinions on PTSD, and you say that it is likely that he will be
2 triggered, his PTSD may be triggered in this particular case.

3 A. I said it will be.

4 Q. Will be. Okay. In your declaration and on the stand
5 today, you said a hallmark symptom of PTSD is reexperiencing
6 it, right? The trauma.

7 A. It's a -- it's one of the symptoms.

8 Q. So it's one of the symptoms?

9 A. Yes.

10 Q. And you also said in your declaration that "further trauma
11 occurs when a trauma survivor is exposed to a stimulus that
12 they associate with their trauma." Have you said that?

13 A. Yes.

14 Q. Is that correct?

15 A. That's exactly what I said.

16 Q. Okay. And none of the trauma, back in 2003, when you
17 wrote your report, you didn't write anything in your report
18 about Mr. Hoffman having any trauma as a result of being in
19 restraints, correct?

20 A. No, I didn't.

21 Q. Okay. And you didn't put in your report anything about
22 him having any prior trauma regarding being required to breathe
23 oxygen in a mask, correct?

24 A. Not that I recall.

25 Q. Okay. Now, your report in 2003 did specifically mention

1 that part of the trauma that he had previously experienced
2 involved being held at gunpoint on two occasions during an
3 armed robbery. Do you remember that?

4 A. No. I believe you, though.

5 Q. Did you put that in your report?

6 A. I don't remember every little thing I put in the report,
7 but I believe you.

8 Q. Okay. But if you put it in your report, that would have
9 been one of the traumas that you noted, correct?

10 A. It would be a traumatic event, yes, assuming that he was
11 experiencing a lot of fear when it happened. It's the
12 emotions.

13 Q. Right. And if he were put in front of a firing squad and
14 had numerous guns pointed at him, that would be the kind of
15 triggering event that may trigger his PTSD, correct?

16 **MR. CHAN:** Objection.

17 **THE COURT:** What's the nature of your objection?

18 **MR. CHAN:** Objection because it mischaracterizes the
19 alternative method being proffered.

20 **THE COURT:** Do you want to respond, Mr. Robert?

21 **MR. ROBERT:** It's my understanding that the
22 alternative method is to stand him in front of a firing squad.

23 **THE COURT:** Overruled. Restate your question for the
24 witness and for the Court actually.

25 **BY MR. ROBERT:**

1 Q. So if Mr. Hoffman is placed in front of a firing squad
2 with a number of guns pointing at him, that would likely
3 trigger his PTSD, correct?

4 A. That would depend on his emotional response.

5 Q. Okay. But you've sat up here today and talked about how
6 reexperiencing things that you've experienced before is
7 something that would likely trigger PTSD, didn't you?

8 A. That's true.

9 Q. And he previously experienced the trauma of being held at
10 gunpoint, correct?

11 A. That's true.

12 Q. And he related that to you in 2003, when you did your
13 report, didn't he?

14 A. You know, the fact -- I never said that he developed PTSD
15 because he had a traumatic event that occurred when guns were
16 pointed at him. And that's very important.

17 **MR. ROBERT:** If I could have one second, Your Honor.
18 I don't know if I highlighted it, but it is in this report.

19 **THE COURT:** Why don't we take a 15-minute break. We
20 are about 20 minutes past the time that I indicated that we
21 would take a 15-minute break. So we will be in recess for 15
22 minutes.

23 **MR. ROBERT:** Thank you very much.

24 **(RECESS TAKEN AT 11:05 A.M. UNTIL 11:25 A.M.)**

25 **THE COURT:** Mr. Robert, please resume.

1 **MR. ROBERT:** Thank you, Your Honor.

2 **BY MR. ROBERT:**

3 Q. Dr. Sautter, when we left off, we were talking about
4 traumas that Mr. Hoffman recounted to you in 2003. Do you
5 remember that, us talking about that a few minutes ago?

6 A. Yes, I remember.

7 Q. Okay. So I asked you if, in your 2003 report, you
8 recounted that he had had trauma involving being held at
9 gunpoint on two occasions during armed robberies, correct?

10 A. Correct.

11 Q. And you didn't remember that, correct?

12 A. No. I'm sorry.

13 Q. Well, let's just go -- let's look at your report. This is
14 page 6 of the report that you issued in 2003. You can see on
15 your monitor --

16 **THE COURT:** Have you got an exhibit number?

17 **MR. ROBERT:** It's Exhibit 20, Your Honor. I'm sorry.

18 **THE COURT:** And it's already been admitted, correct?

19 **MR. ROBERT:** Yes.

20 **THE COURT:** Okay. Proceed.

21 **BY MR. ROBERT:**

22 Q. Let's look at the highlighted portion of that. Okay? And
23 I will read it to you. You tell me if I've got it wrong.

24 A. Okay.

25 Q. It says, "In the violent communities in which Jessie

1 lived, gun-fire was reportedly an everyday hazard. Jessie
2 confirms having witnessed several shootings and stabbings and
3 numerous dead bodies on the streets." Okay?

4 I also highlighted, "In the year or so prior to the crime
5 for which he is convicted, Jessie Hoffman was robbed at
6 gunpoint twice." Okay. Did I read that correctly?

7 A. Yes.

8 Q. Okay. So does that refresh your memory that he recounted
9 that trauma to you in 2003?

10 A. That's true.

11 Q. Okay. So my question is, if he was placed in front of a
12 firing squad, isn't that the same kind of stimuli that would
13 trigger a PTSD response?

14 A. Not necessarily.

15 Q. No? Why not?

16 A. Because really it's the emotions, the emotional response
17 that you have. It's not necessarily, you know, the picture of
18 what you see.

19 Q. Okay. You stated in your declaration that reliving prior
20 traumatic experiences is a trigger for PTSD. You sat up here
21 today and you said that. You also said, you talked about the
22 Pavlovian response. Okay? Something triggers in your memory
23 what happened in the past that will trigger the PTSD. Do you
24 recall giving that testimony?

25 A. Yes.

1 Q. Okay. And so you sit here today and tell me that a gun
2 being pointed at him is not something that is going to trigger
3 that response. Is that your testimony today?

4 A. It's one of maybe a hundred different kinds of stimuli he
5 has been exposed to that are associated with traumatic events
6 that he has lived with his entire life. Now, those are not --
7 those are two things that happened, and they are things that
8 are expected in the neighborhood, which is not to belittle
9 them, but it's not going to be the primary stimulus that is
10 going to stay with him for the rest of his life.

11 Q. But you just acknowledged or you will acknowledge that it
12 is at least one of the stimuli, correct?

13 A. It is one of the stimuli that could. I never evaluated
14 that.

15 Q. Okay.

16 **MR. ROBERT:** That's all the questions I have, Your
17 Honor. I'm sorry.

18 **THE COURT:** Redirect.

19 **REDIRECT EXAMINATION**

20 **BY MR. CHAN:**

21 Q. Dr. Sautter, good morning, again. Is Mr. Hoffman's PTSD
22 more attributable to his childhood abuse or being robbed at
23 gunpoint?

24 A. His diagnosis was complex PTSD. He has had PTSD,
25 primarily first developed in response to his earlier

1 environment, and all of his symptom presentations are
2 consistent with complex PTSD, which is, you know, a form of
3 PTSD, and it increases your vulnerability later in life to
4 other trauma reminders, but it's the first trauma. And because
5 it happens before your personality is fully developed, it's
6 like -- it becomes more than a conditioned response. It
7 becomes part of who you are.

8 Q. And so when you are referring to the earlier environment,
9 is that the environment that included child abuse?

10 A. Yes.

11 Q. Dr. Sautter, do you use breathing techniques to treat your
12 patients with PTSD?

13 A. Yes.

14 **MR. ROBERT:** Your Honor, I'm going to object to that
15 question. I didn't go into any discussion of him using
16 breathing techniques in my cross-examination. He could have
17 talked to him about that in his direct.

18 **THE COURT:** Sustained.

19 **BY MR. CHAN:**

20 Q. Dr. Sautter, does nitrogen hypoxia undermine Mr. Hoffman's
21 ability to use his Buddhist breathing techniques?

22 **MR. ROBERT:** Same objection, Your Honor.

23 **THE COURT:** Sustained. You have to limit your
24 redirect to the scope of cross.

25 **BY MR. CHAN:**

1 Q. Dr. Sautter, there was some discussion with opposing
2 counsel about how Mr. Hoffman's presentation had improved when
3 you saw him in February of 2025. Do you remember that?

4 A. Yes.

5 Q. Despite that improved clinical presentation, does
6 Mr. Hoffman still have PTSD?

7 A. Yes.

8 Q. Does Mr. Hoffman, is he still susceptible to panic
9 attacks?

10 A. Yes.

11 Q. Triggered by an emotion of fear?

12 A. Yes.

13 Q. And notwithstanding that clinical -- improved clinical
14 presentation, does that mean that he won't get PTSD if he is
15 executed by nitrogen hypoxia?

16 A. Could you repeat the question?

17 Q. Sure. With the improved clinical presentation, does that
18 necessarily mean that Mr. Hoffman won't get PTSD if he is
19 executed by nitrogen hypoxia?

20 A. That doesn't matter. No, it doesn't. He could easily.

21 **MR. CHAN:** No further questions.

22 **THE COURT:** You may step down, sir.

23 **THE WITNESS:** Thank you.

24 **THE COURT:** Okay. We have a noon witness. They are
25 going to need about 15 minutes to set up this gizmo over here.

1 We can either take a lunch break now, come back at noon, that
2 makes the most sense, or take ten minutes worth of a witness.
3 If you think you have a witness you can finish by 11:45, I'm
4 willing to entertain it.

5 **MR. STRONSKI:** I think we should take lunch now, Your
6 Honor.

7 **THE COURT:** We are going to be in recess for lunch
8 until -- when can you get Dr. Capone on the video? At straight
9 up noon?

10 **MR. STRONSKI:** Yes, Your Honor.

11 **THE COURT:** We will resume court at five minutes
12 after 12. We will be in recess.

13 (RECESS TAKEN AT 11:33 A.M. UNTIL 12:05 P.M.)

14 **THE COURT:** The parties have agreed and the Court has
15 granted leave for the next witness to testify remotely by
16 video. Call your next witness, please.

17 **MS. POURCIAU:** Mr. Hoffman calls Lawrence Lee Capone,
18 Jr. Mr. Capone, can you unmute your microphone?

19 **THE WITNESS:** Yes, I can hear you.

20 **MS. POURCIAU:** We can hear you. We just can't see
21 you. There we go. Good afternoon, Mr. Capone. Can you please
22 introduce yourself to the Court.

23 **THE COURT:** We need to swear him in first.

24 **MS. POURCIAU:** Oh, I'm sorry.

25 **THE COURT:** Swear the witness in, please.

1 (OATH ADMINISTERED.)

2 LAWRENCE LEE CAPONE, JR.,

3 having first been duly sworn, testified as follows via Zoom:

4 DIRECT EXAMINATION

5 BY MS. POURCIAU:

6 Q. Good afternoon, Mr. Capone. Would you please introduce
7 yourself to the Court?

8 A. My name is Lawrence Lee Capone, Jr. I go by my middle
9 name, Lee. I'm a veterinarian that is licensed to practice
10 small animal medicine in the state of Louisiana. I've been
11 practicing for the last 45 years.

12 Q. Can you tell the Court a little about your experience as a
13 veterinarian?

14 A. I graduated in 1979 at LSU School of Veterinarian
15 Medicine. I was in their third graduating class. After
16 graduation, I went into practice in a small animal practice in
17 New Orleans, and then three years later, I opened up my own
18 veterinary practice, small animal practice in Mandeville,
19 Louisiana and named it Lakeshore Veterinary Hospital and Pet
20 Lodge. I practiced there for over 40 years, and I just
21 recently sold it to my associate.

22 Q. Where do you work today?

23 A. I'm still working full-time. I split my time between
24 Saints SPCA, which is a feline rescue in Hammond, Louisiana,
25 providing medicine and surgery. I also practice Big Sky Care,

1 which is a Low Cost Clinic in Folsom, Louisiana, and I provide
2 spay/neuter surgery, some nonroutine surgeries and other
3 veterinary medical procedures as they need them. And then
4 lastly, I work at the Low Cost Animal Medical Clinic in New
5 Orleans.

6 Q. What is your experience, if any, with the use of gassing
7 suffocation on animals?

8 A. In 1983, after I had opened my small animal practice, I
9 decided to offer my services to the local shelter, and I knew
10 that animals were being euthanized there, and they were using
11 gas euthanasia, but I really wasn't aware of how traumatic it
12 would be to witness it.

13 One particular day they were going to be doing
14 euthanasias, and they walked out the animals, young and old,
15 and began putting them in a very small concrete chamber that
16 was about maybe 15, 20 feet, about 15, 20 feet in just -- it
17 wasn't very high, maybe four feet high. It had a metal door
18 that reminded me of kind of the doors on, like, a wood-burning
19 stove, and they just continued to shove and push animals in
20 that were conscious until they couldn't get any more in and
21 then closed the door and began gassing them.

22 And I could hear them screaming and hollering. The sounds
23 were very loud at first, but with time, it subsided and there
24 were no longer any noises.

25 Q. Because the animals had died?

1 A. Yes.

2 Q. But it wasn't nitrogen gas that was used in that instance,
3 correct?

4 A. No, it was not. It was carbon monoxide. But the two
5 gases are different, but they still --

6 **MR. ROBERT:** Your Honor, I'm going to object to him
7 opining as to the effects of the two gases.

8 **MS. POURCIAU:** Your Honor, he is a Doctor of
9 Veterinary Medicine. He is a doctor. He can opine on --

10 **THE COURT:** Did I miss the tender?

11 **MS. POURCIAU:** I'm not tendering him as an expert,
12 but he has the -- so I am tendering him as an expert in
13 veterinary medicine.

14 **THE COURT:** Is there any objection to the tender in
15 the field of veterinary medicine?

16 **MR. ROBERT:** Yes.

17 **THE COURT:** There is an objection.

18 **MS. POURCIAU:** Your Honor, we filed a declaration by
19 the deadline the Court set on Monday at 9 a.m. with his
20 opinions. Nothing -- and this is in his declaration.

21 **THE COURT:** His objection is to the tender. Do you
22 want to cross on the tender? She needs to make a record on the
23 tender if she intends to do that, and then you can cross, but
24 what is your statement, sir?

25 **MR. ROBERT:** My objection is the fact that he gave a

1 declaration that includes no opinions with respect to his --
2 anything regarding the veterinary medicine. There's no
3 opinions. It's all statements of fact in his declaration.
4 That's the basis for my objection, not necessarily that he is
5 qualified as a veterinarian. No, I'm not objecting to that,
6 Your Honor.

7 **THE COURT:** You may respond.

8 **MS. POURCIAU:** So if he's not objecting to the
9 tender, then I would like to tender him as an expert in
10 veterinary medicine.

11 **THE COURT:** He said he is objecting to the tender.
12 Just because you are an expert in your field doesn't mean that
13 you are qualified to give opinion testimony. I think what Mr.
14 Robert is saying is that he objects to him giving opinion
15 testimony because his declaration had no opinions.

16 **MS. POURCIAU:** Mr. Capone, through his credentials,
17 is qualified to give an answer about the difference between
18 nitrogen and gassing because he has a doctorate. The
19 plaintiffs don't feel strongly that he needs to be tendered as
20 an expert, but on the basis of his credentials, as a fact
21 witness, even he can answer the question that he knows the
22 answer to.

23 **THE COURT:** Mr. Robert, even if he is not tendered,
24 can he testify -- I guess it is a lay opinion at that point. I
25 don't know that it's a lay opinion but whatever.

1 **MR. ROBERT:** Well, if it is a lay opinion, I don't
2 know that it provides anything that is going to help the trier
3 of fact, if it is a lay opinion as to whether he thinks there's
4 -- any of us think what the effects will be if it's not
5 scientific in any way.

6 **THE COURT:** I'm going to let him answer the question,
7 and I'm going to trust it to Mr. Robert's skilled
8 cross-examination.

9 **MS. POURCIAU:** Just for the record, plaintiffs want
10 to make a record that we offered Mr. Capone for a deposition
11 and defendants didn't depose him.

12 **THE COURT:** Okay. Noted for the record.

13 **BY MS. POURCIAU:**

14 Q. Mr. Capone, can you describe -- Dr. Capone, can you
15 describe why, even though the gas is carbon monoxide versus
16 nitrogen, they are similar in terms of the effects they would
17 have on living beings?

18 A. I mean, I think they both deprive the animal of oxygen,
19 which leads to asphyxiation.

20 Q. And were other states using nitrogen instead of carbon
21 monoxide at that time, if you know?

22 A. No. Most of them were using carbon monoxide. I mean, at
23 that time, when I witnessed that, I knew I had to try to make a
24 change, and immediately I went to our local channels to speak
25 to the reporters to see if we could get a story, and they did,

1 and the public was just as outraged as I was because no one
2 really was aware that they were doing that.

3 I mean, in our private practices, we were using injectable
4 euthanasia, so it took some time before we got the legislation
5 changed, but I offered my services, and we stopped doing the
6 euthanasia by gas and started using injectable euthanasia.

7 Q. Going back just a moment, what happened when the gas
8 chamber was unsealed, when you witnessed it?

9 A. Oh, well, I mean, when they opened the chamber and began
10 retrieving the animals, most of them had sort of a horrific
11 look on their faces. I mean, they had dilated pupils, open
12 mouths. Some had vomited, some had defecated, some had
13 urinated. It was pretty horrific to see it. Some of them had
14 all of those bodily functions when they drew them out. But as
15 I stood there and as they pulled them out and I witnessed that,
16 I mean, the only thing I was thinking of at the time was how
17 people were gassed at the concentration camps in the 1940s.

18 Q. Does that experience of witnessing the animals be gassed
19 still impact you today?

20 A. Oh, yes, absolutely. I mean, it's a vivid image even now.
21 I mean, all of these years later, I still can vividly see it.
22 It was very horrific, very traumatic. You try to suppress it,
23 but there are times when it comes back and it haunts you for a
24 long time.

25 Q. And you mentioned you were able to get public sentiment on

1 your side to stop this practice, and then later on, eventually,
2 it became outlawed officially in Louisiana. Why do you think
3 you were able to get people on your side so quickly, even
4 before -- and have the practice be stopped even before it was
5 officially outlawed?

6 A. Because I think the practice of gassing was so gruesome.
7 I mean, just the thought of animals being denied of oxygen and,
8 you know, the state of the animals that I visualized when they
9 came out of that chamber, once people heard that, I think they
10 were horrified, as I was, and they didn't witness it like I
11 did.

12 Q. What do the American Veterinarian Medical Association
13 guidelines for the euthanasia of animals say about gassing for
14 euthanizing?

15 A. They no longer use gas as a means of euthanasia. It's
16 only injectable. I think it is allowed for certain species,
17 like maybe chickens and turkeys, but for mammals, it's no
18 longer advocated. They passed legislation to no longer use gas
19 as a means of euthanasia.

20 Q. Besides testifying today, have you done anything else to
21 express your opposition to Louisiana's decision to use gassing
22 as an execution method for Jessie Hoffman on March 18th?

23 A. Yes, I participated with a group of veterinarians against
24 gassing humans. We met as a small group last week at a dog
25 park in New Orleans trying to get the word out and just

1 advocate against using gas anesthesia as a means of euthanasia.
2 Based on what I saw and witnessed, we are trying to advocate
3 against it. I mean, that --

4 Q. Are you trying to equate the gassing of dogs and cats by
5 gassing chambers using carbon monoxide to the planned execution
6 of humans using nitrogen asphyxiation through a gas mask?

7 A. Well, I realize the two gases are different, but I think
8 the bottom line is that they both deprive the individual or the
9 mammal -- people are mammals, and dogs and cats are mammals --
10 it deprives them of oxygen, and they asphyxiate. They are not
11 getting the oxygen that they need.

12 **MS. POURCIAU:** Thank you. No further questions at
13 this time.

14 **THE COURT:** Cross, please.

15 **CROSS-EXAMINATION**

16 **BY MR. ROBERT:**

17 Q. Dr. Capone, I'm Randy Robert, and I just have a few
18 questions for you. I just want to follow up on a few things.
19 Now, you said you witnessed an event in 1983; is that correct?

20 A. Yes.

21 Q. Okay. And you indicated and you gave a declaration in
22 connection with this case that there were animals being
23 euthanized in a 20-by-20-by-4-foot chamber, correct?

24 A. Yes.

25 Q. What type of an animals?

1 A. Dogs and cats. I didn't witness them having them
2 together, but the day I was there, it was animals -- it was
3 dogs.

4 Q. It was dogs. Okay. And you said that there were a whole
5 bunch of dogs that were all herded into this 20-by-20-by-4-foot
6 room or chamber, correct?

7 A. Yes. I don't recall the exact number, but they tried to
8 get as many as they could into the chamber. I mean, I don't
9 know the exact number, but it was a large number of animals
10 that they -- and I'm not -- maybe the chamber was a little bit
11 smaller. I don't recall.

12 Q. Well, you gave a declaration that said it was
13 20-by-20-by-4. Do you recall signing that just about a week
14 ago?

15 A. Yes, and I did say that, and I still believe that that was
16 the dimensions, or at least very close to the dimensions.

17 Q. So you didn't count the animals, but they herded enough
18 animals in there just to fill up that entire area, correct?

19 A. Yes.

20 Q. And I would imagine that placing all of these animals into
21 one chamber all together, that would evoke a negative response
22 from them, correct?

23 A. Yes.

24 Q. And you didn't actually witness the event, the
25 euthanizing --

1 A. No, there were no windows. I didn't see animals until
2 they were removed from the chamber.

3 Q. And it was carbon monoxide that was used, correct?

4 A. Yes.

5 Q. And you -- that's the only time you were ever present
6 during a situation like that where carbon monoxide was used in
7 a gas-type chamber, correct?

8 A. Correct.

9 Q. And you've never witnessed nitrogen being used in the
10 euthanization of any animals, correct?

11 A. Correct.

12 Q. Under any circumstances, correct?

13 A. Correct.

14 Q. Now, you stated that the law has been changed in Louisiana
15 regarding the euthanasia of animals. Did you look at the
16 statute, before testifying today, what the statute says?

17 A. No.

18 Q. Okay. Well, if I represent to you that the statute says
19 euthanasia by carbon monoxide gas chambers on cats and dogs is
20 prohibited, is that your recollection?

21 A. Yes.

22 Q. Now, you have not studied or tested the nitrogen system
23 that's being proposed by the state in this particular case,
24 correct?

25 A. No, I have not.

1 Q. And you have no personal experience with executions using
2 nitrogen, correct?

3 A. No.

4 **MR. ROBERT:** Thank you, Your Honor.

5 **THE COURT:** Any redirect?

6 **MS. POURCIAU:** No, Your Honor. Thank you,
7 Dr. Capone.

8 **THE COURT:** Thank you, Dr. Capone. We are going to
9 sign off now.

10 **THE WITNESS:** Thank you.

11 **THE COURT:** Next witness, please.

12 **MS. POURCIAU:** Plaintiff calls Pastor Reimoku Gregory
13 Smith.

14 (OATH ADMINISTERED.)

15 **REIMOKU GREGORY SMITH,**

16 **having first been duly sworn, testified as follows:**

17 **DIRECT EXAMINATION**

18 **BY MS. POURCIAU:**

19 Q. Reverend Reimoku, can you please introduce yourself to the
20 Court.

21 **THE COURT:** Can he please state and spell his name
22 for the record first because it's a little unusual.

23 **THE WITNESS:** Yes, ma'am. My name is Reverend
24 Reimoku Gregory Smith. R-E-I-M-O-K-U G-R-E-G-O-R-Y S-M-I-T-H.

25 **BY MS. POURCIAU:**

1 Q. Now, could you please introduce yourself to the Court.

2 A. My name is Reverend Reimoku Gregory Smith.

3 Q. And where do you live?

4 A. I live in New Orleans.

5 Q. How long have you lived in New Orleans?

6 A. Since 2009.

7 Q. How did you make your way to New Orleans?

8 A. Well, both sides of my family are from New Orleans. I was
9 born in New Orleans in '91. I moved away to California when I
10 was five, and I moved back when I was 18 in 2009, and I've been
11 there ever since.

12 Q. Where did you go to college?

13 A. I spent my first two years of undergrad at Loyola
14 University in New Orleans, and I graduated from Tulane in 2016.

15 Q. What religion are you?

16 A. I am a Buddhist in the Soto Zen tradition.

17 Q. When did your interest in Buddhism start?

18 A. When I was a senior in high school --

19 **MS. TOMENY:** I'm going to object again to the
20 relevancy of his testimony. As I said before, the free
21 exercise claim was abandoned. The RLUIPA claim was dismissed
22 with prejudice. We heard testimony earlier this morning about
23 Buddhism.

24 **THE COURT:** You don't have to argue your objection.
25 Just tell me what the basis of your objection is --

1 **MS. TOMENY:** Relevance.

2 **THE COURT:** -- which is relevance. Okay. It is
3 relevant -- we don't have a question yet, any kind of
4 substantive question, so I don't really know where we are
5 going. So your objection is overruled. There is some
6 potential relevance to the Eighth Amendment "as applied" claim.
7 Please carry on.

8 **BY MS. POURCIAU:**

9 Q. When did your interest in Buddhism start?

10 A. When I was a senior in high school in 2009, I took a class
11 called Search for Self in Contemporary Literature, and we had
12 to write a senior dissertation using a list of authors to
13 supplement our writing, and I just so happened to choose the
14 Zen Master Thich Nhat Hahn, and his books changed my life
15 forever.

16 Q. And how did you pursue your interest in Buddhism after
17 that?

18 A. When I started college at Loyola in 2009, I wanted to find
19 a place where I could put the philosophy I had read up until
20 that point into practice, and so I attended an orientation at
21 the New Orleans Zen Temple in 2009, and I moved in as a
22 resident in 2011. And it's been history ever since.

23 Q. And what do you do now to practice Buddhism?

24 A. Well, from the perspective of Zen Buddhism, everything you
25 do is the practice, what you think, how you behave, how you

1 speak, and, of course, daily meditation. I currently practice
2 at the Mid City Zen Center.

3 Q. And why are you here today?

4 A. I am here to testify on behalf of Mr. Hoffman and advocate
5 for his religious freedom.

6 Q. Are you his spiritual advisor?

7 A. Yes, I am.

8 Q. Are you being paid for your time on the stand today?

9 A. No.

10 Q. What is your understanding of how Louisiana currently
11 plans to execute Mr. Hoffman?

12 **MS. TOMENY:** Your Honor, can I renew my objection on
13 the basis of relevancy? He said he is here today to ensure
14 that Mr. Hoffman's religious freedom is accommodated, and
15 again, those claims are dismissed.

16 **THE COURT:** Respond.

17 **MS. POURCIAU:** That was the witness' articulation,
18 but the legal relevancy is as to the "as applied" Eighth
19 Amendment challenge, and --

20 **THE COURT:** Well, you are going to have to tie it up
21 pretty quickly because so far what we have is that he's his
22 spiritual advisor. We don't really have anything else. I'm
23 going to overrule the objection, but you are on a short leash.

24 **BY MS. POURCIAU:**

25 Q. What is your understanding of how Louisiana currently

1 plans to execute Jessie?

2 A. Through the use of nitrogen hypoxia.

3 Q. When did you first meet Jessie?

4 A. This past Wednesday.

5 Q. How long was that meeting?

6 A. Two hours.

7 Q. What were your first impressions of Jessie?

8 A. Jessie struck me as a calm, grounded individual who is
9 clearly very devoted to Buddhist meditation practice.

10 Q. And what is your understanding of how Mr. Hoffman
11 practices Buddhism?

12 A. Through the use of Anapanasati, which is awareness of the
13 breath, regular meditation, sitting meditation, walking
14 meditation and the like.

15 **THE COURT:** Will you spell Anapanasati for the court
16 reporter, please, sir.

17 **THE WITNESS:** Anapanasati is A-N-A-P-A-N-A-S-A-T-I.

18 **THE COURT:** Is it all one word or three words?

19 **THE WITNESS:** One word.

20 **THE COURT:** All one word. Go ahead.

21 **BY MS. POURCIAU:**

22 Q. What is the purpose of a spiritual advisor?

23 A. The purpose of a spiritual advisor is to provide the
24 advisee with support in their practice and to help them create
25 the conditions for peace and freedom within their current

1 circumstances.

2 Q. And as the spiritual advisor for Jessie, do you have a
3 plan for Mr. Hoffman?

4 A. Yes.

5 Q. Why is the plan necessary?

6 A. The plan is necessary because in order to become a
7 spiritual advisor, I was asked to submit a plan of care, of
8 spiritual care.

9 **MS. TOMENY:** Your Honor, I'm going to renew my
10 relevancy objection again.

11 **MS. POURCIAU:** May I respond?

12 **THE COURT:** Yes.

13 **MS. POURCIAU:** Your Honor, we are presenting Reverend
14 Reimoku because he has had a conversation recently with
15 Mr. Hoffman and came to attest as to his current state of mind
16 as to how this will impact his execution, whereas Michaela Bono
17 has not interacted with Jessie recently, and so we --

18 **THE COURT:** You had Mr. Hoffman on the stand to
19 testify to his mental state of mind. This Reverend -- Reverend
20 Gregory is -- I'm going to sustain the objection.

21 **MS. POURCIAU:** Okay. I withdraw that question.

22 **THE COURT:** Okay. Move ahead.

23 **BY MS. POURCIAU:**

24 Q. Will Jessie be able to practice Buddhism if he is executed
25 by nitrogen hypoxia?

1 A. No.

2 **MS. TOMENY:** I'm going to object, lack -- he's not
3 here as an expert. I don't know that he can answer that based
4 on his knowledge.

5 **THE COURT:** I don't think you need to be an expert.
6 I mean, he is certainly a reverend in Buddhism, and he -- I'm
7 going to allow the question.

8 **BY MS. POURCIAU:**

9 Q. Will Jessie be able to practice Buddhism if he is executed
10 by nitrogen hypoxia?

11 A. No.

12 Q. Why not?

13 A. Well, according to the Zen tradition, one must be able to
14 breathe oxygen, and as it was already stated, up until the
15 point of death, the state of mind is very important. So if a
16 gas mask were placed over his face and he was gassed with
17 nitrogen, he will not be able to breathe oxygen, thus impeding
18 his ability to sustain his practice up until the moment of
19 transition.

20 **MS. POURCIAU:** Thank you. No further questions.

21 **THE COURT:** Cross?

22 **MS. TOMENY:** No, Your Honor, no cross.

23 **THE COURT:** Next witness.

24 **MS. BARNARD:** Good afternoon, Your Honor. We would
25 like to call Dr. James Williams. This is April Barnard.

1 **(OATH ADMINISTERED.)**

2 **DEPUTY CLERK:** Would you please state your name and
3 spell it for the record.

4 **THE WITNESS:** James S. Williams, Stuart. J-A-M-E-S
5 S-T-U-A-R-T W-I-L-L-I-A-M-S.

6 **DR. JAMES WILLIAMS,**
7 **having first been duly sworn, testified as follows:**

8 **DIRECT EXAMINATION**

9 **BY MS. BARNARD:**

10 Q. Would you please introduce yourself to the Court.

11 A. James Williams, M.D.

12 Q. Could you briefly walk us through your educational and
13 professional experience?

14 A. I have a Master's of Science Degree in Endocrinology from
15 the University of Calgary in 1988, and a medical degree from
16 that same university in 1991. I completed a residency at the
17 Royal Alexandra Hospital under the University of Alberta in
18 1993. And I've been practicing medicine continuously since
19 1993.

20 Q. What is your current position?

21 A. I practice primarily emergency medicine. I did a
22 combination of general medicine, intensive care medicine, and
23 emergency medicine starting in '93, became full-time ER in
24 2003, and continue to practice that today.

25 I've been the medical director of three different

1 emergency departments, including my current position in West
2 Texas, Big Lake, Texas.

3 Q. Do you have any additional expertise that's relevant here?

4 A. I have expertise in firearms and ballistics, and I've been
5 recognized by the International Association of Law Enforcement
6 Firearms Instructors, IALEFI, as well as ILEETA, International
7 Law Enforcement Educators and Trainers Association as such.

8 Q. And do you believe the opinions you give today are within
9 a reasonable degree of medical certainty?

10 A. I do.

11 Q. Are you being paid to be here today?

12 A. I am.

13 Q. Has your compensation affected your opinions you are going
14 to give today?

15 A. It has not.

16 Q. Okay. Briefly, could you state what your opinion is in
17 the case with respect to executing by fire squad?

18 **THE COURT:** Is there going to be a tender?

19 **MS. BARNARD:** Sorry?

20 **THE COURT:** You are calling for an opinion. Is there
21 going to be a tender?

22 **MS. BARNARD:** May we tender him as an expert?

23 **THE COURT:** In what field?

24 **MS. BARNARD:** In emergency medicine and firearms.

25 **MR. ROBERT:** No objection to that tender, Your Honor.

1 **MS. BARNARD:** Thank you.

2 **THE COURT:** Dr. Williams will be permitted to give
3 opinion testimony in the fields of firearms and emergency
4 medicine.

5 **MS. BARNARD:** Thank you.

6 **BY MS. BARNARD:**

7 Q. Briefly, could you please state your opinion in this --
8 what your opinion is in this case with respect to execution by
9 firing squad?

10 A. I was asked to write an opinion on whether firing squad
11 execution is efficient, efficacious and relatively painless,
12 and I responded in the affirmative.

13 Q. Did you read the declaration provided by Dr. Joseph
14 Antognini?

15 A. I did.

16 Q. Did anything in Dr. Antognini's declaration change your
17 opinion in this case?

18 A. It did not.

19 Q. Could you explain what a cardiac bundle is and why a
20 firing squad would aim for that area?

21 A. The term is used more -- it's not strictly a medical term.
22 It's more a term used in use of deadly force, in ballistic
23 training and firearms training for law enforcement and
24 military.

25 What we are referring to is the heart, the larger organ of

1 the heart and all of its accessory structures, as well as the
2 great vessels above and around the heart, which comprise the
3 major portions of the circulatory system.

4 Q. Based on your medical training and experience, do you have
5 an opinion as to what the immediate effect will be when the
6 bullets from a firing squad strike the cardiac vascular bundle?

7 A. I do. The protocols that I have offered in my report, my
8 declaration. Primarily, the State of Utah Department of
9 Corrections protocol, as well as the United States Military
10 protocol --

11 **COURT REPORTER:** Slow down, please.

12 **THE COURT:** Yes.

13 **MR. ARCHERY:** I'm sorry. I tend to speak too fast.

14 The State of Utah Department of Corrections and the United
15 States Military protocols are both offered in my declaration.
16 These are well established and well documented in multiple
17 sources as the means of execution.

18 These have been studied in great detail. In fact, if you
19 look at the historical record, firing squad executions have
20 been offered and utilized extensively since the at least the
21 Napoleonic wars, if not earlier, as means of military
22 execution, so there is great track record for this particular
23 method of execution being effective and relatively humane
24 compared to other methods of execution.

25 **BY MS. BARNARD:**

1 Q. Physiologically and anatomically what happens when a
2 bullet or multiple bullets will pierce the cardiac bundle?

3 A. The bullets used in the firing squad executions that are
4 protocols that are allowed in the United States, Utah
5 primarily, as well as military, these are military rifle
6 calibers, .30 caliber, .30 inches roughly, .308 inches. These
7 bullets are going to be striking the individual's body at a
8 velocity of around 2800 feet per second, 4 bullets in Utah, 3
9 in South Carolina, the military provides for up to 8.

10 These bullets will strike the body with a combined energy
11 of roughly the equivalent of being struck by a 3-quarter-ton
12 fully loaded truck in about .04 seconds --

13 **THE COURT:** I'm sorry. You're going fast again.
14 Point what?

15 A. I'm sorry. .04, 4 milliseconds.

16 **THE COURT:** .04.

17 A. And traverse the torso of the individual. So the bullets
18 will strike the outside of the body and then traverse through
19 the heart, unleashing tremendous destructive energy upon the
20 heart, which will literally tear the heart to pieces, the
21 structures behind that, which would include the spine, thoracic
22 spine. In major terms, there would be other items there as
23 well. The great vessels behind the heart, aorta and vena cava
24 would be destroyed more or less to a degree, and the bullets
25 would, in all probability, exit the posterior aspect of the

1 body.

2 This is significant destructive power which is unleashed
3 in less than a fraction of a second and would cause complete
4 cessation of all cardiac output from the moment the bullets
5 traverse the heart.

6 Q. Can you explain a little bit about what cardiac output is?

7 A. Certainly. The heart supplies the oxygenated blood to the
8 entire body via the pumping of blood containing hemoglobin.
9 Oxygen is transported in the blood to the brain, to the other
10 portions of the body where it is consumed and then circulated
11 back to the heart.

12 Cardiac output simply refers to the amount of blood that
13 is being transferred with each heartbeat, the amount and the
14 force that is being ejected from the heart into the blood
15 vessels. So some portion of that goes to the brain and is, of
16 course, required for consciousness and the ability to perceive
17 sensory input by the brain.

18 Q. So in your expert opinion as a medical doctor, as well as
19 firearms expert, how long, in your experience, does it take
20 between being pierced by a bullet and unconsciousness?

21 A. Well, and that's the big question, and we have to look to
22 the literature to get answers for that. We can look to some
23 degree to anecdotal evidence, which I've done in my research
24 for these cases, but I think the most compelling argument comes
25 from a paper which I've cited in my report. It is one of many

1 papers that have been published, but the van Rijn paper in 2011
2 was one in which rats were decapitated so that all blood flow
3 to the brain was terminated immediately. And the researchers
4 monitored electroencephalographic data from the rat's brains to
5 determine what had happened to their -- or what did happen to
6 their brain activity after the traumatic event.

7 The conclusion of van Rijn & Associates was that three to
8 four seconds after termination of all blood flow, the rats were
9 unconscious. We transcribe -- or we can to some degree
10 extrapolate from that paper to the human condition in the sense
11 that brains, mammalian brains of all types respond to oxygen in
12 the same manner. The physiology is very similar. Although the
13 size may vary, the period of latency to unconsciousness is
14 probably going to be about the same period of time.

15 We can get some corroboration of that from experiential
16 information from martial arts and law enforcement defensive
17 tactics community, where if we apply a lateral vascular neck
18 restraint, or LVNR, to the sides of the neck, cutting off
19 carotid circulation, unconsciousness occurs very rapidly in a
20 period of about 3 to 4 seconds. I've experienced this myself
21 in my police training and defensive tactics classes where I
22 have been subjected to an LVNR and --

23 **THE COURT:** What is an LVNR?

24 A. I'm sorry. I said it too quickly, Your Honor, previously.
25 Lateral vascular neck restraint. Sleeper hold, or sometimes we

1 refer to it as a choke hold in the press. Police don't like to
2 refer to it as a choke hold because --

3 **COURT REPORTER:** Wait.

4 **THE COURT:** Wait. You are going too fast. You are
5 killing the court reporter here.

6 **THE WITNESS:** Maybe if I take my shoes off, I'll slow
7 down.

8 **COURT REPORTER:** You said sleep what?

9 **THE WITNESS:** Sleeper hold. I apologize, ma'am.

10 **THE COURT:** So you've been put in what is called a
11 sleeper hold, which you have mnemonically called LVNR, which
12 stands for?

13 **THE WITNESS:** Lateral vascular neck restraint.

14 **THE COURT:** Okay. Now, go on from there.

15 A. I'm sorry. The LVNR is commonly used in martial arts and
16 law enforcement today still. We know that people, which I've
17 experienced personally, who are subjected to a correct LVNR
18 maneuver become unconscious within a matter of a very few
19 seconds, three to four seconds, five seconds at most. This is
20 well documented in the law enforcement literature.

21 I would further add that I have, in the course of my
22 research for this testimony, I've debriefed several medical
23 personnel from the United States Armed Forces, particularly a
24 gentleman who is a Special Forces Medic in Afghanistan who
25 witnessed multiple people at very close range being shot in the

1 heart, cardiovascular bundle, by battle bullets, battle rifles.
2 His opinion rendered to me was that when people are shot in
3 this manner, they collapse immediately. There is little to no
4 purposeful movement after only a second, three seconds, four
5 seconds. And this has been well established by -- or
6 corroborated, I should say, by his colleagues that I've also
7 spoken to through my various law enforcement and military
8 colleagues with whom I interact regularly.

9 Q. So, in your opinion, just to be clear, when the blood
10 pressure drops to zero after the heart is obliterated by a
11 bullet, how long before unconsciousness?

12 A. I would say, at most, three or four seconds. At most,
13 five seconds, but most likely less than that.

14 Q. And have there been any instances or studies in which an
15 individual's vitals, such as heart activity, has been monitored
16 during execution by firing squad?

17 A. Yes, it has. I've included in my report a newspaper
18 article published in 1938 in which physicians examined an
19 inmate in the state of Utah who was executed by a firing squad.
20 And included in that newspaper article is a photograph of an
21 enlargement of an electrocardiograph tracing of that individual
22 which shows what happened to his heart at the moment the
23 bullets struck him and in the few seconds thereafter.

24 It shows that what was left of the heart went into an
25 electrical activity called ventricular fibrillation.

1 Electrical activity of the heart, the impulse that we register
2 on the EKG, does not necessarily correlate the cardiac output.
3 It's simply a register of the electrical activity.

4 In the emergency department, in critical care medicine, we
5 run into people all the time -- all the time -- very frequently
6 who have electrical pulses that look like an EKG tracing, but
7 they have no cardiac output because the heart is damaged to the
8 degree that it can no longer pump blood. So that is what we
9 presume has happened in this case. This individual went into
10 ventricular fibrillation immediately upon being hit by the
11 bullets and ventricular fibrillation, as stated in my report,
12 is a cardiac arrhythmia which is associated with zero blood
13 flow, zero cardiac output, which I've witnessed many, many
14 times in my practice.

15 Q. In your experience and in your practice, have you seen
16 many people come back from atrial fibrillation?

17 A. Ventricular fibrillation you mean?

18 Q. Yes. Sorry.

19 A. Yes. We've gotten some people back from ventricular
20 fibrillation. Usually we shock them, sometimes we give them
21 drugs and they do come back, but these are people with intact
22 hearts. An inmate who has been shot by a firing squad is not
23 going to have an intact heart. There will be no restoration of
24 the normal heart rhythm or cardio output.

25 Q. In your medical experience and opinion, would an

1 individual executed by a firing squad experience superadded
2 pain from multiple gunshots in the chest?

3 A. Yeah, in my --

4 **MR. ROBERT:** Object, Your Honor, to any testimony as
5 to his opinions as to superadded pain.

6 **THE COURT:** You're a little late. The cat's out of
7 the bag. Overruled.

8 A. I'm sorry. The question?

9 **BY MS. BARNARD:**

10 Q. In your medical experience and opinion, would the
11 individual executed by a firing squad experience superadded
12 pain from multiple gunshot wounds to the chest?

13 A. I'm sorry. I didn't understand the word super --

14 Q. Sorry. Superadded.

15 A. I don't understand.

16 **THE COURT:** He doesn't understand the question. I
17 think the objection was probably good. So make another
18 question or phrase another question.

19 **BY MS. BARNARD:**

20 Q. In your medical opinion and from your expertise, when you
21 have patients come in that have sustained gunshot wounds to the
22 chest, have they complained about pain?

23 A. For the most -- well, actually, let me retract. My
24 experience treating people with gunshot wounds to the chest is
25 extensive. We see it quite a bit, and most of these wounds are

1 survivable in the hospital. I would say it's -- I don't recall
2 a patient ever telling me that he was -- he or she was actually
3 experiencing pain in the immediate minutes after they entered
4 the ER. I always ask people, are you hurting, are you having
5 pain, as part of my assessment of whether the individual is
6 conscious, alert, able to answer questions, so cognitively
7 intact. Respiratory status is evaluated by them answering a
8 question. So I'm not just asking about pain, but I'm
9 evaluating their medical status, their vital signs, in asking
10 the question. But I learned early in my career, if I ask them
11 about pain, it gives me some clues as to what I might need to
12 be addressing in addition to the life-threatening injury
13 because pain is a crucial part of the human experience.

14 The vast majority, if not all, of the patients I've
15 treated with gunshot wounds to the chest who are able to answer
16 questions have all said to me they were not experiencing pain.
17 What they described as experiencing was a sensation of a
18 profound numbness, tingling. The inability to describe it as
19 pain was -- is virtually a universal response, and there's good
20 physiological reasons for that.

21 Q. Can you talk about the physiological reasons for that?

22 A. Yes. It has to do with the physics of terminal
23 ballistics, which I addressed in my report. When a high
24 velocity rifle bullet strikes a target, meaning a living
25 organism, the energy that is dissipated as the bullet enters

1 the body, it radiates out from the point of impact, kind of
2 like ripples in a pond, but also, as the bullet traverses
3 through the body, the energy is dissipated on a second plane
4 horizontally from that. So you've got two forms of directions
5 of radiation of the energy wave that passes through the body.

6 This causes soft tissue to stretch dramatically, and in
7 that stretching, the more plastic structures, such as nerves
8 and blood vessels, will be stretched to the point of sometimes
9 cellular disruption and sometimes even can cause fractures.

10 This is called the temporary cavity in terminal ballistics.

11 The temporary cavity, when it forms in soft tissue, will
12 stretch nerves to the point that they will become nonfunctional
13 or stunned for a period of hours to, in fact, a permanent
14 disability, and this tends to produce a profound numbness or
15 stunning effect that lasts for, as I said, several hours, which
16 I can also speak to personally from my own experience.

17 Q. I was going to ask you, have you been shot, Dr. Williams?

18 A. I was shot in the chest when I was 18 years of age.

19 Q. Can you describe what that experience was like?

20 A. It was unpleasant. I received a gunshot wound just under
21 my right clavicle, which transversed my shoulder through the
22 trapezius muscle, narrowly missed the lung and the subclavian
23 artery which passes just below the clavicle by about a
24 centimeter. As the bullet transversed through the muscle in my
25 shoulder and hit -- came to rest against the second thoracic

1 vertebra in my back. The process was very violent. Even
2 though it did not have the energy of a military rifle bullet,
3 it had enough energy to knock me back, and I had an immediate
4 sensation of being stunned, physically stunned, harder than any
5 tackle I had ever taken in rugby or football or any tackle I
6 had ever been given was the way I would describe it at the
7 time.

8 And I experienced nothing that I would call pain at the
9 time of the injury, nor during the time I drove myself to the
10 hospital, nor at the hospital for about three hours after the
11 injury was sustained. I then began to experience significant
12 pain, which was treated with narcotic analgesics one time, but
13 that was the only time I received pain medicine for that.

14 Q. And can you discuss the difference between the bullet you
15 were hit with and the bullets that would be used in the firing
16 squad protocol?

17 A. Certainly. I was hit with a .22 Magnum Rimfire bullet,
18 which has about 280 foot pounds of energy at the point of
19 striking, which is about 1/10th of the energy of a single
20 firing squad rifle bullet. If we are using 5 -- 4, 5, 8 rifle
21 bullets, you multiply that accordingly. So it was a relatively
22 trivial amount by comparison. It was still capable of causing
23 considerable damage, and I'm very fortunate I'm alive today.

24 Q. Regarding death by a firing squad, are you familiar with
25 any established protocols?

1 A. I am aware of several established protocols, some more
2 familiar than others. I've studied the Utah Protocol
3 extensively. The published protocol, Pracey (phonetic) is in
4 my declaration. I've also studied documents of -- the entire
5 execution policies and procedures manual is many pages long,
6 several hundred pages long. I've also studied that.

7 The U.S. Military Protocol, I only have the basic
8 documents as published by the United States Government, but I
9 believe there is also policy manuals there. I've studied, as
10 far as I can, obtained the South Carolina execution protocol by
11 firing squad which was instituted in large part based on the
12 State of Utah protocol. And I have some early indications of
13 the execution protocol by a firing squad for the State of
14 Idaho, but that is still kept in close confidence by that
15 Department of Corrections, so I don't have great details.

16 I think the point that should be made here is the State of
17 Utah has a very open record of their -- the effectiveness of
18 their method of execution by firing squad going back to the
19 1870s. There have been 43 executions by firing squad. All
20 were successful, although two were slightly delayed by some
21 unusual events that botched the execution.

22 **MR. ROBERT:** Your Honor, I need to object. None of
23 this discussion is anywhere in the declaration that he gave us.

24 **MS. BARNARD:** It's in his report that was submitted.

25 **THE COURT:** The Utah -- 43 executions in Utah going

1 back to 1870 --

2 **MS. BARNARD:** Oh, I'm sorry. May we admit the Utah
3 and U.S. Army protocols that were appended to his report that
4 was submitted?

5 A. Yes.

6 **MR. ROBERT:** Your Honor --

7 **THE COURT:** Okay. The objection is sustained. Ask
8 another question or ask your next question.

9 **BY MS. BARNARD:**

10 Q. Is it fair to say that there are reliable, replicable and
11 effective firing squad protocols, in your opinion?

12 A. Yes.

13 Q. Is there a lot of variability in these protocols that you
14 have studied?

15 A. No.

16 Q. Dr. Antognini's declaration references the botched
17 execution of Eliseo Mares in 1951. Do you know about that?

18 A. I do.

19 Q. Can you describe what happened in those circumstances?

20 A. Yeah. That execution was -- it's not publicly easily
21 available information, but the representation that I received
22 in the course of my research was that the individual, the
23 inmate, Mr. Mares, had offended personally some members of the
24 execution team, and the execution team members strayed from the
25 published protocol and from their instructions, and they shot

1 Mr. Mares in places other than the heart deliberately, so as to
2 cause him pain and suffering. A second volley was then fired
3 and he was killed.

4 Q. So then there was no accepted protocol for that particular
5 execution?

6 A. No. That was an abject deviation from protocol, and those
7 individuals were severely disciplined.

8 Q. Are you aware of any other so-called botched firing squad
9 executions?

10 A. There was an earlier one in Utah where the inmate knew, I
11 believe 1878, he knew the executioners, he assured them he
12 would not try to run away, sat in a chair, and when he heard
13 the command to fire, he jumped up and tried to run. So they
14 missed his heart with their shots. So he was brought back to
15 the chair and then secured and then executed. Those were the
16 only two botched executions in Utah.

17 Q. Is there any reason why a person that is going to be
18 executed in this way could not exercise breathing prior?

19 A. No, absolutely not.

20 Q. Are you aware that there's a firing squad death scheduled
21 for today?

22 A. Yes.

23 Q. Are you familiar with that protocol?

24 A. I am.

25 Q. Is it similar to the Utah and U.S. Army protocols?

1 A. In the major details, it is, yes.

2 Q. And do you think that these protocols would be feasible in
3 Louisiana?

4 A. Yes.

5 **MS. BARNARD:** That's all I have.

6 **THE COURT:** Cross? Before I give you up on cross, I
7 have a question because it may cause your lawyer to have to ask
8 you another question. This LVNR, you said the sleeper hold,
9 when done properly, it will render the victim of that sleeper
10 hold unconscious in 3 to 5 seconds. Anatomically, why is that?

11 **THE WITNESS:** This principle involved is that there
12 are -- the two major arteries to the brain are the carotid
13 arteries, which are in the lateral neck. And then there are
14 two minor arteries in the vertebral bodies, the vertebral
15 arteries. But the vast majority of the blood that goes to the
16 brain to maintain function is through the carotids. So when
17 the LVNR hold is applied, you occlude the carotids by pressing
18 them down, so temporarily stopping all blood flow.

19 **THE COURT:** Thank you. Do you need to ask any
20 follow-up questions?

21 **BY MS. BARNARD:**

22 Q. So stopping all blood flow stops all oxygen from the
23 brain, and that almost immediately renders you unconscious,
24 correct?

25 A. Yes.

1 **THE COURT:** Mr. Robert, cross?

2 **CROSS-EXAMINATION**

3 **BY MR. ROBERT:**

4 Q. Dr. Williams, do you recall giving a -- providing a report
5 in connection with this case?

6 A. I did.

7 Q. Okay. And you stated at page 3 of your report that
8 gunshot wounds may be painful in certain circumstances,
9 correct?

10 A. Correct.

11 Q. Okay. And you agree that a gunshot wound would be very
12 painful if it shattered a bone, correct?

13 A. I would qualify that by saying a long bone.

14 Q. Okay. And you would agree that a gunshot wound would be
15 very painful if it damaged the spinal cord, correct?

16 A. Well, the spinal column does have bones, so yes, that
17 would be painful.

18 Q. Okay. And you would agree that physical pain is often
19 subjective, right?

20 A. Absolutely.

21 Q. So pain tolerance amongst individuals varies by person to
22 person, right?

23 A. It does.

24 Q. For example, you described today, you just testified on
25 the stand about being shot yourself in 1972, correct?

1 A. Yes.

2 Q. And you said you drove yourself to the hospital, correct?

3 A. I did.

4 Q. Well, you are a doctor of emergency medicine. Is that
5 typical of people who get shot in the chest, that they drive
6 themselves to the hospital?

7 A. I've seen even more dramatic responses.

8 Q. That's not my question.

9 A. Is it typical? Moderately so, yes.

10 Q. Okay. And you described it as being virtually painless,
11 correct?

12 A. Correct.

13 Q. But you stated in your report that medical professionals
14 ask you repeatedly if you needed pain medication, correct?

15 A. That's true.

16 Q. So you agree that the medical professionals attending to
17 you had some concerns about your level of pain, correct?

18 A. They did.

19 Q. And you also would agree with me that the level of pain
20 that persons subject to a firing squad would exhibit would be
21 subject to human error, right?

22 A. I'm not sure of what you mean by human error, sir.

23 Q. Well, you've got shooters who are going to shoot at
24 Mr. Hoffman, and if they miss their target, it would likely
25 cause more pain, correct?

1 A. If they missed the target and don't hit the heart, that
2 would be true, yes.

3 Q. If they don't hit -- perfectly hit that cardiac bundle
4 that you talked about, right?

5 A. Right.

6 Q. And if you've done any analysis, or you didn't put it in
7 your report, you haven't done any analysis, at least not in
8 your report, of the psychological pain that this person would
9 exhibit if he stood in front of a firing squad?

10 A. I've not offered an opinion on the psychiatry of it, no.

11 Q. Right. And in your report you state that an execution
12 through firing squad has occurred three times since 1977 in the
13 United States, correct?

14 A. In the state of Utah, yes.

15 Q. Are you aware of any other state that has done it between
16 1977 and today?

17 A. No. Today would be the fourth.

18 Q. So it's three times, correct?

19 A. Yes, sir.

20 Q. And the last time that method was used was 2010, right?

21 A. Yes.

22 Q. And in order for the state to use a firing squad, they
23 would have to put forth -- get volunteers to participate,
24 correct?

25 A. I would assume so, yes.

1 Q. So they would have to give how many? I think you said
2 three to five or four to -- tell me what number they would have
3 to get.

4 A. Well, if they followed the Utah protocol, they would need
5 five shooters, plus three alternates. That's the Utah policy.

6 Q. All right. And based on the protocol that you suggested,
7 those officers, who would, first of all, have to volunteer,
8 would also be publicly identified once they -- during the
9 firing squad process, correct?

10 A. I don't know what the policy for publishing executioners'
11 names in the state of Louisiana is, sir.

12 Q. Well, you don't have anything in your protocol about them
13 wearing hoods or their identify being withheld, correct?

14 A. Well, I do know that in Utah, the identity of the
15 executioners is strictly held in confidence.

16 Q. Okay. So they don't allow witnesses to witness the
17 execution?

18 A. The executioners, the firing squad members, are behind a
19 ballistic barrier, which is a separate portion of the execution
20 chamber. Witnesses are on one side, execution staff is on the
21 other, and directly opposite of each other would be the
22 condemned person and the firing squad. The firing squad people
23 are behind a ballistic barricade with a firing slip, so no one
24 can see their faces, no.

25 Q. Sure. But the protocol that you put in your report

1 doesn't mention anything about that, does it?

2 A. No, I didn't mention that in my report.

3 Q. Okay. And you state in your report that using blanks,
4 which has been a traditional way of at least one or more guns
5 having blanks, that that really doesn't work, correct?

6 A. No, it doesn't do much.

7 Q. So the person doing the firing, he has got no plausible
8 deniability, correct?

9 A. I think -- you know when you fired a blank round in a
10 rifle, sir.

11 Q. So they have no basis, the person firing the shot, had no
12 basis to -- no, excuse me. And you haven't done any studies on
13 the psychological impact that shooters in a firing squad would
14 suffer as a result of this method of execution, have you?

15 A. I've done some reading on it, yes.

16 Q. You've done some reading on it. You didn't talk about
17 that in your report, though, did you?

18 A. No, I did not.

19 Q. And you, under the proposed method of execution, the --
20 Mr. Hoffman would have to be tied to a post?

21 A. The method used in the state of Utah is to be seated in a
22 chair, restrained in a chair. It's also what they are planning
23 to do in South Carolina.

24 Q. So you would suggest a chair instead of a post?

25 A. I don't suggest anything, sir. I'm just merely stating

1 what has been done, and I provided that factual information.

2 Q. Well, you provided us with the protocol.

3 A. I did, but I'm not suggesting it as a proposal for the
4 state. I'm saying this is a way it can be done.

5 Q. And you would have to be tied down, correct?

6 A. That would be smart, yes.

7 Q. Yeah, because if he moves, that increases the likelihood
8 that you might miss the target and he might suffer more pain,
9 correct?

10 A. Spot on, right.

11 Q. And that can happen, right?

12 A. It can.

13 Q. Now, you summarized the Utah protocol in your report,
14 didn't you?

15 A. I did.

16 Q. Okay. And under the Utah protocol, Mr. Hoffman would have
17 a bull's eye placed on his chest, right?

18 A. He would have a paper target about four inches in diameter
19 placed on his heart, pinned to his chest, to his shirt.

20 Q. Yeah. And the Utah protocol provides that if the first
21 volley is unsuccessful, we go for the second volley, correct?

22 A. That's correct.

23 Q. So the Utah protocol at least recognizes the reality that
24 the first volley might not work, right?

25 A. That's why it's in there, yes.

1 Q. And the Army's protocol is, instead of a second volley,
2 you take a pistol and you shoot the person in the head,
3 correct?

4 A. Yes. The protocol that I included in my report, that's
5 what they state, yeah.

6 Q. Okay. So the Army's protocol indicates that the first
7 volley might not work, right?

8 A. That's the supposition, yes.

9 Q. And as you sit here today, you can't present any
10 scientific evidence that the protocol that you suggest will
11 result in less physical pain than the state's nitrogen hypoxia
12 protocol, correct?

13 A. I offer no opinion on the nitrogen hypoxia method, sir.

14 Q. Okay. And as you sit here today, you can't present any
15 scientific evidence that your suggested protocol will result in
16 less psychological pain than the method elected by the state,
17 right?

18 A. Again, I offered no psychological evidence.

19 **MR. ROBERT:** Thank you, Your Honor.

20 **THE COURT:** Any redirect?

21 **MS. BARNARD:** We just want to make sure that the Utah
22 protocols and the Army protocols are in the record and you have
23 stipulated to that?

24 **MR. ROBERT:** Excuse me?

25 **MS. BARNARD:** The Utah protocol and the U.S. Army

1 protocol and the report that we submitted is in the record?
2 You've submitted to that?

3 **MR. ROBERT:** I have no objection to that.

4 **MS. BARNARD:** Thank you.

5 **THE COURT:** You've not moved the admission of
6 anything. While we are on this subject, y'all haven't moved
7 the admission of nary a thing except I think Exhibit 20.

8 **MS. POURCIAU:** We have been corresponding over
9 e-mail, and defendants have now an outstanding request from us
10 to admit all of the party's exhibits into evidence.

11 **THE COURT:** But you haven't done that.

12 **MS. POURCIAU:** I know. I'm asking. I'm updating the
13 Court on the status of where we are in the process, and I'm
14 asking the defendants now if they are willing to do that.

15 **THE COURT:** Mr. Stronski?

16 **MR. STRONSKI:** Your Honor, I understand from e-mail
17 communication that I think the parties are in agreement that we
18 would stipulate to the admission of the exhibits that have been
19 filed with the court. Is that correct?

20 **MR. CODY:** Your Honor, I can say no. There was some
21 discussion about it, but we have determined we are just going
22 to do it exhibit by exhibit.

23 **THE COURT:** Okay. Move the admission of it. You
24 can't just ask him and then presume that it is there.

25 **MS. BARNARD:** May I admit the report of Dr. James

1 Williams with the appendices attached to the report, including
2 the Utah protocol, as well as the Army protocol?

3 **DEPUTY CLERK:** What's the number?

4 **MS. BARNARD:** It's 15.

5 **MR. ROBERT:** Your Honor, I'm going to object to
6 admitting the report itself because he is here on the stand and
7 he has testified. I have no objection if she wants to admit
8 the protocols. I have no objection to it.

9 **DEPUTY CLERK:** P-15 is the declaration.

10 **THE COURT:** P-15 is the entire declaration? I would
11 sustain that objection. The declaration is not admissible. It
12 is hearsay. He has testified.

13 **MS. BARNARD:** But the appendices are, correct?

14 **THE COURT:** You should know that, not me. I mean, I
15 do know that, but you should know that. Do you move the
16 admission of the appendices?

17 **MS. BARNARD:** Yes.

18 **THE COURT:** What is the exhibit number?

19 **MS. BARNARD:** 15.

20 **THE COURT:** Do you have any objection to the
21 appendices only being admitted as P-15?

22 **MR. ROBERT:** I don't, Your Honor.

23 **THE COURT:** You do not?

24 **MR. ROBERT:** I don't have any objection to the
25 appendices -- well, to the protocols.

1 **MS. BARNARD:** The appendices that would include the
2 protocols, yes.

3 **THE COURT:** Are you moving admission of all
4 appendices or only the protocols?

5 **MS. BARNARD:** All appendices, which include his CV.

6 **THE COURT:** Which none of the CVs have come in
7 either, people.

8 **MR. ROBERT:** I won't object to those exhibits --

9 **THE COURT:** The appendices, which include his CV,
10 will be admitted as Plaintiff's 15. You will need to reupload
11 P-15 into JERS because the declaration has not been admitted.

12 **MS. BARNARD:** That's all.

13 **THE COURT:** You may step down.

14 **THE WITNESS:** Thank you, Your Honor.

15 **THE COURT:** The next witness. We will take a break
16 at about 2.

17 **MR. STRONSKI:** We call Dr. Blanke, Your Honor.

18 **(OATH ADMINISTERED.)**

19 **DR. CHARLES BLANKE,**

20 **having first been duly sworn, testified as follows:**

21 **DIRECT EXAMINATION**

22 **BY MR. STRONSKI:**

23 Q. Good afternoon, Dr. Blanke. Please introduce yourself to
24 the Court.

25 A. I'm Dr. Charles David Blanke.

1 Q. And what is your educational background?

2 A. I was in a combined college and medical school program
3 through Northwestern University, graduating first in my class
4 from the undergraduate portion, and with distinction from the
5 medical school portion. I did internal medicine training at
6 the Gunderson Medical Clinic, and then a fellowship in
7 hematology oncology at Indiana University in Indianapolis.

8 Q. Okay. And what is your current position?

9 A. I actually hold two. I'm a tenured professor of medicine
10 at the Knight Cancer Institute at Oregon Health & Science
11 University, and I'm the chair of the SWOG Cancer Research
12 Network.

13 Q. Okay. Talk slowly, please.

14 A. That was slow. I'll go slower.

15 Q. What is the SWOG Institute?

16 A. SWOG is one of four federally funded research institutions
17 that conducts cancer trials ranging from prevention to
18 treatment, population science, studies all types of diseases.
19 We have 20,000 members at more than 1300 sites in about nine
20 countries.

21 Q. And what is your role there?

22 A. I'm the chair, the overall leader.

23 Q. And what exactly does it do?

24 A. Mostly it conducts research to try and better the lives of
25 patients touched by cancer. It does a little bit of education

1 and granting, but mostly it conducts the actual trials, designs
2 and conducts the trials.

3 Q. And have you been involved yourself in finding new cures
4 for cancer?

5 A. Yes, I've been doing research for more than 30 years.

6 Q. Is there an instance where you were involved in developing
7 a drug that treated for the first time a type of stomach
8 cancer?

9 A. Yes. In the early 2000s, we used a drug called Imatinib
10 or Glivec in a wholly untreatable type of stomach cancer and
11 had a remission rate of nearly 90 percent.

12 Q. Are you also -- what is your practice presently?

13 A. My practice presently is solely devoted to end of life,
14 and the majority of that is actually medical-aid-in-dying or
15 MAID.

16 Q. And how did you get involved in medical-aid-in-dying?

17 **MR. ROBERT:** Your Honor, if we can -- if this helps,
18 I have no objection to him being tendered as an expert doctor
19 and with expertise in medical-aid-in-dying techniques.

20 **THE COURT:** You want to make a tender?

21 **MR. STRONSKI:** Yes, Your Honor. We would tender Dr.
22 Blanke as an expert in medical-aid-in-dying and the drugs and
23 methods used in the field.

24 **MR. ROBERT:** No objection, Your Honor.

25 **THE COURT:** Okay. Dr. Blanke will be permitted by

1 the Court to give opinion testimony in the fields of
2 medical-aids-in-dying and the drugs and methods for
3 medical-aids-in-dying.

4 **BY MR. STRONSKI:**

5 Q. And Dr. Blanke, are you being paid to appear today?

6 A. Yes, I am.

7 Q. Has that affected your testimony?

8 A. No, it has not.

9 Q. And are you testifying today to at least a reasonable
10 degree of medical certainty?

11 A. Yes, I am.

12 Q. Do you have an opinion as to whether protocols in teaching
13 and medical-aid-in-dying could be used as a humane way of
14 executing people?

15 A. Yes, I do.

16 Q. And what is your opinion, Doctor?

17 A. My opinion is the drugs used in medical-aid-in-dying would
18 offer a humane and highly effective method of execution.

19 Q. Is there a particular protocol that you would think would
20 be appropriate?

21 A. Yes, I would use a drug combination called DDMAPh high
22 dose.

23 **THE COURT:** Okay. Give us the mnemonics.

24 **THE WITNESS:** Okay. DDMAPh.

25 **THE COURT:** Thank you.

1 **BY MR. STRONSKI:**

2 Q. Unfortunately, it is an acronym that is hard to pronounce,
3 isn't it?

4 A. Yes. It doesn't actually spell out anything, so we just
5 call it DDMAPh.

6 Q. And so tell us exactly what that is.

7 A. So DDMAPh itself, meaning just the drugs, is a five-drug
8 combination. It has digoxin, it has diazepam, commonly known
9 as Valium, amitriptyline, morphine, and phenobarbital.

10 **THE COURT:** Teri, do you need him to spell any of
11 those?

12 **COURT REPORTER:** No, ma'am.

13 **THE COURT:** She's heard those before, so go ahead.

14 **BY MR. STRONSKI:**

15 Q. Are any of those lethal injection drugs?

16 A. Not to the best of my knowledge.

17 Q. How does the protocol work?

18 A. I'm sorry. Do you mean how do the drugs work or how does
19 the mechanism --

20 Q. How is it administered?

21 A. So all state laws require using the gastrointestinal tract
22 from mouth down to the bottom in one way or the other. Most
23 commonly people ingest the combination of drugs mixed up in
24 some apple juice and/or apple syrup by swallowing it. If they
25 have issues that lead to difficulties in swallowing, say, a

1 bowel obstruction, whatever, we can administer it through a
2 tube placed into the rectum.

3 Q. And you mentioned five drugs. Tell us what those drugs
4 do.

5 A. Certainly. So two of the drugs are aimed at causing the
6 heart to beat irregularly and eventually to stop beating
7 altogether, a condition known as asystole. The other three
8 drugs --

9 Q. Let's stop. Which of those --

10 A. That is the digoxin and the amitriptyline.

11 Q. Then what do the other three drugs do?

12 A. So morphine is a potent painkiller, will also depress
13 level of consciousness to some extent. The Valium causes
14 people to forget and also will make sure people are
15 extraordinarily sleepy or more. And the phenobarbital
16 essentially puts them into a coma as well.

17 Q. And what dosages of these drugs do you recommend be used?

18 A. So the doses I recommend, the high dose variation uses
19 100 milligrams of digoxin, which is about 400 times the
20 therapeutic dose. The Valium is given at 2,000 milligrams.
21 The amitriptyline is given at 8,000 milligrams. The morphine
22 is given at 15,000 milligrams. And the phenobarb is given at
23 8,000 milligrams -- I'm sorry, 10,000 milligrams. Excuse me.

24 Q. And in your experience, is it effective in causing death?

25 A. In my experience, it is 100 percent effective in causing

1 death.

2 Q. Let's talk about your experience. Among the doctors in
3 this field, how do you rate in terms of your experience?

4 A. So because my practice is solely devoted to death aid, as
5 well as the fact that Oregon is one of only two states that
6 lets out-of-state patients, not our residents, use it, I am
7 able to sustain a clinic that is solely devoted to
8 medical-aid-in-dying. I have participated in more than 500
9 patient deaths since the law was passed in Oregon, and I
10 believe that represents approximately 20 percent of Oregonian
11 prescriptions, and I very strongly believe I write the most of
12 any Oregonian physician. And I'm certain I'm in the top tier
13 among U.S. physicians.

14 Q. You mentioned a rectal administration. Can you explain
15 it, how that would work?

16 A. Certainly. So again, there are patients with, say, Lou
17 Gehrig's disease or bowel obstructions from cancer who can't
18 use their mouth basically to swallow their medication, in the
19 case of rectal administration, which is becoming more common,
20 we take a rubber tube that is slightly smaller than my pinkie,
21 we lubricate it, we place it through the patient's anus a few
22 inches into the rectum, blow up a small balloon to secure it.
23 We then, or at some point similar in time, mix up the
24 medications themselves, draw up the medication into two
25 separate syringes and inject each of the syringes into that

1 catheter that I just told you about.

2 Q. And in your experience, does that cause pain or any
3 significant discomfort to the patients?

4 A. No, placing the catheter causes at most mild pressure, and
5 there's no abnormal sensation from the medication going in.

6 Q. Okay. Are the people who have reported when they take the
7 medication orally that it is bitter or tastes bad or irritates
8 the mouth or something like that?

9 A. I would say most people report a mild level of bitterness.
10 It's never stopped anybody I know of or not any of my patients
11 from taking it. The sensation of irritation is more variable.
12 It can occur. It is universally very brief lived.

13 Q. And do these drugs put a patient in a coma making them
14 insensate?

15 A. Yes, they do.

16 Q. And what does insensate mean in this context?

17 A. To me, it means -- first of all, we are talking about
18 their loss of consciousness, almost like being under
19 anesthesia, but it also means that they are not feeling pain,
20 they are not feeling anxiety, they are not aware of basically
21 anything going on in their nearby environment.

22 Q. Okay. And there have been some criticisms of how long
23 this might take in this context. How long would you expect it
24 to take for a person to die in using a medical-aid-in-dying
25 protocol for an execution?

1 A. So I'll use two sources. We have published literature on
2 all DDMAPh, the previously used lower dose and my recommended
3 high dose. We haven't parsed out the high dose, but, of
4 course, I have my own experience of approximately 150 cases of
5 high dose administration. So for DDMAPh across the board, the
6 average time to sleep is 5.8 minutes, and the average time to
7 death is about 96 minutes.

8 Q. You used the word -- you said bleep?

9 A. I hope I didn't but --

10 Q. The average time to what?

11 A. Oh, I'm sorry. The average time to coma is 5.8 minutes.
12 The average time to dying is 96 minutes.

13 Q. And before they are in a coma, what are they experiencing?

14 A. Many of them actually talk to their families for a couple
15 of minutes, can engage with their environment fairly
16 universally -- no, I wouldn't say that. Some experience
17 light-headedness. Very rarely we see mild nausea or nausea.

18 Q. Any reports for pain?

19 A. Except for the irritation I talked about before, none.

20 Q. Okay. After you did your report, there was a declaration
21 from a Mr. Smith that the state has a hard time buying lethal
22 injection drugs. Are you familiar with that?

23 A. Yes.

24 Q. And again, are these lethal injection drugs?

25 A. No.

1 Q. And that the State has some sort of certificates that we
2 haven't seen where they agree not to use lethal injection drugs
3 they buy from certain companies. Is that correct?

4 A. Yes.

5 Q. And that the company identified was Pfizer. Are you
6 familiar with that?

7 A. Yes.

8 Q. So after learning that, did you do any investigation?

9 A. Yes. I went to the FDA national drug coding site, which
10 lists the labeled products for use in the United States. I
11 also have talked to the pharmacy that I personally use for my
12 medical-aid-in-dying cases.

13 Q. And what did you learn from your investigation of publicly
14 available data on the FDA site?

15 A. That there are many different labeled versions of each of
16 the five drugs, ranging from 8 to 14 different products.

17 Q. Okay. So for each of the five drugs, is it fair to say
18 there are 8 to 14 different companies that sell them?

19 A. There might be some overlap, but I dug down a bit and
20 talked to the pharmacist, and there appear to be at least five
21 different manufacturers for each drug.

22 Q. So in the case, for example, when you say 8, the three of
23 them -- three of those 8 might be the same manufacturer under
24 different brands?

25 A. Correct.

1 Q. But there are 8 different brands?

2 A. Different labels.

3 Q. Is that right?

4 A. Yes. There are multiple sources for all five drugs.

5 Q. And is Pfizer a source of any of those drugs?

6 A. Pfizer is under the label for digoxin.

7 Q. And are there other suppliers besides Pfizer for digoxin?

8 A. For digoxin specifically, there are at least six other
9 manufacturers listed.

10 Q. And do you have a hard time getting these five drugs for
11 your practice?

12 A. The only hard time I have is invariably the patient asks
13 if they can go to their local Walmart. And we say, no, they
14 have to go to a special compounding pharmacy. But the pharmacy
15 itself has not had difficulty getting any of the agents. In
16 fact, I use several pharmacies, and none of them have
17 complained about difficulties.

18 Q. Okay. And roughly, what does it cost?

19 A. \$725 on a credit card.

20 Q. Okay. And have you, in the past, talked to the pharmacy
21 you work with about whether they would make these available for
22 execution?

23 A. So I was involved with a previous case where that specific
24 question came up. I asked the pharmacy if they would have any
25 objection to selling to a prison or a state, and the answer

1 was, no, they would be willing to do so.

2 **MR. STRONSKI:** No further questions, Your Honor.

3 **THE COURT:** Cross, please.

4 **CROSS-EXAMINATION**

5 **BY MR. ROBERT:**

6 Q. Dr. Blanke, let's start out with your subsequent inquiry
7 into the drugs. What provider did you talk to that said that
8 they would be willing to allow Louisiana to use these drugs
9 that you've identified in connection with an execution?

10 A. I did not talk to any providers.

11 Q. Okay. So you don't have any information that can confirm
12 that Louisiana can in fact use these drugs for executions,
13 correct?

14 A. Could not confirm or refute it.

15 Q. Okay. And your discussions with providers are in
16 connection with medical-aid-in-dying, correct, in self-assisted
17 suicide, correct?

18 A. Not correct. It's actually no longer considered
19 suicide --

20 Q. I understand.

21 A. -- under the statute.

22 Q. My apologies. I misstated that. Medical-aid-in-dying.
23 That is your -- the nature of your communications about being
24 able to get drugs for your patients, correct?

25 A. That is correct.

1 Q. And there's a difference between inquiries or the ability
2 to obtain drugs in connection with medical-aid-in-dying versus
3 executions. You are aware of that, correct?

4 A. I'm sorry. I'm not actually sure what you are asking.
5 Please repeat it.

6 Q. There is a difference between seeking or obtaining drugs
7 in your case for medical-aid-in-dying and obtaining drugs in
8 connection with executions, correct?

9 A. I would agree they are clearly different situations.

10 Q. That's right. And you are aware that the method, the
11 medical-aid-in-dying process that you have assisted individuals
12 with in Oregon is prohibited in Louisiana, correct?

13 A. I was not aware of that.

14 Q. Okay.

15 A. Sorry. Do you mean medically, for medically --

16 Q. Yes.

17 A. Oh, yes, I am aware of that.

18 Q. Are you aware that doctors aren't allowed to assist in
19 connection with -- or they are prohibited from assisting in
20 executions, correct?

21 A. I was not aware of that.

22 Q. Okay. If they were, if that is the case, that they are
23 prohibited in Louisiana from participating in executions, that
24 would affect the ability to administer the drugs, correct?

25 A. I don't believe so. It's not a particularly skilled

1 administration. It's certainly easier than lethal injection,
2 so I wouldn't see that as a major impediment.

3 Q. So you discuss in your report that you provided to the
4 Court that medical assistance would be required in doing the
5 rectal method?

6 A. I think there are a variety of medical personnel who can
7 put in a rectal tube, yes.

8 Q. And you talked about nurses and physician assistants,
9 correct?

10 A. I don't actually recall that, but I certainly believe they
11 could do it, as well as EMTs and a variety of other personnel.

12 Q. But you don't mention EMTs in your report, do you?

13 A. I don't recall.

14 Q. Now, you stated on the stand and in your report that the
15 median time of consciousness is 5.8 minutes, correct?

16 A. It's actually mean.

17 Q. Mean?

18 A. Correct.

19 Q. You put median, I think, in your report.

20 A. Incorrectly.

21 Q. So the meantime is 5.8 minutes?

22 A. Correct.

23 Q. And you state that the meantime to death would be over an
24 hour and a half, correct?

25 A. Roughly 96 minutes, yes.

1 Q. But it could take longer than 96 minutes for this type of
2 application to cause death, right?

3 A. That's correct. It could be shorter or longer.

4 Q. And if the person is younger, if the patient is younger,
5 that might affect the amount of time it would take to reach --
6 to die, correct?

7 A. We actually don't know that. There are reasons,
8 physiologically, why it might take longer, but there are
9 actually reasons, including better gut function, why it might
10 be shorter. That is one of the things currently being
11 explored.

12 Q. Okay. In fact, studies have shown that it could take up
13 to 67 hours for a person to die using this method, correct?

14 A. It's not actually the method I'm recommending per se, but
15 it is using similar drugs, yes.

16 Q. And you haven't done any comparative analysis of the time
17 that it would take for a person to die using
18 medical-aid-in-dying drugs versus the amount of time it would
19 take for a person to die using nitrogen hypoxia, correct?

20 A. Have I personally?

21 Q. Yeah, right.

22 A. I have not.

23 Q. Okay. Now, the method of administration, you talked about
24 two methods, right? Orally or rectally, correct?

25 A. Yes.

1 Q. In your experience, all of the patients that you had have
2 been taking the medications voluntarily, right?

3 A. Yes.

4 Q. If a person did not want to take these medications
5 voluntarily, they might try to spit it out, correct?

6 A. Yes, if it was done orally.

7 Q. Right. And they might try to not swallow, correct?

8 A. Yes, if it was done orally.

9 Q. And they might fight and refuse to swallow the drugs,
10 right?

11 A. Yes.

12 Q. So you do recognize there are issues with the oral method
13 if a person is not willingly taking it, correct?

14 A. With the oral method, yes.

15 Q. Okay. Now, the rectal method, you talked about inserting
16 a tube rectally with respect to the patient, correct?

17 A. Yes.

18 Q. And every time that you've done that, the person was
19 willingly participating, right?

20 A. Actually, in medical-aid-in-dying, yes, but we have used
21 rectal tubes with patients who are less voluntary for other
22 medical indications.

23 Q. And if they are fighting it, there might be some pain
24 involved, if they are fighting you, trying to keep you from
25 putting that tube inside, correct?

1 A. If they were actively fighting, there could be some brief
2 discomfort.

3 Q. And that would be very invasive for a person who did not
4 voluntarily consent to have that done to them, right?

5 A. Can you describe "very invasive"?

6 Q. Well, I don't know if I need to define sticking a tube up
7 somebody's behind, whether that is invasive or not. Do I need
8 to define that further?

9 A. Yes, actually. Please.

10 Q. Well, I can't define it much further than that.

11 A. Okay.

12 Q. So you don't think that that is invasive?

13 A. It's not what I would customarily think of as an invasive
14 procedure.

15 Q. Is it embarrassing?

16 A. Again, in the cases of medical-aid-in-dying, it is not
17 embarrassing, ever.

18 Q. Okay. But I'm not talking about medical-aid-in-dying.
19 I'm talking about a person who is about to be executed who
20 doesn't want a tube placed up his rectum. Would that be
21 embarrassing, do you think?

22 A. I certainly could see how some patients would be -- sorry,
23 how some convicts would be embarrassed, yes.

24 Q. Now, could the subject, if he didn't want to accept these
25 medications even rectally, could they attempt to expel those

1 medications?

2 A. No.

3 Q. Okay. And why not?

4 A. Because when the catheter is placed, and it could be
5 placed even involuntarily, you would inflate a small balloon
6 that keeps the catheter in place. It blocks the medications
7 from coming back out after you have the balloon up, and you
8 clamp the tube as well.

9 Q. So a person can fight it and try and try, but he can't get
10 it to come out, right?

11 A. Yes.

12 Q. But that would probably be uncomfortable, right?

13 A. I honestly can't comment on what somebody would feel in a
14 situation. Of course, it never happens in
15 medical-aid-in-dying.

16 Q. Right. In your experience, you don't have any experience
17 with that kind of circumstance, correct?

18 A. Correct.

19 Q. All right. And you haven't done any comparative analysis
20 on pain with respect to an unwilling person being injected
21 with -- rectally injected with drugs versus the nitrogen
22 hypoxia method that the State is recommending, correct?

23 A. Again, I would say the injection would be painless,
24 regardless of their willingness. Placing a tube could be
25 different.

1 Q. Okay. All right. And you are not aware of anywhere in
2 the United States where the method that you described today is
3 being used in executions, right?

4 A. That is correct.

5 **MR. ROBERT:** Those are my questions, Your Honor.

6 **THE COURT:** Any redirect?

7 **MR. STRONSKI:** Yes, just a couple, Your Honor.

8 **REDIRECT EXAMINATION**

9 **BY MR. STRONSKI:**

10 Q. Let me ask you about -- you've been asked about a rectal
11 tube embarrassment and pain if somebody fights. Do you
12 remember that?

13 A. I do.

14 Q. Okay. But the actual insertion of the rectal tube, is
15 there any pain with that?

16 A. So, to be fair, I was asked if it was completely
17 involuntary. Normally there is no discomfort. If they were
18 fighting, I could imagine some brief pressure discomfort as
19 well.

20 Q. And you are familiar that people are executed with lethal
21 injection in the United States?

22 A. Yes.

23 Q. And you have to get the drug in the body that way too,
24 right?

25 A. That is correct, either through -- well, it could be a

1 central line, and I believe some protocols have --

2 Q. And people, because it is IV, are not swallowing the drug,
3 correct?

4 A. That is correct.

5 Q. So it's a means, like rectal, if the individual is not
6 compliant, it still could be used, correct?

7 A. That is correct.

8 Q. How does that compare -- how does opening up a peripheral
9 line or a central line compare to inserting the rectal tube you
10 described?

11 A. I believe placing a rectal tube would be markedly less
12 uncomfortable, when done involuntarily, than placing any kind
13 of venous access.

14 Q. Okay. I just want to clear something up. You were asked
15 about an instance where somebody took 67 hours to die. Do you
16 remember that?

17 A. I do.

18 Q. Okay. That's not your protocol, correct?

19 A. We don't know for sure because it was a mix, but the
20 overwhelming percentage of the cases used in those figures were
21 standard dose DDMAPh. I used a higher dose, and I have a much
22 shorter mean and a shorter outlier for that matter as well.

23 Q. I'm sorry. I guess I asked an unclear question. That
24 number is not based on the high dose DDMAPh regimen that you
25 are recommending here, correct?

1 A. That is correct.

2 **MR. STRONSKI:** No further questions, Your Honor.

3 **THE COURT:** Thank you, Dr. Blanke. You may step
4 down.

5 **THE WITNESS:** Thank you very much.

6 **THE COURT:** We will take a 15-minute recess. Before
7 we do, let's talk about what we have left. It looks to me like
8 we have, at the most, four witnesses left. Two by the
9 plaintiffs and two by the defendants?

10 **MR. STRONSKI:** We have three witnesses.

11 **THE COURT:** You have three and the defendants have
12 two?

13 **MR. CODY:** Two, Your Honor.

14 **THE COURT:** Okay. Well, let's take a 15-minute
15 recess.

16 (RECESS TAKEN AT 1:48 P.M. UNTIL 2:09 P.M.)

17 **THE COURT:** Just so you all know, the next break will
18 be at 3:15 because we are going to change out court reporters,
19 and it will take the next court reporter a few minutes to set
20 up her equipment. The next witness? Hello, next witness.

21 **COURT REPORTER:** State your name, please.

22 **MS. HALSTEAD:** My name is Ellen Halstead. I
23 represent the plaintiff. We are calling Seth Smith, please.

24 (OATH ADMINISTERED.)

25 **DEPUTY CLERK:** Would you please state your name and

1 spell it for the record.

2 **THE WITNESS:** Sure. Seth, S-E-T-H, Henry, H-E-N-R-Y,
3 Smith, S-M-I-T-H, Jr.

4 **SETH HENRY SMITH, JR.,**
5 having first been duly sworn, testified as follows:

6 **DIRECT EXAMINATION**

7 **MS. HALSTEAD:** I apologize, Your Honor. If you could
8 give me a minute, please.

9 **BY MS. HALSTEAD:**

10 Q. Good afternoon, Mr. Smith.

11 A. Good afternoon.

12 **MS. HALSTEAD:** Your Honor, I have what's been marked
13 as Plaintiff's Exhibit 1 for identification.

14 **THE COURT:** Okay. You can put it on, but it's not
15 going to be published until it is admitted.

16 **MS. HALSTEAD:** May I show it to the witness.

17 **THE COURT:** You may. She is going to put it on for
18 you, but you have got to publish it from your counsel table,
19 but it is on just the witness monitor.

20 **MS. HALSTEAD:** Please put up the first page, please.

21 **BY MS. HALSTEAD:**

22 Q. Mr. Smith, I'm showing what's been marked as Plaintiff's
23 Exhibit 1 for identification.

24 A. Okay.

25 Q. What is it?

1 A. It is the department regulation number OPD-8 death
2 penalty.

3 Q. Do you recognize it?

4 A. I do.

5 Q. How do you recognize it?

6 A. I've reviewed it and read it.

7 Q. Is this a fair and accurate representation of the
8 regulation?

9 A. That is the regulation.

10 **MS. HALSTEAD:** Your Honor, I move to admit
11 Plaintiff's Exhibit 1 into evidence.

12 **THE COURT:** Any objection?

13 **MR. CODY:** No objection, Your Honor.

14 **THE COURT:** P-1 is admitted.

15 **MS. HALSTEAD:** Additionally, Your Honor, I also want
16 to show the witness Plaintiff's Exhibit 3, but I do not want to
17 show it to the Court. I just want to have it admitted into
18 evidence. It's a copy of Plaintiff's Exhibit 1. It's a --
19 it's an unredacted version.

20 **DEPUTY CLERK:** Is that what you have up now?

21 **THE COURT:** Okay. The P-3 is the unredacted
22 regulation. Well, why don't you get it admitted first and then
23 we will deal with how we are going to protect it.

24 **BY MS. HALSTEAD:**

25 Q. Mr. Smith, you should be seeing -- you need to please pull

1 up Exhibit 3, please, so the witness can see it. It should not
2 be put into open court.

3 Mr. Smith, I'm showing you what has been marked as
4 Plaintiff's Exhibit 3 for identification. What is it?

5 A. It is the unredacted of the same reg, OPD-8.

6 Q. And you recognize it?

7 A. I do.

8 **MS. HALSTEAD:** Your Honor, I would like to move
9 Plaintiff's Exhibit 3, but I don't want to show it in open
10 court, due to the highly confidential nature. That's
11 defendant's position. It's not my position.

12 **MR. CODY:** Your Honor, no objection to the admission
13 of Exhibit 3. However, defendants do reserve the right to file
14 a motion to seal or otherwise to protect it from disclosure.

15 **THE COURT:** If I admit it, unless it is sealed, it is
16 disclosed. So you mean to say you want it sealed?

17 **MR. CODY:** We do want it sealed, Your Honor.

18 **THE COURT:** P-3 will be admitted into the record
19 under seal. P-1 is not under seal. Subsequent to this
20 testimony, if the plaintiffs want to argue or present a
21 subsequent motion as to why P-3 should be unsealed, they may do
22 so. It's up to you, Mr. Cody, to protect the seal. So what's
23 going to happen, ladies and gentlemen, is that when P-3 is
24 referenced, it will not be displayed on the screen for the
25 gallery. It will be shown to both counsel table and to the

1 witness and to the Court. You may proceed, ma'am.

2 **BY MS. HALSTEAD:**

3 Q. Please pull up Plaintiff's Exhibit 1.

4 **MS. HALSTEAD:** And Your Honor, since it is admitted
5 into evidence, we can publish. We can show it to the
6 courtroom.

7 **THE COURT:** Correct.

8 **BY MS. HALSTEAD:**

9 Q. Mr. Smith, I'm going to refer to Plaintiff's Exhibit 1 as
10 the execution protocol. Do you understand that reference?

11 A. I do.

12 Q. This is the current execution protocol, right?

13 A. It's the current regulation. The protocol is attached.

14 Q. And it's dated February 7th, 2025, correct?

15 A. Correct.

16 Q. Doctors were not consulted in creating the execution
17 protocol?

18 A. No, ma'am.

19 Q. No medical professional was consulted in creating the
20 execution protocol?

21 A. No, ma'am.

22 Q. No medical professional has given input into the execution
23 protocol?

24 A. No, ma'am.

25 Q. Medical textbooks were not considered in creating the

1 execution protocol?

2 A. That's correct.

3 Q. Medical journals were not considered in creating the
4 execution protocol?

5 A. Correct.

6 Q. No doctor has looked at the execution protocol to make
7 sure there are adequate safeguards so that the condemned inmate
8 will not suffer pain in the execution process?

9 A. I believe we had an expert witness that went and viewed
10 the execution process, and I'm not sure about the protocol.

11 Q. Other than your -- the expert witness is paid, correct?

12 A. Correct.

13 Q. Other than your paid expert witness, no other doctor has
14 looked at the current execution protocol to make sure there are
15 adequate safeguards so that the condemned inmate will not
16 suffer pain in the execution; is that correct?

17 A. That's correct.

18 Q. Other than your paid expert witness, no medical
19 professional has looked at the current execution protocol to
20 make sure there are adequate safeguards so that the condemned
21 inmate will not suffer pain in the execution protocol?

22 A. Correct.

23 Q. The expert witness you referred to, is that Dr. Antonelli
24 (sic)?

25 A. Correct.

1 Q. Other than Dr. Antonelli (sic), no doctor has looked at
2 the current execution protocol to make sure there are adequate
3 safeguards so that the condemned inmate will not suffer torture
4 in execution; is that right?

5 **THE COURT:** Just a minute. Mr. Cody, do you have
6 something that you would like to say?

7 **MR. CODY:** Just to note for the record, and this may
8 continue to happen, but Dr. Antognini is the name of the
9 expert.

10 **THE COURT:** Yes, I think for the record, let's say
11 Antognini and not Antonelli because you may end up with
12 somebody not knowing who you are talking about on review or
13 whatever. So it's Antognini. You may proceed.

14 **BY MS. HALSTEAD:**

15 Q. Other than Dr. Antognini, no medical professional has
16 looked at the current protocol to make sure there are adequate
17 safeguards so that the condemned inmate will not suffer torture
18 in the execution process?

19 A. Correct.

20 Q. Louisiana's nitrogen hypoxide (sic) execution protocol
21 mirrors Alabama's nitrogen hypoxide execution protocol; is that
22 right?

23 A. It's almost exactly. And I believe it is nitrogen hypoxia
24 in the way it's referred to in the system, in the regulation.

25 Q. In creating the execution protocol, the Department of

1 Corrections only looked at Alabama's protocol?

2 A. Correct.

3 Q. The Department of Corrections did not look at any other
4 state's nitrogen hypoxia execution protocol?

5 A. Correct.

6 Q. Can you please turn to, in Exhibit 1, please turn to
7 attachment F, paragraph R. Mr. Smith, I'm referring you to
8 paragraph R, subparagraph 1 of attachment F. Do you see that
9 on the screen?

10 A. I do.

11 Q. And I'm going to read it. "After the nitrogen gas is
12 introduced, it will be administered for, (1), 15 minutes, or
13 (2), five minutes following a flat-lined indication on the EKG,
14 whichever is longer, at a flow rate of 70L/minute." Do you see
15 that?

16 A. I do.

17 Q. The Department of Corrections copied this 15 minutes from
18 Alabama; is that right?

19 A. That is correct.

20 Q. And the D.O.C. also copied the five minutes that's
21 referred to here from Alabama?

22 A. Yes, ma'am.

23 Q. Louisiana's statute provides that execution can take place
24 by nitrogen gas, electrocution, or lethal injection?

25 A. Correct.

1 Q. In determining to execute Mr. Hoffman, the Department of
2 Corrections did not consider electrocution as a method?

3 A. Correct.

4 Q. In determining to execute Mr. Hoffman, the D.O.C. did not
5 consider lethal injection as an execution method?

6 A. It's not a method we could carry out. Therefore, no.

7 Q. The Department of Corrections did not consider using
8 medical-aid-in-dying as an execution method?

9 A. It's not a legal method in the state of Louisiana, so no.

10 Q. And it's the Department of Correction's position that they
11 cannot carry out a medical-aid-in-dying with a noncompliant
12 person?

13 A. The execution isn't allowed by using that procedure, so we
14 have not looked into it at that level, but I would say that,
15 no, we couldn't.

16 Q. The Department of Corrections is not using a firing squad
17 in Mr. Hoffman's execution?

18 A. Correct.

19 Q. The Department of Corrections has not reviewed other
20 states' execution protocols for a firing squad as a method of
21 execution?

22 A. Correct.

23 Q. The Louisiana State Penitentiary has a gun range; is that
24 correct?

25 A. That is correct.

1 Q. The Department of Corrections maintains a supply of
2 firearms?

3 A. We do.

4 Q. The Department of Corrections maintains a supply of
5 ammunition?

6 A. Correct.

7 Q. The Department of Corrections employs people who are
8 comfortable in using firearms?

9 A. Absolutely.

10 Q. The Department of Corrections employs people who are
11 trained in using firearms?

12 A. Yes, ma'am.

13 Q. But the Department of Corrections did not identify
14 personnel who could carry out an execution by firing squad?

15 A. Ma'am, it's not a legal method of execution in the state
16 of Louisiana. Therefore, we have not looked into it.

17 Q. This is a yes or no question, Mr. Smith.

18 A. Ask it again.

19 Q. The Department of Corrections has not identified personnel
20 who can carry out an execution by firing squad; yes or no?

21 A. No, ma'am.

22 Q. Mr. Smith, Exhibit 1 refers to an execution team; is that
23 right? And feel free if you want to look at another page.

24 A. Yes, it does refer to an execution team.

25 Q. There are no medical doctors on the execution team?

1 A. Correct.

2 Q. There are no anesthesiologists on the execution team?

3 A. Also correct.

4 Q. The person who will place the gas mask on Mr. Hoffman's
5 face is a corrections officer; is that correct?

6 A. That's correct.

7 Q. And that person does not have medical training; is that
8 correct?

9 A. That is also correct.

10 Q. The person who obtained the nitrogen gas that will be used
11 in Mr. Hoffman's execution does maintenance for the Louisiana
12 State Penitentiary, correct?

13 A. Correct.

14 **MR. CODY:** Your Honor, I just have to object. The
15 parties agreed 15:570 would be honored as far as keeping
16 confidential the identities or information that could lead to
17 the identification of people. When we are pinpointing specific
18 roles like this, that is when we are getting into that area.

19 **THE COURT:** Ms. Halstead, do you want to respond?

20 **MS. HALSTEAD:** Your Honor, I identified these two
21 people as a corrections officer and a maintenance person. I
22 don't believe those are specific identities.

23 **THE COURT:** Overruled. Did he answer the question?

24 **THE WITNESS:** I did.

25 **THE COURT:** Okay. Thank you.

1 **BY MS. HALSTEAD:**

2 Q. And this maintenance person who obtains the nitrogen gas,
3 he also maintains the nitrogen gas system that will be used in
4 Mr. Hoffman's execution?

5 A. Correct.

6 Q. And this maintenance person also checks the nitrogen gas
7 flow that will be used in Mr. Hoffman's execution?

8 A. Correct.

9 Q. This maintenance person does not have any medical
10 training?

11 A. Correct.

12 Q. On the day of Mr. Hoffman's execution, after 3:00 p.m.,
13 the warden can terminate Mr. Hoffman's contact with his
14 attorneys?

15 A. Correct.

16 Q. On the day of Mr. Hoffman's execution, after 3:00 p.m.,
17 the warden can also terminate Mr. Hoffman's contact with his
18 religious advisor?

19 A. I would like to see that in the regulation. I believe the
20 verbiage is "may," but he can, yes.

21 Q. The execution protocol is dated February 7, 2025?

22 A. Correct.

23 Q. The Department of Corrections obtained nitrogen gas for
24 Mr. Hoffman's execution in July of 2024?

25 A. We obtained nitrogen at that time. We didn't know who

1 would have the first warrant or anything, but yes, we obtained
2 nitrogen.

3 Q. So the nitrogen gas that will be used for Mr. Hoffman's
4 execution was obtained in July of 2024; yes or no?

5 A. Again, that's a possibly because we have obtained other
6 nitrogen since then, and some of those tanks have been
7 depleted, so I can't tell you that we are going to use that
8 bottle.

9 Q. So, yes or no, you are telling me you don't know when the
10 nitrogen gas that will be used in Mr. Hoffman's execution was
11 obtained?

12 A. No, I don't know.

13 Q. The nitrogen gas that will be used in Mr. Hoffman's
14 execution is not medical grade?

15 A. No, ma'am.

16 Q. The nitrogen gas that will be used for Mr. Hoffman's
17 execution has not been tested to ensure that it has appropriate
18 purity levels?

19 A. Not by us.

20 Q. Is it the Department of Corrections' position that it's
21 not necessary to test the nitrogen gas to ensure that it has
22 the appropriate purity level?

23 A. The nitrogen we are using is ultra high purity that comes
24 from the manufacturer at 99.99 percent. They are responsible
25 for ensuring it is what it is.

1 **MS. HALSTEAD:** Your Honor, I move to strike that
2 answer.

3 **MR. CODY:** Your Honor, he fairly answered the
4 question.

5 **THE COURT:** He did answer the question. Overruled.
6 You can ask the question again and then ask for a yes or no,
7 but he is allowed to explain his answers.

8 **BY MS. HALSTEAD:**

9 Q. Mr. Hoffman -- Mr. Smith, yes or no: The Department of
10 Corrections believes it is not necessary for them to test the
11 nitrogen gas to ensure that it has the appropriate purity
12 level?

13 A. Correct.

14 Q. And Alabama does not test nitrogen gas to ensure that it
15 has the appropriate purity level?

16 **MR. CODY:** Your Honor, I'm going to object to whether
17 this knowledge is even in the scope of this witness.

18 **THE COURT:** If you know, sir.

19 A. I honestly was going to answer that I'm not certain that
20 Alabama does or does not. To my knowledge, they do not.

21 **BY MS. HALSTEAD:**

22 Q. The current execution protocol is dated February 7th,
23 2025?

24 A. Correct.

25 Q. And the current execution protocol was not in effect in

1 August of 2024?

2 A. Also correct.

3 Q. And in August of 2024, the previous execution protocol was
4 in effect, which was dated -- is dated March 2014?

5 A. Correct.

6 Q. And that's the lethal injection protocol?

7 A. Also correct.

8 Q. And the March 2014 execution protocol does not cover
9 nitrogen hypoxide (sic)?

10 A. No, ma'am. Hypoxia.

11 Q. Hypoxia. I apologize. But in August of 2024, the
12 execution team started training on the method that would be
13 used to execute Mr. Hoffman?

14 A. Correct.

15 Q. And the Department of Corrections completed work on the
16 nitrogen hypoxia system that will be used in Mr. Hoffman's
17 execution in September of 2024?

18 A. Correct.

19 Q. And there was no protocol for nitrogen hypoxia execution
20 in effect in August of 2024?

21 A. There was no written protocol in effect, correct.

22 Q. The nitrogen hypoxia protocol does not take the condemned
23 inmate's medical conditions into consideration to determine how
24 the execution will be carried out?

25 A. No, ma'am.

1 Q. The nitrogen hypoxia protocol does not take the condemned
2 inmate's mental condition into consideration to determine how
3 execution will be carried out?

4 A. It is carried out the same, correct.

5 Q. The nitrogen hypoxia protocol does not take the condemned
6 inmate's psychological condition into consideration to
7 determine how the execution will be carried out?

8 A. There's no deviation, correct.

9 Q. The nitrogen hypoxia protocol does not take into
10 consideration that the condemned inmate suffers from PTSD to
11 determine how the execution will be carried out?

12 A. Again, same procedure.

13 Q. The nitrogen hypoxia protocol does not take the condemned
14 inmate's emotional condition into consideration to determine
15 how the execution will be carried out?

16 A. No, ma'am.

17 Q. If the condemned inmate has a beard, the current execution
18 protocol calls for that beard to be shaven before the mask is
19 placed on his face?

20 A. It does.

21 Q. And even if the inmate has a beard for religious reasons,
22 the beard will be shaven before the mask is placed on his face?

23 **MR. CODY:** Objection, Your Honor. Objection.

24 **THE COURT:** What is your objection?

25 **MR. CODY:** That's not in the scope of any of this,

1 Your Honor.

2 **THE COURT:** Not in the scope of any of this?
3 Overruled.

4 **MR. CODY:** It's a religious claim, Your Honor, which
5 you have dismissed from this case.

6 **THE COURT:** Yes, I understand. Overruled.

7 A. At this time, the protocol does read that the beard will
8 be shaven.

9 **BY MS. HALSTEAD:**

10 Q. Thank you, Mr. Smith. Mr. Smith, you submitted a
11 declaration in this case on March 4th, 2025?

12 A. Correct.

13 Q. Mr. Smith, I'm going to read paragraph 35 of your
14 declaration. "For example, in 2018, DPSC executed a
15 certification to Pfizer and its wholesaler, Morris and Dickson,
16 in order to access potential execution drugs solely for the
17 medical care needs of its inmate population, which, if
18 violated, could jeopardize DPSC's ability to utilize these
19 drugs for medical care." Do you recall that?

20 A. I do.

21 Q. This was one certification that DPSC executed; is that
22 correct?

23 A. Correct.

24 Q. The Department of Corrections did not execute another
25 certification?

1 A. I would have to see by declaration. There was something
2 from Hikma, but I'm trying to remember what it was. There was
3 a letter from Hikma we responded to. That's what it was. But
4 yes, that's the only certification.

5 Q. Mr. Smith, would you like to see your declaration to
6 refresh your memory?

7 A. I would. I would.

8 **MS. HALSTEAD:** We are going to have to put that up.

9 **BY MS. HALSTEAD:**

10 Q. Mr. Smith, you're being shown Plaintiff's Exhibit 25. Do
11 you see that?

12 A. I do.

13 Q. Do you need us to scroll to a certain page to refresh your
14 recollection?

15 A. I wanted to see what you were reading. I think you said
16 35.

17 Q. 35, yes.

18 A. Actually, I think I saw it on 41, what I was looking for.
19 Yeah, Hikma.

20 Q. Does that refresh your recollection?

21 A. Yes, it does.

22 Q. Please put it back down. So my question, the Department
23 of Corrections did not execute another certification with a
24 pharmaceutical company?

25 A. Correct.

1 Q. So, in 2018, over 7 years ago, the Department of
2 Corrections executed this one certification?

3 A. Correct.

4 Q. Mr. Smith, I'm going to read paragraph 41 of your
5 declaration. "DPSC has also previously received correspondence
6 from Hikma Pharmaceuticals, PLC, (Hikma) stating that it
7 objected to DPSC's use of any of its drugs for capital
8 punishment, including any restricted drugs listed on its
9 website." Do you recall that statement?

10 A. I do.

11 Q. The Department of Corrections received a letter from Hikma
12 in 2022?

13 A. Correct.

14 Q. The Department of Corrections also received a letter from
15 Hikma in 2023?

16 A. Correct.

17 Q. The Department of Corrections did not receive any other
18 letters from Hikma?

19 A. Not to my knowledge.

20 Q. And the Department of Corrections did not execute a
21 certificate with Hikma?

22 A. Correct.

23 Q. Mr. Smith, I'm going to read the last sentence of
24 paragraph 8 from your declaration. "DPSC has received multiple
25 correspondence from pharmaceutical companies prohibiting the

1 use of their products for lethal injections." Do you see that?

2 A. I don't have it in front of me, so no.

3 Q. Would you like to see it to refresh your memory?

4 A. I would like to see it.

5 **MS. HALSTEAD:** Please put it back up. For the
6 record, I'm putting up Plaintiff's Exhibit 25 back on the
7 screen.

8 **BY MS. HALSTEAD:**

9 Q. Mr. Smith, are you able to see that?

10 A. I am.

11 Q. Does that refresh your memory?

12 A. Which part were you at again?

13 Q. I was at paragraph 8, the last sentence I read.

14 A. Okay. I'm reading the whole thing, not just the last
15 sentence. Okay. Go ahead.

16 Q. You can take it back down. So in reference to the last
17 sentence, the Department of Corrections only received the two
18 letters we just discussed from Hikma?

19 A. My declaration said correspondence, if I remember
20 correctly, and we had verbal correspondence numerous times
21 throughout this with various pharmaceutical manufacturers and
22 our wholesalers. They all told us the same thing. If we get
23 caught using one of their drugs, they are no longer going to
24 supply drugs we need to treat people.

25 **MS. HALSTEAD:** Your Honor, I move to strike the

1 answer.

2 **THE COURT:** Denied.

3 **BY MS. HALSTEAD:**

4 Q. The Department of Corrections only executed a
5 certification with Pfizer and its parent company, Morris and
6 Dickson?

7 A. I think Morris and Dickson is the wholesaler, not the
8 parent company, but yes, we only did one.

9 Q. The Department of Corrections did not receive any other
10 written letters from other pharmaceutical companies prohibiting
11 their use of the products for lethal injection?

12 A. Not that I'm aware of.

13 **MS. HALSTEAD:** Please give me one second, Your Honor.

14 **THE COURT:** Counsel, let's move along, please.

15 Ms. Halstead, it is customary to ask for a short indulgence or
16 break rather than just take one, but you may proceed.

17 **MS. HALSTEAD:** Thank you, Your Honor.

18 **BY MS. HALSTEAD:**

19 Q. Mr. Smith, earlier you testified that you did not look
20 into other execution methods, including firing squad and
21 medical-aid-in-dying, because they were not authorized by law,
22 correct?

23 A. Correct.

24 Q. So you did not look into execution by nitrogen hypoxia
25 before July 2024?

1 A. Yes, ma'am. There was a concurrent resolution that asked
2 a team of us or requested a team of us to do that very thing in
3 2014, I believe, so we did. But it was asked of us, and that
4 was our task.

5 Q. Between 2014 and 2024, did you look into nitrogen hypoxia
6 method of execution?

7 A. Sorry. Give me those dates again.

8 Q. Between -- after 2015, up until July 2024, did you look
9 into the method of execution, nitrogen hypoxia?

10 A. I did.

11 Q. What date?

12 A. I'm not sure what date. I just know that we had that
13 study that I was a part of, and I knew we didn't have any other
14 way of carrying it out, and I definitely have looked into it
15 since then.

16 Q. Has anyone else in the Department of Corrections looked
17 into that method of execution?

18 A. Not to my knowledge.

19 Q. It was only yourself?

20 A. Yes.

21 Q. Thank you.

22 **THE COURT:** Nothing further, ma'am? Ms. Halstead,
23 nothing further?

24 **MS. HALSTEAD:** Nothing further. Yes.

25 **THE COURT:** Okay. I know that Mr. Smith is on your

1 "will call" witness list. Do you want to take your direct now?

2 **MR. CODY:** Your Honor, I reserve the right to bring
3 him back for our direct, if it's okay.

4 **THE COURT:** Well, I mean, why are you going to get
5 two bites at him?

6 **MR. CODY:** Well, if it pleases Your Honor, I will go
7 ahead and take him now. I apologize.

8 **THE COURT:** Please do. Then they will be able to
9 cross on the direct. But I will hold them to crossing on the
10 direct and doing their redirect at the same time so they don't
11 get multiple bites at the apple. So there you go.

12 **MR. CODY:** Yes. Okay. Thank you, Your Honor.

13 **CROSS-EXAMINATION**

14 **BY MR. CODY:**

15 Q. Good afternoon, Mr. Smith.

16 A. Good afternoon.

17 Q. You were asked about various things a moment ago, and I
18 just want to go over some of these with you. You were asked
19 about whether LSP has ammunition for a firing squad. And I
20 just want to make sure I understand.

21 I think you indicated there's a gun range, there's a
22 supply of firearms, maybe some ammunition. Is it your
23 understanding that just any firearms can be used for firing
24 squads?

25 A. Firing squad is not my area of expertise. I'm not aware

1 of which to use or what. I indicated we have ammunition
2 available, not necessarily for that purpose, because we don't.

3 Q. Do you know specifically whether you may have ammunition
4 that could be used for a firing squad?

5 A. I believe any bullet will kill you, so maybe.

6 Q. Okay. You heard -- I don't know -- did you hear Dr.
7 Williams' testimony earlier today?

8 A. I'm not sure which one I came in on.

9 Q. That's fine. And you were also asked -- sorry, I'm having
10 trouble reading my handwriting. You were also asked about
11 whether the person that is placing the mask on the condemned,
12 as far as the nitrogen hypoxia process, has medical training.
13 Is it your understanding whether or not the mask that is
14 utilized by LSP requires any medical training?

15 A. The mask that is being utilized is industrial in nature
16 and has no medical use. Therefore, I see no reason a medical
17 person would be applying it. A medical person would have no
18 training in the use of that mask.

19 Q. I think you said earlier that the gas that is going to be
20 used is not a medical grade?

21 A. It's better than medical grade.

22 Q. All right. Is it your understanding that any medical
23 training is needed for running the nitrogen hypoxia system?

24 A. No, and I'm glad you bring that up. In the medical
25 setting, which I've once worked, other than the flow meter,

1 everything beyond that is done by maintenance. I mean, it is a
2 manifold. It's bottles. It's lines. It's basically plumbing
3 and electrical. I don't believe the medical personnel know how
4 to work on any of that.

5 Q. And I think you said earlier, and I just want to make sure
6 I understand, this ultra high purity, what is that in reference
7 to?

8 A. Nitrogen comes in at least three grades, and I don't claim
9 to be a nitrogen expert, but I know it comes in regular
10 industrial nitrogen, which is somewhere around 95, 97 percent,
11 if I remember correctly. So you can have 3 plus percent
12 impurities, which could be oxygen.

13 Medical grade is typically 99.0 or greater. So, in
14 theory, you could have one percent oxygen. What we are using
15 is ultra high purity, which is 99.999. So 1/1000ths of one
16 percent is the only impurity you can have. So we wouldn't want
17 to use medical grade in this case.

18 Q. Now, do you know if there is any certification that comes
19 with the tanks that indicates the ultra high purity?

20 A. Every tank is labeled with the UHP 300 label, which UHP is
21 the ultra high purity. Our invoices show the UHP. The 300 is
22 merely the size of the tank.

23 Q. You were asked earlier by plaintiff's counsel whether
24 there was a protocol in place when the training began on the
25 nitrogen hypoxia system. Do you recall?

1 A. Yes.

2 Q. And I just want to make sure. So when did LSP receive --
3 or did it receive the Alabama protocol?

4 A. I'm not sure of the exact date, but no later than July.
5 When I said they didn't have the nitrogen protocol in place, we
6 had a protocol. The only thing that changed was what you did
7 after they were strapped to the table. We knew that medication
8 was not available. We knew what Alabama did, so we practiced
9 it as closely as possible until we had a written protocol. So
10 it was a combination of what we brought back from Alabama and
11 what we already had in writing.

12 Q. And earlier you were also asked about things -- statements
13 made in your declaration, and I just want to hone in on maybe
14 one or two of those. In your declaration, you were asked about
15 the certification to Pfizer in 2018.

16 A. Um-hm.

17 Q. What is the Department of Corrections' position on whether
18 or not that certification made in 2018 could or could not be
19 violated?

20 A. Well, I went back and looked at it again, and it does not
21 have an expiration date, first and foremost. But the biggest
22 thing is Morris and Dickson and Pfizer, and other drug
23 manufacturers, maybe not in writing, have made it very clear to
24 us that if we use any of their medication for a capital
25 punishment case, they reserve the right to pull all of their

1 medication off the table.

2 We have an aging population in the prison system. We have
3 large infirmaries. We have full-blown hospitals. We cannot
4 run the risk of losing access to life-saving drugs for this
5 reason, and that's why we did that. We quit pursuing it. We
6 came out and publicly said we quit pursuing it for those
7 reasons, and nothing has changed.

8 Q. And what do you think might happen if the Department of
9 Corrections decided to change course and begin using drugs for
10 lethal injection at this point?

11 A. I'm afraid that we would lose our possibility of getting
12 life-saving drugs that we need for other people. You know, we
13 have got 60-plus in-patient beds at two different facilities.
14 That is 120 in-patient beds. We run a full-fledged hospital at
15 two prisons. We run smaller ones elsewhere. It's not worth
16 sticking our neck out on that risk.

17 Q. Thank you. Now, I want to take you back to when did --
18 you talked a little bit about the historical, I guess, looking
19 into research and that sort of thing, into the nitrogen
20 hypoxia, and I want to take you back to -- what was your
21 understanding of when the law was first considered that made
22 this possible?

23 A. 2000 and -- look, I may have my dates wrong. I would have
24 to look at it again. I think it is in my declaration. I think
25 in 2014, it was Resolution 142 that directed us to do a study.

1 There was a law that was -- a bill that was put out there in
2 '15 that we anticipated was going to pass, and we anticipated
3 we were going to have nitrogen hypoxia moving forward.

4 Now, that bill, if I'm not mistaken, got pulled during
5 that session, and it never moved forward. So that's -- I
6 didn't just up and say, I want to look into nitrogen hypoxia.
7 I was tasked with doing it. I did it. And even though the
8 bill pulled -- I'm not going to tell you that I didn't see a
9 documentary on T.V. about it and say, ooh, I want to watch
10 that, or stumble across literature and say, ooh, I want to
11 watch that, but I have, and that's what I've done.

12 Q. Thank you for that answer. So -- and just to kind of
13 speed up to present a little bit. So when did it first -- when
14 did plans first -- were first initiated to implement some sort
15 of nitrogen hypoxia system at LSP?

16 A. Well, whenever the law changed at the second special
17 session, we knew that we had to look at various ways to apply
18 the law or come into compliance with the law. So after that,
19 we went to Atmore, Alabama in March, and then another group
20 went back in July. And we were trying to replicate as closely
21 as possible the system that they had there because they were
22 the only state that had actually carried one out.

23 Q. Why were you tasked with this?

24 A. Why was I tasked with it? That's a good question. I
25 don't know. I was told to. I'm chief of operations. All of

1 this falls underneath my umbrella. And, you know, maybe --
2 well, I will tell you. It's probably the answer you're fishing
3 for. I have a medical background, quite honestly. I don't
4 currently. I had a Registered Nurse. I let my license go in I
5 want to say 2010. I don't actively work in that field, have
6 not in over a decade and have no desire to go back to it, but
7 it does give me a little bit of knowledge, I guess.

8 Q. Okay. And then I guess to be fair, you did indicate
9 earlier about the study that you were a part of in 2014, 2015?

10 A. Correct.

11 Q. So was that also part of why you were involved in this
12 effort?

13 A. I can only assume as much, yes.

14 Q. Suffice it to say, you have done quite a bit of research
15 into nitrogen hypoxia over the years?

16 A. I have read a lot of literature and seen, well, one
17 documentary in particular, but I've definitely done that.

18 Q. I want to ask you about the trip to Atmore, Alabama. Can
19 you try to describe what that entailed?

20 A. Sure. Basically, we went to Atmore, Alabama, met with
21 their executive staff, basically, and we were taken on a tour
22 of the facility. I want to say the facility. Specifically the
23 execution chamber and everything associated with that.

24 I'm trying to think what else to say on that. Just got to
25 see what the whole process was like. I also got to talk with

1 them because they recently had had their first one, their first
2 execution using that system. So it gave us a chance to consult
3 with somebody that had already been there, done that, so to
4 speak, and kind of learn from their ways.

5 Q. Just to give context to that time period, was that after
6 the Kenny Smith execution?

7 A. If he was the first one, then yes, and I do believe his
8 name was Smith. So, yes.

9 Q. What's your understanding of how many executions have
10 taken place in Alabama at this point?

11 A. It's three or four. I want to say four.

12 Q. Were all of those with nitrogen hypoxia; do you know?

13 A. There may have been more executions. There's either been
14 three or four with nitrogen. That much I know.

15 Q. Thank you. So you kind of explained the trip, but I just
16 wanted to ask some specifics about what you saw.

17 A. Sure.

18 Q. Was there any sort of mask involved?

19 A. Yes.

20 Q. Can you describe the mask?

21 A. The mask is very similar, if not identical, to the one we
22 have. It's a -- I think it's called a single source or a
23 source respirator mask. It's a silicone mask with -- I want to
24 say it's got a plexi-glass screen. It has a tube going in it
25 to supply you with air. I was told it was a mask that

1 typically would be used for painters or sandblasters where you
2 are in an environment where you don't want to breathe the air
3 you are working in, either because of the quality of the air or
4 the particulates that might be in the air.

5 It has a hose coming into it. It flows into you. You
6 breathe. You are able to exhale. It has got a very wide
7 gasket, so to speak, that seals around you, so it accommodates
8 various sizes. It's not just a -- you know, you measure my
9 head and get one specific for me. The thing around it, the
10 gasket type material that seals to you I would say is at least
11 3 to 4 inches that goes up against your face, that straps
12 around the back. That is pretty much it.

13 Q. Thank you. So you get back from the trip to Alabama.
14 What were the next steps involved in trying to implement this
15 process at LSP?

16 A. Well, the next step there was talking to the warden, who
17 actually was with me, and relaying to them what I wanted to see
18 built. And that's where the process started off.

19 Q. Okay. Just for the record, was that the LSP warden at the
20 time?

21 A. Correct. Tim Hooper, not the current one.

22 Q. What were the next steps after, I guess, the discussions
23 with the warden?

24 A. They ordered components to try to comply with my request,
25 and quite honestly, they missed the mark. And then we went and

1 looked at it again, and apparently Warden Hooper's memory
2 wasn't as good as mine, and I ultimately sent a team back to go
3 take another look with the right people that knew what they
4 were looking at so we could make it better and, if anything,
5 improve upon what we had seen in Alabama.

6 Q. Okay. I'm just trying to get some context here. So the
7 first trip, I think you said, may have been in March of 2024?

8 A. Correct.

9 Q. Okay. So by the time of your viewing of the construction
10 or the setup at LSP, approximately when was that in the year?

11 A. Probably early July.

12 Q. July of 2024?

13 A. Correct, based upon when their trip was, because I know
14 they went back in July.

15 Q. And then I think you said something about another trip.
16 Did you go on that trip?

17 A. No, I did not.

18 Q. Okay. And without identifying who went on the trip, so
19 what do you know about that trip?

20 A. I know that we had some people that were more directly
21 involved with piping, maintenance type work, that needed to go
22 take a look because it was the particulars there that our
23 memories were different, and I needed to send somebody that had
24 a little more working knowledge with that system. So that's
25 what they went there for, more of the details, more in the

1 weeds.

2 Q. Okay. Is it your understanding that the people that went
3 on that second trip, did they see everything they needed to see
4 with respect to the Alabama system?

5 A. I would say so, yes.

6 Q. Okay. And do you understand what steps were taken when
7 they got back from the Alabama trip?

8 A. Correct. They ordered new equipment/parts, pieces, to
9 assemble what is there today, fittings, things of that nature.

10 Q. Okay. Now, I want to take you a little bit back. When
11 you first saw the system before that second Alabama trip, were
12 there any things that -- any items, I guess I should say, or
13 components that appeared to definitely be missing from the
14 setup at that point?

15 A. Well, what they had built the first time would work.
16 Okay? I'm not saying it was substandard and would not work.
17 But it left more room for human error. Specifically, the way
18 that it was set up, and I may have to remember the one that's
19 no longer there, it had manual manifolds, meaning that you had
20 gauges on bottles, both breathing air and on nitrogen. If the
21 breathing air were to be depleted or the nitrogen air was to be
22 depleted during this process, it would have to rely on someone
23 looking at it, manually switching it over at the time, and
24 increasing possible issues.

25 The system that I wanted and the one that we have that

1 mirrors Alabama has two electronic manifolds. Each manifold
2 has two bottles going to it. One has two nitrogen, one has two
3 breathing air. Whenever you turn that on, it tells you what
4 the pressure is at the bottle. It tells you what the pressure
5 is coming out the tank. And with manual gauges, it did this
6 before, but now it has an electronic telling you.

7 On the manifold -- let's just talk about one side, the
8 nitrogen side. One side is going to have a green light and say
9 "Ready," and the other one is going to have a yellow light and
10 say -- or one is going to say "Ready in use," and the other is
11 going to say "Stand by". If that bottle were to deplete down
12 to I want to say 200 psi, which still means you've got gas, it
13 automatically flips without a break in service. So there's no
14 pause in receiving air or nitrogen. It automatically flips.
15 This one goes red. You have got all the time in the world to
16 change that bottle out, and it can go back and forth forever
17 with no break. That was the big thing that they were missing,
18 and that's what we had added. I don't know if that answers
19 your question or not.

20 Q. I think so. If I understand you correctly, the special
21 manifold was something that the Alabama system appeared to
22 have?

23 A. Yes, they had that system.

24 Q. So when the personnel get back from that second trip to
25 Alabama, do you know if those items were ordered?

1 A. Yes, they were.

2 Q. Okay. And approximately when do you think the mask was
3 ordered?

4 A. About the same time because they didn't have the mask.
5 You are correct.

6 Q. And you did describe the mask earlier. Do you know
7 anything about the flow rates or --

8 A. Sure.

9 Q. What do you know about the flow rate?

10 A. The flow rate that Alabama used and what we have in our
11 protocol is 70 liters per minute, which -- I'm getting ahead of
12 myself here. I was a little concerned. I'm not going to lie
13 to you because 70 liters a minute seems like a lot, but in
14 researching it, the mask actually can go higher than that. So
15 I actually went and tried one on, put it at 70 liters myself in
16 probably August or September, just to see what that would be
17 like, as far as if it was too much coming at you at once and
18 become aggravating, I guess, which it absolutely did not.

19 I also made a point of making breaths, and I have facial
20 hair, so I -- I did at that time, trying to see if it would
21 break the seal. And two things I can tell you, I couldn't
22 inhale more than it was giving me, so it was sufficient, and I
23 could not break the seal.

24 Q. Just for clarity of the record, I assume this was not with
25 nitrogen gas that you wore the mask?

1 A. I would not be here if it was with nitrogen gas. You are
2 correct.

3 Q. So what kind of air or gas were you breathing at that
4 time?

5 A. Breathing quality air. It's a tank you also get from a
6 gas supplier, and that's what it's labeled, "Breathing quality
7 air."

8 Q. All right. Now, you had mentioned -- so you said you
9 came, I guess, in the fall when you wore the mask?

10 A. Correct.

11 Q. What were you there for at the time?

12 A. I can't tell you the exact reason I was at Angola, but
13 while I was there, I observed a training. I went and saw the
14 entire system, and I saw a training.

15 Q. Approximately how many trainings have you observed?

16 A. At least three. It's possibly more, but at least three.

17 Q. I think you indicated earlier that the protocol was not --
18 the current protocol was not in place at that time, but there
19 was, I guess, a process based on the old protocol?

20 A. Can I walk you through one versus the other?

21 Q. Oh, please.

22 A. The old protocol basically starts where you go to the Camp
23 F cell block, which is right adjacent to the room. They go in,
24 they fully iron up someone who, if there is a condemned named,
25 is roughly the same size. They escort them to the execution

1 chamber. They strap them down. The IV and the IV team would
2 come in, start an IV, go in the next room. In this case, you
3 strap the mask on them, and the room is exited by everybody
4 except the warden, a designee, a spiritual advisor, if there is
5 one.

6 So the only thing we did differently is we knew we would
7 not be able to carry out a lethal injection. We were doing
8 what we assumed would be nitrogen, because it was on the books
9 and we actually had it. Now, we didn't have a written
10 protocol, but again, we had the knowledge from Alabama combined
11 with the protocol we had, and we modified it to basically what
12 is in writing today.

13 Q. Thank you. Going back to the mask for a moment, you
14 indicated you had the mask on. You are familiar with the
15 operation or the function of the mask?

16 A. Correct.

17 Q. So is there any type of valve or release for gas on the
18 mask?

19 A. It definitely allows you to exhale. I mean, if not, it
20 would just swell up on your face and cause discomfort and cause
21 pressure. When we were in Alabama, we even asked about that,
22 because not being that familiar with the nitrogen, you know, do
23 I want to be in the room with somebody that's getting nitrogen
24 applied to them at this level? And they are the ones that
25 showed us the oxygen monitors that you wear.

1 What we are breathing right now is 98 percent nitrogen,
2 and believe it or not, what is coming out of that mask is not
3 going to change that. It really dilutes very well. And also,
4 nitrogen is lighter than oxygen, and it is going to rise to the
5 top, and we have got exhaust fans in the chamber to exhaust it
6 out.

7 Q. The exhaust fans you mentioned, is that a new item that
8 was added to the death chamber?

9 A. Correct. We pulled a window unit, air-conditioning unit
10 out and in that space put two exhaust fans, not one, just in
11 case there's an issue, two independent exhaust fans. And even
12 if there was an issue, there would not be one, quite honestly,
13 but in an abundance of caution, we put in two exhaust fans and
14 then went back with a different type, different style
15 air-conditioning for climate control.

16 Q. Now, you mentioned oxygen monitors. Can you kind of
17 elaborate on what that means?

18 A. Sure. You know, we aren't really concerned with how much
19 nitrogen is in the air. You asked me about oxygen monitors.
20 You could measure whatever gas you want, but honestly, what we
21 need to know is how much oxygen is in the air.

22 Again, 78 percent of the air is typically going to be
23 nitrogen. Roughly 20 percent, 20.9 is going to be oxygen. So
24 we have the visiting -- I say the visiting -- the observation
25 room, the witnessing room, we have the chamber itself, and then

1 we have the room where the bottles are stored and where the
2 valves and all of that are. All of those are equipped with a
3 permanently mounted oxygen monitor to monitor the room and its
4 oxygen content the entire time. They have alarms set, and I
5 think from the manufacturer they came at 18.5 percent and we
6 left them there. So if the oxygen were to get below that --
7 you don't have to have somebody sitting there staring at it.
8 It's going to yell at you if it drops. And at 18.5, you still
9 have plenty of oxygen. It's not a big deal.

10 But in addition to that, we have portable ones that you
11 can wear. You actually turn them on. They self-calibrate.
12 You see that they are reading 20.9. You compare them to
13 everybody else. Okay. We are good to go. Those are tested
14 per the manufacturer's instructions. We hit them with straight
15 nitrogen and see them deplete to where we know that they all
16 function.

17 Q. Thank you. And have you witnessed any trainings this
18 year? Well, let me back up. Have you witnessed any trainings
19 since the protocol that is in place today was executed?

20 A. Yes.

21 Q. Okay. Can you describe -- was that training -- were you
22 satisfied with that training?

23 A. I was very satisfied with that training. If I'm not
24 mistaken, it was February 14th, because it was Valentine's Day.
25 And I got to watch the whole process. I think they actually

1 ran through it a couple of times. But at that point,
2 obviously, Warden Vannoy was the warden there, and like I say,
3 we went start to finish with the entire process, and very
4 satisfied, yeah. Didn't see any issues with any of it.

5 Q. Let me ask you this. Who acts in place of the condemned
6 for a training?

7 A. It depends on who the condemned is. Once we have a date
8 and a warrant, we are going to try to find someone who is
9 similar size and body type. You are not going to be able to
10 match them exactly, but that's what they do.

11 Q. So for the one that you witnessed on the 14th, was
12 somebody acting as condemned, I assume?

13 A. We always have somebody acting as condemned. I'm trying
14 to remember if we had a warrant or not. I do know that we had
15 a small female, so it is possible.

16 Q. I just wanted to make sure, the small female you
17 referenced was not with regard to the execution that we are
18 dealing with here today?

19 A. No, absolutely not.

20 Q. And so, let's see, the protocol was in the works, I guess,
21 when you were doing the trainings in the fall?

22 A. Yes, the protocol has been in the works, you know. I hate
23 to say attorneys, but you send something there, they send it
24 back, and you sort through it until you get it all where you
25 feel like you are good with it. And then as you see, we turned

1 around and still found a few little issues and fixed it. So it
2 was going back and forth.

3 **MR. CODY:** Your Honor, if I may have just a little
4 time to confer.

5 **THE COURT:** You may.

6 **MR. CODY:** Thank you, Your Honor.

7 **BY MR. CODY:**

8 Q. I just want to get kind of a more vivid description for
9 the Court's benefit of the process from essentially the tanks
10 to the mask.

11 A. Okay. First of all, we are going to have a storage area
12 where we have multiple tanks that are not in use, but they are
13 full and ready to be in use. I'm just working myself across
14 the room as I see it. So you have to bear with me.

15 First we have a storage area that has both nitrogen and
16 breathing air clearly labeled. Move over, you are going to
17 have your two manifolds. Your two manifolds are each going to
18 have two bottles, as I said earlier. Both of those are going
19 to read a minimum of 500 psi per bottle on both sides. So we
20 are going to have four readings. All of them are going to be
21 500 or greater.

22 Then they are going to go out. There's going to be two
23 exits or two ways out on this, two pipes going out. One pipe
24 going out is a vent. That pipe is just in case -- it's like a
25 pop-off valve in a hot water heater. If it overpressures for

1 any reason, there's a way for it to safely exhaust, and it
2 does, it exhausts to the outside air, which is perfectly fine
3 with either gas.

4 The other pipe is the important one when it comes out of
5 each. They are both going to come out of the top and be routed
6 to the next room. They are both labeled as they go as to which
7 one is which. They are going to go from there to a T. Yeah --
8 it is going to go to a T which goes and feeds to a flow meter.
9 Now, prior to the T -- and this is important. Prior to the T,
10 there is a manual gauge on both lines. We know that it is
11 leaving at 50 psi out of the manifolds. The person that's
12 sitting there monitoring this has the manual gauges to look at
13 and verify 50. So if there is an issue, we have a redundancy.

14 Okay. From there, it goes, like I said, to a T, and then
15 it goes to a flow meter. The process is, as you run breathing
16 air, so the same air we are breathing right now, just coming
17 from a bottle into that mask, until the time comes to turn on
18 the nitrogen. You turn on the nitrogen, off the gas. It's at
19 70 liters per minute. It doesn't matter if you've got them
20 both wide open. All you are going to get is 70. But that
21 allows it to where the person that's wearing the mask never
22 knows when the air gets turned off and when the gas gets turned
23 on. They are both tasteless and odorless. So I believe that
24 has got every piece of it from there to there.

25 Q. Thank you.

1 A. I'm sorry. I cut you -- but from the bottom of the flow
2 meter, you are at 70 liters per minute, and then it is going to
3 go to a tube, and that tube is actually going to exit the room
4 and do a quick connect into the mask, and that's the one place
5 that we saw that Alabama was doing and we said we wanted to do
6 it a little better. They were using a more medical grade hose,
7 and we went to a bigger, heavier, something less likely to get
8 kinked. But that's from start to finish.

9 Q. Very good. Thank you.

10 **MR. CODY:** Your Honor, at this point, I have no
11 further questions. I would like to go ahead and ask that the
12 Smith declaration be admitted into evidence. He was
13 cross-examined on that or examined on that extensively, and he
14 identified it.

15 **THE COURT:** Any objection to the Smith declaration.

16 **MS. HALSTEAD:** We object to it as hearsay.

17 **THE COURT:** Sustained. Ms. Halstead, we are going to
18 need to break in five minutes. Do you want to take a -- you
19 can have more than five minutes. You are going to need to do
20 your redirect and your cross.

21 **MS. HALSTEAD:** Yes, we would like a break, Your
22 Honor, please.

23 **THE COURT:** Okay. We are going to break until
24 3:30 so we can change out the court reporters.

25 (THE REMAINDER OF THE HEARING IS FOUND UNDER SEPARATE COVER

1 IN VOLUME 2.)

2
3
4 CERTIFICATE OF COURT REPORTER

5
6 I, Teri B. Norton, RMR, FCRR, RDR, Official Court
7 Reporter for the United States District Court for the Southern
8 District of Mississippi, appointed pursuant to the provisions
9 of Title 28, United States Code, Section 753, do hereby certify
10 that the foregoing is a correct transcript of the proceedings
11 reported by me using the stenotype reporting method in
12 conjunction with computer-aided transcription, and that same is
13 a true and correct transcript to the best of my ability and
14 understanding.

15 I further certify that the transcript fees and format
16 comply with those prescribed by the Court and the Judicial
17 Conference of the United States.

18
19
20
21 *S/ Teri B. Norton*
22 TERI B. NORTON, RMR, FCRR, RDR
23 OFFICIAL COURT REPORTER
24
25

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UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

JESSIE HOFFMAN : CIVIL ACTION
VERSUS : NO. 3:25-169-SDD-SDJ
GARY WESTCOTT, ET AL : MARCH 7, 2025

=====
HEARING ON MOTION FOR PRELIMINARY INJUNCTION
BEFORE THE HONORABLE SHELLY D. DICK
UNITED STATES CHIEF DISTRICT JUDGE

VOLUME 2 OF 2

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PROCEEDINGS RECORDED BY MECHANICAL STENOGRAPHY USING
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1 (MARCH 7, 2025 VOLUME 2)

2 PROCEEDINGS

3 THE LAW CLERK: ALL RISE.

4 COURT IS NOW IN SESSION.

5 THE COURT: BE SEATED.

6 MS. HALSTEAD, YOUR WITNESS. GO AHEAD,
7 MA'AM.

8 REDIRECT EXAMINATION

9 BY MS. HALSTEAD:

10 Q MR. SMITH, YOU TESTIFIED THAT YOU HAD ORAL
11 COMMUNICATIONS WITH PHARMACEUTICAL COMPANIES OTHER
12 THAN HIKMA, PFIZER AND ITS WHOLESALER MORRIS &
13 DICKSON. DO YOU RECALL THAT?

14 A THE DEPARTMENT DID, NOT ME SPECIFICALLY.

15 Q WHO ARE THOSE OTHER COMPANIES?

16 A I CAN'T TELL YOU OFF-THE-CUFF. THE TWO HEAD
17 PHARMACISTS AT THE TWO REGIONAL PHARMACIES ARE THE
18 ONES THAT RELAYED THAT INFORMATION TO ME.

19 Q WHAT ARE THEIR NAMES?

20 A JONATHAN TRAVIS WOULD BE ONE OF THEM, AND
21 THE OTHER ONE WOULD BE -- I'M DRAWING A BLANK AS TO
22 HER NAME. I CAN PICTURE HER. HANG ON. MARY
23 LABATUT.

24 Q THE DEPARTMENT OF CORRECTIONS CANNOT OBTAIN
25 LETHAL INJECTION DRUGS. IS THAT RIGHT?

1 A THAT'S CORRECT. WELL, NO. HANG ON. WE CAN
2 OBTAIN THEM BUT NOT FOR THAT USE.

3 Q BUT LETHAL INJECTION IS IN THE CURRENT
4 PROTOCOL. CORRECT?

5 A CORRECT.

6 Q BUT ELECTROCUTION IS NOT IN THE CURRENT
7 PROTOCOL?

8 A CORRECT.

9 Q YOU TESTIFIED THAT THE DEPARTMENT OF
10 CORRECTIONS OBTAINED ALTER-HIGH-PURITY NITROGEN GAS?

11 A CORRECT.

12 Q THE DEPARTMENT OF CORRECTIONS IS JUST GOING
13 TO USE THAT FOR EXECUTIONS?

14 A THAT'S THE ONLY THING I KNOW WE'RE GOING TO
15 USE IT FOR, CORRECT.

16 **MS. HALSTEAD:** YOUR HONOR, I WOULD LIKE TO
17 PUT UP PLAINTIFF'S EXHIBIT 135.

18 **THE COURT:** FOR THE WITNESS ONLY.

19 **BY MS. HALSTEAD:**

20 Q MR. SMITH, I'M SHOWING YOU WHAT'S BEEN
21 MARKED AS PLAINTIFF'S EXHIBIT 135. WHAT IS IT?

22 A THAT'S THE CERTIFICATION TO -- SENT TO
23 HOSPIRA, WHICH IS A PFIZER COMPANY, AND THE
24 WHOLESALER MORRISON & DICKSON OR MORRIS & DICKSON.

25 Q DO YOU RECOGNIZE IT?

1 A I DO.

2 Q HOW DO YOU RECOGNIZE IT?

3 A I'VE SEEN IT.

4 Q THIS IS A CERTIFICATION THAT YOU REFERRED TO
5 IN YOUR DECLARATION?

6 A THAT'S CORRECT.

7 **MS. HALSTEAD:** YOUR HONOR, I MOVE TO ADMIT
8 PLAINTIFF'S EXHIBIT 135 INTO EVIDENCE.

9 **THE COURT:** ANY OBJECTION, COUNSEL?

10 **MR. CODY:** NO OBJECTION, YOUR HONOR.

11 **THE COURT:** ADMITTED. IT MAY BE PUBLISHED.

12 **BY MS. HALSTEAD:**

13 Q MR. SMITH, I WANT TO REFER YOU TO THE
14 PORTION OF YOUR CERTIFICATION THAT -- THE SECOND
15 PARAGRAPH THAT SAYS "I FURTHER CERTIFY THAT OUR
16 ORGANIZATION AND NONE OF ITS SUBSIDIARIES OR
17 AFFILIATED ORGANIZATIONS ADMINISTER CAPITAL
18 PUNISHMENT."

19 DO YOU SEE THAT?

20 A I DO.

21 Q WAS THAT A TRUE STATEMENT IN 2018?

22 A IT WAS NOT A TRUE STATEMENT IN 2018.

23 Q IS THAT A TRUE STATEMENT TODAY?

24 A NO, IT'S NOT.

25 Q MR. SMITH, YOU REFERRED TO A 2015 STUDY

1 COMMITTEE?

2 A CORRECT.

3 Q THAT STUDY COMMITTEE WAS TO STUDY METHODS OF
4 EXECUTION?

5 A I BELIEVE IT WAS NITROGEN HYPOXIA SPECIFIC.

6 Q THE STUDY COMMITTEE WAS ONLY STUDYING
7 NITROGEN HYPOXIA?

8 A I WOULD NEED TO SEE THE RESOLUTION, BUT I
9 BELIEVE THAT'S CORRECT. I BELIEVE IT WAS TO STUDY
10 NITROGEN HYPOXIA.

11 Q THE 2015 COMMITTEE DID NOT STUDY MEDICAL AID
12 IN DYING?

13 A NO, IT DID NOT.

14 Q THE 2015 STUDY COMMITTEE DID NOT CONSIDER A
15 FIRING SQUAD?

16 A CORRECT.

17 MS. HALSTEAD: THANK YOU.

18 THE COURT: NOTHING FURTHER?

19 MS. HALSTEAD: NOTHING FURTHER.

20 THE COURT: IS THERE ANY REDIRECT?

21 MR. CODY: NO, YOUR HONOR.

22 THE COURT: OKAY. MR. SMITH, YOU MAY STEP
23 DOWN.

24 PLAINTIFFS MAY CALL THEIR NEXT WITNESS,
25 PLEASE.

1 **MS. KAPPEL:** YOUR HONOR, THE PLAINTIFF WILL
2 CALL WARDEN VANNOY.

3 **THE COURT:** MA'AM, MAKE YOUR APPEARANCE.
4 WE'VE GOT A NEW COURT REPORTER.

5 **MS. KAPPEL:** YES, YOUR HONOR. IT'S CECELIA
6 KAPPEL ON BEHALF OF JESSIE HOFFMAN.

7 **(WHEREUPON, DARREL SCOTT VANNOY, BEING DULY**
8 **SWORN, TESTIFIED AS FOLLOWS.)**

9 **DIRECT EXAMINATION**

10 **BY MS. KAPPEL:**

11 **Q** GOOD AFTERNOON, WARDEN.

12 **A** GOOD AFTERNOON.

13 **THE COURTROOM DEPUTY:** WOULD YOU PLEASE
14 STATE YOUR NAME AND SPELL IT FOR THE RECORD?

15 **THE WITNESS:** DARREL SCOTT VANNOY.
16 D-A-R-R-E-L, S-C-O-T-T, V- AS IN VICTOR A-N-N-O-Y.

17 I APOLOGIZE, I'M LOSING MY VOICE.

18 **BY MS. KAPPEL:**

19 **Q** I'LL KEEP IT AS QUICK AS POSSIBLE.

20 WARDEN VANNOY, CAN YOU TELL THE COURT WHAT
21 YOUR CURRENT POSITION IS?

22 **A** I'M CURRENTLY THE WARDEN AT ANGOLA.

23 **Q** AND HOW LONG HAVE YOU BEEN IN THAT CURRENT
24 POSITION?

25 **A** SINCE NO- -- THIS -- I'VE BEEN THERE TWICE.

1 THIS TIME SINCE NOVEMBER 27TH.

2 Q AND ON NOVEMBER 27TH, DID WARDEN HOOPER
3 LEAVE THAT POSITION OR WAS THERE AN OVERLAP?

4 A JUST A COUPLE DAYS' OVERLAP.

5 Q AND CAN YOU BRIEFLY DESCRIBE YOUR BACKGROUND
6 IN CORRECTIONS BEFORE THIS?

7 A I CAN. I STARTED AT ANGOLA ON MARCH 14TH,
8 1975. I WORKED THERE UNTIL -- I WORKED MY WAY UP
9 THROUGH THE RANKS. I WAS THE DEPUTY WARDEN. I LEFT
10 THERE IN OCTOBER OF '13 AND WENT TO BE A WARDEN AT
11 DIXON CORRECTIONAL IN JACKSON, AND I STAYED THERE
12 UNTIL DECEMBER OF '16. I WENT BACK TO ANGOLA AS A
13 WARDEN AND I STAYED -- I RETIRED FROM THERE IN
14 SEPTEMBER OF '21. I GOT VERY SICK WITH COVID IN
15 JANUARY OF '21 AND I DIDN'T THINK I'D EVER BE ABLE TO
16 WORK AGAIN.

17 Q THANK YOU.

18 SO JUST SO I'M GETTING THIS RIGHT, YOU WERE
19 AT ANGOLA FROM 1975 TO 2013?

20 A YES, MA'AM.

21 Q AND THEN YOU LEFT FOR A PERIOD OF THREE
22 YEARS AND CAME BACK IN '16?

23 A RIGHT.

24 Q AND THEN LEFT AGAIN IN '21?

25 A CORRECT. ALTOGETHER I DID 44 YEARS AT

1 ANGOLA.

2 Q SO WHILE YOU WERE AT ANGOLA, DURING ALL OF
3 THE TIMES YOU'VE BEEN AT ANGOLA, DID YOU PARTICIPATE
4 IN ANY EXECUTIONS?

5 A I HAVE.

6 Q DID YOU PARTICIPATE AS THE HEAD WARDEN OF
7 THE PRISON?

8 A NO. I WAS EITHER AN ASSISTANT WARDEN OR A
9 DEPUTY WARDEN OR A LIEUTENANT COLONEL.

10 Q DID YOU PARTICIPATE IN ELECTROCUTIONS?

11 A I DID.

12 Q LETHAL INJECTION?

13 A I DID.

14 Q DID YOU PARTICIPATE IN NITROGEN GAS
15 EXECUTIONS?

16 A NO, MA'AM.

17 Q SO I'M GOING TO INTRODUCE -- OR OFFER TO
18 INTRODUCE PLAINTIFF'S EXHIBIT 9.

19 MS. KAPPEL: IF YOU CAN JUST SHOW THAT TO
20 WARDEN VANNOY SO HE CAN --

21 THE COURTROOM DEPUTY: IF YOU COULD SPEAK IN
22 FRONT OF THE MICROPHONE, YOU'RE --

23 MS. KAPPEL: YES. PLAINTIFF'S EXHIBIT 9.

24 THE COURTROOM DEPUTY: -- QUIET. I'M HAVING
25 TROUBLE PICKING UP YOUR --

1 MS. KAPPEL: NO, NO, NO, NO. SORRY. IT'S
2 NOT 9. 11. I'M SORRY. PLAINTIFF'S EXHIBIT 11.

3 **BY MS. KAPPEL:**

4 Q WARDEN VANNOY, DO YOU RECOGNIZE THIS?

5 A I DO.

6 Q CAN YOU TELL US WHAT IT IS?

7 A IT'S DEPARTMENT OF REG C-03-001. IT'S THE
8 DEATH PENALTY REGULATION.

9 Q AND WHAT DOES IT DESCRIBE?

10 A RIGHT HERE, IT'S THE AUTHORITY THAT
11 REFERENCES THE PURPOSE TO SET FORTH THE PROCEDURE TO
12 BE FOLLOWED FOR LETHAL INJECTION OF THOSE CONDEMNED
13 OFFENDERS SENTENCED TO DEATH.

14 MS. KAPPEL: YOUR HONOR, AT THIS POINT
15 PLAINTIFFS WOULD OFFER, FILE AND INTRODUCE EXHIBIT
16 11.

17 THE COURT: ANY OBJECTION?

18 MR. CODY: NO OBJECTION, YOUR HONOR.

19 THE COURT: ADMITTED.

20 MS. KAPPEL: THANK YOU.

21 **BY MS. KAPPEL:**

22 Q SO, WARDEN VANNOY, WHAT IS A DEPARTMENT
23 REGULATION?

24 A IT'S A GUIDE TO -- NO MATTER WHAT IT'S
25 WRITTEN ABOUT, IT'S A GUIDE FOR THE INSTITUTIONS TO

1 GIVE US A GUIDE TO FOLLOW TO FOLLOW PROCEDURE. IT'S
2 A PROCEDURAL DOCUMENT.

3 Q AND WHAT IS A DIRECTIVE?

4 A A DIRECTIVE IS A -- THE PENITENTIARY
5 DIRECTIVE. IT USUALLY MIRRORS PRETTY CLOSELY TO THE
6 DEPARTMENT OF REGULATION.

7 Q AND DOES THE -- DOES ANGOLA PUT OUT
8 DIRECTIVES OR DOES THE DEPARTMENT OF PUBLIC SAFETY
9 AND CORRECTIONS?

10 A ANGOLA PUTS OUT THE PENITENTIARY DIRECTIVES.

11 Q AND SO NOW I'M GOING TO SHOW YOU PLAINTIFF'S
12 EXHIBIT 1. AND THIS I BELIEVE HAS ALREADY BEEN
13 INTRODUCED INTO EVIDENCE.

14 WARDEN VANNOY, DO YOU RECOGNIZE THIS
15 DOCUMENT?

16 A I DO.

17 Q AND CAN YOU TELL ME THE DATE ON THIS
18 DOCUMENT?

19 A FEBRUARY 7, 2025.

20 Q DO YOU REMEMBER THE FIRST TIME YOU SAW THIS
21 DOCUMENT?

22 A I DO.

23 Q WHEN WAS THAT?

24 A FEBRUARY 11TH.

25 Q BEFORE FEBRUARY 11TH DID YOU REVIEW ANY

1 DRAFTS OF THIS PROTOCOL?

2 A NO.

3 Q WERE YOU CONSULTED ABOUT THE MAKING OF THE
4 PROTOCOL?

5 A NO.

6 Q DO YOU KNOW WHO DRAFTED IT? AND DON'T TELL
7 ME WHO IF YOU KNOW. JUST YES OR NO.

8 A I DON'T HAVE PERSONAL KNOWLEDGE OF WHO
9 DRAFTED IT.

10 Q SO YOU FOUND OUT THAT THE DEPARTMENT OF
11 PUBLIC SAFETY AND CORRECTIONS HAD IMPLEMENTED A
12 NITROGEN GAS PROTOCOL ON FEBRUARY 11TH?

13 A YES, MA'AM.

14 Q FOUR DAYS AFTER --

15 A I READ IT AND SIGNED FOR IT THAT DAY.

16 Q AND BETWEEN MARCH 2014 AND FEBRUARY 11,
17 2025, WERE YOU AWARE OF ANY OTHER EXECUTION PROTOCOL?

18 A YES. I KNEW THERE WAS AN EXECUTION PROTOCOL
19 FOR LETHAL INJECTION.

20 Q IS THAT THE PROTOCOL I JUST SHOWED YOU FROM
21 MARCH OF 2014?

22 IF WE CAN PUT THAT ONE BACK UP. IT'S UP ON
23 THE SCREEN.

24 A YES, MA'AM, THAT WOULD BE IT.

25 Q THAT WOULD BE IT?

1 **A** YES, MA'AM.

2 **Q** SO FOR APPROXIMATELY 11 YEARS THAT -- THE
3 MARCH OF 2014 PROTOCOL WAS THE PROTOCOL?

4 **A** YES.

5 **THE COURT:** FOR THE RECORD, MS. KAPPEL, THE
6 MARCH OF '24 PROTOCOL IS WHAT EXHIBIT?

7 **MS. KAPPEL:** PLAINTIFF'S EXHIBIT 11, YOUR
8 HONOR.

9 **THE COURTROOM DEPUTY:** 2014.

10 **THE COURT:** 2014. I'M SORRY.

11 **BY MS. KAPPEL:**

12 **Q** AND, WARDEN VANNOY, YOU'RE AWARE, OF COURSE,
13 THAT THERE WAS A WARRANT FOR MR. HOFFMAN'S EXECUTION
14 THAT WAS SIGNED THAT WEEK THAT YOU SAW THE EXECUTION
15 PROTOCOL FOR THE FIRST TIME?

16 **A** I AM.

17 **Q** WERE YOU CONSULTED IN THE DECISION THAT
18 SECRETARY WESTCOTT MADE AS TO WHICH OF THE THREE
19 METHODS OF EXECUTION WOULD BE USED TO EXECUTE HIM?

20 **A** NO.

21 **Q** SO BETWEEN NOVEMBER 27, I BELIEVE YOU TOLD
22 ME, NOVEMBER -- YES, NOVEMBER 27, 2024 AND FEBRUARY
23 11, 2025, DID YOU CONDUCT ANY EXECUTION TRAINING
24 SESSIONS?

25 **A** I DID.

1 Q AND WHAT PROTOCOL WERE YOU USING TO TRAIN?

2 A WELL, I KNEW THAT THE ELECTRIC CHAIR WAS
3 DEFINITELY OUT. THERE IS ONLY THREE TYPES OF
4 EXECUTION METHODS: ELECTRIC CHAIR, LETHAL INJECTION
5 AND NITROGEN HYPOXIA. I KNEW THE ELECTRIC CHAIR WAS
6 OUT BECAUSE THAT'S NO WAY THAT COULD GET READY FOR
7 THAT. AND I KNEW THAT WE COULDN'T BUY THE DRUGS FOR
8 LETHAL INJECTION, THAT THE DEPARTMENT COULDN'T
9 PURCHASE THOSE. SO THE NITROGEN HYPOXIA WAS SET UP.
10 THE SYSTEM WAS SET UP, SO I ASSUMED THAT THAT'S WHAT
11 WE WOULD BE USING.

12 Q WHEN YOU SAY THE ELECTRIC CHAIR WAS OUT OF
13 THE QUESTION, WHY IS THAT?

14 A IT'S -- THERE IS NOTHING -- NO SUPPLIES OR
15 ANYTHING. YOU'D HAVE TO ORDER ALL THAT TO GET THAT
16 INSTALLED.

17 Q WERE YOU AWARE OF ANY CORRECTIONS STAFF THAT
18 TRAVELED TO TENNESSEE TO LOOK AT THEIR ELECTRIC
19 CHAIR?

20 A I WAS.

21 Q AND DOESN'T ANGOLA STILL HAVE AN ELECTRIC
22 CHAIR?

23 A WE HAVE A -- IT'S NOT THE ELECTRIC CHAIR.
24 WE HAVE A MODEL OVER AT WHAT WE CALL THE RED HAT
25 UNIT. AND IT USED TO BE IN THE MUSEUM OUTSIDE THE

1 FRONT GATE, BUT I DON'T KNOW IF IT'S THERE NOW. THE
2 ORIGINAL.

3 Q AND SO GOING BACK TO THE 2025 PROTOCOL --

4 MS. KAPPEL: RICH, IF YOU CAN PUT IT ON PAGE
5 8, PLEASE. SCROLL DOWN TO THE BOTTOM. MORE.

6 BY MS. KAPPEL:

7 Q WARDEN VANNOY, CAN YOU READ THE VERY LAST
8 LINE OF THIS PAGE?

9 A THIS REGULATION SUPERCEDES DEPARTMENT OF
10 REGULATION NO. OP-D-8 DATED 3 FEBRUARY '25.

11 Q DOES THAT MEAN THAT THERE WAS A DEPARTMENT
12 REGULATION THAT WAS FINALIZED AND IMPLEMENTED ON
13 FEBRUARY 3, 2025?

14 A I DON'T KNOW IF IT WAS FINALIZED OR
15 IMPLEMENTED. IT COULD HAVE BEEN IN DRAFT AND IT WAS
16 DONE AWAY WITH WHEN THIS ONE COMES OUT. I DON'T
17 RECALL SEEING A FEBRUARY 3RD OF 2025 D.O. REG WITH
18 THAT NUMBER ON IT.

19 Q SO NOBODY EVER SHOWED YOU THE FEBRUARY 3,
20 2025 REGULATION?

21 A NOT TO MY RECOLLECTION.

22 Q WARDEN, WITHOUT TELLING ME ANY NAMES, DID
23 YOU SELECT THE MEMBERS OF THE EXECUTION TEAM?

24 A I SELECTED A COUPLE. WE HAD A RETIREMENT,
25 AND OUR -- I HAD TO ADD A COUPLE BECAUSE FOR THE

1 ANONYMITY OF THE TEAM THAT CERTAIN FUNCTIONS THAT
2 THEY WOULD BE DOING. THEY WERE NOT DIRECTLY INVOLVED
3 WITH THE EXECUTION TEAM. BUT WARDEN HOOPER HAD
4 SELECTED THE VAST MAJORITY OF THEM. BUT WHEN I GOT
5 THERE, I BROUGHT THEM ALL TOGETHER, INTERVIEWED THEM,
6 AND I ACCEPTED THEM.

7 Q DO YOU KNOW WHAT WARDEN HOOPER'S PROCESS WAS
8 FOR DECIDING WHO'S A MEMBER OF THE EXECUTION TEAM?

9 A I DO NOT.

10 Q AND WHAT WAS YOUR PROCESS?

11 A MY PROCESS, I LOOKED AT -- I'VE KNOWN THE
12 MAJORITY OF THEM A LONG TIME. I LOOKED AT THEIR
13 LENGTH OF SERVICE, THEIR Demeanor, THEIR LENGTH OF
14 SERVICE, THEIR PERSONALITIES.

15 Q DID YOU CONSIDER WHETHER THEY HAD TRAINING
16 AND EXPERIENCE IN MASK FITTING?

17 A I DID. I KNEW THAT THEY HAD BEEN -- THE
18 MAJORITY HAS BEEN TRAINED IN CHEMICAL AGENTS WHERE
19 YOU HAVE TO WEAR A MASK OR, ON THE SPECIAL UNITS LIKE
20 THE TACTICAL UNIT, WHERE YOU'RE TRAINED TO PUT ON A
21 MASK AND WEAR A MASK.

22 Q WERE ANY OF -- I'M SORRY.

23 A I KNEW THAT THE OFFICERS I SELECTED TO PLACE
24 A MASK ON THEM HAS TRAINING WITH BOTH CHEMICAL AGENT
25 AND TACTICAL UNIT TRAINING TO PUT A MASK ON.

1 Q DID ANY OF THE MEMBERS OF THE EXECUTION TEAM
2 HAVE EXPERIENCE ADMINISTERING AN INERT GAS IN A TOXIC
3 QUANTITY TO A HUMAN BEING?

4 A NO.

5 Q WHEN YOU GOT TO ANGOLA THIS CURRENT TIME,
6 DID THE PRISON HAVE ALL OF THE EQUIPMENT THAT IT
7 NEEDED TO CONDUCT AN EXECUTION USING NITROGEN GAS?

8 A WHEN I GOT BACK?

9 Q STARTING NOVEMBER 27TH OF LAST YEAR.

10 A YES, MA'AM.

11 Q THEY HAD ALL THE EQUIPMENT THEY NEEDED?

12 A ASSEMBLED -- IT WAS ASSEMBLED IN PLACE.

13 Q DO YOU RECALL ONE ITEM OF EQUIPMENT THAT
14 NEEDED TO BE ORDERED ON AN EMERGENCY BASIS THIS
15 MONTH?

16 A THEY SHOWED ME THAT. I HADN'T SEEN THAT
17 ORDER WHEN I DID MY DEPOSITION, SO I WENT BACK AND
18 CHECKED. AND THAT WAS A SPARE. THEY ORDERED THAT AS
19 A SPARE. IT WAS A FLOW METER AND THAT WAS ORDERED AS
20 A SPARE.

21 Q IF IT WAS A SPARE, WHY WAS IT AN EMERGENCY?

22 A IT'S AN EMERGENCY BECAUSE THEY WANTED TO
23 HAVE A SPARE IN BEFORE IF THIS EXECUTION WOULD
24 PROCEED.

25 Q SO I WANT TO TURN NOW TO --

1 **MS. KAPPEL:** IF YOU'D SCROLL DOWN, RICH.
2 IT'S PAGE 1 -- IT'S PAGE 188 OF THE BATES STAMPS.
3 I'M SORRY.

4 I APOLOGIZE, YOUR HONOR. IF YOU COULD
5 INDULGE ME FOR JUST A SECOND. IT'S PAGE 6.

6 **BY MS. KAPPEL:**

7 **Q** I'M LOOKING AT PARAGRAPH F, WARDEN. CAN YOU
8 READ THAT PARAGRAPH FOR ME?

9 **A** "VISITS WILL NORMALLY TERMINATE BY 3:00 P.M.
10 ON THE DAY OF THE EXECUTION. THE ONLY EXCEPTIONS ARE
11 VISITS WITH A PRIEST, MINISTER, RELIGIOUS ADVISOR, OR
12 AN ATTORNEY AND WILL TERMINATE AT THE DISCRETION OF
13 THE LSP WARDEN OR DESIGNEE."

14 **Q** WARDEN, DID YOU DESIGNATE ANYBODY TO DO THIS
15 OR ARE YOU GOING TO DO THIS TASK?

16 **A** I'M GOING TO DO THAT.

17 **Q** IS IT FAIR TO SAY THAT IF YOU DEEM IT
18 APPROPRIATE, YOU CAN TERMINATE MR. HOFFMAN'S CONTACT
19 WITH HIS ATTORNEY ON THE DAY OF HIS EXECUTION?

20 **A** IF I DEEMED IT APPROPRIATE. BUT I WOULDN'T
21 DO IT THAT EARLY.

22 **Q** WHAT TIME DO YOU ANTICIPATE TERMINATING?

23 **A** I ANTICIPATE CONTACTING THE ATTORNEY VISITOR
24 AROUND 4:30.

25 **Q** AND WHAT TIME WOULD AN EXECUTION -- WHAT

1 TIMESPAN WOULD THE EXECUTION BE OCCURRING IN?

2 **A** IT'S BETWEEN THE HOURS OF 6 P.M. AND 9 P.M.
3 I MISSPOKE ON MY DEPOSITION. I SAID BETWEEN 6 P.M.
4 AND 11:59 P.M. BUT I WENT BACK AND CHECKED, AND I
5 WAS WRONG. IT'S 6 P.M. TO 9 P.M.

6 **Q** WHAT HAPPENS TO THE ATTORNEY AFTER THE VISIT
7 IS TERMINATED?

8 **A** I WILL AFFORD HIM THE OPPORTUNITY TO GO AND
9 BE WITH THE CONDEMNED'S FAMILY IN A PLACE THAT WE
10 HAVE DESIGNATED THEM TO BE.

11 **Q** IS THE ATTORNEY ENTITLED TO WITNESS THE
12 EXECUTION?

13 **A** NO. THAT WOULD BE LEFT UP TO SECRETARY
14 WESTCOTT.

15 **Q** WOULD YOU ALLOW MR. HOFFMAN'S ATTORNEY TO
16 BRING HIS CELL PHONE INTO THE PRISON?

17 **A** YES, I WOULD.

18 **Q** AND I -- ONE MORE QUESTION, WARDEN. WERE
19 YOU PRESENT ON MARCH 1ST WHEN ATTORNEYS FOR MR.
20 HOFFMAN CONDUCTED A SITE VISIT OF THE EXECUTION
21 CHAMBER AND MADE A VIDEO AND PHOTOS?

22 **A** I DON'T REMEMBER THE DATE, BUT I -- I WAS
23 THERE WHEN THEY CAME IN AND VIDEOED.

24 **Q** ON A SATURDAY?

25 **A** ON A SATURDAY, YES, MA'AM.

1 **MS. KAPPEL:** YOUR HONOR, AT THIS TIME I
2 WOULD MOVE TO ADMIT PLAINTIFF'S EXHIBIT 65 THROUGH
3 126, WHICH ARE THE PHOTOS AND VIDEO THAT WERE TAKEN
4 DURING THAT SITE VISIT.

5 **THE COURT:** ANY OBJECTION?

6 **MR. CODY:** NO OBJECTION, YOUR HONOR.

7 **THE COURT:** P-65 THROUGH P-126 ARE ADMITTED.

8 **MS. KAPPEL:** WITH THE COURT'S INDULGENCE FOR
9 30 SECONDS.

10 NO FURTHER QUESTIONS AT THIS TIME.

11 **THE COURT:** CROSS. OR CROSS AND --

12 **MR. CODY:** NO, YOUR HONOR.

13 **THE COURT:** YOU DON'T WANT TO -- AND YOU'RE
14 NOT GOING TO TAKE HIM ON DIRECT?

15 **MR. CODY:** NO. I NEVER PLANNED TO TAKE HIM
16 ON DIRECT.

17 **THE COURT:** MR. VANNOY, YOU'RE RELEASED.
18 THANK YOU. I SHOULD SAY WARDEN VANNOY.

19 **THE COURTROOM DEPUTY:** SO P-102 THROUGH 126
20 ARE NOT UPLOADED YET. IS THAT CORRECT?

21 **UNIDENTIFIED SPEAKER:** THE PHOTOS ARE. AND
22 THE VIDEOS, IT DID NOT LET ME -- IT DID NOT ACCEPT
23 THE .MOV FILES, SO I WOULD HAVE TO REACH OUT TO THE
24 TECH PERSON.

25 **THE COURTROOM DEPUTY:** I MEAN --

1 **MR. ROBERT:** YOUR HONOR, CAN I MAKE ONE NOTE
2 ON THOSE VIDEOS? BECAUSE I VIEWED THEM AND WE HAVE
3 NO OBJECTION CERTAINLY TO THE VIDEOS THEMSELVES. BUT
4 THERE IS AUDIO CONNECTED WITH THOSE VIDEOS WHERE THE
5 ATTORNEYS ARE TALKING ABOUT DIFFERENT THINGS. I'D
6 LIKE FOR IT TO BE ADMITTED AS VIDEO BUT NOT WITH THE
7 AUDIO.

8 **THE COURT:** IS THERE ANY OBJECTION TO THAT,
9 COUNSEL?

10 **MR. STRONSKI:** YOUR -- I'M SORRY, YOUR
11 HONOR. MAY I SPEAK?

12 **THE COURT:** YES.

13 **THE REPORTER:** YOUR NAME, SIR?

14 **MR. STRONSKI:** JIM STRONSKI. THAT'S
15 PROBABLY MY VOICE AND THAT'S FINE.

16 **THE COURT:** OKAY. SO WHEN YOU UPLOAD YOUR
17 VIDEO, UPLOAD IT WITHOUT THE AUDIO FILE.

18 GIVE ME ONE SECOND.

19 COUNSEL, WITH RESPECT TO EXHIBITS THAT
20 ARE NOT UPLOADED INTO JERS, MY UNDERSTANDING IS THAT
21 THE COURTROOM DEPUTY GAVE YOU-ALL THE CONTACT
22 INFORMATION FOR THE TECH PERSON TO GIVE YOU THE
23 DETAILS ON HOW TO BREAK UP YOUR VIDEOS SO THAT IT
24 COULD BE UPLOADED. HAVE YOU CONTACTED THE TECH
25 PERSON?

1 **UNIDENTIFIED SPEAKER:** NO, WE HAVE NOT.

2 **THE COURT:** WHY NOT? SHE GAVE IT TO YOU
3 YESTERDAY.

4 HERE'S THE THING. WHEN YOU CLOSE
5 EVIDENCE, IF IT'S NOT IN JERS, I DON'T SEE IT. IF I
6 DON'T SEE IT, I DON'T CONSIDER IT. IT'S THAT SIMPLE.
7 THAT'S THE RECORD. IT'S AN ELECTRONIC RECORD. SO
8 YOU BETTER GET YOUR EXHIBITS UPLOADED SOMEHOW,
9 SOMEWAY. YOU HAVE MICHAEL LITCHFIELD'S PHONE NUMBER.
10 HE'S THE TECH PERSON THAT CAN HELP YOU. IT'S FOUR
11 O'CLOCK ON A FRIDAY AFTERNOON. I DON'T KNOW WHETHER
12 THAT'S GOING TO WORK OUT FOR YOU, SIR.

13 OKAY. NEXT WITNESS.

14 **MS. KAPPEL:** PLAINTIFFS WOULD CALL SECRETARY
15 WESTCOTT.

16 **(WHEREUPON, GARY EDWARD WESTCOTT, BEING DULY**
17 **SWORN, TESTIFIED AS FOLLOWS.)**

18 **THE COURTROOM DEPUTY:** IF YOU WOULD, PLEASE
19 STATE YOUR NAME AND SPELL IT FOR THE RECORD.

20 **THE WITNESS:** GARY WESTCOTT -- GARY EDWARD
21 WESTCOTT. G-A-R-Y, E-D-W-A-R-D, W-E-S-T-C-O-T-T.

22 **DIRECT EXAMINATION**

23 **BY MS. KAPPEL:**

24 **Q** GOOD AFTERNOON, SECRETARY WESTCOTT.

25 **A** GOOD AFTERNOON.

1 Q WHAT IS YOUR CURRENT POSITION?

2 A I AM THE SECRETARY OF DEPARTMENT OF PUBLIC
3 SAFETY AND CORRECTIONS.

4 Q AND HOW LONG HAVE YOU BEEN AT THIS POSITION?

5 A SINCE AUGUST 29TH OF 2024.

6 Q BEFORE YOU CAME INTO THIS POSITION, DID YOU
7 EVER WORK AT ANGOLA?

8 A NO, MA'AM.

9 Q AND DID YOU EVER WITNESS AN EXECUTION?

10 A NO, MA'AM.

11 Q WAS IT YOUR CHOICE AS TO WHICH METHOD WAS
12 SELECTED TO EXECUTE MR. HOFFMAN?

13 A YES, MA'AM.

14 Q WHAT WENT INTO THAT CHOICE?

15 A IT WAS THE ONLY ONE THAT WAS IMMEDIATELY
16 AVAILABLE TO US AT THE TIME, SO THAT'S THE ONE I
17 CHOSE.

18 Q SO YOU DIDN'T TAKE INTO ACCOUNT WHETHER MR.
19 HOFFMAN HAD VULNERABILITIES THAT WOULD MAKE THAT
20 METHOD PARTICULARLY CRUEL FOR HIM?

21 A NO, MA'AM.

22 Q I WANT TO DIRECT YOU TO THE 2025 PROTOCOL.
23 THAT'S EXHIBIT 1, PAGE 14, SECTION A. PAGE 14. I'M
24 SORRY. IT'S THE NEXT PAGE.

25 SECRETARY WESTCOTT, WHO DECIDES WHO THE

1 WITNESSES TO AN EXECUTION WILL BE?

2 A IT'S SET BY STATUTE, AND ALSO I HAVE SOME
3 DISCRETION.

4 Q SO HOW MANY IS THE MAXIMUM AMOUNT OF
5 WITNESSES THAT ARE ALLOWED BY STATUTE?

6 A BESIDES THE ACTUAL ONES THAT ARE GOING TO BE
7 IN THE CHAMBER THAT ARE ORDERED BY STATUTE, IT'S A
8 MINIMUM OF FIVE AND A MAXIMUM OF SEVEN. THERE IS
9 SOME MANDATES.

10 Q WHAT ARE THOSE MANDATES?

11 A MEDIA FROM THE PARISH OF CONVICTION, A MEDIA
12 OF MY CHOICE, AND TWO FAMILY MEMBERS OF THE VICTIM.
13 AND THE OTHER THREE ARE I GUESS MY DISCRETION.

14 Q SO THAT'S FOUR AND THE THREE OF YOUR
15 DISCRETION?

16 A ONE TO THREE, CORRECT.

17 Q DO YOU PLAN TO ALLOW MR. HOFFMAN'S ATTORNEY
18 TO BE ONE OF THOSE THREE?

19 A NO, MA'AM, I DO NOT.

20 Q WHY IS THAT?

21 A BECAUSE I HAVE THREE OTHER PEOPLE ALREADY.

22 Q ARE YOU AWARE THAT PLAINTIFF'S COUNSEL ASKED
23 THE ATTORNEYS FOR THE DEFENDANTS WHETHER THEY WOULD
24 STIPULATE TO ALLOWING MR. HOFFMAN'S LAWYER -- A
25 LAWYER TO WITNESS THE EXECUTION?

1 A NO, I DID NOT.

2 **MS. KAPPEL:** ONE MOMENT, YOUR HONOR, PLEASE.

3 **BY MS. KAPPEL:**

4 Q SECRETARY, CAN YOU TELL ME WHO THE OTHER
5 THREE PEOPLE ARE THAT YOU'VE SELECTED?

6 A I HAVE SEVERAL REQUESTS IN. AND BASICALLY I
7 HAVE LAW ENFORCEMENT THAT WERE INVOLVED IN IT, I HAVE
8 THE AG'S OFFICE AND THE GOVERNOR'S OFFICE. A
9 REPRESENTATIVE FROM EACH ONE OF THOSE.

10 Q AND ONE LAST QUESTION. ARE YOU AWARE THAT
11 ON JANUARY 20TH PRESIDENT TRUMP ISSUED AN EXECUTIVE
12 ORDER SAYING THAT HIS ADMINISTRATION MUST HELP THE
13 STATE OBTAIN LETHAL INJECTION DRUGS?

14 A NO, MA'AM, I DO NOT.

15 Q THANK YOU. THAT'S ALL THE QUESTIONS I HAVE.

16 **THE COURT:** ANY CROSS OR DIRECT?

17 **MR. CODY:** NO, YOUR HONOR.

18 **THE COURT:** OKAY. THANK YOU, SECRETARY
19 WESTCOTT. YOU MAY STEP DOWN.

20 **THE WITNESS:** THANK YOU, YOUR HONOR.

21 **MR. STRONSKI:** YOUR HONOR, WE CALL DR.

22 BICKLER.

23 **(WHEREUPON, PHILIP EDWIN BICKLER, BEING DULY**
24 **SWORN, TESTIFIED AS FOLLOWS.)**

25 **THE COURTROOM DEPUTY:** IF YOU WOULD, PLEASE,

1 SIR, STATE YOUR NAME AND SPELL IT FOR THE RECORD.

2 THE WITNESS: PHILIP EDWIN BICKLER.

3 P-H-I-L-I-P, E-D-W-I-N, B-I-C-K-L-E-R.

4 THE COURT: MR. ARCHEY, IS THERE AN ISSUE?

5 MR. ARCHEY: NO, MA'AM, THERE IS NOT. WHAT
6 I WAS WANTING TO LET EVERYONE KNOW IS IF WE CAN
7 EXPEDITE THINGS, WE'RE NOT GOING TO OBJECT TO THE
8 TENDER IF I CAN KNOW WHAT IT IS, AND MAYBE THAT WILL
9 MOVE US ALONG.

10 THE COURT: MR. STRONSKI.

11 MR. STRONSKI: THANK YOU, SIR. I'D LIKE TO
12 DO A LITTLE BACKGROUND THAT'S RELEVANT TO HIS
13 OPINION, BUT --

14 THE COURT: YOU CAN GO --

15 MR. STRONSKI: -- I WAS GOING TO MOVE --

16 THE COURT: -- GO INTO SOME BACKGROUND WITH
17 HIM. I'LL GIVE YOU THAT LATITUDE, BUT GIVE US THE
18 TENDER.

19 MR. STRONSKI: YEAH. THE TENDER IS THAT DR.
20 BICKLER BE QUALIFIED AS AN EXPERT TO TESTIFY IN THE
21 FIELD OF ANESTHESIOLOGY AND HUMAN HYPOXIA.

22 THE COURT: HUMAN HYPOXIA?

23 MR. STRONSKI: HUMAN HYPOXIA.

24 THE COURT: ALL RIGHT. IS THAT -- NO
25 OBJECTION TO THAT TENDER?

1 **MR. ARCHEY:** YOUR HONOR, I'LL ACCEPT THAT.
2 I'LL HANDLE MY QUESTIONS ON CROSS. I'LL ACCEPT THAT.

3 **THE COURT:** OKAY. HE MAY GIVE OPINION
4 TESTIMONY IN THE FIELD OF ANESTHESIOLOGY AND ALSO IN
5 THE AREA OF HUMAN HYPOXIA. I'LL ALLOW YOU SOME
6 LATITUDE TO GO INTO HIS BACKGROUND FOR THE PURPOSES
7 OF THE RECORD.

8 **MR. STRONSKI:** THANK YOU, YOUR HONOR. CALL
9 UP 16 -- EXHIBIT 16, PLEASE. AND TO PAGE 5.

10 YOUR HONOR, I THINK WE HAVE AGREEMENT.
11 THIS IS HIS C.V. NO OBJECTION TO ITS ADMISSION?

12 **MR. ARCHEY:** NO OBJECTION, YOUR HONOR.

13 **THE COURT:** P-16 IS ADMITTED.

14 **MR. STRONSKI:** TO BE CLEAR, YOUR HONOR, I
15 THINK C.V. -- THAT 16 IS THE ENTIRE DECLARATION. AND
16 I EXPECT WE'LL GET A HEARSAY OBJECTION ON THE
17 DECLARATION. BUT THIS EXHIBIT, WHICH STARTS AT PAGE
18 5, WE WOULD SEEK ITS ADMISSION.

19 **THE COURT:** SO WHAT YOU WANT ADMISSION OF IS
20 THE C.V. HOW MANY PAGES IS IT? I'VE LOOKED AT IT
21 BUT I DON'T RECALL IT. HE'S GOT A LOT OF
22 PUBLICATIONS, I THINK, SO IT WAS KIND OF LENGTHY.

23 **MR. STRONSKI:** A TREMENDOUS NUMBER, YOUR
24 HONOR. PAGE 5 TO --

25 **THE COURT:** YOU WANT P-16, EVERYTHING BUT

1 HIS DECLARATION?

2 MR. STRONSKI: CORRECT, YOUR HONOR.

3 THE COURT: OKAY.

4 MR. ARCHEY: YOUR HONOR, THERE IS A DOCUMENT
5 AT THE END OF P-16 AS WELL. I THINK IT WILL LIKELY
6 COME IN AT SOME POINT, BUT IT'S -- THERE ARE THREE
7 THINGS THERE. THERE IS THE DECLARATION, THE C.V. AND
8 ANOTHER DOCUMENT.

9 THE COURT: OKAY.

10 MR. STRONSKI: THANK YOU, YOUR HONOR.

11 THE COURT: P-16 IS ADMITTED MINUS THE
12 DECLARATION FOR REASONS OF HEARSAY. IT HAS TO BE
13 FIXED ON JERS, SO YOU HAVE TO REUPLOAD IT MINUS THE
14 DECLARATION.

15 MR. STRONSKI: THANK YOU, YOUR HONOR.

16 DIRECT EXAMINATION

17 BY MR. STRONSKI:

18 Q GOOD AFTERNOON, DR. BICKLER.

19 A GOOD AFTERNOON.

20 Q WHAT IS YOUR EDUCATIONAL BACKGROUND?

21 A WELL, I RECEIVED AN UNDERGRADUATE BIOLOGY
22 DEGREE, AND I WENT TO UCLA AND EARNED A PH.D. IN
23 BIOLOGY. I THEN DID RESEARCH AT THE UNIVERSITY OF
24 CALIFORNIA AT SAN DIEGO FOR SEVERAL YEARS AT THE
25 PHYSIOLOGICAL RESEARCH LABORATORY. I THEN ATTENDED

1 MEDICAL SCHOOL AT UC SAN DIEGO; CAME TO SAN FRANCISCO
2 TO DO MORE RESEARCH. I DID A RESIDENCY IN
3 ANESTHESIOLOGY, AND I'VE HAD A RESEARCH CAREER IN
4 STUDYING HYPOXIA FOR OVER 40 YEARS NOW.

5 Q SO IS THERE A LAB AT THE UNIVERSITY OF SAN
6 FRANCISCO THAT YOU RUN?

7 A YES. I RUN WHAT'S CALLED THE HYPOXIA
8 RESEARCH LABORATORY AT UCSF. AND I'VE DONE THAT FOR
9 ABOUT 30 YEARS. THAT LABORATORY WAS ORIGINALLY
10 STARTED IN 1958, AND I ASSUMED DIRECTORSHIP AROUND
11 1992 OR '93.

12 Q AND BECAUSE IT'S RELEVANT TO THIS, BRIEFLY
13 WHAT IS HYPOXIA?

14 A WELL, HYPOXIA IS OXYGEN DEPRIVATION. AND IN
15 MY 40-YEAR CAREER, I'VE STUDIED JUST ABOUT EVERY
16 ASPECT OF THAT THAT YOU CAN IMAGINE, EVERYTHING FROM
17 HOW CELLS AND GENES RESPOND TO HYPOXIA TO HOW HUMANS
18 PERFORM AT VERY HIGH ALTITUDES. I DO A LOT OF WORK
19 WITH HUMAN SUBJECTS IN THE HYPOXIA RESEARCH LAB. I
20 EXPOSE PEOPLE TO VERY LOW OXYGEN CONDITIONS, SO I
21 KNOW A LOT ABOUT WHAT OXYGEN DEPRIVATION DOES TO THE
22 BODY, WHAT THE RESPONSE IS, AND WHAT THE LIMITS OF
23 TOLERANCE ARE FOR HYPOXIC CONDITIONS.

24 Q HAVE YOU BEEN HYPOXIC YOURSELF?

25 A NUMEROUS TIMES. EARLY IN MY CAREER I

1 FREQUENTLY VOLUNTEERED TO BE A SUBJECT. THE HIGHEST
2 ELEVATION EQUIVALENT THAT I'VE EVER BEEN AT IS
3 PROBABLY AROUND 20,000 FEET. IT WAS WHEN MY
4 SATURATION WAS ABOUT 48 PERCENT.

5 MORE ROUTINELY OUR STUDIES TAKE SUBJECTS
6 DOWN TO A SATURATION OF AROUND 70 PERCENT. AND
7 THAT'S DONE TO PROVIDE A LABORATORY SETTING TO
8 EVALUATE MEDICAL DEVICES THAT CAN DETECT LOW OXYGEN
9 CONDITIONS IN HUMANS. AND HERE I'M PREDOMINANTLY
10 TALKING ABOUT PULSE OXIMETERS. SO THOSE ARE THE
11 LITTLE LIGHTS THAT GO ON YOUR FINGER WHEN YOU'RE
12 UNDER MEDICAL CARE, AND THEY MEASURE YOUR BLOOD
13 OXYGEN.

14 AND MY LABORATORY DOES THE BULK OF THE
15 DEVELOPMENT AND TESTING WORK FOR PULSE OXIMETERS THAT
16 ARE USED ALL OVER THE WORLD AND THAT HAVE BECOME AN
17 ABSOLUTELY CRITICAL MEDICAL MONITOR.

18 Q WHEN YOU TALK ABOUT OXYGEN SATURATION, ARE
19 YOU TALKING ABOUT THE PERCENTAGE OF OXYGEN IN THE
20 BLOOD?

21 A THAT'S RIGHT. WE TALK ABOUT SATURATION OF
22 HEMOGLOBIN AS AN INDEX OF THE OXYGEN AVAILABILITY.
23 SO WHEN WE'RE -- WHEN WE HAVE HEALTHY LUNGS AND WE'RE
24 BREATHING ROOM AIR, OUR SATURATION IS ABOUT 98
25 PERCENT. IN ILLNESS LIKE PNEUMONIA, YOU'RE HYPOXIC

1 WHEN THAT SATURATION LEVEL DROPS BELOW 90 PERCENT.
2 AND AS THAT LEVEL DECREASES, YOU'RE IN INCREASING
3 TROUBLE FOR DAMAGE TO YOUR BRAIN AND OTHER ORGANS.

4 Q OKAY. I JUST WANT TO -- YOU'RE BEING PAID
5 FOR THIS -- TO APPEAR TODAY. IS THAT CORRECT?

6 A I AM.

7 Q IS THAT AFFECTING YOUR TESTIMONY IN ANY WAY?

8 A IT IS NOT.

9 Q ARE YOU GIVING -- HAVE YOU GIVEN AND WILL
10 YOU GIVE YOUR OPINIONS TO AT LEAST A DEGREE OF -- A
11 REASONABLE DEGREE OF MEDICAL CERTAINTY?

12 A I WILL.

13 Q DO YOU HAVE -- HAVE YOU LOOKED AT THE
14 PROTOCOL AND THE PHOTOGRAPHS OF THE EXECUTION CHAMBER
15 THAT LOUISIANA INTENDS TO USE FOR THE LOUISIANA
16 NITROGEN GASSING EXECUTION METHOD?

17 A YES, I'VE SEEN THOSE DOCUMENTS. I'M
18 FAMILIAR WITH WHAT'S BEING PROPOSED.

19 Q OKAY. AND DO YOU HAVE AN OPINION HOW AN
20 INMATE GENERALLY WOULD EXPERIENCE AND REACT TO BEING
21 EXPOSED TO THE PROTOCOL IMPLEMENTING THE LOUISIANA
22 NITROGEN GASSING EXECUTION METHOD?

23 A YES. I WOULD START BY SAYING WHAT THIS
24 REPRESENTS IS FORCED ASPHYXIATION, GASSING A SUBJECT
25 TO DEATH, EXPOSING HIM TO LACK OF OXYGEN SUCH THAT

1 BOTH EXTREME DISCOMFORT, DISTRESS, PAIN AND TERROR
2 WOULD BE FELT, ALL THE WAY UP TO THE POINT OF LOSING
3 CONSCIOUSNESS AND EVENTUALLY DYING.

4 Q AND IS ASPHYXIATION ANALOGOUS TO DROWNING?

5 A THE SENSATIONS ASSOCIATED WITH BEING EXPOSED
6 TO CONDITIONS WHERE THERE IS NO OXYGEN IN THE
7 ENVIRONMENT PRODUCES A FEELING OF SUFFOCATION, OF
8 EXTREME BREATHLESSNESS, ANXIETY, INCREASED HEART
9 RATE, THE FLIGHT-OR-FIGHT RESPONSE, ALL OF THAT.
10 VERY SIMILAR TO DROWNING. IF YOU'VE HAD A
11 NEAR-DROWNING EXPERIENCE, YOU KNOW WHAT I'M TALKING
12 ABOUT. IT'S PRETTY TERRIFYING.

13 Q SO HERE INSTEAD OF DROWNING IN WATER, YOU'RE
14 DROWNING IN NITROGEN. IS THAT FAIR?

15 A YOU'RE ABLE TO BREATHE BUT YOU DON'T HAVE
16 THE SENSATION THAT YOUR BREATHING IS EFFECTIVE.
17 YOU'RE SUFFOCATING. IT FEELS LIKE YOU'RE
18 SUFFOCATING. SUFFOCATION IS A LITTLE DIFFERENT.
19 THAT'S A OBSTRUCTION TO YOUR BREATHING. ASPHYXIATION
20 IS WHEN YOU'RE NOT GETTING SUFFICIENT OXYGEN.

21 Q OKAY. AND DO YOU HAVE AN OPINION AS TO
22 SPECIFICALLY MR. HOFFMAN AND HOW HE IN PARTICULAR
23 MIGHT EXPERIENCE OR WOULD EXPERIENCE THE LOUISIANA
24 NITROGEN GASSING EXECUTION METHOD?

25 A WELL, I THINK FOR SOMEONE LIKE MR. HOFFMAN,

1 NITROGEN ASPHYXIATION WOULD BE A PARTICULARLY
2 HORRIBLE METHOD, A REALLY INHUMANE CHOICE FOR AN
3 INDIVIDUAL WHO HAS A HISTORY OF PTSD --

4 **MR. ARCHEY:** YOUR HONOR, I OBJECT.

5 **THE COURT:** WHAT IS IT?

6 **MR. ARCHEY:** THIS IS OUTSIDE THE SCOPE OF
7 HIS EXPERTISE, PTSD.

8 **MR. STRONSKI:** YOUR HONOR, I CAN ESTABLISH
9 IT IS WITHIN THE SCOPE OF HIS EXPERTISE.

10 **THE COURT:** CARRY ON. HE DIDN'T ASK HIM TO
11 TALK ABOUT PTSD. HE JUST SAID THAT THIS WOULD BE
12 PARTICULARLY BAD FOR THIS PARTICULAR PERSON, BUT --
13 SO I'M GOING TO OVERRULE THE OBJECTION.

14 **BY MR. STRONSKI:**

15 **Q** I'M GOING TO ASK YOU ABOUT YOUR PTSD
16 EXPERIENCES AFTER YOU FINISH THE ANSWER. I THINK YOU
17 WERE INTERRUPTED.

18 **A** WELL, THE EXPERIENCE WITH LOW OXYGEN FOR
19 ANYONE, ANY OF US IN THIS ROOM, WOULD BE VERY
20 PROFOUND. OUR BODY IS DESIGNED TO MAINTAIN A NORMAL
21 OXYGEN LEVEL. WHEN THAT OXYGEN LEVEL DROPS, IT SETS
22 OFF ALL OUR ALARM BELLS. IT HYPERACTIVATES OUR
23 SYMPATHETIC NERVOUS SYSTEM, SO THERE IS AN INCREASE
24 IN HEART RATE, IN BLOOD PRESSURE. YOU FEEL BLOOD
25 POUNDING IN YOUR HEAD. YOU HAVE AN INCREASED DRIVE

1 TO BREATHE. YOU FEEL LIKE YOU'RE GASPING FOR AIR.
2 AND IF THERE IS NO AIR IN YOUR ENVIRONMENT THAT
3 YOU'RE OBTAINING, YOU PROGRESSIVELY GET MORE SHORT OF
4 BREATH. IT'S CALLED DYSPNEA. VERY, VERY UNPLEASANT
5 EXPERIENCE.

6 I HAVE EXPERIENCED THIS MYSELF IN THE
7 EXPERIMENTS WHERE I WAS A VOLUNTEER. I KNEW WHAT I
8 WAS GETTING INTO. I HAD BEEN CONDUCTING THESE
9 EXPERIMENTS. I KNEW THE PHYSIOLOGY, I KNEW HOW MY
10 BODY WOULD REACT; YET I RESPONDED WITH TERROR. I SEE
11 THAT SAME TERROR IN THE SUBJECTS THAT WE STUDY
12 ROUTINELY.

13 NOW, WE LIMIT THE DEGREE OF HYPOXIA THAT WE
14 EXPOSE OUR SUBJECTS TO SO THAT THEY CAN TOLERATE IT.
15 SO WE TAKE THEM DOWN JUST TO A LEVEL OF AROUND 70
16 PERCENT. THAT IS SAFE AND TOLERABLE TO SUBJECTS WHO
17 KNOW WHAT'S GOING TO HAPPEN TO THEM. MOST OF THEM
18 ARE MEDICAL STUDENTS. THEY UNDERSTAND THE
19 PHYSIOLOGY. THEY ALSO KNOW THAT THEY HAVE A WAY OUT.
20 IF IT'S TOO DIFFICULT FOR THEM, THEY CAN SPIT OUT THE
21 MOUTHPIECE THAT THEY'RE BREATHING THE LOW OXYGEN AIR
22 MIXTURE THROUGH, THEY CAN GET A BREATH OF FRESH AIR
23 AND BE RELIEVED OF THEIR SYMPTOMS. THAT HAPPENS. IT
24 HAPPENS PRETTY FREQUENTLY. OUR SUBJECTS DO LEARN TO
25 TOLERATE IT.

1 ONE THING ABOUT LOW OXYGEN, FOR EXAMPLE,
2 PEOPLE WHO CLIMB MOUNTAINS, THEY CAN ADAPT OR
3 ACCLIMATIZE TO HIGH ALTITUDE. YOU CAN GET USED TO
4 LOW OXYGEN TO SOME DEGREE. NOT ENTIRELY BUT IT
5 OBVIOUSLY CAN HAPPEN IN HIGH ALTITUDE MOUNTAIN AIRS.

6 **Q** THERE WAS A QUESTION ABOUT YOUR EXPERTISE IN
7 PTSD. DO YOU HAVE EXPERIENCE COPING WITH PEOPLE WHO
8 HAVE PTSD AS A CLINICIAN?

9 **A** ALL THE TIME. SO I'M CHIEF OF THE DIVISION
10 OF NEUROANESTHESIA AT THE UNIVERSITY OF CALIFORNIA
11 SAN FRANCISCO. SO I LEAD THE GROUP OF
12 ANESTHESIOLOGISTS THAT TAKE CARE OF PATIENTS WHO HAVE
13 NEUROSURGICAL PROBLEMS. AND BEING A ACADEMIC MEDICAL
14 CENTER, WE DO A LOT OF SURGERIES AWAKE. THESE ARE
15 PATIENTS WHO HAVE BRAIN TUMORS, WHOSE TUMORS ARE
16 CLOSE TO THE MOTOR AREA, THEY'RE CLOSE TO THE
17 LANGUAGE AREA. SO TO DO THE OPERATION SAFELY AND NOT
18 CAUSE TOO MUCH BRAIN DAMAGE, THE PATIENT HAS TO BE
19 AWAKE DURING BRAIN SURGERY. THAT IS A VERY
20 CHALLENGING SITUATION FOR THE MOST EMOTIONALLY STABLE
21 AND TOGETHER OF PEOPLE.

22 IF SOMEONE HAS AN ANXIETY DISORDER, THE
23 DEGREE OF DIFFICULTY GOES UP EXPONENTIALLY. SOME
24 DAYS I LITERALLY HAVE TO HOLD MY PATIENT'S HAND FOR
25 EIGHT HOURS WHILE THE SURGERY IS GOING ON. I KNOW

1 HOW TO TREAT ANXIETY, I KNOW HOW TO RECOGNIZE ANXIETY
2 BECAUSE IT IMPACTS WHAT I DO AS A CLINICAL
3 ANESTHESIOLOGIST SO MUCH.

4 AND, YOU KNOW, JUST FOR OTHER PATIENTS, TOO,
5 THE PERIOPERATIVE EXPERIENCE IS VERY STRESSFUL. WHEN
6 SOMEONE BRINGS WITH THEM A DIAGNOSIS OF PTSD, IT
7 MAKES ALL OF THEIR CARE MORE DIFFICULT. THEY HAVE AN
8 EMOTIONAL COMPONENT THAT CAN BE EASILY TRIGGERED.
9 AND SPECIFIC TO THE CASE OF THIS PROPOSED EXECUTION
10 METHOD --

11 MR. ARCHEY: YOUR HONOR --

12 BY THE WITNESS:

13 A -- IT'S GOING TO REALLY JACK THINGS UP.

14 MR. ARCHEY: -- I'M GOING TO RENEW MY
15 OBJECTION. I HEAR HIM SAYING ABOUT TREATING -- I'M
16 SORRY. I OBJECT TO LACK OF FOUNDATION STILL.

17 THE COURT: DO YOU WANT TO RESPOND?

18 MR. STRONSKI: YOUR HONOR, HE'S TESTIFYING
19 ABOUT THE EFFECT OF AN EXECUTION OF THIS KIND ON
20 SOMEBODY WITH PTSD, WHICH HE HAS -- HE HAS A LOT OF
21 EXPERIENCE WITH PEOPLE IN VERY -- IN COMPARABLY
22 STRESSFUL SITUATIONS, BRAIN SURGERY AND
23 LIFE-AND-DEATH SITUATIONS WHO HAVE PTSD. IT'S QUITE
24 ANALOGOUS. HE HAS A LOT OF EXPERIENCE IN THE AREA,
25 AND SO I THINK THERE IS A STRONG FOUNDATION FOR WHAT

1 HE'S SAYING.

2 **THE COURT:** THE COURT IS GOING TO OVERRULE
3 THE OBJECTION. DR. BICKLER HAS TESTIFIED AND THE
4 COURT IS SATISFIED THAT HE HAS EXTENSIVE EXPERIENCE
5 DEALING WITH PTSD AS AN OVERLAY IN HIS CLINICAL
6 PRACTICE DEALING -- AND WHAT IS THE EFFECT OF PTSD OR
7 OTHER ANXIETY DISORDERS IN HIS CLINICAL PRACTICE
8 WHERE A PATIENT IS UNDER AN EXTREME AMOUNT OF STRESS
9 OR -- YEAH, STRESS -- SUCH AS AWAKE BRAIN SURGERY.
10 THE OBJECTION IS OVERRULED.

11 **MR. STRONSKI:** THANK YOU, YOUR HONOR.

12 **BY MR. STRONSKI:**

13 Q IF WE GO BACK TO 6 -- PAGE 74 OF EXHIBIT 16,
14 WHICH IS ONE OF THE ATTACHMENTS TO YOUR DECLARATION.
15 I'M GOING TO SHOW YOU, DOCTOR, THE ARTICLE.

16 THIS HAS BEEN ADMITTED. I THINK YOU CAN
17 SHOW IT. SO IT'S PAGE 74. IT'S THE ARTICLE; JAMA
18 ARTICLE.

19 BEFORE IT COMES UP, LET ME JUST ASK YOU,
20 DOCTOR: DID YOU WRITE AN ARTICLE IN JAMA?

21 A YES, WE DID.

22 Q WHAT IS JAMA?

23 A JAMA IS THE JOURNAL OF THE AMERICAN MEDICAL
24 ASSOCIATION. IT IS PROBABLY THE PREMIER MEDICAL
25 JOURNAL IN THE COUNTRY, IF NOT THE WORLD.

1 Q AND WHEN YOU SAY "WE," WHO IS WE?

2 A MY COLLEAGUE, DR. MICHAEL LIPNICK. HE IS
3 ASSOCIATE DIRECTOR OF THE HYPOXIA RESEARCH LABORATORY
4 IN SAN FRANCISCO.

5 Q AND THIS ARTICLE APPEARED IN JUNE 25TH,
6 2024?

7 A YES.

8 Q AND WHY DID YOU WRITE THE ARTICLE?

9 A WE WROTE THE ARTICLE BECAUSE WE HAD BECOME
10 AWARE OF THE EFFORTS OF SEVERAL STATES TO USE
11 NITROGEN IN THE EXECUTION PROCESS. AND IT WAS OUR
12 CONCERN THAT THOSE EFFORTS WERE BEING ADVANCED
13 WITHOUT MEDICAL KNOWLEDGE ABOUT THE EFFECTS OF
14 NITROGEN ON THE HUMAN BODY. WE COULDN'T DETECT ANY
15 SIGNIFICANT AMOUNT OF EXPERTISE MEDICALLY THAT WAS
16 BEING USED TO ADVANCE THESE PROPOSALS. AND WE WANTED
17 TO STATE AS CLEARLY AS WE COULD WHY THE USE OF
18 NITROGEN WOULD BE A BAD IDEA.

19 Q AND IN THE ARTICLE -- THIS IS WRITTEN AFTER
20 THE EXECUTION OF KENNETH SMITH. CORRECT?

21 A THAT IS CORRECT.

22 Q IF YOU LOOK AT THE FIRST COLUMN, THERE IS
23 SOME INFORMATION ABOUT THAT EXECUTION THAT YOU'VE
24 INCLUDED. DO YOU SEE THAT?

25 A YES.

1 **Q** HOW DOES THAT INFORM YOUR OPINIONS ABOUT
2 LOUISIANA'S NITROGEN GASSING EXECUTION METHOD?

3 **A** WELL, I THINK IT'S IMPORTANT FOR ME TO SAY
4 THAT IT'S NOT JUST SMITH'S EXECUTION THAT HAS
5 REINFORCED MY OPINION ABOUT THE INADVISABILITY OF
6 NITROGEN, BUT IT'S ALL FOUR OF THE EXECUTIONS USING
7 NITROGEN THAT WERE DONE BY THE STATE OF ALABAMA. IN
8 ALL FOUR CASES THE DEATHS BY NITROGEN ASPHYXIATION
9 WERE PROLONGED, APPARENTLY AGONIZING, EVIDENTLY
10 PAINFUL AND TRAUMATIC. THEY WERE CLEARLY NOT WHAT WE
11 THOUGHT THE STATE INTENDED.

12 IN FACT, IT WAS OUR BELIEF THAT THE STATES
13 HAD PROBABLY BEEN MISLED INTO THINKING THAT NITROGEN
14 WOULD BE ALMOST LIKE GIVING AN ANESTHETIC. INSTEAD
15 OF AN INTRAVENOUS ANESTHETIC IN THE CASE OF LETHAL
16 INJECTION, THAT THE NITROGEN WOULD HAVE AN EFFECT IN
17 PRODUCING UNCONSCIOUSNESS IN A SMOOTH WAY WITH NO
18 STRUGGLING, NO VISUAL, YOU KNOW, STRUGGLING ON THE
19 PART OF THE PERSON BEING SUBJECTED TO THIS.

20 **Q** AND DOES NITROGEN HAVE ANY ANESTHETIC
21 PROPERTIES?

22 **A** NO. IT'S NOT AN ANESTHETIC.

23 **Q** SO IT DOESN'T RELIEVE ANY PAIN IN THE
24 PROCESS. IS THAT CORRECT?

25 **A** NO. WHAT IT DOES IS IT ELICITS THIS MASSIVE

1 SYMPATHETIC NERVOUS SYSTEM RESPONSE, SO IT PRODUCES A
2 TERROR RESPONSE, IF YOU WILL. SO IT'S QUITE THE
3 OPPOSITE OF WHAT I -- OF WHAT WE PERCEIVE THAT THE
4 STATES HAD INTENDED WITH THIS METHOD.

5 Q DID YOU CONSIDER OTHER EYEWITNESS ACCOUNTS
6 IN YOUR WRITING THAT ARTICLE AND ALSO IN YOUR
7 ANALYSIS TODAY?

8 A WELL, YES. WE READ ACCOUNTS IN THE POPULAR
9 PRESS. WE READ SOME TESTIMONY THAT WAS GIVEN IN THE
10 PROCESS OF VARIOUS -- OBTAINING VARIOUS DEPOSITIONS
11 AND SO ON. WE WERE INTERESTED IN LEARNING AS MUCH AS
12 WE COULD FROM THE EYEWITNESS ACCOUNTS TO SEE IF THEY
13 FIT WITH OUR PREDICTIONS OF WHAT THE EXECUTIONS WOULD
14 BE LIKE.

15 Q AND WHAT WERE YOUR PREDICTIONS AS TO WHAT
16 METHOD LIKE THE LOUISIANA NITROGEN GASSING EXECUTION
17 METHOD WOULD SUBJECT AN INMATE TO?

18 A WELL, OUR BELIEF WAS THAT IT WAS GOING TO BE
19 ANYTHING BUT PLEASANT AND RAPID. WE KNEW THAT
20 INDIVIDUALS WOULD STRUGGLE WITH FEELINGS OF
21 ASPHYXIATION, WITH FEELING EXTREMELY SHORT OF BREATH.
22 WE PREDICTED THAT THEY WOULD PROBABLY ATTEMPT TO HOLD
23 THEIR BREATH AND TO RESIST, DESPITE MAYBE THEIR
24 CONSCIOUS PLANS TO AVOID THAT.

25 BUT WHEN FACED WITH BEING STRAPPED TO A BED,

1 HAVING A MASK STRAPPED TO THE FACE, AND THE
2 INEVITABILITY OF COMING DEATH, I CAN ONLY IMAGINE
3 THAT THEIR CAREFULLY LAID PLANS WENT OUT THE WINDOW
4 AND TERROR TOOK OVER.

5 Q WHAT HAPPENS, DOCTOR, IF YOU HOLD YOUR
6 BREATH IN THAT SCENARIO?

7 A WELL, MOST HUMANS CAN HOLD THEIR BREATH FOR
8 MAYBE A MINUTE. SOME OF US ARE REALLY GOOD AT
9 HOLDING OUR BREATHS. PEOPLE WHO LIKE TO DO
10 FREEDIVING CAN HOLD THEIR BREATH EIGHT TO TEN
11 MINUTES. YOU CAN TRAIN YOURSELF TO HOLD YOUR BREATH.
12 I THINK I CAN HOLD MY BREATH FOR 45 SECONDS OR A
13 MINUTE. I'M MAYBE NOT A VERY GOOD DIVER.

14 Q WHAT DOES THAT DO TO THE BODY WHEN YOU'RE
15 HOLDING YOUR BREATH?

16 A YOUR CO2 LEVEL BUILDS UP. SO MOST OF THE
17 TIME THE THING THAT CAUSES YOU TO BREAK OR HAVE TO
18 TAKE A BREATH IS THE CARBON DIOXIDE THAT BUILDS UP,
19 NOT THE DROP IN OXYGEN. IF YOU HYPERVENTILATE BEFORE
20 YOU HOLD YOUR BREATH, YOU CAN OFTEN HOLD YOUR BREATH
21 LONG ENOUGH TO PASS OUT. THAT'S BECAUSE YOU START
22 YOUR BREATH HOLD WITH A REDUCED AMOUNT OF CARBON
23 DIOXIDE IN YOUR BODY, SO THE CO2 BUILDUP IS SLOWER
24 AND THE OXYGEN DEPLETION IS LONGER SO YOU CAN GET TO
25 A POINT WHERE YOU MIGHT BE ABLE TO PASS OUT.

1 Q BUT IN THAT SCENARIO ARE YOU SUFFERING THE
2 SAME TERROR?

3 A WELL, YOU FEEL -- YES. YES. IT'S REALLY
4 HARD. I MEAN, TRY HOLDING YOUR BREATH AND FEEL HOW
5 YOU -- YOU CAN FEEL YOUR HEART RATE INCREASE. YOUR
6 CATECHOLAMINES, YOUR SYMPATHETIC NERVOUS SYSTEM
7 STARTS TO REALLY RAMP UP. AND AS YOU GET TO THE END,
8 IT'S PRETTY EXTREME AND YOU JUST CAN'T DO IT ANYMORE.
9 IT'S THAT FEELING OF UTTER LACK OF CONTROL. YOUR
10 DRIVE TO BREATHE OVERCOMES YOUR CONSCIOUS WILL.

11 SO IF ONE TRIES TO HOLD YOUR BREATH, YOU CAN
12 IMAGINE A SITUATION WHERE YOU'RE COMPOUNDING THE
13 AGONY BECAUSE YOUR CO2 LEVEL IS HIGHER, YOU PROLONG
14 THE WHOLE EXPERIENCE, IT'S DRAGGING OUT. AND MAYBE
15 THAT'S WHY THE PREDICTIONS FOR PEOPLE BECOMING
16 UNCONSCIOUS IN 30 OR 40 SECONDS THAT WERE, YOU KNOW,
17 PUT FORWARD BY DR. ANTOGNINI AND SOME OF THE OTHERS,
18 SOME OF THE PAPERS THAT HE CITED WERE WRONG, BECAUSE
19 PEOPLE WERE HOLDING THEIR BREATH; THEY WEREN'T
20 COOPERATING; THEY WERE RESISTING WITH EVERYTHING THEY
21 HAD.

22 SO THE TIME BEFORE THESE INDIVIDUALS WERE
23 LOSING CONSCIOUSNESS WAS NOT 30 OR 40 SECONDS. IT
24 WAS TEN TIMES THAT LONG. IT WAS THREE OR FOUR
25 MINUTES WHERE THERE WAS A STRUGGLING.

1 **Q** WE'RE GOING TO TALK ABOUT DR. ANTOGNINI'S
2 DATA, THE DATA HE RELIES UPON FOR THESE 30- TO
3 40-SECOND CONCLUSIONS.

4 BUT WHAT DATA DO YOU RELY UPON FOR YOUR
5 CONCLUSIONS?

6 **A** WELL, I RELY ON EXPERIENCE PRODUCING
7 CONTROLLED HYPOXEMIA IN AT LEAST 5,000 HUMAN
8 SUBJECTS. SO I'VE PERSONALLY DONE AT LEAST 5,000
9 STUDIES ON HUMANS WHERE I'VE ADMINISTERED LOW OXYGEN
10 CONTAINING GAS TO THEM AND MONITORED THEIR RESPONSES.
11 THIS IS IN THE CONTEXT PRIMARILY OF TESTING THESE
12 PULSE OXIMETER DEVICES BUT IN LOTS OF OTHER STUDIES
13 THAT INVOLVE IMPROVING WAYS TO MONITOR LOW OXYGEN.

14 **Q** AND YOU ALSO -- DID YOU RELY UPON A
15 TRANSCRIPT OF DR. McALARY?

16 **A** YES. HIS TRANSCRIPT -- SO DR. McALARY IS --
17 I UNDERSTAND HE'S AN ANESTHESIOLOGIST.

18 **MR. ARCHEY:** YOUR HONOR, I OBJECT. I'M NOT
19 SURE -- I DON'T KNOW WHAT HE'S REFERRING TO. IT'S
20 NOT IN HIS DECLARATION, SO I NEED SOME ASSISTANCE TO
21 KNOW EXACTLY HOW TO RESPOND TO THIS. IT'S NOT
22 ANYTHING HE'S GOT IN HERE, SO I DON'T KNOW WHAT HE'S
23 TALKING ABOUT.

24 **MR. STRONSKI:** I THINK IT'S ATTACHED. I'M
25 HOPING IT'S ATTACHED TO --

1 **MR. ARCHEY:** YOU'RE TALKING ABOUT THE
2 TRANSCRIPT? I'M GOOD, YOUR HONOR.

3 **MR. STRONSKI:** IT'S THE TRANSCRIPT.

4 **MR. ARCHEY:** SORRY, YOUR HONOR. THANK YOU.

5 **THE COURT:** SO IT'S PART OF HIS RELIANCE
6 MATERIALS. YOU MAY CARRY ON.

7 **MR. STRONSKI:** IT'S IN EVIDENCE ALREADY,
8 YOUR HONOR.

9 IF WE GO TO PAGE 91 OF EXHIBIT 16.

10 **BY MR. STRONSKI:**

11 **Q** IS IT YOUR UNDERSTANDING THAT DR. McALARY,
12 THE ANESTHESIOLOGIST, ACTUALLY OBSERVED THE EXECUTION
13 OF MR. GRAYSON?

14 **A** THAT'S MY UNDERSTANDING.

15 **Q** IS THIS THE BEGINNING OF THE TRANSCRIPT THAT
16 YOU LOOKED AT? CAN YOU SEE IT?

17 **A** IT IS.

18 **Q** OKAY. THEN IF WE GO TO PAGE 92 OF HIS
19 ANSWER THERE, DOES THIS INFORM AT ALL ANY OF YOUR
20 OPINIONS? THIS IS AN ANSWER OF DR. McALARY TO A
21 QUESTION DESCRIBING WHAT HE OBSERVED.

22 **A** WELL, HE'S DESCRIBING WHAT HE SAW WHEN
23 THE -- AFTER THE NITROGEN WAS APPARENTLY STARTED.
24 AND IT DESCRIBES THE RELATIVELY PROLONGED PROCESS AND
25 DURATION OF TIME WHEN THE VICTIM SEEMED TO REMAIN

1 CONSCIOUS, MOVING IN PURPOSEFUL WAYS.

2 Q IF YOU GO TO PAGE 96, PLEASE, THERE IS A
3 QUESTION BEFORE, AND THEN IF YOU LOOK -- GO TO 95.
4 I'M SORRY. IT SAYS -- WELL, IT SAYS, "I'LL REPEAT
5 THE QUESTION, DR. McALARY. COULD YOU ESTIMATE, BASED
6 ON YOUR RECOLLECTION, APPROXIMATELY HOW MUCH TIME
7 ELAPSED BETWEEN WHEN YOU FIRST OBSERVED MR. GRAYSON
8 APPEARING AGITATED AND THE POINT IN TIME WHEN HE
9 RAISED AND LOWERED HIS LEGS?"

10 AND WHAT DOES HE SAY?

11 A WELL, LET'S SEE. HE SAYS HE HAD NOTES OF
12 THE CLOCK TIMES. I DON'T KNOW THAT ON THIS
13 PARTICULAR PAGE THAT YOU'RE SHOWING IT GIVES A NUMBER
14 OF MINUTES, IF THAT'S WHAT YOU'RE LOOKING FOR.

15 Q IT'S ON THE NEXT PAGE.

16 A WELL, HE'S TALKING ABOUT, YOU KNOW, THREE
17 MINUTES AND AN ADDITIONAL TWO MINUTES. SO THIS IS,
18 YOU KNOW, TALKING ABOUT THREE- TO FIVE-MINUTE PERIOD
19 HERE WHERE THERE IS EVIDENCE -- EVIDENT STRUGGLING
20 AND RESISTANCE AFTER THE NITROGEN WAS STARTED.

21 Q OKAY. LET'S CONTINUE TO GO TO THE
22 ATTACHMENTS, AND WE'RE GOING TO LOOK AT A FEW
23 NEWSPAPER ARTICLES NOW. IF WE GO TO PAGE 206, THERE
24 IS AN AP ARTICLE.

25 IS THIS AN ARTICLE THAT YOU CONSIDERED?

1 A YES, I BELIEVE THIS WAS AN ARTICLE THAT
2 WE --

3 Q IF WE CAN GO DOWN, PLEASE.

4 A -- QUOTED IN OUR JAMA PIECE.

5 Q SO IT SAYS HERE THE -- WELL, WHAT DOES THE
6 ALABAMA CORRECTIONS COMMISSIONER SAY NEAR THE BOTTOM?

7 A LIKE TWO PREVIOUS -- LIKE THE OTHERS
8 PREVIOUSLY EXECUTED BY NITROGEN, GRAYSON SHOOK AT
9 TIMES BEFORE TAKING A PERIODIC SERIES OF GASPING
10 BREATHS, AND THE NITROGEN FLOWED FOR ABOUT 15
11 MINUTES, AND THAT THE ELECTROCARDIOGRAM SHOWED NO
12 ELECTRICAL ACTIVITY ABOUT 10 MINUTES AFTER THE GAS
13 STARTED FLOWING.

14 Q DOES THAT TEND TO SUPPORT -- IS THAT
15 EVIDENCE THAT TENDS TO SUPPORT HOW LONG YOU THINK
16 MR. GRAYSON MAY HAVE BEEN SUFFERING?

17 A YES.

18 Q CAN YOU EXPLAIN?

19 A YES. SO IMAGINE A SITUATION WHERE SOMEONE'S
20 LUNG OXYGEN IS IMMEDIATELY REPLACED WITH NITROGEN.
21 UNDER THOSE CONDITIONS, WITH ENTIRE LUNG REPLACEMENT
22 OF AIR WITH NITROGEN, THE OXYGEN SATURATION IN THE
23 BLOOD IS GOING TO FALL TO CLOSE TO ZERO IN A COUPLE
24 OF MINUTES. IN THAT SCENARIO, THE SATURATION LEVEL
25 OF ABOUT 50 PERCENT IS GOING TO HAPPEN AT 30 TO 50

1 SECONDS, SOMETHING LIKE THAT, WHILE THE OXYGEN LEVEL
2 CONTINUES TO PLUMMET, BECAUSE THE BODY IS CONSUMING
3 OXYGEN. THAT MEANS THAT THERE IS ALMOST NO OXYGEN IN
4 THE BLOOD IN ABOUT TWO MINUTES.

5 NOW, AT THAT POINT, ELECTRICAL ACTIVITY IN
6 THE HEART, WHAT'S CALLED PULSELESS ELECTRICAL
7 ACTIVITY -- THAT'S WHEN THE HEART MUSCLE NO LONGER
8 CAN BEAT BUT YOU CAN CONTINUE TO SEE THE
9 ELECTROCARDIOGRAM -- THAT IS GOING TO PERSIST FOR
10 ABOUT SEVEN MINUTES. SO IF YOU'VE GOT PERSISTENT
11 ELECTRICAL ACTIVITY AT 10 MINUTES, THAT MEANS THAT
12 THE PROCESS WAS DELAYED FROM THE RAPID INCEPTION OF
13 THE ANOXIA AT THE BEGINNING. SO IT SETS THE TIME
14 COURSE OF THE LOSS OF CONSCIOUSNESS, LOSS OF CARDIAC
15 ACTIVITY, AND ALL OF THAT IN A MUCH MORE DELAYED WAY.

16 SO THIS IS CONSISTENT WITH OUR BELIEF THAT
17 THE EXECUTIONS ARE NOT HAPPENING TERRIBLY QUICKLY.
18 THEY'RE CONSISTENT WITH WHAT THE EYEWITNESS REPORTS
19 ARE SAYING ABOUT CONTINUED PURPOSEFUL STRUGGLING FOR
20 SOME PERIOD OF TIME.

21 Q OKAY. IF -- DO YOU HAVE EXPERIENCE AS AN
22 ANESTHESIOLOGIST WITH WHAT HAPPENS TO A PATIENT WHO
23 LOSES THEIR AIRWAY?

24 A THAT'S RIGHT. UNFORTUNATELY --

25 Q HOW IS THAT RELEVANT TO THIS ANALYSIS?

1 A WELL, IT HELPS ESTABLISH THE TIME FRAME FROM
2 THAT LOSS OF OXYGEN TO TERMINAL EVENTS, SPECIFICALLY
3 THE LOSS OF CARDIAC OUTPUT, WHEN YOU HAVE TO START
4 CARDIOPULMONARY RESUSCITATION WITH CHEST
5 COMPRESSIONS, SOME WAY OF AUGMENTING THE CIRCULATION,
6 TO THE POINT WHEN THE HEART IS GOING TO STOP ITS
7 ELECTRICAL ACTIVITY.

8 THE OTHER PLACE WHERE WE SEE THIS IS WHEN WE
9 ARE TERMINATING CARE IN TERMINALLY ILL PATIENTS. SO
10 I TAKE CARE OF A LOT OF PATIENTS WHO HAVE BRAIN
11 HEMORRHAGES; THEY HAVE RUPTURED ANEURYSMS. AND THAT
12 CAN PRODUCE A DEGREE OF BRAIN INJURY THAT MAKES THEM
13 ESSENTIALLY BRAIN DEAD, BUT THE REST OF THEIR BODY IS
14 STILL WORKING.

15 AND IN SOME OF THOSE UNFORTUNATE PATIENTS,
16 THERE COMES A TIME WHEN SUPPORT IS WITHDRAWN AND THE
17 PATIENT IS ALLOWED TO DIE. SO THE VENTILATOR IS
18 TURNED OFF AT THAT POINT, AND SO THAT SETS THE CLOCK
19 TICKING THERE. AND FROM THAT POINT TO WHEN THE
20 ELECTRIC -- THE ELECTRICAL ACTIVITY OF THE HEART
21 STOPS IS IN THAT SEVEN-MINUTE PERIOD, DEPENDING ON
22 HOW MUCH OXYGEN THEY HAVE IN THEIR LUNGS WHEN THEY'RE
23 STARTING. BUT WHEN THEIR SATURATION ON THE PULSE
24 OXIMETER GOES TO ZERO, IT'S ABOUT SEVEN MINUTES.
25 THIS IS A REALLY CRITICAL NUMBER BECAUSE THAT'S USED

1 IN EMERGENCY RESUSCITATION ENVIRONMENTS, SO IT HELPS
2 ESTABLISH WHETHER RESUSCITATION WILL BE FUTILE OR
3 NOT.

4 Q AND BASED ON THIS ANALYSIS, WHAT -- HOW LONG
5 DO YOU THINK TYPICALLY YOU MIGHT EXPECT A -- AN
6 INMATE SUBJECT TO THE LOUISIANA NITROGEN GASSING
7 EXECUTION METHOD TO BE EXPERIENCING BEFORE THEY
8 BECOME UNCONSCIOUS?

9 A WELL, I WOULD EXPECT THEY WOULD BE SUFFERING
10 FOR THREE TO FIVE MINUTES. THEY PROBABLY LOSE
11 CONSCIOUSNESS IN THAT TIME FRAME. SO THIS IS NOT THE
12 QUICK UNCONSCIOUSNESS THAT I THINK THE STATE INTENDS
13 WITH THIS METHOD.

14 Q IS IT FAIR TO SAY THAT THIS IS ANALOGOUS TO
15 DROWNING IN NITROGEN -- THIS IS DROWNING IN NITROGEN
16 FOR A PERIOD OF THREE TO FIVE MINUTES?

17 A I DON'T THINK THAT'S INACCURATE. THE
18 FEELING THAT YOU HAVE OF EXTREME BREATHLESSNESS AND
19 PANIC WOULD BE PROBABLY WHAT YOU'D EXPERIENCE WHEN
20 YOU'RE DROWNING.

21 Q LET'S CONTINUE TO ANOTHER ARTICLE, DOCTOR.
22 IF WE GO TO -- GO TO PAGE 211. GO TO PAGE 210,
23 PLEASE.

24 SO THIS IS AN ARTICLE THAT'S BEEN ADMITTED
25 AS EXHIBIT 16, AND IT CONCERNS THE GRAYSON EXECUTION.

1 IS THIS AN ARTICLE THAT YOU CONSIDERED?

2 A YES.

3 Q AND IF WE GO TO THE NEXT PAGE, 211, THERE IS
4 A TIMELINE HERE. IF YOU COULD TELL US: WHAT HERE IN
5 THIS TIMELINE OF OBSERVATIONS IS RELEVANT TO YOUR
6 CONCLUSIONS ABOUT THE LENGTH OF TIME A TYPICAL
7 PRISONER WOULD SUFFER IN THIS METHOD?

8 A I DON'T SEE IT IN FRONT OF ME NOW. BUT
9 IT --

10 Q WELL, HOLD ON. THE NEXT PAGE, PLEASE.

11 A YEAH. THIS CONTAINS A TIMELINE THAT I
12 BELIEVE THE STATE WOULD HAVE TO ADMIT IS LONGER THAN
13 THEY WOULD PREDICT FOR THE -- FOR THE STRUGGLING THAT
14 IS ELICITED BY THESE EXECUTIONS.

15 Q SO IF YOU LOOK AT THIS, WHAT DOES IT SAY IS
16 HAPPENING AT 6:12?

17 A AT 6:12, THAT'S WHEN THE NITROGEN APPEARED
18 TO BE FLOWING.

19 Q AND THEN WHAT DOES IT SAY IS HAPPENING AT
20 6:18?

21 A AND AT 6:18 HE FINALLY APPEARED TO LOSE
22 CONSCIOUSNESS; HIS LIMBS RELAXED. SO THAT'S SIX
23 MINUTES INTO IT.

24 Q AND THEN BETWEEN THOSE TWO NUMBERS THERE ARE
25 VARIOUS PHYSICAL ACTIVITIES THAT ARE DESCRIBED. CAN

1 YOU JUST, BEGINNING WITH 6:12, DESCRIBE FOR THE
2 RECORD EACH OF THOSE AND WHETHER THEY ARE CONSISTENT
3 WITH BEING AWAKE?

4 A YEAH. SO HE'S CLENCHING HIS FISTS. THAT'S
5 A -- THAT'S NOT AN INVOLUNTARY RESPONSE. THAT'S A
6 VOLUNTARY RESPONSE. SO HE'S CLEARLY --

7 Q JUST FOR THE RECORD, CAN YOU STATE THE TIME
8 AND THEN WHAT'S HAPPENING AND WHETHER THEN THAT IS
9 CONSISTENT WITH HIM BEING AWAKE?

10 A YEAH. SO 6:12 HE'S CLENCHING HIS FISTS.
11 HE'S SHAKING HIS HEAD VIGOROUSLY. THIS IS CONSISTENT
12 WITH HIM BEING CONSCIOUS. 6:13 HE'S TAKING DEEP
13 GASPS, SHAKING HIS HEAD VIGOROUSLY. HE'S STILL
14 CONSCIOUS THERE. SHAKING YOUR HEAD VIGOROUSLY IS NOT
15 SOMETHING YOU DO IF YOU'RE UNCONSCIOUS. 6:14 HE
16 RAISES HIS LEGS OFF THE GURNEY AND HE TAKES DEEP
17 BREATHS. HIS LEGS LOWERED ABOUT 30 SECONDS LATER.
18 AND BETWEEN 6:15 AND 6:17 --

19 Q DOCTOR, JUST FOR THE RECORD TO BE CLEAR, AT
20 6:14, THE ACTIVITY YOU DESCRIBED, IS THAT CONSISTENT
21 WITH HIM BEING AWAKE?

22 A WELL, HE RAISES HIS LEGS FROM THE GURNEY.
23 YES, THAT'S CONSISTENT WITH BEING AWAKE. I'M NOT
24 SURE ABOUT THE DEEP BREATHS. ONE CAN CONTINUE TO
25 TAKE DEEP BREATHS AFTER YOU'RE UNCONSCIOUS. BUT

1 CERTAINLY THE COORDINATED MOVEMENTS TO LIFT HIS LEGS
2 OFF THE GURNEY WOULD BE AN INDICATION OF HIM BEING
3 AWAKE.

4 Q CONTINUE, PLEASE.

5 A BETWEEN 6:15 AND 6:17, GRAYSON TAKES SEVERAL
6 DEEP BREATHS; NOT DETERMINATIVE OF LEVEL OF
7 CONSCIOUSNESS. BUT HIS HANDS REMAIN TIGHTLY
8 CLENCHED. THAT WOULD BE SOMEONE WHO IS STILL
9 VOLITIONAL. THAT'S NOT SOMETHING THAT YOU SEE IN
10 PATIENTS THAT HAVE PASSED OUT FROM LACK OF OXYGEN.
11 AND THEN IT SAYS AT 6:17 A CORRECTIONS OFFICER
12 PERFORMED A CONSCIOUSNESS CHECK. IT'S NOT DESCRIBED
13 WHAT WAS FOUND OR WHAT THE EXPERTISE OF THE
14 CORRECTIONS OFFICER WAS. AND FINALLY AT 6:18 THERE
15 IS A NOTATION THAT GRAYSON APPEARED TO LOSE
16 CONSCIOUSNESS AND HE RELAXED. HIS HANDS RELAXED.

17 Q IN THE FIELD OF ANESTHESIOLOGY, ARE
18 CONSCIOUSNESS CHECKS IMPORTANT?

19 A YES. WE DO THAT ALL THE TIME. WE -- FOR
20 EXAMPLE, WHEN A PATIENT IS WAKING UP FROM AN
21 ANESTHETIC, WE WANT TO ASSESS THEIR LEVEL OF
22 CONSCIOUSNESS VERY QUICKLY, ESPECIALLY IN THE FIELD
23 OF NEUROSURGERY WHERE THE SURGERY MIGHT HAVE CAUSED A
24 NEW NEUROLOGIC INJURY. WE NEED TO BE AWARE OF IT, SO
25 WE'RE DOING DETAILED NEURO CHECKS RIGHT AWAY.

1 Q AND HOW IS THAT DONE?

2 A WELL, FIRST THING YOU DO IS YOU SPEAK TO THE
3 INDIVIDUAL AND ASK THEM TO DO THINGS LIKE OPEN THEIR
4 EYES, SAY THEIR NAME, MOVE THEIR HANDS, GRIP YOUR
5 HANDS, RAISE THEIR LEGS, DO THINGS LIKE THAT. SO
6 YOU'RE LOOKING FOR COORDINATED PURPOSEFUL MOVEMENTS
7 THAT ARE COMING FROM A COMMAND, LIKE DO A PARTICULAR
8 THING OR --

9 Q ARE THERE PHYSICAL CONSCIOUSNESS CHECKS TOO;
10 STERNUM RUBS AND THINGS LIKE THAT?

11 A PARDON ME?

12 Q ARE THERE STERNUM RUBS AND OTHER PHYSICAL --

13 A YES. YOU CAN --

14 Q -- CONSCIOUSNESS CHECKS?

15 A YES. YOU CAN STIMULATE SOMEONE TO SEE IF
16 THEY WILL AROUSE. IT'S COMMON AFTER ANESTHESIA WHERE
17 THEY'RE STILL SLEEPY FROM THE EFFECTS OF THE
18 ANESTHETIC. BUT IF YOU RUB THEIR STERNUM VIGOROUSLY
19 OR PINCH THEIR SHOULDER, THEY MAY WITHDRAW OR REACT
20 OR OPEN THEIR EYES OR OTHERWISE INDICATE THAT THEIR
21 BRAIN IS REGAINING CONSCIOUSNESS.

22 Q TO DO THAT AND TO EVALUATE THE RESPONSE AS
23 EITHER CONSISTENT OR INCONSISTENT WITH BEING
24 CONSCIOUS, DOES THAT REQUIRE MEDICAL TRAINING?

25 A WELL, TO DO A GOOD JOB OF IT, I WOULD SAY

1 YES. BUT, FOR EXAMPLE, EMTs ARE TRAINED TO DO THAT.
2 THEY ASSESS PATIENTS IN THE FIELD THAT THEY'VE BEEN
3 CALLED TO RESPOND TO. SO I WOULD EXPECT SOMEONE WITH
4 LIKE AN EMT LEVEL TRAINING TO BE ABLE TO DO A MINIMAL
5 LEVEL OF A NEURO ASSESSMENT.

6 Q THANK YOU.

7 LET'S GO TO PAGE 229, PLEASE, ALSO IN
8 EXHIBIT 16. BUT ACTUALLY WE'LL GO TO 227 FIRST.
9 SORRY.

10 AND THIS IS ALSO AN ARTICLE CONCERNING --
11 THIS IS CONCERNING THE FRAZIER EXECUTION. IS THIS AN
12 ARTICLE YOU CONSIDERED?

13 A YES.

14 Q AND THIS IS ANOTHER EXECUTION IN ALABAMA?

15 A YES.

16 Q AND IF WE GO TO PAGE 229, IT INDICATES
17 THAT -- WHAT DOES IT SAY UNDER "THE AFTERMATH" WAS
18 SAID BY COMMISSIONER HAMM THAT IS RELEVANT TO YOUR
19 ANALYSIS IN THE FIRST PARAGRAPH?

20 A WELL, COMMISSIONER HAMM CONFIRMED THAT THE
21 GAS BEGAN FLOWING AT 6:13. BUT HE SAID HE WAS USING
22 A DIFFERENT CLOCK, SO ONE CAN'T BE CERTAIN ABOUT HIS
23 TIME IN RELATION TO THE OTHER TIMES. BUT THAT GIVES
24 US A ROUGH IDEA, I WOULD GUESS.

25 Q OKAY. AND THEN HE SAYS, "THE GAS FLOWED FOR

1 18 MINUTES, WITH FIVE OF THOSE BEING PAST FLATLINE."

2 A YES.

3 Q IS THAT RIGHT?

4 A CORRECT.

5 Q SO WHEN DOES THAT MEAN THE HEART STOPPED?

6 A WELL, LET'S SEE. SO 18 MINUS FIVE, THAT'S

7 13 MINUTES. YOU'VE GOT 13-MINUTE ELAPSE THERE.

8 IF -- AS I SAID EARLIER, IF THE NITROGEN WASH INTO

9 THE BODY HAPPENS RAPIDLY AND ANOXIA AND PULSELESS

10 ELECTRICAL ACTIVITY WOULD THEN START ABOUT THREE TO

11 FOUR MINUTES, THEN YOU'VE GOT SEVEN MINUTES OF

12 ELECTRICAL ACTIVITY LEFT IN THE HEART. SO YOU'VE GOT

13 A BIG GAP IN TIME IN THIS ONE, TOO, WHERE IT'S

14 INCONSISTENT WITH, YOU KNOW, THE RAPID LOSS OF

15 CONSCIOUSNESS AND CLINICAL DEATH. SO YOU'VE GOT A

16 PROLONGED EXPERIENCE WITH THE NITROGEN HYPOXIA HERE

17 AS WELL.

18 Q OKAY. AND YOU REFERENCED EARLIER THAT DR.

19 ANTOGNINI ARGUES THAT AN INMATE, IF THEY'RE HOLDING

20 THEIR BREATH, AFTER THEY STOP HOLDING THEIR BREATH

21 AND IT'S A HUNDRED PERCENT NITROGEN, THEY'LL BE

22 UNCONSCIOUS IN 30 TO 40 SECONDS. DO YOU AGREE WITH

23 THAT?

24 A WELL, SO NOT -- NO, BECAUSE IT'S POSSIBLE TO

25 TAKE A FULL BREATH OF NITROGEN, TO HYPERVENTILATE

1 PURE NITROGEN. IF ONE DID THAT, IF YOU VOLUNTARILY
2 DID THAT, YOU MIGHT LOSE CONSCIOUSNESS IN 30 TO 40
3 SECONDS.

4 THERE IS A PAPER THAT I BELIEVE WE CITED --
5 THE AUTHOR IS ERNSTING. IT'S FROM THE EARLY 1960s --
6 WHERE THEY WERE DOING VERY SIMILAR EXPERIMENTS. THEY
7 WERE HAVING SUBJECTS EXHALE MAXIMALLY AND THEN TAKE
8 AS BIG A BREATH AS THEY COULD OF PURE NITROGEN. AND
9 THEN THEY ASKED -- THEY ASSESSED HOW LONG
10 CONSCIOUSNESS PERSISTED. IN SOME OF THE SUBJECTS THE
11 CONSCIOUSNESS WAS EITHER LOST OR FLUCTUATING, YOU
12 KNOW, 30 OR 40 SECONDS LATER. SO IT'S POSSIBLE IN
13 THAT SCENARIO.

14 BUT IN THESE EXECUTION SCENARIOS, APPARENTLY
15 IT'S VERY, VERY DIFFERENT. THEY'RE NOT ACHIEVING
16 THAT TYPE OF PHYSIOLOGIC STATE IN THE EXECUTIONS.

17 **Q** OKAY. AND AGAIN, JUST FOR THE RECORD, HOW
18 LONG DO YOU THINK A TYPICAL INMATE -- WELL, HOW LONG
19 DO YOU THINK MR. HOFFMAN IS LIKELY TO EXPERIENCE THE
20 NITROGEN HYPOXIA BEFORE HE BECOMES UNCONSCIOUS WITH
21 THIS METHOD?

22 **A** I WOULD SAY THREE TO FIVE MINUTES.

23 **Q** OKAY.

24 **A** YOU KNOW, I DON'T KNOW HOW HE'S GOING TO DO.
25 BUT IT JUST SEEMS LIKE A CRUEL EXPERIMENT TO DO.

1 **Q** BUT TO A REASONABLE DEGREE OF MEDICAL
2 CERTAINTY, HOW LONG DO YOU THINK HE WILL EXPERIENCE
3 THE NITROGEN HYPOXIA OF THIS METHOD BEFORE BECOMING
4 UNCONSCIOUS?

5 **A** AGAIN, I WOULD SAY POTENTIALLY THREE TO FIVE
6 MINUTES, BECAUSE I WOULD EXPECT THAT HE WOULD HOLD
7 HIS BREATH AND THEN PROBABLY ATTEMPT TO BREATHE
8 SHALLOWLY AND THEN ONLY SLOWLY GET HYPOXIC, ALL THE
9 WHILE EXPERIENCING THE EFFECTS OF THE PROGRESSING
10 HYPOXIA AND BUILDUP OF CARBON DIOXIDE IN HIS BLOOD.

11 **MR. STRONSKI:** YOUR HONOR -- I'M SORRY.
12 LET'S CALL UP EXHIBITS -- WE'RE GOING TO LOOK AT SOME
13 PHOTOGRAPHS, YOUR HONOR, OF THE EXECUTION CHAMBER AND
14 THE MASK.

15 **THE COURT:** THEY'VE ALREADY BEEN ADMITTED?

16 **MR. STRONSKI:** THEY'VE BEEN ADMITTED
17 ALREADY.

18 **THE COURT:** SO JUST FOR THE RECORD, I WOULD
19 ENCOURAGE YOU TO CITE THE EXHIBIT NUMBER.

20 **MR. STRONSKI:** I WILL. ABSOLUTELY, YOUR
21 HONOR. IF WE COULD LOOK AT EXHIBIT 84, PLEASE.

22 **BY MR. STRONSKI:**

23 **Q** HAVE YOU SEEN EXHIBIT 84, DOCTOR?

24 **A** YES.

25 **Q** AND WHAT DO YOU UNDERSTAND IS THERE?

1 A WELL, I'VE GOT A LEATHER RESTRAINT AND
2 HANDCUFFS AND THEN A -- LOOKS LIKE AN INDUSTRIAL
3 RESPIRATOR MASK. THAT'S AIR-SUPPLIED FACE MASKS.

4 Q LET'S LOOK AT EXHIBIT 85, PLEASE.

5 A THAT'S THE FRONT OF THE MASK.

6 Q OKAY. LET'S LOOK AT EXHIBIT 88.

7 A THE SIDE.

8 Q AND LET'S LOOK AT EXHIBIT 90. WHAT IS THIS,
9 DOCTOR?

10 A THAT'S THE EXECUTION BED IN THE EXECUTION
11 ROOM OR CHAMBER.

12 Q AND THEN LET'S LOOK AT EXHIBIT 79.

13 A SAME BUT FROM ANOTHER ANGLE.

14 Q OKAY. AND HAVE YOU CONSIDERED THESE
15 PHOTOGRAPHS IN YOUR ANALYSIS?

16 A WELL, YES. I MEAN, I THINK ANYONE WITH A
17 HISTORY OF PTSD WHEN CONFRONTED WITH THIS KIND OF
18 ENVIRONMENT WOULD BE EXTREMELY UNCOMFORTABLE.

19 Q AND HAVE YOU CONSIDERED THE PRIOR
20 TESTIMONY -- YOU'VE BEEN HERE TODAY. RIGHT?

21 A I HAVE.

22 Q AND THE TESTIMONY OF MR. HOFFMAN, DID YOU
23 HEAR HIM?

24 A YES.

25 Q AND DR. SAUTTER, DID YOU HEAR HIM?

1 **A** YES.

2 **Q** AND REVEREND BONO, DID YOU HEAR HER?

3 **A** YES.

4 **Q** HOW DO THEY IMPACT YOUR OPINIONS HERE?

5 **A** WELL, IT'S INCONCEIVABLE TO ME THAT
6 MR. FRAZIER WOULD BE ABLE TO EFFECTIVELY EXERCISE HIS
7 RELIGIOUS RELAXATION TECHNIQUES --

8 **Q** DOCTOR, LET ME JUST CORRECT YOU. IT'S MR.
9 HOFFMAN.

10 **A** I'M SORRY.

11 **Q** I CONFUSE NAMES ALL THE TIME.

12 **A** SO MR. HOFFMAN -- IT WOULD BE INCONCEIVABLE
13 THAT MR. HOFFMAN WOULD BE ABLE TO FREELY EXERCISE HIS
14 RELIGIOUS BELIEFS.

15 **MR. ARCHEY:** YOUR HONOR, I OBJECT. IT'S
16 OUTSIDE THE SCOPE OF HIS EXPERTISE. THERE IS NO
17 FOUNDATION FOR THIS.

18 **MR. STRONSKI:** YOUR HONOR, WE'RE TRYING TO
19 ESTABLISH THE IMPACT ON THE EIGHTH AMENDMENT CLAIM,
20 NOT ON THE ABILITY TO -- OR A SUBSTANTIAL BURDEN ON
21 RELIGIOUS PRACTICES. IT WILL AFFECT THE DEGREE --
22 WE'RE TALKING LARGELY HERE ABOUT TERROR AND EMOTIONAL
23 SUFFERING.

24 **THE COURT:** WELL, THAT'S NOT -- BUT THAT'S
25 NOT WHAT DR. BICKLER SAID. I WILL SUSTAIN THE

1 OBJECTION. SEE IF YOU CAN GET AT IT WITH A DIFFERENT
2 QUESTION.

3 **BY MR. STRONSKI:**

4 **Q** DR. BICKLER, YOU HEARD THE TESTIMONY OF
5 THOSE INDIVIDUALS. HOW DOES THAT TESTIMONY IMPACT
6 YOUR OPINION ABOUT THE EMOTIONAL -- THE TERROR AND
7 THE EMOTIONAL SUFFERING THAT MR. HOFFMAN CAN BE
8 EXPECTED TO ENDURE IN THIS PROCESS?

9 **A** WELL, THE SETTING OF THE EXECUTION, THE
10 EQUIPMENT USED, IN MY OPINION, WOULD HAVE A HUGE
11 IMPACT ON HIS EMOTIONAL STATE AND ON HIS ABILITY TO
12 EXERCISE HIS RELIGIOUS PRACTICE AS HE'S CONFRONTING
13 DEATH.

14 **Q** RIGHT. AND I'M INTERESTED IN THE MASK. HOW
15 DOES THE MASK AFFECT, IN YOUR OPINION -- AND AS A
16 DOCTOR WHO DEALS WITH PEOPLE WITH PTSD, HOW WILL THAT
17 IMPACT, IF AT ALL, MR. HOFFMAN'S EXPERIENCE WITH THIS
18 METHOD?

19 **A** I THOUGHT MR. HOFFMAN'S SPIRITUAL ADVISORS
20 WERE VERY POWERFUL IN THEIR DESCRIPTION OF THE
21 BUDDHIST BELIEF, THAT IT IS THE AIR AND THE --

22 **MR. ARCHEY:** YOUR HONOR, I HAVE TO OBJECT
23 AGAIN. HE'S JUST SO FAR OUTSIDE OF THIS AREA.

24 **THE COURT:** SUSTAINED.

25 **MR. STRONSKI:** YOUR HONOR, IT GOES TO THE

1 PTSD. THE PTSD IS ALLEVIATED BY HIS BREATHING
2 PRACTICES. YOU CAN LABEL IT BUDDHISM, YOU CAN LABEL
3 IT ANYTHING YOU WANT. BUT IT'S A PRACTICE THAT HE'S
4 TAUGHT THROUGH HIS RELIGION, AND IT'S ONE OF HIS
5 COPING MECHANISMS. AND IT'S BEING TAKEN AWAY AND
6 IT'S GOING TO AFFECT THE EIGHTH AMENDMENT SUFFERING.
7 AND THAT'S WHAT WE'RE LOOKING AT, THE EIGHTH
8 AMENDMENT SUFFERING.

9 **THE COURT:** THEN YOU NEED TO ASK THAT
10 QUESTION: IF A COPING MECHANISM IS REMOVED, WHAT
11 DOES THAT DO TO HIM. BUT --

12 **MR. STRONSKI:** THANK YOU, YOUR HONOR. I CAN
13 DO THAT.

14 **THE COURT:** -- I MEAN, WE NEED TO STAY AWAY
15 FROM EXERCISE OF RELIGION.

16 **MR. STRONSKI:** RIGHT. THAT WASN'T IN MY
17 QUESTION --

18 **THE COURT:** I KNOW IT WASN'T.

19 **MR. STRONSKI:** -- BUT I UNDERSTAND.

20 **BY MR. STRONSKI:**

21 **Q** DOES THE ABILITY TO ENGAGE -- TO -- WELL, DO
22 YOU UNDERSTAND THAT MR. HOFFMAN HAS A COPING
23 MECHANISM THAT INVOLVES BREATHING?

24 **A** YES.

25 **Q** AND HOW IN YOUR OPINION -- AND YOU

1 UNDERSTAND THAT HE HAS REPORTED THAT HE'S
2 CLAUSTROPHOBIC?

3 A YES.

4 Q HOW WOULD THOSE FACTS AFFECT YOUR OPINION OR
5 INFORM YOUR OPINION CONCERNING WHETHER THERE WOULD BE
6 SUPERADDED OR ADDITIONAL TERROR AND EMOTIONAL
7 SUFFERING IF -- FOR MR. HOFFMAN IN PARTICULAR --
8 SUBJECTED TO THIS METHOD?

9 A WELL, MR. HOFFMAN WOULD SUFFER ADDITIONAL
10 STRESS IF THOSE COPING MECHANISMS WERE INTERFERED
11 WITH. SO HE WOULD EXPERIENCE ADDITIONAL TERROR.

12 Q DOCTOR, I WANT TO ASK YOU ABOUT THE SUICIDE
13 REPORTS THAT DR. ANTOGNINI RELIES UPON. ARE YOU
14 FAMILIAR WITH THAT?

15 A YES.

16 Q AND SO DO YOU THINK THAT THEY ARE RELIABLE
17 EVIDENCE OF WHAT ONE WOULD LIKELY EXPERIENCE IN THIS
18 METHOD?

19 A WELL, I THINK THEY'RE RELIABLE INSOFAR AS
20 THE NITROGEN METHOD WILL KILL SOMEBODY -- KILL
21 SOMEBODY. BUT I'M NOT SURE THEY'RE VERY INFORMATIVE
22 AT ALL ABOUT THE DEGREE OF STRESS THAT AN INDIVIDUAL
23 WOULD EXPERIENCE.

24 YOU KNOW, WITH THE SUICIDE METHODS OR
25 MEDICAL AID IN DYING WITH INERT GASES, YOU HAVE A

1 READY AND WILLING PARTICIPANT WHO IS ENTERING INTO
2 THIS, YOU KNOW, OF THEIR DESIRE TO TERMINATE THEIR
3 LIFE. COMPLETELY DIFFERENT SCENARIO WITH A PRISONER
4 WHO IS BEING FORCED TO BREATHE NITROGEN TO BE
5 ASPHYXIATED BY IT. SO THEY'RE NOT COMPARABLE TO ME
6 AT ALL.

7 Q AND TO YOU AS A SCIENTIST, WHAT'S BETTER
8 EVIDENCE? THOSE REPORTS OF SUICIDES OR THE REPORTS
9 OF THE ALABAMA EXECUTIONS?

10 A WELL, THE ALABAMA EXECUTIONS BECAUSE THEY
11 COMPORT WITH WHAT WE KNOW ABOUT THE PHYSIOLOGY OF
12 OXYGEN DEPRIVATION IN HUMANS.

13 Q IN THE SUICIDE REPORTS, WERE THEY SCIENTIFIC
14 STUDIES IN ANY WAY?

15 A NO. THEY'RE ANECDOTAL. THEY'RE
16 OBSERVATIONS. THEY'RE -- IF I MAY, YOU KNOW,
17 CONJECTURE THAT THEY ARE REPORTS WRITTEN BY ADVOCATES
18 OF THOSE METHODS. THEY'RE BASICALLY PROMOTING THESE
19 WAYS OF ASSISTING PEOPLE IN SUICIDE DECISIONS.

20 Q ARE YOU ALSO FAMILIAR THAT DR. ANTOGNINI
21 RELIES UPON OSHA INJURY REPORTS?

22 A YES.

23 Q DO YOU BELIEVE THAT THE OSHA INJURY REPORTS
24 ARE RELIABLE EVIDENCE TO UNDERSTAND WHAT SOMEONE
25 WOULD EXPERIENCE IF EXPOSED TO THIS METHOD?

1 A WELL, THEY'RE CLEAR EVIDENCE THAT NITROGEN
2 CAN KILL. I MEAN, THAT'S WHAT THESE REPORTS ARE
3 PREDOMINANTLY CREATED TO DEFINE, ABOUT THE IMPORTANCE
4 OF PROPER AIR SUPPLY WHEN USING RESPIRATORS.

5 I HAVE A COUPLE OF PROBLEMS WITH THIS TYPE
6 OF CASE REPORT. FIRST OF ALL, ONE DOESN'T KNOW HOW
7 MANY SITUATIONS THERE WERE WHERE THE POTENTIAL VICTIM
8 RECOGNIZED THAT THEIR AIR SUPPLY WAS COMPROMISED AND
9 THEY WERE ABLE TO EXIT THE ROOM OR TEAR THE MASK OFF
10 IN TIME AND SELF-RESCUE. THOSE ARE NOT REPORTED, SO
11 WE DON'T KNOW THE DENOMINATOR. WE ONLY KNOW THE
12 FATALITIES. AND SOMETIMES THESE FATALITIES WERE
13 DISCOVERED SOMETIME LATER. NO ONE WITNESSED THESE
14 DEATHS. IF THERE HAD BEEN A WITNESS, MAYBE THERE
15 WOULD HAVE BEEN A RESCUE. SO WE DON'T KNOW HOW MUCH
16 THEY REALLY SUFFERED WHEN THEY DIED FROM NITROGEN
17 EXPOSURE.

18 Q DO THESE AFTER-THE-FACT REPORTS OF DEATHS
19 TELL YOU HOW LONG UNTIL SOMEBODY DIED?

20 A NO, NOT AT ALL.

21 Q DO THEY TELL YOU HOW LONG UNTIL SOMEBODY WAS
22 UNCONSCIOUS?

23 A NO.

24 Q DO THEY TELL YOU -- IS THERE ANYONE
25 OBSERVING WHETHER SOMEBODY IS SUFFERING OR NOT?

1 A NO. THESE ARE LARGELY PEOPLE WHO WERE FOUND
2 DEAD WHO WERE -- WENT MISSING, DIDN'T CALL IN OR
3 REPORT OR SEEMED TO TAKE LONGER AT A JOB THAN THEY
4 SHOULD HAVE.

5 Q ARE YOU FAMILIAR WITH STUDIES THAT DR.
6 ANTOGNINI RELIES UPON CONCERNING MILITARY PILOTS?

7 A YES.

8 Q AND ARE THOSE STUDIES DESIGNED TO MAKE THE
9 PILOTS UNCONSCIOUS?

10 A THEY'RE DESIGNED TO INFORM PILOTS OF WHAT IT
11 FEELS LIKE AS THEY APPROACH CONDITIONS WHERE
12 CONSCIOUSNESS MIGHT BE LOST; FOR EXAMPLE, IN A
13 DECOMPRESSION EVENT IN A HIGH-ALTITUDE AIRCRAFT.

14 Q DO YOU BELIEVE THAT THOSE STUDIES ARE
15 RELIABLE EVIDENCE TO UNDERSTAND WHAT A PERSON WOULD
16 EXPERIENCE WHEN SUBJECTED TO THIS METHOD?

17 A WELL, THEY HAVE RELATIVELY LITTLE TO TEACH
18 US ABOUT IT. I LEARNED QUITE A BIT IN SPEAKING WITH
19 A CLOSE COLLEAGUE OF MINE WHO IS A NAVAL AVIATOR. HE
20 WAS A FLIGHT SURGEON.

21 **MR. ARCHEY:** YOUR HONOR, I OBJECT. SPEAKING
22 TO A FRIEND WHO'S A CLOSE -- THAT'S NOT VALID BASIS
23 FOR OPINIONS.

24 **MR. STRONSKI:** YOUR HONOR --

25 **THE COURT:** GO AHEAD.

1 **MR. STRONSKI:** -- THE FRIEND IS ANOTHER
2 ANESTHESIOLOGIST THAT HE WORKS WITH, AND THIS WAS
3 DISCLOSED IN THE DEPOSITION. IT'S NOT NEW.

4 **THE COURT:** IT'S ANECDOTAL, JUST LIKE A LOT
5 OF THE ANECDOTAL INFORMATION THAT DR. ANTOGNINI
6 RELIES UPON. THE COURT'S GOING TO ALLOW IT.

7 **BY THE WITNESS:**

8 **A** SO WHAT MY FRIEND DESCRIBED -- HE WAS A
9 PILOT IN THE FIRST GULF WAR. AND AS PART OF HIS
10 FLIGHT TRAINING, HE DID THESE DECOMPRESSION EXERCISES
11 AND HE SAID THEY WERE PRETTY AWFUL. THEY MADE
12 EVERYBODY FEEL REALLY BAD.

13 THE THING THAT HE IMPRESSED UPON ME WAS THAT
14 MILITARY AVIATORS WILL NOT COMPLAIN WHEN ASKED TO DO
15 EXERCISES LIKE THIS. HE SAID HE WAS SURE THAT IF HE
16 DEFERRED OR SAID "I DON'T WANT TO DO THIS," THAT HE
17 WOULD HAVE BEEN GROUNDED.

18 SO THE REPORTS OF THE MINIMAL EFFECTS IN
19 THESE KINDS OF MILITARY STUDIES ARE TO BE TAKEN WITH
20 A GRAIN OF SALT, I THINK. THEY'RE PRETTY -- IT'S
21 PRETTY TOUGH ON THESE GUYS. IT'S NOT SOMETHING THAT
22 YOU TAKE -- UNDERTAKE LIGHTLY.

23 **Q** SO DOES THE LOUISIANA PROTOCOL INCLUDE ANY
24 DRUG OR ANESTHETIC THAT WOULD RELIEVE PAIN OR
25 ANXIETY?

1 A NOT TO MY KNOWLEDGE.

2 Q NITROGEN DOES NOT DO THAT?

3 A NITROGEN IS NOT AN ANESTHETIC.

4 Q AND HOW DOES THAT COMPARE TO OTHER METHODS?

5 A WELL, WITH LETHAL INJECTION, A SEDATIVE DRUG
6 IS THE FIRST THING THAT'S GIVEN, SO THE INDIVIDUAL
7 ADMINISTERED THOSE DRUGS LOSES CONSCIOUSNESS VERY,
8 VERY QUICKLY; IN A MATTER OF SECONDS.

9 **MR. STRONSKI:** ONE SECOND, YOUR HONOR.

10 **BY MR. STRONSKI:**

11 Q DOCTOR, JUST TO BE CLEAR, THERE WERE FOUR
12 EXECUTIONS IN ALABAMA USING ESSENTIALLY THIS METHOD.
13 IS THAT RIGHT?

14 A YES.

15 Q AND YOU LOOKED AT DATA FOR ALL FOUR?

16 A YES.

17 Q AND WERE THEY LARGELY CONSISTENT?

18 A YES.

19 Q AND WHAT DID YOU CONCLUDE FROM THEM?

20 A THAT THE DURATION OF THE SUFFERING WAS MUCH
21 LONGER THAN I WOULD CONSIDER HUMANE.

22 Q THANK YOU.

23 A AND THAT THE SUFFERING WAS LONGER THAN
24 APPARENTLY THE ADVOCATES FOR THE METHOD PREDICTED.

25 Q THANK YOU, DOCTOR.

1 **THE COURT:** OKAY. WE'RE GOING TO TAKE A
2 BRIEF BREAK AND THEN WE'LL COME BACK FOR CROSS.
3 LET'S TAKE ABOUT 10 MINUTES.

4 **THE LAW CLERK:** ALL RISE.

5 COURT IS NOW IN RECESS.

6 **(WHEREUPON, A RECESS WAS TAKEN.)**

7 **THE LAW CLERK:** ALL RISE.

8 COURT IS NOW IN SESSION.

9 **THE COURT:** BE SEATED. YOU CAN BE SEATED,
10 DR. BICKLER.

11 GO AHEAD, MR. ARCHEY.

12 **MR. ARCHEY:** THANK YOU, YOUR HONOR.

13 **CROSS-EXAMINATION**

14 **BY MR. ARCHEY:**

15 **Q** DR. BICKLER, CAN YOU HEAR ME OKAY?

16 **A** YES.

17 **Q** GOOD. GOOD TO SEE YOU TODAY.

18 **A** LIKEWISE.

19 **Q** DR. BICKLER, YOU'VE TALKED ABOUT DOING 5,000
20 STUDIES. THOSE STUDIES INVOLVED DROPPING A PERSON'S
21 OXYGEN SATURATION LEVEL TO ABOUT 70 PERCENT AND
22 SOMETIMES LOWER, DOWN TO 50 PERCENT. IS THAT
23 ACCURATE?

24 **A** YES.

25 **Q** AND YOU DO THAT ABOUT 15 MINUTES -- 10 TO 15

1 MINUTES AT A TIME. RIGHT?

2 A CORRECT.

3 Q AND THEN YOU MEASURE, SEE WHAT'S GOING ON,
4 AND YOU GO FROM THERE. RIGHT?

5 A THAT'S THE IDEA.

6 Q OKAY. YOU'VE NEVER STUDIED A SCENARIO OF
7 ADMINISTERING NITROGEN AT 95 PERCENT OR HIGHER.
8 CORRECT?

9 A NO. WELL, THE 95 PERCENT NITROGEN IS USED
10 BRIEFLY TO GET THE INDIVIDUAL DOWN TO THE DESIRED
11 LEVEL.

12 Q CORRECT. BUT BRIEFLY AND THEN CUT IT OFF.
13 RIGHT?

14 A WELL, ADD AIR BACK SO THAT WE DON'T TAKE THE
15 OXYGEN LEVEL DANGEROUSLY LOW.

16 Q YOU'VE NEVER STUDIED ADMINISTERING NITROGEN
17 AT 95 PERCENT OR HIGHER BECAUSE IT WOULD BE UNETHICAL
18 TO DO SO. CORRECT?

19 A THAT IS CORRECT.

20 Q ALL RIGHT. THESE STUDIES THAT YOU DO DO
21 WHERE YOU TAKE THE OXYGEN SATURATIONS DOWN TO 70,
22 MAYBE SOMETIMES AS LOW AS 50 PERCENT, THOSE ARE THE
23 STUDIES YOU'RE TALKING ABOUT THAT YOU RELY UPON THIS
24 TERROR, FEAR, PANIC, ALL THOSE THINGS. IS THAT
25 RIGHT?

1 **A** YES.

2 **Q** OKAY.

3 **MR. ARCHEY:** BROOKE, CAN YOU PULL UP EXHIBIT
4 NO. -- DEFENSE EXHIBIT 3-5.

5 **THE COURT:** IT'S FOR THE WITNESS ONLY?

6 **MR. ARCHEY:** IT'S HIS PAPER. IT SHOULD BE
7 AVAILABLE FOR ALL, JUDGE.

8 **THE COURT:** OH. WELL, YOU SAID DEFENSE
9 EXHIBIT, SO I WASN'T SURE IT WAS ADMITTED.

10 **MR. ARCHEY:** I THINK THIS SHOULD BE
11 AVAILABLE FOR ALL, JUDGE.

12 **MR. STRONSKI:** NO OBJECTION, YOUR HONOR.

13 **THE COURT:** OKAY. IT CAN BE ADMITTED. IT'S
14 PART OF P-16. RIGHT?

15 **MR. ARCHEY:** NO.

16 **THE COURT:** OH. WELL, GO AHEAD.

17 **THE COURTROOM DEPUTY:** WHAT IS IT?

18 **MR. ARCHEY:** 3-5 IN JERS.

19 **BY MR. ARCHEY:**

20 **Q** OKAY, DOCTOR. CAN YOU SEE THE PAPER I HAVE
21 THERE IN FRONT OF YOU?

22 **A** YES.

23 **Q** YOU'RE THE LEAD AUTHOR IN THIS PAPER.
24 RIGHT?

25 **A** I AM.

1 Q AND THIS PAPER IS FROM 2017. RIGHT?

2 A YES.

3 Q AND THE TITLE IS "EFFECTS OF ACUTE, PROFOUND
4 HYPOXIA ON HEALTHY HUMANS: IMPLICATIONS FOR SAFETY OF
5 TESTS EVALUATING PULSE OXIMETRY OR TISSUE OXIMETRY
6 PERFORMANCE." RIGHT?

7 A YES.

8 Q BIG MOUTHFUL. THAT'S WHAT YOU WERE TALKING
9 ABOUT, ABOUT A LOT OF YOUR TESTING WAS FOR PULSE
10 OXIMETRY. RIGHT?

11 A THAT IS CORRECT.

12 Q AND THIS IS ONE OF THE PAPERS. RIGHT?

13 A IT IS.

14 Q I WANT TO READ RIGHT OUT THE GATE YOUR
15 OPENING SYNOPSIS, I GUESS THAT IS, AT THE BEGINNING.
16 THE PAPER READS: "EXTENDED PERIODS OF OXYGEN
17 DEPRIVATION CAN PRODUCE ACIDOSIS, INFLAMMATION,
18 ENERGY FAILURE, CELL STRESS, OR CELL DEATH. HOWEVER,
19 BRIEF PROFOUND HYPOXIA (HERE DEFINED AS" -- I'M GOING
20 TO CALL THAT THE SATURATION RATE, IF I MAY -- "OF
21 50-70% FOR APPROXIMATELY 10 MINUTES) IS NOT
22 ASSOCIATED WITH CARDIOVASCULAR COMPROMISE AND IS
23 TOLERATED BY HEALTHY HUMANS WITHOUT APPARENT ILL
24 EFFECTS."

25 DID I READ THAT RIGHT?

1 A YOU DID.

2 Q ALL RIGHT. SO NO ILL EFFECTS FROM DOING
3 THESE TESTS BECAUSE OTHERWISE IT WOULD BE UNETHICAL.
4 RIGHT?

5 A THAT'S RIGHT. AND MANY OF OUR SUBJECTS
6 RETURN TIME AND TIME AGAIN TO DO THE STUDIES OVER.

7 **MR. ARCHEY:** BROOKE, CAN YOU GO TO PAGE 5,
8 PLEASE, OF THE SAME DOCUMENT?

9 **BY MR. ARCHEY:**

10 Q NOW, DOCTOR, I'VE GOT SOME HIGHLIGHTING
11 HERE. THE FIRST -- IN THE LEFT COLUMN, THE FIRST
12 COLUMN, THE FIRST PORTION I HAVE HIGHLIGHTED IS:
13 "AUTHORS OF THIS ARTICLE HAVE PERSONALLY EXPERIENCED
14 SATURATIONS OF 45% DURING SUCH TESTING WITHOUT
15 APPARENT ILL EFFECTS ON BLOOD PRESSURE AND WITHOUT
16 LOSING CONSCIOUSNESS." THAT INCLUDES YOU. RIGHT?

17 A THAT INCLUDES ME.

18 Q I WANT TO GO BACK TO THE NEXT HIGHLIGHTED
19 PASSAGE JUST A LITTLE BIT FURTHER DOWN. "ASIDE FROM
20 THE EXPECTED PHYSIOLOGICAL RESPONSES TO HYPOXIA IN
21 HEALTHY INDIVIDUALS, SUCH AS INCREASED RESPIRATORY
22 RATE OR TACHYCARDIA, THE INCIDENCE OF OTHER EFFECTS
23 SUCH AS HEADACHE, NAUSEA, OR ANXIETY OCCUR AT RATES
24 OF LESS THAN 1%." RIGHT?

25 A THAT'S RIGHT.

1 Q NOTHING IN HERE ABOUT FEAR, PANIC OR TERROR
2 FROM THESE INDIVIDUALS WHO WERE STUDIED IN YOUR
3 PAPER. RIGHT?

4 A WELL, THAT'S -- THE METHODS ARE DESIGNED TO
5 AVERT THAT.

6 Q THESE ARE INDIVIDUALS THAT ARE TAKEN TO THAT
7 RATE AND HELD THERE FOR 10 MINUTES -- 10 TO 15
8 MINUTES AT A TIME. RIGHT?

9 A WELL, TO BE A LITTLE MORE PRECISE ABOUT IT,
10 WHAT WE DO IS WE DROP THE SATURATION IN GRADUAL
11 STEPS, SO THEY GO TO MAYBE 92 PERCENT FOR A COUPLE
12 MINUTES AND THEN DOWN INTO THE 80s. AND ON THE FINAL
13 RUN THEY -- WE TAKE THEM DOWN TO THE LOW 70s. AND
14 PROVIDED IT'S DONE THAT WAY AND WE CONTROL THE CARBON
15 DIOXIDE LEVEL, SUBJECTS TOLERATE IT WELL. THEY --

16 Q ALL RIGHT. I'M SORRY.

17 A THEY MAY FEEL QUITE ANXIOUS AND QUITE SHORT
18 OF BREATH, BUT IT CAN BE TOLERATED IN A SUBJECT WHO
19 KNOWS WHAT HIS -- WHAT THEY'RE EXPECTED. AND ALSO
20 THEY HAVE A WAY OUT. IF IT'S TOO UNCOMFORTABLE FOR
21 THEM, THEY CAN SPIT THE MOUTHPIECE OUT AND BREATHE
22 AIR.

23 Q BUT THE ANXIETY RATE WAS LESS THAN ONE
24 PERCENT. THAT'S YOUR PAPER. RIGHT?

25 A YES, SIR.

1 **Q** NOW I WANT TO TALK ABOUT THE PILOT STUDY YOU
2 MENTIONED EARLIER. THIS IS EXHIBIT NO. 3 -- DEFENSE
3 3-27.

4 **MR. ARCHEY:** YOUR HONOR, I OFFER THE FIRST
5 ONE INTO EVIDENCE. I THOUGHT I HEARD NO OBJECTION.
6 MAKE SURE THAT --

7 **MR. STRONSKI:** NO OBJECTION, YOUR HONOR.

8 **THE COURT:** D-3-5? IT'S ADMITTED.

9 **MR. ARCHEY:** THANK YOU, YOUR HONOR.

10 THIS ONE IS 3-27. YOUR HONOR, I'LL
11 OFFER IT INTO EVIDENCE NOW IF I'M NOT GOING TO GET AN
12 OBJECTION. THE SAUSEN --

13 **THE COURT:** ANY OBJECTION?

14 **MR. ARCHEY:** -- THE PILOT STUDY.

15 **MR. STRONSKI:** YEAH, NO OBJECTIONS.

16 **MR. ARCHEY:** YOUR HONOR, I OFFER 327 INTO
17 EVIDENCE.

18 **THE COURT:** ADMITTED.

19 **BY MR. ARCHEY:**

20 **Q** ALL RIGHT. NOW, DOCTOR, DO YOU SEE THIS
21 PAPER UP ON THE SCREEN?

22 **A** YES, I'M FAMILIAR WITH IT.

23 **Q** IN THIS PAPER THEY TOOK THESE -- THESE
24 INDIVIDUALS FROM THE MILITARY, THEY TOOK THEIR LEVELS
25 WAY DOWN -- OR THE NITROGEN LEVEL THEY EXPOSED THEM

1 TO WAS VERY HIGH, WASN'T IT?

2 A WELL, THEY -- I MEAN, IT DEPENDS WHAT YOU
3 MEAN BY "HIGH." THEY DID MAKE THESE PEOPLE PRETTY
4 HYPOXIC, YES.

5 Q GO TO PAGE 7 OF THE DOCUMENT, PLEASE, THE
6 LAST PAGE.

7 SO WHAT THEY DID ON THIS STUDY IS THESE
8 INDIVIDUALS WERE EXPOSED TO VARIOUS LEVELS OF
9 NITROGEN THAT WENT AS HIGH AS 93.8 PERCENT. RIGHT?

10 A YES. SO THAT'S SEVEN PERCENT OXYGEN.
11 THAT'S TOLERABLE FOR HUMANS FOR A SHORT PERIOD OF
12 TIME.

13 Q AND WHAT THEY DID THEN WAS ASKED THESE
14 INDIVIDUALS TO ENDORSE SYMPTOMS THAT THEY MAY HAVE
15 BEEN HAVING. RIGHT?

16 A UH-HUH.

17 Q AND THEY HAVE A WHOLE LIST OF SYMPTOMS. ONE
18 MEANT THE SYMPTOM WAS NOT OBSERVED; TWO, THE SYMPTOM
19 WAS MILD; THREE, THE SYMPTOM WAS MODERATE; OR FOUR,
20 THE SYMPTOM WAS SEVERE. RIGHT?

21 A YES.

22 Q ALL RIGHT.

23 MR. ARCHEY: GO TO THE NEXT PAGE, BROOKE,
24 PLEASE. THERE WE ARE RIGHT THERE. NO, THAT'S NOT
25 IT. NEXT PAGE. OKAY. THANK YOU.

1 BY MR. ARCHEY:

2 Q THE CHART AT THE TOP OF THAT PAGE THERE, DO
3 YOU SEE THIS?

4 A YES.

5 Q THEY'VE GOT A WHOLE NUMBER OF SYMPTOMS THAT
6 ARE LISTED. THEY ASK THESE INDIVIDUALS TO ENDORSE
7 WHETHER THEY WERE FEELING THESE SYMPTOMS OR NOT. DO
8 YOU SEE THAT?

9 A YES.

10 Q ALL RIGHT. AND AS I GO DOWN, I GET DOWN TO
11 THE VERY BOTTOM IS APPREHENSION.

12 A YES.

13 Q THE ENDORSEMENT RATE AT 93.8 PERCENT
14 NITROGEN IS 1.42. THAT MEANS SOMEWHERE BETWEEN NOT
15 OBSERVED AND SOME HAD A MILD REPORT. CORRECT?

16 A CORRECT.

17 Q IF I GO TO BREATHLESSNESS, WHICH IS A LITTLE
18 BIT FURTHER UP, I HAVE THE SAME 1.42 PERCENT, MEANING
19 MANY DIDN'T OBSERVE IT AT ALL; WE HAVE SOME THAT HAD
20 SOME MILD REPORTING. RIGHT?

21 A YES.

22 Q ALL RIGHT. AND THE HIGHEST SYMPTOM THAT'S
23 REPORTED IS EUPHORIA. IT'S AT 2.58 PERCENT, MEANING
24 THAT IT WAS SOMEWHERE BETWEEN MILD AND MODERATE FOR
25 MANY OF THESE INDIVIDUALS.

1 A YES.

2 Q RIGHT?

3 A YES.

4 Q ALL RIGHT. YOU TELL AN ANECDOTE OF TALKING
5 TO YOUR PILOT FRIEND IN THE NAVY TO TRY TO DISCOUNT
6 THIS REPORTED PAPER. RIGHT?

7 A YES. AND LET ME TELL YOU WHY -- THERE IS
8 ADDITIONAL REASONS TO DISCOUNT THIS.

9 Q LET ME ASK YOU ABOUT IT FIRST.

10 A OKAY.

11 Q DO YOU KNOW WHETHER THESE INDIVIDUALS WERE
12 ANONYMOUS WHEN THEY DID THIS?

13 A WHAT DO YOU MEAN BY "ANONYMOUS"?

14 Q THAT THEIR CADRE PILOTS IN THE MILITARY
15 WOULD NOT KNOW WHO THE RESPONDENTS WERE. THEY WERE
16 TOLD *YOU CAN RESPOND AND YOU WILL REMAIN ANONYMOUS.*

17 A OKAY.

18 Q ARE YOU AWARE?

19 A I'M AWARE OF THAT, YES. BUT THEY WEREN'T
20 BLINDED TO WHAT THEY WERE DOING.

21 Q DO YOU KNOW IF IT THERE WAS A CHINESE WALL
22 BETWEEN THE TESTERS, THE MEDICAL PEOPLE AND THE CADRE
23 AND ANY OF THE PEOPLE THAT COULD AFFECT THESE PILOTS'
24 CAREERS? SO THEY TOLD THEM *WE WON'T KNOW. YOU*
25 *UNDERGO THIS TESTING AND WE WON'T KNOW.* RIGHT?

1 A RIGHT.

2 Q THEN THE OTHER IS THESE INDIVIDUALS COULD
3 WELL BE TOLD *THIS IS FOR THE GOOD OF THE SERVICE.*
4 *YOU NEED TO ANSWER THESE QUESTIONS. YOU NEED TO*
5 *ANSWER THEM HONESTLY SO THAT WE GET GOOD INFORMATION*
6 *TO PROTECT YOU AND OTHER PILOTS IN THE FUTURE. RIGHT?*

7 A YES.

8 Q OKAY. AND THAT'S WHAT THIS REPORT FOUND.
9 RIGHT?

10 A YES. CAN I CRITICIZE THIS REPORT?

11 Q YOU ALREADY HAVE, BUT IT'S A PUBLISHED
12 REPORT.

13 A THERE IS LOT MORE I COULD OFFER.

14 Q YOU HAVE OFFERED ONE OPINION PIECE IN
15 SUPPORT OF YOUR OPINIONS HERE TODAY. THAT'S IT.
16 RIGHT?

17 A I'M TELLING YOU ABOUT MY EXPERIENCE WITH
18 DOING THESE STUDIES FIVE TO SEVEN THOUSAND TIMES.

19 Q RIGHT. WHICH IS THIS FIRST PAPER, THE --
20 WHICH WAS 3-5, REPORTS NO ILL EFFECTS. RIGHT?

21 A NO. YOU'RE TAKING THINGS OUT OF CONTEXT.

22 Q I'M READING THE PAPERS THAT YOU WROTE AND
23 I'M READING THE PAPERS THAT I'M PRESENTING TO YOU.

24 A WELL, I'M SUGGESTING THAT YOU'RE NOT READING
25 THEM CORRECTLY. YOU'RE NOT COMING AWAY WITH THE

1 RIGHT IMPRESSION.

2 Q ALL RIGHT. LET'S LOOK AT THE OSHA PAPER
3 NOW. YOU MENTIONED THAT.

4 A I'M SORRY. WHICH PAPER? OH, THE OSHA?

5 Q THE OSHA GUIDANCE, THE BULLETIN. AND IT'S
6 DEFENSE EXHIBIT 7-10.

7 MR. ARCHEY: AND I'LL OFFER THIS INTO
8 EVIDENCE AT THIS TIME.

9 MR. STRONSKI: NO OBJECTION, YOUR HONOR.

10 THE COURT: ADMITTED.

11 BY MR. ARCHEY:

12 Q NOW, THIS OSHA PAPER -- YOU'RE FAMILIAR WITH
13 THIS. RIGHT?

14 A YES.

15 Q IT'S A BULLETIN, AND THIS IS PUT OUT BY OSHA
16 TO WARN INDUSTRY, TO PROTECT WORKERS, THESE TYPES OF
17 THINGS. RIGHT?

18 A THAT'S RIGHT.

19 MR. ARCHEY: BROOKE, IF YOU CAN GO TO THE
20 SECOND PAGE, PLEASE.

21 BY MR. ARCHEY:

22 Q IN THE COLUMN TO THE LEFT THERE, THAT SECOND
23 PARAGRAPH FOUR, FIVE -- ABOUT FIVE LINES DOWN, I'M
24 GOING TO READ HERE. IT SAYS, "WHEN A RESPIRATOR'S
25 AIR LINE IS CONNECTED TO A SOURCE OF INERT GAS RATHER

1 THAN TO BREATHABLE AIR, THE RESPIRATOR WEARER WHO
2 TRUSTS HIS/HER SENSE OF BREATHLESSNESS TO DETERMINE
3 WHETHER HE/SHE IS CONNECTED TO BREATHING AIR HAS
4 LITTLE WARNING BEFORE LOSING CONSCIOUSNESS. THIS IS
5 BECAUSE THE BUILDUP OF CARBON DIOXIDE, NOT A LACK OF
6 OXYGEN, ORDINARILY CAUSES THE SENSATION OF
7 BREATHLESSNESS THAT MAY ALERT THE INDIVIDUAL WEARING
8 THE RESPIRATOR. CONSEQUENTLY, THE VICTIM IS FOOLED
9 BECAUSE THERE IS NO CLEAR INDICATION THAT ANYTHING IS
10 AMISS. BLACKOUT OCCURS QUICKLY, WITHOUT WARNING."

11 A THAT MAY HAPPEN IN SOME INSTANCES. IN OTHER
12 INSTANCES THE LOW OXYGEN MAY PRODUCE A VERY STRONG
13 REACTION, ALERTING THE INDIVIDUAL TO THE IMPENDING
14 ACCIDENT.

15 Q LET'S KEEP READING WHAT OSHA ADVISES.
16 "VICTIMS WEARING RESPIRATORS CONNECTED TO INERT GAS
17 LINES ARE IN A ZERO PERCENT OXYGEN ATMOSPHERE, AND
18 UNCONSCIOUSNESS CAN OCCUR IN ABOUT 12 SECONDS AND
19 DEATH IN A MATTER OF MINUTES."

20 THAT'S OSHA'S GUIDANCE TO THE INDUSTRY.
21 RIGHT?

22 A THAT'S RIGHT.

23 Q YOU SAID THAT YOU'RE CRITICAL OR YOU WANT TO
24 SPECULATE THAT WE DON'T KNOW OF THESE OTHER CASES
25 WHERE SOMEBODY MIGHT HAVE RESCUED THEMSELVES. ARE

1 YOU AWARE OF A SINGLE ANECDOTE INSTANCE?

2 A NO. I'M JUST SPEAKING FROM MY EXPERIENCE
3 WITH ANESTHESIA MISHAPS AND ACCIDENTS. IN THAT FIELD
4 IT'S WELL-RECOGNIZED THAT THE NUMBER OF ACCIDENTS
5 THAT ARE REPORTED ARE A TIP OF THE ICEBERG WITH THE
6 TOTAL NUMBER OF INCIDENTS. IF YOU HAVE A FATAL
7 EVENT, THAT CATCHES A LOT OF ATTENTION. WHAT YOU
8 DON'T KNOW IS HOW MANY NEAR-FATAL EVENTS THERE WERE.

9 Q OSHA HAS A REQUIREMENT TO REPORT NEAR
10 MISSES. HAVE YOU PROVIDED THE COURT WITH ANY
11 EVIDENCE THAT WHAT OSHA IS ADVISING IS WRONG?

12 A NO, I'M NOT SUGGESTING WHAT THEY'RE ADVISING
13 IS WRONG. GOING INTO AN ANOXIC ENVIRONMENT WEARING A
14 RESPIRATOR THAT'S DEFECTIVE IS A VERY BAD IDEA.

15 Q IT'S NOT DEFECTIVE. IT'S JUST CONNECTED TO
16 NITROGEN. THAT'S ALL.

17 A WELL, THAT'S A DEFECT. IT'S A SYSTEM --
18 IT'S A SYSTEM DEFECT.

19 Q OKAY. AND IN THAT INSTANCE, THIS PERSON
20 DOESN'T EVEN REALIZE THEY'RE BREATHING ANYTHING OTHER
21 THAN NORMAL AIR AND THEY LOSE CONSCIOUSNESS QUICKLY
22 WITHOUT ANY SYMPTOMS?

23 A THEY MIGHT. THEY MAY OR MAY NOT. WE DON'T
24 KNOW WHAT THEIR SYMPTOMS WERE. THESE ARE PEOPLE WHO
25 WERE FOUND AFTER THE FACT DEAD.

1 Q WELL, WHY DIDN'T OSHA PUT IT OUT THAT WAY?
2 THAT'S EXACTLY WHAT THEY SAID. AND, IN FACT, THEY
3 PROVIDED A REASON. THEY SAID BECAUSE YOU'RE
4 BREATHING THE AIR, YOU DON'T HAVE THE BREATHLESSNESS
5 TO REALIZE IT FOOLS YOU; THAT YOU DON'T REALIZE
6 YOU'RE NOT GETTING OXYGEN.

7 A WELL, THAT'S NOT OUR EXPERIENCE WITH
8 BREATHING ANOXIC GAS. IT IS -- YOU CAN EASILY TELL
9 THAT SOMETHING IS WRONG.

10 Q SO OSHA DOESN'T KNOW WHAT IT'S TALKING
11 ABOUT?

12 A I DON'T KNOW WHAT THEY'RE TALKING ABOUT
13 THERE. I'M TELLING YOU THAT THAT IS NOT AN ACCURATE
14 REPRESENTATION OF WHAT ANOXIC GAS DOES TO YOU.

15 Q THE -- AN INDIVIDUAL WHO IS ADMINISTERED 100
16 PERCENT NITROGEN AND IS BREATHING NORMAL WILL LOSE
17 CONSCIOUSNESS IN LESS THAN A MINUTE. CORRECT?

18 A THAT IS CORRECT, PROVIDED THEY'RE --
19 PROVIDED THEY'RE BREATHING.

20 Q A PERSON WHO IS TAKING DEEP BREATHS WILL
21 LOSE CONSCIOUSNESS EVEN QUICKER THAN THAT. RIGHT?

22 A IT'S POSSIBLE, YES.

23 Q WELL, THE EVIDENCE IN THE LITERATURE
24 SUGGESTS THAT THEY WILL, WON'T -- DOESN'T IT?

25 A YES. THERE IS THIS PAPER BY ERNSTING THAT I

1 CITED.

2 Q LET'S TALK ABOUT ERNSTING. I HAVE IT RIGHT
3 HERE. IT'S EXHIBIT 3-12.

4 MR. ARCHEY: AND, YOUR HONOR, I'LL OFFER IT
5 INTO EVIDENCE AT THIS TIME.

6 MR. STRONSKI: NO OBJECTION.

7 THE COURT: DEFENDANTS' 3-12 IS ADMITTED.

8 BY MR. ARCHEY:

9 Q YOU STATED ON DIRECT THAT ERNSTING STUDY
10 SHOWED LOSS OF CONSCIOUSNESS IN 30 TO 40 SECONDS.
11 RIGHT?

12 A CORRECT.

13 Q LET'S GO LOOK AND SEE WHAT THE PAPER
14 ACTUALLY SAYS ON PAGE 3. ALL RIGHT. ABOUT FOUR
15 LINES DOWN BELOW "RESULTS," IT BEGINS "WHEN THE
16 DURATION OF OVER-VENTILATION." ARE YOU WITH ME,
17 DOCTOR?

18 A YES.

19 Q "WHEN THE DURATION OF OVER-VENTILATION WITH
20 NITROGEN WAS GREATER THAN 8-10 SECONDS, THE SUBJECT
21 REPORTED A TRANSIENT DIMMING OF VISION. IN THE
22 EXPERIMENT IN WHICH NITROGEN BREATHING WAS CARRIED
23 OUT FOR 15-16 SECONDS THE SUBJECT EXPERIENCED SOME
24 GENERAL CLOUDING OF CONSCIOUSNESS AND IMPAIRMENT OF
25 VISION."

1 A UH-HUH.

2 Q "VISION WAS FREQUENTLY LOST IN THESE
3 EXPERIMENTS FOR A SHORT PERIOD. IN THE FEW
4 EXPERIMENTS IN WHICH NITROGEN WAS BREATHED FOR 17-20
5 SECONDS UNCONSCIOUSNESS SUPERVENED AND WAS
6 ACCOMPANIED ON MOST OCCASIONS BY A GENERALIZED
7 CONVULSION."

8 UNCONSCIOUSNESS IN 17 TO 20 SECONDS. RIGHT?

9 A NO, THAT'S NOT WHAT THAT'S SAYING. THEY
10 WERE BREATHING THE AIR FOR THAT PERIOD OF TIME. IT
11 TAKES AN ADDITIONAL PERIOD OF TIME FOR THAT LACK OF
12 OXYGEN IN THE LUNGS TO BE MANIFESTED IN THE BRAIN AS
13 A DECREASE IN CONSCIOUSNESS.

14 THAT'S WHY I'M SAYING IF YOU -- IF YOU
15 EFFICIENTLY HYPERVENTILATE NITROGEN, YOU'LL PROBABLY
16 LOSE CONSCIOUSNESS IN MAYBE 30 SECONDS, 40 SECONDS.

17 Q WELL, THEY SAY --

18 A THE 17 SECONDS, THAT'S THE PERIOD OF
19 BREATHING.

20 Q THEY SAY "IN WHICH NITROGEN WAS BREATHED FOR
21 17-20 SECONDS UNCONSCIOUSNESS SUPERVENED."

22 A YES.

23 Q THEY BECAME UNCONSCIOUS.

24 A SUPERVENED. THEY'RE NOT IMPLYING THAT THAT
25 WAS IMMEDIATE. THAT CAME AFTERWARDS.

1 Q AND THIS IS -- ERNSTING IS AN AGREED, VALID
2 SCIENTIFIC PAPER. RIGHT?

3 A YES. IN FACT, ERNSTING'S WORK INFLUENCED US
4 AS WE WERE DESIGNING OUR EXPERIENCE -- EXPERIMENTS IN
5 HUMANS WITH CONTROLLED HYPOXIA.

6 Q ALL RIGHT. LET'S LOOK AT THE OGDEN ASSISTED
7 SUICIDE PAPER NOW. THIS IS DEFENDANTS' EXHIBIT 3-23.
8 YOU'RE FAMILIAR WITH THIS PAPER. RIGHT?

9 A YES.

10 Q AND THIS IS A VALID PAPER. RIGHT?

11 A IT'S VALID ANECDOTAL REPORTS OF SUICIDE IN
12 TERMINALLY ILL PEOPLE.

13 Q YOU KNOW OR KNEW DR. WILLIAM HAMILTON WELL.
14 RIGHT?

15 A WELL, HE WAS A CHAIR IN MY DEPARTMENT WHEN I
16 WAS A RESIDENT, YES.

17 Q HE WAS VERY WELL-RESPECTED IN THE
18 ANESTHESIOLOGY COMMUNITY --

19 A YES.

20 Q -- THAT YOU WERE IN. RIGHT?

21 A YES.

22 Q HIS NAME IS ASSIGNED TO THIS PAPER. RIGHT?

23 A IT IS.

24 Q ALL RIGHT. IF I GO TO THE -- ON THE FIRST
25 PAGE, THE CONCLUSION --

1 **MR. ARCHEY:** YOUR HONOR, I'LL OFFER THIS
2 INTO EVIDENCE, IF I DID NOT.

3 **MR. STRONSKI:** YOU DID NOT.

4 **MR. ARCHEY:** I OFFER THIS INTO EVIDENCE,
5 YOUR HONOR.

6 **MR. STRONSKI:** NO OBJECTION.

7 **MR. ARCHEY:** THANK YOU.

8 **THE COURT:** ADMITTED 3-23.

9 **BY MR. ARCHEY:**

10 **Q** CONCLUSION, THE FIRST SENTENCE, "THE DYING
11 PROCESS OF OXYGEN DEPRIVATION WITH HELIUM IS
12 POTENTIALLY QUICK AND APPEARS PAINLESS."

13 THAT WAS THE CONCLUSION OF THIS PAPER.
14 RIGHT?

15 **A** YES.

16 **Q** AND THESE FOUR INDIVIDUALS REPORTED LOSING
17 CONSCIOUSNESS BETWEEN 36 AND 55 SECONDS. CORRECT?

18 **A** YES. THAT'S CONSISTENT WITH WHAT I SAID
19 ABOUT ERNSTING AND THE OTHER WORK THAT WE TALKED
20 ABOUT.

21 **Q** ALL RIGHT. LET'S GO TO A MANUFACTURER'S
22 GUIDANCE. THIS IS EXHIBIT -- DEFENSE EXHIBIT 21.
23 THAT'S WHAT I HAVE WRITTEN DOWN.

24 **MR. ARCHEY:** GIVE ME A SECOND, YOUR HONOR.
25 THIS MAY BE A USER ERROR ON MY PART. LOOKS LIKE IT'S

1 THE WRONG NUMBER.

2 I'LL USE THE ELMO. AND WHILE I'M DOING
3 THAT, SHE'LL FIND THE NUMBER FOR ME.

4 THE COURT: SO YOU'RE LOOKING AT D-21, BUT
5 IT'S NOT --

6 MR. ARCHEY: I DON'T KNOW THAT IT'S 21.
7 THAT'S THE PROBLEM.

8 THE COURT: WELL, IT'S NOT BEEN ADMITTED,
9 SO --

10 MR. ARCHEY: UNDERSTOOD. LET ME ASK MY
11 QUESTIONS AND THEN I'LL FIND THE NUMBER. I'M SURE
12 SHE'LL FIND IT WHILE I'M DOING THAT.

13 THE COURT: OR SHOW IT TO HIM AND ASK HIM IF
14 HE OBJECTS.

15 MR. ARCHEY: IT'S NO. 20, YOUR HONOR, NOT
16 21. THERE YOU GO.

17 THE COURT: IS THERE ANY OBJECTION TO D-20?

18 MR. ARCHEY: SO I'LL OFFER IT INTO EVIDENCE.

19 MR. STRONSKI: NO OBJECTION.

20 THE COURT: D-20 IS ADMITTED.

21 MR. ARCHEY: D-20. CAN YOU PULL THAT UP,
22 NOW THAT I KNOW MY NUMBER?

23 THE COURT: YOU CAN PUBLISH IT, SUZIE.

24 MR. ARCHEY: THERE IT IS.

25 BY MR. ARCHEY:

1 Q ALL RIGHT, DOCTOR. YOU'RE FAMILIAR WITH
2 THIS MANUFACTURER'S GUIDANCE ON USING NITROGEN
3 SAFELY?

4 A I'VE SEEN IT, YES.

5 Q OKAY. LET'S GO TO THE SECOND PAGE OF THIS
6 ARTICLE. AND DOWN AT THE BOTTOM ON THE LEFT COLUMN
7 THERE IS THE TITLE "OXYGEN DEFICIENCY." THAT NEXT
8 PARAGRAPH SAYS, "BEING ODORLESS, COLORLESS,
9 TASTELESS, AND NONIRRITATING, NITROGEN HAS NO
10 PROPERTIES THAT CAN WARN PEOPLE OF ITS PRESENCE.
11 INHALATION OF EXCESSIVE AMOUNTS OF NITROGEN CAN CAUSE
12 DIZZINESS, NAUSEA, VOMITING, LOSS OF CONSCIOUSNESS,
13 AND DEATH."

14 A YES.

15 Q DID I READ THAT RIGHT?

16 A IN PART.

17 Q DID I MISREAD SOMETHING?

18 A WELL, THE PART ABOUT YOU NOT NOTICING IT IS
19 NOT REALLY ACCURATE. I MEAN, YOU WOULD GET EXTREMELY
20 SHORT OF BREATH AND AGITATED IF YOU BREATHE NITROGEN.

21 Q SO WE'VE GOT ANOTHER PAPER HERE THAT'S
22 WRONG, ACCORDING TO YOU?

23 A YES.

24 Q OKAY. IF WE GO TO THE RIGHT AND THEY HAVE
25 THE "EFFECTS" AND THEY SAY THIS MANUFACTURER REPORTS

1 WHEN YOU HAVE OXYGEN CONCENTRATION LESS THAN SIX
2 PERCENT, YOU CAN HAVE A COMA IN 40 SECONDS,
3 CONVULSIONS, BREATHING STOPS, AND DEATH.

4 A YES.

5 Q ALL RIGHT. I WANT TO TALK ABOUT THE ONE
6 PAPER THAT YOU DID BRING BEFORE THE COURT, YOUR JAMA
7 ARTICLE.

8 A YES.

9 Q ALL RIGHT. THIS IS AN OPINION PIECE.
10 RIGHT?

11 A IT IS.

12 Q ALL RIGHT. SO YOU'RE ADVOCATING AGAINST THE
13 DEATH PENALTY?

14 A AGAINST THE NITROGEN METHOD.

15 Q LET'S GO TO THE SECOND PAGE OF THE ARTICLE,
16 PLEASE. IN THE LEFT-HAND COLUMN ABOUT FIVE LINES
17 DOWN IT BEGINS "WHILE SOME STUDIES."

18 A YES.

19 Q OKAY. "WHILE SOME STUDIES AND ANECDOTAL
20 REPORTS DO DESCRIBE RAPID LOSS OF CONSCIOUSNESS IN A
21 SUBSET OF PEOPLE, THESE ARE ALL VOLUNTARY RESPONSES
22 TO HYPOXIA."

23 YOU ACKNOWLEDGE THAT THE PAPERS AND THE
24 LITERATURE ARE SHOWING THAT THERE IS A RAPID LOSS OF
25 CONSCIOUSNESS. RIGHT?

1 A YES.

2 Q DOCTOR, WHEN -- DURING THE EXECUTION
3 PROCESSES, WE GET THE INDIVIDUAL INTO THE CHAMBER,
4 THAT INDIVIDUAL CAN RESIST WHILE OXYGEN OR BREATHING
5 AIR IS STILL FLOWING. CORRECT?

6 A YES.

7 Q AND WHEN THE AIR SUPPLY GOES FROM BREATHING
8 AIR TO NITROGEN, THE INMATE WON'T KNOW, WILL HE?

9 A I DON'T KNOW WHETHER THEY'D BE ABLE TO
10 DETECT IT OR NOT.

11 Q BECAUSE NITROGEN IS ODORLESS, COLORLESS,
12 TASTELESS, AND NONIRRITATING. CORRECT?

13 A YEAH, PROVIDED THE FLOW RATE IS IDENTICAL,
14 THERE IS NO INTERRUPTION OF FLOW. IT WOULDN'T BE
15 UNTIL THEY START TO FEEL THE PHYSIOLOGICAL EFFECTS OF
16 NITROGEN THAT THEY WOULD KNOW SOMETHING IS WRONG,
17 YEAH.

18 Q SO WHEN WITNESSES OBSERVING THESE EVENTS --
19 IF YOU'VE GOT THE INMATE RESISTING, THEY DON'T KNOW
20 IF THE INMATE IS JUST RESISTING OR REACTING TO THE
21 EFFECTS OF NITROGEN, IF YOU WILL. CORRECT?

22 A WELL, THERE MAY BE SOME OF THAT, YES.

23 Q OKAY. AND THEN AFTER THE INMATE LOSES
24 CONSCIOUSNESS, THERE ARE SOME INVOLUNTARY MOVEMENTS
25 ON THAT END. RIGHT?

1 A YES.

2 Q AND AGAIN, WITNESSES DON'T KNOW WHEN THIS
3 INMATE MIGHT LOSE CONSCIOUSNESS. RIGHT?

4 A THAT'S CORRECT.

5 Q OKAY. SO WHEN THEY SEE A THREE-MINUTE
6 PERIOD OF TIME AND THEY THINK WE'VE GOT A
7 THREE-MINUTE PERIOD OF EXECUTION, WE'VE GOT STRUGGLE
8 ON THE FRONT WHERE HE MIGHT BE RESISTING AND WE'VE
9 GOT INVOLUNTARY MOVEMENTS ON THE BACK. RIGHT?

10 A YES.

11 Q ALL RIGHT. AND A TYPICAL PERSON CAN HOLD
12 THEIR BREATH APPROXIMATELY 45 SECONDS TO A MINUTE.
13 FAIR?

14 A I THINK THAT'S FAIR.

15 Q OKAY. THERE ARE OUTLIERS, OUR WORLD-CLASS
16 DIVERS AND WHATEVER THAT CAN GO MUCH LONGER. BUT
17 YOUR TYPICAL PERSON, YOU'RE TALKING 45 SECONDS TO A
18 MINUTE BREATH HOLDING. RIGHT?

19 A YEAH, JUST TAKING A DEEP BREATH, NOT
20 HYPERVENTILATING.

21 Q AND IT'S DURING THAT PERIOD OF TIME AT LEAST
22 THAT THIS INMATE CAN BE ON THE GURNEY AND CAN BE
23 THRASHING HIS HEAD AND TRYING TO RESIST. RIGHT?

24 A IT'S VERY POSSIBLE.

25 Q ONCE THE NITROGEN IS INTRODUCED, IT WILL

1 WASH OUT THAT OXYGEN OUT OF THE LUNGS WHEN THAT
2 INMATE BREATHES. RIGHT?

3 A WELL, IT DEPENDS HOW MUCH THEY BREATHE. YOU
4 CAN IMAGINE THAT THE LUNGS ARE A FOUR- TO FIVE-QUART
5 RESERVOIR OF AIR WHICH CONTAINS 20 PERCENT OXYGEN.
6 SO IT MAY TAKE A NUMBER OF MINUTES DEPENDING ON THE
7 BREATHING VOLUME TO WASH OUT ALL THE OXYGEN THAT IS
8 REMAINING IN THE LUNGS.

9 Q YOU TOLD ME AT YOUR DEPOSITION THAT ONCE THE
10 NITROGEN IS INTRODUCED, THE NITROGEN WILL WASH OUT
11 THE OXYGEN AND WITHIN A RELATIVELY SHORT PERIOD OF
12 TIME THE INMATE IS GOING TO LOSE CONSCIOUSNESS.
13 RIGHT?

14 A IF YOU'RE TALKING ABOUT THE LUNGS. IF
15 YOU'RE TALKING ABOUT THE MASK, THE MASK OXYGEN IS
16 GOING TO DROP MUCH MORE RAPIDLY, AS DEMONSTRATED BY
17 YOUR OWN VIDEO OF THE OXYGEN METER.

18 BUT THE AMOUNT OF OXYGEN IN THE INMATE'S
19 BODY IS GOING TO VARY DEPENDING ON HOW MUCH THEY'RE
20 BREATHING, HOW LONG THEY HELD THEIR BREATH, AND A
21 NUMBER OF THINGS THAT ARE VERY HARD TO PREDICT.

22 Q LET'S TALK ABOUT THAT VIDEO. YOU'VE SEEN
23 THE VIDEO THAT DR. ANTOGNINI PERFORMED WHERE HE
24 MEASURED HOW LONG IT WOULD TAKE FOR THE NITROGEN
25 LEVEL -- OR THE OXYGEN TO DECREASE, I GUESS I SHOULD

1 SAY, ONCE IT WAS INTRODUCED IN THAT MASK. CORRECT?

2 A YES. IT'S CONSISTENT WITH A HIGH FLOW RATE
3 AT 70 LITERS PER MINUTE. THAT'S EXACTLY WHAT I WOULD
4 PREDICT.

5 Q IN 30 SECONDS YOU'RE UNDER FIVE PERCENT.
6 4.4 PERCENT. RIGHT?

7 A THAT'S RIGHT.

8 Q AT 60 PERCENT -- SECONDS YOU ARE AT ZERO
9 POINT -- .08 PERCENT OF OXYGEN LEFT. RIGHT?

10 A NOT SURPRISING.

11 Q OKAY. AND THEN WITH THOSE LEVELS OF OXYGEN,
12 YOU HAVE TO WASH OUT THE LUNGS; AND THEN VERY
13 QUICKLY, ACCORDING TO YOU, YOU'RE GOING TO LOSE --
14 THAT INMATE SHOULD LOSE CONSCIOUSNESS?

15 A WELL, DEPENDS HOW MUCH -- YEAH, DEPENDS HOW
16 MUCH THE INMATE BREATHEES AND HOW LONG THEY'VE HELD
17 THEIR BREATH. THAT WILL DETERMINE THE PERIOD OF
18 SUFFERING BEFORE THEY LOSE CONSCIOUSNESS.

19 Q RIGHT. BECAUSE ONCE HE LOSES CONSCIOUSNESS,
20 THE SUFFERING IS OVER AT THAT POINT?

21 A I THINK WE CAN AGREE ON THAT.

22 Q SO WHAT THESE WITNESSES ARE REPORTING
23 INCLUDES THIS BACK END, BECAUSE THERE ARE SOME --
24 THERE CAN BE INVOLUNTARY MOVEMENTS AFTER LOSS OF
25 CONSCIOUSNESS. RIGHT?

1 A YEAH. I THINK WHAT I WAS FOCUSING ON WITH
2 THESE MOVEMENTS WERE NOT THE MYOCLONIC TWITCHING THAT
3 YOU SEE WITH HYPOXIA-INDUCED ALTERATIONS IN
4 CONSCIOUSNESS. THERE ARE THINGS LIKE GRIPPING,
5 COORDINATED MOVEMENTS OF THE ARMS AND LEGS, THRASHING
6 THE HEAD BACK AND FORTH.

7 Q AGAIN, BUT ALL THAT'S --

8 A THOSE ARE CONSCIOUS MOVEMENTS. THEY'RE NOT
9 UNCONSCIOUS MOVEMENTS. AND THE TIMELINES THAT WE
10 WENT OVER IN SOME DETAIL ESTABLISH THAT THOSE
11 CONSCIOUS MOVEMENTS WERE CONTINUING IN EVERY CASE
12 BEYOND THE PERIOD WHEN THE NITROGEN WAS STARTED.

13 Q YOU RELIED UPON THOSE NEWSPAPER ARTICLES
14 THAT YOU SELECTED ARE FOUND IN THE PAPERS. RIGHT?

15 A WELL, I'M RELYING ON THE CUMULATIVE REPORTS
16 FROM DIFFERENT OBSERVERS IN EACH OF THESE FOUR
17 EXECUTIONS TO ARRIVE AT THAT CONCLUSION. IT'S NOT
18 JUST ONE PERSON POTENTIALLY WITH A BIAS. I WILL
19 ADMIT THAT OBSERVERS ARE BIASED. THERE ARE PEOPLE
20 THAT ARE AGAINST THE DEATH PENALTY THAT DON'T WANT
21 THIS TO GO FORWARD FOR WHATEVER REASONS. I FREELY
22 ADMIT THAT. BUT WHEN YOU PUT IT ALL TOGETHER, TO ME
23 IT'S COMPELLING.

24 Q DID YOU READ WHAT THE FEDERAL JUDGES IN EACH
25 OF THOSE CASES SAID ABOUT THE WITNESS ACCOUNTS?

1 A CAN YOU GIVE ME SPECIFICS? I THINK I SAW
2 SOME OF THEM. I MIGHT NOT HAVE SEEN ALL OF THEM.

3 Q YEAH. IN BOTH FRAZIER AND GRAYSON, BOTH
4 FEDERAL JUDGES SAID THE WITNESS ACCOUNTS WERE
5 CONTRADICTORY AND UNRELIABLE.

6 A OKAY.

7 Q ARE YOU AWARE OF THAT?

8 A I DO KNOW THAT THE WITNESSES' ACCOUNTS WERE
9 DISPUTED. I'M NOT SURE, AS I SIT HERE TODAY, THE
10 SOURCES OF THOSE.

11 Q YOU DON'T THINK LOOKING AT WHAT THE FEDERAL
12 JUDGE FOUND AFTER TAKING THE EVIDENCE IN A HEARING
13 LIKE THIS WAS OF SIGNIFICANCE TO YOU TO CONSIDER YOUR
14 OPINIONS?

15 A I'M NOT DISMISSING THAT. I'M JUST SAYING
16 THAT IT WAS COMPELLING TO ME THAT THE EYEWITNESS
17 REPORTS WERE SO CONSISTENT AND SO IN LINE WITH WHAT I
18 WOULD PREDICT BASED ON PHYSIOLOGY THAT I UNDERSTAND.

19 Q YOU DON'T --

20 **MR. STRONSKI:** YOUR HONOR, I'VE LET THIS GO
21 ON, BUT HE'S BADGERING THE WITNESS WITH OPINIONS OF A
22 COURT IN ALABAMA THAT ARE NOT INTRODUCED, NOT BEFORE
23 HIM, AND THERE IS NO FOUNDATION FOR WHAT HE'S SAYING.
24 THE CHARACTERIZATIONS, I THINK IT'S UNFAIR. I THINK
25 HE'S BADGERING THE WITNESS. I WOULD ASK HIM TO STOP,

1 YOUR HONOR, SO I OBJECT.

2 THE COURT: MR. ARCHEY.

3 MR. ARCHEY: YOUR HONOR, THE WITNESS IS
4 RELYING UPON NEWSPAPER ARTICLES AND WITNESS
5 STATEMENTS THAT HE PREFERS. WE'VE GOT INDEPENDENT,
6 UNBIASED JUDGES WHO --

7 THE COURT: BUT YOU CAN ARGUE THAT. YOU
8 DON'T HAVE TO CROSS HIM ON THAT. I'LL SUSTAIN THE
9 OBJECTION. YOU'VE MADE YOUR POINT.

10 MR. ARCHEY: THANK YOU, YOUR HONOR.

11 BY MR. ARCHEY:

12 Q AFTER NITROGEN IS INTRODUCED INTO THE
13 SYSTEM, THE INMATE CAN CONTINUE TO BREATHE. RIGHT?

14 A YES.

15 Q BECAUSE THAT'S JUST THE GAS, JUST LIKE
16 THE -- OSHA SAID WHERE THEY DON'T EVEN KNOW THAT
17 THEY'VE GOT THE NITROGEN COMING INTO THEIR SYSTEM.
18 RIGHT?

19 A WELL, WHAT STRIKES ME WITH THAT IS THAT
20 YOU'RE REQUIRING THE INMATE FOR A PEACEFUL DEATH TO
21 ASSIST YOU IN THE EXECUTION EFFORTS.

22 Q BY BREATHING?

23 A YES.

24 Q OKAY.

25 A THAT'S IN DISTINCTION TO THE OTHER METHODS

1 THAT I'VE HEARD DISCUSSED HERE TODAY. IT DOESN'T
2 REQUIRE ANYTHING ON THE PART OF THE CONVICTED.

3 Q LET'S BE CLEAR. THE NITROGEN HYPOXIA
4 PROCESS DOES NOT CAUSE ANY PHYSICAL PAIN. CORRECT?

5 A IT DOES NOT CAUSE PHYSICAL PAIN IN TERMS OF
6 SOMATIC PAIN. IT CAUSES EMOTIONAL TERROR. AND I
7 SUPPOSE -- I MEAN, THE DEFINITION OF PAIN ACCORDING
8 TO THE AMERICAN PAIN SOCIETY IS A NONPLEASANT SENSORY
9 EXPERIENCE, SO THAT'S EMOTIONAL AS WELL AS PHYSICAL.

10 Q HOLD ON. I NEED TO TRY THIS AGAIN.

11 A SO I WILL ADMIT THAT NITROGEN IN AND OF
12 ITSELF DOES NOT CAUSE PAIN.

13 Q THE NITROGEN HYPOXIA PROCESS DOES NOT CAUSE
14 ANY PHYSICAL PAIN. CORRECT?

15 A NOT SOMATIC PAIN, THAT'S RIGHT.

16 Q WHAT DO YOU MEAN, *SOMATIC PAIN*?

17 A LIKE A KNIFE CUTTING YOU.

18 Q RIGHT. OKAY. SO WE'RE TALKING ABOUT
19 PSYCHOLOGICAL PAIN, IS WHAT WE'RE TALKING ABOUT. NO
20 PHYSICAL PAIN?

21 A YES, SIR. THAT'S RIGHT.

22 Q ALL RIGHT. ARE YOU AWARE OF MEDIA REPORTS
23 THAT -- WELL, STRIKE THAT.

24 YOU'VE NEVER TESTIFIED AS AN EXPERT BEFORE
25 IN A HYPOXIA -- NITROGEN HYPOXIA CASE. CORRECT?

1 A WELL, I GAVE A DEPOSITION IN THE STATE OF
2 ALABAMA'S ISSUES. BUT NOT IN A COURTROOM, NO.

3 Q RIGHT. THAT WAS THE ALAN MILLER CASE IN
4 ALABAMA. RIGHT?

5 A YES.

6 Q YOU GAVE A DEPOSITION BUT YOU NEVER
7 TESTIFIED IN COURT. RIGHT?

8 A THAT'S RIGHT. THE CASE WAS SOMEHOW SETTLED
9 BEFORE COURT.

10 Q SO THIS IS THE FIRST TIME YOU'VE BEEN
11 PRESENTED ACTUALLY IN COURT AS AN EXPERT FOR HYDROGEN
12 HYPOXIA?

13 A THAT'S RIGHT.

14 Q THE ALAN MILLER CASE SETTLED BECAUSE HE
15 CHOSE TO UNDERGO THE EXECUTION. ARE YOU AWARE OF
16 THAT?

17 A YES. I'M ALSO AWARE THAT --

18 **MR. STRONSKI:** OBJECTION, YOUR HONOR. I
19 THINK THERE IS A CONFIDENTIAL SETTLEMENT IN THIS
20 CASE. AND I THINK, WITHOUT DISCLOSING THAT, HE'S
21 MISCHARACTERIZING PERHAPS OR MISLEADING THE WITNESS
22 TO SAY IT WAS SETTLED WITHOUT EXPLAINING HOW IT WAS
23 SETTLED.

24 **THE WITNESS:** YES, I THINK THERE WERE SOME
25 EXTENUATING ISSUES THERE.

1 **THE COURT:** WAS IT A CONFIDENTIAL
2 SETTLEMENT?

3 **MR. ARCHEY:** I'M NOT AWARE OF THAT, JUDGE.
4 I'M GOING OFF OF LIKE MEDIA REPORTS AS WELL HERE.
5 I'M NOT AWARE. SO IF I STEPPED INTO SOMETHING, I
6 DIDN'T MEAN TO. I WAS UNAWARE.

7 I KNOW -- I DON'T WANT TO GET MYSELF IN
8 TROUBLE, BUT I KNOW THAT THE SUIT WAS WITHDRAWN AND
9 HE WAS EXECUTED AND HE HAD SOME CONDITIONS WHICH I
10 KNOW HAPPENED.

11 **MR. STRONSKI:** I CAN SAY IT'S CONFIDENTIAL
12 BECAUSE -- I DON'T KNOW THE EXACT TERMS BECAUSE I
13 THINK IT'S CONFIDENTIAL, BUT I KNOW IT WAS SETTLED.
14 SO I THINK TO SAY IT WAS SETTLED WITHOUT US KNOWING
15 EXACTLY ON WHAT GROUNDS WOULD BE CONFUSING TO THE
16 WITNESS.

17 **THE COURT:** ALL RIGHT. LET'S MOVE ON. IT'S
18 BEEN ASKED AND ANSWERED. THE OBJECTION WAS
19 WITHDRAWN -- THE OBJECTION TO THE METHOD OF EXECUTION
20 WAS WITHDRAWN IN THE MILLER CASE AND MR. MILLER WAS
21 EXECUTED BY HIS OWN VOLITION.

22 **BY MR. ARCHEY:**

23 **Q** MEDIA REPORTS ARE THAT HIS EXECUTION TOOK
24 TWO MINUTES. ARE YOU AWARE OF THAT?

25 **A** AMONG OTHER MEDIA REPORTS, YES.

1 Q WE'VE HAD PLENTY OF TESTIMONY HERE TODAY
2 ABOUT MR. HOFFMAN'S BREATHING PRACTICES, PRACTICE IN
3 BUDDHISM AND THAT TYPE OF THING. YOU'VE HEARD THAT
4 TODAY IN THE COURTROOM. RIGHT?

5 A YES.

6 Q IF MR. HOFFMAN USES HIS -- WELL, STRIKE
7 THAT.

8 THERE IS NOTHING ABOUT THIS PROCESS THAT
9 WOULD PRECLUDE MR. HOFFMAN FROM ENGAGING IN THOSE
10 BREATHING PRACTICES WHILE THE OXYGEN AND EVEN THE
11 NITROGEN IS INTRODUCED. ISN'T THAT TRUE?

12 A I DON'T THINK I WOULD CONCLUDE THAT. HAVING
13 A MASK STRAPPED TO YOUR FACE WOULD INTERFERE, I
14 THINK. I THINK A REASONABLE PERSON WOULD THINK THAT
15 THAT WOULD BE AN INTERFERENCE IN A RELAXED BREATHING
16 PRACTICE.

17 Q HAVE YOU EVER HAD ONE OF THESE MASKS ON,
18 DOCTOR?

19 A YES, I HAVE.

20 Q I HAVE, TOO. AND THEY'RE DESIGNED TO BE
21 ABLE TO WORK IN ENVIRONMENTS AND BREATHE. RIGHT?

22 A YES.

23 Q OKAY. SO IF MR. HOFFMAN DOES ENGAGE IN HIS
24 MEDITATIVE BREATHING, THAT WOULD BE ONE WAY TO CALM
25 HIM DOWN, LIKE HE'S TRAINED HIMSELF TO DO. RIGHT?

1 A THAT IS RIGHT.

2 Q IT WOULD ALSO HAVE THE EFFECT, MAYBE
3 INCIDENTALY, BUT OF MAKING THIS A QUICKER PROCESS
4 FOR HIM. RIGHT?

5 A I WOULD BE SPECULATING.

6 Q IF THE OXYGEN WASHES OUT OF THE LUNGS
7 QUICKER BECAUSE HE'S NOT HOLDING HIS BREATH AND
8 FIGHTING IT, YOU'RE GOING TO HAVE A QUICKER PROCESS.
9 RIGHT?

10 A I WAS SPECULATING ABOUT HIS ABILITY TO DO
11 THAT.

12 Q BUT WHAT I JUST SAID, THOUGH, IF HE DOES
13 BREATHE, THEN WE'RE GOING TO HAVE A QUICKER PROCESS
14 BECAUSE THE NITROGEN IS GOING TO WASH OUT THE LUNGS
15 AND IT'S GOING TO GO QUICKER?

16 A I THINK THAT'S RIGHT.

17 Q DR. BICKLER, YOU HAVE NO CRITICISMS OF THE
18 PROTOCOLS IN THIS CASE? AND BY THAT -- MAKE SURE I'M
19 CLEAR -- WE'RE TALKING ABOUT THE PROCEDURES. I
20 UNDERSTAND YOU'RE NOT ENDORSING THE PROCESS OR THE
21 USE OF NITROGEN HYPOXIA. BUT THE PROCEDURES YOU HAVE
22 NO CRITICISMS. RIGHT?

23 A THAT'S RIGHT.

24 Q AN EXECUTION BY ANY MEANS IS GOING TO
25 INVOLVE SOME PSYCHOLOGICAL PAIN AND ANXIETY.

1 CORRECT?

2 A YES.

3 Q AND YOU AGREE THAT ALLOWING THE FREE FLOW OF
4 GAS INTO THE LUNGS WITH NO OXYGEN CAUSES A GENTLE
5 HYPOXIC DEATH. CORRECT?

6 A NO, I DON'T THINK I WOULD USE THE TERM
7 GENTLE. I MEAN, AS I DESCRIBED, YOU KNOW, THE
8 EFFECTS OF HYPOXIA ARE TRAUMATIC AND STRESSFUL AND
9 THEY ACTIVATE THE FIGHT-OR-FLIGHT RESPONSE.

10 Q I WANT TO SHOW YOU YOUR TESTIMONY FROM THE
11 MILLER CASE IN ALABAMA.

12 A OKAY.

13 Q THIS IS ON PAGE 88.

14 MR. STRONSKI: NO OBJECTION.

15 MR. ARCHEY: HOW DO I GET THE ELMO TO --
16 THERE WE GO.

17 THE COURT: YOU HAVE TO HAVE THE SECRET
18 CODE.

19 BY MR. ARCHEY:

20 Q ALL RIGHT, DOCTOR. HERE'S SOME TESTIMONY --
21 YOUR TESTIMONY FROM THE MILLER CASE IN ALABAMA. I
22 CAN SHOW YOU MORE OF THIS IF I NEED TO. BUT THIS IS
23 QUOTING A DR. NITSCHKE.

24 A YES.

25 Q DR. NITSCHKE WAS PLAINTIFF'S EXPERT IN THE

1 KENNETH SMITH MATTER. RIGHT?

2 A YES. I'M FAMILIAR WITH HIM AND HIS
3 OPINIONS.

4 Q SO HE SAYS "MECHANICALLY BLOCKING THE AIRWAY
5 IS A TERRIFYING DEATH, BUT ALLOWING THE FREE FLOW OF
6 A GAS INTO THE LUNGS BUT WITH NO OXYGEN CAUSES A
7 GENTLE HYPOXIC DEATH. AND THE QUESTION IS DO YOU SEE
8 THAT?"

9 AND YOUR ANSWER: "THAT'S HIS OPINION, YES.
10 "QUESTION: DO YOU AGREE OR DISAGREE WITH
11 THAT?

12 "WELL, I AGREE THAT IN THE CONTEXT OF A
13 MEDICALLY ASSISTED SUICIDE, THAT THE USE OF SUCH GAS
14 CAN BE A -- CAN CREATE A PEACEFUL DEATH." CORRECT?

15 A YES, THAT'S CORRECT. I MEAN, THAT'S
16 CONSISTENT WITH THE MEDICALLY ASSISTED DYING
17 COMMUNITY AND THEIR APPROACH TO ASSISTING TERMINALLY
18 ILL PATIENTS.

19 BUT AS I'VE SAID ABOUT A HUNDRED TIMES,
20 THAT'S A VERY DIFFERENT CONTEXT THAN FORCED
21 ASPHYXIATION WITH NITROGEN IN A DEATH CHAMBER.

22 Q BUT THE PROCESS OF NITROGEN CREATING THIS
23 SITUATION, IT CREATES A GENTLE DEATH?

24 A WELL, THE DEVIL IS IN THE DETAILS. BUT WITH
25 THAT LIMITATION, YOU ARE CORRECT.

1 Q ALL RIGHT. LET ME GO AHEAD WHILE I'M AT --

2 MR. ARCHEY: YOUR HONOR, I WOULD -- NO,
3 STRIKE THAT.

4 BY MR. ARCHEY:

5 Q LET ME SHOW YOU TESTIMONY FROM THE
6 DEPOSITION I TOOK OF YOU TWO DAYS AGO.

7 A OKAY.

8 Q THIS IS ON PAGE 43.

9 MR. STRONSKI: YOUR HONOR, I OBJECT TO
10 PROCEEDING IN THIS WAY. I MEAN, YOU CAN IMPEACH HIM
11 WITH IT. RIGHT? YOU CAN ASK HIM A QUESTION.

12 THE COURT: WHAT'S YOUR OBJECTION? YOU
13 ADDRESS OBJECTIONS TO THE COURT. I KNOW WE'VE BEEN
14 HERE A LONG TIME, BUT WE'RE NOT GOING TO HAVE A
15 LITTLE COLLOQUY HERE.

16 MR. STRONSKI: YOUR HONOR, I'M SORRY. I'D
17 OBJECT TO AN IMPROPER MEANS OF IMPEACHING THE
18 WITNESS.

19 THE COURT: MR. ARCHEY.

20 MR. ARCHEY: I'LL ASK MY FOUNDATION QUESTION
21 AND PROCEED, YOUR HONOR.

22 THE COURT: OKAY.

23 BY MR. ARCHEY:

24 Q DR. BICKLER, TWO DAYS AGO YOU AGREED THAT
25 ALLOWING THE FREE FLOW OF GAS INTO THE LUNGS WITH NO

1 OXYGEN CAUSES A GENTLE HYPOXIC DEATH. CORRECT?

2 A THAT IS IN THE CONTEXT OF THIS MEDICAL AID
3 IN DYING, YES.

4 Q LET ME SHOW YOU YOUR FULL TESTIMONY THEN.
5 THIS IS ON PAGE 43 OF YOUR DEPOSITION. THE QUESTION
6 IS: "YOU AGREE THAT ALLOWING THE FREE FLOW OF A GAS
7 INTO THE LUNGS WITH NO OXYGEN CAUSES A GENTLE HYPOXIC
8 DEATH. CORRECT?"

9 A YES.

10 Q THERE IS AN OBJECTION. YOU CLARIFIED
11 "GENTLE HYPOXIC DEATH?"

12 AND I SAID "YES."

13 AND YOU SAID, "WELL, UNDER CIRCUMSTANCES OF
14 MEDICAL AID IN DYING, APPARENTLY IT CAN."

15 AND I SAID, "THAT'S YOUR TESTIMONY FROM THE
16 MILLER CASE. DO YOU REMEMBER SAYING THAT?"

17 "YES."

18 A YES. THAT'S WHAT I'M SAYING TODAY, TOO.

19 MR. ARCHEY: YOUR HONOR, IF I MIGHT HAVE A
20 MOMENT TO GO THROUGH MY NOTES?

21 THE COURT: YOU MAY.

22 MR. ARCHEY: THANK YOU.

23 YOUR HONOR, I'M BASICALLY DONE WITH MY
24 QUESTIONS, BUT THERE IS ONE MORE EXERCISE I WANT TO
25 DO BECAUSE I THINK HE'S GOING TO BE ONE OF THE

1 APPROPRIATE PEOPLE TO DO IT WITH.

2 I'D LIKE TO PLAY SOME VIDEOS TO SHOW
3 THE CHAMBER AND THE SETUP AND THE EQUIPMENT. AND
4 THESE ARE SOME OF THOSE VIDEOS THAT HAVE NOW BEEN
5 UPLOADED. I WANT TO AT LEAST PLAY THEM SO THAT THE
6 COURT HAS AN OPPORTUNITY TO SEE THEM. AND I'VE GOT
7 THE NUMBERS HERE AND WE CAN RUN THROUGH THEM QUICKLY
8 IF THAT'S -- AND HE'S -- HE RELIED UPON THEM, SO I
9 THINK THAT'S GOING TO BE FINE.

10 **THE COURT:** SO YOU WANT TO DO IT WITHIN THE
11 CONFINES OF THIS WITNESS'S TESTIMONY?

12 **MR. ARCHEY:** MY CONCERN IS IF WE GO TO DR.
13 ANTOGNINI, WHICH IS THE NEXT WITNESS LEFT, THAT THESE
14 WERE PLAINTIFF'S VIDEOS, AND SO THIS WITNESS RELIED
15 UPON THEM. THEY SHOULD GET IN EITHER WAY, BUT --

16 **THE COURT:** WELL, THEY'VE BEEN ADMITTED.
17 I'M GOING TO LOOK AT THEM. IS IT IMPORTANT THAT I
18 LOOK AT THEM IN OPEN COURT OR CAN I JUST GIVE YOU MY
19 WORD THAT I'M GOING TO LOOK AT THE EXHIBITS?

20 **MR. ARCHEY:** THE PROBLEM IS THESE WERE NOT
21 -- THESE WERE SOME OF THE ONES -- THE VIDEOS THEY
22 DIDN'T HAVE UPLOADED.

23 **THE COURTROOM DEPUTY:** WE GOT THEM IN.
24 THEY'RE IN.

25 **THE COURT:** THEY'RE ALL IN.

1 **MR. ARCHEY:** THAT'S ALL I NEEDED, YOUR
2 HONOR.

3 **MR. STRONSKI:** IT'S BEYOND THE SCOPE OF THIS
4 WITNESS.

5 **MR. ARCHEY:** I'M GOOD, YOUR HONOR. THAT'S
6 ALL I NEEDED.

7 **THE COURT:** YOU'RE FINISHED WITH YOUR CROSS?

8 **MR. ARCHEY:** I AM. THANK YOU, YOUR HONOR.

9 **THE COURT:** ANY REDIRECT, SIR?

10 **MR. STRONSKI:** YES, YOUR HONOR.

11 **MR. ARCHEY:** HOLD ON. YOUR HONOR, I'LL DO
12 ONE MORE THING, IF I MAY, AS I SIT DOWN.

13 THE VIDEOS THAT WE'RE INTERESTED IN --
14 WE THINK THIS WILL GIVE YOU A CLEAR PICTURE. I DON'T
15 WANT TO MAKE TOO MUCH ARGUMENT, BUT IT'S PLAINTIFF'S
16 101, 108, 114, 117, AND 121.

17 **THE COURT:** OKAY. THE COURT WILL LOOK AT
18 ALL OF THE EVIDENCE, BUT THE COURT WILL NOTE THAT YOU
19 ARE ADVANCING THOSE PARTICULAR EXHIBITS.

20 **MR. ARCHEY:** THANK YOU, YOUR HONOR.

21 **THE COURT:** REDIRECT, PLEASE.

22 **MR. STRONSKI:** THANK YOU, YOUR HONOR.

23 **REDIRECT EXAMINATION**

24 **BY MR. STRONSKI:**

25 **Q** I THINK YOU WERE ASKED WHETHER THERE WAS

1 SOME REPORT -- I DON'T THINK YOU WERE SHOWN THE
2 REPORT -- THAT THE FRAZIER EXECUTION WAS OVER IN TWO
3 MINUTES OR SOMETHING LIKE THAT. DO YOU REMEMBER
4 THAT?

5 A I THINK IT WAS THE MILLER EXECUTION. THAT
6 WAS THE ONE WHERE THERE MAY HAVE BEEN UNDISCLOSED
7 FACTORS AT PLAY.

8 Q BUT SO THAT THE RECORD IS CLEAR, LET'S LOOK
9 AT EXHIBIT 16 AT PAGE 229, PLEASE. WHILE WE'RE
10 BRINGING THAT UP, DOCTOR, IF -- THIS IS A
11 HYPOTHETICAL. I CAN ASK YOU A HYPOTHETICAL. OKAY?

12 IF AN INDIVIDUAL WAS GIVEN A MEDICATION, ARE
13 THERE MEDICATIONS THAT --

14 MR. ARCHEY: I OBJECT. THAT'S OUTSIDE THE
15 SCOPE. I NEVER BROUGHT UP MEDICATIONS OR SEDATION OR
16 ANYTHING LIKE THAT, JUDGE.

17 MR. STRONSKI: WELL, IT'S HYPOTHETICALLY,
18 YOUR HONOR. AND WE DON'T KNOW WHAT THAT SETTLEMENT
19 WAS, SO I THINK HE'S MAKING A POINT OF AN EXECUTION
20 BEING RELATIVELY SHORT. I DON'T THINK IT'S THAT
21 SHORT, BUT IT'S ALSO A -- I THINK I'D LIKE TO
22 ESTABLISH IT'S POTENTIALLY NOT COMPARABLE.

23 THE COURT: YOU ASKED HIM ABOUT IT, MR.
24 ARCHEY. I'M GOING TO LET HIM REDIRECT HIM ON IT.

25 AND WHY IS THE SCREEN ON? OKAY. THANK

1 YOU, SUZIE.

2 **MR. ARCHEY:** I DIDN'T REALIZE HE WAS TYING
3 IT TO MILLER. I JUST HEARD "SEDATIONS." I'M SORRY,
4 YOUR HONOR.

5 **BY MR. STRONSKI:**

6 **Q** SO IF SOMEBODY HAD SOME SORT OF DRUG BEFORE
7 THE PROCESS, HOW WOULD THAT AFFECT -- HOW MIGHT THAT
8 AFFECT THE EXTENT TO WHICH THEY FOUGHT THE PROCESS?

9 **A** IT COULD DRAMATICALLY BLUNT THEIR RESPONSE
10 TO THE HYPOXIA.

11 **Q** AND HOW WOULD THAT AFFECT THE LENGTH OF THE
12 PROCESS IN TERMS OF HOW LONG IT WOULD TAKE TO BECOME
13 UNCONSCIOUS?

14 **A** IT WOULD REDUCE THE STRUGGLING AND IT WOULD
15 ACCELERATE THE DEATH, MORE THAN LIKELY.

16 **Q** AND THAT IS NOT WHAT WE HAVE HERE. CORRECT?

17 **A** THAT'S CORRECT.

18 **Q** IF WE WERE TO GO TO EXHIBIT 16, PAGE 229 --
19 228, PLEASE. THIS IS THE FRAZIER EXECUTION TIMELINE.
20 AND I THINK THERE WAS SOME SUGGESTION THAT THERE
21 WAS -- IT WAS OVER IN TWO MINUTES. I DON'T THINK I
22 MISHEARD THAT. NO?

23 **MR. ARCHEY:** THAT WAS MILLER.

24 **THE COURT:** YES, YOU JUST TALKED ABOUT
25 MILLER.

1 **MR. STRONSKI:** THEN I THINK WE WENT OVER
2 THIS. THEN LET'S CLOSE THAT, PLEASE.

3 **BY MR. STRONSKI:**

4 **Q** DOCTOR, YOU WERE SHOWN YOUR OWN PAPER AND
5 YOUR OWN WORK FROM 2017 AND THE REPORTED -- YOUR
6 DESCRIPTION OF THE REPORTED EXPERIENCES OF THE
7 SUBJECTS. AND YOU WERE ALSO SHOWN THE SAUSEN PILOT
8 STUDY. DO YOU REMEMBER THAT?

9 **A** YES.

10 **Q** AND WERE THEY ALL CONTROLLED STUDIES?

11 **A** NO. YOU KNOW, THE PILOT STUDY -- I DIDN'T
12 GET A CHANCE TO FULLY EXPLAIN ABOUT THE PILOT STUDY.
13 SO THAT'S NOT STEADY-STATE CONDITIONS. THEY'RE BRIEF
14 DESATURATION EVENTS, SO ONE KNOWS VERY LITTLE ABOUT
15 THE PHYSIOLOGY OF THE SUBJECTS. WE KNOW WHAT OXYGEN
16 THEY WERE EXPOSED TO. WE DON'T KNOW WHAT THE OXYGEN
17 WAS IN THEIR BODY. THAT'S A MAJOR CRITICISM AND
18 WEAKNESS OF THAT PAPER.

19 **Q** IS THAT A REASON WHY YOU CAN'T LOOK AT TIME
20 PERIODS FOR THAT PAPER AND BELIEVE THEY'RE
21 INSTRUCTIVE TO WHAT WOULD HAPPEN IN THIS PROCESS WITH
22 THIS METHOD?

23 **A** YES. IT'S ALSO WHY IT'S NOT PUBLISHED IN A
24 VERY GOOD JOURNAL. THAT PAPER WOULD NOT HAVE BEEN
25 ACCEPTED BY A FIRST-TIER JOURNAL, BECAUSE IT'S NOT

1 CONTROLLED.

2 Q IN YOUR PAPER YOU'RE CONTROLLING THE
3 PARAMETERS TO LIMIT, I THINK YOU SAID, THE SEVERITY
4 OF THE EXPERIENCE. IS THAT RIGHT?

5 A WELL, THAT'S RIGHT. AND, IN FACT, LIMITING
6 THE SEVERITY OF THE REACTION TO THE HYPOXIA IS A
7 CARDINAL REASON WHY WE'VE WORKED WITH THE U.S. FOOD
8 AND DRUG ADMINISTRATION TO DESIGN THESE STUDIES SO
9 THAT THEY'RE GENERALLY TOLERABLE FOR THE SUBJECTS.
10 IT'S UNPLEASANT, BUT IT DOESN'T CROSS THE THRESHOLD
11 TO EXTREME DISCOMFORT THAT THE SUBJECTS WOULD
12 EXPERIENCE IF THEY DROPPED MUCH LOWER. I MEAN, WE
13 DON'T DO THOSE EXPERIMENTS WHERE THE SATURATION GOES
14 INTO 60s AND 50s BECAUSE IT'S SO VERY HARD ON THE
15 SUBJECTS.

16 Q OKAY. AND HOW IS THAT DIFFERENT THAN WHAT
17 AN INDIVIDUAL WOULD BE EXPOSED TO WITH THE LOUISIANA
18 NITROGEN GASSING EXECUTION METHOD?

19 A WELL, THE HYPOXIA IS NOT GOING TO BE LIMITED
20 TO THE TOLERABLE LEVELS. IT'S GOING TO BE FORCED
21 LOWER INTO THE LEVELS WHERE EXTREME DISTRESS IS
22 ELICITED.

23 Q OKAY. YOU WERE READ SOME TESTIMONY FROM
24 ALABAMA FROM A DR. NITSCHKE. DO YOU REMEMBER THAT?

25 A NITSCHKE?

1 Q NITSCHKE.

2 A YES. HE'S THE ADVOCATE FOR USING INERT
3 GASES IN END OF LIFE I BELIEVE.

4 Q HE ACTUALLY HEADS SOMETHING CALLED THE EXIT
5 SOCIETY. RIGHT?

6 A THAT'S RIGHT. THAT'S IN SWITZERLAND I
7 BELIEVE.

8 Q OR MAYBE AUSTRALIA?

9 A COULD BE.

10 Q SO HE'S AN ADVOCATE FOR THE USE OF METHODS
11 FOR ASSISTED SUICIDE?

12 A AND, IN FACT, HE HAS A COMPANY THAT SELLS
13 PRODUCTS THAT ASSISTS WITH THAT, YES.

14 Q AND JUST TO CLOSE THIS UP, HOW IS SUICIDE --
15 THE SUICIDE CASES OR THE ASSISTED SUICIDE DIFFERENT
16 THAN THIS SITUATION?

17 A WELL, IT'S VOLITIONAL. AND THE OTHER THING
18 TO REMEMBER ABOUT THESE SUICIDES IS THESE PATIENTS
19 OFTEN TAKE OTHER MEDICATIONS TO EASE THEIR ANXIETY
20 AND DISTRESS AS THEY'RE APPROACHING THIS. SO THESE
21 ARE -- THEY'RE NOT GOING COLD TURKEY, SO TO SPEAK.

22 Q THANK YOU, DOCTOR.

23 MR. STRONSKI: NO FURTHER QUESTIONS, YOUR
24 HONOR.

25 THE COURT: YOU MAY STEP DOWN.

1 DO THE PLAINTIFFS HAVE ANY FURTHER
2 WITNESSES?

3 MR. STRONSKI: DR. BICKLER WAS OUR LAST
4 WITNESS, YOUR HONOR.

5 THE COURT: THE PLAINTIFFS REST?

6 MR. STRONSKI: YES.

7 THE COURT: ALL RIGHT. THE PLAINTIFFS HAVE
8 RESTED.

9 HOW MANY WITNESSES DO THE DEFENDANTS
10 HAVE?

11 THE COURT: ONE WITNESS.

12 MR. CODY: JUST ONE, YOUR HONOR.

13 THE COURT: AND OBVIOUSLY I KNOW WHO THAT
14 IS; DR. ANTOGNINI. HOW LONG ARE WE GOING TO BE WITH
15 DR. ANTOGNINI? WE HAVE UTILITIES UNTIL SEVEN. IT
16 WON'T START GETTING STIFLING UNTIL 7:30. YOU WON'T
17 HAVE TO TAKE OFF ANY OUTER WEAR UNTIL 7:30.

18 MR. CODY: YOUR HONOR, I THINK, AS FAR AS MY
19 DIRECT, IT WOULD PROBABLY BE 30 MINUTES TO AN HOUR, I
20 WOULD EXPECT.

21 THE COURT: AND YOUR CROSS, SIR?

22 MR. STRONSKI: I'M PLANNING ON DOING A CROSS
23 THAT WOULD END TONIGHT, YOUR HONOR, IF AT ALL
24 POSSIBLE.

25 THE COURT: WELL, LET'S DO IT THEN.

1 NEXT -- WILL THE DEFENDANTS PLEASE CALL
2 THEIR FIRST WITNESS.

3 I NEED TO ASK YOU IF YOU HAVE ANY
4 MOTIONS. DO YOU HAVE ANY MOTIONS?

5 **MR. CODY:** WE DO NOT, YOUR HONOR.

6 **THE COURT:** THANK YOU.

7 **MR. STRONSKI:** YOUR HONOR, WE WOULD LIKE TO
8 MOVE FOR RECONSIDERATION OF THE DISMISSAL OF THE
9 RLUIPA CLAIM IN VIEW OF THE ADDITIONAL NEW EVIDENCE
10 AT THE HEARING RELATING TO THE IMPORTANCE OF THE
11 BREATHING PRACTICES, THE ESSENTIAL NATURE OF THE
12 BREATHING PRACTICES TO THE BUDDHIST FAITH AND HOW
13 THIS PROCESS AND METHOD WILL INTERFERE WITH THEM.

14 **THE COURT:** THE COURT WILL DEFER THAT UNTIL
15 THE CLOSE OF ALL THE EVIDENCE.

16 **MR. STRONSKI:** THANK YOU, YOUR HONOR.

17 **(WHEREUPON, JOSEPH FRANCIS ANTOGNINI, BEING**
18 **DULY SWORN, TESTIFIED AS FOLLOWS.)**

19 **VOIR DIRE**

20 **BY MR. CODY:**

21 **Q** GOOD AFTERNOON, DR. ANTOGNINI. COULD YOU
22 PLEASE STATE AND SPELL YOUR FULL NAME FOR THE RECORD?

23 **A** JOSEPH FRANCIS ANTOGNINI. J-O-S-E-P-H,
24 F-R-A-N-C-I-S, A-N-T-O-G-N-I-N-I.

25 **Q** VERY GOOD. THANK YOU.

1 WERE YOU RETAINED AS AN EXPERT WITNESS FOR
2 THE DEFENDANTS IN THIS CASE?

3 A YES.

4 Q AND COULD YOU GO AHEAD AND DESCRIBE YOUR
5 EDUCATIONAL BACKGROUND FOR THE COURT'S BENEFIT?

6 A I WENT TO UC BERKELEY FOR MY UNDERGRADUATE
7 DEGREE. I WENT TO THE UNIVERSITY OF SOUTHERN
8 CALIFORNIA FOR MY MEDICAL DEGREE. I GRADUATED IN
9 1984. I DID A RESIDENCY IN ANESTHESIOLOGY AT UC
10 DAVIS. I WAS THERE FROM '84 TO 1987. MY OTHER -- I
11 BECAME BOARD CERTIFIED IN ANESTHESIOLOGY AFTER THAT
12 AND I'M STILL BOARD CERTIFIED. I DID RECEIVE A MBA
13 AS WELL IN 2010 FROM THE CALIFORNIA STATE UNIVERSITY
14 SACRAMENTO.

15 Q OKAY. AND WHERE ARE YOU CURRENTLY EMPLOYED?

16 A I WORK AS A CLINICAL RESEARCHER AT SOME
17 CLINICAL RESEARCH OFFICES IN THE LOS ANGELES AREA.
18 I'M ALSO THE CHIEF SCIENTIFIC OFFICER FOR A START-UP
19 COMPANY TRYING TO DEVELOP NEW ANESTHETICS.

20 Q AND THAT COMPANY YOU MENTIONED, DO YOU HAVE
21 ANY INTEREST IN THAT COMPANY?

22 A I AM A SHAREHOLDER IN THAT COMPANY AS WELL
23 AS BEING AN EMPLOYEE.

24 Q AND ARE YOU CURRENTLY WORKING FOR ANY OTHER
25 BUSINESSES AT THE SAME TIME YOU'RE DOING THAT?

1 A NO.

2 Q NOW, GOING THROUGH SOME OF YOUR PROFESSIONAL
3 POSITIONS IN THE PAST, COULD YOU ELABORATE ON WORK
4 YOU DID FOR EXPANSE -- I'M JUST GOING TO PROBABLY
5 MISPRONOUNCE THIS -- EXPANESTHETICS?

6 A EXPANESTHETICS, YES. THAT'S --

7 **THE COURT:** YOU'RE GOING TO NEED TO SPELL
8 THAT FOR THE COURT REPORTER, FOR SURE, AND ME.

9 **THE WITNESS:** E-X-P-A-N-E-S-T-H-E-T-I-C-S.

10 **BY MR. CODY:**

11 Q AND JUST FOR THE RECORD, IS THAT THE CURRENT
12 COMPANY --

13 A YES.

14 Q -- THAT --

15 A THE -- DEVELOPING NEW ANESTHETICS.

16 Q ALL RIGHT. NOW, PRIOR TO THAT OR -- DID YOU
17 DO ANY TYPE OF INVESTIGATIVE WORK?

18 A YES. I WAS A PROFESSOR -- OR I WAS IN
19 THE -- A FACULTY MEMBER AT UC DAVIS FROM '91 UNTIL
20 2016. AND I STARTED OUT AS AN ASSISTANT PROFESSOR
21 AND THEN WENT THROUGH THE RANKS AND I BECAME A FULL
22 PROFESSOR IN 2000. AND I WAS A FULL PROFESSOR
23 BASICALLY UNTIL I RETIRED.

24 Q WHEN DID YOU RETIRE?

25 A FROM THE UNIVERSITY IN 2016.

1 **Q** AND CAN YOU KIND OF DESCRIBE THE -- LIKE AS
2 A PROFESSOR THERE, WHAT KIND OF SUBJECTS WOULD YOU
3 TEACH?

4 **A** I -- OF COURSE AS A ANESTHESIOLOGIST IN THE
5 DEPARTMENT I WOULD TEACH ANESTHESIOLOGY TO RESIDENTS
6 AND MEDICAL STUDENTS. I HAD -- AS PART OF
7 ANESTHESIOLOGY WE TEACH A LOT ABOUT OBVIOUSLY ALL
8 ASPECTS INCLUDING PHYSIOLOGY, RESPIRATORY PHYSIOLOGY,
9 CARDIOVASCULAR PHYSIOLOGY. I WAS ALSO A -- HAD AN
10 APPOINTMENT IN THE SECTION OF NEUROBIOLOGY,
11 PHYSIOLOGY AND BEHAVIOR AT UC DAVIS, SO I ALSO TAUGHT
12 PHYSIOLOGY AT UC DAVIS. AND THAT WAS A BROAD RANGE,
13 ALL OF PHYSIOLOGY BASICALLY; RESPIRATORY PHYSIOLOGY,
14 CARDIOVASCULAR PHYSIOLOGY, NEUROPHYSIOLOGY, THINGS OF
15 THAT NATURE.

16 AND THEN WITH MY RESEARCH I DID RESEARCH ON
17 ANESTHETIC MECHANISMS. BUT PART OF THAT -- OR A
18 LARGE PART OF THAT RELATES TO NEUROPHYSIOLOGY, SO
19 I'VE HAD A VERY SIGNIFICANT BACKGROUND IN
20 NEUROPHYSIOLOGY BECAUSE OF MY RESEARCH.

21 **Q** WHEN YOU MENTIONED UC DAVIS, DID YOU HAVE
22 ANY OCCASION TO WORK IN THE TRAUMA CENTER?

23 **A** YES. SO UC DAVIS MEDICAL CENTER IS THE
24 MAJOR TRAUMA CENTER IN THE NORTHERN CALIFORNIA
25 REGION. SO WE TOOK CARE OF A LOT OF PATIENTS WHO HAD

1 TRAUMA; BLUNT TRAUMA, PENETRATING TRAUMA. BLUNT
2 TRAUMA BEING BASICALLY CAR ACCIDENTS. PENETRATING
3 TRAUMA WOULD BE STAPH WOUNDS AND GUNSHOT WOUNDS. I
4 TOOK CARE OF A LOT OF PEOPLE WITH GUNSHOT WOUNDS.

5 Q OKAY. AND YOU MENTIONED RESEARCH. IS THAT
6 KIND OF EXHAUSTIVE AS FAR AS DESCRIBING YOUR
7 RESEARCH? WERE THERE OTHER PROJECTS THAT YOU'VE BEEN
8 PART OF?

9 A I'VE BEEN DOING THE CLINICAL RESEARCH
10 LATELY. BUT MOST OF MY WORK IS REALLY RELATED TO
11 THE -- IN TERMS OF RESEARCH -- TO MY ANESTHETIC
12 MECHANISMS WORK.

13 THE REPORTER: YOU'RE SAYING ANESTHETIC
14 MECCA?

15 THE WITNESS: MECHANISMS. I APOLOGIZE IF
16 I'M NOT BEING CLEAR. I'LL TRY TO DO A BETTER JOB.

17 THE REPORTER: THANK YOU.

18 BY MR. CODY:

19 Q AND I WANT TO ASK YOU ABOUT SOME OF YOUR
20 PUBLICATIONS.

21 MR. CODY: AND IF I COULD ASK MS. YDARRAGA
22 TO PULL UP THAT PART OF THE C.V.

23 THE WITNESS: MAY I GET SOME WATER? I
24 SHOULD HAVE BROUGHT SOME UP.

25 THE COURT: YES, THEY'LL GET YOU SOME, SIR.

1 **THE WITNESS:** I FEEL MY MOUTH IS QUITE DRY.

2 **THE COURT:** THEY'LL GET YOU SOME.

3 THE C.V. HAS NOT BEEN OFFERED YET.

4 **MR. CODY:** I'M ABOUT TO, YOUR HONOR.

5 **THE COURT:** OKAY.

6 **BY MR. CODY:**

7 **Q** YOUR HONOR -- I MEAN -- I'M SORRY. DR.
8 ANTOGNINI, IS THAT YOUR C.V. BEFORE YOU?

9 **A** YES, IT IS.

10 **MR. CODY:** OKAY. YOUR HONOR, I WOULD GO
11 AHEAD AND MOVE TO ADMIT THE C.V. OF DR. ANTOGNINI
12 INTO EVIDENCE.

13 **THE COURT:** WHAT'S THE EXHIBIT NUMBER?

14 **MR. STRONSKI:** NO OBJECTION, YOUR HONOR.

15 **MR. CODY:** 3-1, YOUR HONOR.

16 **THE COURT:** 3-1 IS ADMITTED WITHOUT
17 OBJECTION.

18 **BY MR. CODY:**

19 **Q** AND DO YOU SEE BEFORE YOU THE LIST OF
20 PUBLICATIONS?

21 **A** YES.

22 **Q** AND THIS IS A GOOD REPRESENTATION OF ALL OF
23 THE PUBLICATIONS YOU'VE HAD?

24 **A** YES, IT IS.

25 **Q** AND I WANTED TO ASK YOU -- YOU MENTIONED

1 THIS 1.5 PERCENT WORLDWIDE AS IT RELATES TO RESEARCH
2 PUBLICATIONS. CAN YOU KIND OF ELABORATE ON WHAT THAT
3 MEANS?

4 A YES. IF YOU CAN ACTUALLY GO TO THE FOOTNOTE
5 TO MY C.V. THAT ACTUALLY I CAN SHOW TO YOU.
6 ACTUALLY, I THINK YOU NEED TO GO TOWARDS THE -- YEAH.
7 MAYBE A LITTLE BIT MORE. THERE WE GO. THAT'S IT.

8 SO THERE IS A -- IN OCTOBER 2023, ELSEVIER,
9 WHICH IS ONE OF THE PUBLISHERS FOR SCIENTIFIC
10 JOURNALS, PUBLISHED A DATABASE LOOKING AT ESSENTIALLY
11 SCIENTISTS WHO HAD BEEN CITED. AND THEY JUST LOOK AT
12 A NUMBER OF CITATIONS AND OTHER FACTORS. AND THEN I
13 WAS -- IT'S BASICALLY JUST AN EXCEL SPREADSHEET WITH
14 OVER A HUNDRED THOUSAND SCIENTISTS, ESSENTIALLY. AND
15 I WAS ABOUT THE TOP 1.5 PERCENT OF SCIENTISTS IN
16 TERMS OF CITATIONS.

17 Q OKAY. AND I THINK YOU ALSO MENTIONED AN
18 H-INDEX. CAN YOU EXPLAIN WHAT THAT IS?

19 A YES. SO THE H-INDEX IS A -- JUST A WAY OF
20 TRACKING HOW OFTEN SOMEONE'S RESEARCH IS REFERENCED
21 BY OTHER AUTHORS. AND ESSENTIALLY WHAT IT MEANS IS
22 THAT IF YOU LOOK DOWN THE LIST OF THE PUBLICATIONS,
23 YOU START NO. 1 WITH THE MOST CITED PAPER THAT YOU --
24 THAT THAT AUTHOR HAS AND YOU KEEP ON GOING. AND THEN
25 WHEN THE NUMBER ON THAT LIST MATCHES THE NUMBER OF

1 CITATIONS, THAT'S THE H-INDEX.

2 SO, FOR EXAMPLE, IN MY CASE, THE 42 PAPERS
3 THAT I -- I HAVE OBVIOUSLY MORE THAN 42. BUT I HAVE
4 42 PAPERS THAT HAVE BEEN CITED AT LEAST 42 TIMES BY
5 OTHER AUTHORS. SOME OF MY PAPERS HAVE BEEN CITED IN
6 THE HUNDREDS RANGE. SO THAT'S THE INDICATION OF THE
7 H-INDEX.

8 AND THE H-INDEX WAS DEVELOPED TO BE ABLE TO
9 DETERMINE THE IMPACT OF A SCIENTIST. AND THAT'S --
10 CONSIDERED TO BE ABOVE 40 IS AN OUTSTANDING SCIENTIST
11 FOR THE H-INDEX.

12 Q THANK YOU FOR THAT.

13 NOW, ARE YOU ALSO A MEMBER OF ANY MEDICAL
14 SOCIETIES?

15 A I AM A MEMBER OF THE AMERICAN SOCIETY OF
16 ANESTHESIOLOGISTS AND THE CALIFORNIA SOCIETY OF
17 ANESTHESIOLOGISTS.

18 Q HAVE YOU TESTIFIED AS AN EXPERT PRIOR TO
19 THIS CASE?

20 A YES, I HAVE.

21 Q ALL RIGHT. AND ROUGHLY HOW MANY CASES?

22 A FIFTEEN TO 20 IS MY GUESS OVER A NINE-YEAR
23 PERIOD.

24 MR. CODY: AND, MS. YDARRAGA, IF YOU COULD
25 TAKE -- NEVER MIND.

1 BY THE WITNESS:

2 A MAY I --

3 Q YES.

4 A I SHOULD PROBABLY CLARIFY THAT. IN TERMS OF
5 TESTIFYING, IT'S PROBABLY LESS THAN THAT. I'VE BEEN
6 INVOLVED IN MORE THAN -- OVERALL I THINK AROUND 15 TO
7 20. BUT NOT ALL OF THOSE WERE ONES IN WHICH I
8 PROVIDED TESTIMONY. IT MIGHT HAVE BEEN A DEPOSITION
9 OR JUST A REPORT.

10 Q AND I THINK -- I BELIEVE IN YOUR REPORT YOU
11 DO CITE THE CASES IN WHICH YOU'VE TESTIFIED?

12 A IN THE LAST FOUR YEARS.

13 Q IN THE LAST FOUR YEARS?

14 OKAY. AND I WANT TO ASK YOU ABOUT -- SO
15 WERE YOU RETAINED AS AN EXPERT IN THE CASE OF *KENNETH*
16 *EUGENE SMITH VERSUS JOHN HAMM* IN THE U.S. DISTRICT
17 COURT OF THE MIDDLE DISTRICT IN ALABAMA?

18 A YES.

19 Q DID YOU SUBMIT A REPORT AND TESTIFY IN THAT
20 CASE?

21 A YES.

22 Q CAN YOU KIND OF TELL US GENERALLY WHAT
23 NATURE -- WHAT WAS THE NATURE OF YOUR TESTIMONY IN
24 THAT CASE?

25 A THAT WAS A NITROGEN HYPOXIA LITIGATION. AND

1 I WAS -- THE STATE REQUESTED ME TO BE AN EXPERT
2 WITNESS TO TALK ABOUT THE NITROGEN HYPOXIA SYSTEM AT
3 ALABAMA.

4 Q AND DID YOU ALSO TESTIFY AS AN EXPERT FOR
5 THE DEFENDANTS OR THE STATE IN *MILLER V MARSHALL*?

6 A YES. I'M PRETTY SURE -- I THINK THAT WAS BY
7 VIDEO, BUT I'M PRETTY SURE I DID DO TESTIMONY.

8 Q DO YOU RECALL SUBMITTING A REPORT IN THAT
9 CASE?

10 A I DID, YES. I MIGHT HAVE GIVEN TESTIMONY IN
11 THIS CASE. I CAN'T REMEMBER OFF THE TOP OF MY HEAD.

12 Q WHAT ABOUT *GRAYSON V HAMM*, ALSO IN THE U.S.
13 MIDDLE DISTRICT OF ALABAMA?

14 A YES, I WAS INVOLVED WITH THAT WITH
15 TESTIMONY.

16 Q AND WHAT WAS THE NATURE OF YOUR TESTIMONY IN
17 THAT CASE?

18 A AGAIN, I WAS -- REPRESENTED THE STATE TO
19 PROVIDE THE OPINIONS RELATED TO THE NITROGEN HYPOXIA
20 SYSTEM.

21 Q AND WHAT ABOUT *FRAZIER V HAMM*, ALSO IN THE
22 U.S. DISTRICT COURT OF THE MIDDLE DISTRICT OF
23 ALABAMA? WERE YOU AN EXPERT?

24 A YES, I WAS. YES.

25 Q AND DID YOU ALSO TESTIFY IN THAT CASE?

1 A I BELIEVE SO, YES.

2 Q WAS THE REPRESENTATION OR THE -- I'M SORRY.
3 YOU WERE RETAINED FOR THE SAME PURPOSE, I SUPPOSE, AS
4 IN GRAYSON AND THE OTHERS?

5 A YES. AND IN MY -- WHEN I TALK ABOUT THE
6 EVALUATION OF A SYSTEM, IT WASN'T JUST THE EFFECTS IT
7 WOULD HAVE ON THE INMATE BUT ALSO THE SAFETY ISSUES
8 FOR PERSONNEL, TO SEE THAT THERE WOULD BE NO SAFETY
9 ISSUES FOR THE CORRECTIONAL OFFICERS THAT WOULD BE
10 INVOLVED, AND THE WITNESSES AS WELL.

11 Q AND JUST FOR THE RECORD, ALABAMA HAS A
12 NITROGEN HYPOXIA SYSTEM. IS THAT CORRECT?

13 A YES, IT DOES.

14 Q AND TO YOUR KNOWLEDGE -- SO THOSE WERE FOUR
15 CASES, I THINK YOU LISTED, ALL DEALING WITH NITROGEN
16 HYPOXIA?

17 A CORRECT.

18 Q AND TO YOUR KNOWLEDGE, HAVE YOU EVER BEEN
19 EXCLUDED AS AN EXPERT BEFORE?

20 A NOT TO MY KNOWLEDGE, NO.

21 Q NOW -- ALL RIGHT. CAN YOU -- LET ME SEE. I
22 WANTED TO ASK YOU IF YOU COULD IDENTIFY THE OPINIONS
23 YOU WERE ENGAGED TO RENDER IN THIS CASE.

24 AND DO YOU HAVE YOUR EXPERT REPORT BEFORE
25 YOU?

1 **A** I DO NOT.

2 **Q** WELL --

3 **A** I CAN GET IT. I LEFT IT. I DIDN'T KNOW
4 WHAT I COULD BRING UP.

5 **MR. CODY:** YOUR HONOR, IF IT'S OKAY, I'D
6 LIKE HIM TO HAVE IT IF HE COULD REFER TO IT FOR THE
7 SAKE OF CONVENIENCE OR --

8 **THE COURT:** OKAY. IF THERE IS NO OBJECTION,
9 I'LL LET HIM REFER TO HIS EXPERT REPORT.

10 **MR. STRONSKI:** OH. NO OBJECTION, AS LONG AS
11 IT DOESN'T HAVE NOTES ON IT.

12 **MR. CODY:** DO YOU HAVE ONE THAT IS NOTE
13 FREE?

14 **THE WITNESS:** NO, I DON'T. I HAVE --

15 **MR. CODY:** WE WILL TRY TO GET YOU ONE THAT
16 IS NOTE FREE.

17 **MR. CODY:** I APOLOGIZE, YOUR HONOR.

18 **MR. ARCHEY:** NOTE FREE, YOUR HONOR.

19 **THE COURT:** THANK YOU.

20 **BY MR. CODY:**

21 **Q** AND IF YOU COULD TURN TO THE SECOND PAGE
22 DEALING WITH SCOPE OF ENGAGEMENT.

23 **A** YES, I HAVE IT HERE.

24 **Q** OKAY. I'M JUST GOING TO READ ALOUD. YOU'VE
25 BEEN ASKED TO RENDER EXPERT OPINIONS IN THE FIELDS OF

1 GENERAL MEDICINE AND ANESTHESIOLOGY, ESPECIALLY
2 REGARDING THE USE, ACTIONS AND EFFICACY OF NITROGEN
3 IN RELATION TO LOUISIANA'S NITROGEN HYPOXIA PROTOCOL,
4 THE EFFECTIVENESS OF THE PROCEDURES THEREIN, AND
5 PERSONNEL SAFETY. OKAY?

6 DOES THAT ESSENTIALLY SUM UP YOUR -- THE
7 SCOPE OF YOUR ENGAGEMENT IN THIS CASE, AS YOU
8 UNDERSTAND IT?

9 A YES, IT DOES.

10 MR. CODY: YOUR HONOR, AT THIS TIME I WOULD
11 GO AHEAD AND OFFER -- OR TENDER DR. ANTOGNINI AS AN
12 EXPERT IN THE FIELDS OF GENERAL MEDICINE AND
13 ANESTHESIOLOGY, ESPECIALLY REGARDING THE USE, ACTIONS
14 AND EFFICACY OF NITROGEN IN RELATION TO LOUISIANA'S
15 NITROGEN HYPOXIA PROTOCOL --

16 THE REPORTER: I'M SORRY.

17 MR. CODY: I'M SORRY. I'LL GO SLOWER.

18 BY MR. CODY:

19 Q -- THE USE, ACTIONS AND EFFICACY OF NITROGEN
20 IN RELATION TO LOUISIANA'S NITROGEN HYPOXIA PROTOCOL,
21 THE EFFECTIVENESS OF THE PROCEDURES THEREIN, AND
22 PERSONNEL SAFETY.

23 I WOULD OFFER A FURTHER AMENDMENT TO
24 THAT AND OFFER -- AND ALSO SAY THAT HE SHOULD BE ABLE
25 TO TESTIFY AS TO PHYSIOLOGY AS WELL BASED ON HIS

1 EXTENSIVE EDUCATION AND TRAINING AND WORK IN
2 PHYSIOLOGY, AS HE EXPLAINED EARLIER.

3 **THE COURT:** MR. STRONSKI.

4 **MR. STRONSKI:** YOUR HONOR, I WAS READY TO
5 AGREE. BUT I THINK WE WOULD CONSENT TO DR. ANTOGNINI
6 AS AN EXPERT IN ANESTHESIOLOGY. AND I'M NOT SURE
7 WHAT *GENERAL MEDICINE* MEANS. I'M NOT SURE WHAT
8 THEY'RE TRYING TO GET THERE. BUT I THINK CERTAINLY
9 ANESTHESIOLOGY, NO OBJECTION AT ALL. AND IT SOUNDS
10 LIKE THEY WERE SUGGESTING HE'S AN EXPERT IN THE
11 SPECIFIC METHOD, WHICH I DON'T THINK IS APPROPRIATE.

12 **THE COURT:** WELL, WHAT THE COURT'S CONCERN
13 IS THAT YOU'RE ATTEMPTING TO QUALIFY HIM AS AN EXPERT
14 IN THE SCOPE OF HIS ENGAGEMENT, NOT IN A PARTICULAR
15 FIELD OF STUDY. UNDER 702, TO BE AN EXPERT AND TO BE
16 ABLE TO GIVE OPINION TESTIMONY, YOU HAVE TO BE ABLE
17 TO SHOW THAT EITHER BY SKILL, EDUCATION, KNOWLEDGE,
18 TRAINING, EDUCATION THEY CAN GIVE OPINION TESTIMONY
19 IN CERTAIN AREAS, IN CERTAIN FIELDS.

20 THAT LONG THING THAT YOU JUST READ IS
21 NOT A FIELD OF STUDY. I WOULD CERTAINLY ACCEPT HIM
22 IN ANESTHESIOLOGY AND I WOULD PROBABLY EVEN ACCEPT
23 HIM IN GENERAL MEDICINE. BUT I FIND -- I'M NOT SURE
24 THAT IT'S PROPER TO TRY TO QUALIFY HIM IN SOME REALLY
25 HYPER-NARROW SCOPE OF ENGAGEMENT FIELD.

1 **MR. CODY:** AND, YOUR HONOR, THAT'S FINE. I
2 WOULD AMEND MY TENDER THEN AND SAY GENERAL MEDICINE,
3 ANESTHESIOLOGY, BUT I WOULD ALSO STILL KEEP IN
4 PHYSIOLOGY, YOUR HONOR, BASED ON THE BACKGROUND,
5 EDUCATION, EXPERIENCE.

6 **THE COURT:** ANY OBJECTION TO PHYSIOLOGY? I
7 DON'T EVEN KNOW WHAT THAT IS EITHER, BUT IT DOESN'T
8 MATTER.

9 **MR. STRONSKI:** I'M NOT SURE HOW THAT DIFFERS
10 FROM GENERAL MEDICINE OR ANESTHESIOLOGY, SO I'M
11 RELUCTANT TO AGREE TO IT, YOUR HONOR.

12 **THE COURT:** OKAY. I'M GOING TO ACCEPT HIM
13 IN THOSE FIELDS. HE CAN TESTIFY TO THE INFORMATION
14 IN HIS REPORT, SO CARRY ON.

15 **MR. CODY:** THANK YOU, YOUR HONOR.

16 **DIRECT EXAMINATION**

17 **BY MR. CODY:**

18 **Q** NOW, DR. ANTOGNINI, AS YOU SAID EARLIER I
19 THINK, DID YOU ISSUE A DECLARATION OR -- IN THIS
20 CASE?

21 **A** YES, I DID.

22 **Q** WERE YOU PAID ANY COMPENSATION FOR BEING
23 RETAINED AS AN EXPERT IN THIS CASE?

24 **A** YES.

25 **Q** ALL RIGHT. AND THE FACT THAT YOU WERE PAID

1 COMPENSATION, DID THAT HAVE ANY IMPACT ON ULTIMATELY
2 THE OPINIONS -- YOU WERE RETAINED AS AN EXPERT --
3 YOUR OPINIONS YOU RENDERED IN THIS CASE?

4 A NO.

5 Q OKAY. AND THE REPORT THAT YOU ISSUED, THE
6 DECLARATION ON THIS PROCEEDING, DID YOU COMPLETE THAT
7 WITH A HIGH DEGREE OF MEDICAL CERTAINTY?

8 A YES.

9 Q DOES YOUR REPORT LIST THE MATERIALS THAT YOU
10 REVIEWED IN PREPARATION FOR YOUR REPORT?

11 A YES, IT DOES.

12 Q AND DID YOU LOOK AT LOUISIANA'S PROTOCOL AS
13 PART OF YOUR MATERIALS?

14 A YES, I DID.

15 Q DID YOU ALSO HAVE OCCASION TO EXAMINE OR
16 INSPECT LOUISIANA'S NITROGEN HYPOXIA SYSTEM?

17 A YES, I DID.

18 Q AND WHEN DID YOU DO THAT?

19 A MARCH 1ST OF THIS YEAR.

20 Q MARCH 1ST BEING LAST SATURDAY, I BELIEVE?

21 A YES, THAT'S CORRECT.

22 Q NOW I WANT TO TURN YOU TO PAGE 28, PARAGRAPH
23 54, THE CONCLUSION. THE OPINIONS YOU SET FORTH
24 THERE, IS THAT THE OPINION THAT YOU HAVE RENDERED IN
25 THIS CASE? IN PARAGRAPH 54?

1 **A** I APPEAR TO HAVE A COPY DIFFERENT FROM
2 YOURS. MY CONCLUSION ON THIS IS PARAGRAPH 53.

3 **MR. STRONSKI:** YOUR HONOR, IF HE'S GOING TO
4 BE ASKING THE WITNESS IF HE AGREES TO SOMETHING, IF I
5 COULD GET A COPY OF IT.

6 **THE COURT:** YES, YOU DON'T EVEN HAVE -- HE
7 DOESN'T EVEN HAVE THE RIGHT REPORT. THIS REPORT --

8 **MR. STRONSKI:** I DON'T KNOW WHAT REPORT
9 WE'RE TALKING ABOUT. YOU BOTH HAVE DIFFERENT ONES.

10 **MR. CODY:** THAT WOULD BE -- MY APOLOGIES,
11 YOUR HONOR. THERE WAS AN EARLIER VERSION.

12 **MR. CODY:** IF IT'S OKAY, YOUR HONOR, MS.
13 YDARRAGA CAN PULL IT UP ON THE SCREEN.

14 **MR. STRONSKI:** CAN I GET A COPY OF WHAT HE
15 HAS UP THERE, TOO, IF IT'S A DIFFERENT ONE THAN WHAT
16 YOU AND I HAVE?

17 **MR. CODY:** DID YOU GET IT BACK, CONNELL?

18 **THE COURT:** JUST ASK THE QUESTION. I MEAN,
19 HAVING HIM READ FROM HIS REPORT, IT MIGHT -- I DON'T
20 KNOW THAT IT'S EVEN MORE EFFICIENT. JUST ASK THE
21 QUESTION. HE CAN TELL YOU WHAT HIS OPINION IS. HE'S
22 A VERY SMART MAN.

23 **BY MR. CODY:**

24 **Q** DR. ANTOGNINI, WHAT WERE YOUR OPINIONS
25 RENDERED IN THIS CASE?

1 A BASICALLY THAT THE SYSTEM THAT LOUISIANA
2 EXPECTS TO -- OR IS GOING TO USE WILL CAUSE
3 UNCONSCIOUSNESS WITHIN 35 TO 40 SECONDS, OR PERHAPS
4 SOONER, ONCE THE INMATE STARTS INHALING 90 TO A
5 HUNDRED PERCENT NITROGEN GAS. AND THEN DEATH WILL
6 OCCUR RAPIDLY, I WOULD EXPECT WITHIN 10 TO 15
7 MINUTES. THERE WOULDN'T BE ANY CARBON DIOXIDE
8 BREATHING AND THERE IS NOT GOING TO BE ANY
9 SIGNIFICANT LEAKAGE OF AIR ENTERING THE MASK. AND I
10 DO NOT BELIEVE THE INMATE WOULD SUFFER ANY PAIN --
11 HAS SUFFERING OR PAIN BASICALLY WITH THAT SYSTEM.

12 Q OKAY. AND CAN YOU JUST KIND OF -- I'M
13 SORRY?

14 A SORRY. AND THEN AS FAR AS THE PROPOSED
15 ALTERNATIVES ARE CONCERNED, THERE ARE ISSUES AROUND
16 DRUG AVAILABILITY, THE ROUTE OF ADMINISTRATION, AND
17 THAT THE FIRING SQUAD CAUSES SIGNIFICANT PAIN PRIOR
18 TO UNCONSCIOUSNESS.

19 Q AND CAN YOU DESCRIBE THE HYPOXIA SYSTEM THAT
20 YOU SAW WHEN YOU WENT TO ANGOLA?

21 A SO THE SYSTEM IS SET UP IN A WAY WHERE THERE
22 ARE TANKS OF THE BREATHING AIR AND THEN ALSO THE
23 NITROGEN THAT IS IN ONE ROOM WITH THE MANIFOLDS THAT
24 ARE USED TO REDUCE THE PRESSURE -- OR I SHOULDN'T SAY
25 REDUCE, BUT IT'S BASICALLY A PRESSURE REDUCER TYPE OF

1 MANIFOLD. AND THAT PUTS THE PRESSURE, WHETHER IT'S
2 THE NITROGEN OR THE AIR, AT 50 PSI APPROXIMATELY.
3 AND THEN THOSE PIPES GO INTO ANOTHER AREA WHERE
4 THE -- THEY COME DOWN ALONG A WALL.

5 AND THERE THERE ARE TWO HANDLES THAT ARE
6 USED TO CONTROL THE FLOW OF EITHER THE AIR OR THE
7 NITROGEN. AND THERE ARE PRESSURE REGULATORS OR
8 MEASUREMENT THERE TO MAKE SURE THAT THEY'RE -- THE
9 GAS IS STILL AT AROUND 50 PSI. AND THEN THE GASES
10 CAN GO INTO A FLOW METER THAT ALLOWS THE AIR OR THE
11 NITROGEN TO NOW GO INTO A TUBE THAT GOES INTO --
12 THROUGH THE WALL, INTO THE CHAMBER, THE EXECUTION
13 CHAMBER. AND THEN THAT IS HOOKED UP TO THE MASK.

14 SO THAT IS THE BASIC LAY-OUT OF HOW THE
15 GASES FLOW THROUGH FROM THE TANK TO THE MASK.

16 Q AND YOU MENTIONED THE MASK. I THINK EARLIER
17 YOU MAY HAVE SEEN THE PICTURE THAT WAS SHOWN ON THE
18 SCREEN OF A MASK. IS THAT THE MASK THAT YOU'RE
19 REFERRING TO NOW?

20 A YES, IT IS.

21 Q OKAY. CAN YOU KIND OF EXPLAIN THE FUNCTION
22 OF THIS MASK?

23 A WELL, THIS IS A -- WHAT'S CALLED A SUPPLIED
24 AIR RESPIRATOR MASK. AND IT IS A MASK THAT FITS OVER
25 THE FULL FACE. IT HAS A -- BASICALLY A INLET WHERE

1 THE GAS CAN FLOW INTO THE MASK. AND THERE IS
2 ACTUALLY A ONE-WAY VALVE THERE SO THAT GAS CAN FLOW
3 IN BUT IT CAN'T COME OUT. AND THEN THERE IS AN EXIT
4 VALVE OR AN EXHAUST VALVE ON THE OTHER SIDE WHERE
5 EXCESS GAS CAN NOW FLOW OUT BASICALLY INTO THE ROOM.

6 THE MASK FITS OVER THE FACE AND IT HAS A --
7 BASICALLY IT'S A FLANGE ALL AROUND THAT GOES ON TO
8 THE FACE AND GOES UP AGAINST THE SKIN TO CREATE
9 BASICALLY A VIRTUALLY AIRTIGHT SEAL.

10 AND THESE ARE THE TYPES OF MASKS THAT ARE
11 USED IN INDUSTRIAL SETTINGS FOR -- TO PROTECT WORKERS
12 WHO ARE -- THEY MAY BE DOING SOMETHING WHERE THERE IS
13 A CONTAMINANT IN THE AIR OR THERE IS PARTICULATE
14 MATTER IN THE AIR, AND THIS HELPS TO PROTECT THEM.

15 Q IN YOUR REPORT YOU TALK ABOUT A PROTECTION
16 FACTOR FOR THE MASK. CAN YOU KIND OF ELABORATE ON
17 WHAT *PROTECTION FACTOR* MEANS?

18 A SO THE OSHA GUIDELINES AND THE INDUSTRIAL
19 GUIDELINES ON THESE TYPES OF MASKS, WHAT THEY DO IS
20 THEY LOOK AT HOW MUCH PROTECTION A PERSON CAN HAVE
21 FROM IT. AND THE TEST BASICALLY WORKS IN THE
22 FOLLOWING WAY: THEY PUT SOME SUBSTANCE IN THE AIR
23 AND THEN THEY -- SOMEONE IS WEARING THE MASK, AND
24 THEN THEY MEASURE THE CONCENTRATION OF THAT SUBSTANCE
25 IN THE AIR, IN THE ENVIRONMENT, AND THEN ALSO THE

1 CONCENTRATION THAT'S IN THE MASK.

2 SO, FOR EXAMPLE, IF THAT SUBSTANCE IS AT ONE
3 PERCENT IN THE AIR AND THEY MEASURE IT AT .1 PERCENT
4 IN THE MASK, .1 PERCENT IS ONE-TENTH OF ONE PERCENT,
5 SO ONE PERCENT IS 10 TIMES .1 PERCENT. THAT'S
6 ANOTHER WAY OF LOOKING AT IT. ONE PERCENT DIVIDED BY
7 .1 IS 10. THAT'S A FACTOR OF 10. SO BASICALLY WHAT
8 THAT FACTOR 10 MEANS IS THAT YOU'RE ESSENTIALLY
9 REMOVING ABOUT 90 PERCENT OF THAT CONTAMINANT.

10 IF YOU HAVE A PROTECTION FACTOR OF A
11 HUNDRED, THAT MEANS THAT IF IT WAS ONE PERCENT IN THE
12 AIR, IT'S .01 IN THE MASK, SO IT'S A BETTER
13 PROTECTION FACTOR. AND THAT'S -- ONE DIVIDED BY .01,
14 THAT'S A HUNDRED. AND THEN YOU COULD HAVE A
15 PROTECTION FACTOR OF A THOUSAND. AND THAT WOULD BE
16 ONE WHERE YOU ONLY HAVE ONE-THOUSANDTHS OF THE
17 CONTAMINANT IN THE MASK COMPARED TO THE ENVIRONMENT.
18 AND THAT'S WHAT THEY DO BASICALLY IN A SIMPLIFIED
19 EXPLANATION OF HOW THEY COME UP WITH THE PROTECTION
20 FACTOR.

21 AND THESE TYPES OF RESPIRATOR MASKS HAVE
22 PROTECTION FACTORS OF AROUND A THOUSAND. AND THAT'S
23 THE WAY THAT THEY'RE INTENDED TO BE USED, TO HAVE
24 THAT MUCH OF A PROTECTION FACTOR. NOW, IF -- IN SOME
25 CIRCUMSTANCES YOU MIGHT NEED TO ASSUME THAT IT'S NOT

1 THOUSANDTHS, MAYBE 25. IT'S STILL VERY SIGNIFICANT
2 PROTECTION.

3 AND IN THE SETTING OF THE EXECUTION HERE,
4 ONE WAY THAT YOU CAN LOOK AT THAT PROTECTION FACTOR
5 IS THAT THE CONTAMINANT IN THIS CASE -- IT'S KIND OF
6 HARD TO CALL IT THIS WAY, BUT THE OXYGEN IN THE AIR
7 IS THE CONTAMINANT. THAT'S THE -- THE SUBSTANCE THAT
8 YOU DON'T WANT TO GET INTO THE MASK.

9 AND SO WITH A PROTECTION FACTOR OF 10, FOR
10 EXAMPLE, IF THE OXYGEN IN THE AIR IS 21 PERCENT, THAT
11 MEANS THAT THE MOST THAT WOULD BE GETTING INTO THE
12 MASK WOULD BE 2.1 PERCENT. THAT'S -- YOU KNOW, 21
13 DIVIDED BY 2.1 IS 10. IF YOU HAVE A PROTECTION
14 FACTOR OF 25, THAT MEANS THAT THE CONCENTRATION OF
15 AIR THAT'S GETTING IN IS PROBABLY LESS THAN ONE
16 PERCENT.

17 SO THIS MASK WILL PROVIDE A PROTECTION OR
18 PREVENT AIR FROM GETTING IN TO THE POINT WHERE IT
19 WOULDN'T BE MORE THAN ABOUT ONE PERCENT IF THERE WAS
20 A LEAK. AND, OF COURSE, ONE PERCENT OXYGEN IS NOT
21 COMPATIBLE WITH LIFE.

22 Q THANK YOU FOR THAT EXPLANATION.

23 SO THERE IS AIR COMING INTO THE MASK, AS I
24 UNDERSTAND IT?

25 A THERE IS AIR COMING INTO THE MASK WHEN THE

1 AIR IS FLOWING. BUT ONCE THE NITROGEN IS STARTED, IF
2 THERE IS AIR SOMEHOW BEING LEAKED THROUGH THE MASK,
3 BECAUSE OF THAT PROTECTION FACTOR IT'S JUST NOT VERY
4 MUCH.

5 AND THE OTHER ISSUE TO CONSIDER IS THAT THE
6 MASK -- THE EXCESS DURING THE NITROGEN PART, THE
7 NITROGEN IS FLOWING OUT OF THE MASK BECAUSE THERE IS
8 A VALVE THERE WHERE THE EXCESS NITROGEN WOULD FLOW
9 OUT. THE AREA IMMEDIATELY AROUND THE MASK IS GOING
10 TO BE -- FLOW BASICALLY A LOT OF NITROGEN THERE.
11 IT'S GOING TO BE 80 PERCENT LIKE IT IS WITH AIR.
12 IT'S GOING TO BE MAYBE 90 PERCENT. SO THAT ANY AIR
13 THAT GETS IN IS GOING TO BE OXYGEN DEFICIENT. SO
14 IT'S EVEN MORE OF A PROTECTION OR -- LESS OXYGEN
15 GETTING IN BECAUSE OF THAT FACTOR.

16 Q AND AS I UNDERSTAND IT, AIR -- OXYGEN WOULD
17 BE THE CONTAMINANT IN THIS SCENARIO?

18 A THAT IS CORRECT.

19 Q DID YOU HAVE OCCASION TO WEAR THE MASK WHEN
20 YOU WERE AT ANGOLA?

21 A I DID. I DID WEAR THE MASK.

22 Q CAN YOU KIND OF DESCRIBE HOW THAT WAS?

23 A SURE. YES. SO SAFETY FIRST -- I ALWAYS
24 TEACH PEOPLE "SAFETY FIRST" -- I MADE SURE THAT THE
25 NITROGEN TANKS WERE NOT EVEN HOOKED UP WHEN I PUT THE

1 MASK ON. I DIDN'T WANT, YOU KNOW, TO HAVE NITROGEN
2 HOOKED UP AND THEN SOMEONE FLIPPING THE WRONG SWITCH
3 WHILE I'M HAVING THAT MASK ON. SO I MADE SURE THAT
4 WHEN I HAD THE MASK ON THAT THERE WASN'T ANY NITROGEN
5 HOOKED UP. BUT I -- THEY HAD THE AIR HOOKED UP AND
6 THEN I PUT THE MASK ON. AND THEY HAD IT AT 70 LITERS
7 PER MINUTE.

8 AND I SHOULD SAY I ACTUALLY DID NOT PUT THE
9 MASK ON MYSELF. THE INDIVIDUALS WHO ARE SUPPOSED TO
10 BE DOING THIS PUT THE MASK ON. AND THEY PUT IT ON
11 AND THEN I LAID ON THE GURNEY OR THE TABLE. AND THEN
12 EVEN BEFORE THE MASK WAS ON, 70 LITERS PER MINUTE OF
13 AIR WAS FLOWING. AND THEN I WAS LYING THERE
14 BREATHING, AND I COULD BREATHE VERY COMFORTABLY WITH
15 THE MASK ON. AND I HAD NO PROBLEMS WITH BREATHING.
16 AND I ACTUALLY WAS ABLE TO BREATHE, TAKE SOME DEEP
17 BREATHS, AND IT DIDN'T SEEM TO BE A PROBLEM AT ALL
18 FOR ME. SO -- THAT'S BECAUSE THESE MASKS ARE
19 DESIGNED IN THAT WAY, SO THAT PEOPLE CAN BREATHE.
20 EXCUSE ME.

21 AND THEY'RE USED IN INDUSTRIAL SETTINGS.
22 THEY'RE USED ALL THE TIME. SO THEY'RE DESIGNED IN A
23 WAY IN THE INDUSTRIAL SETTING TO BE USED IN A SAFE
24 WAY AND FOR PEOPLE TO BE ABLE TO BREATHE. AND, IN
25 FACT, PEOPLE ARE ABLE TO WORK, DO SOME MANUAL WORK

1 WITH THAT MASK ON. SO IT'S DESIGNED IN THAT WAY.

2 Q BESIDES THE 70-LITER-PER-MINUTE FLOW RATE,
3 DID YOU TRY ANY OTHER FLOW RATES?

4 A I DID DECREASE -- OR I HAD THEM DECREASE THE
5 FLOW RATES I BELIEVE TO 15 AND 30 LITERS PER MINUTE.
6 AND I WAS STILL ABLE TO BREATHE, ALTHOUGH I -- AT 30
7 LITERS PER MINUTE I COULD START TO SENSE THAT THE
8 FLOW WASN'T COMING IN AS FAST AS IT WAS AT 70 LITERS
9 PER MINUTE.

10 Q OKAY. AND WHY DID YOU TAKE THE FLOW RATE
11 DOWN TO 30 LIKE YOU JUST DESCRIBED?

12 A I JUST WANTED TO SEE THAT THE -- IF THERE
13 WAS A -- I WANTED TO SORT OF TEST THE LIMITS OF THE
14 SYSTEM, I GUESS. EVEN THOUGH I KNOW IT'S DESIGNED OR
15 IT'S GOING TO BE USED AT 70, I STILL WANTED TO TEST
16 THE LIMITS OF THE SYSTEM TO SEE WHAT IT FELT LIKE,
17 MAYBE FOR MY OWN EDIFICATION THAN ANYTHING ELSE.

18 Q WHEN YOU WERE OUT THERE, DID YOU SEE ANY
19 OXYGEN MONITORS?

20 A YES. THEY WERE -- THERE WERE NUMEROUS
21 OXYGEN MONITORS. THERE ARE OXYGEN MONITORS IN THE
22 WITNESS ROOM AND THE EXECUTION CHAMBER ITSELF. THE
23 AREA WHERE THE PIPES THAT I TALKED ABOUT AND THE
24 HANDLES FOR THE SWITCHING OF AIR AND NITROGEN HAS
25 THAT. AND THEN THERE IS ALSO PORTABLE OXYGEN

1 MONITORS AROUND THAT FOR THE STAFF TO USE.

2 Q DID YOU FEEL LIKE IT WAS A SUFFICIENT NUMBER
3 OF OXYGEN MONITORS?

4 A YES. THEY HAVE ONE IN EACH OF THE ROOMS, AS
5 I RECALL, AND THEN ALSO THERE WERE ONES -- THE
6 PORTABLE ONES. I DIDN'T ACTUALLY COUNT THEM, BUT I
7 KNOW THAT THERE IS A PHOTO SOMEWHERE I SAW. IT WAS
8 PROBABLY AROUND EIGHT MAYBE. I'M NOT SURE, BUT THERE
9 IS QUITE A NUMBER OF THOSE.

10 Q THANK YOU.

11 AND AS AN ANESTHESIOLOGIST, ARE YOU FAMILIAR
12 WITH GAS SYSTEMS?

13 A YES, ABSOLUTELY. IT'S SOMETHING THAT WE
14 LEARN AS PART OF OUR RESIDENCY. AND I -- ALSO -- I
15 DIDN'T INCLUDE THIS IN MY PREVIOUS EMPLOYMENT, BUT I
16 WAS A SURVEYOR FOR THE JOINT COMMISSION FOR A NUMBER
17 OF YEARS. AND THAT'S WHERE WE GO OUT TO HOSPITALS
18 AND CHECK OUT HOSPITALS. AND PART OF MY ROLE -- A
19 SMALL PART OF MY ROLE AT LEAST WAS TO LOOK AT THE
20 MEDICAL GASES AND THE MEDICAL GAS SYSTEMS TO SEE IF
21 THERE WERE ANY ISSUES THERE.

22 Q AND THIS PARTICULAR TYPE OF SETUP WITH THE
23 NITROGEN HYPOXIA, DID YOU FEEL WHETHER -- DID YOU
24 KNOW WHETHER THAT WAS SIMILAR OR NOT TO SOME OF THE
25 GAS SYSTEMS USED IN ANESTHESIA?

1 A SIMILAR, YES. YES. ABSOLUTELY VERY
2 SIMILAR.

3 Q ALL RIGHT. AND YOU'VE SAID THIS EARLIER I
4 THINK, BUT YOU HAVE HAD OCCASION TO INSPECT THE
5 NITROGEN HYPOXIA SYSTEMS OF AT LEAST ONE OTHER STATE?

6 A THAT'S CORRECT. ALABAMA.

7 Q AND HOW DID LOUISIANA'S SETUP, NITROGEN
8 HYPOXIA SYSTEM -- HOW DID IT COMPARE TO THE ONE YOU
9 SAW IN ALABAMA?

10 A VIRTUALLY IDENTICAL IN TERMS OF THE SETUP.
11 OBVIOUSLY THE ROOM IS SET UP SLIGHTLY DIFFERENT AND
12 OBVIOUSLY THE PIPES ARE DIFFERENT IN THE SENSE OF
13 WHICH DIRECTION THEY HAVE TO GO BECAUSE OF THE
14 DIFFERENCE IN THE ROOM SETUP. BUT IT'S A VERY
15 SIMILAR SYSTEM.

16 Q NOW, DID YOU CONDUCT ANY SORT OF TESTS OR
17 ANYTHING WHILE YOU WERE OUT THERE?

18 A I DID. I WANTED TO LOOK AT HOW FAST THE
19 MASK -- HOW FAST NITROGEN WOULD ENTER THE MASK.

20 **MR. CODY:** SO AT THIS POINT, YOUR HONOR, I'D
21 LIKE TO PULL UP A VIDEO THAT WAS TAKEN DURING DR.
22 ANTOGNINI'S SITE VISIT.

23 MS. YDARRAGA, COULD YOU CUE THE VIDEO,
24 PLEASE?

25 **THE COURT:** IS IT ONE OF THE ONES THAT'S IN

1 EVIDENCE?

2 **MR. CODY:** THIS IS NOT IN EVIDENCE YET.
3 THOSE WERE PLAINTIFF'S. THIS IS ONE THAT OUR EXPERT
4 TOOK. IT'S NOT IN EVIDENCE YET. IT'S EXHIBIT 19.

5 **MR. STRONSKI:** I HAVEN'T SEEN IT, BUT I
6 DON'T OBJECT TO IT.

7 **MR. CODY:** WE DID SEND IT TO PLAINTIFFS.

8 **MR. STRONSKI:** I HAVEN'T SEEN IT, BUT I
9 DON'T OBJECT TO IT.

10 **THE COURT:** SO YOU DON'T OBJECT TO IT GOING
11 INTO EVIDENCE OR -- WHAT ARE YOU NOT OBJECTING TO?
12 HE HADN'T OFFERED IT.

13 **MR. STRONSKI:** IT GOING INTO EVIDENCE.

14 **THE COURT:** HUH?

15 **MR. STRONSKI:** GOING INTO EVIDENCE.

16 **THE COURT:** OKAY. WELL, LET'S JUST ADMIT
17 IT. WHAT'S THE NUMBER?

18 **MR. CODY:** EXHIBIT 19, YOUR HONOR.

19 **THE COURT:** D-19. D-19 IS ADMITTED.

20 **BY MR. CODY:**

21 **Q** SO, DR. ANTOGNINI, IF YOU COULD LOOK ON YOUR
22 SCREEN THERE AND KIND OF -- BEFORE WE PLAY THE VIDEO,
23 COULD YOU JUST KIND OF DESCRIBE WHAT WE'RE SEEING?

24 **A** SO FORTUITOUSLY THERE WAS A MANEQUIN THERE
25 IN THE ROOM. I ACTUALLY BROUGHT MY WIFE'S STYROFOAM

1 HEAD THAT SHE USES FOR PUTTING THINGS ON, AND I
2 BROUGHT THAT BECAUSE I WANTED TO ACTUALLY TEST THE
3 SYSTEM. BUT THEY HAD A MANEQUIN HERE, WHICH I
4 THOUGHT WOULD BE MORE APPROPRIATE. SO I PUT THE MASK
5 ON THIS MANEQUIN.

6 AND WHAT YOU CAN SEE THERE, THERE IS A --
7 THE TWO YELLOW THINGS THAT YOU SEE THERE ARE OXYGEN
8 MONITORS. THESE ARE THE PORTABLE OXYGEN MONITORS.
9 THE ONE THAT -- THERE IS ONE ON THE SHOULDER OF THE
10 MANEQUIN, AND THERE IS A TUBE THAT GOES FROM THE
11 MONITOR THAT'S -- YOU CAN SEE IT GOING INTO THE MASK
12 ITSELF. AND THAT MONITOR IS ACTUALLY SAMPLING FROM
13 THE ENVIRONMENT OR THE AIR OR WHATEVER THE GAS
14 BASICALLY THAT'S IN THE MASK. THEN THERE IS ANOTHER
15 ONE DOWN ALONG THE SIDE OF THE MANEQUIN THAT IS THERE
16 TO LOOK TO SEE IF NITROGEN IS GETTING DOWN THAT FAR,
17 THE NITROGEN THAT'S COMING OUT OF THE -- OUT OF THE
18 MASK BASICALLY.

19 SO YOU SEE THE MASK THERE. THE BLACK THING
20 THERE ON THE LEFT OF THE MASK -- AND I'M SORRY, I
21 CAN'T -- IF I COULD POINT, I THINK YOU COULD SEE WHAT
22 I'M TALKING ABOUT. THERE IS A BLACK -- RIGHT -- YES,
23 THAT'S IT. THAT'S BASICALLY THE EXHAUST VALVE FOR
24 THE MASK.

25 **THE COURT:** DOCTOR, YOU CAN -- IT'S A LIVE

1 SCREEN, SO YOU CAN CIRCLE ON IT WITH YOUR FINGER.

2 **THE WITNESS:** OKAY. MAYBE -- IT'S A VIDEO,
3 SO MAYBE THAT'S NOT GOING TO HAPPEN. I'M NOT SURE.

4 **THE COURTROOM DEPUTY:** YOU CAN NOW.

5 **THE COURT:** THERE YOU GO.

6 **BY THE WITNESS:**

7 A SORRY ABOUT THAT. OKAY. THE OXYGEN
8 MONITOR -- THERE IS AN OXYGEN MONITOR DOWN BY THE
9 SIDE OF THIS. AND I WANTED TO HAVE ONE A LITTLE BIT
10 FARTHER AWAY TO SEE WHAT THE NITROGEN LEVEL -- OR THE
11 OXYGEN LEVEL WOULD BE ONCE THE GAS STARTS TO FLOW.

12 ACTUALLY, BEFORE WE DID THIS VIDEO, WE DID
13 -- WE DID ANOTHER SIMILAR EXPERIMENT, AND I HAD THE
14 OXYGEN -- THE SECOND ONE CLOSER TO THE SHOULDER, AND
15 IT -- THE OXYGEN LEVEL DROPPED OFF QUITE A BIT AROUND
16 THE SHOULDER, BECAUSE THAT NITROGEN IS COMING AROUND
17 IN THAT AREA OF THE FACE, BASICALLY OUTSIDE THAT
18 MASK. BUT IN THIS VIDEO IT'S -- THE SECOND ONE IS
19 DOWN BY THE SIDE OF THE MANEQUIN.

20 IN ANY CASE, WHAT WE DID IS WE HAD AIR
21 FLOWING AT 70 LITERS PER MINUTE. AND THEN AT ABOUT
22 TWO SECONDS IN THIS VIDEO, THERE WAS A SWAP BASICALLY
23 WHERE THEY CHANGED FROM AIR TO NITROGEN.

24 **Q** OKAY. SO I BELIEVE -- HOPEFULLY THE VOLUME
25 IS TURNED UP SO THAT WE'LL BE ABLE TO HEAR. OKAY.

1 LOOKS LIKE IT IS.

2 **A** IF I JUST -- WOULD MAKE A COMMENT ABOUT
3 THIS. ANOTHER REASON WHY I WANTED A VIDEO OF THIS IS
4 BECAUSE THE DECREASE IN OXYGEN IS SO FAST, THAT WHEN
5 I WAS LOOKING AT MY IPHONE TO GET THE TIME AND THEN
6 LOOK AT THE MONITOR, I REALLY WASN'T VERY PHYSICALLY
7 ABLE TO LOOK AT MY PHONE AND GET THE OXYGEN. AND
8 THEN I TURNED AND IT HAD ALREADY GONE DOWN EVEN FAST
9 -- YOU KNOW, MORE. SO I THOUGHT A VIDEO WOULD BE
10 OBVIOUSLY A GOOD WAY TO CAPTURE, YOU KNOW, TIME
11 FIVE -- FIVE SECONDS AND SO FORTH, SO THAT'S WHY I
12 WANTED TO HAVE THE VIDEO.

13 **MR. CODY:** ALL RIGHT. WELL, THEN I GUESS
14 WE'LL GO AHEAD AND PLAY THE VIDEO NOW, MS. YDARRAGA.

15 **(WHEREUPON, EXHIBIT D-19 WAS PLAYED.)**

16 **BY MR. CODY,**

17 **Q** ALL RIGHT. SO, DR. ANTOGNINI, CAN YOU KIND
18 OF, FIRST OFF -- I MEAN, I GUESS YOU KIND OF WENT
19 INTO IT. BUT WHAT RESULTS DID YOU OBSERVE IN THE
20 TEST JUST NOW THAT WAS DISPLAYED?

21 **A** WELL, THE OXYGEN DROPS OFF AFTER ABOUT -- I
22 DON'T HAVE THE CHART IN FRONT OF ME OR THE TABLE IN
23 FRONT OF ME. BUT WHAT I DID IS I RAN THE VIDEO AND I
24 JUST WENT TO, I THINK, FIVE SECONDS AND 10 SECONDS
25 AND 15 SECONDS, AND I LOOKED TO SEE WHAT IS THE --

1 WHAT IS THE OXYGEN AT THAT POINT. AND I JUST
2 RECORDED THAT ONTO THAT TABLE THAT I HAVE THERE IN MY
3 REPORT, WHICH IS --

4 Q PARAGRAPH 21 I BELIEVE IS WHAT YOU WANT TO
5 REFER TO?

6 A YEAH. SO THOSE NUMBERS THERE SIGNIFY WHAT
7 THE VALUES WERE AT ZERO AND 10 AND SO FORTH, 20
8 SECONDS. SO AT ZERO TIME, IT'S 20.9, WHICH IS, OF
9 COURSE, ROOM AIR; AND THEN AT 10 SECONDS IT'S 20
10 PERCENT; AND THEN AT 20 SECONDS IT'S 10.9; 30 SECONDS
11 IT'S 4.4 AND SO FORTH.

12 AND THE -- YOU CAN JUST SEE THAT IT DOES
13 TAKE SOME TIME FOR THE NITROGEN -- ONCE YOU TURN THAT
14 VALVE, THE SYSTEM HAS THIS TUBE THAT GOES FROM THAT
15 ROOM INTO THE MASK. AND I DID NOT ACTUALLY MEASURE
16 THE LENGTH OF THAT TUBE, BUT IT WAS PRETTY LONG. I'D
17 PROBABLY SAY IT'S AT LEAST SIX TO EIGHT FEET. AND SO
18 IT'S GOING TO TAKE SOME TIME FOR THE NITROGEN TO COME
19 FROM THAT PIPE IN THAT OTHER ROOM THROUGH THE TUBE
20 AND THEN INTO THE MASK. SO THERE IS A LITTLE BIT OF
21 A LAG FACTOR THERE BEFORE THAT NITROGEN GETS IN.

22 SO THAT NITROGEN IS STARTING TO RUSH IN
23 THROUGH THAT TUBE, AND IT'S JUST PUSHING THE AIR THAT
24 WAS IN FRONT OF IT INTO THE MASK. SO IT TAKES A
25 LITTLE BIT OF A TIME FOR THE NITROGEN TO ACTUALLY

1 START GOING INTO THE MASK. BUT ONCE IT GOES INTO THE
2 MASK, IT'S A VERY, VERY RAPID DROP-OFF.

3 NOW, OBVIOUSLY THIS IS A MANEQUIN THAT'S NOT
4 BREATHING. AND, OF COURSE, DR. BICKLER IS ABSOLUTELY
5 RIGHT THAT THE LUNGS WILL HAVE SOME OXYGEN IN IT AS
6 WELL. SO YOU HAVE TO CONSIDER NOT JUST THE VOLUME OF
7 THE MASK BUT ALSO THE VOLUME OF THE LUNGS, THE --
8 WHAT'S CALLED THE FUNCTIONAL OR RESIDUAL CAPACITY,
9 BASICALLY, IN TERMS OF HOW QUICKLY THINGS WILL WASH
10 OUT.

11 SO THAT IS ALSO A FACTOR, BECAUSE THERE IS
12 SOME OXYGEN LEFT IN THE LUNGS. SO THAT'S SOMETHING
13 ELSE THAT NEEDS TO BE CONSIDERED. BUT THIS IS JUST
14 THE -- IT'S THE NITROGEN OR THE OXYGEN LEVELS THAT
15 WOULD OCCUR WITH THAT -- AS I SAID, WITH THE
16 MANEQUIN.

17 NOW, WHEN SOMEBODY IS ACTUALLY BREATHING OUT
18 OF THAT -- BREATHING OUT INTO THE MASK, THE FLOW OF
19 GAS THROUGH THAT MASK IS SO RAPID AT 70 LITERS PER
20 MINUTE, ANY EXCESS OXYGEN THAT IS BEING BREATHED OUT
21 FROM THE LUNGS IS GOING TO BE WASHED AWAY. NOT ALL
22 OF IT, BUT A LOT OF IT WILL BE WASHED AWAY, BECAUSE
23 THAT NITROGEN AT THAT POINT IS REALLY RUSHING IN, AND
24 IT'S GOING TO BASICALLY FLUSH OUT ANY OXYGEN THAT'S
25 COMING OUT. SO THERE REALLY WOULDN'T BE VERY MUCH

1 OXYGEN LEFT FOR THE PERSON TO BREATHE BECAUSE OF
2 THAT.

3 Q WHAT WAS THE WORD THAT WAS HEARD ON THE --
4 IN THE VIDEO I GUESS EARLY ON?

5 A *SWAP*.

6 Q WHAT WAS THAT?

7 A THAT WAS THE WORD THAT THE PERSON USED WHEN
8 THEY TURNED FROM -- TURNED THE AIR OFF AND THE
9 NITROGEN ON. SO SWAPPING IS WHAT OCCURRED.

10 THE COURT: SO IS SWAP WHAT YOU INDICATE IS
11 TIME ZERO?

12 THE WITNESS: YES.

13 THE COURT: SORRY. GO AHEAD.

14 BY MR. CODY:

15 Q AND SO OTHER THAN THE WORD *SWAP*, WAS THERE
16 ANY OTHER AUDIBLE INDICATION THAT THE -- THE GAS
17 SWITCHING OVER FROM BREATHABLE AIR TO NITROGEN?

18 A I DID NOT DETECT ANYTHING WHEN I LISTENED.
19 I DID NOT DETECT ANY CHANGE IN THE GAS FLOW.

20 Q OKAY. AND THE GAS FLOW IS THE SAME FOR BOTH
21 GASES?

22 A 70 LITERS PER MINUTE, YES.

23 Q AND I THINK YOU'VE EXPLAINED THAT CHART ON
24 PARAGRAPH 21. SO AT FIVE PERCENT OXYGEN, WHAT CAN WE
25 EXPECT IN THE NORMAL SITUATION -- THE PLAINTIFF'S

1 SITUATION AND THE MASK I GUESS WHEN IT GETS BELOW
2 FIVE PERCENT OXYGEN?

3 A IF SOMEBODY IS -- IF THE MASK IS ON
4 SOMEBODY?

5 Q WHEN NITROGEN IS BEING INTRODUCED AS A --

6 A WHEN THE MASK IS ON SOMEBODY?

7 Q YES.

8 A YES.

9 Q AND YOU CAN LOOK AT PARAGRAPH 21 OF YOUR
10 REPORT. THAT'S WHERE YOU KIND OF --

11 A CORRECT. SO ONCE YOU GET THE OXYGEN
12 LEVEL -- THE INSPIRED OXYGEN LEVEL DOWN TO ABOUT FIVE
13 PERCENT AND -- THEN THE TIME FOR UNCONSCIOUSNESS IS
14 GOING TO BE AROUND 10 TO 12 SECONDS IF IT'S AT FIVE
15 PERCENT.

16 NOW, IN THIS SETTING, OF COURSE, THE OXYGEN
17 LEVEL IS NOT BEING KEPT AT FIVE PERCENT. IT'S
18 ACTUALLY CONTINUING TO GO FURTHER DOWN AND DOWN. SO
19 FROM THAT CHART, YOU CAN SEE, FOR EXAMPLE, THAT AT 30
20 SECONDS IT'S AT 4.4 PERCENT, AND THEN AT 40 SECONDS
21 IT'S AT 1.8 PERCENT AND SO FORTH. SO THAT IS A --
22 CLEARLY WHAT YOU WOULD EXPECT.

23 AND THESE DATA FOLLOW VERY NICELY IN WHAT'S
24 ESSENTIALLY AN EXPONENTIAL CURVE WHERE IT'S A VERY
25 RAPID DROP-OFF BUT THEN IT SORT OF STARTS TO BECOME A

1 LITTLE MORE SHALLOW. SO YOU CAN SEE, FOR EXAMPLE,
2 BETWEEN 10 AND 20 SECONDS IT'S ABOUT A NINE PERCENT
3 DIFFERENCE, AND THEN BETWEEN 20 AND 30 IT'S ONLY
4 ABOUT A 6.5 PERCENT DIFFERENCE AND THEN SO FORTH. SO
5 AS YOU GET, YOU KNOW, LONGER IN TIME, IT'S JUST THE
6 CHANGE BECOMES LESS AND LESS BECAUSE IT'S JUST THIS
7 EXPONENTIAL CURVE. VERY TYPICAL FOR A PROCESS LIKE
8 THIS.

9 Q THANK YOU.

10 NOW, FOCUSING IN ON THAT PARAGRAPH 21, SINCE
11 RENDERING YOUR REPORT, IS THERE A PART OF THIS THAT
12 YOU WOULD LIKE TO AMEND BASED ON THE SOURCES THAT YOU
13 RELY ON? AND LOOKING SPECIFICALLY TO THAT LAST
14 SENTENCE.

15 A YES. SO AFTER I REREAD THAT, I REALIZED
16 IT'S A LITTLE BIT UNCLEAR WHAT I WROTE THERE. AND
17 I -- SO THE LAST SENTENCE OF PARAGRAPH 21 WHERE I SAY
18 THAT THE TIME TO UNCONSCIOUSNESS AT FIVE PERCENT IS
19 ABOUT 10 TO 12 SECONDS AND I QUOTE A SOURCE FOR THAT,
20 MILLER AND MAZUR, I STATED "SO I WOULD EXPECT
21 UNCONSCIOUSNESS TO OCCUR WITHIN 35 TO 40 SECONDS
22 AFTER THE INHALATION OF 95-100% NITROGEN." AND THAT,
23 I THINK, IS THE VERY OUTER LIMIT.

24 WHEN I SAY "WITHIN," I DON'T MEAN THAT IT'S
25 GOING TO OCCUR WITHIN THE 35-SECOND MARK TO THE

1 40-SECOND MARK. I MEANT THAT IT WILL PROBABLY BE
2 BETWEEN THE 10- AND 12-SECOND MARK SHOWN IN THE FIRST
3 PART OF THAT SENTENCE AND THE 35- TO 40-SECOND MARK.
4 SO IT'S GOING TO ACTUALLY BE IN BETWEEN THAT, IS MY
5 ESTIMATION.

6 AND I'M SORRY THAT I DIDN'T WRITE THAT AS
7 CLEARLY AS I SHOULD HAVE.

8 **THE COURT:** SO YOUR OPINION IS THAT AT FIVE
9 PERCENT -- AND I THINK YOUR TERMINOLOGY WAS INSPIRED
10 LEVEL. THAT MEANS IN THE LUNGS?

11 **THE WITNESS:** THAT WOULD BE THE AMOUNT THAT
12 IS INSPIRED INTO THE LUNGS.

13 **THE COURT:** SO AT FIVE PERCENT YOU WOULD
14 EXPECT UNCONSCIOUSNESS SOMEWHERE IN THE NEIGHBORHOOD
15 OF 10 TO -- WHATEVER YOU SAID -- 35 TO 40 SECONDS.
16 SO 10 -- OUTER RANGE IS 10 TO 40 SECONDS?

17 **THE WITNESS:** THAT IS CORRECT. THAT'S MY
18 ESTIMATE.

19 **THE COURT:** THANK YOU.

20 **THE WITNESS:** MY OPINION, I SHOULD SAY.

21 **BY MR. CODY:**

22 **Q** AND SO YOU INDICATED EARLIER MILLER AND
23 MAZUR, WHICH IS CITED THERE IN THAT PARAGRAPH OF YOUR
24 REPORT. BUT WHAT OTHER SOURCE ARE YOU RELYING ON TO
25 GET THAT RANGE?

1 A I ALSO CONSIDERED, AS I DISCUSSED EARLIER OR
2 AT SOME POINT IN MY PAPER, THE OGDEN PAPERS. THERE
3 ARE TWO. AND I KNOW THAT WE'VE HEARD ABOUT THOSE
4 PAPERS EARLIER. I USED THOSE TO CONFORM MY DECISION
5 OR MY OPINION, I SHOULD SAY. AND THEN I ALSO
6 INCLUDED A ANIMAL STUDY, DOG STUDY, AS PART OF MY --
7 FORMING MY OPINION.

8 Q NOW, I WANT TO ASK YOU ABOUT -- SO IS THERE
9 ONE THAT YOU REFERRED TO AS *OGDEN ET AL*?

10 A YES.

11 Q AND WHAT SORT OF PROFESSION -- PROFESSIONAL
12 IS OGDEN OR SCIENCE SPECIALIST OR WHATEVER?

13 A OGDEN IS A -- AS FAR AS I KNOW, IS A
14 SOCIOLOGIST. AND HE'S THE SOLE AUTHOR ON ONE OF THE
15 PAPERS THAT I CITED; AND THEN THERE IS ANOTHER PAPER,
16 OGDEN ET AL, THAT I REFERRED TO. AND THEN THE
17 CO-AUTHORS ARE DR. BILL HAMILTON AND THEN CHARLES
18 WHITCHER. AND HAMILTON AND WHITCHER WERE -- BOTH NOW
19 PASSED AWAY. THEY ARE -- THEY WERE
20 ANESTHESIOLOGISTS. ONE -- HAMILTON WAS AT UCSF AND
21 WHITCHER WAS AT STANFORD.

22 Q AND I THINK WE MAY HAVE HEARD EARLIER DR.
23 BICKLER REFERENCE AT LEAST ONE OF THESE GENTLEMEN;
24 HAMILTON PERHAPS?

25 A YES. YES.

1 Q SO --

2 A SAME INSTITUTION, BOTH DR. BICKLER AND
3 DR. HAMILTON.

4 Q YOU WERE ASKED IN YOUR DEPOSITION DIFFERENT
5 QUESTIONS ABOUT HELIUM. AND JUST FOR THE RECORD, THE
6 REPORT -- WHAT WE JUST -- WE'RE GOING TO GO OVER THAT
7 PARTICULAR ARTICLE. DOES THAT DEAL WITH HELIUM OR
8 NITROGEN GAS?

9 A THE OGDEN ONE?

10 Q OGDEN ET AL.

11 A YES, HELIUM.

12 Q IS THERE ANY APPRECIABLE DIFFERENCE IN THE
13 DATA RELATED TO HELIUM VERSUS NITROGEN AS FAR AS WHAT
14 YOU'RE RELYING ON TO FORM YOUR OPINIONS?

15 A NO. HELIUM MIXED WITH OXYGEN IS USED FOR
16 CERTAIN RESPIRATORY CONDITIONS WHERE THERE IS
17 BASICALLY CONSTRICTION OF AIRWAYS. AND NOT TO GET
18 INTO TOO MANY PHYSICS AREAS HERE, BUT THE HELIUM
19 ACTUALLY IS LESS DENSE, AND SO THE -- YOU GET BETTER
20 FLOW BASICALLY. SO THE OXYGEN THAT'S IN THERE CAN
21 GET TO THE ALVEOLI OR THE AIR SACS OF THE LUNG
22 BETTER.

23 BUT IN TERMS OF SORT OF WHAT I WOULD CALL
24 BULK DISPLACEMENT OF AIR SUCH AS IN THE MASK OR A
25 BAG, I DON'T THINK HELIUM MAKES ANY DIFFERENCE REALLY

1 AT ALL AS FAR AS GETTING RID OF THE AIR THAT'S IN A
2 BAG OR IN THE MASK.

3 Q AND I THINK DURING YOUR DEPOSITION IT WAS
4 BROUGHT OUT THAT IT WAS A LOWER MOLECULAR WEIGHT.
5 WOULD THAT ALSO -- WOULD THAT HAVE ANY IMPACT AT ALL
6 ON YOUR RESEARCH?

7 A NO. THE -- ESSENTIALLY THE LOWER MOLECULAR
8 WEIGHT THAT GIVES US THE PROPERTY THAT'S HAVING THE
9 LOWER DENSITY OR -- IN TERMS OF THE ABILITY TO GET
10 INTO THE SMALL AIRWAY. SO THAT'S BASICALLY HOW THAT
11 FACTORS IN. BUT IT DOESN'T HAVE ANY EFFECT IN TERMS
12 OF THE BULK DISPLACEMENT ISSUE, AS FAR AS I'M
13 CONCERNED.

14 Q THANK YOU.

15 ALL RIGHT. AND LET'S SEE. HOW DOES THAT --
16 THE OGDEN AND MILLER AND MAZUR, I MEAN, I THINK YOU
17 ALREADY WENT OVER. SO WOULD YOU SAY THAT SUPPORTS
18 WHAT YOU FOUND IN PARAGRAPH 21 WITH THIS AMENDMENT
19 THAT YOU'VE MADE ON THE RECORD TODAY?

20 A YES.

21 Q AS WELL YOU'VE CITED ANOTHER STUDY; I THINK
22 YOU SAID AN ANIMAL STUDY?

23 A YES, THERE WAS AN ANIMAL STUDY. HERRON IS
24 THE FIRST AUTHOR. AND THEY EUTHANIZED DOGS WITH
25 NITROGEN AND THEY LOOKED AT THE ELECTROENCEPHALOGRAM,

1 OR EEG, AND THEY LOOKED AT THE HEART RATE WITH THE
2 EKG AS FAR AS MONITORS ARE CONCERNED.

3 Q AND IN ADDITION TO THE SOURCES WE JUST
4 MENTIONED, DID YOU -- YOU ALSO LOOKED AT INDUSTRIAL
5 ACCIDENTS INVOLVING INERT GASES?

6 A YES. THERE WERE A FAIR NUMBER OF INDUSTRIAL
7 ACCIDENTS THAT HAD BEEN REPORTED THAT I OBVIOUSLY HAD
8 HEARD SOME DISCUSSION OF EARLIER, INDUSTRIAL
9 ACCIDENTS WHERE PEOPLE, FOR EXAMPLE, WERE USING THESE
10 TYPES OF MASKS THAT ARE BEING PROPOSED HERE. AND THE
11 INDIVIDUAL HOOKED IT UP TO A GAS SOURCE OF NITROGEN
12 INSTEAD OF AIR AND BASICALLY ASPHYXIATED OR DIED
13 BECAUSE OF THAT.

14 AND THE MAZUR -- THE MILLER-MAZUR PAPER,
15 THE -- THERE IS A CHART THERE AND THERE IS -- THE 10
16 TO 12 SECONDS THAT THEY QUOTE -- ACTUALLY, IT WAS
17 THE -- THERE WAS A SPACE SHUTTLE MISHAP, IS WHAT THEY
18 CALLED IT, FROM 1981 WHERE THREE WORKERS FOR NASA
19 WENT INTO THE SHUTTLE TO DO SOME MAINTENANCE AND THEY
20 DID NOT KNOW THAT NITROGEN HAD BEEN FLUSHED INTO THIS
21 SMALL AREA. AND -- IT WAS BASICALLY 100 PERCENT
22 NITROGEN. AND THEY WENT IN THERE AND THEY ALL
23 COLLAPSED WITHIN THAT AMOUNT OF TIME.

24 AND SADLY, ONE OF THEM DIED IMMEDIATELY. I
25 THINK THE OTHER TWO DIED SOMETIME LATER. I DON'T

1 REMEMBER. THEY WERE -- AND I THINK ONE PERSON TRIED
2 TO RESCUE THEM AND -- ANYWAY. BUT THAT'S PART OF HOW
3 THEY CAME UP WITH THEIR 10- TO 12-SECOND ESTIMATE OR
4 THE VALUE.

5 Q IN ADDITION TO THOSE THAT YOU JUST
6 MENTIONED, DID YOU ALSO LOOK AT ANY SITUATIONS OR
7 CASE STUDIES INVOLVING EUTHANASIA ON DOGS?

8 A YES. THAT WAS THE HERRON PAPER THAT I
9 DISCUSSED AND -- OR MENTIONED, I SHOULD SAY.

10 Q AND I THINK IN YOUR DEPOSITION YOU WERE
11 ASKED ABOUT CARDIAC OUTPUT AND HOW IT WOULD DIFFER
12 BETWEEN DOGS AND HUMANS. DO YOU RECALL?

13 A YES, I RECALL THAT.

14 Q AND SITTING HERE TODAY, I MEAN, DOES ANY
15 DIFFERENT -- WELL, IS THERE A DIFFERENCE BETWEEN THE
16 CARDIAC OUTPUT, FIRST OF ALL?

17 A THERE IS SOME DIFFERENCE IN THE -- WHEN YOU
18 LOOK AT CARDIAC OUTPUT AND YOU'RE COMPARING, LET'S
19 SAY, HUMANS TO ANIMALS, IN GENERAL THE CARDIAC --
20 WHAT YOU DO IS YOU LOOK AT THE CARDIAC OUTPUT BASED
21 ON THE WEIGHT.

22 SO JUST IF YOU JUST TOOK A SMALL CAT, FOR
23 EXAMPLE, AND COMPARED THE CARDIAC OUTPUT TO A HUMAN,
24 OF COURSE THE CARDIAC OUTPUT, THE AMOUNT OF BLOOD
25 THAT'S BASICALLY BEING PUMPED BY THE HEART PER

1 MINUTE, IT'S OBVIOUSLY ON AN ABSOLUTE SCALE GOING TO
2 BE A LOT LESS THAN A CAT BECAUSE IT'S A SMALL ANIMAL.
3 BUT IF YOU CALCULATE IT BASED ON THE BODY WEIGHT PER
4 KILOGRAM, THEN IT'S A BETTER, EASIER WAY TO MAKE A
5 COMPARISON.

6 AND DOGS, THEY DO HAVE HIGHER CARDIAC
7 OUTPUTS BASED ON BODY WEIGHT COMPARISON, BUT IT'S NOT
8 SUBSTANTIALLY DIFFERENT. AND A CARDIAC OUTPUT IS
9 PROBABLY NOT AS IMPORTANT AS THE MINUTE VENTILATION,
10 THE AMOUNT OF BREATHING. AND IT'S TRUE THAT DOGS
11 HAVE SLIGHTLY HIGHER -- HAVE A LITTLE BIT HIGHER
12 MINUTE VENTILATION COMPARED TO HUMANS. SO IT'S
13 NOT -- THEY'RE NOT DIRECTLY COMPARABLE, I WILL ADMIT
14 THAT; THAT THE DOG IS NOT DIRECTLY COMPARABLE TO THE
15 HUMAN IN THAT REGARD, BUT THEY'RE PRETTY CLOSE, I
16 WOULD SAY.

17 Q SO WOULD THAT CHANGE YOUR OPINION AS FAR AS
18 THE TIMING THAT IT WOULD TAKE?

19 A WELL, I THINK THAT THE TIMING I TOOK THERE
20 IS CONSIDERING ALL OF THOSE FACTORS. THAT'S WHY I
21 EXTENDED IT OUT TO ABOUT 35 TO 40 SECONDS BECAUSE OF
22 THE -- FOR EXAMPLE, THE OGDEN STUDY AND THEN ALSO THE
23 DOG STUDY, I'M PROVIDING I THINK WHAT IS A REASONABLE
24 RANGE BASED ON ALL THE DATA THAT I WAS ABLE TO LOOK
25 AT.

1 **Q** AND JUST FOR CLARIFICATION, IS THIS THE
2 HERRON ET AL STUDY?

3 **A** YES. I'M PRETTY SURE THAT WAS THE FIRST
4 AUTHOR.

5 **Q** ARE YOU AWARE OF ANY OF THE EXPERTS IN THIS
6 CASE ALSO MAKING REFERENCE TO THE HERRON ET AL STUDY?

7 **A** I DON'T REMEMBER IF DR. BICKLER DID THAT. I
8 KNOW -- I KNOW DOCTOR -- I'M SORRY. I THINK IT'S
9 BEEN MENTIONED. I DON'T REMEMBER WHICH -- IN WHAT
10 CONTEXT.

11 **Q** DID YOU HAPPEN TO LOOK AT A DECLARATION BY
12 DR. McALARY?

13 **A** YES, I DID.

14 **Q** AND DOES THAT HELP YOU RECOLLECT IF THAT WAS
15 A SOURCE THAT WAS CITED?

16 **A** WELL, HE CITED A PAPER THAT CITED --

17 **MR. STRONSKI:** OBJECTION, YOUR HONOR. WE
18 HAVEN'T INTRODUCED ANY --

19 **THE COURT:** THERE'S NOT -- THERE IS NOTHING
20 IN THE RECORD OF DR. McALARY EXCEPT FOR DR. BICKLER'S
21 RELIANCE ON HIS OBSERVATION IN ONE OF THE ALABAMA
22 EXECUTIONS.

23 **MR. CODY:** THAT'S FAIR, YOUR HONOR.

24 **THE COURT:** THE OBJECTION IS SUSTAINED.

25 **BY MR. CODY:**

1 Q SO MOVING ON, LET'S TALK ABOUT MOVEMENTS. I
2 THINK WE HEARD EARLIER DR. BICKLER TALK ABOUT SOME
3 MOVEMENTS THAT HAPPENED IN HYPOXIC SITUATIONS. AND I
4 JUST WANT TO SEE: WHAT DO YOU THINK ABOUT
5 MOVEMENTS -- YOU HEARD HIS TESTIMONY. WHAT SORT OF
6 MOVEMENTS DO WE SEE IN THE BODY AFTER HYPOXIA?

7 A WELL, THE HUMAN -- OR HUMANS CAN HAVE
8 MOVEMENTS WHILE THEY'RE UNCONSCIOUS. IT COULD BE
9 INVOLUNTARY MOVEMENTS BASICALLY DURING
10 UNCONSCIOUSNESS, SO -- FOR A VARIETY OF DIFFERENT
11 CAUSES. AND THAT CERTAINLY WAS DOCUMENTED, FOR
12 EXAMPLE, WITH THE OGDEN STUDIES OR THE OGDEN PAPERS
13 WHERE -- ESPECIALLY WITH THE PAPER WHERE DR. HAMILTON
14 AND DR. WHITCHER WERE THE ANESTHESIOLOGISTS THAT WERE
15 INVOLVED IN THAT PAPER IN REVIEWING THAT -- THOSE
16 DATA.

17 AND CLEARLY THEY DOCUMENTED THAT
18 UNCONSCIOUSNESS OCCURRED WITHIN -- I FORGET HOW
19 MANY -- 35 TO 40 SECONDS OR 50 SECONDS. I FORGET THE
20 EXACT NUMBERS OFF THE TOP OF MY HEAD. BUT THEY
21 LOOKED AND THEY SAW MOVEMENT -- WHEN REVIEWING THE
22 VIDEOS, THEY SAW MOVEMENTS OCCURRING THAT APPEARED TO
23 BE -- THAT I WOULD SAY MAYBE A LAYPERSON MIGHT
24 CONSIDER TO BE PURPOSEFUL. FOR EXAMPLE, THEY SAW THE
25 INDIVIDUAL MOVING THEIR ARM UP A LITTLE BIT OR

1 TWITCHING. AND THOSE ALL OCCURRED AFTER
2 UNCONSCIOUSNESS, BASED ON WHAT THEY REPORTED. SO
3 THAT IS NOT UNEXPECTED, AS FAR AS I'M CONCERNED.

4 THE DOG STUDY, FOR EXAMPLE, SHOWED
5 CONVULSIONS AND MOVEMENTS. THE ERNSTING PAPER THAT I
6 CITED AND WAS ALSO DISCUSSED EARLIER TODAY SHOWED --
7 OR THEY REPORTED THAT AT THE ONSET OF UNCONSCIOUSNESS
8 THERE WERE CONVULSIONS. SO MANY OF THESE MOVEMENTS
9 THAT HAVE BEEN DESCRIBED IN THE NEWSPAPER REPORTS --
10 OR THE NEWS REPORTS -- HAVE -- COULD VERY LIKELY, I
11 THINK, BE INVOLUNTARY CONVULSIVE MOVEMENTS OR THINGS
12 OF THAT NATURE.

13 AND THE CENTRAL NERVOUS SYSTEM, OUR BRAIN
14 AND OUR SPINAL CORD, HAVE NEURONS. AND THESE ARE THE
15 CELLS THAT HELP GOVERN HOW WE THINK AND HOW WE MOVE.
16 AND THEY HAVE TO ACT TOGETHER. AND YOU NEED OXYGEN
17 FOR THEM TO BEHAVE PROPERLY OR TO WORK NORMALLY. AND
18 IF YOU DON'T HAVE ENOUGH OXYGEN, THEY START TO FIRE
19 OFF ON THEIR OWN AND THEY'RE NOT COORDINATED.

20 AND SO YOU CAN SEE THESE MOVEMENTS BECAUSE
21 THE MOTOR NEURONS OR THE NEURONS IN OUR SPINAL CORD
22 THAT GOVERN -- BASICALLY SEND SIGNALS TO MUSCLE,
23 THOSE START TO FIRE ON THEIR OWN AND ALL OF A SUDDEN
24 YOU HAVE THIS TWITCHING OCCURRING AND MOVEMENTS. AND
25 SO THAT'S ENTIRELY CONSISTENT, I THINK, WITH

1 INVOLUNTARY MOVEMENTS DUE TO HYPOXIA.

2 Q JUST TO BE CLEAR, SO THE CENTRAL NERVOUS
3 SYSTEM, CAN IT EXPERIENCE HYPOXIA?

4 A ABSOLUTELY. THE CENTRAL NERVOUS SYSTEM --
5 IN THE SETTING OF HYPOXIA, THE BRAIN AND SPINAL CORD
6 ARE GOING TO BE ORGANS THAT ARE VERY DEPENDENT ON
7 GETTING ENOUGH OXYGEN. AND IT'S -- THEY'RE GOING TO
8 DIE BASICALLY IF THEY DON'T GET ENOUGH OXYGEN.

9 JUST AS AN EXAMPLE, IN THE OPERATING ROOM IF
10 WE'RE DOING ORTHOPEDIC SURGERY ON -- MAYBE THE
11 ORTHOPEDIC SURGEON IS DOING SOME SURGERY ON SOMEONE'S
12 LEG. THEY'LL PUT A TOURNIQUET AROUND THE LEG AND
13 THEY'LL ACTUALLY OCCLUDE THE BLOOD FLOW TO THE LEG UP
14 TO TWO HOURS. AND THEY DO THAT SO THAT THERE IS NOT
15 ANY BLOOD IN THE FIELD. THEN AFTER TWO HOURS THEY'LL
16 RELEASE THE TOURNIQUET AND THEN LET THE BLOOD FLOW
17 FOR ABOUT 10 OR 15 MINUTES AND THEN THEY'LL PUT THE
18 TOURNIQUET BACK UP. SO THE LEG CAN GO TWO HOURS
19 WITHOUT ANY BLOOD FLOW.

20 OBVIOUSLY THE BRAIN, AFTER FOUR OR FIVE
21 MINUTES YOU'RE BRAIN DEAD. SO THE BRAIN AND THE
22 SPINAL CORD NEEDS THE BLOOD AND THE OXYGEN AND THE
23 NUTRIENTS TO BE ABLE TO WORK PROPERLY. IT WON'T
24 SURVIVE VERY LONG WITHOUT THAT.

25 Q IN YOUR DEPOSITION YOU WERE ASKED ABOUT

1 ASPHYXIATION. CAN YOU GIVE KIND OF A TEXTBOOK
2 DEFINITION OF *ASPHYXIATION*?

3 **A** IT'S ESSENTIALLY THE PREVENTION OR THE LACK
4 OF OXYGEN. AND THAT COULD BE FROM NOT DELIVERING THE
5 OXYGEN; IT COULD BE, FOR EXAMPLE, CYANIDE POISONING,
6 THINGS OF THAT NATURE. IT COULD BE STRANGULATION
7 WHERE YOU'RE NOT ABLE TO DELIVER OXYGEN BECAUSE
8 YOU'RE BEING STRANGLERED OR CHOKED. THOSE WOULD BE
9 SOME OF THE WAYS. SMOTHERING WOULD ALSO BE
10 CONSIDERED ASPHYXIATION UNDER THAT LARGE UMBRELLA I
11 GUESS.

12 **Q** SUFFOCATION?

13 **A** YES.

14 **Q** SO IS HYPOXIA DIFFERENT FROM SUFFOCATION?

15 **A** HYPOXIA IS BASICALLY -- *HYPO* MEANS BASICALLY
16 LOW OXYGEN. IT'S LOW OXYGEN. HYPOXIA, LOW OXYGEN
17 BEING DELIVERED. WE TALK ABOUT HYPOXIA IN THE
18 TISSUES. IF WE'RE TALKING ABOUT LOW OXYGEN IN THE
19 BLOOD, WE OFTEN USE THE WORD HYPOXEMIA WITH THE *EMIA*
20 BEING -- REFERRING TO THE BLOOD, THINGS OF THAT
21 NATURE. THOSE ARE THE TERMS THAT WE WOULD USE.

22 **Q** SO WITH HYPOXIA, DOES ONE HAVE THE SENSATION
23 OF NOT BEING ABLE TO BREATHE?

24 **A** THERE HAVE BEEN -- CERTAINLY PEOPLE DO GET
25 THE SENSE OF BREATHLESSNESS. THEY CAN, I SHOULD SAY.

1 BASED ON WHAT I'VE SEEN IN MY REVIEW, I THINK THAT'S
2 LIMITED AND THAT IT'S NOT A ACROSS THE BOARD HAPPENS
3 IN EVERYBODY, AND THEN IT'S SEVERE -- I SHOULD SAY
4 IT'S NOT SEVERE BASED ON WHAT I HAVE SEEN IN THE
5 REPORTS THAT I REVIEWED.

6 Q AND WITH HYPOXIA, CARBON DIOXIDE, DOES IT
7 BUILD UP?

8 A IF IT'S JUST HYPOXIA, IF YOU JUST -- IF
9 YOU'RE BREATHING A INERT GAS AND YOU DON'T HAVE ANY
10 OXYGEN BEING DELIVERED, YOU'RE STILL ABLE TO BREATHE
11 IN AND OUT, YOU'RE ABLE TO GET -- EXHALE THE CARBON
12 DIOXIDE, THEN YOU DON'T NECESSARILY HAVE A BUILDUP OF
13 CARBON DIOXIDE. IF YOU HAVE A STRANGULATION OR A
14 SMOTHERING TYPE OF EVENT AND YOU CAN'T BREATHE OR YOU
15 CAN'T MOVE THE AIR IN AND OUT OR GET RID OF THE
16 CARBON DIOXIDE, THEN YOU WOULD HAVE A BUILDUP OF
17 CARBON DIOXIDE IN THAT SETTING.

18 Q COULD A PERSON EXPERIENCE HYPOXIA WITHOUT
19 EVEN REALIZING IT?

20 A YES, THEY COULD. SOME PEOPLE WILL HAVE SOME
21 SYMPTOMS, I SUPPOSE. AND I THINK THAT'S PRETTY CLEAR
22 FROM THE -- EVEN SOME OF THE REPORTS THAT I REVIEWED.
23 BUT I THINK A NUMBER OF INDIVIDUALS MAY NOT NOTICE
24 THAT THEY HAVE HYPOXIA. BUT MOST OF THEM MIGHT FEEL
25 SOMETHING IN TERMS OF TUNNEL VISION OR -- I KNOW

1 WE'VE ALREADY DISCUSSED THAT ONE SAUSEN PAPER WHERE
2 YOU CAN HAVE TUNNEL VISION, LIGHTHEADEDNESS,
3 DIZZINESS, THINGS LIKE THAT.

4 Q WOULD LOUISIANA'S NITROGEN HYPOXIA SYSTEM
5 CAUSE ANYONE TO SUFFER PAIN, IN YOUR OPINION?

6 A NO.

7 Q WHO IS DR. PHILIP NITSCHKE? I THINK WE
8 HEARD HIS NAME BEFORE, BUT WHO IS THAT TO YOU?

9 A HE IS A -- HE WAS THE -- ONE OF THE EXPERT
10 WITNESSES ON BEHALF OF KENNY SMITH, AND HE IS AN
11 ADVOCATE FOR ASSISTED SUICIDE. I'M NOT SURE IF
12 THAT'S EXACTLY HOW HE WOULD SAY HE IS. BUT HE
13 ADVOCATES FOR USING NITROGEN ESSENTIALLY FOR
14 EUTHANASIA FOR BASICALLY ASSISTED SUICIDE.

15 Q AND DO YOU QUOTE HIM IN YOUR REPORT?

16 A YES, I DO. HE -- AFTER THE KENNY SMITH
17 EXECUTION, HE BASICALLY SAID THAT HE THOUGHT KENNY
18 WAS HOLDING HIS BREATH AND THAT'S WHY ALL THAT
19 STRUGGLING WAS OCCURRING, BECAUSE KENNY SMITH WAS
20 HOLDING HIS BREATH.

21 Q DO YOU KNOW IF THERE WAS AN AUTOPSY DONE ON
22 MR. SMITH?

23 A YES, THERE WAS.

24 Q WHAT IS PULMONARY EDEMA?

25 A PULMONARY EDEMA IS COLLECTION OF BLOOD --

1 **MR. STRONSKI:** OBJECTION, YOUR HONOR. NEVER
2 MIND. I'LL WITHDRAW IT.

3 **THE COURT:** OBJECTION WITHDRAWN. CARRY ON.
4 **BY THE WITNESS:**

5 A PULMONARY EDEMA IS A COLLECTION OF
6 ESSENTIALLY BLOOD AND FLUID IN THE LUNGS, MORE
7 THAN THERE SHOULD BE. OBVIOUSLY LUNGS -- EVEN NORMAL
8 LUNGS ARE GOING TO HAVE SOME BLOOD AND SOME SMALL
9 AMOUNT OF FLUID IN IT. BUT THIS IS A -- A LOT OF
10 FLUID BEING COLLECTED IN THE LUNGS AND A LOT OF
11 BLOOD.

12 SO THE LUNGS ARE EDEMATOUS; THEY'RE HEAVY
13 AND THEY'RE -- SORT OF FEEL A LOT MORE DENSE BECAUSE
14 OF ALL THAT BLOOD AND FLUID. MOST -- PEOPLE USE THE
15 TERM *PULMONARY CONGESTION*, WHICH IS REALLY ABOUT THE
16 BLOOD. PULMONARY EDEMA IS MORE ABOUT THE FLUID
17 THAT'S COLLECTED IN THE AIR SACS OF THE LUNGS BUT
18 ALSO AROUND THOSE AIR SACS.

19 **Q** DO YOU KNOW WHETHER MR. SMITH SUFFERED WITH
20 PULMONARY EDEMA RELATED TO THE HYPOXIA?

21 **A** WELL, HE HAD PULMONARY EDEMA.

22 **MR. STRONSKI:** OBJECTION, YOUR HONOR. HIS
23 MEDICAL EXPERTISE DOESN'T EXTEND TO BEING A MEDICAL
24 EXAMINER ON AUTOPSIES.

25 **MR. CODY:** I'LL MOVE ON, YOUR HONOR.

1 **THE COURT:** CARRY ON.

2 **BY MR. CODY:**

3 **Q** SO TURNING BACK TO THE -- YOU'VE SEEN
4 LOUISIANA'S PROTOCOL. IS THAT CORRECT?

5 **A** YES.

6 **Q** AND AS FAR AS THE AMOUNT OF TIME THAT GAS IS
7 TO BE ADMINISTERED, YOU'VE REVIEWED THAT AS WELL, I
8 SUPPOSE? NITROGEN GAS, I SHOULD SAY.

9 **A** YES. AS FAR AS THE -- YES, THE 15 MINUTES
10 OR FIVE MINUTES AFTER THE LAST READING OR BASICALLY
11 THE LAST BLIP ON THE ECG, WHICHEVER IS LONGER.

12 **Q** IS THIS CONSISTENT ALSO WITH THE ALABAMA
13 PROTOCOL?

14 **A** IF YOU JUST GIVE ME A MOMENT TO PAUSE.

15 **Q** YES.

16 **A** I'M ONLY PAUSING BECAUSE THERE ARE
17 COMPONENTS OF THE ALABAMA PROTOCOL THAT ARE REDACTED,
18 AND I HAVE SEEN THE UNREDACTED VERSION. SO I WILL
19 ANSWER BY SAYING IT'S CONSISTENT.

20 **Q** AND I'M JUST SPEAKING AS TO THE TIME FRAME I
21 GUESS, IF THAT HELPS.

22 **THE COURT:** I THINK HE'S WORRIED ABOUT
23 BREACHING SOME KIND OF CONFIDENTIALITY FROM THE
24 ALABAMA PROTOCOL. WHY DON'T YOU ASK HIM A DIRECT
25 QUESTION. WHAT'S YOUR QUESTION ABOUT THE TIME FRAME?

1 BY MR. CODY:

2 Q SO THE TIME FRAME OF LOUISIANA'S PROTOCOL,
3 IS THAT SUFFICIENT TO ENSURE DEATH?

4 A YES.

5 Q AND A PAINLESS DEATH?

6 A YES.

7 Q CAN YOU EXPLAIN THE DIFFERENCES IN THE TYPE
8 OF HYPOXIA STUDIES THAT DR. BICKLER DOES VERSUS THE
9 LOUISIANA NITROGEN HYPOXIA SYSTEM?

10 A YES. SO I THINK THAT WAS ADDRESSED WITH
11 THE -- DR. BICKLER. SO BASICALLY WHAT DR. BICKLER IS
12 DESCRIBING, AS HE DESCRIBES IN HIS PAPER -- PAPERS,
13 IS THAT THEY GO SLOWLY DOWN WITH THE OXYGEN THAT'S
14 BEING INSPIRED SO THAT THEY ACHIEVE A CERTAIN O2
15 SATURATION ON THE PULSE OXIMETER. AND I'M JUST SORT
16 OF DESCRIBING A TYPICAL STUDY THAT HE HAS WRITTEN
17 ABOUT AND HAS STUDIED. AND THEY GO DOWN AND THEY
18 MAINTAIN AN OXYGEN SATURATION AT A CERTAIN LEVEL --
19 LET'S SAY, MAYBE 85 PERCENT -- AND THEN THEY GO DOWN
20 EVEN FURTHER, DOWN TO MAYBE 75 PERCENT, AND KEEP THAT
21 THERE FOR PERHAPS FIVE MINUTES, I THINK, IN THAT
22 RANGE. AND THEN THEY MAYBE GO DOWN A LITTLE BIT
23 LOWER TO -- SOUNDS LIKE 70 PERCENT IS THEIR LOWER
24 LIMIT.

25 SO THEY TAKE THESE SLOW DECLINES BASICALLY,

1 RELATIVE TO WHAT HAPPENS IN THE LOUISIANA PROTOCOL OR
2 AS THE -- THE WAY IT'S DESCRIBED, IT'S A VERY RAPID
3 ONSET, A VERY RAPID DECLINE IN OXYGEN. SO AS FAR AS
4 SYMPTOMS ARE CONCERNED, IT'S CLEAR THAT IF YOU'RE
5 TAKING SOMEBODY DOWN TO THESE LEVELS AS DR. BICKLER
6 IS DOING, THERE IS TIME FOR SOME OF THESE SYMPTOMS TO
7 OCCUR THAT HE HAS DESCRIBED.

8 BUT WITH A RAPID DECLINE, WE'RE GETTING
9 DOWN -- WITH THE NITROGEN HYPOXIA SYSTEM, WE'RE
10 GETTING DOWN TO OXYGEN LEVELS THAT ARE VERY, VERY
11 LOW, MUCH LOWER THAN WHAT DR. BICKLER DOES IN HIS
12 STUDIES. AND THEY'RE BEING ACHIEVED VERY RAPIDLY.

13 SO, FOR EXAMPLE, MY GUESS IS PROBABLY AT THE
14 30- OR 40-SECOND LEVEL IN THE NITROGEN HYPOXIA
15 SYSTEM, YOU'VE ALREADY GONE PAST THE LOWER LEVEL OF
16 WHAT DR. BICKLER WOULD BE NORMALLY STUDIED -- WOULD
17 NORMALLY STUDY. SO THERE ISN'T REALLY A LOT OF TIME
18 FOR SOMEBODY TO DEVELOP SYMPTOMS BEFORE THEY BECOME
19 UNCONSCIOUS.

20 Q SO BASED ON YOUR RESEARCH AND TESTING, WHAT
21 IS YOUR OVERALL OPINION OF THE EFFECTIVENESS AND
22 HUMANENESS OF THE NITROGEN HYPOXIA SYSTEM AS A METHOD
23 OF EXECUTION?

24 A WELL, I THINK THAT THE -- FROM THE
25 EFFECTIVENESS PERSPECTIVE, IT'S CLEAR TO ME THAT

1 YOU -- SOMEONE WILL DIE IF THEY BREATHE 95 TO A
2 HUNDRED PERCENT NITROGEN. AND EVEN DR. BICKLER I
3 THINK'S SAID THAT, AS I RECALL. SO THAT'S NOT, YOU
4 KNOW -- THAT'S NOT DEBATABLE. NO QUESTION; IF YOU
5 GET IT DOWN TO THAT LEVEL AND KEEP IT THERE, SOMEBODY
6 WILL DIE. THAT PERSON WOULD DIE.

7 AS FAR AS THE HUMANENESS OR THE -- OR FROM A
8 PAIN PERSPECTIVE, I DON'T BELIEVE THAT SOMEONE IS
9 GOING TO HAVE PAIN AS A RESULT OF THAT. IT WILL
10 HAPPEN VERY RAPIDLY. AND EVEN I THINK DR. BICKLER
11 SAID THERE IS NOT ANY PHYSICAL PAIN. AND I WOULD
12 AGREE THERE IS NOT REALLY ANY PHYSICAL PAIN. ANY
13 CHANCE OF THE SHORTNESS OF BREATH, YES, I SUPPOSE
14 PEOPLE COULD GET THAT SENSATION. BUT AGAIN, THAT'S
15 HAPPENING VERY RAPIDLY.

16 AND JUST FOR CONTEXT -- AND I THINK I
17 MENTIONED THIS IN MY REPORT -- WE PUT PEOPLE -- WELL,
18 ALL OF US OR HOPEFULLY ALL OF US EXERCISE. AND MAYBE
19 AT SOME POINT IN OUR LIVES WE'VE EXERCISED QUITE
20 VIGOROUSLY AND WE GET SHORT OF BREATH. AND STUDIES
21 HAVE BEEN DONE THAT I QUOTED WHERE YOU GET VERY SHORT
22 OF BREATH WITH EXERCISE. IF YOU'VE EVER BEEN ON A
23 TREADMILL, AN EXERCISE TREADMILL, EVEN FOR A MEDICAL
24 PURPOSE -- I'VE DONE THAT -- AND YOU CAN GET REALLY
25 SHORT OF BREATH FROM THAT.

1 WELL, PEOPLE GET SHORT OF BREATH FROM
2 EXERCISE AND BEING ON A TREADMILL THOUSANDS OF TIMES
3 A DAY ACROSS THE UNITED STATES. EVEN AT THAT
4 LEVEL -- I'M NOT SAYING THAT WITH NITROGEN HYPOXIA
5 THAT WE'RE GETTING THAT AMOUNT OF SHORTNESS OF
6 BREATH. BUT IT IS THAT TYPE OF SHORTNESS OF BREATH,
7 BEYOND SEVERE EXERCISE LIKE THAT, HAS BEEN REPORTED
8 TO BE AMONG THE MOST INTENSE AIR HUNGER, IF YOU WANT
9 TO CALL IT THAT.

10 AND I DON'T THINK THE AMOUNT OF AIR HUNGER
11 THAT PEOPLE DESCRIBE OR HAS BEEN DESCRIBED IN THE
12 LITERATURE RELATED TO NITROGEN -- TO LOW LEVELS OF
13 OXYGEN GETS EVEN CLOSE TO THE AMOUNT OF SHORTNESS OF
14 BREATH THAT PEOPLE HAVE FROM EXERCISE. SO I THINK
15 THAT'S SORT OF AN IMPORTANT CONTEXT ABOUT, YOU KNOW,
16 WHAT ARE WE TALKING ABOUT IN TERMS OF THE SHORTNESS
17 OF BREATH.

18 NOW, YOU ASKED ABOUT HUMANENESS. I NEVER --
19 I'M SORRY, I NEVER ADDRESS WHETHER A PROTOCOL IS
20 HUMANE OR NOT. I DON'T THINK THAT'S MY ROLE AS AN
21 EXPERT WITNESS. WITH ALL DUE RESPECT, I THINK THAT'S
22 FOR THE COURT TO DECIDE, NOT FOR ME, SO I'M NOT GOING
23 TO -- I CAN'T REALLY ANSWER THAT.

24 Q AND THAT'S FAIR, AND I WENT TOO FAR IN MY
25 QUESTIONING. I APOLOGIZE.

1 SO YOU SAW THE ALTERNATIVE METHODS THAT THE
2 PLAINTIFF HAS PUT FORTH AS ALTERNATIVES TO THE
3 NITROGEN HYPOXIA SYSTEM. IS THAT CORRECT?

4 A YES.

5 Q SO AS FAR AS THOSE, WHAT IS YOUR EVALUATION
6 OF THE MI-D METHOD?

7 A WELL, AS WAS DISCUSSED EARLIER, THE DATA ARE
8 VERY CLEAR THAT THE MEDIAN TIME TO DEATH WITH THAT
9 PROTOCOL WAS AROUND 48 MINUTES I BELIEVE. AND THEN
10 DR. BLANKE SAID THAT HE WAS USING A HIGH DOSE AND
11 THERE IS NO DATA THERE ON THE HIGH DOSE ABOUT WHAT
12 THE TIME TO DEATH IS. BUT HE SAID THAT IT'S SHORTER.

13 BUT REMEMBER, THESE ARE INDIVIDUALS WHO
14 ARE -- BASICALLY HAVE SEVERE LIFE-ENDING DISEASE.
15 THEY HAVE SEVERE -- YOU KNOW, THEY HAVE CANCER OR
16 THEY MAY HAVE SOME TYPE OF MUSCULAR DISEASE OR
17 SOMETHING OF THAT NATURE AND THEY'RE OLD. I THINK
18 THE AVERAGE AGE IS AROUND 70 YEARS OR MORE. SO
19 THEY'RE OLD AND DEBILITATED.

20 AND THOSE -- AND I CAN TELL YOU FROM JUST MY
21 EXPERIENCE AS AN ANESTHESIOLOGIST -- AND I'VE WRITTEN
22 ABOUT THIS WITH ELDERLY -- THE LITERATURE IS VERY
23 CLEAR ABOUT IF YOU ARE OLD AND DEBILITATED, YOU'RE
24 VERY SENSITIVE TO DRUGS. AND EVEN IN THAT SETTING,
25 THE TIME TO DEATH IS AROUND 48 MIN- -- THE MEDIAN, I

1 THINK -- I WOULD HAVE TO REVIEW THE PAPER, BUT I
2 THINK IT WAS THE MEDIAN -- AND SOMETIMES EXTENDED FOR
3 HOURS.

4 NOW, THE INMATE HERE IS, I UNDERSTAND, 46
5 YEARS OLD. I DON'T KNOW ANYTHING ABOUT HIS MEDICAL
6 HISTORY, WHETHER HE HAS ANY TYPE OF DISEASE OR NOT,
7 SO I DON'T KNOW WHAT'S GOING ON IN TERMS OF THAT.
8 BUT JUST BASED ON THE AGE FACTOR, HE WOULD BE
9 RELATIVELY RESISTANT, BASED ON MY EXPERIENCE WITH
10 GIVING DRUGS TO PEOPLE, INCLUDING BARBITURATES. THAT
11 IS ONE OF THE PROTOCOL -- IN THE PROTOCOL, INCLUDING
12 BENZODIAZEPINES, BECAUSE THAT'S PART OF THAT MAID
13 PROTOCOL.

14 AND SO I THINK THAT IS AN ISSUE THAT HAS TO
15 BE THOUGHT ABOUT, IS HOW LONG IT TAKES FOR SOMEONE TO
16 DIE FROM THAT, ESPECIALLY SOMEONE WHO'S YOUNG AND
17 MAYBE -- I DON'T KNOW WHETHER HE'S HEALTHY OR NOT,
18 BUT HE'S CERTAINLY YOUNG, RELATIVELY SPEAKING.
19 ANYBODY YOUNGER THAN ME IS YOUNG, I GUESS.

20 **Q** THANK YOU.

21 SO AS FAR AS -- DO YOU HAVE ANY -- DO YOU
22 HAVE ANY KNOWLEDGE ABOUT ACCESS TO DRUGS? DO ANY
23 STATES -- DO STATES GENERALLY HAVE DIFFICULTY, DO YOU
24 KNOW, IN GETTING ACCESS TO SOME OF THE DRUGS NEEDED
25 FOR THIS COCKTAIL?

1 **MR. STRONSKI:** OBJECTION, YOUR HONOR. I
2 THINK THAT IS NOT WITHIN HIS AREA OF EXPERTISE.

3 **MR. CODY:** YOUR HONOR, IF I CAN --

4 **THE COURT:** YOU'RE GOING TO WITHDRAW THE
5 QUESTION?

6 **MR. CODY:** CAN I GO AHEAD AND LAY A
7 FOUNDATION, I MEAN, AS FAR AS -- I'LL WITHDRAW THE
8 QUESTION, YOUR HONOR.

9 **THE COURT:** OKAY.

10 **BY MR. CODY:**

11 **Q** NOW, THERE IS ANOTHER METHOD THAT THE
12 PLAINTIFF ADVANCED. DID YOU LOOK INTO THAT AS WELL?

13 **A** I'M SORRY. I DIDN'T FULLY ANSWER YOUR FIRST
14 QUESTION, THOUGH, THE MAID QUESTION. I'M SORRY, I
15 DIDN'T GET -- THERE WERE SOME OTHER POINTS I WANTED
16 TO MAKE.

17 THE RECTAL ADMINISTRATION OF DRUGS, I
18 HAVE -- AS AN ANESTHESIOLOGIST, WE'RE VERY FAMILIAR
19 WITH DIFFERENT ROUTES OF ADMINISTRATION. SO
20 SOMETIMES, ESPECIALLY IN PEDIATRICS AND OTHER CASES,
21 WE HAVE TO GIVE RECTAL DRUGS, SO WE'RE VERY FAMILIAR
22 WITH DIFFERENT ROUTES OF ADMINISTRATION. AND THE
23 RECTAL ADMINISTRATION OF DRUGS IS -- COULD BE A
24 PROBLEM IN TERMS OF ABSORPTION. AND SO ACTUALLY EVEN
25 IN THE PAPER THAT DR. BLANKE CITED AND I ALSO CITED,

1 THEY COMMENT ON THE RECTAL ADMINISTRATION OF DRUGS
2 AND THAT BEING A POTENTIAL ISSUE IN TERMS OF DELAYED
3 ONSET.

4 AND THEN THE -- A TUBE WILL BE PLACED,
5 RECTAL TUBE, AND A BALLOON IS BASICALLY BLOWN UP. IT
6 WOULD CAUSE THE URGE TO DEFECATE. EVEN IN SOMEBODY
7 THAT'S NOT -- YOU KNOW, DIDN'T WANT TO TRY TO EXPEL
8 IT WILL GET THE URGE TO DEFECATE. IT'S LIKE AN ENEMA
9 IN A WAY. AND SO THERE WILL BE AN URGE TO DEFECATE.
10 AND IF YOU'RE ACTIVE --

11 **MR. STRONSKI:** OBJECTION, YOUR HONOR. I
12 OBJECT FIRST, AGAIN, HE IS NOT -- HAS NO EXPERTISE IN
13 MAID AND THE PROCEDURES. SECONDLY, THIS IS ALL NEW
14 STUFF THAT JUST -- YOU KNOW, WE TOOK HIS DEPOSITION A
15 COUPLE OF DAYS AGO IN WHICH HE SAID HE'S NOT AN
16 EXPERT IN MAID. SO I THINK THIS IS ALL NEW AND IT'S
17 OUTSIDE OF HIS AREA OF EXPERTISE.

18 **MR. CODY:** YOUR HONOR, HE'S ALSO A EXPERT IN
19 PHYSIOLOGY. I DON'T THINK THE FACT THAT SOMETHING IN
20 A CERTAIN PLACE MIGHT CAUSE SOMEONE TO FEEL THE
21 SENSATION OF NEEDING TO DEFECATE IS SOMETHING THAT IS
22 PARTICULAR TO MAID.

23 **THE COURT:** AND THAT MAY BE. BUT WHAT'S
24 FINE FOR THE GOOSE IS FINE FOR THE GANDER. DID THE
25 DEFENDANTS' HAVE NOTICE THAT HE WAS GOING TO TALK

1 ABOUT THAT? IT'S NOT IN HIS DECLARATION.

2 MR. STRONSKI: NO, YOUR HONOR.

3 MR. CODY: THE MAID IS IN HIS DECLARATION,
4 YOUR HONOR, AND HE TALKS ABOUT THE --

5 THE COURT: THE EFFECTS OF THE TUBE AND THE
6 BALLOON, THOSE ARE NOT IN HIS DEPOSITION. I WILL
7 SUSTAIN THE OBJECTION. OR IN HIS DEPOSITION OR IN
8 HIS --

9 MR. STRONSKI: YOUR HONOR, I MOVE TO STRIKE
10 THE ANSWER ALSO BEFORE.

11 THE COURT: YES. WELL, TO STRIKE THE ANSWER
12 FROM THE RECORD. ACTUALLY, I DON'T KNOW THAT THAT
13 ACTUALLY -- GO AHEAD. KEEP GOING.

14 MR. CODY: YES, YOUR HONOR.

15 BY MR. CODY:

16 Q IS THAT ALL YOU HAD TO SAY ON THAT TOPIC?

17 A YES.

18 Q ALL RIGHT. AND DID YOU LOOK AT THE OTHER
19 ALTERNATIVE TO NITROGEN HYPOXIA ADVANCED BY THE
20 PLAINTIFFS?

21 A YES. FIRING SQUAD. I DID.

22 Q WITHOUT SOLICITING ANY TYPE OF OPINION FROM
23 YOU REGARDING BALLISTICS OR THE PROPER HANDLING OF
24 FIREARMS, WHAT -- DO YOU HAVE ANY OPINION CONCERNING
25 PAIN REGARDING TISSUE DAMAGE RELATED TO A FIRING

1 SQUAD?

2 A RIGHT. SO AS I MENTIONED EARLIER, WE TOOK
3 CARE OF A LOT OF PATIENTS WITH GUNSHOT WOUNDS, SO --
4 AND OTHER INJURIES, BONY INJURIES. SO BONE CAN BE
5 VERY PAINFUL WHEN IT GETS BROKEN. THE BONE IS
6 SURROUNDED BY SOMETHING CALLED THE PERIOSTEUM, AND
7 THAT'S WHERE THE NERVE FIBERS ARE. SO IF YOU SHATTER
8 BONE, THAT'S GOING TO BE VERY PAINFUL. THAT'S VERY
9 WELL-DOCUMENTED.

10 SO WHEN SOMEONE IS SHOT THROUGH THE CHEST
11 AND THOSE BULLETS END UP EXITING THE BACK AND GOING
12 THROUGH THE SPINE, YOU'VE -- OBVIOUSLY YOU'VE DAMAGED
13 THE STERNUM, WHICH IS IN THE FRONT, SOME OF THE RIBS,
14 AND THEN THE SPINE IN THE BACK. AND THEN YOU'VE ALSO
15 DAMAGED THE SPINAL CORD POTENTIALLY.

16 AND THE SPINAL CORD -- WE'VE ALL HAD THE
17 SENSATION OF HITTING OUR FUNNY BONE, WHICH IS THE
18 ULNAR NERVE IN OUR ELBOW. AND WHEN YOU TOUCH THE
19 SPINE -- THE SPINAL CORD -- AND THIS HAPPENS IN
20 SURGERY WHEN SPINE SURGEONS ARE DOING SPINAL SURGERY
21 AND THE PATIENT DOESN'T HAVE A MUSCLE RELAXANT ON
22 BOARD -- AND THEY TOUCH THE SPINAL -- THE SPINAL
23 COLUMN, YOU'LL SEE THE LEG TWITCH AND -- EVEN THOUGH
24 THEY'RE ANESTHETIZED. THAT'S THE SAME TYPE OF THING
25 THAT HAPPENS ESSENTIALLY WHEN YOU BASICALLY HIT YOUR

1 FUNNY BONE; YOU CAN GET THAT TYPE OF SENSATION.

2 SO WHEN YOU DESTROY THE SPINAL CORD,
3 BASICALLY ALL THOSE RAW ENDINGS BASICALLY WHERE THERE
4 ARE NEURONS ESSENTIALLY IN THE SPINAL CORD WILL BE
5 FIRING. AND THAT COULD BE QUITE PAINFUL OR SENSATION
6 OF PAIN RELATED TO THAT. SO DURING THE PERIOD WHERE
7 SOMEONE IS STILL CONSCIOUS AFTER A GUNSHOT WOUND LIKE
8 THAT, THEN THAT WOULD BE, IN MY OPINION, QUITE
9 PAINFUL.

10 Q SO IN YOUR OPINION, WOULD THE FIRING SQUAD
11 METHOD SIGNIFICANTLY REDUCE THE RISK OF SEVERE PAIN
12 FROM -- COMPARED TO NITROGEN HYPOXIA AS A METHOD OF
13 EXECUTION?

14 A NO. I THINK THAT THE PAIN WOULD BE MORE
15 BECAUSE IT'S -- AGAIN, IT'S NOT PAIN -- IN MY
16 OPINION, IT'S NOT PAINFUL TO HAVE THE NITROGEN
17 HYPOXIA. I THINK IT'S PAINFUL -- IT WOULD BE PAINFUL
18 TO HAVE THE GUNSHOT WOUND.

19 Q AND REGARDING THE MAID -- NOT GETTING INTO
20 ANY SPECIFICS BEYOND WHAT YOU TALKED ABOUT IN YOUR
21 REPORT, BUT YOU DID TALK ABOUT THE PROLONGED TIME
22 FRAME FOR MAID TO ACHIEVE DEATH. CORRECT?

23 A YES.

24 Q NOW, AS FAR AS THE PROLONGED TIME FRAME, HOW
25 DOES THAT COMPARE TO NITROGEN HYPOXIA?

1 A THE DATA THAT WAS IN THE PAPER THAT DR.
2 BLANKE ALSO REFERENCED, THE MEDIAN TIME, AS I RECALL,
3 WAS AROUND 48 MINUTES. I THINK IT WAS .8 HOURS, AS I
4 RECALL. SO THAT'S -- THAT MEANS THAT HALF OF THE
5 INDIVIDUALS DIED WITHIN 48 MINUTES BUT THE OTHER HALF
6 TOOK LONGER. AND EVEN DR. BLANKE I THINK QUOTED
7 AROUND 78 PERCENT OR 80 PERCENT APPROXIMATELY TOOK 96
8 MINUTES TO DIE. SO THAT'S A LOT LONGER THAN THE TIME
9 TO DEATH WITH NITROGEN HYPOXIA.

10 Q THANK YOU.

11 A AND THE TIME TO DEATH IN AN EXECUTION
12 SETTING IS ALWAYS GOING TO BE -- THE OFFICIAL VALUE
13 IS ALWAYS A BIT PROLONGED. SO LET ME WALK YOU
14 THROUGH A SCENARIO HERE.

15 IN THIS PROTOCOL -- JUST IN THIS PROTOCOL
16 THEY WAIT AT LEAST FIVE MINUTES AFTER THE LAST BLIP
17 ON THE HEARTBEAT ON THE ECG. AND IT COULD BE LONGER
18 THAN THAT. IF THE HEART STOPS AND IT'S AT MINUTE
19 EIGHT, THE PROTOCOL SAYS YOU WAIT TILL 15 MINUTES.
20 ALL RIGHT. SO THAT'S ANOTHER SEVEN MINUTES AFTER THE
21 LAST HEARTBEAT. AND THEN THEY TURN THE EXHAUST FAN
22 ON I BELIEVE, AND THEN THE PERSON GOES IN TO DECLARE
23 THE INMATE DEAD. THAT MAYBE TAKES ANOTHER TWO OR
24 THREE MINUTES.

25 SO BASICALLY, EVEN THOUGH THE LAST HEARTBEAT

1 MIGHT HAVE BEEN AT MINUTE EIGHT, THE TIME OF DEATH
2 MAY BE POTENTIALLY ANOTHER 10 MINUTES. IT KIND OF
3 DEPENDS, BUT -- SO IT LOOKS LIKE THAT PERSON TOOK
4 EIGHT PLUS 10 -- 18 MINUTES TO DIE WHEN, IN FACT, THE
5 LAST HEARTBEAT WAS AT EIGHT MINUTES.

6 NOW, I'M NOT SAYING THAT THAT'S OCCURRED IN
7 THESE EXECUTIONS BECAUSE I HAVE NOT BEEN THERE TO SEE
8 THE ECG. BUT IF YOU JUST THINK IN TERMS OF A
9 PRACTICAL MATTER, THAT HAS TO BE OCCURRING. BECAUSE
10 AS A PHYSICIAN WHEN YOU DECLARE DEATH, THAT'S THE
11 POINT IN WHICH YOU'RE EXAMINING THE PATIENT, OR THE
12 INMATE IN THIS CASE. I GUESS THE INMATE, BUT THEY'RE
13 EXAMINING SOMEONE. AND EVEN THOUGH THE HEART MAY
14 HAVE STOPPED, YOU KNOW, EIGHT MINUTES AGO -- YOU SEE
15 A TIME TO DEATH IS HERE, SO IT LOOKS LIKE A LONG TIME
16 TO DEATH, BUT, IN FACT, THEY MAY HAVE DIED QUITE
17 BEFORE THAT.

18 Q THANK YOU, DR. ANTOGNINI.

19 I JUST WANT TO SHOW YOU NOW SOME OF THE
20 ARTICLES THAT YOU DISCUSSED EARLIER.

21 MR. CODY: MS. YDARRAGA, IF YOU COULD PULL
22 UP 321.

23 THE COURT: HAS IT ALREADY BEEN ADMITTED?

24 MR. CODY: I'M ABOUT TO ASK IT BE ADMITTED,
25 YOUR HONOR.

1 **MR. STRONSKI:** YOUR HONOR, I'M GOING TO
2 OBJECT TO THESE ADMISSIONS. YOU KNOW, THIS IS
3 TECHNICALLY HEARSAY AND HE'S ALREADY TESTIFIED ABOUT
4 THEM, SO HIS TESTIMONY IS IN EVIDENCE. SO WE'RE
5 GOING TO OBJECT.

6 **THE COURT:** ALL RIGHT. SO WHAT IS 321?

7 **MR. CODY:** 321, YOUR HONOR, IS MILLER AND
8 MAZUR. THAT IS ONE OF THE ARTICLES THAT HE CITES IN
9 HIS REPORT.

10 **THE COURT:** SO THESE ARE HIS RELIANCE
11 MATERIALS?

12 **MR. CODY:** YES, YOUR HONOR.

13 **THE COURT:** AND YOU CONTEND THAT HIS
14 RELIANCE TERMS ARE INADMISSIBLE?

15 **MR. STRONSKI:** YES, YOUR HONOR, THEY'RE
16 HEARSAY. I MEAN, EVEN IF HE WROTE THEM IT WOULD BE
17 HEARSAY. HE TESTIFIED ABOUT THEM. THAT IS THE
18 TESTIMONY. IT'S AN OUT-OF -- IT'S THE STATEMENTS OF
19 AN OUT-OF-COURT PERSON. HE'S READ A COUPLE OF LINES
20 OR PARAPHRASED THEM AND THEY WANT TO PUT THE WHOLE
21 ARTICLE IN. THAT PERSON IS NOT IN COURT. IT'S
22 STANDARD HEARSAY.

23 THE WAY IT CAN BE INTRODUCED, THE
24 TESTIMONY, HE CAN READ A PORTION AND COMMENT ON IT
25 AND THAT GOES IN THE RECORD. BUT TO PUT THE WHOLE

1 ARTICLE IN WHEN HE'S TESTIFIED OR EVEN JUST TALKED
2 ABOUT IT IS NOT APPROPRIATE FOR THE RECORD, YOUR
3 HONOR. IT'S HEARSAY.

4 **THE COURT:** WHY IS IT NOT HEARSAY, MR. CODY?

5 **MR. CODY:** WELL, YOUR HONOR, I MEAN, HE
6 TALKED ABOUT IT -- HE RELIES ON IT AND HE TALKED
7 ABOUT IT IN DEPTH, I THINK, IN EXPLAINING WHY -- HOW
8 HE REACHED THE RANGE THAT HE DID EARLIER.

9 **THE COURT:** DOESN'T MAKE IT NOT AN
10 OUT-OF-COURT STATEMENT NOT SUBJECT TO CROSS-
11 EXAMINATION.

12 **MR. CODY:** NO, YOU'RE RIGHT, YOUR HONOR.

13 **THE COURT:** SO IS IT NONHEARSAY OR IS IT --
14 IS THERE AN EXCEPTION OR IS THERE SOME OTHER
15 INDICATION OF RELIABILITY THAT THE COURT CAN RELY? I
16 MEAN, GIVE ME SOMETHING.

17 **MR. CODY:** NO, YOUR HONOR. I'LL WITHDRAW.
18 IT'S FINE.

19 **THE COURT:** OKAY.

20 **MR. CODY:** ALL RIGHT. AND IF I MAY HAVE
21 SOME TIME TO CONFER WITH MY COUNSEL?

22 **THE COURT:** YES.

23 **THE WITNESS:** MAY I STAND FOR A MOMENT TO
24 STRETCH MY LEGS?

25 **THE COURT:** ABSOLUTELY.

1 **MS. CRAIG:** NO FURTHER QUESTIONS, YOUR
2 HONOR.

3 **THE COURT:** OKAY. CROSS, PLEASE.

4 **CROSS-EXAMINATION**

5 **BY MR. STRONSKI:**

6 **Q** GOOD EVENING, DR. ANTOGNINI.

7 **A** GOOD EVENING.

8 **Q** YOU EXPRESSED AN OPINION, I THINK, THAT A
9 PERSON SUBJECTED TO THE LOUISIANA NITROGEN GASSING
10 EXECUTION METHOD WOULD NOT EXPERIENCE PAIN AND
11 SUFFERING. IS THAT RIGHT?

12 **A** YES.

13 **Q** OKAY. AND THAT IT WOULD BE HUMANE. IS THAT
14 RIGHT?

15 **A** I DID NOT SAY HUMANE. I SPECIFICALLY SAID I
16 DIDN'T WANT TO COMMENT ON WHETHER IT'S HUMANE OR NOT.

17 **Q** BUT IT WOULD NOT INVOLVE PAIN AND SUFFERING?

18 **A** CORRECT.

19 **Q** BUT YOU'RE EXPRESSING NO OPINION ON HOW A
20 PERSON SUFFERING FROM PTSD AND/OR CLAUSTROPHOBIA
21 WOULD TOLERATE THE NITROGEN EXECUTION UNDER THE
22 PROTOCOL THAT LOUISIANA WILL USE. ISN'T THAT
23 CORRECT, DOCTOR?

24 **A** THAT'S CORRECT. I HAVE NOT SAID ANYTHING
25 ABOUT PTSD.

1 Q OR CLAUSTROPHOBIA. CORRECT?

2 A CORRECT.

3 Q YOU HAVEN'T TAKEN THAT INTO CONSIDERATION.

4 CORRECT?

5 A I HAVE NOT, NO.

6 Q AND, DOCTOR, HOW MANY YEARS AGO DID YOU STOP

7 BEING A PRACTICING ANESTHESIOLOGIST?

8 A I BELIEVE -- YOU JUST ASKED THAT QUESTION A

9 COUPLE OF DAYS AGO. I THINK IT WAS 2019. RIGHT

10 BEFORE THE PANDEMIC I THINK MIGHT HAVE BEEN THE LAST

11 TIME I WAS IN THE O.R. TAKING CARE OF PATIENTS.

12 Q AND YOU'VE PUBLISHED NO ARTICLE OR STUDY ON

13 NITROGEN HYPOXIA. CORRECT?

14 A THAT IS CORRECT.

15 Q SO WHEN YOU TALK ABOUT -- YOU'VE HAD A LONG

16 CAREER AND WRITTEN A LOT AND YOU'VE BEEN CITED A LOT.

17 BUT NOT ONCE HAVE YOU BEEN CITED ON SOMETHING THAT

18 RELATES TO NITROGEN HYPOXIA. CORRECT?

19 A THAT'S CORRECT.

20 Q AND YOU'VE GIVEN NO MEDICAL PRESENTATIONS ON

21 NITROGEN HYPOXIA. CORRECT?

22 A NO, I HAVE NOT.

23 Q HAVE YOU EVER WITNESSED A PERSON DYING

24 OF NITROGEN -- HAVE YOU EVER WITNESSED A NITROGEN

25 GASSING EXECUTION?

1 A NO.

2 Q DO YOU HAVE ANY EXPERIENCE WITH MEDICAL AID
3 IN DYING?

4 A NO.

5 Q DO YOU HAVE ANY EXPERTISE IN THE
6 AVAILABILITY OF THE MATERIALS NEEDED TO HAVE A FIRING
7 SQUAD IN LOUISIANA AS A MEANS OF EXECUTING
8 INDIVIDUALS?

9 A NO.

10 Q AND SO YOU WERE CLEAR TO SAY THAT YOU WERE
11 UNCOMFORTABLE OR UNWILLING TO SAY THAT LOUISIANA'S
12 PROPOSED EXECUTION METHOD IS HUMANE. CORRECT?

13 A THAT'S CORRECT. I DID NOT EXPRESS AN
14 OPINION.

15 Q AND, IN FACT, YOU'RE NEITHER ENDORSING NOR
16 APPROVING WHAT LOUISIANA IS DOING HERE. CORRECT?

17 A THAT'S CORRECT. I'M NOT ENDORSING OR
18 APPROVING OR DISAPPROVING. I'M NOT PASSING JUDGMENT
19 IN THAT WAY.

20 Q YOU HAVE AN OPINION, DOCTOR, THAT A PERSON
21 SUBJECTED TO THE LOUISIANA NITROGEN GASSING EXECUTION
22 METHOD, ONCE THEY START BREATHING, WOULD BE
23 UNCONSCIOUS IN 30 TO 40 SECONDS. IS THAT RIGHT?

24 A YES, MORE OR LESS. SO I KNOW -- IF I MAY
25 JUST SAY THAT I KNOW DURING THE DEPOSITION WE TALKED

1 ABOUT THESE TIMES. SO IF -- SUPPOSE -- IF I MAY JUST
2 GIVE YOU A HYPOTHETICAL. SUPPOSE SOMEBODY HELD THEIR
3 BREATH RIGHT WHEN THE NITROGEN STARTED AND THEY HELD
4 THEIR BREATH FOR A MINUTE OR MAYBE EVEN A MINUTE AND
5 A HALF. AT THAT POINT THE NITROGEN IN THE MASK,
6 BASED ON WHAT I REPORTED, WOULD BE LESS THAN ONE
7 PERCENT. SO IF THEY HAVE HELD THEIR BREATH --

8 **THE COURT:** THE NITROGEN OR THE OXYGEN?

9 **THE WITNESS:** I'M SORRY. I APOLOGIZE. THE
10 OXYGEN WOULD BE ONE PERCENT OR LESS.

11 **BY THE WITNESS:**

12 **A** WHEN THEY TAKE THAT BREATH, THEY'RE NOW
13 BREATHING IN 100 PERCENT NITROGEN. AND BASED ON SOME
14 OF THE DATA THAT I CITED, THEY ACTUALLY WOULD BE
15 UNCONSCIOUS WITHIN 10 TO 12 SECONDS. SO THAT'S WHY I
16 THINK I WANT TO CLARIFY, IF I MAY. YOU'RE ASKING
17 ABOUT THE 30 TO 40 SECONDS. THAT KIND OF DEPENDS ON
18 HOW LONG THEY'RE HOLDING THEIR BREATH.

19 **Q** AND DIVERS CAN HOLD THEIR BREATH FOR 15
20 MINUTES, I THINK YOU TOLD ME. CORRECT?

21 **A** I THINK THE LIMIT'S UP TO THERE. I'M NOT
22 SURE. I ACTUALLY WOULD DEFER TO DR. BICKLER. HE
23 PROBABLY KNOWS THAT LITERATURE BETTER THAN I DO, BUT
24 I THOUGHT IT WAS AROUND 15 MINUTES, BUT I'M NOT SURE.

25 **Q** WOULD YOU AGREE WITH ME THAT IF BREATHING

1 WOULD CAUSE YOU TO DIE, YOU'RE MOTIVATED TO HOLD YOUR
2 BREATH?

3 A THAT WOULD BE A -- THERE WOULD BE SOME
4 PEOPLE THAT WOULD BE MOTIVATED TO HOLD THEIR BREATH.
5 I WOULD AGREE WITH THAT.

6 Q SO THAT IN TERMS OF A MEASURE OF
7 BREATH-HOLDING PERFORMANCE FOR ANY INDIVIDUAL, THAT
8 MAY BE AS GOOD AS THEY CAN DO. CORRECT? IN TERMS OF
9 THE LENGTH. YOU'RE GOING TO BE ABLE TO HOLD --
10 YOU'RE GOING TO HOLD YOUR BREATH AS LONG AS
11 POSSIBLE --

12 A YES.

13 Q -- IN THAT -- OKAY.

14 A YES. AND THAT'S OBVIOUSLY GOING TO VARY
15 FROM INDIVIDUAL TO INDIVIDUAL, BUT YES.

16 Q AND HEALTHIER AND YOUNGER INDIVIDUALS CAN
17 HOLD THEIR BREATH LONGER?

18 A IN GENERAL I WOULD SAY THAT, IF THAT'S --
19 YES.

20 Q WHEN YOU HOLD YOUR BREATH, YOU DEVELOP A
21 CONDITION CALLED HYPERCAPNIA. CORRECT?

22 A YES.

23 Q AND WHAT IS HYPERCAPNIA?

24 A THAT IS INCREASED CARBON DIOXIDE IN THE
25 BODY, BASICALLY.

1 Q WHAT DOES THAT DO TO THE BODY?

2 A WELL, IN THIS CONTEXT IT WOULD -- IT IS THE
3 MAIN -- ONE OF THE MOST POTENT DRIVERS FOR BREATHING.
4 SO IF IT BECOMES ELEVATED, IT IS REALLY PUSHING YOU
5 TO TRY TO BREATHE AND IT BECOMES UNCOMFORTABLE.

6 Q SO WHEN YOU SAY A POTENT DRIVER, WHAT DO YOU
7 MEAN BY THAT?

8 A IT'S BASICALLY -- WE HAVE RESPIRATORY
9 SENSORS IN OUR BRAIN AND THEY ARE SENSING THE CARBON
10 DIOXIDE AND THEY ARE REGULATING OUR BREATHING
11 BASICALLY BY LOOKING AT THE CARBON DIOXIDE. AND THE
12 HIGHER THE CARBON DIOXIDE GETS UP, THEY'RE SAYING
13 *BREATHE, BREATHE. YOU'VE GOT TO BREATHE*, YOU KNOW,
14 THAT KIND OF THING. AND THEY'RE PUSHING AND YOU'RE
15 HOLDING YOUR BREATH TRYING TO RESIST THAT. BUT YOU
16 GET TO THE POINT WHERE YOU JUST CAN'T HOLD IT ANY
17 LONGER.

18 Q IF YOUR BODY IS FORCING YOU AND TELLING YOU
19 YOU HAVE TO BREATHE AND YOUR MIND KNOWS BREATHING
20 WILL KILL YOU, DOESN'T THAT CREATE A CONDITION OF
21 SEVERE EMOTIONAL SUFFERING?

22 A I GUESS IF YOU ARE HOLDING YOUR BREATH,
23 YOU -- AND YOU KNOW THAT THAT BREATH -- THAT YOUR
24 NEXT BREATH THAT YOU TAKE WILL PROBABLY KILL YOU,
25 THEN I THINK THAT IS A FAIR STATEMENT. BUT IF YOU'RE

1 NOT HOLDING YOUR BREATH AND YOU KNOW THAT THE
2 NITROGEN IS COMING IN, YOU KNOW IT'S GOING TO KILL
3 YOU, SO I'M NOT SURE IN TERMS OF SUFFERING OR
4 ANYTHING LIKE THAT, THIS EMOTIONAL PART OF IT, I
5 DON'T KNOW THAT -- IT'S GOING TO BE PRESENT EITHER
6 WAY, I WOULD THINK.

7 Q YOU HAVE ZERO EXPERIENCE WORKING WITH OR
8 STUDYING PEOPLE WHO ARE PUT IN A HYPOXIC STATE.
9 CORRECT?

10 A I DO NOT DO -- I HAVE NOT DONE STUDIES LIKE
11 DR. BICKLER. OF COURSE, AS A CLINICIAN I'VE TAKEN
12 CARE OF A LOT OF HYPOXIC PATIENTS, BUT NOT IN A
13 RESEARCH STUDY LIKE DR. BICKLER HAS.

14 Q SO ONE OF -- I THINK I -- ISN'T IT TRUE THAT
15 YOU BELIEVE THAT YOUR BASIS FOR THE 30 TO 40 SECONDS
16 OF CONSCIOUSNESS ONCE ONE'S BREATHING NITROGEN IN
17 THIS METHOD IS THE ERNSTING PAPER?

18 A YES, THAT'S -- THAT'S ONE OF THEM THAT I
19 REFERENCED.

20 Q OKAY. AND THEN THE OGDEN PAPERS. CORRECT?

21 A OTHERS, YES. THOSE TWO OTHERS, YES.

22 Q THAT'S YOUR -- THAT'S YOUR BEST STUFF.
23 RIGHT?

24 A WELL, I ALSO DID THE MILLER AND MAZUR PAPER
25 THAT I REFERENCED. AND THEN I ALSO REFERENCED THE

1 DOG STUDY AS A REFERENCE.

2 Q BUT IF WE'RE MEASURING TIMES, WE ALREADY
3 ESTABLISHED THAT DOGS ARE A DIFFERENT SPECIES,
4 OBVIOUSLY. BUT THAT AS A RESULT, THEY HAVE DIFFERENT
5 VENTILATION AND DIFFERENT CARDIAC OUTPUT AND
6 DIFFERENT METABOLISMS. CORRECT?

7 A YES.

8 Q AND DOGS ARE NOT LIKELY HOLDING THEIR BREATH
9 IN THOSE SCENARIOS. CORRECT?

10 A THAT IS CORRECT.

11 Q OKAY. AREN'T THOSE HUGE DIFFERENCES?

12 A I WOULDN'T SAY THEY'RE HUGE DIFFERENCES.
13 THERE ARE DIFFERENCES. BUT I BELIEVE IN THE SETTING
14 OF -- IN THIS SETTING, OBVIOUSLY WE DO NOT -- AND
15 WHEN I SAY "WE," THE MEDICAL COMMUNITY. WE DO NOT
16 HAVE DATA WHERE WE'VE TAKEN HUMANS AND WE'VE
17 SUBJECTED THEM TO 100 PERCENT NITROGEN TO SEE HOW
18 LONG THEY BECOME UNCONSCIOUS. I KNOW THE ERNSTING
19 PEOPLE DID THAT, BUT THEN --

20 Q LET'S TALK ABOUT THE ERNSTING PAPER.

21 A I HAVEN'T FINISHED MY ANSWER YET.

22 Q I JUST -- IT'S GETTING LATE, BUT OKAY, YOU
23 KEEP GOING.

24 THE COURT: LET HIM FINISH.

25 BY MR. STRONSKI:

1 **Q** I'M ON CROSS. I COULD STOP YOU, BUT
2 WHATEVER YOU WANT TO SAY, DOCTOR. ARE YOU DONE?

3 **A** I THOUGHT I HEARD THE JUDGE SAY "LET HIM
4 FINISH."

5 **THE COURT:** YES, I DID SAY LET YOU FINISH.

6 **BY THE WITNESS:**

7 **A** SO WE HAVEN'T DONE STUDIES WHERE WE'VE TAKEN
8 THE HUMANS AND WE'VE DROPPED THEM -- YOU KNOW, GAVE
9 THEM A HUNDRED PERCENT NITROGEN AND STUDIED THEM TO
10 SEE WHEN THEY BECOME UNCONSCIOUS, WHEN DOES THE HEART
11 STOP AND ALL THAT KIND OF STUFF, FOR OBVIOUS REASONS.
12 SO WE HAVE TO COLLECT DATA -- AS AN EXPERT I HAVE TO
13 COLLECT DATA FROM OTHER SOURCES, I HAVE TO LOOK AT
14 THESE OTHER SOURCES. AND ANIMAL STUDIES HELP INFORM
15 OPINIONS AND CERTAINLY INFORMS MY OPINION HERE.

16 **Q** I UNDERSTAND EXACTLY WHAT YOU'RE DOING HERE,
17 DOCTOR. AND ONE IS TO LOOK AT THE ANIMAL STUDIES.
18 THE OTHER IS TO LOOK AT ERNSTING. RIGHT?

19 **A** UH-HUH.

20 **Q** SO LET'S TALK ABOUT THAT. YOU LIKE TO
21 MENTION THAT.

22 WOULD YOU AGREE WITH ME THAT THE RESULTS
23 THAT ARE OBSERVED IN AN EXPERIMENT DEPEND IN A
24 SIGNIFICANT WAY ON WHAT THE METHOD IS?

25 **A** ABSOLUTELY, YES.

1 Q OKAY. SO YOU CAN'T COMPARE EXPERIMENTAL
2 RESULTS AND DRAW CONCLUSIONS ABOUT THEIR DIFFERENCES
3 UNLESS THE METHODS ARE COMPARABLE WHERE YOU CAN DRAW
4 ANALOGIES TO THE METHODS THAT MAKE THEM USEFUL TO
5 COMPARE. CORRECT?

6 A THAT'S CORRECT. YOU HAVE TO HAVE SOME WAY
7 OF COMPARING THEM, YES.

8 Q OKAY. SO ISN'T IT TRUE THAT IN ERNSTING THE
9 SUBJECTS WERE INSTRUCTED FIRST TO EXPIRE MAXIMALLY AT
10 THE END OF A NORMAL EXPIRATION? WHAT EXACTLY DOES
11 THAT MEAN, DOCTOR?

12 A ARE YOU READING THAT WORD FOR WORD FROM
13 ERNSTING?

14 Q YEAH. I COULD PUT IT ON THE ELMO.

15 A YEAH, WOULD YOU, PLEASE?

16 Q YEAH. DO YOU SEE THE "METHODS" SECTION,
17 DOCTOR?

18 A YES.

19 Q AND I UNDERLINED --

20 THE COURT: YOU CAN PUT IT ON.

21 BY MR. STRONSKI:

22 Q I UNDERLINED -- AND IT SAYS "NITROGEN" -- IT
23 SAYS THAT "NITROGEN WAS ADMINISTERED BY INSTRUCTING
24 THE SUBJECT TO EXPIRE MAXIMALLY AT THE END OF A
25 NORMAL EXPIRATION." DO YOU SEE THAT?

1 A YES.

2 Q DO YOU THINK -- IS THERE ANY REASON TO THINK
3 THEY DIDN'T DO THAT?

4 A NO. THAT SOUNDS -- THAT'S WHAT THEY WROTE,
5 SO I THINK THAT'S WHAT THEY DID.

6 Q OKAY. SO THEY'RE MORE THAN -- THEY'RE MORE
7 THAN COOPERATING. THEY'RE ACTUALLY FORCING THE
8 OXYGEN OUT OF THEIR LUNGS BEFORE THE EXPERIMENT.
9 CORRECT?

10 A THAT'S CORRECT. THEY'RE GETTING RID OF THE
11 EXCESS AIR THAT'S IN THEIR LUNGS.

12 Q AND THAT'S DIFFERENT THAN THE PROTOCOL HERE.
13 CORRECT?

14 A YES.

15 Q THERE IS NO REQUIREMENT OF THE -- OR
16 EXPECTATION OF THE INMATE TO DO THAT. CORRECT?

17 A THAT'S CORRECT.

18 Q OKAY. IF WE GO TO THE NEXT PAGE, IT SAYS
19 THAT "DURING THE PERIOD OF BREATHING NITROGEN, THE
20 SUBJECT WAS INSTRUCTED TO BREATHE AS DEEPLY AS
21 POSSIBLE AT A RATE OF 20 BREATHS PER MINUTE."

22 DOCTOR, STATED SIMPLY, THAT'S
23 HYPERVENTILATING. CORRECT?

24 A IF YOU COULD MOVE THE DOCUMENT SO I COULD
25 SEE WHAT YOU'VE READ.

1 Q SORRY.

2 A THAT'S ALL RIGHT. YES, THAT'S CORRECT,
3 HYPERVENTILATION.

4 Q IN THIS EXPERIMENT, WHAT YOU RELY UPON IS
5 THE -- YOU KNOW, THE NO. 1 REFERENCE YOU USE I THINK
6 FOR THE 30 TO 40 SECONDS, YOU'RE DOING TWO VERY
7 DIFFERENT THINGS. YOU'RE REMOVING THE OXYGEN FROM
8 YOUR LUNGS AND YOU'RE HYPERVENTILATING THE NITROGEN.
9 CORRECT?

10 A YES, THAT'S TRUE.

11 Q OKAY. SO, DOCTOR, YOU MARKED -- OR YOU
12 LOOKED AT THIS FERMILAB REPORT. RIGHT?

13 A YES.

14 Q AND THE FERMILAB IS A PHYSICS LABORATORY.
15 RIGHT?

16 A YES.

17 Q AND SO THIS IS SORT OF -- AND THEY USE
18 LIQUID GASES THERE. RIGHT?

19 A CORRECT.

20 Q OKAY. AND SO THIS IS NOT AN EXPERIMENT, IS
21 IT?

22 A THIS IS -- CORRECT, IT'S NOT AN EXPERIMENT.
23 IT'S A WHITE PAPER, I GUESS YOU WOULD CALL IT,
24 ESSENTIALLY WHERE THEY'VE COLLECTED DATA FROM OTHER
25 SOURCES.

1 Q THEY'RE JUST COLLECTING DATA FROM OTHER
2 SOURCES?

3 A CORRECT.

4 Q OKAY. IN TERMS OF THE OTHER SOURCES THEY'RE
5 COLLECTING FROM, WE DON'T HAVE IN FRONT OF US WHAT
6 THAT DATA WAS, WHAT THE METHODS WERE IN THOSE
7 EXPERIMENTS, HOW RELIABLE THE METHODS WERE, HOW
8 RELIABLE THE WORK WAS, HOW STATISTICALLY MEANINGFUL
9 ANYTHING WAS. WE DON'T KNOW ANYTHING LIKE THAT, DO
10 WE?

11 A NO.

12 Q OKAY. YOU HAVE THE TWO OGDEN PAPERS --
13 RIGHT, DOCTOR -- THAT YOU TALKED ABOUT?

14 A YEAH, I REFERENCED THEM. I DON'T HAVE THEM
15 IN FRONT OF ME, BUT YES. RIGHT.

16 Q RIGHT. I JUST WANT TO ASK YOU ABOUT THEM.
17 YOU ADMITTED ON DIRECT THAT OGDEN IS A SOCIOLOGIST,
18 RIGHT? NOT A MEDICAL DOCTOR OR SOMEBODY WHO IS A
19 BIOLOGIST. CORRECT?

20 A YES.

21 Q AND OGDEN IS SOMEBODY WHO ADVOCATES AND
22 SUPPORTS FOR ASSISTED SUICIDE. CORRECT?

23 A I DON'T KNOW WHETHER HE DOES OR NOT,
24 ACTUALLY.

25 Q AND THERE IS THIS ONE PAPER BY OGDEN ONLY,

1 AND THAT PAPER INVOLVES HIM BEING PRESENT AND
2 DOCUMENTING THE SUICIDE OF TWO WOMEN. CORRECT?

3 A YES.

4 Q OKAY. AND AGAIN, THE DOCTORS FROM OTHER
5 PLACES WHO HAVE MEDICAL DEGREES WEREN'T THERE.
6 CORRECT?

7 A THAT IS CORRECT.

8 Q AND THEY DIDN'T EVEN SIGN ON TO THAT PAPER,
9 DID THEY?

10 A THEY'RE NOT AUTHORS, SO I GUESS NO, THEY
11 DIDN'T. NO.

12 Q AND WE HAVE NO REASON TO THINK THAT ANY
13 NUMBERS IN THERE IN TERMS OF CONSCIOUSNESS TIMES THAT
14 WERE DETERMINED BY THIS SOCIOLOGIST ARE NUMBERS THAT
15 ARE RELIABLE AND DETERMINED BY SOMEBODY WHO WAS
16 QUALIFIED TO DO A CONSCIOUSNESS CHECK. CORRECT?

17 A I HAVE NO WAY OF KNOWING -- WELL, HE'S NOT
18 QUALIFIED FROM A MEDICAL PERSPECTIVE OF DOING A
19 CONSCIOUSNESS CHECK, AND I GUESS YES, THAT WOULD GO
20 INTO THE RELIABILITY ISSUE. BUT BEYOND THAT, I CAN'T
21 MAKE ANY FURTHER COMMENT.

22 Q YOU JUST DON'T KNOW ANYTHING ABOUT HIM, SO
23 YOU DON'T KNOW WHAT HE DID, HOW HE DID IT. CORRECT?

24 A I DON'T KNOW THAT HE DESCRIBED IN HIS
25 METHODS SECTION WHAT -- HOW HE DETERMINED

1 UNCONSCIOUSNESS. HE MAY NOT HAVE DESCRIBED IN THAT,
2 SO I DON'T KNOW.

3 Q LET'S TALK ABOUT THE OTHER OGDEN PAPER THAT
4 THE OTHER -- THE TWO MEDICAL DOCTORS SIGNED ON. THEY
5 WERE NOT THE PRIMARY RESEARCHERS OR THE FIRST AUTHORS
6 ON THE PAPER. CORRECT?

7 A THAT IS CORRECT.

8 Q SO THIS IS MOSTLY SOMETHING OGDEN DID. IS
9 THAT WHAT YOU WOULD UNDERSTAND?

10 A IT'S VERY DIFFICULT TO KNOW, WHEN YOU HAVE
11 MORE THAN ONE AUTHOR, WHO DID WHAT AND HOW MUCH EACH
12 AUTHOR CONTRIBUTED, SO -- AND IT'S NOT DESCRIBED IN
13 THE -- IN THAT PAPER, SO IT'S REALLY HARD TO KNOW WHO
14 DID WHAT IN THAT PAPER.

15 Q SO THE DOCTORS WHO WERE ALSO AUTHORS ON THE
16 PAPER ARE -- OR AT LEAST THEY PASSED AWAY, YOU TOLD
17 ME. BUT THEY WERE REASONABLY PROMINENT PEOPLE IN
18 THEIR FIELDS. CORRECT?

19 A YES. ESPECIALLY DR. HAMILTON; VERY
20 PROMINENT.

21 Q AND DR. BICKLER KNEW HIM. RIGHT?

22 A YES.

23 Q WOULD YOU EXPECT THAT PROMINENT MEDICAL
24 DOCTORS WOULD BE THE SECOND OR THIRD AUTHORS ON A
25 PAPER AFTER THE SOCIOLOGIST IF THEY DID MOST OF THE

1 WORK?

2 A OH, ABSOLUTELY. WHEN IT COMES TO THE LIST
3 OF AUTHORS ON A PAPER, OFTEN A JUNIOR PERSON IS THE
4 FIRST AUTHOR, AND SENIOR PEOPLE WHO MAY HAVE
5 CONTRIBUTED SUBSTANTIALLY TO THE WORK ARE SECOND OR
6 THIRD AUTHORS. I'VE DONE THAT MANY TIMES IN MY
7 CAREER. AND THAT'S VERY COMMON FOR THE SENIOR AUTHOR
8 AND THE -- EVEN THE PERSON THAT THOUGHT OF THE STUDY
9 CAN BE A -- EVEN THE LAST AUTHOR.

10 AND I -- MAYBE IT'S TOO LATE TO GO OVER SORT
11 OF THE ACADEMIC -- THE RULES AROUND THAT, THE
12 INFORMAL RULES. BUT JUST BECAUSE HE WAS THE FIRST
13 AUTHOR SAYS NOTHING ABOUT THE CONTRIBUTIONS OF THE
14 SECOND AND THIRD AUTHOR. THAT'S -- YOU KNOW, THERE
15 IS NOTHING -- NOTHING THERE AS FAR AS THAT'S
16 CONCERNED.

17 Q SO WE DON'T KNOW -- YOUR POSITION IS YOU
18 DON'T KNOW WHAT EACH OF THEM DID.

19 A THAT'S CORRECT.

20 Q IS THAT FAIR?

21 A YES.

22 Q LET'S TALK ABOUT WHAT WAS DONE. THIS
23 INVOLVED THE SUICIDES OR -- THE SUICIDES, THE DEATHS
24 OF FOUR PEOPLE. RIGHT?

25 A YES.

1 Q AND NONE OF THESE AUTHORS -- NOBODY WAS
2 PRESENT AT THE SUICIDES THAT ARE ON THIS PAPER.
3 CORRECT?

4 A THAT IS CORRECT, YES.

5 Q AND SO SUICIDE WAS LEGAL IN CANTON IN
6 SWITZERLAND, AND IT WAS A CLINIC THAT PEOPLE WENT TO
7 TO COMMIT SUICIDE. ISN'T THAT RIGHT?

8 A THAT'S MY UNDERSTANDING, YES.

9 Q AND THIS IS SOMETHING THAT OGDEN WAS
10 INTERESTED AND WROTE ABOUT. AND OGDEN WENT TO THE
11 POLICE DEPARTMENT AT THE -- AT THAT CANTON AND GOT
12 VIDEOS THAT WERE TAKEN OF THOSE SUICIDES. CORRECT?

13 A YES.

14 Q AND THOSE VIDEOS WERE NOT TAKEN FOR
15 SCIENTIFIC PURPOSES. CORRECT?

16 A THAT'S CORRECT.

17 Q IN FACT, THEY WERE TAKEN BECAUSE THERE WAS A
18 LEGAL REQUIREMENT THERE THAT ALTHOUGH SUICIDE WAS
19 LAWFUL AND CLINICS COULD ALLOW PEOPLE TO DO IT, THEY
20 COULDN'T HELP THEM. CORRECT?

21 A THAT'S MY UNDERSTANDING, YES.

22 Q SO A VIDEO IS TAKEN OF EACH PERSON WHO
23 COMMITS SUICIDE TO SHOW THAT THEY DRANK THE MEDICINE
24 THEMSELVES AND THAT'S WHAT THEY DID. CORRECT?

25 A WELL, THIS WAS NOT DRINKING MEDICINE. IT

1 WAS THE --

2 Q RIGHT. WHATEVER IT WAS.

3 A YES, IT WOULD HAVE BEEN --

4 Q IT WAS HELIUM GAS. HELIUM GAS.

5 A HELIUM GAS, YEAH. RIGHT.

6 Q BUT AGAIN, NOBODY WAS THERE TO OBSERVE IT.

7 AND THEY ALSO, LIKE IN THAT ERNSTING STUDY, WERE

8 COOPERATING?

9 A THE SUBJECTS WERE, YES.

10 Q THEY WEREN'T HOLDING THEIR BREATH. CORRECT?

11 A I DON'T THINK SO. I DON'T -- SOUNDS LIKE,

12 FROM THE DESCRIPTION, THEY WERE BREATHING NORMALLY,

13 SO THEY WERE, FROM WHAT I COULD TELL, NOT HOLDING

14 THEIR BREATH.

15 Q JUST SO THE RECORD IS CLEAR, YOU HAD

16 MENTIONED THAT THE AUTHORITY YOU RELIED UPON FOR YOUR

17 POSITION THAT A PERSON WHEN THEY START BREATHING

18 NITROGEN UNDER THIS METHOD WILL BE UNCONSCIOUS IN 30

19 TO 40 SECONDS, WE HAD ERNSTING. RIGHT?

20 A YES.

21 Q WE HAD THE TWO OGDENS AND WE HAD MILLER AND

22 MAZUR. RIGHT?

23 A CORRECT.

24 Q AND THAT'S IT. RIGHT?

25 A WELL, I -- DID YOU MENTION THE DOG STUDY? I

1 DID USE THE DOG STUDY AS WELL.

2 Q OKAY. AND A DOG STUDY?

3 A YEAH, THE HERRON STUDY. I USED THAT AS
4 WELL.

5 Q SO I ASKED YOU ABOUT DOG STUDIES AND CERTAIN
6 DIFFERENCES. BUT I WANT -- FOR THE RECORD, I WANT TO
7 BE CLEAR THAT I ALREADY ASKED YOU ABOUT MILLER AND
8 MAZUR. I CALLED IT THE FERMILAB WHITE PAPER, BUT
9 IT'S ACTUALLY WHAT YOU CALL MILLER AND MAZUR.
10 CORRECT?

11 A YES.

12 THE COURT: WE CAN'T HEAR YOU, SIR.

13 BY MR. STRONSKI:

14 Q I CALLED IT THE FERMILAB WHITE PAPER, BUT
15 IT'S WHAT YOU CALL MILLER AND MAZUR. CORRECT?

16 A CORRECT. I DID ALSO RELY ON SOME OF THESE
17 REPORTS FROM OSHA AND SO FORTH.

18 Q LET'S TALK ABOUT MOTION. HAVING A
19 CONVULSION DOESN'T MEAN YOU'RE UNCONSCIOUS. CORRECT?

20 A IF IT IS A GENERALIZED CONVULSION, YOU ARE
21 GOING TO BE UNCONSCIOUS. IF IT'S A -- A PETIT MAL
22 KIND OF CONVULSION, YOU CAN STILL MAINTAIN
23 CONSCIOUSNESS, SO IT DEPENDS ON THE TYPE OF
24 CONVULSION.

25 Q SO YOU DIDN'T SEE ANY OF THESE EXECUTIONS.

1 CORRECT?

2 A I DID NOT.

3 Q AND SO ALL YOU HAVE IS THE REPORTS THAT
4 WE'VE BEEN LOOKING AT. CORRECT?

5 A CORRECT.

6 Q DO ANY OF THEM DISTINGUISH BETWEEN PETIT MAL
7 OR GRAND MAL SEIZURES OR CONVULSIONS?

8 A NO, THEY DON'T. THEY TALK ABOUT CONVULSIVE
9 MOVEMENTS. BUT THESE ARE LAY PEOPLE DESCRIBING THEM,
10 SO I'M NOT SURE IF THEY KNOW WHAT THEY'RE DESCRIBING.

11 Q RIGHT. YOU'RE NOT SURE. OKAY.

12 I THINK YOU EVEN TRIED TO MAKE AN ANALOGY TO
13 BEING BREATHLESS FROM EXERCISING TO WHAT A PRISONER
14 WOULD EXPERIENCE IN THIS METHOD. WAS I RIGHT IN
15 HEARING THAT?

16 A YES. I WAS SORT OF PUTTING A CONTEXT AROUND
17 THE BREATHLESSNESS ISSUE AND -- YES.

18 Q WOULDN'T YOU AGREE WITH ME THAT IN THE
19 EXERCISE SCENARIO YOU DON'T HAVE A MASK OVER YOUR
20 HEAD FORCING YOU TO BREATHE NITROGEN AND YOU'RE NOT
21 TRYING TO HOLD YOUR BREATH? CORRECT?

22 A THAT'S TRUE. THEY ARE DIFFERENT IN THAT
23 WAY.

24 Q THEY'RE DIFFERENT IN A LOT OF WAYS, AREN'T
25 THEY?

1 A I GUESS SO, YES.

2 Q DOCTOR, YOU HAVE TESTIFIED -- OR YOU HAVE
3 BEEN AN EXPERT ON BEHALF OF GOVERNMENT, STATE OR
4 FEDERAL, YOU'VE ESTIMATED TO US, AT LEAST 15 TO 20
5 TIMES WHERE THE GOVERNMENT IS SEEKING A COURT'S
6 APPROVAL FOR A METHOD OF EXECUTION. ISN'T THAT
7 RIGHT?

8 A YES, THAT'S CORRECT.

9 Q AND YOU'VE MADE -- YOU'VE ADMITTED TO HAVE
10 MADE AT LEAST \$350,000 DOING THAT. CORRECT?

11 A OVER THE NINE YEARS THAT I'VE BEEN DOING
12 THIS, YEAH, THAT'S ABOUT RIGHT.

13 Q YOU ADMIT TO MAKING AT LEAST FIFTY TO A
14 HUNDRED THOUSAND DOLLARS ADVOCATING OR BEING A
15 WITNESS FOR STATES THAT ARE SEEKING A COURT'S
16 APPROVAL FOR NITROGEN GASSING EXECUTIONS. CORRECT?

17 A THAT'S MY -- MY ESTIMATE WAS, YEAH, ABOUT
18 THAT; FIFTY TO A HUNDRED THOUSAND.

19 Q AND YOU HAVE NEVER TURNED DOWN A STATE OR
20 FEDERAL GOVERNMENT THAT CAME TO YOU ASKING YOU TO BE
21 AN EXPERT TO SUPPORT A METHOD OF EXECUTION THEY WERE
22 SEEKING A COURT TO APPROVE. CORRECT?

23 A THERE WAS ONE -- AND THIS CAME UP IN THE
24 DEPOSITION. THERE WAS ONE STATE WHERE I -- MY
25 RECOLLECTION IS I DIDN'T GET INVOLVED WITH THAT.

1 Q BUT IT WASN'T BECAUSE YOU HAD A PROBLEM WITH
2 WHAT THEY WERE DOING. CORRECT?

3 A THAT'S CORRECT. I DON'T -- I THINK MAYBE
4 MORE OF A PERSONAL ISSUE FOR SOME REASON, YEAH.

5 Q DR. BICKLER IS FAR MORE EXPERT IN HUMAN
6 HYPOXIA THAN YOU. CORRECT?

7 A HE HAS DONE A LOT OF WORK THAT I HAVEN'T
8 DONE. TO THE LEVEL OF HYPOXIA THAT HE GOES TO, I
9 HAVE NOT DONE THAT. BUT I DON'T -- FROM WHAT HE
10 SAID, NEITHER OF US HAVE TAKEN PATIENTS OR SUBJECTS
11 DOWN TO BELOW FIVE PERCENT OR SO.

12 Q SO, DOCTOR, YOU'VE BEEN AN EXPERT IN 15 TO
13 20 CASES AND YOU HAVE BEEN AN EXPERT NOW IN FIVE --
14 FIVE OF THOSE 15 TO 20 ARE CASES WHERE A STATE IS
15 ADVOCATING FOR NITROGEN GASSING. CORRECT?

16 A YES. THIS WOULD BE THE FIFTH ONE.

17 Q THIS IS THE FIFTH ONE. AND SO THAT LEAVES
18 15 TO 10 OTHERS. CORRECT?

19 A CORRECT.

20 Q AND HOW MANY OF THOSE ARE LETHAL INJECTION?

21 A I THINK ALL OF THEM WOULD BE.

22 Q AND, DOCTOR, YOU BELIEVE LETHAL INJECTION AS
23 ADVOCATED BY STATES IN THOSE 15 -- 10 TO 15 CASES
24 WOULD BE HUMANE. CORRECT?

25 A AGAIN, I DON'T COMMENT ON WHETHER IT'S

1 HUMANE OR NOT. I MAY HAVE DONE THAT IN THE PAST AND
2 PROBABLY I SHOULDN'T HAVE. I TRY NOT TO SAY WHETHER
3 IT'S HUMANE OR NOT. THAT'S NOT WITHIN MY -- I FEEL
4 IT'S NOT WITHIN MY ROLE AS A PHYSICIAN, EXPERT
5 WITNESS IN THIS SETTING, TO SAY WHETHER IT'S HUMANE
6 OR NOT. I JUST DON'T THINK THAT'S WHAT I SHOULD BE
7 DOING. SO I DON'T SAY THAT USUALLY.

8 Q I'M NOT SURE I UNDERSTAND THE DISTINCTION,
9 BUT LET ME ASK IT THIS WAY. YOU IN THOSE 10 TO 15
10 CASES BELIEVE THAT LETHAL INJECTION -- AND THOSE ARE
11 IN MANY STATES IN THE COUNTRY -- DOESN'T SUBJECT THE
12 INMATE TO PAIN AND SUFFERING. CORRECT?

13 A CORRECT.

14 Q AND WHAT STATES? LET'S TALK ABOUT THE
15 STATES. WHAT STATES DO YOU THINK ARE ABLE TO DO
16 LETHAL INJECTION AND NOT SUBJECT AN INDIVIDUAL TO
17 PAIN AND SUFFERING?

18 IT WOULD BE OKLAHOMA. RIGHT?

19 A YES.

20 Q OKAY. OHIO?

21 A YES.

22 Q WHERE ELSE?

23 A YOU KNOW, WHEN I HAVE TO RECALL THIS ON THE
24 TOP OF MY HEAD, I HAVE TO LOOK AT A MAP OF THE UNITED
25 STATES, SO GIVE ME A MOMENT TO LOOK AT A MAP OF THE

1 UNITED STATES. I MAY NOT GET ALL OF THEM, BUT --
2 SO WE'VE DONE OKLAHOMA. SOUTH DAKOTA, OHIO,
3 MISSOURI, ARKANSAS, TENNESSEE I THINK. MAYBE NOT
4 TENNESSEE. I'M NOT SURE ABOUT TENNESSEE. I FORGET
5 ABOUT TENNESSEE. SOUTH CAROLINA, GEORGIA, ALABAMA
6 NO. ALABAMA IS NOT -- IT'S ONLY BEEN NITROGEN
7 HYPOXIA. MISSISSIPPI. THAT WAS THE FIRST ONE THAT I
8 EVER DID, BUT THAT WAS A -- JUST A REPORT. I NEVER
9 TESTIFIED OR WAS DEPOSED ON THAT. AND THEN THE
10 FEDERAL GOVERNMENT.

11 I MIGHT BE MISSING SOMETHING THERE. AGAIN,
12 I -- THE LAST COUNT I DID, I THINK IT WAS AROUND 10
13 OR 11 STATES. AND I MAY NOT HAVE GOTTEN THEM ALL
14 THERE.

15 Q THANK YOU, DOCTOR.

16 A SURE.

17 MR. STRONSKI: NO FURTHER QUESTIONS, YOUR
18 HONOR.

19 THE COURT: THANK YOU.

20 ANY REDIRECT?

21 MR. CODY: YES, YOUR HONOR.

22 REDIRECT EXAMINATION

23 BY MR. CODY:

24 Q DR. ANTOGNINI, YOU'RE NOT BEING -- YOU'RE
25 NOT BEING RETAINED IN THIS CASE AS AN EXPERT IN HUMAN

1 HYPOXIA. CORRECT?

2 A I'M SORRY. COULD YOU SAY THAT AGAIN?

3 Q WELL, LET ME WITHDRAW THE QUESTION.

4 YOU WERE ASKED EARLIER ABOUT DR. BICKLER
5 BEING MORE OF AN EXPERT IN HUMAN HYPOXIA THAN
6 YOURSELF.

7 A I AGREE WITH THAT QUESTION, YES.

8 Q IS IT FAIR TO SAY THAT DR. BICKLER DOES NOT
9 BRING SUBJECTS, PATIENTS DOWN TO THE SAME CONDITIONS
10 THAT LOUISIANA'S NITROGEN HYPOXIA SYSTEM IS INTENDED
11 TO DO?

12 A THAT'S MY UNDERSTANDING BASED ON WHAT HE'S
13 PUBLISHED AND WHAT HE STATED HERE; THAT HE -- THEY
14 SPECIFICALLY AVOID GOING BELOW, I THINK HE SAID,
15 AROUND FIVE PERCENT OF OXYGEN, SO --

16 Q WHEN HE GOES DOWN TO FIVE PERCENT, DOES HE
17 DO IT QUICKLY, GRADUALLY? WHAT DOES HE DO?

18 A BASED ON HIS DESCRIPTION BOTH IN WHAT HE'S
19 WRITTEN AND THEN WHAT HE DESCRIBED HERE, HE GOES
20 SLOWLY. HE GOES IN STAGES.

21 Q BUT YOUR UNDERSTANDING OF LOUISIANA'S
22 NITROGEN HYPOXIA SYSTEM, IS THAT A QUICK DECLINE OR A
23 GRADUAL DECLINE?

24 A THAT IS A VERY FAST DECLINE.

25 Q YOU WERE ASKED EARLIER ABOUT THE RANGE, AND

1 I THINK MR. STRONSKI KEPT -- HE REPRESENTED IT WAS 30
2 TO 40 SECONDS. BUT I JUST WANT TO MAKE SURE THAT
3 WE'RE -- SO IN YOUR EARLIER TESTIMONY TODAY, I THINK
4 YOU AMENDED THAT RANGE. IS THAT CORRECT?

5 A YES, I DID.

6 Q SO I JUST WANT TO MAKE SURE, BECAUSE I THINK
7 MANY TIMES WE REFERRED TO 30 TO 40. BUT WHAT WAS THE
8 RANGE AS AMENDED EARLIER?

9 A TEN TO 12 ON THE LOWER END AND THEN 35 TO 40
10 ON THE UPPER END.

11 Q SO WOULD THAT BE 10 TO 40?

12 A CORRECT.

13 Q I KNOW HE WENT AT LENGTH THROUGH VARIOUS
14 ARTICLES, SOURCES THAT YOU CITE TO ACHIEVE THAT
15 RANGE. AND YOU WENT THROUGH THOSE. BUT TODAY DO YOU
16 STILL FEEL THAT THE RESEARCH YOU LOOKED AT,
17 ESPECIALLY THE OSHA REPORTS, ALL THOSE ITEMS YOU
18 LOOKED AT -- DOES IT SUPPORT THE RANGE THAT YOU'RE
19 ADVISING THE COURT ON TODAY?

20 A YES, THEY DO. THESE ARE THE TYPICAL TYPES
21 OF PAPERS, DESCRIPTIONS FOR THIS AREA THAT I THINK
22 SOMEBODY WOULD RELY UPON. SO AGAIN, WITH ALL DUE
23 RESPECT TO DR. BICKLER, HE HAS PUBLISHED A LOT, BUT
24 HE ADMITTED THAT HE HAS NEVER -- I THINK HE SAID
25 NEVER TAKEN A PATIENT OR SUBJECT BELOW FIVE PERCENT,

1 OR VERY RARELY HAS HE DONE THAT. SO THERE JUST
2 REALLY ISN'T MUCH OUT THERE EXCEPT FOR SOME OF THE
3 WORK THAT HE AND I BOTH MUTUALLY DISCUSSED, ERNSTING
4 AND SO FORTH.

5 Q YOU WERE ASKED A LOT OF QUESTIONS REGARDING
6 BREATH HOLDING. DO YOU RECALL THAT?

7 A YES.

8 Q SO DID YOU HEAR THE PLAINTIFF TESTIFY
9 EARLIER TODAY?

10 A I DID.

11 Q DID YOU HEAR HOW HE WAS GOING TO DO
12 BREATHING TECHNIQUES AT THE TIME OF EXECUTION?

13 A YES. HE WAS, AS I UNDERSTAND IT, GOING TO
14 BE TAKING DEEP BREATHS AS PART OF THEIR, IT SOUNDS
15 LIKE, THE MEDITATION THAT THEY DO, IF I UNDERSTOOD
16 HIM CORRECTLY.

17 Q DID YOU EVER HEAR HIM SAY HE WAS GOING TO DO
18 ANY SORT OF BREATH HOLDING?

19 A I DID NOT HEAR HIM SAY THAT.

20 Q ASSUMING THAT HE'S NOT GOING TO DO ANY
21 BREATH HOLDING, HOW DO YOU EXPECT THE RESULTS -- DO
22 YOU EXPECT THE RESULTS TO BE IN LINE WITH YOUR DATA,
23 YOUR PROJECTED RANGE IN THIS CASE?

24 A I DO.

25 Q ALL RIGHT.

1 **MR. CODY:** I HAVE NO FURTHER QUESTIONS, YOUR
2 HONOR.

3 **THE COURT:** ARE THERE ANY FURTHER WITNESSES
4 BY THE DEFENSE?

5 **MR. STRONSKI:** YOUR HONOR, I THINK THE
6 EXPERT MISHEARD OUR CLIENT AND -- BUT WE'LL LEAVE
7 THAT TO SUBMISSIONS. THE RECORD SHOULD BE CLEAR.

8 **THE COURT:** IT'S NOT FIVE PERCENT. IT'S 70
9 PERCENT. IS THAT WHAT YOU'RE TALKING ABOUT?

10 **MR. STRONSKI:** NO. THAT HE INTENDS TO AND
11 IS ABLE TO BREATHE, YOU KNOW --

12 **THE COURT:** YES, I UNDERSTAND. THE RECORD
13 WILL REVEAL WHATEVER MR. HOFFMAN SAID.

14 **MR. STRONSKI:** THANK YOU.

15 **THE COURT:** ARE THERE ANY OTHER WITNESSES
16 FOR THE DEFENDANTS?

17 **MR. CODY:** NO, YOUR HONOR.

18 **THE COURT:** THE DEFENDANTS REST?

19 **MR. CODY:** YES, YOUR HONOR.

20 **THE COURT:** IS THERE ANY REBUTTAL?

21 **MR. STRONSKI:** ONE SECOND, YOUR HONOR.

22 **THE WITNESS:** MAY I STEP DOWN?

23 **THE COURT:** YES, YOU MAY STEP DOWN. I'M
24 SORRY. THANK YOU, DR. ANGOLINO -- ANTOGNINI.

25 **THE WITNESS:** YOU'RE NOT THE FIRST.

1 **MS. KAPPEL:** YOUR HONOR, MAY WE HAVE ONE
2 MOMENT?

3 **THE COURT:** YES.

4 **MS. KAPPEL:** THANK YOU.

5 **MR. STRONSKI:** NO, YOUR HONOR. BUT WE --
6 HOLD ON. I'M SORRY.

7 YOUR HONOR, I HAVE ONE QUESTION, IF I
8 MAY. I HAVE ONE QUESTION, YOUR HONOR --

9 **THE COURT:** ON REBUTTAL?

10 **MR. STRONSKI:** -- IF I MAY. YES, FOR
11 REBUTTAL.

12 **THE COURT:** AND YOU'RE CALLING WHAT WITNESS
13 FOR REBUTTAL?

14 **MR. STRONSKI:** I'M CALLING DR. PHILIP
15 BICKLER.

16 **THE COURT:** OKAY. GO AHEAD.

17 **(WHEREUPON, PHILIP BICKLER, HAVING BEEN**
18 **PREVIOUSLY SWORN, TESTIFIED AS FOLLOWS.)**

19 **DIRECT EXAMINATION**

20 **BY MR. STRONSKI:**

21 **Q** HOW DOES LOW OXYGEN -- WHAT DOES LOW OXYGEN
22 DO, DOCTOR?

23 **A** IT STRONGLY DRIVES BREATHING. AND I --

24 **Q** AND HOW DOES IT DO THAT? THAT'S THE SECOND
25 QUESTION. I'M SORRY.

1 **THE REPORTER:** EXCUSE ME.

2 **MR. STRONSKI:** I'M SORRY.

3 **BY THE WITNESS:**

4 **A** LOW OXYGEN STRONGLY DRIVES BREATHING.

5 **Q** HOW DOES IT DO THAT?

6 **A** IN TERMS OF ITS POTENCY AS A DRIVE TO
7 BREATHING, IT IS ESSENTIALLY EQUAL WITH CARBON
8 DIOXIDE. THESE ARE MEASURED IN THE LABORATORY WITH
9 MEASUREMENTS CALLED THE HYPOXIC VENTILATORY RESPONSE
10 AND THE HYPERCAPNIC VENTILATORY RESPONSE. THEY'RE
11 STANDARDIZED PROTOCOLS FOR DOING THAT. AND WHEN
12 THOSE TWO RESPIRATORY DRIVERS ARE ISOLATED, ONE FINDS
13 THAT THE DRIVE TO BREATHE IN RESPONSE TO LOW OXYGEN
14 IS ABOUT THE SAME AS THE DRIVE FROM HIGH CARBON
15 DIOXIDE.

16 SO IT'S NOT ACCURATE TO SAY THAT LOW OXYGEN
17 IS NOT SENSED IN TERMS OF FEELING EXTREMELY SHORT OF
18 BREATH AND DYSPNEIC. I JUST WANTED TO MAKE SURE THAT
19 THAT'S VERY, VERY CLEAR; THAT THE LOW OXYGEN
20 EXPERIENCED IN THE LOUISIANA PROTOCOL WILL MAKE ONE
21 VERY, VERY SHORT OF BREATH.

22 **MR. STRONSKI:** THANK YOU, YOUR HONOR.

23 **BY THE WITNESS:**

24 **A** EXTREMELY UNCOMFORTABLE.

25 **MR. STRONSKI:** NO FURTHER QUESTIONS.

1 **THE COURT:** ANY CROSS ON THE REBUTTAL?

2 **MR. ARCHEY:** ONE QUESTION.

3 **THE COURT:** FAMOUS LAST WORDS. GO AHEAD.

4 **CROSS-EXAMINATION**

5 **BY MR. ARCHEY:**

6 **Q** DOCTOR, YOU WERE SHOWN AUTHORITIES TODAY
7 THAT WHEN YOU'RE BREATHING INERT GAS, THE VICTIM GETS
8 FOOLED AND DOESN'T REALIZE THEY'RE NOT GETTING OXYGEN
9 INTO THEIR SYSTEM. CORRECT?

10 **A** YOU'LL HAVE TO DESCRIBE THAT SCENARIO A
11 LITTLE MORE CLEARLY.

12 **Q** OSHA, FOR INSTANCE, SAID WHEN THEY HOOK UP
13 THEIR LINE TO THE NITROGEN TANK INADVERTENTLY,
14 THEY'RE GETTING THAT INERT GAS INTO THEIR SYSTEM,
15 THEY DON'T REALIZE THEY'RE NOT GETTING OXYGEN AND
16 THEIR SYSTEM IS FOOLED AND THEY PASS OUT.

17 **A** THAT CAN HAPPEN.

18 **MR. ARCHEY:** THAT'S ALL I HAVE, YOUR HONOR.

19 **BY THE WITNESS:**

20 **A** BUT THEY WILL ALSO SENSE THE LOW OXYGEN AND
21 FEEL VERY SHORT OF BREATH. THAT SENSE VARIES PERSON
22 TO PERSON. BUT TYPICALLY THE AVERAGE HUMAN BEING
23 WILL RESPOND VERY VIGOROUSLY TO THAT.

24 **Q** AGAIN, YOU HAVE NO CASE, NO ANECDOTE, NO
25 STUDY AT ALL SHOWING THAT -- WHAT YOU'VE SAID ABOUT

1 SOMEBODY HOOKS UP WRONG AND THEN THEY COME BACK?

2 **A** I'M TALKING ABOUT CONTROLLED LABORATORY
3 STUDIES ON THE CONTROLLED BREATHING. A STUDY -- I
4 CAN DETAIL A STUDY THAT WE PUBLISHED IN 1991 ON THIS
5 TOPIC WHERE WE QUANTIFIED THE AMOUNT OF BREATHING
6 THAT OCCURS WITH LOW OXYGEN VERSUS LOW CARBON
7 DIOXIDE. IT'S A PAPER BY FEINER, BICKLER AND
8 SEVERINGHAUS IN *RESPIRATION PHYSIOLOGY* IN 1991.

9 **Q** YOU DIDN'T ATTACH THAT TO YOUR REPORT OR
10 BRING IT TO THE COURT'S ATTENTION, DID YOU?

11 **A** SIR, I'VE PUBLISHED ABOUT 150 PAPERS ON
12 THESE TOPICS. I'M NOT GOING TO INCLUDE EVERY SINGLE
13 ONE IN MY REPORT.

14 **Q** THE ONLY PAPER YOU BROUGHT TO YOUR REPORT
15 WAS YOUR OPINION PIECE FROM JAMA. CORRECT?

16 **A** I THINK THAT'S A HIGHLY IMPACTFUL PIECE OF
17 WORK THAT WE DID THERE.

18 **Q** BUT THAT'S THE ONLY ONE. RIGHT?

19 **A** I THINK THAT SHOULD BE SUFFICIENT.

20 **MR. ARCHEY:** THAT'S ALL MY QUESTIONS, YOUR
21 HONOR.

22 **THE COURT:** WE ARE CONCLUDED. YOU MAY STEP
23 DOWN. THANK YOU, DR. BICKLER.

24 OKAY. I UNDERSTAND THAT MS. NORTON,
25 THE FIRST COURT REPORTER, HAS INDICATED THAT SHE WILL

1 HAVE SOMETHING CLOSE TO FINAL TO YOU BY TOMORROW AT
2 NOON. IS THAT CORRECT? IS THAT WHAT YOU-ALL
3 UNDERSTAND?

4 **MR. ARCHEY:** THAT'S WHAT I HEARD, YOUR
5 HONOR, YES.

6 **MR. STRONSKI:** I HEARD THE SAME THING, YOUR
7 HONOR.

8 **THE COURT:** AND THE COURT REPORTER TELLS ME
9 THAT SHE CAN HAVE A ROUGH TO YOU BY ABOUT THE SAME
10 TIME. SO OBVIOUSLY THE PAGE NUMBERS MAY NOT BE RIGHT
11 IN TERMS OF THE ROUGH, BUT I'M GOING TO REQUEST -- OR
12 I'M GOING TO ORDER THAT YOU FILE YOUR FINDINGS OF
13 FACT AND CONCLUSIONS OF LAW BY MIDNIGHT TOMORROW
14 NIGHT, WHATEVER THAT DAY IS. MARCH 8TH. THAT'S 12
15 HOURS AFTER YOU GET YOUR TRANSCRIPTS.

16 YOU HAVE -- THE CONCLUSIONS OF LAW
17 AREN'T GOING TO CHANGE, AND YOUR FINDINGS OF FACT --
18 EVERYBODY IN HERE HAS BEEN TAKING REALTIME NOTES
19 PRACTICALLY, SO ALL YOU'RE REALLY LOOKING FOR FROM
20 THE TRANSCRIPTS ARE PAGINATIONS AND VERIFICATION THAT
21 YOU'VE GOT THE QUOTES DOWN RIGHT. I THINK YOU CAN DO
22 THAT IN 12 HOURS.

23 **MR. STRONSKI:** YOUR HONOR, I'VE BEEN ASKED
24 BY OTHERS TO ASK FOR, IF POSSIBLE, AN EXTENSION TO
25 SUNDAY.

1 **THE COURT:** SUNDAY AT WHAT TIME?

2 TELL ME WHY. I MEAN, I'M NOT TRYING TO
3 MAKE Y'ALL WORK UNTIL MIDNIGHT. BUT REALLY, YOU HAVE
4 ABOUT -- I DON'T KNOW -- 10 PEOPLE IN HERE TAKING
5 NOTES VOCIFEROUSLY. I REALIZE THAT YOU'RE NOT GOING
6 TO HAVE A PAGE AND LINE CITE NECESSARILY, BUT YOU
7 OUGHT TO BE ABLE TO POINT TO A WITNESS'S TESTIMONY
8 AND SAY THAT *THE COURT SHOULD BE ABLE TO CONCLUDE IS*
9 *FACT THIS FROM THAT WITNESS TESTIMONY.*

10 **MR. STRONSKI:** YOUR HONOR, WE'LL GET IT DONE
11 WHENEVER YOU NEED IT. MY CONCERN IS THAT I THINK
12 THAT THIS RECORD IS DIFFERENT SIGNIFICANTLY THAN THE
13 RECORD THAT WE COULD HAVE PREPARED TO DO -- WE'VE
14 BEEN WORKING ON THE FINDINGS OF FACT BECAUSE WE KNOW
15 YOU WANT IT RIGHT AWAY. BUT I THINK WE'LL NEED A
16 SIGNIFICANT AMOUNT OR SOME TIME BEFORE WE GET THE
17 TRANSCRIPTS.

18 AND SO EVEN IF WE COULD HAVE TILL
19 SUNDAY MORNING I THINK AT, YOU KNOW -- BUT IF YOUR
20 HONOR WANTS IT AT MIDNIGHT SATURDAY, WE'LL DO IT.

21 **THE COURT:** NO.

22 **MR. STRONSKI:** I JUST THINK WE MAY GET A
23 MORE USEFUL PRODUCT ON SUNDAY.

24 **THE COURT:** SUNDAY MORNING 9 A.M.

25 **MR. STRONSKI:** THANK YOU.

1 **THE COURT:** SO THAT'S SUNDAY, MARCH 9TH AT 9
2 A.M.

3 **MR. STRONSKI:** YOUR HONOR, WE MADE A MOTION
4 TO RECONSIDER. I DON'T KNOW IF THAT'S -- YOU SAID
5 YOU WOULD CONSIDER THAT LATER OR NOW?

6 **THE COURT:** NO. THE COURT WILL TAKE THAT UP
7 IN ITS WRITTEN REASONS.

8 **MR. STRONSKI:** THANK YOU.

9 **THE COURT:** OKAY. IS THERE ANYTHING
10 FURTHER?

11 **THE COURTROOM DEPUTY:** I'M GOING TO GET THE
12 EXHIBIT LIST. I MADE A COPY JUST FOR THEM TO LOOK AT
13 AND MAKE SURE THAT I GOT EVERYTHING.

14 **THE COURT:** OKAY. THE COURTROOM DEPUTY HAS
15 THE EXHIBIT LIST. SHE'S GOING TO TELL YOU WHAT SHE
16 SHOWS AS HAVING BEEN ADMITTED AND ACCEPTED FOR
17 ADMISSION. YOU NEED TO VERIFY THAT IT'S CORRECT AND
18 MAKE SURE THAT YOUR JERS EXHIBITS HAVE BEEN MODIFIED
19 IN WHATEVER WAYS WERE REQUIRED -- WERE INDICATED
20 DURING THE TRIAL.

21 OKAY. THANK YOU--ALL BOTH. YOU WORKED
22 REALLY HARD AND I APPRECIATE YOUR PROFESSIONALISM.

23 **MR. CODY:** YOUR HONOR, JUST A POINT OF
24 CLARIFICATION.

25 DO THE CONCLUSIONS OF LAW NEED TO

1 ADDRESS THE RELIGION CLAIMS AT ALL SINCE THEY'RE
2 ASKING FOR IT TO BE RECONSIDERED? WE JUST -- YOU
3 SAID YOU WERE GOING TO ADDRESS IT IN YOUR RULING. SO
4 WE DON'T KNOW IF WE NEED TO BRIEF THAT. I GUESS WE
5 JUST WANT CLARIFICATION.

6 **MR. STRONSKI:** WE'RE PREPARED TO BRIEF IT,
7 YOUR HONOR. WE'VE BEEN WORKING ON IT.

8 **THE COURT:** WELL, THE COURT IS NOT PREPARED
9 TO RULE ON RECONSIDERATION RIGHT NOW, SO Y'ALL JUST
10 DO WHAT YOU THINK YOU NEED TO DO.

11 **MR. CODY:** YES, YOUR HONOR.

12 **MR. STRONSKI:** IF WE INCLUDE IT, YOUR HONOR,
13 IS THAT ACCEPTABLE?

14 **THE COURT:** IF YOU EXCLUDE IT?

15 **MR. STRONSKI:** IF WE INCLUDE IT.

16 **THE COURT:** YES. DO WHAT YOU NEED TO DO.

17 **MR. STRONSKI:** THANK YOU.

18 **THE COURT:** OKAY. THANK YOU FOR YOUR
19 PATIENCE, THANK YOU FOR YOUR COOPERATION, THANK YOU
20 FOR YOUR PROFESSIONALISM. WELL DONE, EVERYBODY.

21 WE ARE IN RECESS.

22 **THE LAW CLERK:** ALL RISE.

23 COURT IS NOW IN RECESS.

24 **(WHEREUPON, THE PROCEEDINGS WERE CONCLUDED.)**

25 **C E R T I F I C A T E**

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I CERTIFY THAT THE FOREGOING IS A CORRECT
TRANSCRIPT FROM THE RECORD OF THE PROCEEDINGS IN THE
ABOVE-ENTITLED NUMBERED MATTER.
S:/NATALIE W. BREAUX
NATALIE W. BREAUX, RPR, CRR
OFFICIAL COURT REPORTER

**UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN

CIVIL ACTION

VERSUS

NO. 25-169-SDD-SDJ

GARY WESTCOTT, et al.

RULING

Before the Court is a Motion for Preliminary Injunction filed by Plaintiff Jessie Hoffman, (“Plaintiff” or “Hoffman”).¹ Defendants Gary Westcott, (“Secretary Westcott”), Secretary for the Louisiana Department of Public Safety and Corrections, (“DPSC”); Darrel Vannoy, Warden of the Louisiana State Penitentiary, (“Warden Vannoy”); and John Does, unknown executioners, (collectively, “Defendants” or “the State”), oppose the motion.² Plaintiff has filed a reply.³ The Court held a preliminary injunction hearing on March 7, 2025. During this hearing, Plaintiff urged the Court to reconsider its denial of his RLUIPA⁴ claim (Count VI).⁵

After reviewing the evidence, and considering the law and arguments of the parties, for the reasons which follow, the Court shall GRANT the Plaintiff’s Motion for Preliminary Injunction under the Eighth Amendment, DENY the Plaintiff’s Motion to Reconsider the RILUIPA claim, and DENY Injunctive Relief in all other respects. The Defendants shall be enjoined from executing Jessie Hoffman on March 18, 2025, using nitrogen hypoxia.

¹ Rec. Doc. 4.

² Rec. Doc. 56.

³ Rec. Doc. 75.

⁴ Religious Land Use and Institutionalized Persons Act (“RLUIPA”), 42 U.S.C. § 2000cc *et seq.*

⁵ Rec. Doc. 87, p. 115.

I. BACKGROUND

Plaintiff is a death row inmate at the Louisiana State Penitentiary in Angola, Louisiana, (“Angola”). He was sentenced to death by lethal injection on September 11, 1998, for the murder of Mary “Molly” Elliot.⁶ Over 26 years later on February 20, 2025, Plaintiff was served the death warrant for his March 18, 2025 execution.⁷ Secretary Westcott⁸ chose nitrogen hypoxia as Plaintiff’s method of execution, not lethal injection as per his September 11, 1998 death sentence.⁹

Hoffman does not challenge his conviction or death sentence. He challenges the method of his execution under 42 U.S.C. § 1983. He seeks to be executed by firing squad or a drug cocktail known as DDMAPh instead of nitrogen hypoxia, which he argues poses a substantial risk of severe psychological pain when compared to the alternatives he proposes.

Nitrogen hypoxia is the deprivation of oxygen through the inhalation of nitrogen.¹⁰ In February 2024, the Louisiana legislature amended La. R.S. § 15:569 to add nitrogen hypoxia as a method of execution effective July 2024.¹¹ Now, the State has the option to execute those on death row in one of three ways: lethal injection, electrocution, and nitrogen hypoxia.¹² Louisiana is one of only four states that authorizes execution by

⁶ *State v. Hoffman*, 1998-3118 (La. 4/11/00); 768 So. 2d 542, 549–50.

⁷ See Rec. Doc. 56-2, p. 5 (suggesting the death warrant was issued on February 10, 2025); Rec. Doc. 86, pp. 25–26 (Plaintiff’s testimony from PI hearing that he was served the death warrant on February 20, 2025).

⁸ Secretary Westcott has been the Secretary of the Louisiana Department of Public Safety and Corrections since August 2024. Rec. Doc. 87, p. 24.

⁹ *Id.*

¹⁰ See, e.g., *id.* at p. 30 (Dr. Bickler defining hypoxia).

¹¹ See La. R.S. § 15:569(A); La. Acts 2024, 2nd Ex. Sess., No. 5, §1, eff. July 1, 2024.

¹² La. R.S. § 15:569(A).

nitrogen hypoxia.¹³ Alabama is the only state that has used this method and has done so on four occasions since January 25, 2024.¹⁴ The parties do not dispute that Louisiana's nitrogen hypoxia protocol was modeled after, and is identical to, Alabama's protocol in all relevant respects.

After years of being unable to conduct executions through lethal injection, the Governor on March 5, 2024, signed a law that adds nitrogen hypoxia as a means of execution available to the DPSC.¹⁵ This law took effect on July 1, 2024.¹⁶ Before the law took effect, the DPSC visited Alabama to see its nitrogen gas execution system¹⁷ and purchased the nitrogen that would be used in executions.¹⁸ By November 2024, and after two trips to Alabama, Louisiana's nitrogen gas execution system was "assembled and in place" at Angola.¹⁹ Training on the nitrogen system started in November 2024.²⁰ Obviously, DPSC anticipated the ability to use nitrogen for executions. Yet, despite the leg work that DPSC had already undertaken, Louisiana's execution protocol, a carbon copy of Alabama's, was not promulgated until February 7, 2025.²¹

Almost immediately thereafter, Hoffman's death warrant was signed and served upon him, giving him less than 60 days to challenge his method of execution. Then he was stymied by the State's refusal to produce even a redacted version of his execution protocol. By order of the Court, the State produced the protocol to Hoffman pursuant to a

¹³ Oklahoma, Mississippi, and Alabama also have nitrogen hypoxia as a method of execution. See Okla. Stat. tit. 22, § 1014(B); Miss. Code § 99-19-51(1); Ala. Code § 15-18-82.1.

¹⁴ See *Frazier v. Hamm*, No. 24-732, 2025 WL 361172 (M.D. Ala. Jan. 31, 2025) (discussing the Alabama executions of Demetrius Frazier, Kenneth Smith, Alan Miller, and Carey Grayson by nitrogen hypoxia).

¹⁵ See La. R.S. § 15:569 and its legislative history, available at <https://legis.la.gov/legis/BillInfo.aspx?s=242ES&b=ACT5&sbi=y>.

¹⁶ *Id.*

¹⁷ Rec. Doc. 86, p. 178.

¹⁸ *Id.* at pp. 162–63.

¹⁹ Rec. Doc. 87, p. 18.

²⁰ *Id.* at pp. 14–15

²¹ *Id.* at p. 12.

protective order three days before the hearing.²² This highlights a key difference between Louisiana and Alabama. Alabama finalized its execution protocol in late August of 2023,²³ and its first nitrogen hypoxia execution was on January 25, 2024.²⁴ Here, Louisiana finalized its protocol in the eleventh hour, allowing Hoffman virtually no time to seek redress.

Plaintiff filed this suit on February 25, 2025, challenging the constitutionality of nitrogen hypoxia as Louisiana's chosen method of his execution.²⁵ He brings multiple claims, including violations of the First, Sixth, Eighth, and Fourteenth Amendments of the United States Constitution; the *Ex Post Facto* Clause, Article 1, § 10 of the Constitution; 18 U.S.C. § 3599, providing access to counsel; and RLUIPA, 42 U.S.C. § 2000cc *et seq.*²⁶ Plaintiff filed a Motion for Preliminary Injunction seeking to prohibit the State from executing him on March 18, 2025, through nitrogen hypoxia.²⁷ He prays that "the execution should be stayed by preliminary injunction to allow for a reasonable period of expedited discovery, briefing and a hearing with experts so that this case may be decided on a developed record."²⁸

Given Plaintiff's scheduled execution date of March 18, 2025, the Court set a preliminary injunction hearing for March 7, 2025.²⁹ The parties had exactly one week to prepare for the hearing, which included exchanging expert declarations, redacting sensitive information from documents, agreeing to stipulations of fact, responding to

²² Rec. Doc. 41.

²³ *Frazier*, 2025 WL 361172, at *3.

²⁴ *Id.* at *5.

²⁵ Rec. Doc. 1.

²⁶ *Id.*

²⁷ Rec. Doc. 4.

²⁸ Rec. Doc. 4-1, p. 3.

²⁹ Rec. Doc. 29.

written discovery, conducting numerous depositions, preparing witnesses, assembling exhibits, and engaging in motion practice.³⁰

With respect to motion practice, Defendants filed a Motion to Dismiss Plaintiff's claims,³¹ which Plaintiff opposed.³² The Court granted Defendants' Motion to Dismiss in part and denied it in part.³³ Specifically, the Court dismissed as moot the claim for Refusal to Disclose the Execution Protocol Claim (Count V). The Court dismissed the Religious Exercise Claims (Counts VI and VII) with prejudice. The Eighth Amendment, *Ex Post Facto* and Right to Counsel/ Access to Courts claims (Counts I-IV) proceeded to hearing. Plaintiff urges the Court to reconsider denying his RLUIPA claim (Count VI).³⁴

The Court held a preliminary injunction hearing on March 7, 2025, beginning approximately at 9:00 a.m. and ending sometime past 8:00 p.m. Multiple witnesses testified, making the hearing transcript over 400 pages.³⁵ The parties received copies of the hearing transcript on the morning of Saturday March 8, 2025, and had until March 9, 2025, at 9:00 a.m. to submit to the Court Proposed Findings of Fact and Conclusions of Law.

Now, after an expedited hearing, and absent a fully developed record, this Court must answer the ultimate question: is nitrogen hypoxia cruel and unusual punishment under the Eighth Amendment? If Plaintiff can prove there is a substantial likelihood that he will succeed on this claim—or any of his remaining claims for that matter—do the balance of equities weight in his favor, insomuch as it is in the public's interest for this

³⁰ See, e.g., Rec. Docs. 10, 33, 40, 55.

³¹ Rec. Doc. 55.

³² Rec. Doc. 69.

³³ Rec. Doc. 79. Defendants filed a 12(b)(6) Motion to Dismiss but have not yet answered the Complaint.

³⁴ Rec. Doc. 87, p. 115.

³⁵ See Rec. Docs. 86, 87.

Court to issue an injunction prohibiting the irreparable harm that will result from his March 18, 2025 execution?

II. MOTION TO RECONSIDER DISMISSAL OF PLAINTIFF'S RLUIPA CLAIM

Plaintiff moves for reconsideration of the Court's 12(b)(6) dismissal of his RLUIPA claim.³⁶ Count VI alleges that the execution by nitrogen hypoxia violates RLUIPA because it substantially burdens Hoffman's religious exercise to breathe meditatively since he will be deprived from breathing air.³⁷

RLUIPA states that

[n]o government shall impose a substantial burden on the religious exercise of a person residing in or confined to an institution . . . even if the burden results from a rule of general applicability, unless the government demonstrates that imposition of the burden on that person—(1) is in furtherance of a compelling governmental interest; and (2) is the least restrictive means of furthering that compelling governmental interest.³⁸

The Supreme Court has summarized the RLUIPA test as follows:

A plaintiff bears the initial burden of proving that a prison policy implicates his religious exercise. Although RLUIPA protects any exercise of religion, whether or not compelled by, or central to, a system of religious belief, a prisoner's requested accommodation must be sincerely based on a religious belief and not some other motivation. The burden on the prisoner's religious exercise must also be substantial. Once a plaintiff makes such a showing, the burden flips and the government must demonstrate that the imposition of the burden on that person is the least restrictive means of furthering a compelling governmental interest.³⁹

The Court finds that meditative breathing is an exercise attendant to practicing Hoffman's chosen faith of Buddhism.⁴⁰ The Court dismissed Hoffman's RLUIPA claim finding that substituting nitrogen for atmospheric air does not substantially burden

³⁶ Rec. Doc. 87, p. 115.

³⁷ Rec Doc. 1, ¶¶ 233–38.

³⁸ 42 U.S.C. § 2000cc–1(a).

³⁹ *Ramirez v. Collier*, 595 U.S. 411, 425 (2022) (quoting 42 U.S.C. § 2000cc–1(a); *Holt v. Hobbs*, 574 U.S. 352, 360–62 (2015)) (cleaned up).

⁴⁰ “[T]raditional forms of religious exercise” satisfy the religious exercise prong of RLUIPA. *Id.* at 425, 427.

Hoffman’s ability to breath. Nothing in the evidence changes this conclusion. The record evidence established that nitrogen is an inert, tasteless, colorless, odorless gas.⁴¹

“[A] government action or regulation creates a ‘substantial burden’ on a religious exercise if it truly pressures the adherent to significantly modify his religious behavior and significantly violate his religious beliefs.”⁴² Plaintiff responds that Hoffman’s “sincerely held religious beliefs are substantially burdened **not** because he will be unable to breathe” but because he will be forced to breath nitrogen instead of air.⁴³ At the preliminary injunction hearing, two Buddhist clerics testified that air (not nitrogen) is necessary for meditative breathing.⁴⁴ They cited no religious text or instruction by the historical Buddha in support of this proposition.

The Court finds that Buddhism calls its adherents to a ritual of breathing rhythmically to achieve a meditative state, what the clerics referred to as “zen.” This is analogous to Western religions’ practice of prayer. The Plaintiff admits that he will have the ability to breathe in the nitrogen as it is administered.⁴⁵ The Court finds there is no substantial burden to his exercise of rhythmic breathing. The Court denies reconsideration of this claim.

III. EXHAUSTION UNDER THE PLRA

Hoffman filed a grievance as soon as the law adding nitrogen hypoxia as a method of execution went into effect on July 1, 2024.⁴⁶ The Defendants rejected his grievance as premature, stating:

REJECTED. Your request has been rejected for the following reason(s):

⁴¹ Rec. Doc. 87, p. 89.

⁴² *Adkins v. Kaspar*, 393 F.3d 559, 570 (5th Cir. 2004).

⁴³ Rec. Doc. 69, p. 20 (emphasis added).

⁴⁴ Rec. Doc. 86, pp. 48, 49 (Reverend Michaela Bono), 103 (Reverend Reimoku Gregory Smith).

⁴⁵ *Id.* at p. 39.

⁴⁶ Rec. Doc. 69-1, pp. 1–6.

YOUR GRIEVANCE ALLEGING THAT VARIOUS EXECUTION METHODS CONSTITUTE CRUEL AND UNUSUAL PUNISHMENT IN VIOLATION OF THE CONSTITUTION HAS BEEN REJECTED AS PREMATURE, AS IT CONCERNS EVENTS THAT HAVE NOT YET HAPPENED AND/OR ACTIONS OR DECISIONS THAT HAVE YET TO OCCUR. A VALID DEATH WARRANT HAS YET TO ISSUE IN YOUR CASE, AND THE LAW ENACTING THE VARIOUS EXECUTION MEANS OUTLINED IN YOUR GRIEVANCE HAS YET TO TAKE LEGAL EFFECT. FOR THE REASONS STATED ABOVE, YOUR REQUEST FOR RELIEF IS REJECTED WITHOUT CONSIDERATION ON THE MERITS. PLEASE NOTE THAT REJECTED REQUESTS FOR ADMINISTRATIVE REMEDY ARE NOT APPEALABLE TO THE SECOND STEP.⁴⁷

After his attorneys received notice that the State was seeking an execution warrant, Hoffman filed a grievance under the prison's Administrative Remedy Procedure ("ARP") on February 10, 2025.⁴⁸ Angola responded to his grievance advising that a response would be issued within 40 days, i.e., after his scheduled execution.⁴⁹ Hoffman then filed a second emergency grievance on February 14, 2025.⁵⁰ No response to the second emergency grievance is contained in the record.

"Where an administrative process does not facilitate addressing execution-related claims within the timeframe of a scheduled execution, it is likely not an 'available' remedy that must be exhausted under the PLRA."⁵¹ When prison officials mishandle an inmate's grievance, it cannot be said that he failed to exhaust his remedies.⁵²

Defendants complain that Hoffman did not plead an alternative method of execution in his emergency ARP. However, the Prison Litigation Reform Act does not require legal detail in a grievance. Grievances must provide a factual basis "to identify

⁴⁷ *Id.* at p. 8.

⁴⁸ Rec. Doc. 56-2, pp. 2, 5–7.

⁴⁹ *Id.* at p. 4.

⁵⁰ *Id.* at pp. 9–12.

⁵¹ *Ramirez*, 595 U.S. at 438 (2022) (Sotomayor, J., concurring).

⁵² *Dole v. Chandler*, 438 F.3d 804, 811 (7th Cir. 2006).

problems, but need not necessarily advance specific legal theories.”⁵³ An incarcerated person “need not present legal theories in his grievance[.]”⁵⁴ The purpose of an ARP is fair notice. The State was on notice that Hoffman challenged his method of execution.

Defendants challenge Hoffman’s failure to include his *Ex Post Facto* and Right to Counsel/Access to Courts Claims in his ARP. The Prison Litigation Reform Act provides that “[n]o action shall be brought **with respect to prison conditions** . . . by a prisoner confined in any jail, prison, or other correctional facility until such administrative remedies as are available are exhausted.”⁵⁵ This is not a conditions of confinement claim. The remedy Hoffman seeks—a declaration that La. R.S. § 15:569 is unconstitutional under the *Ex Post Facto* Clause, 18 U.S.C. 3599, and the Sixth and Eighth Amendments of the U.S. Constitution cannot be redressed through the prison grievance process.⁵⁶

The Court finds that Plaintiff has exhausted all available remedies. Based on these facts, there is no administrative process **available** for Hoffman to obtain any relief for the actions complained of. An administrative process is not available if it is not “‘capable of use’ to obtain ‘some relief for the action complained of.’”⁵⁷

IV. MOTION FOR PRELIMINARY INJUNCTION

Legal Standard for Preliminary Injunctions

A preliminary injunction is an “extraordinary and drastic remedy” that may only be awarded upon a clear showing that the plaintiff is entitled to such relief.⁵⁸ A plaintiff seeking injunctive relief must demonstrate by a preponderance of the evidence that “(1)

⁵³ *Williams v. Estelle Unit Prison Offs.*, No. 23-20036, 2024 WL 3026778, at *3 (5th Cir. June 17, 2024) (citing *Johnson v. Johnson*, 385 F.3d 503, 517 (5th Cir. 2004)).

⁵⁴ *Johnson*, 385 F.3d at 517.

⁵⁵ 42 U.S.C. § 1997e(a).

⁵⁶ *Ross v. Blake*, 578 U.S. 632, 639 (2016).

⁵⁷ *Id.* at 642 (quoting *Booth v. Churner*, 532 U.S. 731, 738 (2001)).

⁵⁸ *Munaf v. Geren*, 553 U.S. 674, 689 (2008).

it is likely to succeed on the merits, (2) it is likely to suffer irreparable harm without an injunction, (3) the balance of equities tips in its favor, and (4) an injunction is in the public interest.”⁵⁹

“The decision to grant or deny a preliminary injunction is discretionary with the district court.”⁶⁰ However, because a preliminary injunction is an extraordinary remedy, it “should not be granted unless the party seeking it has clearly carried the burden of persuasion on all four requirements.”⁶¹ Consequently, the decision to grant a preliminary injunction is “the exception rather than the rule.”⁶²

Irreparable Harm

Wright & Miller instructs that “[p]erhaps the single most important prerequisite for the issuance of a preliminary injunction is a demonstration that if it is not granted the applicant is likely to suffer irreparable harm before a decision on the merits can be rendered.”⁶³ Here, Plaintiff will most certainly suffer irreparable harm if his claim for injunctive relief is not decided prior to his March 18, 2025 execution date. No harm is more irreparable than death. Finding so, the Court moves to the remaining elements of the preliminary injunction analysis.

Substantial Likelihood of Success on the Merits

A. Eighth Amendment Claims (Counts I and II)

Plaintiff argues that nitrogen hypoxia execution violates the Eighth Amendment prohibition against cruel and unusual punishment facially and as applied to him.

⁵⁹ *United States v. Abbott*, 110 F.4th 700, 706 (5th Cir. 2024) (citation omitted).

⁶⁰ *Miss. Power & Light Co. v. United Gas Pipe Line Co.*, 760 F.2d 618, 621 (5th Cir. 1985).

⁶¹ *Planned Parenthood v. Suehs*, 692 F.3d 343, 348 (5th Cir. 2012).

⁶² *Miss. Power & Light Co.*, 760 F.2d at 621.

⁶³ 11A Charles Alan Wright, Arthur R. Miller & Mary Kay Kane, *Federal Practice and Procedure* § 2948.1 (3d ed. 2024).

“[C]lassifying 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,’ but it does not speak at all to the substantive rule of law necessary to establish a constitutional violation.”⁶⁴ It is well settled that “[w]hile the Eighth Amendment doesn’t forbid capital punishment, it does speak to how States may carry out that punishment, prohibiting methods that are ‘cruel and unusual.’”⁶⁵ “Punishments are cruel when they involve torture or a lingering death[.]”⁶⁶ “It implies . . . something inhumane and barbarous, something more than the mere extinguishment of life.”⁶⁷

To that end, the question in dispute is whether the State’s chosen method of execution “intensifie[s] the sentence of death” with “a (cruel) superaddition of terror, pain or disgrace.”⁶⁸ “As originally understood, the Eighth Amendment tolerated methods of execution, like hanging, that involved a significant risk of pain, while forbidding as cruel only those methods that intensified the death sentence by ‘superadding’ terror, pain, or disgrace.”⁶⁹ “To establish that a State’s chosen method cruelly ‘superadds’ pain to the death sentence, a prisoner must show a feasible and readily implemented alternative method that would significantly reduce a substantial risk of severe pain and that the State has refused to adopt without a legitimate penological reason.”⁷⁰

“Only through a ‘comparative exercise,’ . . . can a judge ‘decide whether the State has cruelly “superadded” pain to the punishment of death.’”⁷¹ Here, Plaintiff proposes two

⁶⁴ *Bucklew v. Precythe*, 587 U.S. 119, 138 (2019) (citing *Citizens United v. Fed. Election Comm’n*, 558 U.S. 310, 331 (2010)).

⁶⁵ *Id.* at 130.

⁶⁶ *Baze v. Rees*, 553 U.S. 35, 49 (2008) (quoting *In re Kemmler*, 136 U.S. 436, 447 (1890)).

⁶⁷ *Id.* (quoting *In re Kemmler*, 136 U.S. at 447).

⁶⁸ *Bucklew*, 587 U.S. at 133 (cleaned up).

⁶⁹ *Id.* at 119.

⁷⁰ *Id.* at 119–20 (citing *Baze*, 553 U.S. at 52; *Glossip v. Gross*, 576 U.S. 863, 867–78 (2015)).

⁷¹ *Nance v. Ward*, 597 U.S. 159, 164 (2022) (quoting *Bucklew*, 587 U.S. at 136).

alternative methods of execution: firing squad and DDMAPh, which is a regimen used for medical-aid-in-dying. The fact that these methods are not authorized under Louisiana law is immaterial.⁷² In such a scenario, as the United States Supreme Court has explained, “the State can enact legislation approving what a court has found to be a fairly easy-to-employ method of execution.”⁷³ When a state “has legislated changes to its execution method several times before[,]” there is “no reason to think that the amendment process would be a substantial impediment.”⁷⁴

Therefore, the Court’s analysis turns on whether Plaintiff has shown a substantial likelihood that (1) making the condemned breath pure nitrogen until dead cruelly superadds pain and suffering to the execution when compared to firing squad or DDMAPh; (2) firing squad or DDMAPh is “feasible, readily implemented and in fact significantly reduce[s] a substantial risk of severe pain;”⁷⁵ and (3) the state has refused to adopt one of these methods without a legitimate penological reason.

1. Substantial Risk of Harm

“Nitrogen hypoxia” as a method of execution was first advanced in 2014 by four criminal law professors at Oklahoma’s East Central University.⁷⁶ Louisiana has never executed or attempted to execute a condemned inmate by nitrogen gassing, nor has the federal government. The only state to have used nitrogen gas as a method of execution

⁷² See *Nance*, 597 U.S. 159 (holding that Section 1983 is an appropriate vehicle for a method-of-execution claim where the prisoner proposes an alternative method not authorized under their State’s law).

⁷³ *Id.* at 170.

⁷⁴ *Id.*

⁷⁵ *Glossip*, 576 U.S. at 877 (quoting *Baze*, 553 U.S. at 52).

⁷⁶ MICHAEL COPELAND ET AL., NITROGEN INDUCED HYPOXIA AS A FORM OF CAPITAL PUNISHMENT (2014) (a white paper by Professors Michael Copeland, Christine Pappas, and Thomas Parr proposing asphyxiation by nitrogen gas, coining “nitrogen hypoxia” as an alternative to lethal injection).

is Alabama. To date, Alabama has executed four condemned men by nitrogen hypoxia.⁷⁷ In the execution context, the condemned is forced to inhale pure nitrogen, which displaces the oxygen in the lungs thereby robbing the body of oxygen needed for survival. Eyewitness accounts from these executions are the most probative evidence of what death by forced inhalation of nitrogen looks like.

The accounts of all four Alabama executions describe suffering, including conscious terror for several minutes, shaking, gasping, and other evidence of distress. In particular, eyewitnesses observed:

- violent writhing of the entire body under the straps “to the point that the entire gurney [was] moving up and down”;⁷⁸
- vigorous convulsing and shaking for four minutes;⁷⁹
- repeated gasping while conscious;⁸⁰
- minutes of conscious struggling for life;⁸¹
- heaving and spitting;⁸²
- two minutes of shaking and trembling “followed by about six minutes of periodic gulping breaths before [becoming still]”;⁸³

⁷⁷ See *Frazier*, 2025 WL 361172 (discussing the Alabama executions of Demetrius Frazier, Kenneth Smith, Alan Miller, and Carey Grayson by nitrogen hypoxia).

⁷⁸ Rec. Doc. 68-2, James Finn, *Jeff Landry supports death penalty by nitrogen gas. Here's how an eyewitness described it*, THE ADVOCATE, February 20, 2024, https://www.nola.com/news/politics/legislature/witness-recounts-nitrogen-execution-supported-by-jeff-landry/article_be56ebb8-d021-11ee-8b2b-772fa7c8c892.html.

⁷⁹ Rec. Doc. 4-5, pp. 213–14.

⁸⁰ *Id.* at pp. 211, 218.

⁸¹ *Id.* at pp. 228, 285.

⁸² *Id.* at pp. 74, 271.

⁸³ Rec. Doc. 4-1, Ivana Hrynkiw, Alabama inmate Alan Miller executed with nitrogen gas Thursday for 1999 shootings, AL.com (Sept. 26, 2024 8:59 PM), <https://www.al.com/news/2024/09/alabama-inmate-alan-miller-set-to-be-executed-with-nitrogen-gas-thursday-for-1999-shootings.html>.

A spiritual advisor, who also happens to be a physician, recounts his observations as follows: “We don’t see people jerking around like that while they’re dying normally. His face was twisted, and he looked like he was suffering.”⁸⁴

None of these eyewitnesses testified at the preliminary injunction. In the absence of eyewitness testimony of executions by nitrogen hypoxia, the parties’ called medical experts. Plaintiff called Dr. Philip Bickler,⁸⁵ a Board-Certified Anesthesiologist whom the State stipulated is an expert in the fields of “Anesthesiology and Human Hypoxia.”⁸⁶ Defendants called Dr. Joseph F. Antognini, a Board-Certified Anesthesiologist whom Plaintiff’ stipulated is an expert in the fields of “Anesthesiology, General Medicine, and Physiology.”⁸⁷

Dr. Bickler has extensive clinical experience observing the effects oxygen deprivation (hypoxia) on humans and the scientific study of controlled blood oxygen desaturation. For thirty years, he has conducted clinical research on human subjects in various states of hypoxia.⁸⁸ He has conducted at least 5,000 hypoxia studies on humans involving administering low oxygen containing gas and monitoring the subjects’ responses.⁸⁹ From his work at the Hypoxia Research Laboratory, he has published extensively in peer-reviewed scientific and medical journals regarding the physiological effects of hypoxia on humans and other animals.⁹⁰ The Court finds Dr. Bickler is a qualified expert in the field on anesthesiology, and the Court finds Dr. Bickler to be superbly

⁸⁴ *Ivana Hrynskiw, Alabama inmate Alan Miller executed with nitrogen gas Thursday for 1999 shootings, AL.com (Sept. 26, 2024 8:59 PM), <https://www.al.com/news/2024/09/alabama-inmate-alan-miller-set-to-be-executed-with-nitrogen-gas-thursday-for-1999-shootings.html>.*

⁸⁵ Rec. Doc. 4-5, pp. 5–72 (Dr. Bickler CV).

⁸⁶ Rec. Doc. 87, p. 27.

⁸⁷ *Id.* at pp. 126–27.

⁸⁸ *Id.* at p. 30. He runs a Hypoxia Research Lab.

⁸⁹ *Id.* at p. 44.

⁹⁰ See Rec. Doc. 4-5, pp. 5–72 (Dr. Bickler CV).

qualified in the field of human hypoxia, owing to his long and extensive clinical work in the effect of low oxygen (hypoxia) on humans.

On the other hand, Dr. Antognini has never clinically studied the effects of hypoxia on humans. He has not published nor presented any studies regarding the effects of nitrogen hypoxia. Professionally, the only study of human hypoxia Dr. Antognini has done is in connection to providing opinions to Alabama and Louisiana in support of nitrogen hypoxia execution. He has testified for various states in fifteen to twenty lethal injection execution cases and in five cases involving nitrogen hypoxia.⁹¹

Dr. Bickler explained the physiological effects of oxygen depletion. When oxygen levels drop, “it sets off all our alarm bells. It hyperactivates our sympathetic nervous system, so there is an increase in heart rate, in blood pressure. You feel blood pounding in your head. You have an increased drive to breathe. You feel like you're gasping for air.”⁹² Hypoxia “elicits [a] massive sympathetic nervous system response . . . it produces a terror response.”⁹³ “Your drive to breathe overcomes your conscious will.”⁹⁴ He explained that the “lungs are a four-to-five-quart reservoir of air which contains 20% oxygen. So it may take a number of minutes depending on the breathing volume [for nitrogen] to wash out all the oxygen that is remaining in the lungs.”⁹⁵ “[W]hat this represents is forced asphyxiation, gassing a subject to death, exposing him to a lack of oxygen such that both extreme discomfort, distress, pain, and terror would be felt all the

⁹¹ Rec. Doc. 87, p. 203. The five cases involving nitrogen hypoxia include: *Smith v. Hamm*, No. 23-656, 2024 WL 116303 (M.D. Ala. Jan. 10, 2024); *Miller v. Marshall*, No. 24-197, 2024 WL 3737346 (M.D. Ala. July 8, 2024); *Grayson v. Hamm*, No. 24-376, 2024 WL 4701875 (M.D. Ala. Nov. 6, 2024); *Frazier v. Hamm*, No. 24-732, 2025 WL 361172 (M.D. Ala. Jan. 31, 2025); and the instant matter.

⁹² Rec. Doc. 87, pp. 34–35.

⁹³ *Id.* at pp. 40–41.

⁹⁴ *Id.* at p. 43.

⁹⁵ *Id.* at p. 93.

way up to the point of losing consciousness.”⁹⁶ Dr. Bickler agrees that nitrogen hypoxia does not cause physical pain. “It does not cause physical pain in terms of somatic pain. It causes emotional terror.”⁹⁷ Both experts agree that nitrogen hypoxia does not produce physical pain.⁹⁸

On the question of psychologic pain, Dr. Antognini agreed that oxygen deprivation in the lungs triggers an instinctual response driven by respiratory centers in the brain that tell your body to breathe.⁹⁹ He also agreed that if your brain is telling you to breathe and your mind knows breathing will kill you, this creates “severe emotional suffering.”¹⁰⁰ Thus, there is agreement among the experts that the inability to quiet the primal urge to breathe is severe emotional suffering. The question becomes how long this psychological suffering is likely to endure. What is the time between nitrogen onset and unconsciousness?

Dr. Bickler candidly concedes that a person who is administered 100% pure nitrogen and is breathing normally will lose consciousness in less than one minute.¹⁰¹ But if the condemned holds his breath, Dr. Bickler opines that it could take 3 to 5 minutes to lose consciousness.¹⁰² In order to minimize the time to unconsciousness, and thus the duration of suffering, the condemned must cooperate in his own execution. However, the ability to cooperate (repeatedly inhale deeply) would require the condemned to mentally

⁹⁶ *Id.* at pp. 32–33.

⁹⁷ *Id.* at p. 98.

⁹⁸ *Id.* at pp. 98, 169.

⁹⁹ *Id.* at p. 187. Dr. Antognini tries to limit the primal response to breathe to circumstances of hypercapnia, a condition caused by excess CO₂ in the lungs. *Id.* at pp. 380–81. The court finds Dr. Bickler’s opinion that oxygen deficiency, and not the type of gas depleting the oxygen, triggering the panic response to breathe is more credible.

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at p. 83.

¹⁰² *See id.* at pp. 50, 58.

overcome the primal urge to breathe that is triggered by lack of oxygen.¹⁰³ On the other hand, if the condemned holds his breath, Dr. Bickler opines that it could take 3 to 5 minutes to lose consciousness.¹⁰⁴ The State's expert, Dr. Antognini, agrees that breath-holding will increase the time until loss of consciousness.¹⁰⁵

After careful consideration of these medical experts and their opinions in the context of their reliance materials and experience, the Court credits Dr. Bickler's testimony and opinions over Dr. Antognini's. Dr. Antognini's opinions are untested scientific hypotheses. The studies on which he relies are either irrelevant or unpersuasive.¹⁰⁶

The Court is convinced by Dr. Bickler's testimony and by common sense¹⁰⁷ that the deprivation of oxygen to the lungs causes a primal urge to breathe and feelings of intense terror when inhalation does not deliver oxygen to the lungs. The experts agree and the Court finds that this causes severe psychological pain. The experts also agree that this severe psychological pain endures until the loss of consciousness.¹⁰⁸ Dr. Antognini argues that loss of consciousness will occur between 10 and 40 seconds from inhalation of nitrogen, and Dr. Bickler opines that consciousness will more likely persist

¹⁰³ *Id.* at p. 211 (rebuttal testimony of Dr. Bickler explaining that low oxygen, not CO₂ or other gas, displacement creates the hunger and panic for air).

¹⁰⁴ *See id.* at pp. 50, 58.

¹⁰⁵ *Id.* at pp. 184–85.

¹⁰⁶ Dr. Antognini relied on an Ernsting paper, two Ogden papers, Miller and Mazur, and a “dog study.” Reliance on the dog euthanasia study is flawed. Dr. Antognini admits dogs have different ventilation, different cardiac output, and different metabolisms as compared to humans and would be unlikely to hold their breath. *Id.* at pp. 199–200. The Ernsting paper is not instructive on time to loss of consciousness for the reasons discussed in this Ruling at *infra* p. 18 and note 10. The Miller and Mazur paper is a white paper, not a study or experiment. Rec. Doc. 87, p. 200. It includes no method information or data. The Ogden papers were the work of a Sociologist who observed videos of four voluntary suicides by helium ingestion. *Id.* at pp. 152; 197–99.

¹⁰⁷ One need only hold their breath to understand that there is a primal urge to breathe. Breath-holding causes inhaled CO₂ to displace the oxygen in the lungs as it is carried out of the lungs to the rest of the body. In the case of breath-holding, O₂ is displaced by CO₂; the physiological effect of displacement by nitrogen is no different. *See id.* at pp. 210–17 (Bicker Rebuttal).

¹⁰⁸ *Id.* at pp. 98, 169.

for a minute or more. On the low end, conscious terror and a sense of suffocation endures for 35 to 40 seconds.¹⁰⁹ On the high end, conscious psychological suffering endures for 3 to 5 minutes if an unwilling inmate holds his breath.

The Ernsting study,¹¹⁰ cited and relied upon by both Dr. Bickler and Dr. Antognini, is a human nitrogen hypoxia study done in 1960 and is the only study that recorded time to unconsciousness following the inhalation of pure nitrogen. In the Ernsting study, human subjects were instructed to fully exhale and then hyperventilate 100% pure nitrogen. Under those circumstances, the subjects lost consciousness in 30 to 40 seconds.¹¹¹ The controlled variables in the Ernsting study (complete exhalation and hyperventilated inhale of nitrogen) are not analogous to execution conditions. The Ernsting study supports the conclusion that when the inhalation and exhalation variables are uncontrolled, as it will be in an execution setting, the time to unconsciousness will be longer than 30-40 seconds. Dr. Antognini admitted that the results of experiments using different methods cannot be compared and that the Ernsting method, involving the purging of lung air followed by the hyperventilation of nitrogen, is “very different” from Louisiana’s nitrogen hypoxia method.¹¹²

The Court does not credit Dr. Antognini’s opinion that the Louisiana’s system “will cause unconsciousness within 35 to 40 seconds or perhaps sooner once the inmate starts to inhale in 90 to 100% nitrogen gas.”¹¹³ This opinion is belied by the Ernsting study which documents unconsciousness occurring 30 to 40 seconds after purging of air from the

¹⁰⁹ Rec. Doc. 87, p. 326

¹¹⁰ *Id.* at p. 57.

¹¹¹ *Id.*

¹¹² *Id.* at pp. 192–93.

¹¹³ *Id.* at p. 132.

lungs followed by the hyperventilation of nitrogen. Dr. Antognini conceded that “Dr. Bickler is absolutely right that the lungs will have some oxygen in [them,] [s]o you have to consider not just the volume of the mask but also the volume of the lungs.”¹¹⁴ He opines that unconsciousness will occur “around 10 to 12 seconds” after the “inspired oxygen level is down to about 5%.”¹¹⁵ He candidly referred to his time to unconsciousness as an “estimate.”¹¹⁶

Short of direct observation of humans in hypoxic states, Dr. Antognini presents nothing more than a scientific hypothesis. The scientific method calls for testing hypotheses. His hypothesis could have been tested by observation of the Alabama executions. Dr. Antognini testified for the state in the first Alabama execution (Smith). Alabama hired him in connection with the next three nitrogen hypoxia executions (Miller, Grayson, and Frazier). Dr. Antognini did not observe any of these three Alabama executions following his initial opinion and hypothesis. His hypothesis regarding time until unconsciousness remains untested and unsubstantiated.

The Court finds that Dr. Bickler’s thirty years of clinical research, specifically studying hypoxia in humans, results in reliable scientific understanding of the physiological effect of hypoxia in humans. Anecdotal evidence from eyewitnesses to the four Alabama nitrogen hypoxia executions corroborate and reinforce his opinions.¹¹⁷ The Court finds that Plaintiff has clearly shown that he is substantially likely to prove that nitrogen hypoxia poses a substantial risk of conscious terror and psychological pain.

¹¹⁴ *Id.* at p. 147.

¹¹⁵ *Id.* at p. 149.

¹¹⁶ *Id.* at p. 151.

¹¹⁷ See Rec. Doc. 4-5, pp. 206–285.

2. Alternative Methods

Plaintiff's two proposed alternatives are firing squad and DDMAPh. The Court begins with addressing firing squad as a proposed alternative.

At the preliminary injunction hearing, Plaintiff called Dr. James Williams to testify, whom the State stipulated is an expert in the fields of "Emergency Medicine and Firearms."¹¹⁸ Dr. Williams has been an Emergency Room physician for over 30 years and has seen and treated scores of gunshot wounds.¹¹⁹ Dr. Williams is also recognized by the International Association of Law Enforcement Instructors and the International Law Enforcement Educators and Trainers Association as having an expertise in firearms and ballistics.¹²⁰ Dr. Williams testified at length, basing his opinions on his professional observations and experience, his knowledge of firearms and ballistics, and the State of Utah's Department of Corrections and the United States Military's firing squad protocols.¹²¹

Stated simply, execution by firing squad is the process of firing multiple high caliber bullets¹²² in someone's "cardiac bundle." The cardiac bundle is "the larger organ of the heart and all of its accessory structures, as well as the great vessels above and around the heart"¹²³ Military rifle calibers are used, causing multiple bullets to strike "the individual's body at a velocity of around 2800 feet per second"¹²⁴ These bullets "strike the body with a combined energy of roughly the equivalent of being struck by a 3-quarter-

¹¹⁸ Rec. Doc. 86, p. 105.

¹¹⁹ *Id.* at p. 104.

¹²⁰ *Id.* at p. 105.

¹²¹ *Id.* at pp. 104–31.

¹²² Utah's protocol provides for four bullets, South Carolina's three, and the Military's up to eight. See *id.* at p. 108.

¹²³ *Id.* at pp. 106–07.

¹²⁴ *Id.* at p. 108.

ton fully loaded truck in about .04 seconds and traverse the torso of the individual.”¹²⁵ “[T]he bullets will strike the outside of the body and then traverse through the heart, unleashing tremendous destructive energy upon the heart, which will literally tear the heart to pieces”¹²⁶ “This is significant destructive power which is unleashed in less than a fraction of a second and would cause complete cessation of all cardiac output from the moment the bullets traverse the heart.”¹²⁷ “[U]nconsciousness occurs very rapidly in a period of about 3 to 4 seconds.”¹²⁸

The Court finds Dr. Williams’ testimony that the condemned would be rendered unconscious in 3 to 4 seconds credible. As explained above, Dr. Bickler and Dr. Antognini differ on how long the condemned will suffer psychological terror before becoming unconscious during a nitrogen hypoxia execution. The Court finds it substantially likely that Hoffman will be able to prove a duration of conscious suffering of 30 to 40 seconds. Thus, the Court concludes that Hoffman has clearly demonstrated that he is substantially likely to prevail in his assertion that nitrogen hypoxia superadds pain and terror as compared to firing squad.

Execution by firing squad has been upheld by the Supreme Court under the Eighth Amendment.¹²⁹ The firing squad method of execution is currently approved by five states,¹³⁰ and South Carolina most recently utilized this method on March 7, 2025.¹³¹

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ *Id.* at p. 109.

¹²⁸ *Id.* at p. 110.

¹²⁹ *Wilkerson v. Utah*, 99 U.S. 130 (1878) (upholding a sentence to death by firing squad imposed by a territorial court, rejecting the argument that such a sentence constituted cruel and unusual punishment). (cited in *Baze*, 553 U.S. at 48, and *Bucklew*, 587 U.S. at 131).

¹³⁰ Mississippi, Miss. Code § 99-19-51; Oklahoma, Okla. Stat. tit. 22, § 1014; Utah, Utah Code § 77-18-113; South Carolina, S.C. Code § 24-3-530; and Idaho, Idaho Code § 19-2716.

¹³¹ Jeffrey Collins and Patrick Phillips, ‘*Violent and sudden*’: Witness to first SC firing squad execution describes what he saw, LIVE 5 WCSC (Mar. 8, 2025, 11:15 AM),

“Point[ing] to a well-established protocol in another State as a potentially viable option” is probative of whether a proposed alternative is acceptable and available.¹³² Considering this, there is no legitimate, penological reason why the State has refused to adopt this method of execution. Just as the State modeled its nitrogen hypoxia protocol and procedures after Alabama, it could do the same with the five other states that use firing squad as a method of execution. Chief Operations Officer of the DPSC Seth Smith, (“COO Smith”), testified that the DPSC maintains a supply of firearms and ammunition and has officers trained and skilled in the use of firearms.¹³³

The Court finds that Plaintiff has clearly shown a substantial likelihood that (1) making the condemned breathe pure nitrogen until dead cruelly superadds pain and suffering to the execution when compared to firing squad; (2) firing squad is “feasible, readily implemented, and in fact significantly reduce[s] a substantial risk of severe pain;”¹³⁴ and (3) that the State has failed to adopt firing squad as a method of execution without a legitimate penological reason.

Though Plaintiff satisfies his burden through his first proposed alternative of firing squad, he does not meet this burden with respect to his second proposed alternative of DDMAPh. At the preliminary injunction hearing, Plaintiff called Dr. Charles David Blanke, whom Defendants stipulated was an expert in medical-aid-in-dying and the drugs and methods used in the field.¹³⁵ Dr. Blanke testified that DDMAPh is a five-drug cocktail of digoxin, diazepam (commonly known as Valium), amitriptyline, morphine, and

<https://www.live5news.com/2025/03/08/violent-sudden-witness-first-sc-firing-squad-execution-describes-what-he-saw/>.

¹³² *Nance v. Ward*, 597 U.S. 159, 165 (2022) (quoting *Bucklew*, 587 U.S. at 140). Again, the Court need not hinge its analysis on the fact that firing squad is not authorized under Louisiana law. See *id.* at 170.

¹³³ Rec. Doc. 86, p. 160.

¹³⁴ *Glossip*, 576 U.S. at 877 (quoting *Baze*, 553 U.S. at 52).

¹³⁵ Rec. Doc. 86, p. 133.

phenobarbital.¹³⁶ “Most commonly, people ingest the combination of drugs mixed up in some apple juice and/or apple syrup by swallowing it.”¹³⁷ However, DDMAPh in the execution context would likely involve rectal administration. According to Dr. Blanke, the average time to unconsciousness is 5.8 minutes, and the average time to death is about 96 minutes.¹³⁸

DDMAPh is not a feasible and readily available form of execution in Louisiana. At the hearing, COO Smith testified credibly that drugs used for executions are not available to the State. He testified that “Morris and Dickson and Pfizer, and other drug manufacturers, maybe not in writing, have made it very clear to [the DPSC] that if [it] use[s] any of their medication for a capital punishment case, they reserve the right to pull all of their medication off the table.”¹³⁹ He went on to explain that the DPSC has an aging population and runs “large infirmaries” and “full-blown hospitals.”¹⁴⁰ In short, the DPSC “cannot run the risk of losing access to life-saving drugs”¹⁴¹ The Court agrees and finds that DDMAPh is not a feasible and readily available form of execution. Accordingly, Plaintiff has failed to meet his burden with respect to DDMAPh.

The Court concludes that there is a substantial likelihood that Plaintiff will succeed on the merits that nitrogen hypoxia violates the Eighth Amendment’s prohibition against cruel and unusual punishment. Plaintiff has shown that nitrogen hypoxia superadds psychological pain, suffering, and terror to his execution when compared to execution by firing squad. He has shown that execution by firing squad is a feasible and readily

¹³⁶ *Id.* at p. 135.

¹³⁷ *Id.*

¹³⁸ *Id.* at p. 139.

¹³⁹ *Id.* at p. 176–77.

¹⁴⁰ *Id.* at p. 177.

¹⁴¹ *Id.*

available alternative that the State has no legitimate penological reason for not adopting. Finding that Plaintiff has met his burden as to his facial challenge, the Court need not address his as-applied challenge but notes that there is evidence in the record that execution by nitrogen hypoxia is cruel and unusual as applied to him.¹⁴²

The fact that no method of execution has been violative of the Eighth Amendment does not change the Court's opinion. The Court in *Bucklew* recognized the importance of a full record, noting that "Mr. Bucklew had ample opportunity to conduct discovery and develop a factual record."¹⁴³ After three executions, in *Frazier v. Hamm* the Middle District of Alabama recognized that "the longer an inmate remains conscious while breathing in nitrogen during an execution, the more likely it becomes that the Eighth Amendment may be violated."¹⁴⁴

B. *Ex Post Facto* Clause Claim (Count III)

The *Ex Post Facto* Clause of the United State Constitution "forbids . . . Congress and the States to enact any law 'which imposes a punishment for an act which was not punishable at the time it was committed; or imposes additional punishment to that then prescribed.'"¹⁴⁵ In *Weaver v. Graham*, the Supreme Court discussed its 1915 decision in *Malloy v. South Carolina*¹⁴⁶ and explained that in *Malloy*, a change in the method of execution was "not ex post facto [where] evidence showed the new method to be more humane . . ."¹⁴⁷ In *Sepulvado v. Jindal*, the Fifth Circuit cited *Weaver* and *Malloy* and

¹⁴² See, e.g., Rec. Doc. 87, pp. 33–34 (Dr. Bickler's testimony that "for someone like Mr. Hoffman, nitrogen asphyxiation would be a particularly horrible method, a really inhumane choice for an individual who has a history of PTSD."); *id.* at p. 36 ("If someone has an anxiety disorder, the degree of difficulty goes up exponentially.").

¹⁴³ *Bucklew*, 587 U.S. at 144.

¹⁴⁴ 2025 WL 361172, at *14.

¹⁴⁵ *Weaver v. Graham*, 450 U.S. 24, 28 (1981) (quoting *Cummings v. Missouri*, 4 Wall. 277, 325–26 (1866)).

¹⁴⁶ 237 U.S. 180 (1915).

¹⁴⁷ *Weaver*, 450 U.S. 32 n.17.

explained that “a post-offense change in a state's execution protocols would violate the ex post facto prohibition *unless* the change in execution method is more humane than the prior method of execution.”¹⁴⁸ In *Nelson v. Campbell*, the Supreme Court succinctly explained that there is “no ex post facto violation to change [a] method of execution to [a] more humane method.”¹⁴⁹

The Court agrees with the Defendants that the *Ex Post Facto* claim “rises and falls” on whether execution by nitrogen hypoxia will subject Plaintiff “to an increased punishment [that is] a less humane method of execution than lethal injection, which was his original method of execution.”¹⁵⁰

The method of execution change in this case was from lethal injection to nitrogen hypoxia. The Plaintiff submitted scant evidence comparing the harm of lethal injection to the harm of nitrogen hypoxia. The Plaintiff therefore failed to demonstrate that he is substantially likely to succeed on this claim.

C. Right to Counsel and Access to Courts Claim (Count IV)

Hoffman argues that he has a constitutional right to have counsel¹⁵¹ present at his execution, in order to protect his constitutional right to access the Courts.¹⁵² Citing the Southern District of Ohio, Hoffman argues that he has a right to counsel throughout the execution procedure and during the execution.¹⁵³ Hoffman also cites to the Eastern District of Arkansas, the Middle District of Tennessee, and the Sixth and Eighth Circuits

¹⁴⁸ 739 F.3d 716, 722 n.5 (5th Cir. 2013).

¹⁴⁹ 541 U.S. 637, 644 (2004) (citing *Weaver*, 450 U.S. at 32–33 n.17).

¹⁵⁰ Rec. Doc. 81, ¶ 114.

¹⁵¹ Prisoners have a Sixth Amendment right to access to counsel at all “critical” stages of criminal proceedings. *United States v. Wade*, 388 U.S. 218, 227-28 (1967).

¹⁵² Prisoners have a right under the First and Fourteenth Amendments to access to the courts. See, e.g., *Lewis v. Casey*, 518 U.S. 343, 350–51 (1996).

¹⁵³ Rec. Doc. 1, ¶ 219; Rec. Doc. 82, ¶ 139 (citing *In re Ohio Execution Protocol Litig.*, No. 11-1016, 2018 WL 6529145, at *4–5 (S.D. Ohio Dec. 12, 2018)).

in support of his position.¹⁵⁴ However, the Fifth Circuit holds that a claim of the right to counsel “during the events leading up to and during the execution” under the First, Sixth, and Eighth Amendment is “without merit.”¹⁵⁵ The Fifth Circuit further instructs that “the possibility of “botched executions” that access to counsel could address [to the Courts] . . . fails as well.”¹⁵⁶ Under the law of the Fifth Circuit, Plaintiff fails to show a substantial likelihood of prevailing on Count IV.

D. Balance of Equities and the Public’s Interest

The final two elements Plaintiff must satisfy for a preliminary injunction are that the threatened harm (a violation of the Eighth Amendment) outweighs any harm that may result to the State (delay in carrying out a sentence), and that the injunction will not undermine the public interest.¹⁵⁷ These factors may be considered together particularly because “[t]hese factors merge when the Government is the opposing party,”¹⁵⁸ and these two factors overlap considerably.¹⁵⁹ In weighing equities, a court must balance the competing claims of injury and must consider the effect on each party of the granting or withholding of the requested relief.¹⁶⁰ The public interest factor requires the court to consider what public interests may be served by granting or denying a preliminary injunction.¹⁶¹

¹⁵⁴ Rec. Doc. 82, ¶¶ 141–45 (citing *McGehee v. Hutchinson*, 463 F. Supp. 3d 870, 925 (E.D. Ark. 2020), *aff’d sub nom. Johnson v. Hutchinson*, 44 F.4th 1116 (8th Cir. 2022); *Coe v. Bell*, 89 F. Supp. 2d 962 (M.D. Tenn. Apr. 3, 2000); and *Coe v. Bell*, 230 F.3d 1357 (6th Cir. 2000)).

¹⁵⁵ *Whitaker v. Collier*, 862 F.3d 490, 501 (5th Cir. 2017).

¹⁵⁶ *Id.* at 467.

¹⁵⁷ *Valley v. Rapides Par. Sch. Bd.*, 118 F.3d 1047, 1051 (5th Cir. 1997).

¹⁵⁸ *Nken v. Holder*, 556 U.S. 418, 435 (2009).

¹⁵⁹ *Texas v. United States*, 809 F.3d 134, 187 (5th Cir. 2015).

¹⁶⁰ *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 24 (2008).

¹⁶¹ *Sierra Club v. U.S. Army Corps of Engineers*, 645 F.3d 978, 997–98 (8th Cir. 2011).

The Court finds that the balance of equities and public interest weigh in favor of enjoining Hoffman's March 18, 2025 execution through nitrogen hypoxia until the matter can be resolved at a trial on the merits. The Fifth Circuit holds that an injunction does not disserve the public interest when it prevents constitutional deprivations.¹⁶² Stated another way, injunctions preventing the violation of constitutional rights are "always in the public interest."¹⁶³

The Court is asked to make this important decision on an undeveloped record after an expedited preliminary injunction hearing. Hoffman is going to be executed. It's not a question of if; it's merely a question of how, and the alternatives are quickly narrowing. Louisiana has no readily available electric chair¹⁶⁴ and cannot get the drugs needed for lethal injection.¹⁶⁵ The only viable alternatives appear to be nitrogen hypoxia and firing squad. The State's desire for swiftness does not prevail over well-informed deliberation.

There have been only four executions by nitrogen hypoxia in the United States. These executions were carried out by the state of Alabama between January 25, 2024, and February 6, 2025.¹⁶⁶ On all four occasions, the condemned chose nitrogen hypoxia as their method of execution. In Alabama, "[a] death sentence shall be executed by lethal injection, unless the person sentenced to death affirmatively elects to be executed by

¹⁶² *Jackson Women's Health Org. v. Currier*, 760 F.3d 448, 458 n.9 (5th Cir. 2014).

¹⁶³ *Id.* at 458 (quoting *Awad v. Ziriax*, 670 F.3d 1111, 1132 (10th Cir. 2012)). See also *Ingebretsen on behalf of Ingebretsen v. Jackson Public Sch. Dist.*, 88 F.3d 274, 280 (5th Cir. 1996); see also, e.g., *G & V Lounge, Inc. v. Mich. Liquor Control Comm'n*, 23 F.3d 1071 (6th Cir. 1994); *Charles H. Wesley Educ. Fdn., Inc. v. Cox*, 408 F.3d 1349, 1355 (11th Cir. 2005); *Deerfield Med. Ctr. v. City of Deerfield Beach*, 661 F.2d 328, 338–39 (5th Cir. 1981).

¹⁶⁴ Rec. Doc. 87, p. 15.

¹⁶⁵ Rec. Doc. 86, p. 176–77.

¹⁶⁶ See *Frazier*, 2025 WL 361172, at *3.

electrocution or nitrogen hypoxia.”¹⁶⁷ This is in stark comparison to Louisiana, which delegates the method of execution to the discretion of the DPSC Secretary.¹⁶⁸

The State even refused to make the new nitrogen hypoxia protocol available to the public. The State relented to releasing a redacted protocol to the public until the day before the preliminary injunction hearing.¹⁶⁹ The redacted protocol easily meets the definition of a public record¹⁷⁰ under Louisiana law, yet the State shrouded the redacted protocol in secrecy until the day before the hearing.

The public has an interest in knowing how its government operates. The obfuscation of the protocol by the State is deleterious to the public’s interest. The United States Constitution is simply the government’s promises to its citizens. The Eighth Amendment is the government’s assurance that no citizen will be punished by means that are cruel and unusual. Courts are the arbiter of whether the government honors this promise to her people. It is in the best interests of the public to examine this newly proposed method of execution on a fully developed record. The public has paramount interest in a legal process that enables thoughtful and well-informed deliberations, particularly when the ultimate fundamental right, the right to life, is placed in the government’s hands. Accordingly, Plaintiff’s Motion for Preliminary Injunction is granted.

¹⁶⁷ Ala. Code § 15-18-82.1(a).

¹⁶⁸ La. R.S. § 15:569(A).

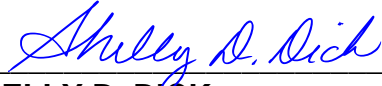
¹⁶⁹ Rec. Doc. 70.

¹⁷⁰ See La. R.S. § 44:1(A)(2)(a) (“All books, records, writings, accounts, letters and letter books, maps, drawings, photographs, cards, tapes, recordings, memoranda, and papers, and all copies, duplicates, photographs, including microfilm, or other reproductions thereof, or any other documentary materials, regardless of physical form or characteristics, including electronically stored information or information contained in databases or electronic data processing equipment, having been used, being in use, or prepared, possessed, or retained for use in the conduct, transaction, or performance of any business, transaction, work, duty, or function which was conducted, transacted, or performed by or under the authority of the constitution or laws of this state, or by or under the authority of any ordinance, regulation, mandate, or order of any public body or concerning the receipt or payment of any money received or paid by or under the authority of the constitution or the laws of this state, are ‘public records’, except as otherwise provided in this Chapter or the Constitution of Louisiana.”)

V. CONCLUSION

Considering the foregoing, Plaintiff's Motion to Reconsider the Court's Denial of his RLUIPA Claim (Count VI) shall be DENIED. Plaintiff's Motion for Preliminary Injunction shall be GRANTED on the Eighth Amendment claim, and Defendants are enjoined from executing Jessie Hoffman on March 18, 2025, using nitrogen hypoxia. Plaintiff's Motion for Preliminary Injunction is DENIED as to Counts III and IV.

Baton Rouge, Louisiana, this 11th day of March, 2025.



SHELLY D. DICK
CHIEF DISTRICT JUDGE
MIDDLE DISTRICT OF LOUISIANA

**UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA**

JESSIE HOFFMAN

VERSUS

GARY WESTCOTT, et al.

CIVIL ACTION

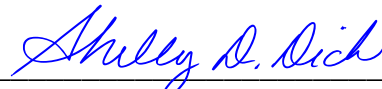
NO. 25-169-SDD-SDJ

ORDER

The Court having made findings of fact and conclusions of law and for the written reasons specified by the Court in its Ruling [Rec. Doc. 89],

IT IS HEREBY ORDERED that the Defendants, GARY WESTCOTT, Secretary, Louisiana Department of Public Safety and Corrections; DARREL VANNOY, Warden, Louisiana State Penitentiary; and JOHN DOES, unknown executioners, and all persons working on their behalf, be and are hereby ENJOINED from executing JESSIE HOFFMAN, until the Plaintiff's claims are decided after a trial on the merits and a final judgment issued.

SIGNED in Baton Rouge, Louisiana, this 11th day of March, 2025.



**SHELLY D. DICK
CHIEF DISTRICT JUDGE
MIDDLE DISTRICT OF LOUISIANA**