In The Matter Of:

RONALD ALLEN SMITH, et al. v.

STATE OF MONTANA, et al.

MARK J.S. HEATH, M.D.

April 28, 2015

Cindy Afanador

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MONTANA FIRST JUDICIAL DISTRICT COURT
LEWIS AND CLARK COUNTY

RONALD ALLEN SMITH AND WILLIAM J. GOLLEHON, Plaintiffs, v. STATE OF MONTANA; DEPARTMENT OF CORRECTIONS; DIRECTOR MIKE BATISTA; WARDEN LEROY KIRKEGARD; JOHN DOES 1-20, Defendants.	Cause No. BDV 2008-303

April 28, 2015
6:00 p.m.

TELEPHONIC DEPOSITION of the EXPERT WITNESS, MARK J.S. HEATH, M.D., held at 67 Riverside Drive, New York, New York, before Cynthia Zoller, R.P.R., a Notary Public within and for the State of New York.

* * *

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- Mark J.S. Heath, M.D. -

M A R K J. S. H E A T H , M . D . ,

Expert Witness herein, having affirmed before Cynthia Zoller, R.P.R., a Notary Public within and for the State of New York, was examined and testified as follows:

THE REPORTER: Please state your name for the record.

THE WITNESS: Mark J.S. Heath, M.D.

THE REPORTER: Please state your address for the record.

THE WITNESS: The office address is 630 West 168th Street, Department of Anesthesiology, Columbia University, New York, New York 10032.

MS. COLLINS: For the record, my name is Pamela Collins. I'm an Assistant Attorney General for the State of Montana, representing the defendants.

MR. WATERMAN: My name is Ron Waterman. I'm the attorney in Helena, Montana representing the

that typically happens, and maybe this paragraph comes from an introductory chapter, I'm not sure.

Q Okay. If you'll take a look at the last sentence of that paragraph at the top of the Exhibit 1, it states that, "Lastly, the author believes in the importance of disclosing that, as a result of his involvement in the legal challenges to lethal injection, he has developed a strong opposition to the imposition of the death penalty as it is presently administered in the United States."

Did I read that sentence accurately?

A I think so, yes.

Q Is that a true statement in terms of you, as far as you are concerned?

A It's a lot more complicated than that, but then it can then be distilled into one sentence and it also reflects my views, this looks like it was written in 2007, so those were my views eight years ago, approximately.

patients it might be reduced as low as 100 milligrams and for some patients it might go up to 400 milligrams, in sometimes more large and more resistant patients, 400 or more.

Q And Dr. Heath, for the thiopental how long did it take for, how long was the time of the onset of action for thiopental when you used it in your work as an anesthesiologist?

A To break it down, the amount of time that elapses between the injection and the first evidence that it's taking effect in the brain is quite variable. It depends on the speed or the rate of the patient's circulation, among other things so an average patient might be in the realm of 20 seconds, 20 to 30 seconds; a patient with a slower circulation because of heart failure or some other problem could be well over a minute and again that's the time it takes for the drug to reach the brain and obviously, it's not exerting any effects on the brain until it reaches the brain so

that is below the dose needed to exert the desired effect, in this instance would be unconsciousness, then the rate at which one moves towards unconsciousness will be lower and one will never achieve it.

If one gives a dose higher than, as with most drugs, the more one gives, the more rapidly one sees the effects.

Q And you say this is true of all barbiturates or all drugs in general or, or --

A Well, maybe not of all drugs, because some drugs you don't see the effects for days or longer so the speed with which you give it, whether you give it one minute or five minutes or the dose which you give it will still leave it, will still make it that it only starts to work in several days and perhaps, one wouldn't notice a difference, but I think, let's confine this to what we are talking about, thiopental, which is trying to induce unconsciousness. I think it's fair to say I can't think of an exception right now, that all drugs that are

used to produce sedation and unconsciousness will exert their effects at a more rapid rate if you give more and to clarify again, giving more will not have a substantial or any material effect on how long it takes for the drug to travel from the point of injection to the brain.

What I'm talking about is the onset and that transition from being fully conscious to being fully unconscious.

Q Dr. Heath, if you'll take a look at State's Exhibit 2.

A Yes.

Q This is a five-page document dated April 30th, 2013, which begins with the words, "I, Dr. Mark Heath, hereby declare as follows:" Do you recognize this document?

A Yes.

Q And is that your signature on the last page of the Exhibit 2?

A Yes, it is.

Q Dr. Heath, looking at Paragraph 10 in Exhibit 2, in the second sentence you state: "Pentobarbital has a slower onset

- Mark J.S. Heath, M.D. -

Q You state in that state -- in that sentence in your declaration that I just read, "in many instances, prisoners display a more prolonged period of movement after the drug starts to take effect" and you are referring to pentobarbital versus thiopental. How many instances are you referring to there?

A I need to be approximate and say several tens; 10, 20, 30, I don't know. It's the typical description from a pentobarbital execution that the prisoner breathed for a longer period of time, may have uttered some words that may or may not have been coherent, may have moved their body in a variety of ways and those things are extremely uncommon in thiopental executions and I should just give one exception; there are some states that give the thiopental very, very slowly over a period of many minutes and in those cases as one would expect, that onset transition is a lot slower, but that's not because the drug is, because of the aspect of the drug, it's

to and another one was not and I don't recall which one I looked at, to be honest.

Q Could you tell me what the time of onset of action would be when 3 grams of thiopental is properly administered intravenously?

A At what rate?

Q Could you give me a range depending on the rate?

A At a very slow rate it would take hours. At its fastest possible administration, it would take some tens of seconds to transition from full consciousness to full and deep unconsciousness.

Q And I'm sorry, what -- I'm getting mix up with tens or tenths.

A Tens. I'm sorry, there are no tenths in this discussion.

Q So it's tens?

A Tens, yes.

Q So tens of seconds?

A Yes. And I just have to be clear, I've not had the opportunity to be

time, but does not die because the drug hasn't been fully, hasn't been delivered into the circulation, just into the tissue, and emerges with brain damage, which would be an inhumane and disastrous outcome.

That is less likely to happen if thiopental or another ultrashort acting drug is used, because in that circumstance, the prisoner will not attain a high enough level in their blood to render them unconscious and make them stop breathing and sustain brain damage so again the concern centers on the executions which inevitably occur where the drug or drugs are not delivered into the venous system and into the circulation, but instead, are infiltrated into the tissues surrounding the IV catheter.

Q But Doctor, assuming proper administrations of the drugs, what would be your response?

A If proper administration of the drug occurs, whether it is thiopental or pentobarbital, if proper administration occurs in the intended multi-gram dose into

the circulation and carried to the brain, then there's no difference between the drugs, because they will both produce deep unconsciousness that will outlast the duration of the execution.

The problem centers around the inevitable occurrence of improper or failed administration.

Q Doctor, what is the dividing line between the classification of ultrafast barbiturates and fast barbiturates; is it a time dividing line or where do we draw the line between those two or where do medical people draw the line between those two?

A Well, the line is really a molecular line. The molecules that have been modified to have this property of very rapidly crossing membranes is a discreet group from the rest of the barbiturates, because they don't have that modification or those modifications. Those modifications have created a class unto itself, this ultra class, which is not surpassed or exceeded in that property of rapidly crossing a membrane

X 1

UNITED STATES DISTRICT COURT
DISTRICT OF SOUTH DAKOTA
SOUTHERN DIVISION

DONALD E. MOELLER, Petitioner, v. DOUGLAS WEBER, Warden, South Dakota State Penitentiary, Respondent.	Civ. 04-4200 AFFIDAVIT OF WARDEN DOUGLAS WEBER

State of South Dakota)
: ss.
County of Minnehaha)

I, Douglas Weber, being first duly sworn upon oath, testify, based on personal knowledge and belief, as follows:

1. I was appointed to serve as Warden of the South Dakota State Penitentiary program (hereinafter SDSP), located in Sioux Falls, South Dakota, on November 19, 1996, by then Secretary of Corrections, Jeff Bloomberg. In my capacity as Warden, I have, pursuant to SDCL 24-2-1, charge and custody of all inmates confined in the SDSP.

2. Among the inmates under my charge and custody are those sentenced to death under SDCL ch. 23A-27A. In South Dakota, the punishment of death shall be inflicted by lethal injection. SDCL 23A-27A-32. Statute, as amended July 1, 2007, provides that, as Warden, I shall determine, subject to the approval of the Secretary of the South Dakota Department of Corrections (hereinafter SDDOC), the substances and the quantity of

EXHIBIT
tabbies 12

substances used for the punishment of death. Prior to July 1, 2007, SDCL 23A-27A-32 provided for a two drug combination of substances to execute a death sentence, specifically, "The punishment of death shall be inflicted by the intravenous administration of an ultra-short-acting barbiturate in combination with a chemical paralytic agent and continuing the application thereof until the convict is pronounced ...".

3. In order to fulfill that responsibility, I, along with various members of my staff, undertook to adopt and implement, effective June 14, 2007, Emergency Response Manual A.12 entitled "Capital Punishment Final Days Procedures," (hereinafter ERM). As provided therein, I elected, with the approval of the Secretary of Corrections, to adopt the three drug protocol used by at least thirty other states, along with the federal government to execute prisoners. The ERM further provided, in accordance with SDCL 23A-27A-32.1, that those inmates sentenced to death prior to July 1, 2007, had the option of choosing to be executed using the three drug protocol or a two drug protocol consisting of an ultra short acting barbiturate in combination with a chemical paralytic agent.

4. Under the three drug protocol adopted in the aforementioned ERM, the lethal injection process involved the administration of chemicals as follows:

1. The first syringe contained three grams of sodium thiopental, an ultra short acting barbiturate, along with approximately thirty milliliters of a solution of sterile water;

2. The second syringe contained fifteen to twenty-five milliliters of saline to flush the IV line and to prevent any interaction between the first and second drug;

3. The third syringe contained one hundred milligrams of pancuronium bromide, a chemical paralytic agent, along with approximately fifty milliliters of a solution of sterile water;

4. The fourth syringe again contained fifteen to twenty-five milliliters of saline to flush the IV line; and

5. The fifth and final syringe contained not less than 140 milliequivalents of potassium chloride, used to stop impulses to the heart, along with a solution of approximately seventy milliliters of sterile water.

Before carrying out the intravenous injections, I made every effort to ensure that the person administering those injections was adequately trained to do so.

5. The guidelines established by the American Medical Association prohibit physician participation in executions. State statute, therefore, provides that "the person administering the injection need not be a physician, registered nurse, or licensed practical nurse licensed or registered under the laws of this or any other state." SDCL 23A-27-32. As provided for in the 2007 ERM, I selected, with the approval of the secretary of the SDDOC, an executioner and a backup executioner trained to administer intravenous injections. As in Taylor v. Crawford, 487 F.3d 1072, 1082 (8th Cir. 2007), the IV team consisted of contracted medical personnel.

6. The aforementioned ERM was in place at the time of the Elijah Page execution on July 11, 2007. In accordance therewith, the individual I selected to insert the IV lines into inmate Page at the time of his execution had been a licensed/certified paramedic for over fifteen years and was trained and experienced in IV insertion.

7. According to eyewitnesses to the execution of Elijah Page, it was carried out in accordance with the established protocols and was described as being "done by the book and a bit like clockwork." Attachment A, Minnesota Public Radio. As indicated by Carson Walker, a reporter for the Associated Press, "it was just a matter of seconds . . . the next thing we heard were several gasps, it was almost like a snoring, and his chest heaved a couple of times."

8. A similar account was also given by Bill Harlan, *Rapid City Journal*, who was another eyewitness to the Page execution. In an article written for the *Rapid City Journal*, Mr. Harlan stated "Page never moved. Not his head, not his arms, not his feet." According to Harlan, inmate Page "gasped slightly. His chest heaved, but only a little, and he exhaled with what sounded like a snore." Attachment B.

9. Affiant remained in the execution chamber with inmate Page at all times during the scheduled execution. At no time whatsoever did I observe inmate Page display any signs of pain during his execution on July 11, 2007. There was no evidence of inmate Page crying out, writhing in pain, gasping for breath or otherwise moving during the execution process.

10. In the case of inmate Page, death occurred within a matter of minutes after the aforementioned chemicals were administered. Affiant believes that this clearly attests to the experience and efficiency of the executioners chosen to assist in carrying out the scheduled execution of inmate Page. Inmate Page's execution was carried out in accordance with the

established ERM and resulted in what appeard to be swift and painless a death as possible.

11. Subsequent to the execution of Elijah Page, Affiant learned, in discussions with legal counsel for the SDSP and the SDDOC, that the United State Supreme Court upheld the lethal injection protocols adopted by the Kentucky Department of Correction, Baze v. Rees, 553 U.S. 35, 128 S.Ct. 1520, 170 L.Ed.2d 520 (2008). In addressing further challenges to the lethal injection protocols adopted by other states, the Court held "a state with a lethal injection protocol substantially similar to [Kentucky's] . . . would not create a substantial risk of pain rising to the level of an Eighth Amendment violation." Clemons v. Crawford, 585 F.3d 1119, 1126 (8th Cir. 2009) (citing Baze, 553 U.S. at 61, 128 S.Ct. at 1537.

12. Affiant, in consultation with legal counsel, thereafter undertook to determine, in light of Baze, what, if any, changes to the then existing ERM would even further reduce what I believed to be an already remote possibility that a condemned inmate would experience any unnecessary pain during an execution by lethal injection. In doing so, Affiant also reviewed and relied on decisions from the Eighth Circuit Court of Appeals upholding, as constitutional, the lethal injection protocols adopted in Arkansas and Missouri. Clemons, 585 F.3d at 1128; Nooner v. Norris, 594 F.3d 592 (8th Cir. Ark. 2010).

13. Based on my consultations with counsel, as well as my review of the aforesaid case law, Affiant revised the ERM on August 12, 2010. Under the

revised protocols, the substances and quantity of substances used to inflict the punishment of death remain the same and have, pursuant to SDCL 23A-27A-32, been approved by the Secretary of Corrections. Those revisions incorporated yet additional safeguards to even further insure that the condemned inmate has been rendered unconscious by the proper administration of the first chemical, sodium thiopental, and thereby eliminate risks, however slim, that the inmate would experience any pain associated with the administration of pancuronium bromide and potassium chloride.

14. As amended, the current ERM goes even further than the Kentucky protocols approved in Baze and requires that members of the IV team responsible for establishing an IV infusion site have at least two years of experience as a medical or osteopathic physician, physician assistant, registered nurse, licensed practical nurse, certified medical assistant, phlebotomist, paramedic, emergency medical technician or military corpsman.

15. The amendments to the lethal injection protocols also include increasing the length of the interval between administration of the first and second injections. Under the protocols as they existed in 2007, "to assure the sodium pentothal has taken affect and the condemned is unconscious, there will be a pause before administering the next injection of approximately two minutes after the second injection is completed." That "pause," under the revised protocols, has now been increased to three minutes.

16. During that three-minute time period, Affiant and/or his designee will, using standard medical techniques such as checking the inmate for

movement, open eyes, eyelash reflex, and response to verbal commands and physical stimuli, verify that the inmate has indeed been rendered unconscious by the administration of the thiopental.

17. Affiant and/or his designee will also continuously monitor the primary infusion site for signs of any problem such as obvious swelling caused if the IV fluids or chemicals were to infiltrate into the tissue surrounding the IV site. If Affiant has any reason to believe that the primary IV site is not working or has become obstructed, I will immediately direct that the flow of chemicals be stopped to the primary IV site. The executioner would thereafter be instructed to administer an additional three (3) grams of thiopental to the inmate using the secondary or backup IV site.

18. Moreover, if Affiant, after that three-minute interval, has reason to believe that the inmate remains conscious, I and/or my designee will direct the executioner to administer the backup dose of sodium thiopental using the secondary IV line. The remaining chemicals, pancuronium bromide and potassium chloride, will be administered only after confirmation that the prisoner is unconscious and after a period of at least three minutes have elapsed from the injection of thiopental.

19. Affiant believes that these additional safeguards serve to even further insure that the thiopental is properly administered to the condemned inmate and thereby eliminate the possibility, however slim, that the inmate will experience any unnecessary pain resulting from the administration of pancuronium bromide and potassium chloride.

20. In the case of an inmate convicted and sentenced to death prior to July 1, 2007, who chooses, pursuant to SDCL 23A-27A-32.1, to be executed in the manner provided by South Dakota law at the time of his conviction and sentence, the current ERM adopted by Affiant includes a "two drug protocol," approved by the Secretary of Corrections, consisting of the administration of three (3) grams of sodium thiopental along with fifty milligrams of pancuronium bromide. Affiant believes that this will alleviate any concern by inmate Moeller that he may experience excruciating pain caused by the potassium chloride. Clemons, 585 F.3d at 1124 (citing Taylor, 487 F.3d at 1074). An inmate electing to be executed using this two drug protocol will be able to avoid any alleged risk said to be associated with the third drug, potassium chloride.

21. As with the "three drug protocol," Affiant will, after administration of the sodium thiopental, wait for a period of at least three minutes before directing the executioner to commence administering the pancuronium bromide. During this interval, Affiant and/or his designee will again assess the inmate for any signs of consciousness using the aforementioned standard clinical techniques. If it appears to Affiant that the inmate still remains conscious within the three minutes after administering the thiopental, I will order that the flow of chemicals to the primary IV site be stopped. The executioner will then be directed by Affiant to administer an additional three (3) grams of thiopental to the inmate using the backup IV.

22. Affiant, along with the IV team, will continuously monitor the IV and infusion site. If there is any sign of infiltration or other problem with the IV site, Affiant will once again direct the executioner to stop the flow of chemicals to that site and resort to the use of the backup IV.

23. The executioners will commence the flow of pancuronium bromide only after Affiant and/or his designee has confirmed that the inmate has been rendered unconscious by the administration of the thiopental. If, after ten minutes following the administration of the pancuronium bromide, the person responsible for pronouncing death is not able to do so, Affiant will order the executioner to administer a second set of chemicals as described above.

24. Affiant is convinced that an inmate executed pursuant to the current ERM will not face any foreseeable risk of unnecessary pain during his/her execution. The ERM was revised by Affiant to eliminate any substantial risk of harm to the inmate undergoing a death by lethal injection in South Dakota.

Dated this 23 day of August, 2010.

Douglas R. Weber

Douglas Weber, Warden
South Dakota State Penitentiary

Subscribed and sworn to before me this 23rd day of August, 2010.

Patsy Mikel

Notary Public- South Dakota
My Commission expires: 6/16/2016

(SEAL)

PATSY MIKEL
NOTARY PUBLIC
SOUTH DAKOTA

pld_FG_Moeller v Weber - Affidavit of Weber (br)

X3

UNITED STATES DISTRICT COURT
DISTRICT OF SOUTH DAKOTA
SOUTHERN DIVISION

DONALD E. MOELLER,	*	Civ. 04-4200
	*	
Plaintiff,	*	
	*	AFFIDAVIT OF
v.	*	DOUGLAS WEBER
	*	
DOUGLAS WEBER, Warden, South Dakota State Penitentiary, **DENNIS KAEMINGK,** Secretary of the South Dakota Department of Corrections, and **DOES 1-20,** unknown employees or agents of the South Dakota Department of Corrections,	*	
	*	
Defendants.	*	

State of South Dakota *
* ss.
County of Minnehaha *

I, Douglas Weber, being first duly sworn upon oath, testify on personal knowledge and belief as follows:

1. I am the warden of the South Dakota State Penitentiary. In that capacity I carried out the execution of Eric Donald Robert on October 14, 2012. Robert's execution was performed using compounded pentobarbital.

2. I was in the execution chamber standing at Robert's right shoulder during the entire execution. Once Robert made his last statement, I signaled the executioners in the chemical room to commence the injection.

3. Robert remained conscious for only 45 seconds following my signal. He thereafter lost consciousness, expelled a snore, and remained unconscious until he was pronounced dead by the coroner. Robert expelled his last breath approximately 90 seconds after I signaled to commence the injection. After approximately 10 minutes, Robert's pulse ceased. After approximately 20 minutes, all electrical activity in Robert's heart ceased and he was pronounced dead by the coroner. A copy of the official timeline is attached. A copy of the official timeline is attached.

4. Robert exhibited virtually no signs of pain or physical distress during either the seconds he remained conscious after the injection commenced or during the period of unconsciousness before he died. Media witness accounts describing the execution as "rapid," "swift," and "painless" are accurate. Robert's lawyer's description of the execution as "orderly," "polished," and "peaceful" also accurately describes the event. Copies of these accounts are attached.

5. Donald Moeller will be executed with the same drug via the same protocol as Robert. Due to the then-pending litigation, I ordered that the drugs for Moeller's execution be tested. The pharmacist had the drugs tested by an independent lab. The testing informs me that the drug intended for use in Moeller's execution has passed authoritative USP standards for purity, potency, and sterility. A copy of the testing report is attached.

Dated this 22nd day of October 2012.

Douglas Weber

Subscribed and sworn to before me this 22nd day of October 2012.

Notary Public- South Dakota

(SEAL)
My commission expires: 6/16/16

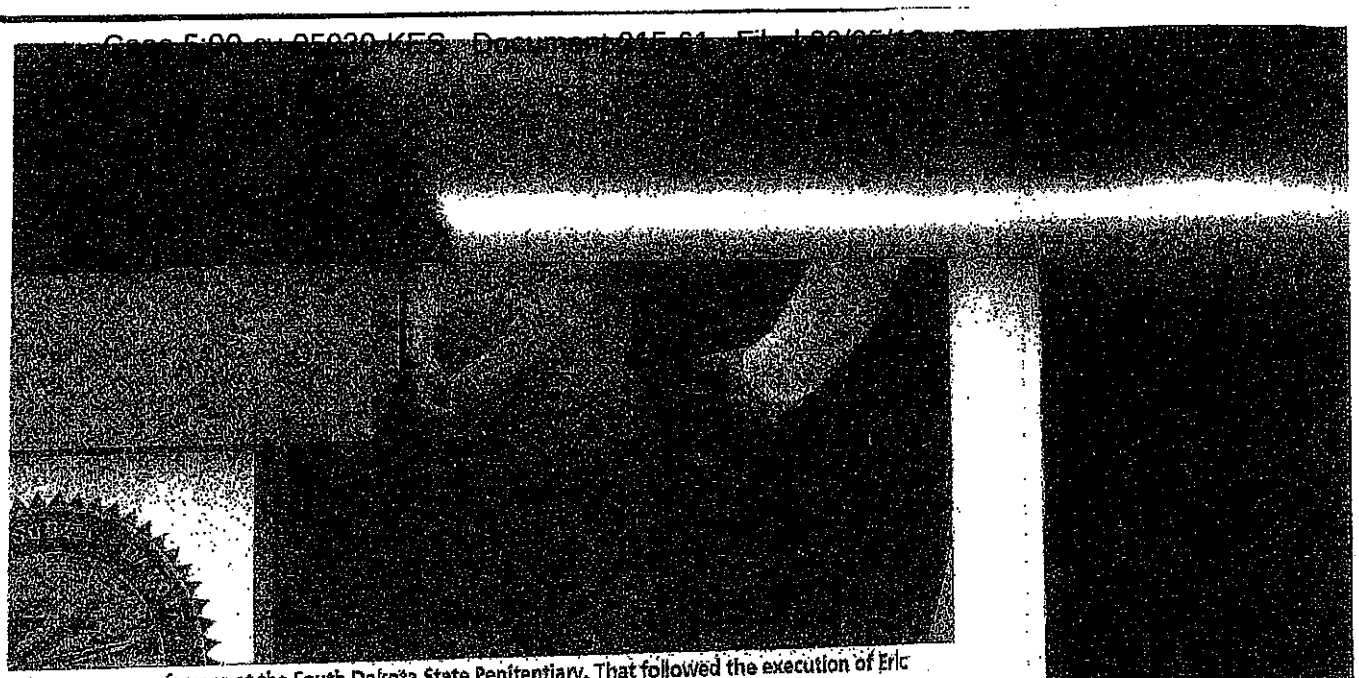
PATSY MIKEL
NOTARY PUBLIC
SOUTH DAKOTA

Execution Timeline Record

Inmate name: **Eric Robert** Inmate number: **# 56564**

Execution Date: 10/15/12

1. Removed from holding cell — Time: 9:31 pm
2. Transferred to table — Time: 9:38 pm
3. Restraints secured — Time: 9:35 pm
4. IV started — Time: Right arm 9:37 pm
   Left arm 9:41 pm
   (Note whether arm, leg, or other)
5. Begin escorting witnesses to viewing rooms — Time: 9:46 pm
6. All witnesses present, Warden orders curtains opened — Time: 9:53 pm, 9:59 pm
7. Secretary of Corrections informs Warden that he/she is cleared to proceed with the execution — Time: 10:00 pm
8. Last statement — Time: 10:01 pm
9. Injections begin — Time: 10:01 pm
10. Injections completed — Time: 10:04 pm
11. Second set of injections required? ___YES ✓NO
    a. If yes, time second injections were started. Time:_____
    b. Time second injections completed. Time:_____
12. Time death was pronounced — Time: 10:24 pm
13. Curtains closed — Time: 10:25 pm



uring a news conference at the South Dakota State Penitentiary. That followed the execution of Eric other death row inmate, Donald Moeller, is scheduled to be executed this month. ELISHA PAGE / ARGUS LEADER

ONLINE

WATCH: See video from the cene Monday, a post-execution ews conference, court proceedngs in the case and documents.
CHAT: Watch a replay of a chat Monday with Managing Editor atrick Lalley and reporter John luft about the case.
ARGUSLEADER.COM
EXECUTION BLOG: See photo alleries, video interviews and nore in a special online section
ARGUSLEADER.COM/ EXECUTIONS

INSIDE

FAMILY: Slain prison guard's family reacts
VIGILS: Death penalty supporters, opponents
MOOD: Reaction in Sioux Falls
TIMELINE: Events leading to the execution
STORIES: Pages 4-6A

Witnessing death final step in sad saga

By John Hult
jhult@argusleader.com

By the time you read this, Eric Robert will be dead, executed by lethal injection for the murder of Corrections Officer Ron Johnson.

Through the window of a tiny exam room, seven other people and I watched Robert heave his last breaths and speak his last words.

Two were deputies for Attorney General Marty Jackley, who watched the death from one of the other three rooms. A reporter from the Associated Press and I joined them, Minnehaha County Jail Warden Darin Young and three other employees of the DOC in the room.

My job as a media witness was to observe, walk back to a briefing room in the Ronald "R.J." Johnson training center and answer questions from other reporters about what happened.

I'd never witnessed an execution until last night, so I called three reporters who had, to gather insight.

The consensus: The death it-

See WITNESS, Page 6A

Breast cancer care gets lift

3.5M from Helmsley trust to benefit treatment in remote areas

By Jon Walker
jwalker@argusleader.com

A research group including ra Health received $3.5 mil- Monday for a breast cancer gram that will use genetics personalize treatment for nen.

The grant from the Leona M. Harry B. Helmsley Charita- Trust will support an effort nalyze DNA, compare treat-

Amy Krie

in the Dakotas, Montana, Wyoming and Nebraska.

"This grant will open new doors of opportunity and lead to better care for patients in our region and across the nation," said Dr. Amy Krie, medical oncologist with the Avera Cancer Institute.

the Ramkota Inn in Sioux Falls.

The direct recipient of the money will be the University of Nebraska Medical Center in Omaha. The university's Eppley Cancer Center will work with Avera, the Trinity Health Cancer Center in Minot, N.D., and the Welch Cancer Center at Sheridan Memorial Hospital in Wyoming.

The grant is part of an overall $5.9 million project, with the

EXHIBIT
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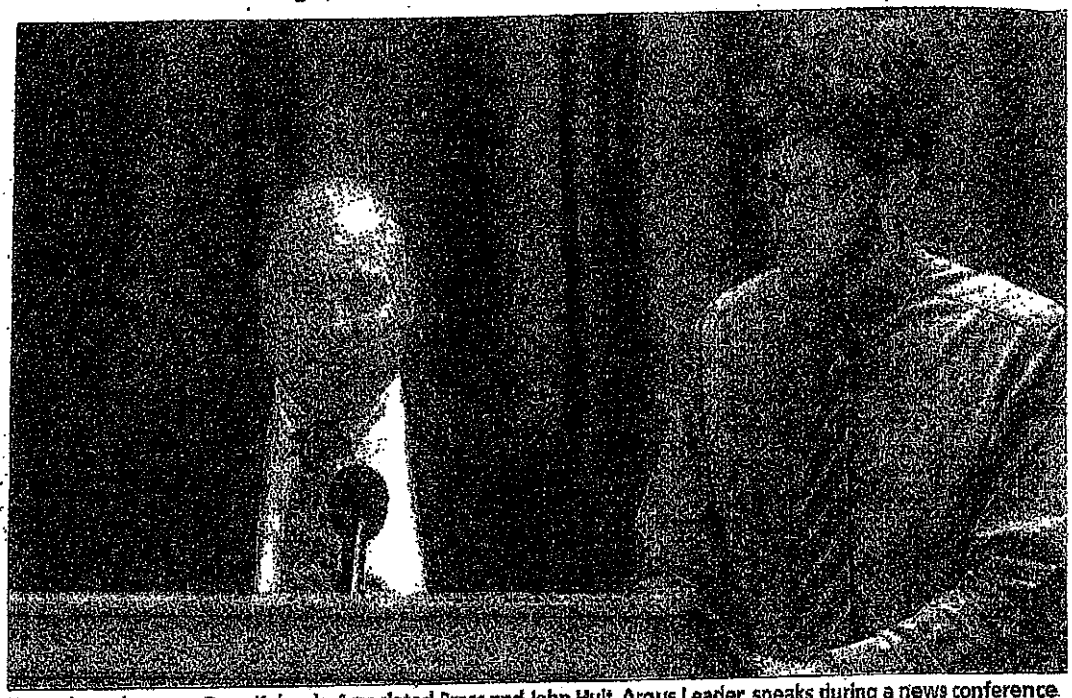
Witness: Family, friends will cope with

Continued from Page 1A



Execution witnesses, Dave Kolpack, Associated Press and John Hult, Argus Leader, speaks during a news conference following the execution of Eric Robert on Monday at the South Dakota State Penitentiary in Sioux Falls. Robert confe to murdering corrections officer Ronald "R.J." Johnson during an escape attempt in April 2011. ELISHA PAGE / ARGUS LEADEF

self, so long as nothing goes wrong, essentially is a non-event for the witnesses.

They were right. When Warden Doug Weber asked Associate Warden Troy Ponto to open the white blinds that covered our windows from the inside of the execution chamber, Robert already was strapped down. He had needles in his arms and cloth bandages securing his hands.

He was clean-shaven. His hair was short. His face expressionless.

Warden Doug Weber asked for his last words.

The last three stood out: "It is done," spoken with pauses, as though each word were its own sentence.

He closed his eyes and whispered what sounded like prayers to himself for about a minute. Three minutes after 10 p.m., he heaved three or four heavy sighs and made a sound similar to the clearing of a dry throat.

His eyes suddenly opened, and his chest stopped moving. His eyes remained open as the assistant coroner checked for a pulse at his wrist, chest and neck.

Three minutes. His skin tone had changed by 10:25 p.m., when coroner Kenneth Snell pronounced him dead, but nothing else about Robert changed after 10:03.

When Elijah Page was executed in 2007, the entire process, from his arrival in the execution chamber to the pronouncement of his death, took 31 minutes. He stopped moving six minutes after the drugs were administered after a single, heaving snore. He was pronounced dead at 10:11 p.m.

The minutes before Robert's execution were more troubling than the death. We were guided from the front door through the penitentiary's West Gate. That's the gate where Robert and his accomplice Rodney Berget were captured after killing Johnson.

We walked through the prison yard and into the old infirmary, where we all sat —mostly in silence— in an office filled with photos of Little League games. The leader for our group then took us to the exam room, which still is used to treat patients.

It's ironic that the lives of death row inmates are taken in such a rapid, painless fashion inside what is essentially a working clinic. The media blitz surrounding the death, the years of legal scrutiny, the preparations — all of it leads to a supposedly painless killing that lasts just a matter of minutes.

It's a manner of death reserved only for people executed in the United States.

It stands in stark contrast to the experience of the victims.

The Johnson family's private tragedy has played out in the public to excruciating effect since April 12, 2011, the day Robert and Berget killed Johnson.

I feel, as anyone who's followed the case closely surely does, that I know Johnson on some level.

He was beloved at home and at work and seemed to have no enemies to speak of, despite his 23 years as an authority figure at a high-security prison.

He was working on his 63rd birthday, his day off, covering a shift at someone else's post.

I feel as though I know Robert on some level, as well, having read about and researched his life.

I imagine some people believe journalists enjoy talking to grieving families, following tragedy or witnessing and hearing horrors recalled and recounted.

I've never met a journalist who does.

It's part of the job, which is to keep readers informed of what the government — including the police and courts — is up to.

In practice, for those closest to a crime, we become part of the emotional grinder that victims, criminals and their families are put through after a murder takes place.

Just as they are dra into the justice systen willingly by a crime o other's creation, they dragged into the spot and become public figu

The families ide bodies, spend hours ing with detectives, through trials and ings and sometimes fy, reliving their ex ences. They listen tc fense lawyers que their credibility, down the crimes that hurt then ask judges to their wrongdoers mercy than victims shown.

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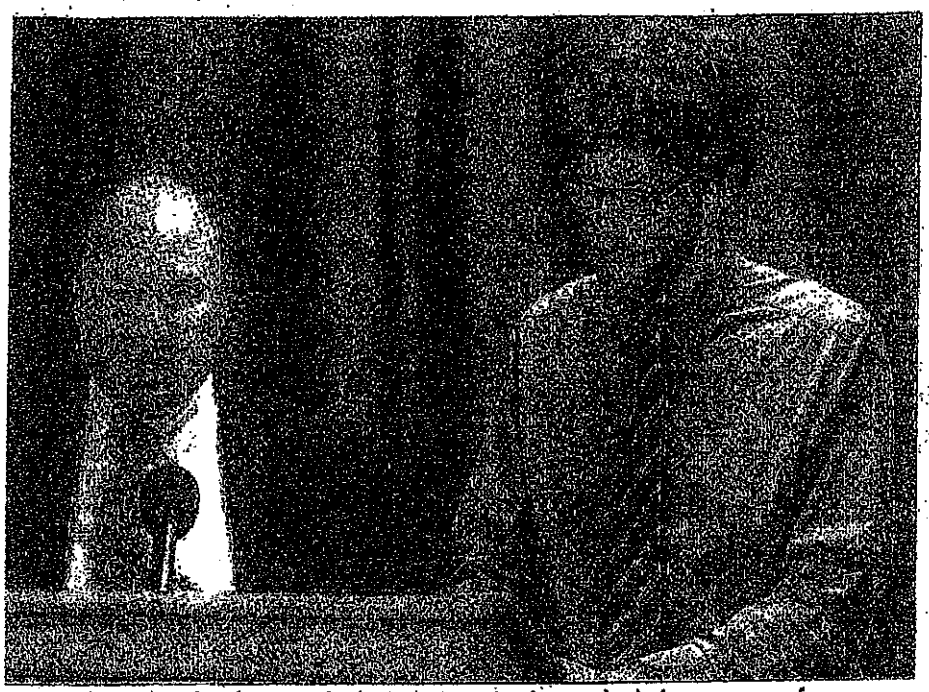
ARGUSLEADER.COM

LOCAL

Tuesday, October 16, 2012

mily, friends will cope with aftermath



Dave Kolpack, Associated Press and John Hult, Argus Leader, speaks during a news conference on of Eric Robert on Monday at the South Dakota State Penitentiary in Sioux Falls. Robert confessed ons officer Ronald "R.J." Johnson during an escape attempt in April 2011. ELISHA PAGE / ARGUS LEADER

ONLINE

John Hult has been the public safety reporter since 2009. Follow his blog on crime and courts at http://jhult.tumblr.com/.

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gh the the old all sat —in an otos of s. The p then room,) treat

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rounding the death, the years of legal scrutiny, the preparations — all of it leads to a supposedly painless killing that lasts just a matter of minutes.

It's a manner of death reserved only for people executed in the United States.

It stands in stark contrast to the experience of the victims.

The Johnson family's private tragedy has played out in the public to excruciating effect since April 12, 2011, the day Robert and Berget killed Johnson.

I feel, as anyone who's followed the case closely surely does, that I know Johnson on some level.

He was beloved at home and at work and seemed to have no enemies to speak of, despite his 23 years as an authority figure at a high-security prison.

He was working on his 63rd birthday, his day off, covering a shift at someone else's post.

I feel as though I know Robert on some level, as well, having read about and researched his life.

I imagine some people believe journalists enjoy talking to grieving families, following tragedy or witnessing and hearing horrors recalled and recounted.

I've never met a journalist who does.

It's part of the job, which is to keep readers informed of what the government — including the police and courts — is up to.

In practice, for those closest to a crime, we become part of the emotional grinder that victims, criminals and their families are put through after a murder takes place.

Just as they are dragged into the justice system unwillingly by a crime of another's creation, they are dragged into the spotlight and become public figures.

The families identify bodies, spend hours talking with detectives, sit through trials and hearings and sometimes testify, reliving their experiences. They listen to defense lawyers question their credibility, downplay the crimes that hurt them then ask judges to show their wrongdoers more mercy than victims were shown.

The families and friends of the criminals have to live with the judgments of the victims' families and the public, and live with the shame.

All of those people are at risk of getting a call from someone like me who will ask them to repeat and relive those experiences in the name of an informed public.

It's not easy to hear a person cry on the other end of a telephone.

At this point, I've spent weeks thinking about the tears shed by Lynette Johnson and her children, Missy and Jesse, at Robert's sentence hearing.

Will Lynette, who spent only six nights away from her husband in 32 years, feel some measure of closure now?

How will Missy and Jesse, who struggled to explain the loss of "Papa" to their young children, explain what happened Monday?

And what of Robert's family? What of his 72-year-old mother, who worked three jobs in hopes of seeing her children grow into a better life? What was she experiencing as her only son's death approached?

As a crime reporter in a state that puts its worst offenders to death, it was my duty to report the details of the execution. I've been mentally preparing for this.

I realize that emotional separation is a fantasy, but I'm doing my job. So were Attorney General Marty Jackley, Minnehaha County State's Attorney Aaron McGowan, and many of the other witnesses.

Robert's swift, painless end will resonate for the other witnesses far more than it will for us.

The Washington Post

Back to previous page

South Dakota inmate who killed prison guard put to death in state's first execution since 2007

By Associated Press, Published: October 15

SIOUX FALLS, S.D. — A South Dakota man who beat a prison guard with a pipe and covered his head in plastic wrap to kill him during a failed escape attempt was put to death Monday, in the state's first execution since 2007.

Eric Robert, 50, received lethal injection and was pronounced dead at the state penitentiary in Sioux Falls at 10:24 p.m. He is the first South Dakota inmate to die under the state's new single-drug lethal injection method, and only the 17th person to be executed in the state or Dakota Territory since 1877.

Robert had no expression on his face. Asked if he had a last statement, Robert said: "In the name of justice and liberty and mercy, I authorize and forgive Warden Douglas Weber to execute me for the crimes. It is done."

As the drug was administered, the clean-shaven Robert, wearing orange inmate pants with a white blanket wrapped around his upper body, appeared to be clearing his throat and then began gasping heavily. He then snored for about 30 seconds. His eyes remained opened throughout and his skin turned pale, eventually gaining a purplish hue.

Robert was put to death in the same prison where he killed guard Ronald "RJ" Johnson during an escape attempt on April 12, 2011. Robert was serving an 80-year sentence on a kidnapping conviction when he

tried to break out with fellow inmate Rodney Berget, 50.

Johnson's widow, Lynette, said after the execution that she knows Robert's death will not bring back her husband, her children's father or her grandchildren's grandfather.

"But we do know that the employees of the Department of Corrections and the public in general will be just a little bit safer now," Lynette Johnson said. "We need to have more attention and focus on the safety of all of the correctional officers in the state of South Dakota. Ron, none of you will ever know how great he is and is missed. We stand proud for Ron."

Lynette Johnson, her two children and their spouses all witnessed the execution. No one from Robert's family was in attendance.

Robert ate his last meal of ice cream with his lawyer, Mark Kadi, on Saturday night before fasting for 40 hours for religious reasons.

After the execution, Kadi said the execution was very "orderly and polished."

"The problem was it was too orderly. It was so antiseptic and peaceful that it masked what was being done to the person," Kadi said. "If more people were able to see the events, there would be fewer of them."

Johnson was working alone the morning of his death — also his 63rd birthday — in a part of the prison known as Pheasantland Industries, where inmates work on upholstery, signs, custom furniture and other projects. Authorities said the inmates beat Johnson with a pipe, covered his head in plastic wrap and left his body on the floor.

Robert then put on Johnson's pants, hat and jacket and approached the prison's west gate. With his head down, he pushed a cart loaded with two boxes. Berget was hidden in one of the boxes, according to a report filed by a prison worker after the slaying.

Other guards became suspicious as the men got closer to the gate. When confronted, Robert beat one guard; other guards quickly arrived and detained both inmates.

Months later, Robert told a judge his only regret was that he hadn't killed more guards. He pleaded guilty to Johnson's slaying and asked to be sentenced to death, telling a judge last October that he would otherwise kill again. He never appealed his sentence and even tried to bypass a mandatory state review in hopes of expediting his death.

Berget also has pleaded guilty in the killing but has appealed his death sentence. A third inmate, Michael Nordman, 47, was given a life sentence for providing materials used in the slaying.

Robert's execution could be the first of two in as many weeks. Donald Moeller is scheduled to be put to death the week of Oct. 28 for the 1990 kidnapping, rape and murder of a 9-year-old girl. Robert had been on death row only for about a year, Moeller has been there for more than two decades. Only three other inmates currently are on the state's death row.

South Dakota's last execution before Monday took place in 2007, and that was the first in the state for 60 years.

"You have few people on death row, few executions, and then you have this coincidence of cases coming all at once," said Richard Dieter, executive director of the nonprofit Death Penalty Information Center. "When people waive appeals, their cases start to move more quickly."

Associated Press writers Amber Hunt in Sioux Falls and Blake Nicholson in Bismarck contributed to this report.

Follow Kristi Eaton on Twitter at http://twitter.com/kristieaton.

UNITED STATES DISTRICT COURT
DISTRICT OF SOUTH DAKOTA
SOUTHERN DIVISION

DONALD E. MOELLER,	*	Civ. 04-4200
	*	
Plaintiff,	*	
	*	AFFIDAVIT OF DEPONENT # 1
v.	*	
	*	
DOUGLAS WEBER, Warden, South Dakota State Penitentiary, **DENNIS KAEMINGK,** Secretary of the South Dakota Department of Corrections, and **DOES 1-20,** unknown employees or agents of the South Dakota Department of Corrections,	*	
	*	
Defendants.	*	

State of South Dakota *
* ss.
County of Minnehaha *

I, Deponent # 1, being first duly sworn upon oath, testify on personal knowledge and belief as follows:

1. Deponent # 1 compounded drugs intended for use in Donald Moeller's execution on or about October 3, 2012. The drugs were compounded on this date to allow time for testing prior to Moeller's execution.

2. Deponent # 1 submitted a test sample of the compounded drug to a lab customarily used by my pharmacy. The lab was chosen by me with no influence from the state. On October 17, 2012, the lab reported that the drug I compounded meets USP standards for purity, potency, sterility, and 30-day stability. A redacted report is attached.

Dated this 22nd day of October 2012.

Deponent #1
Deponent # 1

Subscribed and sworn to before me this 22nd day of October 2012.

Maxine J. Risty
Notary Public- South Dakota

(SEAL)
My commission expires: October 15, 2017

MAXINE J. RISTY
NOTARY PUBLIC
SOUTH DAKOTA

[redacted]

Product Release Report
FINAL DATA

Report Date **10/17/2012**

Sponsor [redacted]

Sample No. 39521

Product Description **Sodium Pentobarbital 50 mg/ml**
Lot No. 1045082A
Expiry 11/1/2012

Release Specification: SPEC-PSSD-006.0

Procedure	Specification	Final Data	Status	Date of Test	Reference
Pyrogen	NMT 0.8 EU/mL	0.48 EU/mL	Passes	10/4/2012	USP <85>
Sterility	Negative	Negative	Passes	10/3/2012	USP <71>
Fungal Screening	Negative	Negative	Passes	10/3/2012	USP <71>
HPLC	90-110% as Sodium Pentobarbital	106.7% 53.3 mg/mL	Passes	10/4/2012	HPLC-TM-217.0

Date Received: 10/3/2012
Quantity Received: 1 x 40 ml

Carrier: [redacted]
Tracking No.: [redacted]

[redacted]

X2

STATE OF SOUTH DAKOTA
COUNTY OF PENNINGTON

CHARLES RUSSELL RHINES

Petitioner,

vs.

DOUGLAS WEBER, Warden, South Dakota State Penitentiary,

Respondent.

IN CIRCUIT COURT
SEVENTH JUDICIAL CIRCUIT

CIV. 02-924

AFFIDAVIT OF DOUGLAS WEBER

Affiant, after first being sworn upon his oath, states as follows:

1. If called at trial, affiant would testify to the following facts.
2. I am the Warden of the South Dakota State Penitentiary. In that capacity I carried out the execution of Donald Eugene Moeller on October 30, 2012. Moeller's execution was performed using compounded pentobarbital.
3. I was in the execution chamber standing at Moeller's right shoulder during the entire execution. Once Moeller made his initial last statement, I signaled the executioners in the chemical room to commence the injection.
4. After about 30 seconds, Moeller uttered a final sentence in response to sounds being made by locked-down inmates housed in the same wing of the building where the execution chamber is located. Approximately 15 seconds after this final sentence, Moeller lost consciousness and expelled a faint snore. Moeller remained unconscious until he was pronounced dead by the coroner. Moeller expelled a few last deep breaths approximately 60 seconds after I signaled to commence the injection. Visible indicators of a pulse ceased after approximately 4 minutes. After approximately 23 minutes, Moeller was pronounced dead by the coroner. A copy of the official execution timeline record is attached hereto as Exhibit 1.
5. Moeller exhibited virtually no signs of pain or physical distress during either the seconds he remained conscious after the injection commenced or during the period of unconsciousness before he died. A media witness described the execution as "very quick." The witness "didn't see him [Moeller] in any pain at all." According to the witness, Moeller's execution was, like reports of the Robert execution, "very

EXHIBIT
tabbies
14

clinical. Very quick. If this man [Moeller] was in pain, [the witness] didn't see it." Moeller was "gone" in "a matter of [a] minute." Excerpts of the media witness' public statements are attached hereto as Exhibit 2 and are an accurate description of the event.

6. Moeller was executed via the same protocol and with the same drug intended for use in the execution of Charles Russell Rhines. Due to then-pending litigation in Moeller's case, I ordered the drugs for Moeller's execution tested. The pharmacist had the drugs tested by an independent lab. The testing informed me that the compounded pentobarbital used in Moeller's execution had passed authoritative USP standards for purity, potency, and sterility. A copy of the testing report is attached as Exhibit 3.

Dated this 1 day of November 2012.

Douglas Weber

Subscribed to and sworn before me this 1 day of November 2012.

Notary Public

My Commission Expires: 6/16/16 SEAL

PATSY MIKEL
NOTARY PUBLIC
SOUTH DAKOTA

Execution Timeline Record

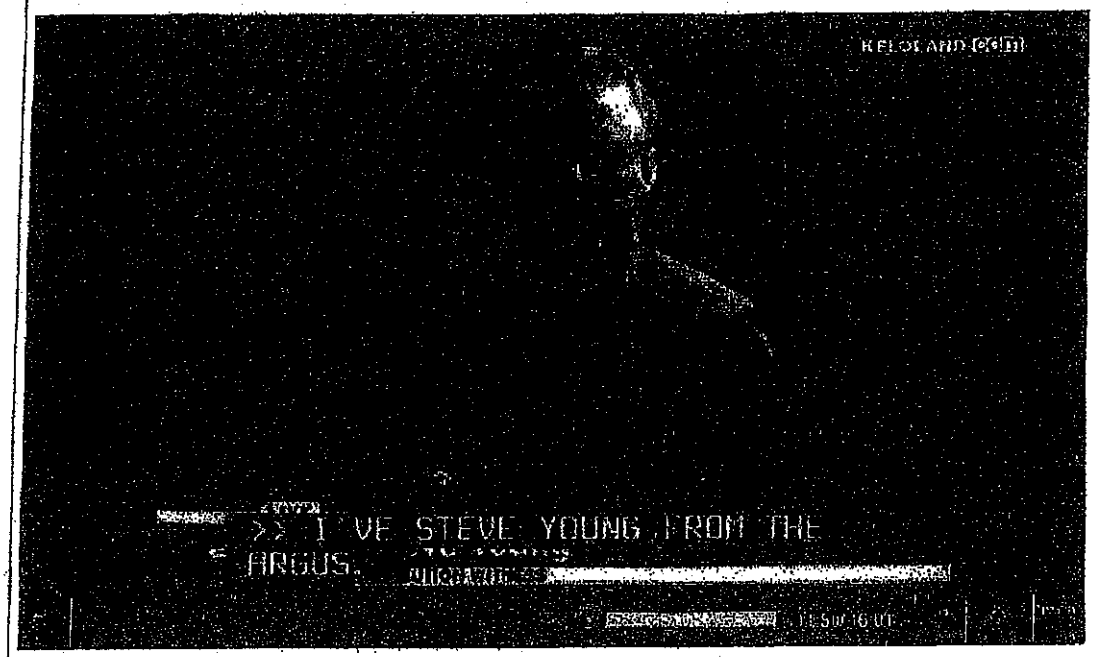
Inmate name: **Donald Moeller** Inmate number: **# 28137**

Execution Date: 10/30/12

1. Removed from holding cell Time: 9:38 pm
2. Transferred to table Time: 9:39 pm
3. Restraints secured Time: 9:41 pm
4. IV started Time: Right arm 9:43 pm
   Left arm 9:49 pm
   (Note whether arm, leg, or other)
5. Begin escorting witnesses to viewing rooms Time: 9:53 pm
6. All witnesses present. Time: 9:57 pm
7. Warden orders curtains opened. Time: 9:59 pm
8. Secretary of Corrections informs Warden that the Warden is cleared to proceed with the execution. Time: 10:00 pm
9. Last statement Time: 10:01 pm
10. Injections begin Time: 10:01 pm
11. Injections completed Time: 10:04 pm
12. Second set of injections required? ___YES ✓NO
    a. If yes, time second injections were started. Time:_____
    b. Time second injections completed. Time:_____
13. Death pronounced Time: 10:24 pm
14. Curtains closed Time: 10:24 pm

EXHIBIT
Miller
1

KELOLAND Video Player



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Added October 30, 2012 9:36 PM

State Executes Donald Moeller

The Sioux Falls man who just recently admitted killing a 9-year-old girl 22 years ago has been executed at the South Dakota State Penitentiary.

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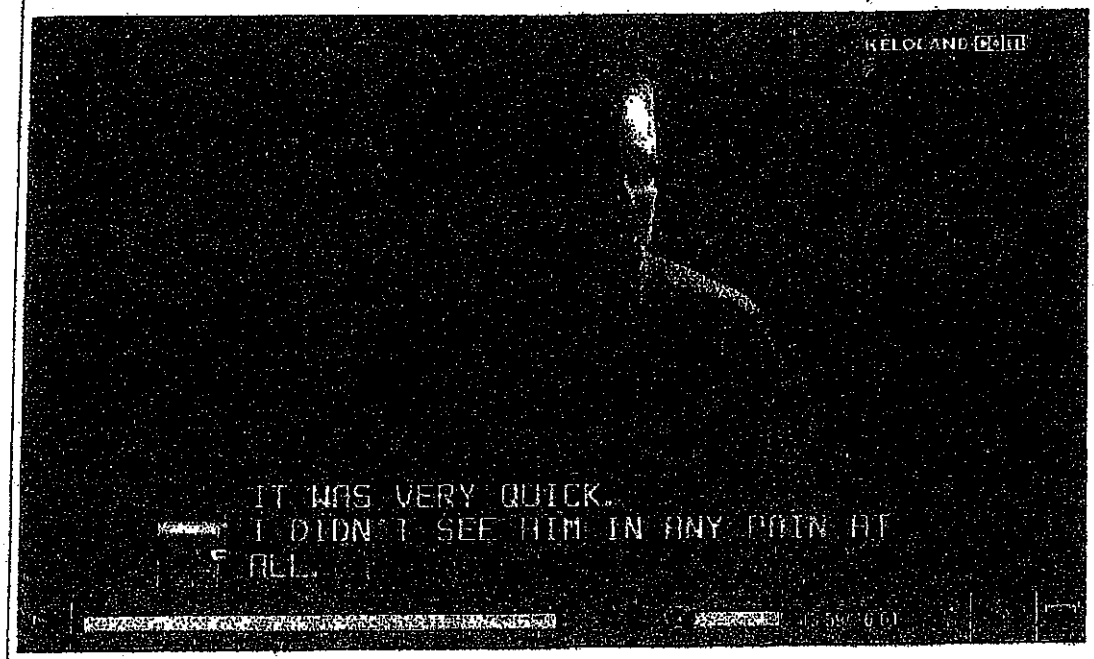

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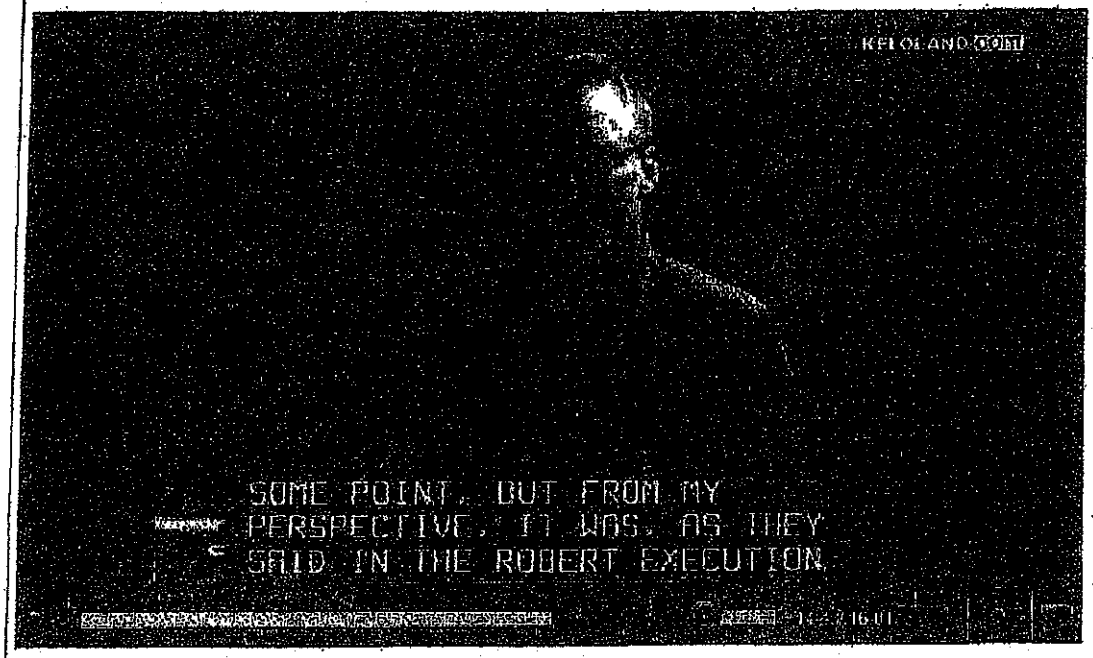

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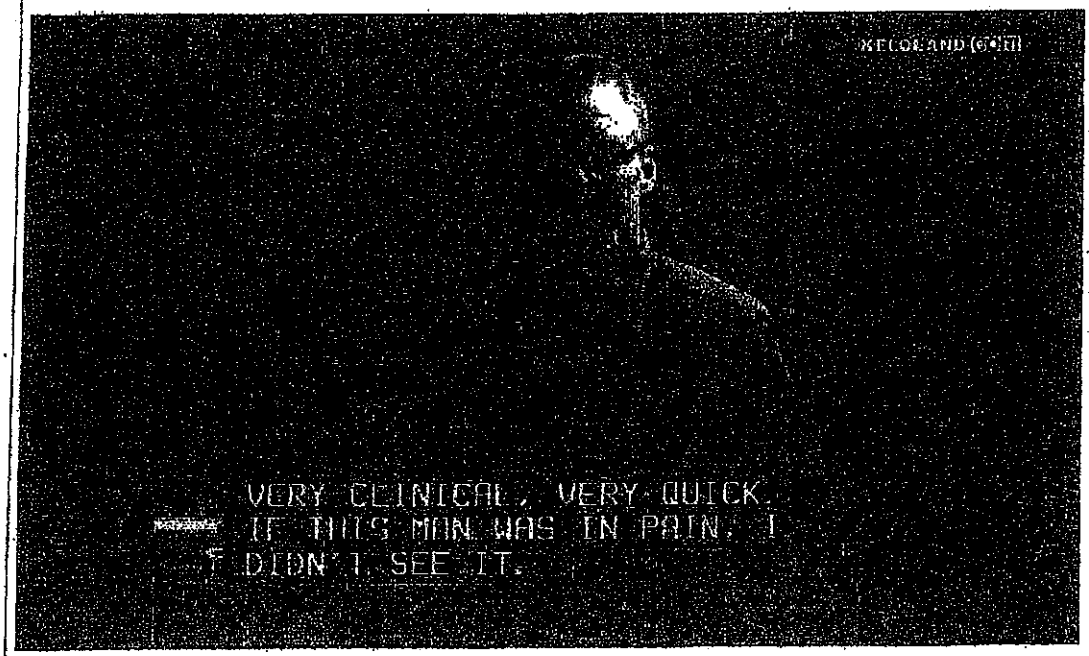

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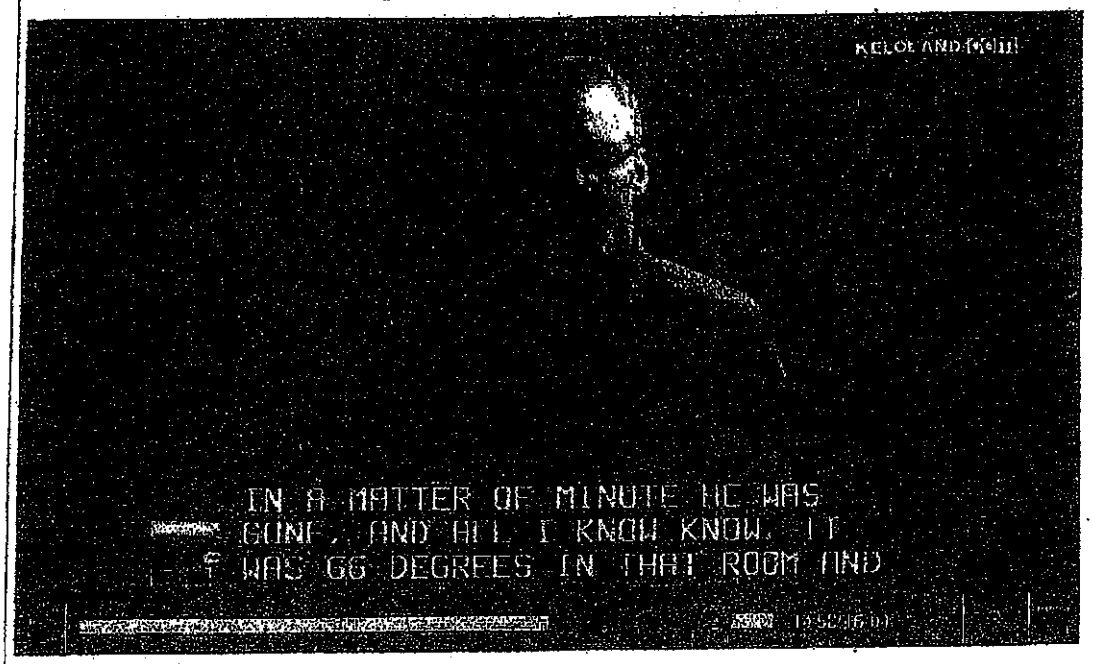

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State Executes Donald Moeller

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Read Full Story

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UNITED STATES DISTRICT COURT
DISTRICT OF SOUTH DAKOTA
SOUTHERN DIVISION

DONALD E. MOELLER,	*	Civ. 04-4200
Plaintiff,	*	
	*	AFFIDAVIT OF DEPONENT # 1
v.	*	
DOUGLAS WEBER, Warden, South Dakota State Penitentiary, **DENNIS KAEMINGK,** Secretary of the South Dakota Department of Corrections, and **DOES 1-20,** unknown employees or agents of the South Dakota Department of Corrections,	*	
Defendants.	*	

State of South Dakota *
* ss.
County of Minnehaha *

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Dated this 22nd day of October 2012.

Deponent #1
Deponent # 1

Subscribed and sworn to before me this 22nd day of October 2012.

Maxine J. Risty
Notary Public- South Dakota

(SEAL)
My commission expires: October 15, 2017

EXHIBIT
3

MAXINE J RISTY
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

[redacted]

Product Release Report
FINAL DATA

Report Date 10/17/2012

Sponsor [redacted]

Sample No. 39521

Product Description **Sodium Pentobarbital 50 mg/ml**
Lot No. 1045082A
Expiry 11/1/2012

Release Specification: SPEC-PSSD-008.0

Procedure	Specification	Final Data	Status	Date of Test	Reference
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Sterility	Negative	Negative	Passes	10/9/2012	USP <71>
Fungal Screening	Negative	Negative	Passes	10/3/2012	USP <71>
HPLC	90-110% as Sodium Pentobarbital	106.7% 53.3 mg/mL	Passes	10/4/2012	HPLC-TM-217.0

Date Received: 10/3/2012
Quantity Received: 1 x 40 ml

Carrier: [redacted]
Tracking No.: [redacted]

[redacted]

135 S.Ct. 2726

Supreme Court of the United States
Richard E. GLOSSIP, et al., Petitioners
v.
Kevin J. GROSS, et al.
No. 14–7955.
Argued April 29, 2015.Decided June 29, 2015.

Synopsis

Background: State death-row inmates brought § 1983 action alleging that Oklahoma's three-drug lethal injection protocol created an unacceptable risk of severe pain in violation of Eighth Amendment. The United States District Court for the Western District of Oklahoma, Stephen P. Friot, J., 2014 WL 7671680, entered an order denying inmates' motion for a preliminary injunction, and they appealed. The United States Court of Appeals for the Tenth Circuit, Briscoe, Chief Judge, 776 F.3d 721, affirmed. Certiorari was granted.

Holdings: The Supreme Court, Justice Alito, held that:
1 inmates failed to establish that any risk of harm was substantial when compared to a known and available method of execution, and
2 district court did not commit clear error in finding that midazolam was likely to render an inmate unable to feel pain.
Affirmed.
Justice Scalia filed a concurring opinion in which Justice Thomas joined.
Justice Thomas filed a concurring opinion in which Justice Scalia joined.
Justice Breyer filed a dissenting opinion in which Justice Ginsburg joined.
Justice Sotomayor filed a dissenting opinion in which Justices Ginsburg, Breyer, and Kagan joined.

910 Petitioners attack the District Court's findings of fact on two main grounds.[3] First, they argue that even if midazolam is powerful enough to induce unconsciousness, it is too weak to maintain unconsciousness and insensitivity to pain once the second and third drugs are administered. Second, while conceding that the 500–milligram dose of midazolam is much higher than the normal therapeutic dose, they contend that this fact is irrelevant because midazolam has a "ceiling effect"—that is, at a certain point, an increase in the dose administered will not have any greater effect on the inmate. Neither argument succeeds.

The District Court found that midazolam is capable of placing a person "at a sufficient level of unconsciousness to resist the noxious stimuli which could occur from the application of the second and third drugs." App. 77. This conclusion was not clearly ***2741** erroneous. Respondents' expert, Dr. Evans, testified that the proper administration of a 500–milligram dose of midazolam would make it "a virtual certainty" that any individual would be "at a sufficient level of unconsciousness to resist the noxious stimuli which could occur from application of the 2nd and 3rd drugs" used in the Oklahoma protocol. *Id.,* at 302; see also *id.,* at 322. And petitioners' experts acknowledged that they had no contrary scientific proof. See *id.,* at 243–244 (Dr. Sasich stating that the ability of midazolam to render a person insensate to the second and third drugs "has not been subjected to scientific testing"); *id.*, at 176 (Dr. Lubarsky stating that "there is no scientific literature addressing the use of midazolam as a manner to administer lethal injections in humans").

In an effort to explain this dearth of evidence, Dr. Sasich testified that "[i]t's not my responsibility or the [Food and Drug Administration's] responsibility to prove that the drug doesn't work or is not safe." Tr. of Preliminary Injunction Hearing 357 (Tr.). Instead, he stated, "it's the responsibility of the proponent to show that the drug is safe and effective." *Ibid.* Dr. Sasich confused the standard imposed on a drug manufacturer seeking approval of a therapeutic drug with the standard that must be borne by a party challenging a State's lethal injection protocol. When a method of execution is authorized under state law, a party contending that this method violates the Eighth Amendment bears the burden of showing that the method creates an unacceptable risk of pain. Here, petitioners' own experts effectively conceded that they lacked evidence to prove their case beyond dispute.

Petitioners attempt to avoid this deficiency by criticizing respondents' expert. They argue that the District Court should not have credited Dr. Evans' testimony because he admitted that his findings were based on " 'extrapolat [ions]' " from studies done about much lower therapeutic doses of midazolam. See Brief for Petitioners 34 (citing Tr. 667–668; emphasis deleted). But because a 500–milligram dose is never administered for a therapeutic purpose, extrapolation was reasonable. And the conclusions of petitioners' experts were also based on extrapolations and assumptions. For example, Dr. Lubarsky relied on "extrapolation of the ceiling effect data." App. 177.

Based on the evidence that the parties presented to the District Court, we must affirm. Testimony from both sides supports the District Court's conclusion that midazolam can render a person insensate to pain. Dr. Evans testified that although midazolam is not an analgesic, it can nonetheless "render the person unconscious and 'insensate' during the remainder of the procedure." *Id.,* at 294. In his discussion about the ceiling effect, Dr. Sasich

agreed that as the dose of midazolam increases, it is "expected to produce sedation, amnesia, and finally lack of response to stimuli such as pain (unconsciousness)." *Id.,* at 243. Petitioners argue that midazolam is not powerful enough to keep a person insensate to pain after the administration of the second and third drugs, but Dr. Evans presented creditable testimony to the contrary. See, *e.g.,* Tr. 661 (testifying that a 500–milligram dose of midazolam will induce a coma).[4] Indeed, low doses of midazolam ***2742** are sufficient to induce unconsciousness and are even sometimes used as the sole relevant drug in certain medical procedures. Dr. Sasich conceded, for example, that midazolam might be used for medical procedures like colonoscopies and gastroscopies. App. 267–268; see also Brief for Respondents 6–8.[5]

Petitioners emphasize that midazolam is not recommended or approved for use as the sole anesthetic during painful surgery, but there are two reasons why this is not dispositive. First, as the District Court found, the 500–milligram dose at issue here "is many times higher than a normal therapeutic dose of midazolam." App. 76. The effect of a small dose of midazolam has minimal probative value about the effect of a 500–milligram dose. Second, the fact that a low dose of midazolam is not the *best* drug for maintaining unconsciousness during surgery says little about whether a 500–milligram dose of midazolam is *constitutionally adequate* for purposes of conducting an execution. We recognized this point in *Baze,* where we concluded that although the medical standard of care might require the use of a blood pressure cuff and an electrocardiogram during surgeries, this does not mean those procedures are required for an execution to pass Eighth Amendment scrutiny. 553 U.S., at 60, 128 **S.Ct**. 1520.

Oklahoma has also adopted important safeguards to ensure that midazolam is properly administered. The District Court emphasized three requirements in particular: The execution team must secure both a primary and backup IV access site, it must confirm the viability of the IV sites, and it must continuously monitor the offender's level of consciousness. The District Court did not commit clear error in concluding that these safeguards help to minimize any risk that might occur in the event that midazolam does not operate as intended. Indeed, we concluded in *Baze* that many of the safeguards that Oklahoma employs—including the establishment of a primary and backup IV and the presence of personnel to monitor an inmate—help in significantly reducing the risk that an execution protocol will violate the Eighth Amendment. *Id.,* at 55–56, 128 **S.Ct**. 1520. And many other safeguards that Oklahoma has adopted mirror those that the dissent in *Baze* complained were absent from Kentucky's protocol in that case. For example, the dissent argued that because a consciousness check before injection of the second drug "can

reduce a risk of dreadful pain," Kentucky's failure to include that step in its procedure was unconstitutional. *Id.*, at 119, 128 **S.Ct**. 1520 (opinion of GINSBURG, J.). The dissent also complained that Kentucky did not monitor the effectiveness of the first drug or pause between injection of the first and second drugs. *Id.*, at 120–121, 128 **S.Ct**. 1520. Oklahoma has accommodated each of those concerns.

B

Petitioners assert that midazolam's "ceiling effect" undermines the District Court's ***2743** finding about the effectiveness of the huge dose administered in the Oklahoma protocol. Petitioners argue that midazolam has a "ceiling" above which any increase in dosage produces no effect. As a result, they maintain, it is wrong to assume that a 500–milligram dose has a much greater effect than a therapeutic dose of about 5 milligrams. But the mere fact that midazolam has such a ceiling cannot be dispositive. Dr. Sasich testified that "all drugs essentially have a ceiling effect." Tr. 343. The relevant question here is whether midazolam's ceiling effect occurs below the level of a 500–milligram dose and at a point at which the drug does not have the effect of rendering a person insensate to pain caused by the second and third drugs. Petitioners provided little probative evidence on this point, and the speculative evidence that they did present to the District Court does not come close to establishing that its factual findings were clearly erroneous. Dr. Sasich stated in his expert report that the literature "indicates" that midazolam has a ceiling effect, but he conceded that he "was unable to determine the midazolam dose for a ceiling effect on unconsciousness because there is no literature in which such testing has been done." App. 243–244. Dr. Lubarsky's report was similar, *id.*, at 171–172, and the testimony of petitioners' experts at the hearing was no more compelling. Dr. Sasich frankly admitted that he did a "search to try and determine at what dose of midazolam you would get a ceiling effect," but concluded: "I could not find one." Tr. 344. The closest petitioners came was Dr. Lubarsky's suggestion that the ceiling effect occurs "[p]robably after about ... 40 to 50 milligrams," but he added that he had not actually done the relevant calculations, and he admitted: "I can't tell you right now" at what dose the ceiling effect occurs. App. 225. We cannot conclude that the District Court committed clear error in declining to find, based on such speculative evidence, that the ceiling effect negates midazolam's ability to render an inmate insensate to pain caused by the second and third drugs in the protocol.

The principal dissent discusses the ceiling effect at length, but it studiously avoids suggesting that petitioners presented probative evidence about the dose at which the ceiling effect occurs or about whether the effect occurs before a person becomes insensate to pain. The principal dissent avoids these critical issues by suggesting that such evidence is "irrelevant if there is

no dose at which the drug can ... render a person 'insensate to pain.' " *Post,* at 2789. But the District Court heard evidence that the drug can render a person insensate to pain, and not just from Dr. Evans: Dr. Sasich (one of petitioners' own experts) testified that higher doses of midazolam are "expected to produce ... lack of response to stimuli such as pain." App. 243.[6]

In their brief, petitioners attempt to deflect attention from their failure of proof regarding midazolam's ceiling effect by criticizing Dr. Evans' testimony. But it was *petitioners'* burden to establish that midazolam's ceiling occurred at a dosage below the massive 500–milligram dose employed in the Oklahoma protocol and at a point at which the drug failed to render the recipient insensate to pain. They did ***2744** not meet that burden, and their criticisms do not undermine Dr. Evans' central point, which the District Court credited, that a properly administered 500–milligram dose of midazolam will render the recipient unable to feel pain.

One of petitioners' criticisms of Dr. Evans' testimony is little more than a quibble about the wording chosen by Dr. Evans at one point in his oral testimony. Petitioners' expert, Dr. Lubarsky, stated in his report that midazolam "increases effective binding of [gamma-aminobutyric acid (GABA)] to its receptor to induce unconsciousness."[7] App. 172. Dr. Evans' report provided a similar explanation of the way in which midazolam works, see *id.,* at 293–294, and Dr. Lubarsky did not dispute the accuracy of that explanation when he testified at the hearing. Petitioners contend, however, that Dr. Evans erred when he said at the hearing that "[m]idazolam attaches to GABA receptors, *inhibiting GABA.*" *Id.,* at 312 (emphasis added). Petitioners contend that this statement was incorrect because "far from *inhibiting* GABA, midazolam *facilitates its binding* to GABA receptors." Brief for Petitioners 38. In making this argument, petitioners are simply quarrelling with the words that Dr. Evans used during oral testimony in an effort to explain how midazolam works in terms understandable to a layman. Petitioners do not suggest that the discussion of midazolam in Dr. Evans' expert report was inaccurate, and as for Dr. Evans' passing use of the term "inhibiting," Dr. Lubarsky's own expert report states that GABA's "*inhibition* of brain activity is accentuated by midazolam." App. 232 (emphasis added). Dr. Evans' oral use of the word "inhibiting"—particularly in light of his written testimony—does not invalidate the District Court's decision to rely on his testimony.

Petitioners also point to an apparent conflict between Dr. Evans' testimony and a declaration by Dr. Lubarsky (submitted after the District Court ruled) regarding the biological process that produces midazolam's ceiling effect. But even if Dr. Lubarsky's declaration is correct, it is largely beside the point. What matters for present purposes is the dosage at which the ceiling effect kicks in, not the biological process that produces the effect. And Dr. Lubarsky's

declaration does not render the District Court's findings clearly erroneous with respect to that critical issue.

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

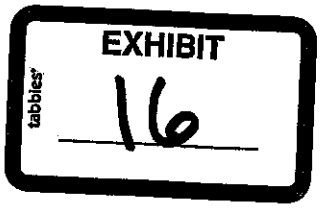
JOSEPH F. ANTOGNINI, does hereby declare and say:

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. 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. My area of research has been focused on anesthetic mechanisms, specifically related to where anesthetics produce unconsciousness, amnesia and immobility. A true and correct copy of my curriculum vitae is attached hereto as Exhibit B.

2. I have reviewed, and am familiar with, the allegations made in the complaint, the reports and/or declarations of Plaintiffs' experts, and additional information in the documents described below.

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 pentobarbital, in relation to South Dakota's lethal injection protocol, and the effectiveness of the procedures therein. I have



also been asked to render opinions regarding the efficacy of pentobarbital in the case of Charles Rhines, a condemned prisoner. This report contains a complete statement of my opinions, and the basis and reasons therefor, including the facts or data I have considered in forming them. 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.

Compensation

4. My fee schedule for this matter is as follows: $650 per hour for nontestimonial work; $700 per hour for deposition or video testimony; $6000/day for in-person testimony and travel.

Materials Reviewed

5. I have conferred with attorneys for Defendants. Among the documents I have reviewed in connection with this case are the complaint (49CIV19-002940, filed 10/22/2019), publications in the "References Cited" section and the report of Craig Stevens, PhD. A list of documents I reviewed in preparation of this report is included in Exhibit A.

6. I am advised that discovery is not complete in this case and that more documents and information may become available to me at a later date. Should additional documents or information be provided to me for review and analysis, I reserve the right to take those additional materials into account, and to modify and/or supplement my opinions accordingly. I may also be present at hearings and/or trial. I may take into account any testimony or other evidence to the extent related to my opinions; I may 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 (Exhibit A). 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. I have looked upon all of these as valuable sources of information that I am obliged to consider.

Background

7. The intravenous administration of five (5) grams of pentobarbital would result in 1) rapid and deep unconsciousness within 20-30 sec, followed by 2) markedly depressed drive to breathe, followed by 3) absence of breathing, followed by 4) decreased oxygen levels in the body, followed by 5) slowing of the heartbeat, followed by 6) the heart stopping, i.e., death. During this period there will also be cardiovascular depression and collapse.

(see http://emedicine.medscape.com/article/813155-overview#a5 accessed 10-23-19)

8. As stated above, pentobarbital (5 grams) causes rapid unconsciousness followed by respiratory arrest, cardiovascular collapse and death. After intravenous injection of 5 grams pentobarbital, concentrations of pentobarbital will far exceed the lethal concentrations—see Table 1, package insert for pentobarbital in References Cited (Exhibit A) and extrapolating from data of *Ehrnebo* (1974). Once respiratory depression and arrest occurs within 1-2 minutes, the unconscious inmate then begins to use up the oxygen stores in his body, which are estimated to be 1200 ml (*Campbell & Beatty,* 1994). Normal oxygen consumption is about 250-300 ml/min, and virtually all the oxygen in the inmate's body will be used after 4-5 min. In fact, estimates of oxygen saturation after apnea confirm this relationship (*Farmery & Roe*, 1996). Before all the oxygen is used, however, the heart will be affected, will begin to slow and will then have periodic irregular beats. It likely will take several minutes before the heart stops all together. At

that point, death is declared. This process, as described, is irrefutable. It is based on the known actions of pentobarbital and sound pharmacological and physiological principles, and the known effects of these doses of pentobarbital in lethal executions.

9. These actions of pentobarbital are consistent with data published by *Aleman* et al., (2015), a study extensively discussed in the recent US Supreme Court case *Bucklew v. Precythe*, No. 17-8151 (decided April 1, 2019). In the *Aleman* study, horses were administered large, lethal doses of pentobarbital, with a mean time of infusion of 47 seconds, and the horses developed electroencephalographic brain silence (i.e., flat line) at a mean of 53 seconds after the initiation of the infusion, that is, EEG silence occurred on average, 6 seconds after the infusion finished. Because loss of consciousness occurs before EEG silence, these data fit with a time frame of 20-30 seconds for loss of consciousness after the initiation of the pentobarbital infusion.

10. In a similar study (*Buhl* et al., 2013), the time to collapse (when the horses went from standing to falling to the ground) was about 27 seconds (the average of the means of the four groups studied; see their table 2) after the initiation of the infusions. They also noted that respiratory arrest occurred simultaneous with falling to the ground in most horses (2nd paragraph in discussion).

11. These actions of pentobarbital listed above are consistent with the actions of an ultra-fast acting/ultra-short acting barbiturate that is administered in a large lethal dose as specified in the South Dakota protocol.

12. It is important to understand how barbiturate drugs can be classified as "ultra-short acting", "ultra-fast acting", "fast acting" and "short acting", and how this classification is not absolute, and depends in large part on the dose of the drug and the route that it is administered

(oral versus intravenous). The term "short acting" refers to the duration of action, that is, how long (time) does the drug have its intended effect, while "fast acting" refers to the onset of action, how long does it take for an effect to occur. In the case of barbiturates, an "ultra-short acting" barbiturate at a typical clinical dose has a duration of 5-10 minutes, while a "short acting" barbiturate at a typical clinical dose might have a duration of 15 minutes (see Table, Exhibit C). These concepts are outlined graphically in Exhibit D.

13. In the chapter in Miller's Anesthesia (1st Edition, 1981) which contains the material on barbiturates, the author writes:

> "For matters of classification, the barbiturates are divided into four classes according to their duration of activity: long-acting, medium-acting, short-acting, and ultra-short-acting. However, this classification is often altered depending on the route of administration (oral versus intravenous), dose, use of other compounds, and the species." (*Stanley*, 1981).

Because this chapter was written within a few years prior to the 1984 South Dakota law, it informs our understanding of how barbiturates were classified at the time. Clearly, the author conveys the idea that the classification of barbiturates is subject to interpretation and circumstances, specifically dose and route of administration.

14. The inexactitude of this classification has been known for many years and found to be "scientifically unsound" (*Mark*, 1969). In 1969, L.C. Mark described the classification as archaic (*Mark*, 1969) writing:

> "The spectrum of barbiturate effects extends in dose-dependent fashion from sedation to hypnosis to anesthesia to poisoning to death. Any of these

effects can be achieved deliberately or accidentally by any barbiturate given in appropriate dosage…."

15. Likewise, Breimer wrote (*Breimer*, 1979):

"It is surprising that this classification still persists in pharmacology textbooks".

16. In fact, Dr. Stevens, in his chapter on CNS active drugs (*Brenner and Stevens*, Pharmacology, 2018) makes no mention of ultra-short-acting barbiturates, and lumps pentobarbital and thiopental together as "short acting" (see his Table 19-1, pg 209). He distinguishes thiopental's onset of action from pentobarbital's onset as "very fast" versus "fast" but specifies that the onset for thiopental is for the intravenous administration, while for pentobarbital he describes attributes related to oral administration. Thus, even Dr. Stevens's description indicates that these differences are open to interpretation depending on the drug and mode of administration.

17. The administered dose of these drugs, relative to the classification, is important to point out. If a small enough dose of pentobarbital is administered, no effect is observed. If incrementally larger doses are administered, eventually an effect would be seen, but its duration could be on the order of just a few minutes, and thus the drug would be "ultra-short acting". For example, in the *Ehrnebo* study (1974) only 3 of 7 subjects administered 100 mg pentobarbital intravenously fell into a light sleep, and that was for 20-30 min. Thus, a smaller dose in those subjects would have likely produced a shorter duration of action, while a slightly larger dose in the other four subjects would have likely produced an effect with a duration of action in the range of 5-10 minutes (see Exhibit D for graphical representation of this concept).

18. With thiopental administered at large sub-lethal doses for a prolonged period, the duration of action would likely be on the order of hours and would clearly exceed the "ultra-short acting" range. Finally, if thiopental is administered in large lethal doses, as in the setting of an execution, clearly its classification as an "ultra-short acting" barbiturate is meaningless.

19. The decision in the Montana case (*Smith v Montana State Dept of Corrections*, 2015 WL) as cited in the complaint, also uses the terms "ultrafast acting" and "ultrashort acting", and groups the two together (see table at *3), and likewise does the same with "fast acting" and "short acting". Furthermore, the Montana decision describes the opinion of Dr. Heath as follows: "it is often important to have a very quick transition from consciousness to unconsciousness" and that "this is the purpose of the development of ultra-fast-acting barbiturates." (at *2 of the decision).

20. To reiterate, these distinctions mentioned above help inform our understanding of the term "ultra-short acting" in the context of lethal execution. Thiopental and methohexital, which the inmate claims are "ultra-short acting", would not be so at the doses and route administered for lethal injection. At much larger doses, thiopental is not ultra-short acting. Patients administered large doses of thiopental for prolonged periods do not awaken quickly. Furthermore, as noted above, pentobarbital at the dose administered in the South Dakota protocol (5 grams) would induce rapid unconsciousness, within 20-30 seconds.

Conclusion

21. It is my opinion, to a reasonable degree of medical and scientific certainty, that 1) the inmate would become unconscious within 20-30 sec after the initiation of the infusion of the pentobarbital, followed by respiratory arrest, cardiovascular collapse and death; 2) injection of

massive doses of barbiturates in this inmate would not inflict mild, moderate or severe pain; 3) these actions of pentobarbital are consistent with a drug classified as an ultra-fast acting/ultra-short acting barbiturate when administered in these massive doses.

22. Should additional information become available I reserve the opportunity to amend my statements herein.

Date: October 26, 2019

Joseph F. Antognini, M.D., M.B.A.

Exhibit A—References Cited

Aleman M, Williams DC, Guedes A, Madigan JE. Cerebral and brainstem electrophysiologic activity during euthanasia with pentobarbital sodium in horses. J Vet Int Med 2015; 29:663-72

Brenner GM, Stevens CW. Sedative-hypnotic and anxiolytic drugs. In: Pharmacology, 5th Ed. 2018 Elsevier

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Wyant GM, Dobkin AB, Aasheim GM. Comparison of seven intravenous anaesthetic agents in man. Brit J Anaesthesia 1957; 29:194-209

Smith v Montana State Dept of Corrections, 2015 WL

Pentobarbital package insert (accessed 10-24-19): http://www.akorn.com/documents/catalog/package_inserts/76478-501-20.pdf

Declaration of Craig Stevens, Ph.D, dated Oct 22, 2019

Complaint 49CIV19-002940, filed 10/22/2019

Pentobarbital data from US National Library of Medicine TOXNET (accessed 10-26-19): https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/r?dbs+hsdb:@term+@rn+@rel+76-74-4

Thiopental data from US National Library of Medicine TOXNET (accessed 10-26-19): https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~DaPJwj:1

Exhibit B

CURRICULUM VITAE
Joseph F. Antognini, M.D., M.B.A.

CONTACT:

jfantognini@icloud.com
jfantognini@ucdavis.edu

EDUCATION:

1980	University of California, Berkeley (B.A., Economics)
1984	University of Southern California (M.D., Medicine)
2010	California State University, Sacramento (M.B.A., Business)

INTERNSHIP/RESIDENCY:

1984-1987	Anesthesiology, UC Davis Medical Center
1986-1987	Chief Resident

PROFESSIONAL POSITIONS:

9/16-present	Physician Surveyor The Joint Commission Oakbrook Terrace, IL
7/17-present	Director Emeritus University of California, Davis
7/11-present	Clinical Professor of Anesthesiology and Pain Medicine (Volunteer Clincal 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 (with tenure) Department of Anesthesiology and Pain Medicine University of California, Davis—School of Medicine
12/02-7/11	Professor of Neurobiology, Physiology and Behavior (with tenure; WOS appointment) College of Biological Sciences University of California, Davis

11/98-7/10	Vice Chairman, Director of Research
11/98-3/02	Director of Malignant Hyperthermia Diagnostic Laboratory Department of Anesthesiology
7/96-7/00	Associate Professor (with tenure) Department of Anesthesiology University of California, Davis—School of Medicine
10/91-6/96	Assistant Professor 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 (active)
Diplomate, National Board of Medical Examiners (1985)
Diplomate, American Board of Anesthesiology (1989)
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—1999-2018

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

TEACHING

Post-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: Peri-operative 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

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	2018-2019

SPECIAL ACTIVITIES:

Staff Anesthesiologist, American River Hospital, 1991-1992
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, U.C. 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
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, Jounral 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 Execuitve Committee, School of Medicine 2009-2010
Chair, Faculty Execuitve 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

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.

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ABSTRACTS

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EXHIBIT C

Table showing typical onset times and durations of action for thiopental (intravenous) and pentobarbital (oral and intravenous)

	TYPICAL ONSET (Clinical dose)	TYPICAL DURATION (Clinical dose)	TYPICAL ONSET (Execution dose)	TYPICAL DURATION (Execution dose)
Thiopental (intravenous)	10-40 seconds*	5-8 minutes* 5-95 minutes, mean 30 minutes**	10-40 seconds	Beyond duration of execution
Pentobarbital (oral pill)	15-60 minutes#	1-4 hours#	NA	NA
Pentobarbital (intravenous)	1 minute#	15 minutes#	20-30 seconds##	Beyond duration of execution

#Pentobarbital data from US National Library of Medicine TOXNET (accessed 10-26-19):

https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/r?dbs+hsdb:@term+@rn+@rel+76-74-4

*Thiopental data from US National Library of Medicine TOXNET (accessed 10-26-19):

https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~DaPJwj:1

based on *Aleman* et al. (2015) and *Buhl* et al. (2013)

** Wyant GM, Dobkin AB, Aasheim GM. Comparison of seven intravenous anaesthetic agents in man. *Brit J Anaesthesia* 1957; 29:194-209; total dose about 10.5 mg/kg in divided doses. These data show how just a 2-3x the usual clinical dose markedly increases the duration

Exhibit D

Figure 1

This schematic drawing shows how two drugs can have different durations of action. The brain concentration of the "short-acting" **red drug** is above the minimal brain concentration (**dashed blue line**) needed to produce the desired effect for a longer amount of time compared to that of the "ultrashort-acting" **green drug**. The onset times for the two drugs are the same.

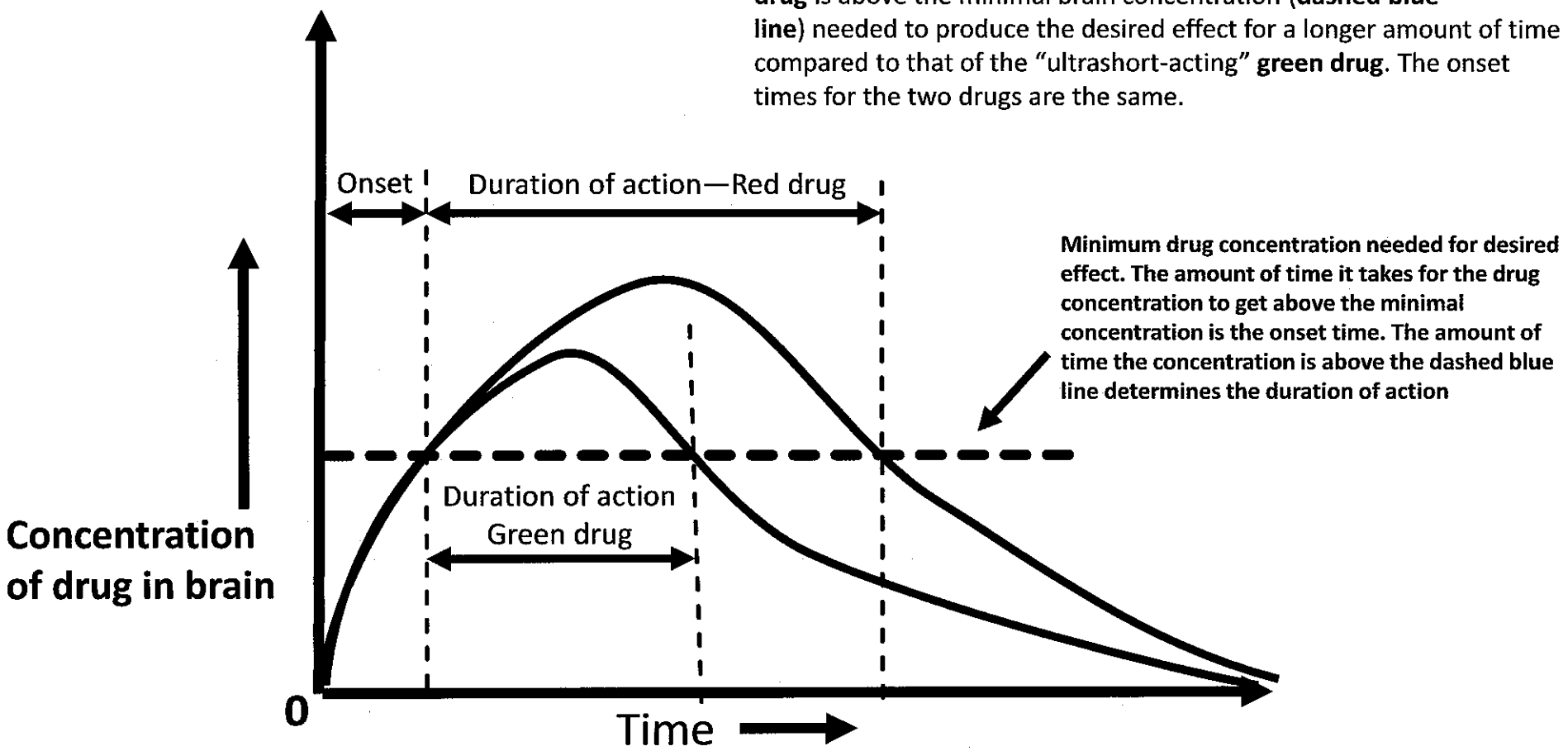
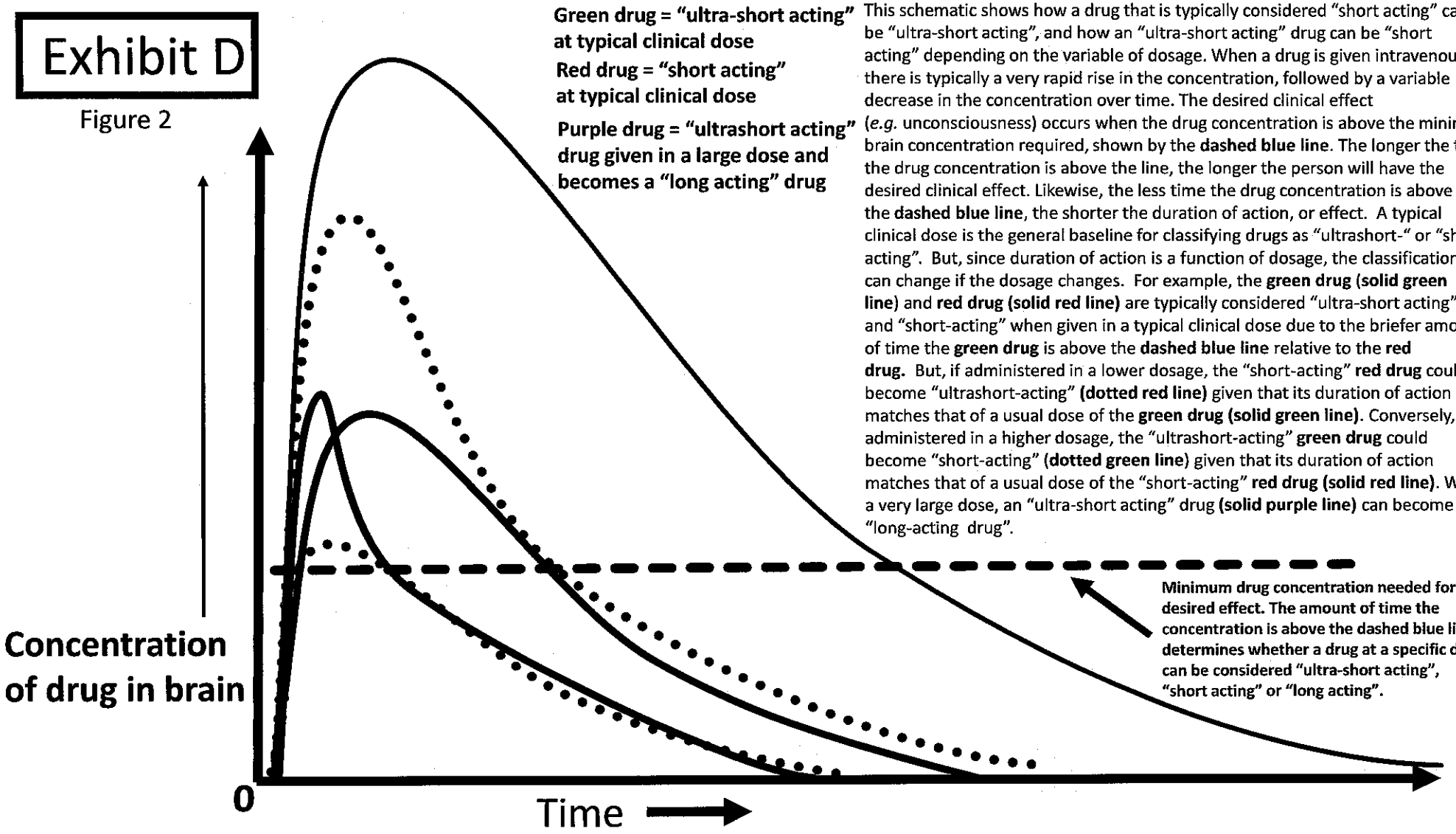


Exhibit D

Figure 2



This schematic shows how a drug that is typically considered "short acting" can be "ultra-short acting", and how an "ultra-short acting" drug can be "short acting" depending on the variable of dosage. When a drug is given intravenously, there is typically a very rapid rise in the concentration, followed by a variable decrease in the concentration over time. The desired clinical effect (*e.g.* unconsciousness) occurs when the drug concentration is above the minimal brain concentration required, shown by the **dashed blue line**. The longer the time the drug concentration is above the line, the longer the person will have the desired clinical effect. Likewise, the less time the drug concentration is above the **dashed blue line**, the shorter the duration of action, or effect. A typical clinical dose is the general baseline for classifying drugs as "ultrashort-" or "short-acting". But, since duration of action is a function of dosage, the classification can change if the dosage changes. For example, the **green drug (solid green line)** and **red drug (solid red line)** are typically considered "ultra-short acting" and "short-acting" when given in a typical clinical dose due to the briefer amount of time the **green drug** is above the **dashed blue line** relative to the **red drug.** But, if administered in a lower dosage, the "short-acting" **red drug** could become "ultrashort-acting" **(dotted red line)** given that its duration of action matches that of a usual dose of the **green drug (solid green line)**. Conversely, if administered in a higher dosage, the "ultrashort-acting" **green drug** could become "short-acting" **(dotted green line)** given that its duration of action matches that of a usual dose of the "short-acting" **red drug (solid red line)**. With a very large dose, an "ultra-short acting" drug **(solid purple line)** can become a "long-acting drug".