obtained in a fashion that would minimize the risk of needless cruelty, pain, and suffering.

It is our understanding the need to obtain central venous access in the Petitioner is not emergent. The readily apparent lack of a coherent program for designing and carrying out this procedure on the Petitioner leads us to recommend in the strongest possible terms that the procedure be postponed until the elements set forth above are brought into place. Specifically, we recommend that the Respondents be required to disclose a reasonably detailed and medically sound description of the procedure to be undertaken and a detailed description of the personnel who will be performing the procedure, including the credentials of the medical personnel. We, of course, recognize the medical personnel's desire for anonymity in the context of performing medical procedures related to an execution. However, it is not difficult to envision a solution that allows for a review of this information without revealing the identity of the specific personnel. For example, a mutually agreed upon independent party could review the professional credentials and licensure of the medical personnel and provide an assurance to interested parties that appropriately

credentialed personnel would be involved.

The amici curiae respectfully request that this Court grant the Petitioner's Petition for Writ of Certiorari.

Respectfully submitted,

KATHRYN LOUISE LIPPERT
Alabama Bar No. ASB-8428-I64K
Counsel for Amici Curiae

Post Office Box 661111
Birmingham, Alabama 35266
Telephone (205) 426-3705
Fax Number (205) 426-3750

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a true and correct copy of this Brief of Amici Curiae in Support of Petitioner by United States Mail with proper postage affixed thereto upon the following:

Mr. Michael Billingsley
Deputy Attorney General
Alabama State House
11 South Union Street
Montgomery, Alabama 36130

Michael Kennedy McIntyre
507 The Grant Building
44 Broad Street, N.W.
Atlanta, GA 30303

H. Victoria Smith
507 The Grant Building
44 Broad Street, N.W.
Atlanta, GA 30303

Dated: This 10th day of November, 2003.

Kathryn L Lippert
KATHRYN LOUISE LIPPERT

Inadequate anaesthesia in lethal injection for execution

Leonidas G Koniaris, Timothy A Zimmers, David A Lubarsky, Jonathan P Sheldon

Anaesthesia during lethal injection is essential to minimise suffering and to maintain public acceptance of the practice. Lethal injection is usually done by sequential administrations of thiopental, pancuronium, and potassium chloride. Protocol information from Texas and Virginia showed that executioners had no anaesthesia training, drugs were administered remotely with no monitoring for anaesthesia, data were not recorded and no peer-review was done. Toxicology reports from Arizona, Georgia, North Carolina, and South Carolina showed that post-mortem concentrations of thiopental in the blood were lower than that required for surgery in 43 of 49 executed inmates (88%); 21 (43%) inmates had concentrations consistent with awareness. Methods of lethal injection anaesthesia are flawed and some inmates might experience awareness and suffering during execution.

Since 1976, when the death penalty was reinstated, 959 people have been executed in the USA.[1] Lethal injection has eclipsed all other methods of execution because of public perception that the process is relatively humane and does not violate the Eighth Amendment prohibition against cruel and unusual punishments. US courts recognise "evolving standards of decency that mark the progress of a maturing society", and prohibit punishments that "involve the unnecessary and wanton infliction of pain", "involve torture or a lingering death", or do not accord with "the dignity of man".[2]

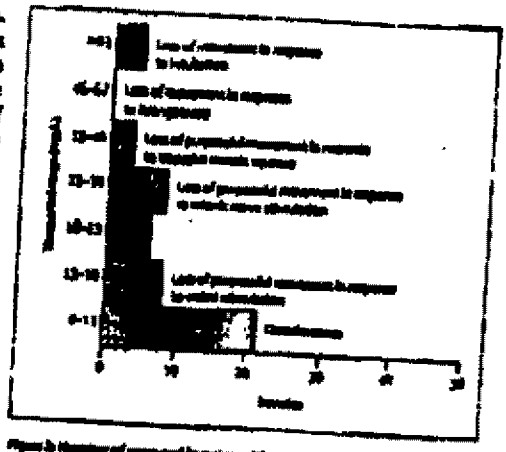
Lethal injection usually consists of sequential administration of sodium thiopental for anaesthesia, pancuronium bromide to induce paralysis, and finally potassium chloride to cause death.[3] Without anaesthesia, the executioned person would experience asphyxiation, a severe burning sensation, muscular paralysis, and finally cardiac arrest. Thus, adequate anaesthesia is necessary both to mitigate the suffering of the condemned and to preserve public opinion that lethal injection is a state-sanctioned death. By contrast with its medical applications, however, anaesthesia in execution has not been subjected to clinical trials, government regulation, extensive training of practitioners, standardisation, or the imposition of peer-review and medicolegal liability. Furthermore, the American Medical Association and American Nurses Association strictly oppose participation of their members in executions. We postulated that anaesthesia methods in lethal injection might be inadequate.

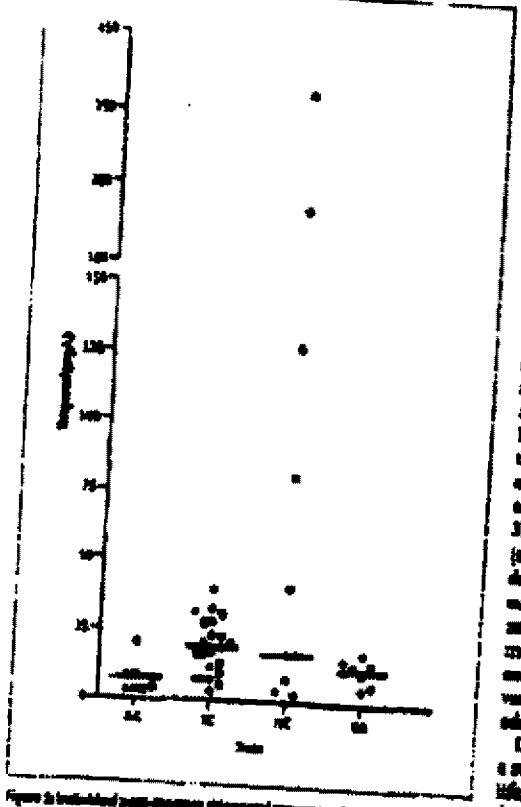
To assess anaesthesia methods, we sought protocol information from the states of Texas and Virginia, where 45–49% of executions are done, by a combination of statutory records requests to the Texas Department of Criminal Justice and the Virginia Department of Corrections, along with personal interviews and sworn testimony of executioner officials involved in executions. We noted that neither state had a record of the creation of its protocol (Texas Department of Criminal Justice Assistant General Counsel, January and February, 2004; and Virginia Department of Corrections Director of Communications, December, 2003; written communication); executioners—typically one to three emergency medical technicians or medical corpsmen—had no training in anaesthesia (Virginia Department of Corrections Director of Communications, written communication; and personal interview of a former assistant Texas corrections official who witnessed 119 Texas executions hereafter "personal interview");[4] after placement of one or two intravenous lines, executioners stepped behind a wall or curtain and remotely administered drugs in the conscious inmate (personal interview);[4] no direct observation, physical examination, or electronic monitoring took place for anaesthesia (personal interview)[4] and there was no data collection, documentation of anaesthesia, or post-procedure peer review (Virginia Department of Corrections Director of Communications, written communication; and personal interview). No assessment of depth of anaesthesia or loss of consciousness was done; apparently anaesthesia is assumed because a relatively large quantity of thiopental is specified (usually 3 g) compared with the typical clinical induction dose of 3–5 mg/kg, immediately followed by 1–1·5 mg/kg per min for maintenance (the dose equates to 270–450 mg for induction and 90–135 mg/min maintenance for a 200 lb man).

The assumption that 3 g thiopental ensures anaesthesia is overly simplistic, however. First, technical difficulties or personnel errors by poorly trained executioners might hinder administration of the total dose. Second, if thiopental concentrations were maintained at standard infusion rates, the total dose for a 10-min procedure in a 160 kg man would be 1·3–1·8 g. Thus the dose used is not excessive for the average time from injection to death (8·4 min, SD 4·7) and might be inadequate if the process took longer.[5] Third, a person undergoing execution would be fearful, anxious, and hyperadrenergic, and would need a higher dose of thiopental than would a premedicated surgical patient. Fourth, tolerance with interaction of chronic substance misuse problems might have high tolerance to sedative hypnotics and would need increased doses of anaesthetic.

Because no documentation of anaesthesia in the execution chamber existed, the only available objective data were postmortem concentrations of thiopental. Texas and Virginia refused to provide such data, but we obtained autopsy toxicology results from 49 executions in

Arizona, Georgia, North Carolina, and South Carolina. Toxicology reports were generated by MedTox Laboratories (St Paul, MN) for Arizona and are available in Beardslee versus Woodford, No C-04-5181 (Northern District of California, 2004). Data from the Division of Forensic Sciences Georgia Bureau of Investigation are available in State versus Nance, Superior Court Indictment No. 95-R-2462-4. North Carolina reports were obtained directly from the Office of the Chief Medical Examiner, South Carolina Law Enforcement Division Toxicology Department reports were obtained by attorney David Barrow, Kentucky Department of Public Advocacy Capital Post-Conviction Unit (personal communication) and are available in Hill versus Chandler, No 2:04-0469-18AJ (District of South Carolina, 2004). Although the protocols of all four states are similar to those of Texas and Virginia, and specify that 2 g





thiopental in vivid, concentrations of the drug in the blood ranged from only trace amounts to 370 mg/L (median 1.3–5 mg/L; figure 1). Thiopental concentrations did not fall with increased time between execution and blood sample collection (data not shown), consistent with data showing that thiopental is quite stable in stored human plasma.[9]

Extrapolation of antemortem depth of anesthesia from post-mortem blood thiopental concentrations is admittedly problematic. To estimate concentrations of thiopental in the brain from concentrations in the blood in life, details of the site and duration of drug administration are needed. Unfortunately, such details are usually not specified in lethal injection protocols. Furthermore, no data about post-mortem distribution of thiopental are available. However, a large range of blood concentrations resulted from nearly identical protocols across and within individual states—from 0·3 mg/L to 370 mg/L in North Carolina for the states sampling site (subclavian artery) and similar collection times (same day or next day, respectively). This finding suggests substantial variations in either the autopsy or anesthesia methods. Concerning the question of state medical consistency with the relatively unskilled executioner, however, would strongly suggest that the variation is probably due to differences in drug administration in individual executions.

If post-mortem thiopental concentrations are taken as a surrogate marker of concentrations in the blood during life, most of the executed inmates had concentrations that would not be expected to produce a surgical plane of anesthesia, and 31 (49%) had concentrations consistent with consciousness (figure 2). In a parallel study in which actual serum thiopental concentrations were measured against clinical endpoints, the steady state serum concentration needed to produce a 50% probability of no

muscle response (Cp_{50}) after intubation was defined as 70·8 mg/L (SD 2·9).[3] The Cp_{50} for movement after supramaximal muscle squeeze, a stimulus equivalent to skin incision, was 58·9 mg/L (3·3). Remarkably, 42 of the 49 inmates had blood thiopental concentrations below this level. Most worryingly, 21 inmates had concentrations less than the Cp_{50} for supression of movement in response to a vocal command. In view of these data, we suggest that it is possible that some of these inmates were fully aware during their executions. We certainly cannot conclude that these inmates were unconscious and insensate. However, with no monitoring and with use of the paralytic agent, any suffering of the inmate would be undetectable.

With little public dialogue about protocols for killing humans beings, it is pertinent to consider recommendations from animal euthanasia protocols. The American Veterinary Medical Association (AVMA) panel on euthanasia specifically prohibits the use of paralytics with a neuromuscular blocking agent to kill animals,[4] and 19 states, including Texas, have expressly or implicitly prohibited the use of neuromuscular blocking agents in animal euthanasia because of the risk of unrecognised awareness.[5] Furthermore, AVMA specifies that "it is of utmost importance that personnel performing this technique are trained and knowledgable in anesthetic techniques, and are competent in assessing anesthetic depth appropriate for administration of potassium chloride intravenously. Administration of potassium chloride intravenously requires animals to be in a surgical plane of anesthesia characterised by loss of consciousness, loss of reflex muscle responses, and loss of response to noxious stimuli".[4] The absence of training and monitoring, and the routine administration of drugs, coupled with eyewitness reports of muscle responses during execution, suggest that the current practice of lethal injection for execution fails to meet veterinary standards.[4]

Our data suggest that anaesthesia methods in lethal injections in the USA are flawed. Failures in protocol design, implementation, monitoring and review might have led to the unnecessary suffering of at least some of those executed. Because participation of doctors in protocol design or execution is ethically prohibited, adequate anaesthesia cannot be certain. Therefore, to prevent unnecessary cruelty and suffering, execution and public review of lethal injections is warranted.

Contributors

L G Koniaris and J P Sheldon conceived the study. J P Sheldon collected the personal information. J P Sheldon and T A Zimmers collected the toxicology data. S A Lieberman, L G Koniaris, and T A Zimmers reviewed the personal information and toxicology data. All authors participated in the writing and editing of the manuscript. L G Koniaris and T A Zimmers contributed equally to the work.

Conflict of interest statement

It is not company who represents licensees condemned to death. None of the other authors had a conflict of interest.

Acknowledgments

There was no special source of funding for this study.

References

1 Death Penalty Information Center. http://www.deathpenaltyinfo.org/documentation.php (accessed March 17, 2005).

2 Resolution 1 (Guildford). *JAMA* 1858; 167: 501–05.

3 Dershwitz M. When legislatures delegate death: the troubling paucity behind state uses of pharmacokinetics and lethal injection: and what it says about us. *Ohio St Law J* 2003; 64: 61–151.

4 Virginia Department of Corrections Senior Warden Charlie Taylor, Testimony to Judge Johnson, Civil Action No 3:05cv00058 (Sept 1, 2005).

5 Khan A, Lewandowski MH. Medical aspects of capital punishment executions. *J Forensic Sci* 2000; 45: 545–51.

6 Mendez-Labrandero J. Stability of thiopental and pentobarbital in human plasma determined with a new easy and specific gas chromatographic-mass spectrometry assay. *Pharmacol* 1988; 36: 357–65.

7 Zhang GH, Verwil JB, Shafer SL, Stanski DR. Thiopental pharmacodynamics. II. Quantitation of clinical and electroencephalographic depth of anesthesia. *Anesthesiology* 1998; 79: 229–241.

8 American Veterinary Medical Association Panel on Euthanasia. American Veterinary Medical Association. 2000 Report of the AVMA Panel on Euthanasia. *J Am Vet Med Assoc* 2001; 218: 669–696.

Declaration of Mark J. S. Heath, M.D.

I, Mark J.S. Heath, M.D., hereby declare as follows:

1. I am an Assistant Professor of Clinical Anesthesiology at Columbia University in New York City. I received my Medical Doctorate degree from the University of North Carolina at Chapel Hill in 1986 and completed residency and fellowship training in Anesthesiology in 1992 at Columbia University Medical Center. I am Board Certified in Anesthesiology, and am licensed to practice Medicine in New York State. My work consists of approximately equal parts of performing clinical anesthesiology, teaching residents, fellows, and medical students, and managing a neuroscience laboratory. As a result of my training and research I am familiar and proficient with the use and pharmacology of the chemicals used to perform lethal injection. I am qualified to do animal research at Columbia University and am familiar with the American Veterinary Medical Association's guidelines.

2. Over the past several years, as a result of concerns about the mechanics of lethal injection as practiced in the United States, I have performed many hundreds of hours of research into the techniques that are used during this procedure. I have testified as an expert medical witness in courts in Maryland, Georgia, Tennessee, Kentucky, Virginia, and Louisiana in the following actions: *Baker v. Saar*, No. WDQ-05-3207 (D. Md.); *Evans v. Saar*, No. 1:06-CV-00149-BEL, (D. Md.);
Reid v. Johnson, No. 3:03cv1039 (E.D. Va.); *Abdur'Rahman v. Bredesen*, No. 02-2236-III (Davidson County Chancery Ct., Tenn.); *State v. Michael Wayne Nance*, 95-B-2461-4 (Ga. Superior Ct.); *Ralph Baze & Thomas Bowling v. Rees*, 04-CI-01094 (Franklin County Circuit Ct., Ky.); *Taylor v. Crawford*, 05-4173-CV-C-FJG (W.D. Mo.); and *State v. Nathanial Code*, No.138860, (1st Judicial D. Ct. of LA for Caddo Parish 2003). I have filed affidavits that have

been reviewed by courts in the above states and also in California, Pennsylvania, New York, Alabama, North Carolina, South Carolina, Ohio, Oklahoma, Texas, Missouri, and by the United States Supreme Court.

3. During court proceedings, I have heard testimony from prison wardens who are responsible for conducting executions by lethal injection. I have testified before the Nebraska Senate Judiciary Committee regarding proposed legislation to adopt lethal injection. I have testified before the Pennsylvania Senate Judiciary Committee regarding proposed legislation to prohibit the use of pancuronium and the other neuromuscular blockers in Pennsylvania's lethal injection protocol. My research regarding lethal injection has involved both extensive conversations with recognized experts in the field of lethal injection, toxicology, and forensic pathology and the exchange of personal correspondence with the individuals responsible for introducing lethal injection as a method of execution in Oklahoma (the first state to formulate the procedure) and in the United States.

4. My qualifications are further detailed in my curriculum vitae, a copy of which is attached hereto as Exhibit A and incorporated by reference as if fully rewritten herein.

5. I have been asked by counsel for Edward Lee Beets to review the procedures concerning lethal injection currently in place in Nevada to assess whether there is a risk of the inmate experiencing pain and suffering while the lethal injection is administered. I hold all opinions expressed in this Declaration to a reasonable degree of medical certainty, except as specifically noted at the end of paragraph 35, where I make a speculative comment.

6. I have reviewed the Nevada Department of Corrections' "Confidential Execution Manual."

7. In addition, I have reviewed numerous documents, including execution logs, for California's executions. Comparable information about executions by lethal injection in Nevada is unavailable. However, Nevada's lethal injection protocol is similar to that used in California prior to the proceedings in *Morales v. Hickman*.

8 I have also reviewed Nev. Rev. Stat. § 638.005 and N.A.C. §§ 638.450 et. seq. which pertain to the training for those performing euthanasia on animals, as well as statutes pertaining to euthanasia of animals from the states of: California, Florida, Georgia, Maine, Maryland, Massachusetts, New Jersey, New York, Oklahoma, Tennessee, Texas, Connecticut, Delaware, Illinois, Kansas, Kentucky, Louisiana, Missouri, Rhode Island and South Carolina. I have also reviewed the 2000 Report of the Panel on Euthanasia of the American Veterinary Medical Association, attached hereto as Exhibit B, the American Society of Anesthesiologist's Practice Advisory for Intraoperative Awareness and Brain Function Monitoring, attached hereto as Exhibit C, and the American Society of Anesthesiologist's Standards for Basic Anesthetic Monitoring, attached hereto as Exhibit D.

9. Based upon my review of this material and my knowledge of and experience in the field of anesthesiology, I have formed several conclusions with respect to the protocol of the Nevada Department of Corrections ("NDOC") for carrying out lethal injections. These conclusions arise both from the details disclosed in the materials I have reviewed and from medically relevant, logical inferences drawn from the omission of details in those materials (e.g., details regarding the training of the personnel involved; details of all of the medical equipment used; and details of the precise methods by which the personnel involved use the equipment to carry out an execution by lethal injection).

A. NDOC's Lethal Injection Protocol

10. NDOC's lethal injection protocol calls for the administration of 5 grams of sodium thiopental, 20 milligrams of pancuronium bromide (Pavulon), and 160 milliequivalents of potassium chloride. Broadly speaking, the sodium thiopental is intended to serve as an anesthetic, rendering the inmate unconscious for the duration of the execution. Five grams of sodium thiopental is a massive, and potentially lethal, dose. The pancuronium bromide paralyzes the inmate's voluntary muscles, including those of his chest and diaphragm. Pancuronium is not an anesthetic or sedative drug, and it does not affect consciousness. Potassium chloride is a salt solution that, when rapidly administered in high concentrations, induces cardiac arrest.

11. Although the successful delivery into the circulation of 5 grams of sodium thiopental and 20 milligrams of pancuronium would be lethal, it is important to understand that the lethality of sodium thiopental and pancuronium is due to respiratory arrest, which takes several minutes to ensue and does not typically occur prior to the administration of potassium. In the execution sequence, before death is caused by respiratory arrest from sodium thiopental and pancuronium, death is caused by cardiac arrest caused by potassium. I base this opinion, that the potassium and not the pancuronium or sodium thiopental is responsible for the death of prisoners during lethal injection, on the following:

A) Review of records from EKGs from lethal injection procedures conducted in other states. During lethal injection, cardiac activity consistent with generating perfusion persists through the administration of sodium thiopental and pancuronium and only stops after potassium has been administered. The relatively sudden cessation of organized EKG activity is not consistent with a cessation of circulation due to administration of sodium thiopental and/or pancuronium and is consistent with cessation of

circulation after the administration of a large dose of potassium chloride.

B) Properties of Sodium Thiopental and Pancuronium. Sodium thiopental and pancuronium exert their effects by interacting with molecular targets in the nervous system and on muscle cells in a manner that induces unconsciousness and stops breathing. Sodium thiopental and pancuronium, unlike other chemicals such as cyanide, do not kill cells or tissues, and are useful to clinicians precisely because they do not kill or harm cells or tissues. The reason that sodium thiopental and pancuronium can cause death is that they cause the prisoner to stop breathing. Failure to breathe will result in brain damage, brain death, and cardiac arrest as the level of oxygen in the blood declines over time. These processes take a varying amount of time, depending on many factors. Physicians generally use four minutes of not breathing as the approximate benchmark time after which irreversible brain damage from lack of oxygen occurs, and death typically occurs some number of minutes after the onset of brain damage. It is worth noting, however, that this general figure of four minutes is often used in the context of cardiac arrest, in which there is no circulation of blood through the brain. If some level of blood circulation persists, it is very likely that brain damage and brain death would take longer than four minutes.

In the context of lethal injection, sodium thiopental and pancuronium, if successfully delivered into the circulation in large doses, would indeed each be lethal, because they would stop the inmate's breathing. However, as described above, in execution by lethal injection as

practiced by Nevada and other states the administration of potassium and death precede any cardiac arrest that would be caused by sodium thiopental and pancuronium.

12. Intravenous injection of concentrated potassium chloride solution causes excruciating pain. The vessel walls of veins are richly supplied with sensory nerve fibers that are highly sensitive to potassium ions. The intravenous administration of concentrated potassium in doses intended to cause death therefore would be extraordinarily painful. NDOC's selection of potassium chloride to cause cardiac arrest needlessly increases the risk that a prisoner will experience excruciating pain prior to execution. There exist, however, alternative chemicals that do not activate the nerves in the vessel walls of the veins in the way that potassium chloride does. Despite the fact that the statute authorizing lethal injection in Nevada does not specify or require the use of potassium, NDOC has failed to choose a chemical that would cause death in a painless manner.

13. Thus, NDOC chose the means of causing death by choosing a medication (potassium chloride) that causes extreme pain upon administration, instead of selecting available, equally effective yet essentially painless medications for stopping the heart. In so doing, NDOC has taken on the responsibility of ensuring, through all reasonable and feasible steps, that the prisoner is sufficiently anesthetized and cannot experience the pain of potassium chloride injection.

14. The provision of anesthesia has become a mandatory standard of care whenever a patient is to be subjected to a painful procedure. Throughout the civilized world, the United States, and Nevada, whenever a patient is required to undergo a painful procedure, it is the standard of care to provide some form of anesthesia. Circumstances arise in which prisoners in Nevada require surgery, and in many instances the surgery requires the provision of general

anesthesia. In these circumstances general anesthesia is provided, and it is provided by an individual with specific training and qualifications in the field of anesthesiology. It is critical to understand that the great majority of physicians and nurses and other health care professionals do not possess the requisite training, skills, experience, and credentials to provide general anesthesia. It would be unconscionable to forcibly subject any person, including a prisoner in Nevada, to a planned and anticipated highly painful procedure without first providing an appropriate anesthetic, and it would be unconscionable to allow personnel who are not properly trained in the field of anesthesiology to attempt to provide or supervise this anesthetic care.

15. As a living person who is about to be subjected to the excruciating pain of potassium injection, it is imperative that all prisoners undergoing lethal injection be provided with adequate anesthesia. This imperative is of the same order as the imperative to provide adequate anesthesia for any Nevada prisoner requiring general anesthesia (or any type of anesthesia) before undergoing painful surgery. Given that the injection of potassium is a scheduled and premeditated event that is known without any doubt to be extraordinarily painful, it would be unconscionable and barbaric for potassium injection to take place without the provision of sufficient general anesthesia to ensure that the prisoner is rendered and maintained unconscious throughout the procedure, and it would be unconscionable to allow personnel who are not properly trained in the field of anesthesiology to attempt to provide or supervise this anesthetic care.

B. Failure to Adhere to a Medical Standard of Care in Administering Anesthesia

16. It is my opinion to a reasonable degree of medical certainty that the lethal injection procedures selected for use in Nevada and used elsewhere subject the prisoner to an increased and unnecessary risk of experiencing excruciating pain in the course of execution.

Because of the potential for an excruciating death created by the use of potassium chloride, it is necessary to induce and maintain an appropriate and deep plane of anesthesia. The circumstances and environment under which anesthesia is to be induced and maintained according to NDOC's execution manual create, needlessly, a significant risk that inmates will suffer the pain that accompanies the injection of potassium chloride.

17. Presumably because of the excruciating pain evoked by potassium, lethal injection protocols like Nevada's plan for the provision of general anesthesia by the inclusion of sodium thiopental. When successfully delivered into the circulation in sufficient quantities, sodium thiopental causes sufficient depression of the nervous system to permit excruciatingly painful procedures to be performed without causing discomfort or distress. Failure to successfully deliver into the circulation a sufficient dose of sodium thiopental would result in a failure to achieve adequate anesthetic depth and thus failure to block the excruciating pain of potassium administration.

18. NDOC's procedures do not comply with the medical standard of care for inducing and maintaining anesthesia prior to and during a painful procedure. Likewise, NDOC's procedures are not compliant with the guidelines set forth by the American Veterinary Medical Association for the euthanasia of animals. Further, NDOC has made insufficient preparation for the real possibility, encountered in many other jurisdictions, and planned for in those jurisdictions, that peripheral IV access cannot be successfully established.

1. The Dangers of Using Sodium Thiopental as an Anesthetic

19. A major concern I have based on what I know about NDOC's lethal injection protocol relates to the use of sodium thiopental. Sodium thiopental is an ultrashort-acting barbiturate with a relatively short shelf life in liquid form. Sodium thiopental is distributed in

powder form to increase its shelf life; it must be mixed into a liquid solution by trained personnel before it can be injected.

20. When anesthesiologists use sodium thiopental, we do so for the purposes of temporarily anesthetizing patients for sufficient time to intubate the trachea and institute mechanical support of ventilation and respiration. Once this has been achieved, additional drugs are administered to maintain a "surgical depth" or "surgical plane" of anesthesia (i.e., a level of anesthesia deep enough to ensure that a surgical patient feels no pain and is unconscious). The medical utility of sodium thiopental derives from its ultrashort-acting properties: if unanticipated obstacles hinder or prevent successful intubation, patients will likely quickly regain consciousness and resume ventilation and respiration on their own.

21. The benefits of sodium thiopental in the operating room engender serious risks in the execution chamber. Although the full five grams of sodium thiopental, if properly administered into the prisoner's bloodstream, would be more than sufficient to cause unconsciousness and, eventually, death, if no resuscitation efforts were made, my research into executions by lethal injection strongly indicates that executions have occurred where the full dose of sodium thiopental listed in the protocol was not fully and properly administered. If an inmate does not receive the full dose of sodium thiopental because of errors or problems in administering the drug, the inmate might not be rendered unconscious and unable to feel pain, or alternatively might, because of the short-acting nature of sodium thiopental, regain consciousness during the execution.

22. Thus, the concerns raised in this affidavit apply regardless of the size of the dose of sodium thiopental that is prescribed under the protocol. The level of anesthesia, if any, achieved in each individual inmate depends on the amount that is successfully administered, although other factors such as the inmate's weight and sensitivity/resistance to barbiturates are

also relevant. Many foreseeable situations exist in which human or technical errors could result in the failure to successfully administer the intended dose. NDOC's execution manual both fosters these potential problems and fails to provide adequate instruction for preventing or rectifying these situations, and it does these things needlessly and without legitimate reason. Examples of problems that could prevent proper administration of sodium thiopental include, but are not limited to, the following:

a) Errors in Preparation. Sodium thiopental is delivered in powdered form and must be mixed into an aqueous solution prior to administration. This preparation requires the correct application of pharmaceutical knowledge and familiarity with terminology and abbreviations. Calculations are also required, particularly if the protocol requires the use of a concentration of drug that differs from that which is normally used.

b) Error in Labeling of Syringes. NDOC's execution manual states the syringes will be "clearly marked," but does not specify a standard order in which the syringes will be prepared or how they will be labeled. This could cause confusion in creating the syringes, leading to mislabeling, which, depending on the labeling system used, might not be detected and corrected later in the process.

c) Error in Selecting the Correct Syringe during the sequence of administration.

d) Error in Correctly Injecting the Drug into the Intravenous Line. Nevada's execution manual fails to identify the person(s) responsible for injecting the lethal drugs and further fails to identify their qualifications.

e) The IV Tubing May Leak. An "IV setup" consists of multiple components that are assembled by hand prior to use. If, as is the practice in Nevada, the personnel who are

injecting the drugs are not at the bedside but are instead in a different room or part of the room, multiple IV extension sets need to be inserted between the inmate and the administration site. Any of these connections may loosen and leak. In clinical practice, it is important to maintain visual surveillance of the full extent of IV tubing so that such leaks may be detected. Nevada's practice, by which the executioner(s) is in a separate room with no visual surveillance precludes detection of any leak that may occur.

f) Incorrect Insertion of the Catheter. If the catheter is not properly placed in a vein, the sodium thiopental will enter the tissue surrounding the vein but will not be delivered to the central nervous system and will not render the inmate unconscious. This condition, known as infiltration, occurs with regularity in the clinical setting. Recognition of infiltration requires continued surveillance of the IV site during the injection, and that surveillance should be performed by the individual who is performing the injection so as to permit correlation between visual observation and tactile feedback from the plunger of the syringe.

g) Migration of the Catheter. Even if properly inserted, the catheter tip may move or migrate, so that at the time of injection it is not within the vein. This would result in infiltration, and therefore a failure to deliver the drug to the inmate's circulation and failure to render the inmate unconscious.

h) Perforation or Rupture or Leakage of the Vein. During the insertion of the catheter, the wall of the vein can be perforated or weakened, so that during the injection some or all of the drug leaves the vein and enters the surrounding tissue. The likelihood of rupture occurring is increased if too much pressure is applied to the plunger of the syringe during injection, because a high pressure injection results in a high velocity jet of drug in the vein that can penetrate or tear the vessel wall.

i) Excessive Pressure on the Syringe Plunger. Even without damage or perforation of the vein during insertion of the catheter, excessive pressure on the syringe plunger during injection can result in tearing, rupture, and leakage of the vein due to the high velocity jet that exits the tip of the catheter. Should this occur, the drug would not enter the circulation and would therefore fail to render the inmate unconscious.

j) Securing the Catheter. After insertion, catheters must be properly secured by the use of tape, adhesive material, or suture. Movement by the inmate, even if restrained by straps, or traction on the IV tubing may result in the dislodging of the catheter.

k) Failure to Properly Administer Flush Solutions Between Injections of Drugs. Solutions of paralytic agents such as pancuronium cause sodium thiopental to precipitate out of solution on contact, thereby interfering with the delivery of the drug to the inmate and to the central nervous system. NDOC's manual does not specify if, how, or when the lines will be flushed.

l) Failure to Properly Loosen or Remove the Tourniquet from the Arm or Leg after placement of the IV catheter will delay or inhibit the delivery of the drugs by the circulation to the central nervous system. This may cause a failure of the sodium thiopental to render and maintain the inmate in a state of unconsciousness.

m) Impaired Delivery Due to Restraining Straps. Restraining straps may act as tourniquets and thereby impede or inhibit the delivery of drugs by the circulation to the central nervous system. This may cause a failure of the sodium thiopental to render and maintain the inmate in a state of unconsciousness. Even if the IV is checked for "free flow" of the intravenous

fluid prior to commencing injection, a small movement within the restraints on the part of the inmate could compress the vein and result in impaired delivery of the drug.

2. The Need for Adequate Training in Administering Anesthesia

23. Because of these foreseeable problems in administering anesthesia, in Nevada and elsewhere in the United States, the provision of anesthetic care is performed only by personnel with advanced training in the medical subspecialty of Anesthesiology. This is because the administration of anesthetic care is complex and risky, and can only be safely performed by individuals who have completed the extensive requisite training to permit them to provide anesthesia services. Failure to properly administer a general anesthetic not only creates a high risk of medical complications including death and brain damage, but also is recognized to engender the risk of inadequate anesthesia, resulting in the awakening of patients during surgery, a dreaded complication known as "intraoperative awareness." The risks of intraoperative awareness are so grave that, in October 2005, the American Society of Anesthesiologists published a new practice advisory on the subject of intraoperative awareness. If the individual providing anesthesia care is inadequately trained or experienced, the risk of these complications is enormously increased. In Nevada and elsewhere in the United States, general anesthesia is administered by physicians who have completed residency training in the specialty of Anesthesiology, and by nurses who have undergone the requisite training to become Certified Registered Nurse Anesthetists (CRNAs). Physicians and nurses who have not completed the requisite training to become anesthesiologists or CRNAs are not permitted to provide general anesthesia.

24. In my opinion, individuals providing general anesthesia in the Nevada State Prison should not be held to a different or lower standard than is set forth for individuals providing general anesthesia in any other setting in Nevada. Specifically, the individuals

providing general anesthesia within Nevada State Prison should possess the experience and proficiency of anesthesiologists and/or CRNAs. Conversely, a physician who is not an anesthesiologist or a nurse who is not a CRNA should not be permitted to provide general anesthesia within Nevada State Prison (or anywhere else in Nevada).

25. NDOC's execution protocol fails to specify whether the person or persons administering the lethal injection have any training in administering anesthesia, or, if personnel are given training, what that training might be. The absence of any details as to the training, certification, or qualifications of injection personnel raises critical questions about the degree to which condemned inmates risk suffering excruciating pain during the lethal injection procedure. The great majority of nurses are not trained in the use of ultrashort-acting barbiturates; indeed, this class of drugs is essentially only used by a very select group of nurses who have obtained significant experience in intensive care units and as nurse anesthetists. Very few paramedics are trained or experienced in the use of ultrashort-acting barbiturates. Based on my medical training and experience, and based upon my research of lethal injection procedures and practices, inadequacies in these areas elevate the risk that the lethal injection procedure will cause the condemned to suffer excruciating pain during the execution process. Failure to require that the person or persons administering the lethal injection have training equivalent to that of an anesthesiologist or a CRNA compounds the risk that inmates will suffer excruciating pain during their executions.

3. NDOC's Failure to Account for Foreseeable Problems in Anesthesia Administration

26. In addition to lacking any policy on the training necessary to perform a lethal injection, NDOC's execution manual imposes conditions that exacerbate the foreseeable risks of improper anesthesia administration described above, and fails to provide any procedures for

dealing with these risks. Perhaps most disturbingly, Nevada's lethal injection practice prevents any type of effective monitoring of the inmate's condition or whether he is anesthetized and unconscious. After the IV lines are inserted into the inmate but before the administration of the sodium thiopental, the execution chamber is closed and the prisoner is left alone in the chamber for the duration of the execution. Nevada's practice is that all prison personnel and others involved in the execution will be in a separate room. There is no window through which the executioner(s) can observe the inmate as the series of drugs is injected. This falls below the standard of care. Accepted medical practice dictates that trained personnel monitor the IV lines and the flow of anesthesia into the veins through visual and tactile observation and examination. The lack of any qualified personnel present in the chamber during the execution thwarts the execution personnel from taking the standard and necessary measures to reasonably ensure that the sodium thiopental is properly flowing into the inmate and that he is properly anesthetized prior to the administration of the pancuronium and potassium.

27. In my opinion, having a properly trained and credentialed individual examine the inmate after the administration of the sodium thiopental (but prior to the administration of pancuronium) to verify that the inmate is completely unconscious would substantially mitigate the danger that the inmate will suffer excruciating pain during his execution. As discussed later in this affidavit, this is the standard of care, and in many states the law, that is set forth for dogs and cats and other household pets when they are subjected to euthanasia by potassium injection. Yet NDOC's execution manual does not provide for such verification, and indeed Nevada practice actively prevents the person or persons administering the lethal injection from determining whether or not the inmate remains conscious by requiring that all of the drugs must be administered remotely, from another room without even visual surveillance.

28. By requiring that the drugs be administered remotely, Nevada practice

necessitates the use of multiple connection sites in the IV tubing. This unnecessarily increases the risk of leakage and/or pinching of the tubes, and therefore creates a greater risk that the inmate will not be properly sedated. Any reasonable standard of care would require a system to be in place to ensure that the prisoner is properly anesthetized.

29. Other than stating "the lethal medication will be administered at a rapid rate," NDOC's execution manual provides no specifications regarding the timing of the administration of the drugs, thereby compounding the risks described in this Declaration. This concern is greatly amplified by the use of an ultrashort-acting barbiturate and is borne out by a review of the execution records from California. In each of the executions, the time between administrations of the three drugs varied for no apparent reason. The lack of a defined schedule for the administration of the three drugs increases the risk that the sedative effect of the sodium thiopental will wear off, should the inmate not receive the full dose.

30. Nevada's lethal injection protocol does not account for procedures designed to ensure the proper preparation of the drugs used. I have not seen details regarding the credentials, certification, experience, or proficiency of the personnel who will be responsible for the mixing of the sodium thiopental from powder form, or for the drawing up of the drugs into the syringes. Preparation of drugs, particularly for intravenous use, is a technical task requiring significant training in pharmaceutical concepts and calculations. It is my opinion based on my review of lethal execution procedures in states that have disclosed more detailed information than what I have seen about Nevada's procedures, that there exist many risks associated with drug preparation that, if not properly accounted for, further elevate the risk that the drug will not be properly administered and the inmate will consciously experience excruciating pain during the lethal injection procedures.

31. The altering of established medical procedures without adequate medical review and research, by untrained personnel, causes great concern about the structure of the lethal injection protocol and its medical legitimacy. There is no indication of how Nevada's execution protocol was developed, who was consulted, what procedures were considered and why. The protocol may be something the Warden developed alone, or in consultation with other corrections personnel, some of whom may or may not have any medical training, or any specialized knowledge of anesthetic literature and practice. Appropriate mechanisms for medical review, and standardization of the implementation and amendment process, are critical features in any medical protocol so that the medical professionals and the public can be assured that proper and humane procedures are in place and being followed. Indeed, in other states, physicians and other medical personnel play a role in ensuring that any protocol is consistent with basic medical standards of care and humaneness. Otherwise, the process is subject and prone to ad hoc administration and error, if not gross negligence, or worse, an alteration of the process so as to inflict as much agony as possible. With lethal injection, such concerns are highly elevated.

32. There are no procedures contained within NDOC's execution manual for the resuscitation of the inmate once the sodium thiopental is administered. To the contrary, the manual states that "once infusion of the lethal injection has begun . . . the execution cannot be stopped." This would foreclose the possibility of altering the course of an execution in the event of legal relief. Any time up until the potassium chloride is administered, the prisoner could be readily resuscitated given the appropriately trained personnel and routine resuscitation medication and equipment. If this were to occur after the potassium chloride was administered, resuscitation would be more challenging but still possible. Resuscitation would require equipment close-by, and properly credentialed personnel, neither of which are specified in the execution manual.

33. Based on my medical training and experience, and based on my research into lethal injection procedures and practices, it is my opinion to a reasonable degree of medical certainty that any reliable, humane lethal injection procedure must account for the foreseeable circumstance of a condemned inmate having physical characteristics that prevent intravenous access from being obtained by a needle piercing the skin and entering a superficial vein suitable for the reliable delivery of drugs. There have been multiple lethal injections in which this problem has arisen from a variety of circumstances. Some of these circumstances could be due to conditions including obesity, corticosteroid treatment, history of intravenous drug use, history of undergoing chemotherapy. Additionally, some people happen to have veins that are too small or deep to permit peripheral access. It is often not possible to anticipate difficult intravenous access situations, and there are multiple examples of executions in which the personnel placing the IVs struggled to obtain peripheral IV access and eventually abandoned the effort. NDOC's execution manual is deficient in its failure to plan for the foreseeable possibility that peripheral IV access can not be obtained.

34. In this setting, state lethal injection protocols typically specify the use of a "cut-down" procedure to access a vein adequate for the reliable infusion of the lethal drugs. Aside from specifying in the "List of Needed Equipment and Materials," which "may vary," a "sterile cut-down tray if necessary," Nevada's lethal injection execution protocol contains no reference to plans for dealing with the foreseeable circumstance wherein peripheral intravenous access cannot be obtained in the arm or leg. No information regarding the training, experience, expertise, credentials, certification, or proficiency of the personnel who would perform such a "cut down" procedure is listed in the Nevada lethal injection protocol. In this regard, NDOC's lethal injection protocol is deficient in comparison to those of other states that I have reviewed. This complicated medical procedure requires equipment and skill that are not accounted for in the execution manual. It has a very high probability of not proceeding properly in the absence of

adequately trained and experienced personnel, and without the necessary equipment. If done improperly, the "cut-down" process can result in very serious complications including severe hemorrhage (bleeding), pneumothorax (collapse of a lung which may cause suffocation), and severe pain. It is well documented that lethal injection procedures in other states have at times required the use of a central intravenous line. NDOC has not, to my knowledge, released information about the need for central intravenous access during prior executions, and therefore it is not possible to make any assessment about whether the necessary safeguards have been set in place to ensure that the procedure is reasonably humane.

35. This concern over the challenges of IV placement has been demonstrated in numerous cases. For example, most recently, during the execution of Joseph Clark in Ohio, difficulties in finding a vein delayed the execution by almost 90 minutes. *See* Andrew Welsh-Huggins, *IV Fiasco Led Killer to Ask for Plan B*, AP (May 12, 2006), attached hereto as Exhibit E. The execution team struggled for several minutes to find usable vein. The team placed a "shunt" in Clark's left arm, but the vein "collapsed". Subsequently, the team placed a "shunt" in Clark's right arm, but mistakenly attempted to administer the lethal drugs through the IV in the left arm where the vein had already "collapsed". The difficulties prompted Clark to sit up and tell his executioners "It don't work" and to ask "Can you just give me something by mouth to end this?" Similar problems occurred during the execution of Stanley "Tookie" Williams, the injection team took 12 minutes to insert the IV lines. The first line was placed quickly but spurted blood, and the staff struggled for 11 minutes to insert the second line, having so much difficulty that Williams asked whether they were "doing that right." *See The Execution of Stanley Tookie Williams*, SFGate.com (Dec. 14, 2005), attached hereto as Exhibit F. The difficulty of the challenge presented to the IV team is evidenced by the comment that "By 12:10 a.m., the medical tech's lips were tight and white and sweat was pooling on her forehead as she probed Williams' arm." Similarly, the execution log of Donald Beardslee's execution indicates that the

second IV line was inserted with "difficulty," and the time entries indicate that it took 12 minutes to insert the second line, which is consistent with encountering problems in inserting the IV. When it proceeds smoothly, placement of a peripheral IV should, in my experience, take on the order of two minutes or less. In the execution of William Bonin, it took the staff assigned anywhere between 18 and 27 minutes to fashion the IV lines (the records are unclear as to this point). This is an unusually long period of time for an experienced and properly trained professional. In the execution of Stephen Anderson on January 29, 2002, one of the persons who attempted to secure an IV was unable to do so without causing significant bleeding and the need to remove his gloves. Again, this indicates that the process is a difficult one and that it is necessary that the persons doing it are properly trained and experienced. As is widely recognized in the medical community, administration of intravenous medications and the management of intravenous systems are complex endeavors. While speculative and not evidence-based, it is my opinion that it is likely that IV placement is rendered more difficult in the context of executions because the inmates are often in a very anxious status, which causes the release of epinephrine (adrenalin) and norepinephrine, thereby causing constriction (narrowing) of blood vessels (including veins). When veins are constricted/narrowed it can be difficult or impossible to insert an IV catheter. This is the best explanation I can provide for the otherwise unexplained extremely high incidence of difficult or failed peripheral IV placement, in individuals lacking known risk factors for difficult IV access.

36. It is my further opinion that to ensure a lethal injection without substantial risks of inflicting severe pain and suffering, there must be proper procedures that are clear and consistent: there must be qualified personnel to ensure that anesthesia has been achieved prior to the administration of pancuronium bromide and potassium chloride, there must be qualified personnel to select chemicals and dosages, set up and load the syringes, administer "pre-injections," insert the IV catheter, and perform the other tasks required by such procedures; and

there must be adequate inspection and testing of the equipment and apparatus by qualified personnel. The Nevada Department of Corrections' written procedures for implementing lethal injection, to the extent that they have been made available, provide for none of the above.

C. The Use of Pancuronium Bromide

37. Nevada's use of the drug pancuronium bromide serves no rational or legitimate purpose and compounds the risk that an inmate may suffer excruciating pain during his execution. Pancuronium paralyzes all voluntary muscles, but does not affect sensation, consciousness, cognition, or the ability to feel pain and suffocation. Because the sodium thiopental and potassium chloride would in themselves be sufficient to cause death, and the potassium is administered well before death would result from the pancuronium alone, it is my opinion held to a reasonable degree of medical certainty that there would be no rational place in the protocol for pancuronium as the lethal amount of potassium chloride is administered.

38. Pancuronium bromide is a neuromuscular blocking agent. Its effect is to render the muscles unable to contract but it does not affect the brain or the nerves. It is used in surgery to ensure that there is no movement and that the patient is securely paralyzed so that surgery can be performed without contraction of the muscles. In surgery, pancuronium bromide is not administered until the patient is adequately anesthetized. The anesthetic drugs must first be administered so that the patient is unconscious and does not feel, see, or perceive the procedure. This can be determined by a trained medical professional, either a physician anesthesiologist or a nurse anesthetist, who provides close and vigilant monitoring of the patient, their vital signs, and various diagnostic indicators of anesthetic depth. NDOC's execution manual, to the extent disclosed, fails to provide an assurance that anesthetic depth will be properly assessed prior to the administration of pancuronium bromide.

39. If sodium thiopental is not properly administered in a dose sufficient to cause the loss of consciousness for the duration of the execution procedure, then it is my opinion held to a reasonable degree of medical certainty that the use of pancuronium places the condemned inmate at risk for consciously experiencing paralysis, suffocation and the excruciating pain of the intravenous injection of high dose potassium chloride.

40. If administered alone, a lethal dose of pancuronium would not immediately cause a condemned inmate to lose consciousness. It would totally immobilize the inmate by paralyzing all voluntary muscles and the diaphragm, causing the inmate to suffocate to death while experiencing an intense, conscious desire to inhale. Ultimately, consciousness would be lost, but it would not be lost as an immediate and direct result of the pancuronium. Rather, the loss of consciousness would be due to suffocation, and would be preceded by the torment and agony caused by suffocation. This period of torturous suffocation would be expected to last at least several minutes and would only be relieved by the onset of suffocation-induced unconsciousness or by death from potassium chloride.

41. Because the administration of a paralyzing dose of pancuronium bromide to a conscious person would necessarily cause excruciating suffering, it would be unconscionable to administer pancuronium without first ensuring that the induction of general anesthesia had successfully achieved the necessary anesthetic depth.

42. Based on the information available to me, it is my opinion held to a reasonable degree of medical certainty that Nevada's lethal injection protocol creates an unacceptable risk that the inmate will not be anesthetized to the point of being unconscious and unaware of pain for the duration of the execution procedure. If the inmate is not first successfully anesthetized, then it is my opinion to a reasonable degree of medical certainty that the pancuronium will

paralyze all voluntary muscles and mask external, physical indications of the excruciating pain being experienced by the inmate during the process of suffocating (caused by the pancuronium) and having a cardiac arrest (caused by the potassium chloride).

43. It is my understanding that NDOC's execution protocol requires the presence of six to nine official witnesses to the execution and permits media witnesses to the execution. It is my opinion based on a reasonable degree of medical certainty that pancuronium, when properly and successfully administered, effectively nullifies the ability of witnesses to discern whether or not the condemned prisoner is experiencing a peaceful or agonizing death. Regardless of the experience of the condemned prisoner, whether he or she is deeply unconscious or experiencing the excruciation of suffocation, paralysis, and potassium injection, he or she will appear to witnesses to be serene and peaceful due to the relaxation and immobilization of the facial and other skeletal muscles. The use of pancuronium, in my opinion, therefore prevents the press from fulfilling its essential function of informing the citizens, officials, and courts of Nevada about whether execution by lethal injection is conducted in Nevada State Prison in a manner that is constitutionally compliant and humane.

44. The doses of sodium thiopental and potassium chloride are lethal doses. Therefore, it is unnecessary to administer pancuronium bromide in the course of an execution when it is quickly followed by a lethal dose of potassium chloride. It serves no legitimate purpose and only places a chemical veil on the process that prevents an adequate assessment of whether or not the condemned is suffering in agony, and greatly increases the risks that such agony will ensue. Removal of pancuronium from the protocol would eliminate the risk of conscious paralysis from occurring. It would also eliminate the risk that an inhumane execution would appear humane to witnesses. Finally, removal of pancuronium would vastly reduce the possibility that the citizens, officials, and courts of Nevada could be inadvertently misled by

media reports describing a peaceful-appearing execution when in fact the prisoner could be experiencing excruciating suffering.

D. Consequences of Improper Anesthesia Administration

45. Execution records from California indicate that four out of the six inmates executed in California since 2000 continued to display activity and behavior that is inconsistent with the successful administration of 5 grams of thiopental, the amount required under California's lethal injection protocol. Five grams of thiopental, the dose required by the California protocol, is a massive dose that, if successfully administered, far exceeds the amount necessary to completely arrest respiratory activity in any prisoner. I therefore can provide no medical explanation for the inmates' continued breathing other than that the thiopental was not administered in its entirety. If the full dose of thiopental was not administered successfully – as is strongly suggested by the inmates' continued breathing – those inmates faced a significant risk of remaining conscious or regaining consciousness during the lethal injection procedure. Importantly, a person who is breathing while under general anesthesia cannot be deeply anesthetized, and may well be awakened by a painful stimulation such as a surgical incision or the administration of potassium.

46. The handwritten records of Stanley "Tookie" Williams' execution indicate that Mr. Williams did not stop breathing until 12:34, upon the injection of the potassium chloride, 12 minutes after the thiopental was injected. Thus, the thiopental did not have the effect on Mr. Williams' brain and respiratory activity that would be expected with a high degree of certainty from the delivery into the circulation of the full 5-gram dose of thiopental.

47. The execution log of Clarence Ray Allen states that Mr. Allen continued breathing for 9 minutes after the delivery of the thiopental. Again, 5 grams of thiopental, if

successfully delivered into the circulation, simply should not take 9 minutes to ablate cerebral electrical activity and respiratory activity.

48. The January 29, 2002 execution log of Stephen Wayne Anderson, reveals that Mr. Anderson continued breathing until 12:22, 5 minutes after the thiopental was administered. Again, this persistent respiratory activity is not consistent with the expected effect of 5 grams of thiopental, which would be to stop all visible respiratory activity within a minute of its delivery into the circulation.

49. The March 15, 2000 execution log of Darrell Keith Rich, states that Mr. Rich's respirations ceased at 12:08, with the administration of the pancuronium, but that Mr. Rich had "chest movements" lasting from 12:09 to 12:10. These chest movements, beginning after Mr. Rich had ostensibly stopped breathing (and while he was still alive, as shown by his heart rate of 110 beats per minute), and 3 minutes after the administration of the thiopental, are again inconsistent with successful administration of the thiopental. The chest movements are consistent, however, with an attempt to fight against the accruing paralytic effect of the pancuronium. Had the 5-gram dose of thiopental reached Mr. Rich and had the expected effect, he would not have been able to fight against the pancuronium by attempting to breathe, nor would he even have been aware of the effect of the pancuronium. Indeed, because 5 grams of thiopental would have arrested all cerebral activity, including all respiratory drive, there would have been no effort on Mr. Rich's part to attempt to breathe during the onset of the pancuronium.

E. Nevada's Execution Protocol Falls Below the Minimum Standards Mandated for Veterinary Euthanasia

50. The American Veterinary Medical Association (AVMA) states that when potassium chloride is to be used as a euthanasia agent, the animals must be under a surgical plane

of anesthesia and the personnel performing the euthanasia must be properly trained to assess the depth of anesthesia. The AVMA panel specifically states that the animal must be in a surgical plane of anesthesia characterized not simply by loss of consciousness, but also by "loss of reflex muscle response and loss of response to noxious stimuli." It is difficult to understand why the NDOC would chose, at its discretion, to use potassium to execute prisoners and would then fail to adhere to the basic requirements set forth by the AVMA to ensure that animals do not experience the excruciating pain of potassium injection during euthanasia.

51. In *Beardslee v. Woodford*, the Ninth Circuit recognized that nineteen states have enacted statutes that, like the AVMA Report, mandate the exclusive use of a sedative in the euthanasia of animals. Although Nevada has not yet enacted such a statute, Nevada law expressly contemplates the use of sodium pentobarbital and requires that personnel who perform euthanasia of animals must be properly trained in the procedure. No such requirement exists in NDOC's execution manual.

Conclusion

52. Based on my research into methods of lethal injection used by various states and the federal government, and based on my training and experience as a medical doctor specializing in anesthesiology, it is my opinion based on a reasonable degree of medical certainty that, given the apparent absence of a central role for a properly trained medical or veterinary professional in NDOC's execution procedure, the chemicals used, the lack of adequately defined roles and procedures, and the failure to properly account for foreseeable risks, the lethal injection procedure Nevada employs creates medically unacceptable risks of inflicting excruciating pain and suffering on inmates during the lethal injection procedure. All of these problems could easily be addressed, and indeed have been addressed for the euthanasia of dogs and cats. It is difficult to understand why NDOC has failed to address these problems and has failed to meet the

minimum standards set forth for veterinary euthanasia.

53. In addition, in order to more fully and fairly assess the impact of the failings of Nevada's execution protocol, it is necessary to obtain all the records and logs used, and all official witness statements from prior executions, as well as the full rules and regulations devised by NDOC for lethal injection. This would include identifying the qualifications, experience and training of those persons who apply the IVs and who administer and monitor the injection.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and that this declaration was executed on May 16, 2006 in New York City, New York.

Mark J. S. Heath, M.D.

Attachment A

Curriculum Vitae

1) Date of preparation: December 19, 2004

2) Name: Mark J. S. Heath

Birth date: March 28, 1960
Birthplace: New York, NY
Citizenship: United States, United Kingdom

3) Academic Training:

Harvard University	B.A., Biology, 1983
University of North Carolina, Chapel Hill	M.D., 1987
Medical License	New York: 177101-1

4) Traineeship:

1987 – 1988 Internship, Internal Medicine, George Washington University Hospital. Washington, DC.

1988 – 1991 Residency, Anesthesiology, Columbia College of Physicians and Surgeons, New York, NY

1991 – 1993 Fellowship, Anesthesiology, Columbia College of Physicians and Surgeons, New York, NY

5) Board Qualification:

Diplomate, American Board of Anesthesiology, October 1991.
Testamur, Examination of Special Competence in Perioperative Transesophageal Echocardiography (PTEeXAM), 2001.

6) Military Service: None

7) Professional Organizations:

American Society of Anesthesiologists
International Anesthesia Research Society
Society of Cardiovascular Anesthesiology

8) Academic Appointments:

1993 – 2002	Assistant Professor of Anesthesiology, Columbia University, New York, NY
2002 - present	Assistant Professor of Clinical Anesthesiology, Columbia University, New York, NY

9) Hospital/Clinical Appointments:

1993 – present Assistant Attending Anesthesiologist, Presbyterian Hospital, New York, NY.

10) Honors:

Magna cum laude, Harvard University
Alpha Omega Alpha, University of North Carolina at Chapel Hill
First Prize, New York State Society of Anesthesiologists Resident Presentations, 1991

11) Fellowship and Grant Support:

Foundation for Anesthesia Education and Research, Research Starter Grant Award, Principal Investigator, funding 7/92 - 7/93, $15,000.

Foundation for Anesthesia Education and Research Young Investigator Award, Principal Investigator, funding 7/93 - 7/96, $70,000.

NIH KO8 "Inducible knockout of the NK1 receptor"
Principal Investigator, KO8 funding 12/98 - 11/02,
$431,947 over three years
(no-cost extension to continue through 11/30/2002)

NIH RO1 "Tachykinin regulation of anxiety and stress responses"
Principal Investigator, funding 9/1/2002 – 8/30/2007
$1,267,000 over 5 years

12) Departmental and University Committees:

Research Allocation Panel (1998 – 2001)
Institutional Review Board (Alternate Boards 1-2, full member Board 3) (2003 - present)

13) Teaching:

Lecturer and clinical teacher: Anesthesiology Residency Program, Columbia University and Presbyterian Hospital, New York, NY

Advanced Cardiac Life Support Training

Anesthetic considerations of LVAD implantation. Recurrent lecture at Columbia University LVAD implantation course.

Invited Lectures:

NK1 receptor functions in pain and neural development, Cornell University December 1994

Anxiety, stress, and the NK1 receptor, University of Chicago, Department of Anesthesia and Critical Care, July 2000

Anesthetic Considerations of LVAD Implantation, University of Chicago, Department of Anesthesia and Critical Care, July 2000

NK1 receptor function in stress and anxiety, St. John's University Department of Medicinal Chemistry, March 2002

Making a brave mouse (and making a mouse brave), Mt.Sinai School of Medicine, May 2002

Problems with anesthesia during lethal injection procedures, Geneva, Switzerland. Duke University School of Law Conference, "International Law, Human Rights, and the Death Penalty: Towards an International Understanding of the Fundamental Principles of Just Punishment", July 2002.

NK1 receptor function in stress and anxiety, Visiting Professor, NYU School of Medicine, New York, New York. October 2002.

Anesthetic Depth, Paralysis, and other medical problems with lethal injection protocols: evidence and concerns, Federal Capital Habeas Unit Annual Conference, Jacksonville, Florida. May 2004.

Medical Scrutiny of Lethal Injection Procedures, National Association for the Advancement of Colored People Capital Defender Conference, Airlie Conference Center, Warrenton, Virginia. July 2004.

Anesthetic considerations of LVAD implantation. Recurrent lecture at Columbia University LVAD implantation course.

14) Grant Review Committees: None

15) Publications:

Original peer reviewed articles

* Santarelli, L., Gobbi, G., Debs, P.C., Sibille, E. L., Blier, P., Hen, R., Heath, M.J.S. (2001). Genetic and pharmacological disruption of neurokinin 1 receptor function decreases anxiety-related behaviors and increases serotonergic function. Proc. Nat. Acad. Sci., 98(4), 1912 – 1917.

* King, T.E. [1], Heath M. J. S[1]., Debs, P, Davis, MB, Han, R, Barr, G. (2000). The development of nociceptive responses in neurokinin-1 receptor knockout mice. Neuroreport.;11(3), 587-91 [1] authors contributed equally to this work

* Heath, M. J. S., Lints, T., Lee, C. J., Dodd, J. (1995). Functional expression of the tachykinin NK$_1$ receptor by floor plate cells in the embryonic rat spinal cord and brainstem. Journal of Physiology 486.1, 139 -148.

* Heath, M. J. S., Womack M. D., MacDermott, A. B. (1994). Substance P elevates intracellular calcium in both neurons and glial cells from the dorsal horn of the spinal cord. Journal of Neurophysiology 72(3), 1192 - 1197.

McGehee, D. S., Heath, M. J. S., Gelber, S., DeVay, P., Role, L.W. (1995) Nicotine enhancement of fast excitatory synaptic transmission in the CNS by presynaptic receptors. Science 269, 1692 - 1696.

Morales D, Madigan J, Cullinane S, Chen J, Heath, M. J. S., Oz M, Oliver JA, Landry DW. (1999). Reversal by vasopressin of intractable hypotension in the late phase of hemorrhagic shock. Circulation. Jul 20;100(3):226-9.

LoTurco, J. J., Owens, D. F., Heath, M. J. S., Davis, M. B. E., Kriegstein, A. R. (1995). GABA and glutamate depolarize cortical progenitor cells and inhibit DNA synthesis. Neuron 15, 1287 - 1298.

Kyrozis A., Goldstein P. A., Heath, M. J. S., MacDermott, A. B. (1995). Calcium entry through a subpopulation of AMPA receptors desensitized neighboring NMDA receptors in rat dorsal horn neurons. Journal of Physiology 485.2, 373 - 391.

McGehee, D.S., Aldersberg, M. , Liu, K.-P., Heulng, S., Heath, M.J.S. , Tamir, H. (1997). Mechanism of extracellular Ca^{2+}-receptor stimulated hormone release from sheep thyroid parafollicular cells. Journal of Physiology: 502,1, 31 - 44.

Kao, J., Houck, K., Fan, Y., Haehnel, I., Ligutti, B. K., Kayton, M. L., Grikscheit, T., Chabot, J., Nowygrod, R., Greenberg, S., Kuang, W.J., Leung, D. W., Hayward, J. R., Kisiel, W., Heath, M. J. S., Brett, J., Stern, D. (1994). Characterization of a novel tumor-derived cytokine. Journal of Biological Chemistry 269, 25106 - 25119.

Dodd, J., Jahr, C.E., Hamilton, P.N., Heath, M.J.S., Matthew, W.D., Jessell, T.M. (1983). Cytochemical and physiological properties of sensory and dorsal horn neurons that transmit cutaneous sensation. Cold Spring Harbor Symposia of Quantitative Biology 48, 685 -695.

Pinsky, D.J., Naka, Y., Liao, H., Oz, M. O., Wagner, D. D., Mayadas, T. N., Johnson, R. C., Hynes, R. O., Heath, M.J.S., Lawson, C.A., Stern, D.M. Hypoxia-induced exocytosis of endothelial cell Weibel-Palade bodies. Journal of Clinical Investigation 97(2), 493 - 500.

Case reports none

Reviews, chapters, editorials

* Heath, M. J. S., Dickstein, M. L. (2000). Perioperative management of the left ventricular assist device recipient. Prog Cardiovasc Dis.;43(1):47-64.

* Dickstein, M.L., Metz B, Heath M.J.S. (2000). Anesthetic considerations during left ventricular assist device implantation. Cardiac Assist Devices pp 63 – 74.

* Heath, M. J. S. and Han, R. (1996). Genetic insights into serotonin function. Current Biology 6.9, 997 -999.

* Heath, M.J.S., Mathews D. (1990). Care of the Organ Donor. Anesthesiology Report 3, 344-348.

* Heath, M. J. S., Basic physiology and pharmacology of the central synapse. (1996) Anesthesiology Clinics of North America 15(3), 473 - 495.

Abstracts

Heath, M.J.S., Davis, M., Santarelli L., Han H. (2002). Gene targeting of the NK1 receptor blocks stress-evoked induction of c-Fos in the murine locus coeruleus. IARS American-Japan Congress A-15.

Heath, M.J.S., Davis, M., Santarelli L., Han H. (2002). Gene targeting of the NK1 receptor blocks stress-evoked induction of c-Fos in the murine locus coeruleus. Anesthesiology 95:A-811.

Heath, M.J.S., Davis, M., Santarelli L., Han H. (2002). Expression of Substance P and NK1 Receptor in the Murine Locus Coeruleus and Dorsal Raphe Nucleus. Anesthesia and Analgesia 93; S-212

Heath, M.J.S., Davis, M., Santarelli L., Han H. (2002). Expression of Substance P and NK1 Receptor in the Murine Locus Coeruleus and Dorsal Raphe Nucleus. Anesthesia and Analgesia 93; S-212.

Heath, M.J.S., Santarelli L, Han H. (2001) The NK1 receptor is necessary for the stress-evoked expression of c-Fos in the paraventricular nucleus of the hypothalamus. Anesthesia and Analgesia 92; S253.

Heath, M.J.S., Santarelli L, Debs P, Han H. (2000). Reduced anxiety and stress responses in mice lacking the NK1 receptor. Anesthesiology 93: 3A A-755.

Heath, M.J.S., King, T., Debs, P.C., Davis M., Han R., Barr G. (2000). NK1 receptor gene disruption alters the development of nociception. Anesthesia and Analgesia; 90; S315.

Heath, M.J.S., Lee, J.H., Debs, P.C., Davis, M. (1997). Delineation of spinal cord glial subpopulations expressing the NK1 receptor. Anesthesiology; 87; 3A; A539.

Heath, M.J.S., MacDermott A.B. (1992). Substance P elevates intracellular calcium in dorsal horn cells with neuronal and glial properties. Society for Neuroscience Abstracts; 18; 123.1.

Heath, M.J.S., Lee C.J., Dodd J. (1994). Ontogeny of NK1 receptor-like immunoreactivity in the rat spinal cord. Society for Neuroscience Abstracts; 20; 115.19.

Heath, M.J.S., Berman M.F. (1991) Isoflurane modulation of calcium channel currents in spinal cord dorsal horn neurons. Anesthesiology 75; 3A; A1037.

Attachment B

2000 Report of the AVMA Panel on Euthanasia

2000
Report of the
AVMA Panel on Euthanasia

Members of the AVMA Panel

Bonnie V. Beaver, DVM, MS, DACVB, (Chair) Department of Small Animal Medicine and Surgery, College of Veterinary Medicine, Texas A&M University, 4474 TAMU, College Station, TX 77843-4474, representing the AVMA Executive Board.

Willie Reed, DVM, PhD, DACVP, DACPV, Animal Health Diagnostic Laboratory, College of Veterinary Medicine, Michigan State University, 8648 W. Pen Hall-AHDL, East Lansing, MI 48824-1318, representing the AVMA Council on Research.

Steven Leary, DVM, DACLAM, Division of Comparative Medicine, Washington University, Box 8061, St. Louis, MO 63110, representing the AVMA Animal Welfare Committee.

Brandon McKiernan, DVM, DACVIM, Denver Veterinary Specialists, 3898 Kipling St, Wheat Ridge, CO 80033, representing the American Animal Hospital Association.

Fairfield Bain, DVM, DACVIM, DACVR DACVECC, Hagyard-Davidson-McGee Associates PSC, 4250 Iron Works Pike, Lexington, KY 40511-8412, representing the American Association of Equine Practitioners.

Roy Schultz, DVM, MS, DABVP, 1114 N Front Ave, Ames, IA 51521, representing the American Board of Veterinary Practitioners.

S. Taylor Bennett, DVM, PhD, DACLAM, Biologic Resources Laboratory (MC533), University of Illinois at Chicago, 1840 W Taylor St, Chicago, IL 60612-7348, representing the American College of Laboratory Animal Medicine.

Peter Pascoe, BVSc, DVA, DACVA, DECVA, Department of Surgical and Radiological Sciences, School of Veterinary Medicine, University of California, Davis, CA 95616-8745, representing the American College of Veterinary Anesthesiologists.

Elizabeth Shull, DVM, DACVB, DACVIM (Neurology), Veterinary Specialty Consultation Services, 1505 Bob Kirby Rd, Knoxville, TN 37931, representing the American College of Veterinary Behaviorists.

Linda C. Cork, DVM, PhD, DACVP, Department of Comparative Medicine, School of Medicine, Stanford University, MSOB Building, Room X347, Stanford, CA 94305-5415, representing the American College of Veterinary Pathologists.

Ruth Francis-Floyd, DVM, MS, DACZM, Department of Large Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, Box 100136, Gainesville, FL 32610-0136, representing the International Association of Aquatic Animal Medicine.

Keith D. Amass, DVM, Safe-Capture International Inc, PO Box 208, Mount Horeb, WI 53572, representing wildlife regulatory/conservation agencies.

Richard Johnson, PhD, Department of Physiological Sciences, College of Veterinary Medicine, University of Florida, Box 100144, Gainesville, FL 32610-0144, representing the Society for Neuroscience.

Robert H. Schmidt, MS, PhD, Department of Fisheries and Wildlife, Utah State University, Logan UT 84322-5210, representing the wildlife damage management profession.

Wendy Underwood, DVM, MS, DACVIM, Lilly Corporate Center, Eli Lilly and Co, Indianapolis, IN 46285, representing the National Institute for Animal Agriculture Euthanasia Task Force.

Gus W. Thornton, DVM, DACVD, Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA), American Humane Education Society (AHES), 350 S Huntington Ave, Boston, MA 02130, representing an animal protection agency.

Barbara Kohn, DVM, USDA/APHIS/Animal Care, 4700 River Road, Unit 84, Riverdale, MD 20737-1234, representing the USDA/APHIS.

PREFACE

At the request of the AVMA Council on Research, the Executive Board of the AVMA convened a Panel on Euthanasia in 1999 to review and make necessary revisions to the 88th Panel Report, published in 1993.[1] In this newest version of the report, the panel has updated information on euthanasia of animals in research and animal care and control facilities; expanded information on ectothermic, aquatic, and fur-bearing animals; added information on horses and wildlife; and deleted methods or agents considered unacceptable. Because the panel's deliberations were based on currently available scientific information, some euthanasia methods and agents are not discussed.

Welfare issues are increasingly being identified in the management of free-ranging wildlife, and the need for humane euthanasia guidelines in this context is great. Collection of animals for scientific investigations, euthanasia of injured or diseased wildlife species, removal of animals causing damage to property or threatening human safety, and euthanasia of animals in excess population are drawing more public attention. These issues are acknowledged in this report and special considerations are described for handling animals under free-ranging conditions, where their needs are far different from those of their domestic counterparts.

This report is intended for use by members of the

veterinary profession who carry out or oversee the euthanasia of animals. Although the report may be understood and understood by a broad segment of the general population, a veterinarian should be consulted in the application of these recommendations. The practice of veterinary medicine is complex and involves diverse animal species. Whenever possible, a veterinarian experienced with the species in question should be consulted when selecting the method of euthanasia, particularly when little species-specific euthanasia research has been done. Although interpretation and use of this report cannot be limited, the panel's overriding commitment is to give veterinarians guidance in relieving pain and suffering of animals that are to be euthanatized. The recommendations in this report are intended to serve as guidelines for veterinarians who must then use professional judgment in applying them to the various settings where animals are to be euthanatized.

INTRODUCTION

The term euthanasia is derived from the Greek terms *eu* meaning good and *thanatos* meaning death.[1] A "good death" would be one that occurs with minimal pain and distress. In the context of this report, euthanasia is the act of inducing humane death in an animal. It is our responsibility as veterinarians and human beings to ensure that if an animal's life is to be taken, it is done with the highest degree of respect, and with an emphasis on making the death as painless and distress free as possible. Euthanasia techniques should result in rapid loss of consciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function. In addition, the technique should minimize distress and anxiety experienced by the animal prior to loss of consciousness. The panel recognized that the absence of pain and distress cannot always be achieved. This report attempts to balance the ideal of minimal pain and distress with the reality of the many environments in which euthanasia is performed. A veterinarian with appropriate training and expertise for the species involved should be consulted to ensure that proper procedures are used.

Criteria for painless death can be established only after the mechanisms of pain are understood. Pain is that sensation (perception) that results from nerve impulses reaching the cerebral cortex via ascending neural pathways. Under normal circumstances, these pathways are relatively specific, but the nervous system is sufficiently plastic that activation of nociceptive pathways does not always result in pain and stimulation of other (non-nociceptive) peripheral and central neurons can give rise to pain. The term nociceptive is derived from the word *noci* meaning to injure and *ceptive* meaning to receive, and is used to describe neuronal input caused by noxious stimuli, which threaten to, or actually do, destroy tissue. These noxious stimuli initiate nerve impulses by acting at primary nociceptors and other sensory nerve endings that respond to noxious and non-noxious stimuli from mechanical, thermal, or chemical activity. Endogenous chemical substances such as hydrogen ions, potassium ions, ATP, serotonin, histamine, bradykinin, and prostaglandins, as well as electrical currents, are capable of generating nerve impulses in nociceptor nerve fibers. Activity in nociceptive pathways can also be triggered in normally silent receptors that become sensitized by chronic pain conditions.[2,3]

Nerve impulse activity generated by nociceptors is conducted via nociceptor primary afferent fibers to the spinal cord or the brainstem where it is transmitted to two general sets of neural networks. One set is related to nociceptive reflexes (eg, withdrawal and flexion reflexes) that are mediated at the spinal level, and the second set consists of ascending pathways to the reticular formation, hypothalamus, thalamus, and cerebral cortex (somatosensory cortex and limbic system) for sensory processing. It is important to understand that ascending nociceptive pathways are numerous, often redundant, and are capable of considerable plasticity under chronic conditions (pathology or injury). Moreover, even the transmission of nociceptive neural activity in a given pathway is highly variable. Under certain conditions, both the nociceptive reflexes and the ascending pathways may be suppressed, as, for example, in epidural anesthesia. Under another set of conditions, nociceptive reflex actions may occur, but activity in the ascending pathways is suppressed; thus, noxious stimuli are not perceived as pain. It is incorrect to use the term pain for stimuli, receptors, reflexes, or pathways because the term implies perception, whereas all the above may be active without consequential pain perception.[4]

Pain is divided into two broad categories: (1) sensory-discriminative, which indicates the site of origin and the stimulus giving rise to the pain; and (2) motivational-affective in which the severity of the stimulus is perceived and the animal's response is determined. Sensory-discriminative processing of nociceptive impulses is most likely to be accomplished by subcortical and cortical mechanisms similar to those used for processing other sensory-discriminative input that provides the individual with information about the intensity, duration, location, and quality of the stimulus. Motivational-affective processing involves the ascending reticular formation for behavioral and cortical arousal. It also involves thalamic input to the forebrain and the limbic system for perceptions such as discomfort, fear, anxiety and depression. The motivational-affective neural networks also have strong inputs to the limbic system, hypothalamus and the autonomic nervous system for reflex activation of the cardiovascular, pulmonary, and pituitary-adrenal systems. Responses activated by these systems feed back to the forebrain and enhance perceptions derived via motivational-affective inputs. On the basis of neurosurgical experience in humans, it is possible to separate the sensory-discriminative components from the motivational-affective components of pain.[5]

For pain to be experienced, the cerebral cortex and subcortical structures must be functional. If the cerebral cortex is nonfunctional because of hypoxia, depression by drugs, electric shock, or concussion, pain is not experienced. Therefore, the choice of the euthanasia agent or method is less critical if it is to be used on an animal that is anesthetized or unconscious, provided that the animal does not regain consciousness prior to death.

An understanding of the continuum that represents stress and distress is essential for evaluating techniques that minimize any distress experienced by an animal being euthanatized. Stress has been defined as the effect of physical, physiologic, or emotional factors (stressors) that induce an alteration in an animal's homeostasis or adaptive state.[3] The response of an animal to stress represents the adaptive process that is necessary to restore the baseline mental and physiologic states. These responses may involve changes in an animal's neuroendocrinologic system, autonomic nervous system, and mental status that may result in overt behavioral changes. An animal's response varies according to its experience, age, species, breed, and current physiologic and psychologic state.[4]

Stress and the resulting responses have been divided into three phases.[5] Eustress results when harmless stimuli initiate adaptive responses that are beneficial to the animal. Neutral stress results when the animal's response to stimuli causes neither harmful nor beneficial effects to the animal. Distress results when an animal's response to stimuli interferes with its well-being and comfort.[6]

As with many other procedures involving animals, some methods of euthanasia require physical handling of the animal. The amount of control and kind of restraint required will be determined by the animal's species, breed, size, state of domestication, degree of taming, presence of painful injury or disease, degree of excitement, and method of euthanasia. Proper handling is vital to minimize pain and distress in animals, to ensure safety of the person performing euthanasia, and, often, to protect other people and animals.

An in-depth discussion of euthanasia procedures is beyond the scope of this report; however, personnel who perform euthanasia must have appropriate certification and training, experience with the techniques to be used, and experience in the humane restraint of the species of animal to be euthanatized, to ensure that animal pain and distress are minimized during euthanasia. Training and experience should include familiarity with the normal behavior of the species being euthanatized, an appreciation of how handling and restraint affect that behavior, and an understanding of the mechanism by which the selected technique induces loss of consciousness and death. Prior to being assigned full responsibility for performing euthanasia, all personnel must have demonstrated proficiency in the use of the technique in a closely supervised environment. References provided at the end of this document may be useful for training personnel.[7-11]

Selection of the most appropriate method of euthanasia in any given situation depends on the species of animal involved, available means of animal restraint, skill of personnel, number of animals, and other considerations. Available information focuses primarily on domestic animals, but the same general considerations should be applied to all species.

This report includes four appendices that summarize information from the text. Appendix 1 lists acceptable and conditionally acceptable methods of euthanasia, categorized by species. Appendices 2 and 3 provide summaries of characteristics for acceptable and conditionally acceptable methods of euthanasia. Appendix 4 provides a summary of some unacceptable euthanasia agents and methods. Criteria used for acceptable, conditionally acceptable, and unacceptable methods are as follows: acceptable methods are those that consistently produce a humane death when used as the sole means of euthanasia; conditionally acceptable methods are those techniques that by the nature of the technique or because of greater potential for operator error or safety hazards might not consistently produce humane death or are methods not well documented in the scientific literature; and unacceptable techniques are those methods deemed inhumane under any conditions or that the panel found posed a substantial risk to the human applying the technique. The report also includes discussion of several adjunctive methods, which are those methods that cannot be used as the sole method of euthanasia, but that can be used in conjunction with other methods to produce a humane death.

GENERAL CONSIDERATIONS

In evaluating methods of euthanasia, the panel used the following criteria: (1) ability to induce loss of consciousness and death without causing pain, distress, anxiety, or apprehension; (2) time required to induce loss of consciousness; (3) reliability; (4) safety of personnel; (5) irreversibility; (6) compatibility with requirement and purpose; (7) emotional effect on observers or operators; (8) compatibility with subsequent evaluation, examination, or use of tissue; (9) drug availability and human abuse potential; (10) compatibility with species, age, and health status; (11) ability to maintain equipment in proper working order; and (12) safety for predators/scavengers should the carcass be consumed.

The panel discussed the definition of euthanasia used in this report as it applies to circumstances when the degree of control over the animal makes it difficult to ensure death without pain and distress. Slaughter of animals for food, fur, or fiber may represent such situations. However, the same standards for euthanasia should be applied to the killing of animals for food, fur, or fiber, and wildlife or feral animals. Animals intended for food should be slaughtered humanely, taking into account any special requirements of the US Department of Agriculture.[12] Painless death can be achieved by properly stunning the animal, followed immediately by exsanguination. Handling of animals prior to slaughter should be as stress free as possible. Electric prods or other devices should not be used to encourage movement of animals and are not needed if chutes and ramps are properly designed to enable animals to be moved and restrained without undue stress.[13-15] Animals must not be restrained in a painful position before slaughter.

Ethical considerations that must be addressed when euthanatizing healthy and unwanted animals reflect professional and societal concerns.[16-19] These issues are complex and warrant thorough consideration by the profession and all those concerned with the welfare of animals. Whereas the panel recognizes the need for those responsible for the euthanasia of ani-

mals to be cognizant of these issues. It does not believe that this report is the appropriate forum for an in-depth discussion of this topic.

It is the intent of the panel that euthanasia be performed in accordance with applicable federal, state, and local laws governing drug acquisition and storage, occupational safety, and methods used for euthanasia and disposal of animals. However, space does not permit a review of current federal, state, and local regulations.

The panel is aware that circumstances may arise that are not clearly covered by this report. Whenever such situations arise, a veterinarian experienced with the species should use professional judgment and knowledge of clinically acceptable techniques in selecting an appropriate euthanasia technique. Professional judgment in these circumstances will take into consideration the animal's size and its species-specific physiologic and behavioral characteristics. In all circumstances, the euthanasia method should be selected and used with the highest ethical standards and social conscience.

It is imperative that death be verified after euthanasia and before disposal of the animal. An animal in deep narcosis following administration of an injectable or inhalant agent may appear dead, but might eventually recover. Death must be confirmed by examining the animal for cessation of vital signs, and consideration given to the animal species and method of euthanasia when determining the criteria for confirming death.

ANIMAL BEHAVIORAL CONSIDERATIONS

The need to minimize animal distress, including fear, anxiety, and apprehension, must be considered in determining the method of euthanasia. Gentle restraint (preferably in a familiar and safe environment), careful handling, and talking during euthanasia often have a calming effect on animals that are used to being handled. Sedation and/or anesthesia may assist in achieving the best conditions for euthanasia. It must be recognized that any sedatives or anesthetics given at this stage that change circulation may delay the onset of the euthanasia agent. Preparation of observers should also be taken into consideration.

Animals that are wild, feral, injured, or already distressed from disease pose another challenge. Methods of pre-euthanasia handling suitable for domestic animals may not be effective for them. Because handling may stress animals unaccustomed to human contact (eg, wildlife, zoo, and feral species), the degree of restraint required to perform any euthanasia procedure should be considered when evaluating various methods. When handling these animals, calming may be accomplished by minimizing visual, auditory, and tactile stimulation. When struggling during capture or restraint may cause pain, injury, or anxiety to the animal or danger to the operator, the use of tranquilizers, analgesics, and/or anesthetics may be necessary. A route of injection should be chosen that causes the least distress in the animal for which euthanasia must be performed. Various techniques for oral delivery of sedatives to dogs and cats have been described that may be useful under these circumstances.[35,36]

Facial expressions and body postures that indicate various emotional states of animals have been described for some species.[37] Behavioral and physiologic responses to noxious stimuli include distress vocalization, struggling, attempts to escape, defensive or redirected aggression, salivation, urination, defecation, evacuation of anal sacs, pupillary dilatation, tachycardia, sweating, and reflex skeletal muscle contractions causing shivering, tremors, or other muscular spasms. Unconscious as well as conscious animals are capable of some of these responses. Fear can cause immobility or "playing dead" in certain species, particularly rabbits and chickens. This immobility response should not be interpreted as loss of consciousness when the animal is, in fact, conscious. Distress vocalizations, fearful behavior, and release of certain odors or pheromones by a frightened animal may cause anxiety and apprehension in other animals. Therefore, for sensitive species, it is desirable that other animals not be present when individual animal euthanasia is performed.

HUMAN BEHAVIORAL CONSIDERATIONS

When animals must be euthanized, either as individuals or in larger groups, moral and ethical concerns dictate that humane practices be observed. Human psychologic responses to euthanasia of animals need to be considered, with grief at the loss of a life as the most common reaction.[3] There are 4 circumstances under which we are most aware of the effects of animal euthanasia on people.

The first of these is the veterinary clinical setting where owners have to make decisions about whether and when to euthanize. Although many owners rely heavily on their veterinarian's judgment, others may have misgivings about making their own decision. This is particularly likely if an owner feels responsible for allowing an animal's medical or behavioral problem to go untreated so that euthanasia becomes necessary. When owners choose to be present during euthanasia, they should be prepared for what will happen. What drugs are being used and how the animal could respond should be discussed. Behaviors such as vocalization, muscle twitches, failure of the eyelids to close, urination, or defecation can be distressing. Counseling services for grieving owners are now available in some communities[38] and telephone counseling is available through some veterinary schools.[39,40] Owners are not the only people affected by euthanasia of animals. Veterinarians and their staffs may also become attached to patients they have known and treated for many years and may continue to struggle with the ethical implications of ending an animal's life.

The second is animal care and control facilities where unwanted, homeless, diseased, and injured animals must be euthanized in large numbers. Distress may develop among personnel directly involved in performing euthanasia repeatedly. Emotional uneasiness, discomfort, or distress experienced by people involved with euthanasia of animals may be minimized. The person performing euthanasia must be technically proficient, use humane handling methods, understand the reasons for euthanasia, and be familiar with the

method of euthanasia being employed (ie, what is going to happen to the animal). When the person is not knowledgeable about what to expect, he or she may mistakenly interpret any movement of animals as consciousness and a lack of movement as loss of consciousness. Methods that preclude movement of animals are more aesthetically acceptable to most technical staff even though lack of movement is not an adequate criterion for evaluating euthanasia techniques. Constant exposure to, or participation in, euthanasia procedures can cause a psychologic state characterized by a strong sense of work dissatisfaction or alienation, which may be expressed by absenteeism, belligerence, or careless and callous handling of animals.[4] This is one of the principal reasons for turnover of employees directly involved with repeated animal euthanasia. Management should be aware of potential personnel problems related to animal euthanasia and determine whether it is necessary to institute a program to prevent, decrease, or eliminate this problem. Specific coping strategies can make the task more tolerable. Some strategies include adequate training programs so that euthanasia is performed competently, peer support in the workplace, professional support as necessary, focusing on animals that are successfully adopted or returned to owners, devoting some work time to educational activities, and providing time off when workers feel stressed.

The third setting is the laboratory. Researchers, technicians, and students may become attached to animals that must be euthanatized.[4] The same considerations afforded pet owners or shelter employees should be provided to those working in laboratories.

The fourth situation is wildlife control. Wildlife biologists, wildlife managers, and wildlife health professionals are often responsible for euthanatizing animals that are injured, diseased, in excessive number, or that threaten property or human safety. Although relocation of some animals is appropriate and attempted, relocation is often only a temporary solution to a larger problem. People who must deal with these animals, especially under public pressure to save the animals rather than destroy them, can experience extreme distress and anxiety.

The fifth setting is livestock and poultry slaughter facilities. The large number of animals processed daily can take a heavy toll on employees physically and emotionally. Federal and state agricultural employees may also be involved in mass euthanasia of poultry and livestock in the face of disease outbreaks, bioterrorism, and natural disasters.

The last situation is public exposure. Because euthanasia of sick animals, animals involved in roadside or racetrack accidents, stranded marine animals, nuisance or injured wildlife, and others can draw public attention, human attitudes and responses should be considered whenever animals are euthanized. Natural disasters and foreign animal disease programs also present public challenges. These considerations, however, should not outweigh the primary responsibility of using the most rapid and painless euthanasia method possible under the circumstances.

MODES OF ACTION OF EUTHANATIZING AGENTS

Euthanatizing agents cause death by three basic mechanisms: (1) hypoxia, direct or indirect; (2) direct depression of neurons necessary for life function; and (3) physical disruption of brain activity and destruction of neurons necessary for life.

Agents that induce death by direct or indirect hypoxia can act at various sites and can cause loss of consciousness at different rates. For death to be painless and distress-free, loss of consciousness should precede loss of motor activity (muscle movement). Loss of motor activity, however, cannot be equated with loss of consciousness and absence of distress. Thus, agents that induce muscle paralysis without loss of consciousness are not acceptable as sole agents for euthanasia (eg, depolarizing and nondepolarizing muscle relaxants, strychnine, nicotine, and magnesium salts). With other techniques that induce hypoxia, some animals may have motor activity following loss of consciousness, but this is reflex activity and is not perceived by the animal.

A second group of euthanatizing agents depress nerve cells of the brain, inducing loss of consciousness followed by death. Some of these agents release inhibition of motor activity during the first stage of anesthesia, resulting in a so-called excitement or delirium phase, during which there may be vocalization and some muscle contraction. These responses do not appear to be purposeful. Death follows loss of consciousness, and is attributable to cardiac arrest and/or hypoxemia following direct depression of respiratory centers.

Physical disruption of brain activity caused by concussion, direct destruction of the brain, or electrical depolarization of neurons, induces rapid loss of consciousness. Death occurs because of destruction of midbrain centers controlling cardiac and respiratory activity or as a result of adjunctive methods (eg, exsanguination) used to kill the animal. Exaggerated muscular activity can follow loss of consciousness and, although this may disturb some observers, the animal is not experiencing pain or distress.

INHALANT AGENTS

Any gas that is inhalant must reach a certain concentration in the alveoli before it can be effective; therefore, euthanasia with any of these agents takes some time. The suitability of a particular agent depends on whether an animal experiences distress between the time it begins to inhale the agent and the time it loses consciousness. Some agents may induce convulsions, but these generally follow loss of consciousness. Agents inducing convulsions prior to loss of consciousness are unacceptable for euthanasia.

Certain considerations are common to all inhalant agents. (1) In most cases, onset of loss of consciousness is more rapid, and euthanasia more humane, if the animal is rapidly exposed to a high concentration of the agent. (2) The equipment used to deliver and maintain this high concentration must be in good working order and in compliance with state and federal regulations. Leaky or faulty equipment may lead to

slow distressful death and be hazardous to other animals and to personnel. (3) Most of these agents are hazardous to personnel because of the risk of explosions (eg, ether), narcosis (eg, halothane), hypoxemia (eg, nitrogen and carbon monoxide), addiction (eg, nitrous oxide), or health effects resulting from chronic exposure (eg, nitrous oxide and carbon monoxide). (4) Alveolar concentrations rise slowly in an animal with decreased ventilation, making agitation more likely during induction. Other noninhalant methods of euthanasia should be considered for such animals. (5) Neonatal animals appear to be resistant to hypoxia, and because all inhalant agents ultimately cause hypoxia, neonatal animals take longer to die than adults. Glass et al[44] reported that newborn dogs, rabbits, and guinea pigs survived a nitrogen atmosphere much longer than did adults. Dogs at 1 week old, survived for 14 minutes compared with a 3-minute survival time after a few weeks of age. Guinea pigs survived for 4.5 minutes at 1 day old, compared with 3 minutes at 8 days or older. Rabbits survived for 13 minutes at 6 days old, 4 minutes at 14 days, and 1.5 minutes at 19 days and older. The panel recommends that inhalant agents not be used alone in animals less than 16 weeks old except to induce loss of consciousness, followed by the use of some other method to kill the animal. (6) Rapid gas flows can produce a noise that frightens animals. If high flows are required, the equipment should be designed to minimize noise. (7) Animals placed together in chambers should be of the same species, and, if needed, should be restrained so that they will not hurt themselves or others. Chambers should not be overloaded and need to be kept clean to minimize odors that might distress animals subsequently euthanized. (8) Reptiles, amphibians, and diving birds and mammals have a great capacity for holding their breath and anaerobic metabolism. Therefore, induction of anesthesia and time to loss of consciousness when using inhalants may be greatly prolonged. Other techniques may be more appropriate for these species.

Inhalant anesthetics

Inhalant anesthetics (eg, ether, halothane, methoxyflurane, isoflurane, sevoflurane, desflurane, and enflurane) have been used to euthanize many species.[45] Halothane induces anesthesia rapidly and is the most effective inhalant anesthetic for euthanasia. Enflurane is less soluble in blood than halothane, but, because of its lower vapor pressure and lower potency, induction rates may be similar to those for halothane. At deep anesthetic planes, animals may seizure. It is an effective agent for euthanasia, but the associated seizure activity may be disturbing to personnel. Isoflurane is less soluble than halothane, and it should induce anesthesia more rapidly. However, it has a slightly pungent odor and animals often hold their breath, delaying onset of loss of consciousness. Isoflurane also may require more drug to kill an animal, compared with halothane. Although isoflurane is acceptable as a euthanasia agent, halothane is preferred. Sevoflurane is less soluble than halothane and does not have an objectionable odor. It is less potent than isoflurane or halothane and has a lower vapor pressure. Anesthetic concentrations can be achieved and maintained rapidly. Desflurane is currently the least soluble potent inhalant anesthetic, but the vapor is quite pungent, which may slow induction. This drug is so volatile that it could displace oxygen (O_2) and induce hypoxemia during induction if supplemental O_2 is not provided. Methoxyflurane is highly soluble, and slow anesthetic induction with its use may be accompanied by agitation. It is a conditionally acceptable agent for euthanasia in rodents.[46] Ether has high solubility in blood and induces anesthesia slowly. It is irritating to the eyes and nose, poses serious risks associated with its flammability and explosiveness, and has been used to create a model for stress.[47-49]

With inhalant anesthetics, the animal can be placed in a closed receptacle containing cotton or gauze soaked with an appropriate amount of the anesthetic,[50] or the anesthetic can be introduced from a vaporizer. The latter method may be associated with a longer induction time. Vapors are inhaled until respiration ceases and death ensues. Because the liquid state of most inhalant anesthetics is irritating, animals should be exposed only to vapors. Also, sufficient air or O_2 must be provided during the induction period to prevent hypoxemia.[50] In the case of small rodents placed in a large container, there will be sufficient O_2 in the chamber to prevent hypoxemia. Larger species placed in small containers may need supplemental air or O_2.[51]

Nitrous oxide (N_2O) may be used with other inhalants to speed the onset of anesthesia, but alone it does not induce anesthesia in animals, even at 100% concentration. When used by itself, N_2O produces hypoxemia before respiratory or cardiac arrest. As a result, animals may become distressed prior to loss of consciousness.

Occupational exposure to inhalant anesthetics constitutes a human health hazard. Spontaneous abortion and congenital abnormalities have been associated with exposure of women to trace amounts of inhalation anesthetic agents during early stages of pregnancy.[52] Regarding human exposure to inhalant anesthetics, the concentrations of halothane, enflurane, and isoflurane should be less than 2 ppm, and less than 25 ppm for nitrous oxide.[53] There are no controlled studies proving that such concentrations of anesthetics are safe, but these concentrations were established because they were found to be attainable under hospital conditions. Effective procedures must be used to protect personnel from anesthetic vapors.

Advantages—(1) Inhalant anesthetics are particularly valuable for euthanasia of smaller animals (< 7 kg) or for animals in which venipuncture may be difficult. (2) Halothane, enflurane, isoflurane, sevoflurane, desflurane, methoxyflurane, and N_2O are nonflammable and nonexplosive under ordinary environmental conditions.

Disadvantages—(1) Animals may struggle and become anxious during induction of anesthesia because anesthetic vapors may be irritating and can induce excitement. (2) Ether is flammable and explo-

sive. Explosions have occurred when animals, euthanized with ether, were placed in an ordinary (not explosion proof) refrigerator or freezer and when bagged animals were placed in an incinerator. (3) Induction with methoxyflurane is unacceptably slow in some species. (4) Nitrous oxide will support combustion. (5) Personnel and animals can be injured by exposure to these agents. (6) There is a potential for human abuse of some of these drugs, especially N_2O.

Recommendations—In order of preference, halothane, enflurane, isoflurane, sevoflurane, methoxyflurane, and desflurane, with or without nitrous oxide, are acceptable for euthanasia of small animals (< 1 kg). Ether should only be used in carefully controlled situations in compliance with state and federal occupational health and safety regulations. It is conditionally acceptable. Nitrous oxide should not be used alone, pending further scientific studies on its suitability for animal euthanasia. Although acceptable, these agents are generally not used in larger animals because of their cost and difficulty of administration.

Carbon dioxide

Room air contains 0.04% carbon dioxide (CO_2), which is heavier than air and nearly odorless. Inhalation of CO_2 at a concentration of 7.5% increases the pain threshold, and higher concentrations of CO_2 have a rapid anesthetic effect.[1-3]

Leake and Waters[4] reported the experimental use of CO_2 as an anesthetic agent for dogs. At concentrations of 30% to 40% CO_2 in O_2, anesthesia was induced within 1 to 2 minutes, usually without struggling, retching, or vomiting. For cats, inhalation of 60% CO_2 results in loss of consciousness within 45 seconds and respiratory arrest within 5 minutes.[5] Signs of effective CO_2 anesthesia are those associated with deep surgical anesthesia, such as loss of withdrawal and palpebral reflexes.[6] Time to loss of consciousness is decreased by use of higher concentrations of CO_2 with as little as 100% concentration providing anesthesia in 12 to 33 seconds in rats and 70% CO_2 in O_2 inducing anesthesia in 40 to 50 seconds.[4,7,8] Time to loss of consciousness will be longer if the concentration is increased slowly rather than immersing the animal in the full concentration immediately.

Several investigators have suggested that inhalation of high concentrations of CO_2 may be distressing to animals,[9-11] because the gas dissolves in moisture on the nasal mucosa. The resulting product, carbonic acid, may stimulate nociceptors in the nasal mucosa. Some humans exposed to concentrations of around 30% CO_2 report that inhaling the gas is unpleasant and that higher concentrations are noxious.[12,13] A brief study of swine examined the aversive nature of CO_2 exposure[14] and found that 90% CO_2 was aversive to pigs while 30% was not. For rats, exposure to increasing concentrations of CO_2 (33% achieved after 1 minute) in their home cage produced no evident stress as measured by behavior and ACTH, glucose, and corticosterone concentrations in serum.[15]

Carbon dioxide has been used to euthanatize groups of small laboratory animals, including mice, rats, guinea pigs, chickens, and rabbits,[2,3,16] and to render swine unconscious before humane slaughter.[17,18] The combination of 40% CO_2 and approximately 3% CO has been used experimentally for euthanasia of dogs.[19] Carbon dioxide has been used in specially designed chambers to euthanatize individual cats[17,18] and other small laboratory animals.[16,17,20]

Studies of 1-day-old chickens have revealed that CO_2 is an effective euthanatizing agent. Inhalation of CO_2 caused little distress to the birds, suppressed nervous activity, and induced death within 5 minutes.[21] Because respiration begins during embryonic development, the unhatched chicken's environment may normally have a CO_2 concentration as high as 14%. Thus, CO_2 concentrations for euthanasia of newly hatched chickens and neonates of other species should be especially high. A CO_2 concentration of 90% to 70% with a 5-minute exposure time appears to be optimal.[21]

In studies of mink, high concentrations of CO_2 would kill them quickly; but a 70% CO_2 concentration induced loss of consciousness without killing them.[22] Some burrowing animals, such as rabbits of the species Oryctolagus, also have prolonged survival times when exposed to CO_2.[23] Some burrowing and diving animals have physiologic mechanisms for coping with hypercapnia. Therefore, it is necessary to have a sufficient concentration of CO_2 to kill the animal by hypoxemia following induction of anesthesia with CO_2.

Advantages—(1) The rapid depressant, analgesic, and anesthetic effects of CO_2 are well established. (2) Carbon dioxide is readily available and can be purchased in compressed gas cylinders. (3) Carbon dioxide is inexpensive, nonflammable, nonexplosive, and poses minimal hazard to personnel when used with properly designed equipment. (4) Carbon dioxide does not result in accumulation of tissue residues in food-producing animals. (5) Carbon dioxide euthanasia does not distort murine cholinergic markers[24] or corticosterone concentrations.[25]

Disadvantages—(1) Because CO_2 is heavier than air, incomplete filling of a chamber may permit animals to climb or raise their heads above the higher concentrations and avoid exposure. (2) Some species, such as fish and burrowing and diving mammals, may have extraordinary tolerance for CO_2. (3) Reptiles and amphibians may breathe too slowly for the use of CO_2. (4) Euthanasia by exposure to CO_2 may take longer than euthanasia by other means.[26] (5) Induction of loss of consciousness at lower concentrations (< 80%) may produce pulmonary and upper respiratory tract lesions.[27,28] (6) High concentrations of CO_2 may be distressful to some animals.

Recommendations—Carbon dioxide is acceptable for euthanasia in appropriate species (Tables 1 and 2). Compressed CO_2 gas in cylinders is the only recommended source of carbon dioxide because the inflow to the chamber can be regulated precisely. Carbon dioxide generated by other methods such as from dry ice, fire extinguishers, or chemical means (eg, antacids) is unacceptable. Species should be separated and chem-

bers should not be overcrowded. With an animal in the chamber, an optimal flow rate should displace at least 20% of the chamber volume per minute.[4] Loss of consciousness may be induced more rapidly by exposing animals to a CO_2 concentration of 70% or more by prefilling the chamber for species in which this has not been shown to cause distress. Gas flow should be maintained for at least 1 minute after apparent clinical death.[4] It is important to verify that an animal is dead before removing it from the chamber. If an animal is not dead, CO_2 narcosis must be followed with another method of euthanasia. Adding O_2 to the CO_2 may or may not preclude signs of distress.[4,47] Additional O_2 will, however, prolong time to death and may complicate determination of consciousness. There appears to be no advantage to combining O_2 with carbon dioxide for euthanasia.[48]

Nitrogen, argon

Nitrogen (N_2) and argon (Ar) are colorless, odorless gases that are inert, nonflammable, and nonexplosive. Nitrogen comprises 78% of atmospheric air, whereas Ar comprises less than 1%.

Euthanasia is induced by placing the animal in a closed container that has been prefilled with N_2 or Ar or into which the gas is then rapidly introduced. Nitrogen/Ar displaces O_2, thus inducing death by hypoxemia.

In studies by Harta et al,[49] dogs became unconscious within 76 seconds when a N_2 concentration of 98.5% was achieved in 45 to 60 seconds. The electroencephalogram (EEG) became isoelectric (flat) in a mean time of 80 seconds, and arterial blood pressure was undetectable at 204 seconds. Although all dogs hyperventilated prior to loss of consciousness, the investigators concluded that this method induced death without pain. Following loss of consciousness, vocalization, gasping, convulsions, and muscular tremors developed in some dogs. At the end of a 5-minute exposure period, all dogs were dead.[49] These findings were similar to those for rabbits[50] and mink.[51]

With N_2 flowing at a rate of 30% of chamber volume per minute, rats collapsed in approximately 3 minutes and stopped breathing in 5 to 6 minutes. Regardless of flow rate, signs of panic and distress were evident before the rats collapsed and died.[52] Insensitivity to pain under such circumstances is questionable.[4]

Tranquilization with acepromazine, in conjunction with N_2 euthanasia of dogs, was investigated by Quine et al.[53] Using ECG and EEG recordings, they found these dogs had much longer survival times than dogs not given acepromazine before administration of N_2. In one dog, ECG activity continued for 21 minutes. Quine also addressed distress associated with exposure to N_2 by removing cats and dogs from the chamber following loss of consciousness and allowing them to recover. When these animals were put back into the chamber, they did not appear afraid or apprehensive.

Investigations into the aversiveness of Ar to swine and poultry have revealed that these animals will tolerate breathing 90% Ar with 2% O_2.[54] Swine voluntarily entered a chamber containing this mixture, for a food reward, and only withdrew from the chamber as they became ataxic. They reentered the chamber immediately to continue eating. Poultry also entered a chamber containing this mixture for a food reward and continued eating until they collapsed.[54] When Ar was used to euthanatize chickens, exposure to a chamber prefilled with Ar, with an O_2 concentration of < 2%, led to EEG changes and collapse in 8 to 12 seconds. Birds removed from the chamber at 15 to 17 seconds failed to respond to comb pinching. Continued exposure led to convulsions at 20 to 24 seconds. Somatosensory-evoked potentials were lost at 24 to 34 seconds, and the EEG became isoelectric at 57 to 68 seconds. Convulsion onset was after loss of consciousness (collapse and loss of response to comb pinch), so this would appear to be a humane method of euthanasia for chickens.[54] Despite the availability of some information, there is still much about the use of N_2/Ar that needs to be investigated.

Advantages—(1) Nitrogen and Ar are readily available as compressed gases. (2) Hazards to personnel are minimal.

Disadvantages—(1) Loss of consciousness is preceded by hypoxemia and ventilatory stimulation, which may be distressing to the animal. (2) Reestablishing a low concentration of O_2 (ie, 5% or greater) in the chamber before death will allow immediate recovery.[4]

Recommendations—Nitrogen and Ar can be distressful to some species (eg, rats).[4] Therefore, this technique is conditionally acceptable only if O_2 concentrations < 2% are achieved rapidly and animals are heavily sedated or anesthetized. With heavy sedation or anesthesia, it should be recognized that death may be delayed. Although N_2 and Ar are effective, other methods of euthanasia are preferable.

Carbon monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is nonflammable and nonexplosive unless concentrations exceed 10%. It combines with hemoglobin to form carboxyhemoglobin and blocks uptake of O_2 by erythrocytes, leading to fatal hypoxemia.

In the past, mass euthanasia has been accomplished by use of 3 methods for generating CO: (1) chemical interaction of sodium formate and sulfuric acid, (2) exhaust fumes from idling gasoline internal combustion engines, and (3) commercially compressed CO in cylinders. The first 2 techniques are associated with problems such as production of other gases, achieving inadequate concentrations of carbon monoxide, inadequate cooling of the gas, and maintenance of equipment. Therefore, the only acceptable source is compressed CO in cylinders.

In a study by Ramsey and Ellmann,[55] 8% CO caused guinea pigs to collapse in 40 seconds to 2 minutes, and death occurred within 6 minutes. Carbon monoxide has been used to euthanatize mink[56,57] and chinchillas. These animals collapsed in 1 minute, breathing ceased in 2 minutes, and the heart stopped beating in 5 to 7 minutes.

In a study evaluating the physiologic and behavioral characteristics of dogs exposed to 6% CO in air, Chalifoux and Dallaire[6] could not determine the precise time of loss of consciousness. Electroencephalographic recordings revealed 20 to 25 seconds of abnormal cortical function prior to loss of consciousness. It was during this period that the dogs became agitated and vocalized. It is not known whether animals experience distress; however, humans in this phase reportedly are not distressed.[6] Subsequent studies have revealed that tranquilization with acepromazine significantly decreases behavioral and physiologic responses of dogs euthanatized with CO.[6]

In a comparative study, CO from gasoline engine exhaust and 70% CO_2 plus 30% O_2 were used to euthanatize cats. Euthanasia was divided into 3 phases. Phase I was the time from initial contact to onset of clinical signs (eg, yowling, staggering, or trembling). Phase II extended from the end of phase I until recumbency, and phase III from the end of phase II until death.[6] The study revealed that signs of agitation before loss of consciousness were greatest with CO_2 plus O_2. Convulsions occurred during phases II and III with both methods. However, when the euthanasia chamber was prefilled with CO (ie, exhaust fumes), convulsions did not occur in phase III. Time to complete immobilization was greater with CO_2 plus O_2 (approximately 90 seconds) than with CO alone (approximately 50 seconds).[6] In neonatal pigs, excitation was more likely to precede loss of consciousness if the pigs were exposed to a rapid rise in CO concentration. This agitation was reduced at lower flow rates, or when CO was combined with nitrogen.[6]

In people, the most common symptoms of early CO intoxicate are headache, dizziness, and weakness. As concentrations of carboxyhemoglobin increase, these signs may be followed by decreased visual acuity, tinnitus, nausea, progressive depression, confusion, and collapse.[6] Because CO stimulates motor centers in the brain, loss of consciousness may be accompanied by convulsions and muscular spasms.

Carbon monoxide is a cumulative poison.[6] Distinct signs of CO toxicosis are not evident until the CO concentration is 0.05% in air, and acute signs do not develop until the CO concentration is approximately 0.2% in air. In humans, exposure to 0.32% CO and 0.45% CO for one hour will induce loss of consciousness and death, respectively.[6] Carbon monoxide is extremely hazardous for personnel because it is highly toxic and difficult to detect. Chronic exposure to low concentrations of carbon monoxide may be a health hazard, especially with regard to cardiovascular disease and teratogenic effects.[6-10] An efficient exhaust or ventilatory system is essential to prevent accidental exposure of humans.

Advantages—(1) Carbon monoxide induces loss of consciousness without pain and with minimal discernible discomfort. (2) Hypoxemia induced by CO is insidious, so that the animal appears to be unaware. (3) Death occurs rapidly if concentrations of 4 to 6% are used.

Disadvantages—(1) Safeguards must be taken to prevent exposure of personnel. (2) Any electrical equipment exposed to CO (eg, lights and fans) must be explosion proof.

Recommendations—Carbon monoxide used for individual animal or mass euthanasia is acceptable for dogs, cats, and other small mammals, provided that commercially compressed CO is used and the following precautions are taken: (1) personnel using CO must be instructed thoroughly in its use and must understand its hazards and limitations; (2) the CO chamber must be of the highest quality construction and should allow for separation of individual animals; (3) the CO source and chamber must be located in a well-ventilated environment, preferably out of doors; (4) the chamber must be well lit and have view ports that allow personnel direct observation of animals; (5) the CO flow rate should be adequate to rapidly achieve a uniform CO concentration of at least 6% after animals are placed in the chamber, although some species (eg, neonatal pigs) are less likely to become agitated with a gradual rise in CO concentration;[6] and (6) if the chamber is inside a room, CO monitors must be placed in the room to warn personnel of hazardous concentrations. It is essential that CO use be in compliance with state and federal occupational health and safety regulations.

NONINHALANT PHARMACEUTICAL AGENTS

The use of injectable euthanasia agents is the most rapid and reliable method of performing euthanasia. It is the most desirable method when it can be performed without causing fear or distress in the animal. When the restraint necessary for giving an animal an intravenous injection would impart added distress to the animal or pose undue risk to the operator, sedation, anesthesia, or an acceptable alternate route of administration should be employed. Aggressive, fearful, wild, or feral animals should be sedated or given a nonparalytic immobilizing agent prior to intravenous administration of the euthanasia agent.

When intravenous administration is considered impractical or impossible, intraperitoneal administration of a nonirritating euthanasia agent is acceptable, provided the drug does not contain neuromuscular blocking agents. Intracardiac injection is acceptable only when performed on heavily sedated, anesthetized, or comatose animals. It is not considered acceptable in awake animals, owing to the difficulty and unpredictability of performing the injection accurately. Intramuscular, subcutaneous, intrathoracic, intrapulmonary, intrahepatic, intrarenal, intrasplenic, intratracheal, and other nonvascular injections are not acceptable methods of administering injectable euthanasia agents.

When injectable euthanasia agents are administered into the peritoneal cavity, animals may be slow to pass through stages I and II of anesthesia. Accordingly, they should be placed in small cages in a quiet area to minimize excitement and trauma.

Barbituric acid derivatives

Barbiturates depress the central nervous system in descending order, beginning with the cerebral cortex,

with loss of consciousness progressing to anesthesia. With an overdose, deep anesthesia progresses to apnea, owing to depression of the respiratory center, which is followed by cardiac arrest.

All barbituric acid derivatives used for anesthesia are acceptable for euthanasia when administered intravenously. There is a rapid onset of action, and loss of consciousness induced by barbiturates results in minimal or transient pain associated with venipuncture. Desirable barbiturates are those that are potent, long-acting, stable in solution, and inexpensive. Sodium pentobarbital best fits these criteria and is most widely used, although others such as secobarbital are also acceptable.

Advantages—(1) A primary advantage of barbiturates is speed of action. This effect depends on the dose, concentration, route, and rate of the injection. (2) Barbiturates induce euthanasia smoothly with minimal discomfort to the animal. (3) Barbiturates are less expensive than many other euthanasia agents.

Disadvantages—(1) Intravenous injection is necessary for best results and requires trained personnel. (2) Each animal must be restrained. (3) Current federal drug regulations require strict accounting for barbiturates and these must be used under the supervision of personnel registered with the US Drug Enforcement Administration (DEA). (4) An esthetically objectionable terminal gasp may occur in unconscious animals. (5) These drugs tend to persist in the carcass and may cause sedation or even death of animals that consume the body.

Recommendations—The advantages of using barbiturates for euthanasia in small animals far outweigh the disadvantages. Intravenous injection of a barbituric acid derivative is the preferred method for euthanasia of dogs, cats, other small animals, and horses. Intraperitoneal injection may be used in situations when an intravenous injection would be distressful or even dangerous. Intracardiac injection must only be used if the animal is heavily sedated, unconscious, or anesthetized.

Pentobarbital combinations

Several euthanasia products are formulated to include a barbituric acid derivative (usually sodium pentobarbital), with added local anesthetic agents or agents that metabolize to pentobarbital. Although some of these additives are slowly cardiotoxic, this pharmacologic effect is inconsequential. These combination products are listed by the DEA as Schedule III drugs, making them somewhat simpler to obtain, store, and administer than Schedule II drugs such as sodium pentobarbital. The pharmacologic properties and recommended use of combination products that combine sodium pentobarbital with lidocaine or phenytoin are interchangeable with those of pure barbituric acid derivatives.

A combination of pentobarbital with a neuromuscular blocking agent is not an acceptable euthanasia agent.

Chloral hydrate

Chloral hydrate depresses the cerebrum slowly; therefore, restraint may be a problem for some animals. Death is caused by hypoxemia resulting from progressive depression of the respiratory center, and may be preceded by gasping, muscle spasms, and vocalization.

Recommendations—Chloral hydrate is conditionally acceptable for euthanasia of large animals only when administered intravenously and only after sedation to decrease the aforementioned undesirable side effects. Chloral hydrate is not acceptable for dogs, cats, and other small animals because the side effects may be severe, reactions can be aesthetically objectionable, and other products are better choices.

T-61

T-61 is an injectable, nonbarbiturate, non-narcotic mixture of 3 drugs used for euthanasia. These drugs provide a combination of general anesthetic, curariform, and local anesthetic actions. T-61 has been withdrawn from the market and is no longer manufactured or commercially available in the United States. It is available in Canada and other countries. T-61 should be used only intravenously and at carefully maintained rates of injection, because there is some question as to the differential absorption and onset of action of the active ingredients when administered by other routes.[1]

Tricaine methane sulfonate (MS 222, TMS)

MS 222 is commercially available as tricaine methane sulfonate (TMS), which can be used for the euthanasia of amphibians and fish. Tricaine is a benzoic acid derivative and, in water of low alkalinity (< 50 mg/L as $CaCO_3$); the solution should be buffered with sodium bicarbonate.[46] A 10 g/L stock solution can be made, and sodium bicarbonate added to saturation, resulting in a pH between 7.0 and 7.5 for the solution. The stock solution should be stored in a dark brown bottle, and refrigerated or frozen if possible. The solution should be replaced monthly and any time a brown color is observed.[46] For euthanasia, a concentration ≥ 250 mg/L is recommended and fish should be left in this solution for at least 10 minutes following cessation of opercular movement.[47] In the United States, there is a 21-day withdrawal time for MS 222; therefore, it is not appropriate for euthanasia of animals intended for food.

Potassium chloride in conjunction with prior general anesthesia

Although unacceptable and condemned when used in unanesthetized animals, the use of a supersaturated solution of potassium chloride injected intravenously or intracardially in an animal under general anesthesia is an acceptable method to produce cardiac arrest and death. The potassium ion is cardiotoxic, and rapid intravenous or intracardiac administration of 1 to 2 mmol/kg of body weight will cause cardiac arrest. This is a preferred injectable technique for euthanasia of livestock or wildlife species to reduce the risk of toxicosis for predators or scavengers in situations where carcasses of euthanatized animals may be consumed.[48,49]

Advantages—(1) Potassium chloride is not a controlled substance. It is easily acquired, transported, and mixed in the field. (2) Potassium chloride, when used with appropriate methods to render an animal unconscious, results in a carcass that is potentially less toxic for scavengers and predators in cases where carcass disposal is impossible or impractical.

Disadvantages—Rippling of muscle tissue and clonic spasms may occur on or shortly after injection.

Recommendations—It is of utmost importance that personnel performing this technique are trained and knowledgeable in anesthetic techniques, and are competent in assessing anesthetic depth appropriate for administration of potassium chloride intravenously. Administration of potassium chloride intravenously requires animals to be in a surgical plane of anesthesia characterized by loss of consciousness, loss of reflex muscle response, and loss of response to noxious stimuli. Saturated potassium chloride solutions are effective in causing cardiac arrest following rapid intracardiac or intravenous injection. Residual tissue concentrations of general anesthetics after anesthetic induction have not been documented. Whereas no scavenger toxicoses have been reported with potassium chloride in combination with a general anesthetic, proper carcass disposal should always be attempted to prevent possible toxicosis by consumption of a carcass contaminated with general anesthetics.

Unacceptable injectable agents

When used alone, the injectable agents listed in Appendix 4 (strychnine, nicotine, caffeine, magnesium sulfate, potassium chloride, cleaning agents, solvents, disinfectants and other salts or salts, and all neuromuscular blocking agents) are unacceptable and are absolutely condemned for use as euthanasia agents.

PHYSICAL METHODS

Physical methods of euthanasia include captive bolt, gunshot, cervical dislocation, decapitation, electrocution, microwave irradiation, kill traps, thoracic compression, exsanguination, stunning, and pithing. When properly used by skilled personnel with well-maintained equipment, physical methods of euthanasia may result in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia. Exsanguination, stunning, and pithing are not recommended as a sole means of euthanasia, but should be considered adjuncts to other agents or methods.

Some consider physical methods of euthanasia aesthetically displeasing. There are occasions, however, when what is perceived as aesthetic and what is most humane are in conflict. Physical methods may be the most appropriate method for euthanasia and rapid relief of pain and suffering in certain situations. Personnel performing physical methods of euthanasia must be well trained and monitored for each type of physical technique performed. That person must also be sensitive to the aesthetic implications of the method and inform onlookers about what they should expect when possible.

Since most physical methods involve trauma, there is inherent risk for animals and humans. Extreme care and caution should be used. Skill and experience of personnel is essential. If the method is not performed correctly, animals and personnel may be injured. Inexperienced persons should be trained by experienced persons and should practice on carcasses or anesthetized animals to be euthanized until they are proficient in performing the method properly and humanely. When done appropriately, the panel considers most physical methods conditionally acceptable for euthanasia.

Penetrating captive bolt

A penetrating captive bolt is used for euthanasia of ruminants, horses, swine, laboratory rabbits, and dogs.[105] Its mode of action is concussion and trauma to the cerebral hemispheres and brainstem.[106,110] Captive bolt guns are powered by gunpowder or compressed air and must provide sufficient energy to penetrate the skull of the species on which they are being used.[105] Adequate restraint is important to ensure proper placement of the captive bolt. A cerebral hemisphere and the brainstem must be sufficiently disrupted by the projectile to induce sudden loss of consciousness and subsequent death. Accurate placement of captive bolts for various species has been described.[105,111] A multiple projectile has been suggested as a more effective technique, especially for large cattle.[105]

A nonpenetrating captive bolt only stuns animals and should not be used as a sole means of euthanasia (see "Stunning" under "Adjunctive Methods").

Advantages—The penetrating captive bolt is an effective method of euthanasia for use in slaughterhouses, in research facilities, and on the farm when use of drugs is inappropriate.

Disadvantages—(1) It is aesthetically displeasing. (2) Death may not occur if equipment is not maintained and used properly.

Recommendations—Use of the penetrating captive bolt is an acceptable and practical method of euthanasia for horses, ruminants, and swine. It is conditionally acceptable in other appropriate species. The nonpenetrating captive bolt must not be used as a sole method of euthanasia.

Euthanasia by a blow to the head

Euthanasia by a blow to the head must be evaluated in terms of the anatomic features of the species on which it is to be performed. A blow to the head can be a humane method of euthanasia for neonatal animals with thin craniums, such as young pigs, if a single sharp blow delivered to the central skull bones with sufficient force can produce immediate depression of the central nervous system and destruction of brain tissue. When properly performed, loss of consciousness is rapid. The anatomic features of neonatal calves, however, make a blow to the head in this species unacceptable. Personnel performing euthanasia by use of a blow to the head must be properly trained and monitored for proficiency with this method of euthanasia, and they must be aware of its aesthetic implications.

Gunshot

A properly placed gunshot can cause immediate insensibility and humane death. In some circumstances, a gunshot may be the only practical method of euthanasia. Shooting should only be performed by highly skilled personnel trained in the use of firearms and only in jurisdictions that allow for legal firearm use. Personnel, public, and nearby animal safety should be considered. The procedure should be performed outdoors and away from public access.

For use of a gunshot to the head as a method of euthanasia in captive animals, the firearm should be aimed so that the projectile enters the brain, causing instant loss of consciousness.[81,110-116] This must take into account differences in brain position and skull conformation between species, as well as the energy requirement for skull bone and sinus penetration.[111,112] Accurate targeting for a gunshot to the head in various species has been described.[114,116-118] For wildlife and other freely roaming animals, the preferred target area should be the head. The appropriate firearm should be selected for the situation, with the goal being penetration and destruction of brain tissue without emergence from the contralateral side of the head.[119] A gunshot to the heart or neck does not immediately render animals unconscious and thus is not considered to meet the panel's definition of euthanasia.[81]

Advantages—(1) Loss of consciousness is instantaneous if the projectile destroys most of the brain. (2) Given the need to minimize stress induced by handling and human contact, gunshot may at times be the most practical and logical method of euthanasia of wild or free-ranging species.

Disadvantages—(1) Gunshot may be dangerous to personnel. (2) It is unesthetically unpleasant. (3) Under field conditions, it may be difficult to hit the vital target area. (4) Brain tissue may not be able to be examined for evidence of rabies infection or chronic wasting disease when the head is targeted.

Recommendations—When other methods cannot be used, an accurately delivered gunshot is a conditionally acceptable method of euthanasia.[110,120,121] When an animal can be appropriately restrained, the penetrating captive bolt is preferred to a gunshot. Prior to shooting, animals accustomed to the presence of humans should be treated in a calm and reassuring manner to minimize anxiety. In the case of wild animals, gunshots should be delivered with the least amount of prior human contact necessary. Gunshot should not be used for routine euthanasia of animals in animal control situations, such as municipal pounds or shelters.

Cervical dislocation

Cervical dislocation is a technique that has been used for many years and, when performed by well-trained individuals, appears to be humane. However, there are few scientific studies to confirm this observation. This technique is used to euthanatize poultry, other small birds, mice, and immature rats and rabbits. For mice and rats, the thumb and index finger are placed on either side of the neck at the base of the skull or, alternatively, a rod is pressed at the base of the skull. With the other hand, the base of the tail or the hind limbs are quickly pulled, causing separation of the cervical vertebrae from the skull. For immature rabbits, the head is held in one hand and the hind limbs to the other. The animal is stretched and the neck is hyperextended and dorsally twisted to separate the first cervical vertebra from the skull.[81,111] For poultry, cervical dislocation by stretching is a common method for mass euthanasia, but loss of consciousness may not be instantaneous.[81]

Data suggest that electrical activity in the brain persists for 13 seconds following cervical dislocation,[122] and unlike decapitation, rapid exsanguination does not constitute or loss of consciousness.[81,123]

Advantages—(1) Cervical dislocation is a technique that may induce rapid loss of consciousness.[81,123] (2) It does not chemically contaminate tissue. (3) It is rapidly accomplished.

Disadvantages—(1) Cervical dislocation may be aesthetically displeasing to personnel. (2) Cervical dislocation requires mastering technical skills to ensure loss of consciousness is rapidly induced. (3) Its use is limited to poultry, other small birds, mice, and immature rats and rabbits.

Recommendations—Manual cervical dislocation is a humane technique for euthanasia of poultry, other small birds, mice, rats weighing < 200 g, and rabbits weighing < 1 kg when performed by individuals with a demonstrated high degree of technical proficiency. In lieu of demonstrated technical competency, animals must be sedated or anesthetized prior to cervical dislocation. The need for technical competency is greater in heavy rats and rabbits, in which the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult.[81] In research settings, this technique should be used only when scientifically justified by the user and approved by the Institutional Animal Care and Use Committee.

Those responsible for the use of this technique must ensure that personnel performing cervical dislocation techniques have been properly trained and consistently apply it humanely and effectively.

Decapitation

Decapitation can be used to euthanatize rodents and small rabbits in research settings. It provides a means to recover tissues and body fluids that are chemically uncontaminated. It also provides a means of obtaining anatomically undamaged brain tissue for study.[81]

Although it has been demonstrated that electrical activity in the brain persists for 13 to 14 seconds following decapitation,[124] more recent studies and reports indicate that this activity does not infer the ability to perceive pain, and in fact conclude that loss of consciousness develops rapidly.[125,126]

Guillotines that are designed to accomplish decapitation in adult rodents and small rabbits in a uniformly instantaneous manner are commercially available.

Guillotines are not commercially available for neonatal rodents, but sharp blades can be used for this purpose.

Advantages—(1) Decapitation is a technique that appears to induce rapid loss of consciousness.[10-12] (2) It does not chemically contaminate tissues. (3) It is rapidly accomplished.

Disadvantages—(1) Handling and restraint required to perform this technique may be distressful to animals.[9] (2) The interpretation of the presence of electrical activity in the brain following decapitation has created controversy and its importance may still be open to debate.[10,12,13] (3) Personnel performing this technique should recognize the inherent danger of the guillotine and take adequate precautions to prevent personal injury. (4) Decapitation may be aesthetically displeasing to personnel performing or observing the technique.

Recommendations—This technique is conditionally acceptable if performed correctly, and it should be used in research settings when its use is required by the experimental design and approved by the Institutional Animal Care and Use Committee. The equipment used to perform decapitation should be maintained in good working order and serviced on a regular basis to ensure sharpness of blades. The use of plastic cones to restrain animals appears to reduce distress from handling, minimizes the chance of injury to personnel, and improves positioning of the animal in the guillotine. Decapitation of amphibians, fish, and reptiles is addressed elsewhere in this report.

Those responsible for the use of this technique must ensure that personnel who perform decapitation techniques have been properly trained to do so.

Electrocution

Electrocution, using alternating current, has been used as a method of euthanasia for species such as dogs, cattle, sheep, swine, foxes, and mink.[1,10,12,13] Electrocution induces death by cardiac fibrillation, which causes cerebral hypoxia.[1,10,12,13] However, animals do not lose consciousness for 10 to 30 seconds or more after onset of cardiac fibrillation. It is imperative that animals be unconscious before being electrocuted. This can be accomplished by any acceptable means, including electrical stunning.[9] Although an effective, 1-step stunning and electrocution method has been described for use in sheep and hogs, euthanasia by electrocution in most species requires a 2-step procedure.[11,12,14]

Advantages—(1) Electrocution is humane if the animal is first rendered unconscious. (2) It does not chemically contaminate tissues. (3) It is economical.

Disadvantages—(1) Electrocution may be hazardous to personnel. (2) When conventional single-animal probes are used, it may not a useful method for mass euthanasia because too much time is required per animal. (3) It is not a useful method for dangerous, intractable animals. (4) It is aesthetically objectionable because of violent extension and stiffening of the limbs, head, and neck. (5) It may not result in death in small animals (< 5 kg) because ventricular fibrillation and circulatory collapse do not always persist after cessation of current flow.

Recommendations—Euthanasia by electrocution requires special skills and equipment that will ensure passage of sufficient current through the brain to induce loss of consciousness and cardiac fibrillation in the 1-step method for sheep and hogs, or cardiac fibrillation in the unconscious animal when the 2-step procedure is used. Although the method is conditionally acceptable if the aforementioned requirements are met, its disadvantages far outweigh its advantages in most applications. Techniques that apply electric current from head to tail, head to foot, or head to metal and metal plates on which the animal is standing are unacceptable.

Microwave irradiation

Heating by microwave irradiation is used primarily by neurohistologists to fix brain metabolism *in vivo* while maintaining the anatomic integrity of the brain.[1,12] Microwave instruments have been specifically designed for use in euthanasia of laboratory mice and rats. The instruments differ in design from kitchen units and may vary in maximal power output from 1.3 to 10 kw. All units direct their microwave energy to the head of the animal. The power required to rapidly halt brain enzyme activity depends on the efficiency of the unit, the ability to tune the resonant cavity and the size of the rodent head.[1,15] There is considerable variation among instruments in the time required for loss of consciousness and euthanasia. A 10 kw, 2,450 MHz instrument operated at a power of 9 kw will increase the brain temperature of 18 to 28 g mice to 79 C in 330 ms, and the brain temperature of 250 to 420 g rats to 84 C in 800 ms.[1,2]

Advantages—(1) Loss of consciousness is achieved in less than 100 ms, and death in less than 1 second. (2) This is the most effective method to fix brain tissue *in vivo* for subsequent assay of enzymatically labile chemicals.

Disadvantages—(1) Instruments are expensive. (2) Only animals the size of mice and rats can be euthanized with commercial instruments that are currently available.

Recommendations—Microwave irradiation is a humane method for euthanatizing small laboratory rodents if instruments that induce rapid loss of consciousness are used. Only instruments that are designed for this use and have appropriate power and microwave distribution can be used. Microwave ovens designed for domestic and institutional kitchens are absolutely unacceptable for euthanasia.

Thoracic (cardiopulmonary, cardiac) compression

Thoracic (cardiopulmonary cardiac) compression is used to euthanatize small- to medium-sized free-ranging birds when alternate techniques described in this report are not practical.[14]

Advantages—(1) This technique is rapid. (2) It is apparently painless. (3) It maximizes carcass use for analytical/contaminant studies.

Disadvantages—(1) It may be considered aesthetically unpleasant by onlookers. (2) The degree of distress is unknown.

Recommendations—Thoracic (cardiopulmonary cardiac) compression is a physical technique for avian euthanasia that has applicability in the field when other methods cannot be used. It is accomplished by bringing the thumb and forefinger of one hand under the bird's wing from the posterior and placing them against the ribs.[18] The forefinger of the other hand is placed against the ventral edge of the sternum, just below the furculum. All fingers are brought together forcefully and held under pressure to stop the heart and lungs. Loss of consciousness and death develop quickly. Proper training is needed in the use of this technique to avoid trauma to the bird. Cardiopulmonary compression is not appropriate for laboratory settings, for large or diving birds,[18] or for other species.

Kill traps

Mechanical kill traps are used for the collection and killing of small, free-ranging mammals for commercial purposes (fur, skin, or meat), scientific purposes, to stop property damage, and to protect human safety. Their use remains controversial, and the panel recognizes that kill traps do not always render a rapid or stress-free death consistent with criteria for euthanasia found elsewhere in this document. For this reason, use of live traps followed by other methods of euthanasia is preferred. There are a few situations when that is not possible or when it may actually be more stressful to the animals or dangerous to humans to use live traps. Although newer technologies are improving kill trap performance in achieving loss of consciousness quickly, individual testing is recommended to be sure the trap is working properly.[19] If kill traps must be used, the most humane available must be chosen,[19-21] as evaluated by use of International Organization for Standardization (ISO) testing procedures,[19] or by the methods of Gilbert,[19] Proulx et al,[21,22] or Hiltz and Roy.[23]

To reach the required level of efficiency, traps may need to be modified from manufacturers production standards. In addition, as specified in scientific studies, trap placement (ground versus tree sets), bait type, set location, selectivity apparatus, body placement modifying devices (eg, sidestrips, cones), trigger sensitivity, and trigger type, size, and conformation are essential considerations that could affect a kill trap's ability to reach these standards.

Several kill traps, modifications, and set specifics have been scientifically evaluated and found to meet the aforementioned standards for various species.[19,21,22,24-27]

Advantages—Free-ranging small mammals may be killed with minimal distress associated with handling and human contact.

Disadvantages—(1) Traps may not afford death within acceptable time periods. (2) Selectivity and efficiency is dependent on the skill and proficiency of the operator.

Recommendations—Kill traps do not always meet the panel's criteria for euthanasia. At the same time, it is recognized that they can be practical and effective for scientific animal collection when used in a manner that ensures selectivity, a swift kill, no damage to body parts needed for field research, and minimal potential for injury of nontarget species.[19,20] Traps need to be checked at least once daily. In those instances when an animal is wounded or captured but not dead, the animal must be killed quickly and humanely. Kill traps should be used only when other acceptable techniques are impossible or have failed. Traps for nocturnal species should not be activated during the day to avoid capture of diurnal species.[19] Trap manufacturers should strive to meet their responsibility of minimizing pain and suffering in target species.

Adjunctive methods

Stunning and pithing, when properly done, induce loss of consciousness but do not ensure death. Therefore, these methods must be used only in conjunction with other procedures,[18] such as pharmacologic agents, exsanguination, or decapitation to euthanatize the animal.

Exsanguination

Exsanguination can be used to ensure death subsequent to stunning, or in otherwise unconscious animals. Because anxiety is associated with extreme hypovolemia, exsanguination must not be used as a sole means of euthanasia.[18] Animals may be exsanguinated to obtain blood products, but only when they are sedated, stunned, or anesthetized.[19]

Stunning

Animals may be stunned by a blow to the head, by use of a nonpenetrating captive bolt, or by use of electric current. Stunning must be followed immediately by a method that ensures death. With stunning, evaluating loss of consciousness is difficult, but it is usually associated with a loss of the menace or blink response, pupillary dilatation, and a loss of coordinated movements. Specific changes in the electroencephalogram and a loss of visually evoked responses are also thought to indicate loss of consciousness.[18,28]

Blow to the head—Stunning by a blow to the head is used primarily in small laboratory animals with thin crania.[6,18,29] A single sharp blow must be delivered to the central skull bones with sufficient force to produce immediate depression of the central nervous system. When properly done, consciousness is lost rapidly.

Nonpenetrating captive bolt—A nonpenetrating captive bolt may be used to induce loss of consciousness in ruminants, horses, and swine. Signs of effective stunning by captive bolt are immediate collapse and a several second period of tetanic spasm, followed by slow head and limb movements of increasing frequency.[18,28]

Other aspects regarding use of the nonpenetrating captive bolt are similar to the use of a penetrating captive bolt, as previously described.

Electrical stunning—Alternating electrical current has been used for stunning species such as dogs, cattle, sheep, goats, hogs, fish and chickens.[28,29,30,31,32,33] Experiments with dogs have identified a need to direct the electrical current through the brain to induce rapid loss of consciousness. In dogs, when electricity passes only between fore- and hind limbs or neck and feet, it causes the heart to fibrillate but does not induce sudden loss of consciousness.[28] For electrical stunning of any animal, an apparatus that applies electrodes to opposite sides of the head, or in another way directs electrical current immediately through the brain, is necessary to induce rapid loss of consciousness. Attachment of electrodes and animal restraint can pose problems with this form of stunning. Signs of effective electrical stunning are extension of the limbs, opisthotonos, downward rotation of the eyeballs, and tonic spasm changing to clonic spasm, with eventual muscle flaccidity.

Electrical stunning should be followed promptly by electrically induced cardiac fibrillation, exsanguination, or other appropriate methods to ensure death. Refer to the section on electrocution for additional information.

Pithing

In general, pithing is used as an adjunctive procedure to ensure death in an animal that has been rendered unconscious by other means. For some species, such as frogs, with anatomic features that facilitate easy access to the central nervous system, pithing may be used as a sole means of euthanasia, but an anesthetic overdose is a more suitable method.

SPECIAL CONSIDERATIONS

Equine euthanasia

Pentobarbital or a pentobarbital combination is the best choice for equine euthanasia. Because a large volume of solution must be injected, use of an intravenous catheter placed in the jugular vein will facilitate the procedure. To facilitate catheterization of an excitable or fractious animal, a tranquilizer such as acepromazine, or an alpha-2 adrenergic agonist can be administered, but these drugs may prolong time to loss of consciousness because of their effect on circulation and may result in varying degrees of muscular activity and agonal gasping. Opioid agonists or agonist/antagonists in conjunction with alpha-2 adrenergic agonists may further facilitate restraint.

In certain emergency circumstances, such as euthanasia of a horse with a serious injury at a racetrack, it may be difficult to restrain a dangerous horse or other large animal for intravenous injection. The animal might cause injury to itself or to bystanders before a sedative could take effect. In such cases, the animal can be given a neuromuscular blocking agent such as succinylcholine, but the animal must be euthanized with an appropriate technique as soon as the animal can be controlled. Succinylcholine alone or without sufficient anesthetic must not be used for euthanasia.

Physical methods, including gunshot, are considered conditionally acceptable techniques for equine euthanasia. The penetrating captive bolt is acceptable with appropriate restraint.

Animals intended for human or animal food

In euthanasia of animals intended for human or animal food, chemical agents that result in tissue residues cannot be used, unless they are approved by the US Food and Drug Administration.[34] Carbon dioxide is the only chemical currently used for euthanasia of food animals (primarily swine) that does not result in tissue residues. Physical techniques are commonly used for this reason. Carcasses of animals euthanatized by barbituric acid derivatives or other chemical agents may contain potentially harmful residues. These carcasses should be disposed of in a manner that will prevent them from being consumed by human beings or animals.

Selection of a proper euthanasia technique for free-ranging wildlife must take into account the possibility of consumption of the carcass of the euthanatized animal by nontarget predatory or scavenger species. Numerous cases of toxicosis and death attributable to ingestion of pharmaceutically contaminated carcasses in predators and scavengers have been reported.[35] Proper carcass disposal must be a part of any euthanasia procedure under free-range conditions where there is potential for consumption toxicity. When carcasses are to be left in the field, a gunshot to the head, penetrating captive bolt, or injectable agents that are nontoxic (potassium chloride in combination with a nontoxic general anesthetic) should be used so that the potential for scavenger or predator toxicity is lessened.

Euthanasia of nonconventional species: zoo, wild, aquatic, and ectothermic animals

Compared with objective information on companion, farm, and laboratory animals, euthanasia of species such as zoo, wild, aquatic, and ectothermic animals has been studied less, and guidelines are more limited. Irrespective of the unique or unusual features of some species, whenever it becomes necessary to euthanatize an animal, death must be induced as painlessly and quickly as possible.

When selecting a means of euthanasia for these species, factors and criteria in addition to those previously discussed must be considered. The means selected will depend on the species, size, safety aspects, location of the animals to be euthanatized, and experience of personnel. Whether the animal to be euthanatized is in the wild, in captivity, or free-roaming are major considerations. Anatomic differences must be considered. For example, amphibians, fish, reptiles, and marine mammals differ anatomically from domestic species. Veins may be difficult to locate. Some species have a carapace or other definitive anatomic adaptations (eg, quills, scales, spines). For physical methods, access to the central nervous system may be difficult because the brain may be small and difficult to locate by inexperienced persons.

Zoo Animals

For captive zoo mammals and birds with related domestic counterparts, many of the means described previously are appropriate. However, to minimize injury to persons or animals, additional precautions such as handling and physical or chemical restraint are important considerations.[49]

Wildlife

For wild and feral animals, many recommended means of euthanasia for captive animals are not feasible. The panel recognizes there are situations involving free-ranging wildlife when euthanasia is not possible from the animal or human safety standpoint, and killing may be necessary. Conditions found in the field, although more challenging than those that are controlled, do not in any way reduce or minimize the ethical obligation of the responsible individual to reduce pain and distress to the greatest extent possible during the taking of an animal's life. Because euthanasia of wildlife is often performed by lay personnel in remote settings, guidelines are needed to assist veterinarians, wildlife biologists, and wildlife health professionals in developing humane protocols for euthanasia of wildlife.

In the case of free-ranging wildlife, personnel may not be trained in the proper use of remote anesthesia, proper delivery equipment may not be available, personnel may be working alone in remote areas where accidental exposure to potent anesthetic medications used in wildlife capture would present a risk to human safety, or approaching the animal within a practical darting distance may not be possible. In these cases, the only practical means of animal collection may be gunshot and kill trapping.[44,45,48] Under these conditions, specific methods chosen must be as age-, species-, or taxonomic/class-specific as possible. The firearm and ammunition should be appropriate for the species and purpose. Personnel should be sufficiently skilled to be accurate, and they should be experienced in the proper and safe use of firearms, complying with laws and regulations governing their possession and use.

Behavioral responses of wildlife or captive nonconventional species (zoo) in close human contact are very different from those of domestic animals. These animals are usually frightened and distressed. Thus, minimizing the amount, degree, and/or cognition of human contact during procedures that require handling is of utmost importance. Handling these animals often requires general anesthesia, which provides loss of consciousness and which relieves distress, anxiety, apprehension, and perception of pain. Even though the animal is under general anesthesia, minimizing auditory, visual, and tactile stimulation will help ensure the most stress-free euthanasia possible. With use of general anesthesia, there are more methods for euthanasia available.

A 2-stage euthanasia process involving general anesthesia, tranquilization, or use of analgesics, followed by intravenous injectable pharmaceuticals, although preferred, is often not practical. Injectable anesthetics are not always legally or readily available to those working in nuisance animal control, and the distress to the animal induced by live capture, transport to a veterinary facility, and confinement in a veterinary hospital prior to euthanasia must be considered in choosing the most humane technique for the situation at hand. Veterinarians providing support to those working with injured or live-trapped, free-ranging animals should take capture, transport, handling distress, and possible carcass consumption into consideration when asked to assist with euthanasia. Alternatives to 2-stage euthanasia using anesthesia include a squeeze cage with intraperitoneal injection of sodium pentobarbital, inhalant agents (CO_2 chamber, CO chamber), and gunshot. In cases where preeuthanasia anesthetics are not available, intraperitoneal injections of sodium pentobarbital, although slower in producing loss of consciousness, should be considered preferable over intravenous injection, if restraint will cause increased distress to the animal or danger to the operator.

Wildlife species may be encountered under a variety of situations. Euthanasia of the same species under different conditions may require different techniques. Even in a controlled setting, an extremely fractious large animal may threaten the safety of the practitioner, bystanders, and itself. When safety is in question and the fractious large animal, whether wild, feral, or domestic, is in close confinement, neuromuscular blocking agents may be used immediately prior to the use of an acceptable form of euthanasia. For this technique to be humane, the operator must ensure they will gain control over the animal and perform euthanasia before distress develops. Succinylcholine is not acceptable as a method of restraint for use in free-ranging wildlife because animals may not be retrieved rapidly enough to prevent neuromuscular blocking agent-induced respiratory distress or arrest.[46]

Diseased, Injured, or Live-Captured Wildlife or Feral Species

Euthanasia of diseased, injured, or live-trapped wildlife should be performed by qualified professionals. Certain cases of wildlife injury (eg, acute, severe trauma from automobiles) may require immediate action, and pain and suffering in the animal may be best relieved most rapidly by physical methods including gunshot or penetrating captive bolt followed by exsanguination.

Birds

Many techniques discussed previously in this report are suitable for euthanasia of captive birds accustomed to human contact. Free-ranging birds may be collected by a number of methods, including nets and live traps, with subsequent euthanasia. For collection by firearm, shotguns are recommended. The bird should be killed outright by use of ammunition loads appropriate for the species to be collected. Wounded birds should be killed quickly by appropriate techniques previously described. Large birds should be anesthetized prior to euthanasia, using general anesthetics.

Amphibians, Fish, and Reptiles

Euthanasia of ectothermic animals must take into account differences in their metabolism, respiration, and tolerance to cerebral hypoxia. In addition, it is often more difficult to ascertain when an animal is dead. Some unique aspects of euthanasia of amphibians, fishes, and reptiles have been described.[1,13,15,16,17]

Injectable agents—Sodium pentobarbital (60 to 100 mg/kg of body weight) can be administered intravenously, intraabdominally, or intrapleuroperitoneally in most ectothermic animals, depending on anatomic features. Subcutaneous lymph spaces may also be used in frogs and toads. Time to effect may be variable, with death occurring in up to 30 minutes.[1,10,15] Barbiturates other than pentobarbital can cause pain on injection.[15]

Clove oil—Because adequate and appropriate clinical trials have not been performed on fish to evaluate its effects, use of clove oil is not acceptable.

External or topical agents—Tricaine methane sulfonate (TMS, MS-222) may be administered by various routes to euthanatize. For fish and amphibians, this chemical may be placed in water.[10,13,15] Large fish may be removed from the water, a gill cover lifted, and a concentrated solution from a syringe flushed over the gills. MS 222 is acidic and in concentrations ≥ 500 mg/L should be buffered with sodium bicarbonate to saturation resulting in a solution pH of 7.0 to 7.5.[10] MS 222 may also be injected into lymph spaces and pleuroperitoneal cavities.[15] These are effective but expensive means of euthanasia.

Benzocaine hydrochloride, a compound similar to TMS, may be used as a bath or in a recirculation system for euthanasia of fish[15] or amphibians.[1] Benzocaine is not water soluble and therefore is prepared as a stock solution (100 g/L), using acetone or ethanol, which may be irritating to fish tissues. In contrast, benzocaine hydrochloride is water soluble and can be used directly for anesthesia or euthanasia.[10] A concentration ≥ 250 mg/L can be used for euthanasia. Fish should be left in the solution for at least 10 minutes following cessation of opercular movements.[10]

The anesthetic agent 2-phenoxyethanol is used at concentrations of 0.5 to 0.6 ml/L or 0.3 to 0.4 mg/L for euthanasia of fish. Death is caused by respiratory collapse. As with other agents, fish should be left in solution for 10 minutes following cessation of opercular movements.[10,15]

Inhalant agents—Many reptiles and amphibians, including chelonians, are capable of holding their breath and converting to anaerobic metabolism, and can survive long periods of anoxia (up to 27 hours for some species).[1,15] Because of this ability to tolerate anoxia, induction of anesthesia and time to loss of consciousness may be greatly prolonged when inhalants are used. Death in these species may not occur even after prolonged inhalant exposure.[15] Lizards, snakes, and fish do not hold their breath to the same extent and can be euthanatized by use of inhalant agents.

Carbon dioxide—Amphibians,[1] reptiles,[1] and fish[10,15] may be euthanatized with CO_2. Loss of consciousness develops rapidly, but exposure times required for euthanasia are prolonged. This technique is more effective in active species and those with less tendency to hold their breath.

Physical methods—Line drawings of the head of various amphibians and reptiles, with recommended locations for captive bolt or firearm penetration, are available.[15] Crocodilians and other large reptiles can also be shot through the brain.[1]

Decapitation with heavy shears or a guillotine is effective for some species that have appropriate anatomic features. It has been assumed that stopping blood supply to the brain by decapitation causes rapid loss of consciousness. Because the central nervous system of reptiles, fish, and amphibians is tolerant to hypoxic and hypoxemative conditions,[15] decapitation must be followed by pithing.[15]

Two-stage euthanasia procedures—Propofol and ultrashort-acting barbiturates may be used for these species to produce rapid general anesthesia prior to final administration of euthanasia.

In zoos and clinical settings, neuromuscular blocking agents are considered acceptable for restraint of reptiles if given immediately prior to administration of a euthanatizing agent.

Most amphibians, fishes, and reptiles can be euthanatized by cranial concussion (stunning) followed by decapitation, pithing, or some other physical method.

Severing the spinal cord behind the head by pithing is an effective method of killing some ectotherms. Death may not be immediate unless both the brain and spinal cord are pithed. For these animals, pithing of the spinal cord should be followed by decapitation and pithing of the brain or by another appropriate procedure. Pithing requires dexterity and skill and should only be done by trained personnel. The pithing site in frogs is the foramen magnum, and it is identified by a slight midline skin depression posterior to the eyes with the neck flexed.[10]

Cooling—It has been suggested that, when using physical methods of euthanasia in ectothermic species, cooling to 4 C will decrease metabolism and facilitate handling, but there is no evidence that whole body cooling reduces pain or is clinically effectious.[10] Local cooling in frogs does reduce nociception, and this may be partly opioid mediated.[10] Immobilization of reptiles by cooling is considered inappropriate and inhumane even if combined with other physical or chemical methods of euthanasia. Snakes and turtles, immobilized by cooling, have been killed by subsequent freezing. This method is not recommended.[15] Formation of ice crystals on the skin and in tissues of an animal may cause pain or distress. Quick freezing of deeply anesthetized animals is acceptable.[10]

Marine Mammals

Barbiturates or potent opioids (eg, etorphine hydrochloride [M 99] and carfentanil) are the agents of choice for euthanasia of marine mammals,[10] although it is recognized their use is not always possible and can

be potentially dangerous to personnel. An accurately placed gunshot may also be a conditionally acceptable method of euthanasia for some species and sizes of stranded marine mammals.[44,45,46]

For stranded whales or other large cetaceans or pinnipeds, succinylcholine chloride in conjunction with potassium chloride, administered intravenously or intraperitoneally, has been used.[43] This method, which is not an acceptable method of euthanasia as defined in this report, leads to complete paralysis of the respiratory musculature and eventual death attributable to hypoxemia.[46] This method may be more humane than allowing the stranded animal to suffocate over a period of hours or days if no other options are available.

Euthanasia of animals raised for fur production

Animals raised for fur are usually euthanatized individually at the location where they are raised. Although any handling of these species constitutes a stress, it is possible to minimize this by euthanatizing animals in or near their cages. For the procedures described below, please refer to previous sections for more detailed discussion.

Carbon monoxide—For smaller species, CO appears to be an adequate method for euthanasia. Compressed CO is delivered from a tank into an enclosed cage that can be moved adjacent to holding cages. Using the apparatus outside reduces the risk to humans; however, people using this method should still be made aware of the dangers of CO. Animals introduced into a chamber containing 4% CO lost consciousness in 64 ± 14 seconds and were dead within 215 ± 45 seconds.[47] In a study involving electroencephalography of mink being euthanatized with 5.3% CO, the mink were comatose in 21 ± 7 seconds.[48] Only 1 animal should be introduced into the chamber at a time, and death should be confirmed in each case.

Carbon dioxide—Administration of CO_2 is also a good euthanasia method for smaller species and is less dangerous than CO for personnel operating the system. When exposed to 100% CO_2, mink lost consciousness in 19 ± 4 seconds and were dead within 153 ± 10 seconds. When 70% CO_2 was used with 30% O_2, mink were unconscious in 26 seconds, but they were not dead after a 15-minute exposure.[49] Therefore, if animals are first stunned by 70% CO_2, they should be killed by exposure to 100% CO_2 or by some other means. As with carbon monoxide, only one animal should be introduced into the chamber at a time.

Barbiturates—Barbiturate overdose is an acceptable procedure for euthanasia of many species of animals raised for fur. The drug is injected intraperitoneally and the animal slowly loses consciousness. It is important that the death of each animal be confirmed following barbiturate injection. Barbiturates will contaminate the carcass; therefore the euthanized carcass cannot be used for animal food.

Electrocution—Electrocution has been used for killing foxes and mink.[50] The electric current must pass through the brain to induce loss of consciousness before electricity is passed through the rest of the body. Electrical stunning should be followed by euthanasia, using some other technique. Cervical dislocation has been used in mink and other small animals and should be done within 20 seconds of electrical stunning.[51] Use of a nose-to-tail or nose-to-foot method[52] alone may kill the animal by inducing cardiac fibrillation, but the animal may be conscious for a period of time before death. Therefore, these techniques are unacceptable.

Prenatal and neonatal euthanasia

When ovarian hysterectomies are performed, euthanasia of fetuses should be accomplished as soon as possible after removal from the dam. Neonatal animals are relatively resistant to hypoxia.[45,53]

Mass euthanasia

Under unusual conditions, such as disease eradication and natural disasters, euthanasia options may be limited. In these situations, the most appropriate technique that minimizes human and animal health concerns must be used. These options include, but are not limited to, CO_2 and physical methods such as gunshot, penetrating captive bolt, and cervical dislocation.

POSTFACE

This report summarizes contemporary scientific knowledge on euthanasia in animals and calls attention to the lack of scientific reports assessing pain, discomfort, and distress in animals being euthanatized. Many reports on various methods of euthanasia are either anecdotal, testimonial narratives, or unsubstantiated opinions and are, therefore, not cited in this report. The panel strongly endorses the need for well-designed experiments to more fully determine the extent to which each procedure meets the criteria used for judging methods of euthanasia.

Each means of euthanasia has advantages and disadvantages. It is unlikely that, for each situation, any means will meet all desirable criteria. It is also impractical for this report to address every potential circumstance in which animals are to be euthanatized. Therefore, the use of professional judgment is imperative.

Failure to list or recommend a means of euthanasia in this report does not categorically condemn its use. There may occasionally be special circumstances or situations in which other means may be acceptable. For research animals, these exceptions should be carefully considered by the attending veterinarian and the Institutional Animal Care and Use Committee. In other settings, professional judgment should be used.

The panel discourages the use of unapproved products for euthanasia, unless the product has a clearly understood mechanism of action and pharmacokinetics, and studies published in the literature that scientifically verify and justify its use. Those responsible for euthanasia decisions have a critically important responsibility to carefully assess any new technique, method, or device, using the panel's criteria. In the absence of definitive proof or reasonable expectation, the best interest of the animal should guide the decision process.

References cited in this report do not represent a comprehensive bibliography on all methods of euthanasia. Persons interested in additional information on a particular aspect of animal euthanasia are encouraged to contact the Animal Welfare Information Center, National Agricultural Library, 10301 Baltimore Blvd, Beltsville, MD 20705.

The Panel on Euthanasia is fully committed to the concept that, whenever it becomes necessary to kill any animal for any reason whatsoever, death should be induced as painlessly and quickly as possible. It has been our charge to develop workable guidelines for veterinarians needing to address this problem, and it is our sincere desire that these guidelines be used conscientiously by all animal care providers. We consider this report to be a work in progress with new editions warranted as results of more scientific studies are published.

Acknowledgments: The panel acknowledges the assistance of Ms. Julia Harvath and Dr. David Granstrom in coordinating the preparation and circulation of various drafts of the report. The panel also acknowledges and thanks Dr. Laurence Hay, Dr. Leah Greer, and the many other individuals and organizations that provided valuable review, criticism, and input to the panel through the many drafts of the report. The research and licensing communities were especially helpful in shaping important changes and additions to the report.

References

1. Andrews EJ, Bennett BT, Clark JD, et al. 1993 Report on the AVMA panel on euthanasia. *J Am Vet Med Assoc* 1993;202:230–247.
2. Webster's ninth new collegiate dictionary. Springfield: Merriam-Webster Inc, 1988.
3. Watt PD. Defining pain in animals. In: Short CE, Poznak AV, eds. *Animal pain*. New York: Churchill-Livingstone Inc, 1992:63–78.
4. Viveck CJ, Cooper BY, Hess LA, et al. Influences of pain sensitivity from complex behaviors of laboratory animals. In: Chapman CR, Loeser JD, eds. *Issues in pain management*. New York: Raven Press, 1989:93–115.
5. Brunello N, Kitchell RL. Euthanasia for laboratory animals. *Fed Proc* 1980;39:1977–1979.
6. Zimmermann M. Neurobiological concepts of pain, its assessment and therapy. In: Bromm B, ed. *Pain measurement in man: neurophysiological correlates of pain*. Amsterdam: Elsevier Publishing Co, 1984:15–36.
7. Kitchell RL, Erickson HH, Carmena E, et al, eds. *Animal pain: perception and alleviation*. Bethesda: American Physiological Society, 1983.
8. Kitchen H, Amstrup AL, Bista JL, et al. Panel report on the colloquium on recognition and alleviation of animal pain and distress. *J Am Vet Med Assoc* 1987;191:1186–1187.
9. National Research Council. *Recognition and alleviation of pain and distress in laboratory animals*. Washington, DC: National Academy Press, 1992.
10. Bonagura JE. Physiologic basis and consequences of distress in animals. *J Am Vet Med Assoc* 1987;191:1212–1218.
11. McMillan FD. Comfort as the primary goal in veterinary medical practice. *J Am Vet Med Assoc* 1999;212:1370–1374.
12. Grier RL, Cloven TL. *Euthanasia guide (for animal shelters)*. Ames, Iowa: Mass Comm Publications, 1983.
13. Cooper JE, Eversole R, Prior C, et al. *Euthanasia of amphibians and reptiles*. London: UFAW/WSPA, 1988.
14. Greyhavens T. *Handbook of parenteral euthanasia*. Salem, Ore: Humane Society of Willamette Valley, 1988:1–128.
15. *Operational guide for animal care and control agencies*. Denver: American Humane Association, 1988.
16. Fowler ME, Miller RE, eds. *Zoo and wild animal medicine: current therapy 4*. Philadelphia: WB Saunders Co, 1998:1–747.
17. Clark R, Jessup DA. *Wildlife restraint series*. Salinas, Calif: International Wildlife Veterinary Services Inc, 1992.
18. Kreeger T. *Handbook of wildlife chemical immobilization*. Laramie, Wyo: Wildlife Veterinary Services Inc, 1990.
19. Nielsen L. *Chemical immobilization of wild and exotic animals*. Ames, Iowa: Iowa State University Press, 1998.
20. McKenzie A, ed. *The capture and care manual*. South Africa: Wildlife Decision Support Services/The South African Veterinary Foundation, 1993.
21. Amass K, Nielsen L, Brunson D. *Chemical immobilization of animals*. Mount Horeb, Wis: Safe-Capture International Inc, 1998.
22. Humane slaughter regulations. *Fed Reg* 1978;44:44838–44917.
23. Grandin T. Observations of cattle behavior applied to design of cattle-handling facilities. *Appl Anim Ethol* 1980;6:19–31.
24. Grandin T. Pig behavior studies applied to slaughter-plant design. *Appl Anim Ethol* 1982;9:141–151.
25. Grandin T. Farm animal welfare during handling, transport, and slaughter. *J Am Vet Med Assoc* 1989;204:372–377.
26. Grandin T. Objective scoring of animal handling and stunning practices at slaughter plants. *J Am Vet Med Assoc* 1998;212:36–39.
27. Grandin T. Effect of animal welfare audits of slaughter plants by a major fast food company on cattle handling and slaughter practices. *J Am Vet Med Assoc* 2000;216:848–851.
28. Turnbeaugh J. Issues in companion animal practice. In: Veterinary advice. Baltimore: The Williams & Wilkins Co, 1985:225–228.
29. Rollin BE. Ethical questions of the morals. *Can Vet J* 1982;32:7–8.
30. Ramsay EC, Wenzel BW. Comparison of five regimens for oral administration of medication to immobilize cobras prior to euthanasia. *J Am Vet Med Assoc* 1988;213:240–242.
31. Wenzel BW, Ramsay EC. Comparison of four regimens for oral administration of medication to immobilize cobras prior to euthanasia. *J Am Vet Med Assoc* 1988;213:243–245.
32. Beaver BV. *Feline behavior: a guide for veterinarians*. Philadelphia: WB Saunders Co, 1992:1–276.
33. Houpt KA. *Domestic animal behavior for veterinarians and animal scientists*. 3rd ed. Ames, Iowa: Iowa State University Press, 1998:1–468.
34. Fox MW. *The behavior of domestic animals*. New York: WH Freeman & Co, 1969:1–389.
35. Beaver BV. *Canine behavior: a guide for veterinarians*. Philadelphia: WB Saunders Co, 1999:1–388.
36. Beaver BV. *The veterinarian's encyclopedia of animal behavior*. Ames, Iowa: Iowa State University Press, 1994:1–307.
37. Schaller M. *The language of the horse: habits and forms of expression*. New York: Arco Publishing Co, 1978:1–187.
38. Hart LA, Hart BL, Mader B. Humane euthanasia and companion animal death: caring for the animal, the client, and the veterinarian. *J Am Vet Med Assoc* 1988;192:1292–1299.
39. Nadburg HA, Fleisher A. *Pet loss: a thoughtful guide for adults and children*. New York: Harper & Row, 1982.
40. Hart LA, Mader B. Pet loss support hotlines: the veterinary students' perspective. *Calif Vet* 1988;Jan-Feb:18–23.
41. Pet loss support hotlines (grief counseling). *J Am Vet Med Assoc* 1989;23:1180.
42. Adams A. Coping with euthanasia: a case study of shelter workers. *J Am Vet Med Assoc* 1991;198:1178–1180.
43. Weiss TL. Laboratory animal technicians' duty role in animal reduction and human-companion animal bonding. *Vet Clin North Am Small Anim Pract* 1985;15:449–454.
44. Glass HG, Snyder FF, Wheinert E. The use of ductless to reduce access of sedative, drugs, and gaseous gas from the event of viability in adult life. *Am J Physiol* 1944;140:808–816.
45. Booth NH. Intravenous anesthetics. In: Booth NH, McDonald LE, eds. *Veterinary pharmacology and therapeutics*. 6th ed. Ames, Iowa: Iowa State University Press, 1988:181–211.
46. Wixson SK, Smiler KL. Anesthetics and analgesics in rodents. In: Kohn DF, Wixson SK, White WJ, et al, eds. *Anesthesia and analgesia in laboratory animals*. New York: Academic Press Inc, 1997:165–203.
47. Knaggs G, Sas-Jensen R, Jorgensen H, et al. Stress-induced release of anterior pituitary hormones: effect of H3 receptor-mediat-

of inhibition of immunologic activity or posterior hypothalamic lesion. Neuroendocrin 1969;5:44–53.

48. Throshov AA. Response of serum corticosterone and corticosteroid-binding globulin to acute and prolonged stress in the rat. Endocrine 1998;11:143–150.

49. Zukow D, Klein DT. Barra J, et al. Alpha 2-adrenoreceptor subtypes regulate ACTH and beta-endorphin secretion during stress in the rat. Psychoneuroendocrin 1988;24:333–343.

50. Van Houck H, Bouwman V, Dallmer SE, et al. Endocrine stress response in rats subjected to singular arterial puncture while under diethyl-ether anaesthesia. Lab Anim 1981;15:325–329.

51. Humane killing of animals. Proprint of 4th ed. South Mimms, Potters Bar, Herts, England: Universities Federation for Animal Welfare, 1988:18–22.

52. Occupational exposure to waste anesthetic gases and vapors. No. 77-140. Washington, DC: Department of Health, Education, and Welfare (National Institute for Occupational Safety and Health), 1977.

53. Lasky JW, ed. Waste anesthetic gases in operating room air: a suggested program to reduce personnel exposure. Park Ridge, Ill: The American Society of Anesthesiologists, 1983.

54. Stevenson HB, Thorsteil-Christensen AA, Ockens N. Carbon monoxide and carbon dioxide euthanasia of cats: duration and retrial behaviour. Br Vet J 1981;137:274–279.

55. Klemm WR. Carbon dioxide anesthesia in cats. Am J Vet Res 1964;26:1201–1208.

56. Leake CD, Watson RM. The anesthetic properties of carbon dioxide. Curr Res Anesthesiol Analg 1929;8:17–18.

57. Mastaw JL, Salmon JM, Clark CS. Electroencephalographic power-spectral changes coincident with onset of carbon dioxide narcosis in human subjects. Am J Vet Res 1972;33:2043–2048.

58. Woodbury DM, Rollins LT, Gardner MD, et al. Effects of carbon dioxide on brain excitability and electrolytes. Am J Physiol 1958;193:78–80.

59. Glen JB, Scott WN. Carbon dioxide euthanasia of cats. Br Vet J 1973;129:471–479.

60. Blackmore DK, Newhook JC. The measurement of insensitivity in sheep, calves and pigs during slaughter. In: Eikelenboom G, ed. Stunning of animals for slaughter. Boston: Martinus Nijhoff Publishers, 1983:13–21.

61. Corean AME, Drieberberg WHM, Hasselaten H, et al. Carbon dioxide euthanasia in mice: oxygen supplementation minimizes signs of agitation and asphyxia. Lab Anim 1996;30:353–360.

62. Kestler I, Meier B, Rumpf A, et al. Is carbon dioxide (CO_2) a useful stress saving anaesthetic for small laboratory animals? Lab Anim 1988;22:135–141.

63. Hasselaten H. Electrical and carbondioxide stunning of pigs for slaughter. In: Eikelenboom G, ed. Stunning of animals for slaughter. Boston: Martinus Nijhoff Publishers, 1983:39–43.

64. Gregory NG, Moss BW, Leeson RH. An assessment of carbon dioxide stunning in pigs. Vet Rec 1987;121:617–618.

65. Carding AH. Mass euthanasia of dogs with carbon monoxide mixture derived from domestic gas. J Small Anim Pract 1969;8:245–258.

66. Tate DP. The humaneness of carbon dioxide as an agent of euthanasia for laboratory rodents. In: Euthanasia of unwanted, injured or diseased animals for educational or scientific purposes. Potters Bar, UK: UFAW, 1987:16–31.

67. Danneman PJ, Stein S, Walshaw SO. Humane and practical implications of using carbon dioxide mixed with oxygen for euthanasia of rats. Lab Anim Sci 1997;47:376–385.

68. Anton F, Euchner I, Handwerker HO. Psychophysical examinations of pain induced by defined CO_2 pulses applied to nasal mucosa. Pain 1992;49:53–60.

69. Raj ABM, Gregory NG. Welfare implications of gas stunning pigs 1. Determination of aversion to the initial inhalation of carbon dioxide or argon. Anim Welfare 1995;4:273–280.

70. Hackbarth H, Kappes N, Bohnet W. Euthanasia of rats with carbon dioxide-animal welfare aspects. Lab Anim 2000;34:91–96.

71. Raj ABM, Gregory NG. Investigation into the batch stunning/killing of chickens using carbon dioxide or argon-induced hypoxia. Res Vet Sci 1990;49:364–368.

72. Hughes HC. Euthanasia of laboratory animals. In: Melby EC, Altman NH, eds. Handbook of laboratory animal science. Vol 3. Cleveland, Ohio: CRC Press, 1976:183–188.

73. Johnson W. Euthanasia of day-old male chicks in the poultry industry. Int J Stud Anim Prob 1981;2:208–213.

74. Kline BE, Pantaleon V, Hunt HB. Some aids in handling large numbers of mice. Lab Anim Care 1962;12:84–90.

75. Kanda AM, Dawrinck EE, Davis LL. Experimentation with inhalant carbon dioxide immobilization of chickens prior to slaughter. Poult Sci 1981;60:213–218.

76. Stone WS, Antonius K, Duell C, et al. Carbon dioxide euthanization of guinea pigs to increase yields of blood and serum. Proc Com Found 1961;11:208–303.

77. Euthanasia (carbon dioxide). Int Report and accounts 1976-1977. South Mimms, Potters Bar, Herts, England: Universities Federation for Animal Welfare, 1977:13–14.

78. Hall LW. The preanesthesia and euthanasia of neonatal and juvenile dogs and cats. Vet Rec 1972;90:333–338.

79. Blackshaw JK, Fenwick DC, Beattie AW, et al. The behaviour of chickens, mice and rats during euthanasia with chloroform, carbon dioxide and ether. Lab Anim 1988;22:67–75.

80. Hansen HJ, Clausebeng A, Stevenson HB. Euthanasia of adult (Mamalia strain) by means of carbon dioxide (CO_2), carbon monoxide (CO) and nitrogen (N_2). Br Vet J 1981;147:149–148.

81. Hayward JS, Lisser PA. Carbon dioxide tolerance of rabbits and its relation to recovery hemigiation. Aust Wildl Res 1978;5:233–241.

82. Kongsa-Ekwaney J, Berger UV, Sharma M, et al. Effects of carbon dioxide-induced anesthesia on cerebrospinal pressure in rat brain. Lab Anim Sci 1994;44:368–371.

83. Gebauer MR, Kelly JM. Euthanasia by exposure to gaseous carbon dioxide-oxygen mixtures: application to murine breeding colony laboratory animal species. Lab Anim Sci 1991;41:59–62.

84. Iwaoyan K, Ravindar C. A study of different euthanasia techniques in guinea pigs, rats, and mice. Arterial oxygenation and post-mortem findings. Scand J Lab Anim Sci 1993;20:181–200.

85. Hawes TD, Haynes AR. Comparison of carbon dioxide/air mixture and nonaspirator manual for the euthanasia of rodents: design of a system for inhalation euthanasia. Anim Technol 1994;45:43–50.

86. Smith W, Hurrup SB. Behavioral and cardiovascular responses of rats to euthanasia using carbon dioxide gas. Lab Anim 1997;31:337–348.

87. Hawes TD, Kerven MB, Antonelli JE, et al. A comparison of euthanasia methods in rats, using carbon dioxide in purified and flood flow rate filled chambers. Lab Anim Sci 1988;43:170–182.

88. Hecht RA, Hall P, Pleak JW. Nitrogen intoxication as a method of euthanasia in dogs. Am J Vet Res 1978;39:689–693.

89. Hauld WE, Cohen HE. Three courses of failure of the visual pathway in rabbits during anoxia. Fed Proc 1949;8:118.

90. Vesey FJ. The humane killing of animals. London: Universities Federation for Animal Welfare, 1987.

91. Svendsen BW, Lauer FM, Quinn JE, et al. The euthanasia of dogs and cats: a statement of the humane position committee of the Canadian Veterinary Medical Association. Can Vet J 1978;19:184–188.

92. Quinn JE, Buckingham W, Stoddart L. Euthanasia of small animals with nitrogen: comparison with barbiturate pentobarbital. Can Vet J 1980;28:734–738.

93. Raj ABM, Gregory NG, Wotton SB. Changes in the somatosensory evoked potentials and spontaneous electroencephalogram of hens during stunning in Argon-induced anoxia. Br Vet J 1992;147:322–330.

94. Ramsay TL, Ellenson HJ. Carbon monoxide acute and chronic poisoning and experimental studies. J Lab Clin Med 1933;17:415–427.

95. Chalifoux A, Dallaire A. Physiologic and behavioral evaluation of CO euthanasia of adult dogs. Am J Vet Res 1983;44:2413–2417.

96. Haldane J. The action of carbonic oxide in man. J Physiol 1895;18:430–462.

97. Dallaire A, Chalifoux A. Premedication of dogs with acepromazine or pentazocine before euthanasia with carbon monoxide. Can J Comp Med 1985;49:171–178.

98. Lumbsey E, Spanjaard W. Euthanasia of young pigs with carbon monoxide. *Vet Rec* 1980;107:38–41.

99. Lewis-Perrahard PL, Harvey JA. Clinical aspects of carbon monoxide poisoning. *Adverse Drug React Acute Poisoning Rev* 1990;9:217–240.

100. Bloom JD. Some considerations in establishing closed breathing gas purity standards for carbon monoxide. *Aerosp Med* 1972;43:633–638.

101. Marmon CA, Holton DM. Is carbon monoxide a workplace teratogen? A review and evaluation of the literature. *Ann Occup Hyg* 1990;34:335–347.

102. Lechner LD. Neurotoxicity of perinatal carbon monoxide exposure. Research report. *Health Effects Inst* 1987;Vol:3–28.

103. Wojcicki-Jaroszewicz J, Kulawiec S. Carbon monoxide, carbon dioxide, lead and cadmium—four examples of environmental toxic agents linked to cardiovascular disease. *Med Hypotheses* 1989;30:143–150.

104. Noga E. *Fish disease: diagnosis and treatment*. St. Louis: CV Mosby, 1996;1–367.

105. Stoskopf MK. Anesthesia. In: Brown LA, ed. *Aquaculture for veterinarians: fish husbandry and medicine*. Oxford, UK: Pergamon Press, 1993;191–197.

106. Lumb W. Euthanasia by nonbarbiturate pharmacologic agents. *J Am Vet Med Assoc* 1974;165:851–852.

107. Barbiturates. In: Ogorzalek S, ed. *Field manual of wildlife diseases*. US Department of the Interior/US Geological Survey, Biological Resources Division, Information and Technology Report 1998:2001.

108. Dennis MB, Dang WK, Woodward RA, et al. Use of captive bait as a method of euthanasia in large veterinary animal species. *Lab Anim Sci* 1988;38:458–462.

109. Blackmore DK. Energy requirements for the penetration of heads of domestic stock and the development of a multiple projectile. *Vet Rec* 1985;116:36–40.

110. Daly CC, Whittington PE. Investigation into the principal determinants of effective captive bolt stunning of sheep. *Res Vet Sci* 1989;46:406–408.

111. Clifford DH. Preanesthesia, anesthesia, analgesia, and euthanasia. In: Fox JG, Cohen BJ, Loew FM, eds. *Laboratory animal medicine*. New York: Academic Press Inc, 1984;389–443.

112. Association Veterinary Association. Guidelines on humane slaughter and euthanasia. *Aust Vet J* 1987;64:4–7.

113. Cawley T. Euthanasia of dogs and cats. *Anim Reg Stud* 1977;1:5–31.

114. Langelo JA, Finley GG, Lamont M-A, et al. Guidelines for euthanasia of shearwaters incidents by firearms. *Can Vet J* 1991;32:724–728.

115. Pirsia JW. Neuroanatomical aspects of experimental concussive missile injury in sheep. *N Z Vet J* 1984;42:54–57.

116. Blackmore DK, Mackie B, Bowling MC, et al. The use of a shotgun for the euthanasia of stranded sequences. *N Z Vet J* 1985;43:138–139.

117. Blackmore DK, Bowling MC, Mackie, P, et al. The use of a shotgun for emergency slaughter or euthanasia of large mature pigs. *N Z Vet J* 1986;43:134–137.

118. Dexstadt AJ. Non-traditional techniques for management of overabundant deer populations. *Wildl Soc Bull* 1987;23:605–608.

119. McAninch JB, ed. Urban deer: a manageable resource? In: Proceedings. Symp 55th Midwest Fish Wildl Conf 1993;1–171.

120. Pirsia JW. Traumatic head injury in restrained livestock. *Aust Vet J* 1987;73:204–208.

121. Blackmore DK, Daly CC, Cook CJ. Electroencephalographic studies on the rope stunning of sheep. *N Z Vet J* 1990;43:180–183.

122. *Cardiac euthanasia of swine—options for the producer*. Perry Iowa: American Association of Swine Practitioners and Des Moines, Iowa: National Pork Producers, 1987.

123. *Practical euthanasia of cattle: considerations for the producer, livestock market operator, livestock transporter, and veterinarian*. Reno, Ga: American Association of Bovine Practitioners, 1988.

124. The emergency euthanasia of horses. Sacramento: California Department of Food and Agriculture and Davis, Calif: University of California Veterinary Medical Extension, 1988.

125. The emergency euthanasia of sheep and goats. Sacramento: California Department of Food and Agriculture and Davis, Calif: University of California Veterinary Medical Extension, 1986.

126. Gregory NG, Wotton SB. Comparison of neck dislocation and percussion of the head on visual evoked responses in the chicken brain. *Vet Rec* 1985;120:570–572.

127. Vanderwolf CH, Buzsaki DP, Cain RK, et al. Neocortical and hippocampal electrical activity following decapitation in the rat. *Brain Res* 1988;451:340–344.

128. Dietz HE. Pain perception in decapitated rat brains. *Life Sci* 1981;48:1305–1402.

129. Holmes RR. Euthanasia by decapitation: evidence that this technique produces prompt, painless unconsciousness in laboratory rodents. *Neuroscience Theses* 1992;14:253–257.

130. Kolber GL. Physical euthanasia methods. *Lab Anim* 1982;11:29–38.

131. Fabricius CB, Gupta BN. Histopathologic changes in laboratory animals resulting from various methods of euthanasia. *Lab Anim Sci* 1978;28:215–221.

132. Mikeska JA, Klemm WR. EEG evaluation of humaneness of asphyxia and decapitation euthanasia of the laboratory rat. *Lab Anim Sci* 1975;25:175–179.

133. Warrington R. Electrical stunning, a review of the literature. *Vet Bull* 1974;44:817–826.

134. Lambooy E, van Voorst N. Electroanesthesia of pigs with combination electrodes. *Vet Q* 1988;8:69–82.

135. Lathigeot G, Bruckner S, Hakpekmend A. Electrical stunning of rabbits. *Vet Rec* 1972;91:132–134.

136. Hatch RC. Euthanatizing agents. In: Booth NH and McDonald LE, eds. *Veterinary pharmacology and therapeutics*/6th ed. Ames: Iowa State University Press, 1988;1143–1148.

137. Cook PC, Hume CW. Electric stunning of sheep. *Vet Rec* 1966;80:318–321.

138. Robson TDM. Electroconvulsive epilepsy. *Vet Rec* 1974;95:341–342.

139. Robson TDM. Cortical activity in electroconvulsive dogs. *Vet Rec* 1954;66:581–587.

140. Anil MH, McKinney JL. Reflexes and loss of sensitivity following head-to-back electrical stunning in sheep. *Vet Rec* 1991;128:105–107.

141. Stavinoha WR. Study of brain neurochemistry utilizing rapid inactivation of brain enzyme activity by freezing and microwave irradiation. In: Black CL, Stavinoha WR, Maruyama Y, eds. *Microwave irradiation as a tool to study labile constituents in tissue*. Stamford, NY: Pergamon Press, 1982;1–12.

142. Stavinoha WR, Fraser J, Mielek AE. Microwave fixation for the study of norepinephrine metabolism. In: Jacobs DL ed. *Cholinergic mechanisms and psychopharmacology*. New York: Plenum Publishing Corp, 1978;169–178.

143. Ueyanki Y, Maruyama Y, Stavinoha WR. Study of the use of the microwave magnetic field for the rapid inactivation of brain enzymes. *Jpn J Pharmacol* 1984;35:371–387.

144. Gosset AS, Craig LW. Guidelines to the use of wild birds in research. Washington DC: The Ornithological Council, 1997;1–62.

145. Federal Provincial Committee for Humane Trapping. *Final report: committee of the federal provincial wildlife conference*. Ottawa: Canadian Wildl Service, 1981;1–173.

146. *Agreement on international humane trapping standards*. The European Community, the Government of Canada, and the Government of the Russian Federation. Department of Foreign Affairs and International Trade, 1997;1–32.

147. Canadian General Standards Board. *Animal (mammal) traps—mechanically powered, trigger-activated killing traps for use on land*. No. CAN/CGSB-144.1-96. Ottawa: Canadian General Standards Board, 1996;1–36.

148. Nolan JW, Raven MW. *Description and operation of the humane trapping research facility at the Alberta Environmental Centre, ABCV89-R3*. Vegreville, Alb: Alberta Environmental Centre, 1989.

149. *Animal (mammal) trap-part 4: methods for testing killing trap systems used on land or underwater. TC 191, ISO/DIS 10990-4*. International Standardization Organization, 2000;1–18.

150. Gilbert FF. Assessment of furbearer response to trapping devices. In: Chapman JA, Pursley D, eds. *Worldwide furbearer conference proceedings*. Frostburg, Md: 1981;1380–1411.

151. Proulx G, Barrett MW. Evaluation of the Bionic Trap to quickly kill rodents (*Mustela vison*) in simulated natural environments. *J Wildl Dis* 1991;27:276–280.

152. Proulx G, Barrett MW. Field testing of the C120 magnum trap for mink. *Wildl Soc Bull* 1993;21:421–424.

153. Hiltz M, Roy LD. Testing killing traps against humane trapping standards using computer simulations. In Proceedings. 19th Vertebrate Pest Conf 2000.

154. Proulx G, Barrett M. Evaluation of the Bionic Trap in quickly kill fisher (*Martes pennanti*) in simulated natural environments. *J Wildl Dis* 1993;29:310–318.

155. Proulx G, Proulx DM, Wong RK. Re-evaluation of the C120 magnum and bionic traps to humanely kill mink. *J Wildl Dis* 1993;29:144.

156. Proulx G, Barrett MW, Cook SR. The C120 Magnum with pan trigger: a humane trap for mink (*Mustela vison*). *J Wildl Dis* 1990;26:511–517.

157. Proulx G, Kolenosky AJ, Cole PJ. Assessment of the Kania trap to humanely kill red squirrels (*Tamiasciurus hudsonicus*) in enclosures. *J Wildl Dis* 1993;29:324–329.

158. Proulx G, Kolenosky AJ, Badry MJ, et al. Assessment of the Sauvageau 2001-8 trap as effectively kill arctic fox. *Wildl Soc Bull* 1993;21:133–136.

159. Proulx G, Kolenosky AJ, Cole PJ, et al. A humane killing trap for lynx (*Felis lynx*): the Conibear 330 with clamping bars. *J Wildl Dis* 1995;1:57–61.

160. Proulx G, Barrett MW, Cook SR. The C120 Magnum set effective kill trap for marten. *Wildl Soc Bull* 1989;17:204–208.

161. Proulx G, Cook SR, Barrett MW. Assessment and preliminary development of the rotating jaw Conibear 120 trap to effectively kill weasels (*Mustela americana*). *Can J Zool* 1990;67:1074–1079.

162. Naylor BJ, Novak M. Catch efficiency and selectivity of various traps used and soon used for capturing American martens. *Wildl Soc Bull* 1994;22:488–498.

163. Hill EP. *Evaluation of improved traps and trapping techniques*. Alabama Department of Conservation and Natural Resources P-R Project Report W-44-5 Job IV-B:1–10.

164. King CM. The effects of two types of wood traps upon captured stoats (*Mustela erminea*). *J Zool (Lond)* 1980;193:463–464.

165. Cooper JE, Eatwell R, Flatt C, et al. *Euthanasia of amphibians and reptiles*. London: UFAW/WSPA, 1988.

166. Twitchett C, Roy LD, Gilbert FF, et al. Effectiveness of weasel-type killing traps for beaver (*Castor canadensis*). In Proceedings. North Am Aquatic Furbearer Symp 1988.

167. Warkentin S, Hall JV. Impact momentum and clamping force thresholds for developing standards for pressure kill traps. *N Z J Zool* 1998;32:35–44.

168. Guidelines for the capture, handling, and care of mammals as approved by the American Society of Mammalogists. *J Mammal* 1998;79:1416–1431.

169. *Improving animal welfare in US trapping programs*. Washington, DC: International Association of Fish and Wildlife Agencies, 1997.

170. Blackmore DK. Differences in behaviour between sheep and cattle during slaughter. *Res Vet Sci* 1984;37:223–226.

171. Gregory NG, Wotton SB. Time to loss of brain responsiveness following exsanguination in calves. *Res Vet Sci* 1984;37:141–143.

172. Blackmore DK. Non-penetrative percussive stunning of sheep and calves. *Vet Rec* 1979;105:373–376.

173. Canadian Council on Animal Care. *Guide to the care and use of experimental animals*. Vol 1. Ottawa: Canadian Council on Animal Care, 1980.

174. Green CJ. Euthanasia. In: *Animal anesthesia*. London: Laboratory Animals Ltd, 1979:237–241.

175. Clifford DH. Preanesthetics, anesthetics, analgesics, and euthanasia. In: Fox JG, Cohen BJ, Loew FM, eds. *Laboratory animal medicine*. Orlando: Academic Press Inc, 1984:327–382.

176. Pierau FK, Taylor DC. Autonomic regulation during thermal stress in sheep and goats. *Pflugers Arch* 1979;381:245–252.

177. Gregory NG, Wotton SB. Effect of slaughter on spontaneous evoked activity of the brain. *Br Poult Sci* 1986;27:35–45.

178. Eikelenboom G, ed. *Stunning of animals for slaughter*. Boston: Martinus Nijhoff Publishers, 1983:1–227.

179. Booth NH. Drug and chemical residues in the edible tissues of animals. In: Booth NH, McDonald LE, eds. *Veterinary pharmacology and therapeutics*. 6th ed. Ames, Iowa: Iowa State University Press, 1988:1149–1208.

180. Acceptable field methods in mammalogy: preliminary guidelines approved by the American Society of Mammalogists. *J Mammal* 1987;68(Suppl 4):1–18.

181. American Ornithologists' Union. Report of committee on use of wild birds in research. *Auk* 1988;105(Suppl):1A–41A.

182. American Society of Ichthyologists and Herpetologists, Herpetologists' League, Society for the Study of Amphibians and Reptiles. Guidelines for the use of live amphibians and reptiles in field research. *J Herpetol* 1987;21(suppl 4):1–14.

183. American Society of Ichthyologists and Herpetologists, American Fisheries Society, American Institute of Fisheries Research Biologists. Guidelines for use of fishes in field research. *Copeia* Suppl 1987:1–12.

184. Carlton CM. *Plants: a field guide and laboratory manual on their structure, classification, and natural history*. Belmont, Calif: Wadsworth, 1988.

185. Schwartz JA, Warren R, Henderson D, et al. Captive and field tests of a method for immobilization and euthanasia of urban deer. *Wildl Soc Bull* 1987;15:538–541.

186. Zwart P, deVries HH, Cooper JE. The humane killing of fishes, amphibians, reptiles and birds. *Tijdschr Diergeneesk* 1988; 114:537–555.

187. Burns R. Considerations in the euthanasia of reptiles, fish and amphibians. In: Proceedings. AAZV WDA, AAWV Joint Conference 1995:243–248.

188. National Research Committee on Pain and Distress in Laboratory Animals. *Recognition of pain and distress in laboratory animals*. Washington DC: National Academy Press, 1982.

189. Hamel DF. Principles and techniques of anesthesia and analgesia for exotic practice. *Vet Clin North Am Small Anim Pract* 1993;23:1301–1317.

190. Canadian Council on Animal Care. *Guide to the use and care of experimental animals*. Vol 2. Ottawa: Association of Universities and Colleges of Canada, 1984:1–10.

191. Harrell L. Handling restlessness in postanesthetic birds. In: Schwartz DO, Kleinow KM, Knellinck L, eds. *The care and use of amphibians, reptiles and fish in research*. Bethesda, Md: Scientists Center for Animal Welfare, 1992:129.

192. Ferguson HW. *Systemic pathology of fish*. Ames, Iowa: Iowa State University Press, 1989.

193. Letcher J. Intramuscular use of tricaine methane sulfonate for anesthesia of buildings (*Bufo americanus*) and leopard frogs (*Rana pipiens*). *Zoo Biol* 1992;11:349–351.

194. Brown LA. Anesthesia in fish. *Vet Clin North Am Small Anim Pract* 1988;18:317–330.

195. Jones A, Engelman H, Conn JE, et al. Use of 2-phenoxyethanol as an anesthetic agent in goldfish (*Cyprinus carpio*). *Vet Rec* 1992;131:488.

196. Nagy EJ. *Fish diseases. Diagnosis and treatment*. St Louis: Mosby, 1991.

197. Bernstein RE, Kirk E, Williams D. Anesthetic induction of intravenous injection with ketamine. *J Zoo Anim Med* 1987;18:115–117.

198. Calderwood HW. Anesthesia for reptiles. *J Am Vet Med Assoc* 1971;159:1615–1625.

199. Jacobson ER, Cooper JE. Anesthesia and surgery. In: Cooper JE, Jackson OF, eds. *Diseases of the reptilia*. Vol. 2. New York: Academic Press Ltd, 1981:535–649.

200. Jurtshuk JM, Moreland FB. Studies of the blood groups of the turtle other complete animals. *J Biol Chem* 1933;103:107–114.

201. Moberly WR. The metabolic responses of the common iguana, *Iguana iguana*, to walking and diving. *Comp Biochem Physiol* 1968;27:21–32.

202. Tracy RB. Life in a frozen state: adaptive strategies for natural freeze tolerance in amphibians and reptiles. *Am J Physiol* 1990;258:R559–R568.

203. Burns R, McMahon R. Euthanasia methods for ectothermic vertebrates. In: Bonagura JD, ed. *Continuing veterinary therapy XII*. Philadelphia: WB Saunders Co, 1992:1378–1381.

204. Cooper JE, Eatwell R, Flatt C, et al. *Euthanasia of amphib-*

fers and reptiles. London: Universities Federation for Animal Welfare and World Society for the Protection of Animals, 1988.
206. Zwart P, vanVeen HM, Cooper JE. Humane removals of killing fish, amphibians and birds. *Tijdschr Diergeneeskd* 1988;114:337–342.
208. Martin B. Evaluation of hypothermia for anesthesia in reptiles and amphibians. *ILAR News* 1986;27:189–193.
207. Sauthoff MA, Terril LA, Grigdesby CE, et al. Evaluation of hypothermia-induced analgesia and influence of opioid antagonism in Leopard frogs (*Rana pipiens*). *Pharmacol Biochem Behav* 1989;62:39–43.
208. Schaible DG. Anesthesia and analgesia in nontraditional laboratory animal species. In: Kohn DF, Wixson SK, White WJ, et al, eds. *Anesthesia and analgesia in laboratory animals*. San Diego: Academic Press Inc, 1997;337–378.
209. Greer LL, Rankin T. Euthanasia. In: Dierauf LA, ed. *CRC handbook of marine mammal medicine: health, disease, and rehabilitation*. 2nd ed. Boca Raton, Fla: CRC Press, in press.
210. Blackmore DK, Martin P, Bowling MC, et al. The use of a nitrogen for euthanasia of stunned cattle/calves. *N Z Vet J* 1982;43:158–160.
211. Hyman J. Euthanasia in marine animals. In: Dierauf LA, ed. *CRC handbook of marine mammal medicine: health, disease, and rehabilitation*. Boca Raton, Fla: CRC Press, 1990;289–299.
212. Lambooy B, Reinhold IA, Van Vleuret M. Euthanasia of minks with carbon monoxide. *Vet Rec* 1989;118:416.
213. *Recommended code of practice for the care and handling of mink*. Ottawa: Agriculture Canada, 1988;1–17.
214. Steiger D. Neuronal substrates in hypoxia: a comparative-physiological approach. *Comp Biochem Physiol* 1998;123:221–234.
215. Lueddens JW, Schmidt RH, Dubs J, et al. Drowning is not euthanasia. *Wildlife Soc Bull* 1988;27(3):1.

Appendix 1

Agents and methods of euthanasia by species (refer to Appendix 4 for unacceptable agents and methods.)

Species	Recommended* (refer to Appendix 2 and text for details)	Conditionally recommended (refer to Appendix 3 and text for details)
Amphibians	Barbiturates, inhalant anesthetics (in appropriate species), CO_2, CO, injectable marbofone sulfonate (T61, MS 222), benzocaine hydrochloride, double pithing	Penetrating captive bolt, gunshot, stunning and decapitation, decapitation and pithing
Birds	Barbiturates, inhalant anesthetics, CO_2, CO, gunshot (free-ranging only)	N_2, Ar, cervical dislocation, decapitation, thoracic compression (small, free-ranging only)
Cats	Barbiturates, inhalant anesthetics, CO_2, CO, propofol† (mainly in conjunction with general anesthetics)	N_2, Ar
Dogs	Barbiturates, inhalant anesthetics, CO_2, CO, potassium chloride in conjunction with general anesthetics	N_2, Ar, penetrating captive bolt, exsanguination
Pigs	Barbiturates, inhalant anesthetics, CO_2, tricaine methane sulfonate (TMS, MS 222), benzocaine hydrochloride, 1-phenoxy-2-propanol	Decapitation and pithing, stunning and decapitation/pithing
Horses	Barbiturates, potassium chloride or combination with general anesthetics, penetrating captive bolt	Chloral hydrate (IV, after sedation), gunshot, exsanguination
Marine mammals	Barbiturates, tricaine hydrochloride	Gunshot (euthanasia < 4 meters long)
Mink, fox, and other mammals psychosis like fur	Barbiturates, inhalant anesthetics, CO_2 (some require prior sedation/analgesia for euthanasia without hypoxemia), CO, potassium chloride in conjunction with general anesthesia	N_2, Ar, electrocution followed by cervical dislocation
Nonhuman primates	Barbiturates	Inhalant anesthetics, CO_2, CO, N_2, Ar
Rabbits	Barbiturates, inhalant anesthetics, CO_2, CO, potassium chloride in conjunction with general anesthetics	N_2, Ar, cervical dislocation (< 1 kg), decapitation, penetrating captive bolt
Reptiles	Barbiturates, inhalant anesthetics (in appropriate species), CO_2 (in appropriate species)	Penetrating captive bolt, gunshot, decapitation and pithing, stunning and decapitation
Rodents and other small mammals	Barbiturates, inhalant anesthetics, CO_2, CO, potassium chloride in conjunction with general anesthetics, neuromuscular blockers	Microwaving, stress, N_2, Ar, cervical dislocation (rats < 200 g), decapitation
Ruminants	Barbiturates, potassium chloride or combination with general anesthetics, penetrating captive bolt	Chloral hydrate (IV, after sedation), gunshot, electrocution
Sheep	Barbiturates, CO_2, potassium chloride in conjunction with general anesthetics, penetrating captive bolt	Inhalant anesthetics, CO, chloral hydrate (IV, after sedation), gunshot, electrocution, rifle or rifle shot (< 3 weeks of age)
Sick animals	Barbiturates, inhalant anesthetics, CO_2, CO, potassium chloride in conjunction with general anesthetics	N_2, Ar, penetrating captive bolt, gunshot
Free-ranging wildlife	Barbiturates IV or IP, inhalant anesthetics, potassium chloride in conjunction with general anesthetics	CO_2, CO, N_2, Ar, penetrating captive bolt, gunshot, rifle shot (accuracy varies)

* Acceptable methods are those that consistently produce a humane death when used on the listed species of mammals. Conditionally acceptable methods are those that by the nature of the technique or because of greater potential for operator error or safety hazards might not consistently produce humane death or are methods not well documented in the scientific literature.

Continued on next page.

Appendix 2

Acceptable agents and methods of euthanasia—characteristics and modes of action (prior to loss of consciousness)

Agent	Condition	Mode of action	Quality	Time of unconsciousness	Time to death	Drawbacks/safety	Other recommendations
Barbiturates (pentobarbital)	Agonal distress	Rapid loss of consciousness and cardiac arrest	Very rapid, dose dependent	Early onset	Early onset	Controlled substance	Preferred agent
Carbon dioxide (dry ice)	Agonal distress	Rapid depression of central nervous system, loss of consciousness, and respiratory arrest	Very rapid, dose dependent	Early onset	Early onset	Aversive to animals	Requires specialized equipment
Carbon monoxide (motor vehicle exhaust)	Agonal distress	Rapid depression of central nervous system, loss of consciousness, and respiratory arrest	Very rapid, dose dependent	Early onset	Early onset	Aversive to animals; explosive; flammable; toxic to humans	Requires specialized equipment
Chloroform	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; carcinogenic; toxic to humans	Requires specialized equipment
Chloroform (vapor)	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; carcinogenic; toxic to humans	Requires specialized equipment
Diethyl ether	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; explosive; flammable; toxic to humans	Requires specialized equipment
Halothane	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; toxic to humans	Requires specialized equipment
Isoflurane	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; toxic to humans	Requires specialized equipment
Methoxyflurane	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; toxic to humans	Requires specialized equipment
Nitrogen	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals	Requires specialized equipment
Nitrous oxide	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals	Requires specialized equipment
Sevoflurane	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals; toxic to humans	Requires specialized equipment
Thiopental	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals	Requires specialized equipment
Xenon	Agonal distress	Depression of central nervous system, loss of consciousness, and respiratory arrest	Moderately rapid	Early onset	Early onset	Aversive to animals	Requires specialized equipment

8.TDA—0000047778

JAMA, Vol 218, No. 5, March 1, 2001

Report of the AMA Panel on Euthanasia 665

JA005276

Appendix 4

Some unacceptable agents and methods of euthanasia (refer to text for details)

Agent or method	Remarks
Air embolism	Air embolism may be accompanied by convulsions, opisthotonus, and vocalization. If used, it should be done only in anesthetized animals.
Blow to the head	Unacceptable for most species.
Burning	Chemical or thermal burning of an animal is not an acceptable method of euthanasia.
Chloral hydrate	Unacceptable in dogs, cats, and small mammals.
Chloroform	Chloroform is a known hepatotoxin and suspected carcinogen and, therefore, is extremely hazardous to personnel.
Cyanide	Cyanide poses an extreme danger to personnel and the manner of death is aesthetically objectionable.
Decompression	Decompression is unacceptable for euthanasia because of numerous disadvantages. (1) Many chambers are designed to produce decompression at a rate 10 to 60 times faster than that recommended as optimum for animals, resulting in pain and distress attributable to expanding gases trapped in body cavities. (2) Immature animals are tolerant of hypoxia, and longer periods of decompression are required before respiration ceases. (3) Postdecompression, with recovery of injured animals, can occur. (4) Bloating, vomiting, convulsions, seizures, and defecation within and immediately after death may occur in decompressed animals.
Drowning	Drowning is not a means of euthanasia and is inhumane.
Exsanguination	Because of the anxiety associated with extreme hypovolemia, exsanguination should be done only in sedated, stunned, or anesthetized animals.
Formalin	Direct immersion of an animal into formalin, as a means of euthanasia, is inhumane.
Household products and solvents	Ammonia, quaternary ammonium compounds (including CCl_4), bleaches, chlorine, dishwashing detergents, quaternary ammonium products*, kerosene, and other nonvolatile and flammable products or solvents are not acceptable agents for euthanasia.
Hypothermia	Hypothermia is not an appropriate method of euthanasia.
Neuromuscular blocking agents (eg, succinylcholine, metocurine iodide, pancuronium bromide, all curariform agents)	When used alone, these drugs all induce respiratory arrest before loss of consciousness, so they cannot only produce pain and distress after it is immobilized.
Rapid freezing	Rapid freezing as a sole means of euthanasia is not considered to be humane. If used, animals should be anesthetized prior to freezing.
Strychnine	Strychnine causes violent convulsions and painful muscle contractions.
Stunning	Stunning may render an animal insensitive, but it is not a method of euthanasia (except for neonates) unless it is followed by a method that ensures death.
Volatile nonfluorine anesthetics (N20, CO, CO2)	Should not be used for euthanasia of animals weighing as listed.

*Roccal D Plus, Pharmacia & Upjohn, Kalamazoo, Mich.

Attachment C

Practice Advisory for Intraoperative Awareness and Brain Function Monitoring

*A Report by the American Society of Anesthesiologists Task Force on Intraoperative Awareness**

PRACTICE advisories are systematically developed reports that are intended to assist decision-making in areas of patient care. Advisories provide a synthesis and analysis of expert opinion, clinical feasibility data, open forum commentary, and consensus surveys. Advisories are not intended as standards, guidelines, or absolute requirements. They may be adopted, modified, or rejected according to clinical needs and constraints.

The use of practice advisories cannot guarantee any specific outcome. Practice advisories summarize the state of the literature and report opinions derived from a synthesis of task force members, expert consultants, open forums and public commentary. Practice advisories are not supported by scientific literature to the same degree as are standards or guidelines because sufficient numbers of adequately controlled studies are lacking. Practice advisories are subject to periodic revision as warranted by the evolution of medical knowledge, technology, and practice.

Methodology

A. Definitions

Intraoperative awareness under general anesthesia is a rare occurrence, with a reported incidence of 0.1-0.2%.[1-4] Significant psychological sequelae (e.g., post traumatic stress disorder) may occur following an episode of intraoperative awareness, and affected patients may remain severely disabled

---

* Developed by the American Society of Anesthesiologists Task Force on Intraoperative Awareness: Jeffrey L. Apfelbaum, M.D., (Chair), Chicago, Illinois; James F. Arens, M.D., Houston, Texas; Daniel J. Cole, M.D., Phoenix, Arizona; Richard T. Connis, Ph.D., Woodinville, Washington; Karen B. Domino, M.D., Seattle, Washington; John C. Drummond, M.D., San Diego, California; Cor J. Kalkman, M.D., Ph.D., Utrecht, the Netherlands; Ronald D. Miller, M.D., San Francisco, California; David G. Nichinsvich, Ph.D., Bellevue, Washington; and Michael M. Todd, M.D., Iowa City, Iowa.

Supported by the American Society of Anesthesiologists under the direction of James F. Arens, M.D., Chair, Committee on Practice Parameters. A list of the references used to develop this Advisory is available by writing to the American Society of Anesthesiologists.

Address reprint requests to the American Society of Anesthesiologists: 520 N. Northwest Highway, Park Ridge, Illinois 60068-2573

The following practice advisory was approved by the ASA House of Delegates on October 28, 2005. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

for extended periods of time.[3] However, in some circumstances, intraoperative awareness may be unavoidable in order to achieve other critically important anesthetic goals.

The following terms or concepts discussed in this Advisory include: consciousness, general anesthesia, depth of anesthesia or depth of hypnosis, recall, amnesia, intraoperative awareness, and brain function monitors. Consistent definitions for these terms are not available in the literature. For purposes of this Advisory, these terms are operationally defined or identified as follows:

(1) Consciousness: Consciousness is a state in which a patient is able to process information from his or her surroundings. Consciousness is assessed by observing a patient's purposeful responses to various stimuli. Identifiers of purposeful responses include organized movements following voice commands or noxious/painful stimuli.[†] For example, opening of the eyes is one of several possible identifiers or markers of consciousness. Purposeful responses may be absent when paralysis is present as a consequence of neurological disease or the administration of a neuromuscular blocking drug.

(2) General anesthesia: General anesthesia is defined as a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation.[‡] The ability to maintain ventilatory function independently is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

(3) Depth of anesthesia: Depth of anesthesia or depth of hypnosis refers to a continuum of progressive central nervous system depression and decreased responsiveness to stimulation.

[†] Reflex withdrawal from a painful stimulus is NOT considered a purposeful response, as indicated by the "continuum of depth of sedation, definition of general anesthesia, and levels of sedation/analgesia;" American Society of Anesthesiologists, 2004.

[‡] American Society of Anesthesiologists: Continuum of depth of sedation, definition of general anesthesia, and levels of sedation/analgesia;" ASA Standards, Guidelines and Statements, 2004.

The following practice advisory was approved by the ASA House of Delegates on October 25, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal Anesthesiology.

(4) Recall: For the purpose of this Advisory, recall is the patient's ability to retrieve stored memories. Recall is assessed by a patient's report of previous events, in particular, events that occurred during general anesthesia. *Explicit memory* is assessed by the patient's ability to recall specific events that took place during general anesthesia. *Implicit memory* is assessed by changes in performance or behavior without the ability to recall specific events that took place during general anesthesia that led to those changes.[6] A report of recall may be spontaneous or it may only be elicited in a structured interview or questionnaire. This Advisory does not address implicit memory.

(5) Amnesia: Amnesia is the absence of recall. Many anesthetic drugs produce amnesia at concentrations well below those necessary for suppression of consciousness. Anterograde amnesia is intended when a drug with amnestic properties is administered before induction of anesthesia. Retrograde amnesia is intended when a drug such as a benzodiazepine is administered after an event that may have caused or been associated with intraoperative consciousness in the hope that it will suppress memory formation and "rescue" from recall.

(6) Intraoperative awareness: Intraoperative awareness occurs when a patient becomes conscious during a procedure performed under general anesthesia and subsequently has recall of these events. For the purpose of this Advisory, recall is limited to explicit memory, and does not include the time before general anesthesia is fully induced or the time of emergence from general anesthesia, when arousal and return of consciousness are intended. Dreaming is not considered intraoperative awareness.

(7) Brain function monitor: Brain function monitors are devices that record or process brain electrical activity and convert those signals mathematically into a continuous measure typically scaled from 0 to 100. In addition to spontaneous cortical electrical activity (electroencephalogram, EEG), these devices may also record and process evoked cortical and

The following practice advisory was approved by the ASA House of Delegates on October 25, 2005. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

subcortical activity (auditory evoked potentials, or AEP) as well as electromyographic (EMG) activity from scalp muscles. For the purpose of this Advisory, only monitors purported to measure depth of anesthesia or hypnosis will be considered. Other, non-EEG/AEP/EMG devices are also available, but are not addressed by this Advisory.

B. Purposes of the Advisory

Intraoperative awareness under general anesthesia is an important clinical problem that clearly is within the foundation of training and continuing medical education in anesthesiology. The purposes of this Advisory are to identify risk factors that may be associated with intraoperative awareness, provide decision tools that may enable the clinician to reduce the frequency of unintended intraoperative awareness, stimulate the pursuit and evaluation of strategies that may prevent or reduce the frequency of intraoperative awareness, and provide guidance for the intraoperative use of brain function monitors as they relate to intraoperative awareness.

C. Focus

This Advisory focuses on the perioperative management of patients who are undergoing a procedure during which general anesthesia is administered. This Advisory is not intended for the perioperative management of minimal, moderate, or deep sedation in the OR or ICU; regional or local anesthesia without general anesthesia; monitored anesthesia care; tracheal intubation of patients or those undergoing resuscitation in emergency trauma after the administration of a neuromuscular block, or intentional intraoperative wake-up testing (e.g., for the purposes of assessing intraoperative neurologic function). In addition, this Advisory is not intended to address the perioperative management of pediatric patients.

D. Application

This Advisory is intended for use by anesthesiologists, other physicians who supervise the administration of general anesthesia, and all other individuals who administer general anesthesia.

The following practice advisory was approved by the ASA House of Delegates on October 25, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal Anesthesiology.

The Advisory may also serve as a resource for other physicians and health care professionals who are involved in the perioperative management of patients receiving general anesthesia.

E. Task Force Members and Consultants

The American Society of Anesthesiologists (ASA) appointed this Task Force of 10 members to (1) review and assess the currently available scientific literature on intraoperative awareness, (2) obtain expert consensus and public opinion, and (3) develop a practice advisory. The Task Force is comprised of anesthesiologists from various geographic areas of the United States, an anesthesiologist from the Netherlands, and two methodologists from the ASA Committee on Practice Parameters.

The ASA appointed the 10 members to the Task Force because of their knowledge or expertise in the medical specialty of anesthesiology, and the development of practice parameters. The members include but are not limited to anesthesiologists with specialized knowledge or expertise in the area of neuroanesthesiology. Two of the 10 members disclosed receipt of funds from or a financial interest in a company developing or manufacturing brain function monitors, which companies have a direct financial interest in the expanded use of such monitors. Other members may have received funds from or have a financial interest in other companies, such as developers or manufacturers of anesthetics, that may be indirectly affected by the expanded use of brain function monitors. The Task Force did not request its members to disclose such interests because they were deemed too remote and speculative to present conflicts of interest.

The Task Force, in turn, sought input from consultants, many of whom who had particularized knowledge, expertise and/or interest in intraoperative awareness and brain function monitors. Such knowledge or expertise is based in part in some cases on research or investigational activities funded by a company developing or manufacturing brain function monitors. Fifty-four percent of the consultants disclosed receipt of funds from or a financial interest in a company developing or

The following practice advisory was approved by the ASA House of Delegates on October 29, 2008. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

manufacturing brain function monitors. Consultants also may have received funds from or have a financial interest in other companies that may be indirectly affected by the use of brain function monitors. The Task Force did not request its consultants to disclose such interests because they were deemed too remote and speculative to present conflicts of interest.

The Task Force used a six-step process. First, the members reached consensus on the criteria for evidence of effective perioperative interventions for the prevention of intraoperative awareness. Second, they evaluated original articles published in peer-reviewed journals relevant to this issue. Third, consultants who had expertise or interest in intraoperative awareness and who practiced or worked in diverse settings (e.g., scientists and/or physicians in academic and private practice) were asked to participate in opinion surveys on the effectiveness of various perioperative management strategies, and to review and comment on a draft of the Advisory developed by the Task Force. Fourth, additional opinions were solicited from a random sample of active members of the ASA. Fifth, the Task Force held open forums at three national and international anesthesia meetings to solicit input on the key concepts of this Advisory. Sixth, all available information was used to build consensus within the Task Force on the Advisory.

The draft document was made available for review on the ASA website, and commentary was invited via e-mail announcement to all ASA members. All submitted comments were considered by the Task Force in preparing the final draft.

F. Availability and Strength of Evidence

Practice advisories are developed by a protocol similar to that of an ASA evidence-based practice guideline, including a systematic search and evaluation of the literature. However, practice advisories lack the support of a sufficient number of adequately controlled studies to permit aggregate analyses of data with rigorous statistical techniques such as meta-analysis. Nonetheless, literature-based evidence from case reports and other descriptive studies are considered during the

The following practice advisory was approved by the ASA House of Delegates on October 28, 2008. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

development of the Advisory. This literature often permits the identification of recurring patterns of clinical practice.

As with a practice guideline, formal survey information is collected from consultants and members of the ASA. The following terms describe survey responses for any specified issue. Responses are solicited on a 5-point scale; ranging from 1 (strongly disagree) to 5 (strongly agree) with a score of 3 being equivocal. Survey responses are summarized based on median values as follows:

Strongly Agree:	Median score of 5 (At least 50% of the responses are 5)
Agree:	Median score of 4 (At least 50% of the responses are 4 or 4 and 5)
Equivocal:	Median score of 3 (At least 50% of the responses are 3, or no other response category or combination of similar categories contain at least 50% of the responses)
Disagree:	Median score of 2 (At least 50% of responses are 2 or 1 and 2)
Strongly Disagree:	Median score of 1 (At least 50% of responses are 1)

Additional information is obtained from open forum presentations and other invited and public sources. The advisory statements contained in this document represent a distillation of the current spectrum of clinical opinion and literature-based findings.[1]

Advisories

I. Preoperative Evaluation

A preoperative evaluation includes (1) obtaining a focused history (i.e., medical records, laboratory reports, patient or patient and family interview), (2) conducting a physical examination, (3) identifying patients at risk for intraoperative awareness (e.g., planned anesthetics, type of surgery), and (4) informing selected patients of the possibility of intraoperative awareness.

Descriptive studies and case reports suggest that certain patient characteristics may be associated with intraoperative awareness, including age, gender, ASA status, and drug resistance or tolerance.[4,7-

[1] Refer to appendix 1 for a summary of the advisories.

The following practice advisory was approved by the ASA House of Delegates on October 28, 2008. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

[11] Descriptive studies and case reports suggest that certain procedures (e.g., cesarean section, cardiac surgery, trauma surgery)[4,8,12-20] as well as anesthetic techniques (e.g., rapid-sequence induction, reduced anesthetic doses with or without the presence of paralysis)[2,3,9,13,14,21,22,38-43] may be associated with an increased risk of intraoperative awareness. No studies were found that examined the clinical impact of informing the patient prior to surgery of the possibility of intraoperative awareness.

The consultants and ASA members agree that a preoperative evaluation may be helpful in identifying patients at risk for intraoperative awareness.** In addition, they agree that a focused preoperative evaluation to identify patients at risk of intraoperative awareness should include review of a patient's medical record, a thorough physical examination, and a patient or patient and family interview. They agree that patient characteristics that may place a patient at risk for intraoperative awareness include: substance use or abuse, limited hemodynamic reserve, and ASA status of 4 or 5. The consultants strongly agree and the ASA members agree that a history of intraoperative awareness may place a patient at risk. The consultants disagree and the ASA members are equivocal regarding whether all patients should be informed of the possibility of intraoperative awareness. The consultants strongly agree and the ASA members agree that only patients considered to be at elevated risk of intraoperative awareness should be informed of the possibility of intraoperative awareness. Finally the consultants and the ASA members disagree that informing the patient preoperatively of the risk of intraoperative awareness increases the *actual* risk of intraoperative awareness.

Advisory. The Task Force believes that some components of the preoperative evaluation may be useful in identifying a patient at increased risk for awareness. An evaluation should include, if possible, a review of a patient's medical records for previous occurrences of awareness or other potential risk factors, a patient interview to assess level of anxiety or previous experiences with anesthesia, and a physical examination. Potential risk factors to consider for patients undergoing

** Refer to appendix 2 for complete results of the consultant and ASA membership surveys.

This following practice advisory was approved by the ASA House of Delegates on October 28, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal Anesthesiology.

general anesthesia include substance use or abuse (e.g., opioids, benzodiazepines, cocaine), a history of awareness, a history of difficult intubation or anticipated difficult intubation, chronic pain patients on high doses of opioids, cardiac surgery, Cesarean section, trauma and emergency surgery, reduced anesthetic doses in the presence of paralysis, planned use of muscle relaxants during the maintenance phase of general anesthesia, total intravenous anesthesia, the planned use of nitrous oxide-opioid anesthesia, ASA status of 4 or 5, and limited hemodynamic reserve. The consensus of the Task Force is that patients whom the individual clinician considers to be at substantially increased risk of intraoperative awareness should be informed of the possibility of intraoperative awareness when circumstances permit.

II. Preinduction Phase of Anesthesia

Issues concerned with the preinduction phase of anesthesia related to the prevention of intraoperative awareness include checking the functioning of anesthesia delivery systems, and the prophylactic administration of benzodiazepines.

Although checking the functioning of anesthesia delivery systems is standard practice, some cases of intraoperative awareness have resulted from too low concentrations of inspired volatile anesthetics or drug errors, including drug delivery errors.[8,34-39] One double-blind randomized clinical trial evaluated the efficacy of the prophylactic administration of midazolam as an anesthetic adjuvant during ambulatory procedures under total intravenous anesthesiaand reported a lower frequency of intraoperative awareness in the midazolam groups compared to the placebo group.[40] Two randomized clinical trials examined anterograde amnesia by providing pictures as stimuli after administration of midazolam but before induction of general anesthesia. Although these studies reported reduced recall in patients administered midazolam, the presence of consciousness during general anesthesia and subsequent intraoperative awareness was not examined.[41,42]

The following practice advisory was approved by the ASA House of Delegates on October 25, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal Anesthesiology.

The consultants and ASA members strongly agree that the functioning of anesthesia delivery systems (e.g., vaporizers, infusion pumps, fresh gas flow, IV lines) should be checked to reduce the risk of intraoperative awareness. The consultants disagree, and the ASA members are equivocal that a benzodiazepine or scopolamine should be used as a component of the anesthetic to reduce the risk of intraoperative awareness for *all* patients. The consultants agree that a benzodiazepine or scopolamine should be used for patients requiring smaller dosages of anesthetics, patients undergoing cardiac surgery, and patients undergoing trauma surgery. They are equivocal regarding patients undergoing Cesarean section, emergency surgery, and with total intravenous anesthesia. The ASA members agree that a benzodiazepine or scopolamine should be used for patients requiring smaller dosages of anesthetics, patients undergoing cardiac surgery, emergency surgery, trauma surgery, and total intravenous anesthesia. They are equivocal regarding patients undergoing Cesarean section.

Advisory. Since intraoperative awareness may be caused by equipment malfunction or misuse, the Task Force believes that there should be adherence to a checklist protocol for anesthesia machines and equipment to assure that the desired anesthetic drugs and doses will be delivered. These procedures should be extended to include verification of the proper functioning of intravenous access, infusion pumps and their connections. The Task Force consensus is that the decision to administer a benzodiazepine prophylactically should be made on a case-by-case basis for selected patients (e.g., patients requiring smaller dosages of anesthetics). The Task Force cautions that delayed emergence may accompany the use of benzodiazepines.

III. Intraoperative Monitoring

Intraoperative awareness cannot be measured during the intraoperative phase of general anesthesia, since the recall component of awareness can only be determined postoperatively by obtaining information directly from the patient. Therefore, the primary issue regarding intraoperative

The following practice advisory was approved by the ASA House of Delegates on October 28, 2008. It should be considered final. This practice advisory will be published in a future issue of the Journal Anesthesiology.

monitoring addressed by this Advisory is whether the use of clinical techniques, conventional monitoring systems, or brain function monitors reduce the occurrence of intraoperative awareness.

The majority of literature obtained during the search and review process did not directly address whether these techniques, systems, or monitors reduce the frequency of intraoperative awareness. However, many studies were found that report intraoperative measures or index values from monitoring activities. This literature, while not directly assessing the impact of an intervention on awareness, often reported patterns or values that occurred at identifiable times during the perioperative period with the intention of describing or predicting variations in the depth of anesthesia. Therefore, commonly reported findings from this literature are summarized below.

The literature for each intervention is presented in the following order: (1) randomized clinical trials, (2) nonrandomized comparative studies (e.g., quasi-experimental, prospective cohort studies), (3) correlational studies (e.g., correlations of index values with end-tidal concentrations of hypnotic drugs or with movement in response to noxious stimuli), (4) descriptive reports of monitor index values at particular times during a procedure; and (5) case reports of unusual or unintended benefits or harms occurring during a monitoring activity. Correlational studies often report a measure of association between two continuous variables (e.g., the correlation between index values and anesthetic drug concentrations). Other correlational measures include a prediction probability (Pk) value that provides a measure of how well a monitor or technique can differentiate between two different clinical states (e.g., response versus no response to verbal command).[48] A Pk value of 1.0 indicates perfect association between an index value and a clinical state, while a Pk value of 0.50 indicates a prediction probability equal to chance.

A. Clinical Techniques and Conventional Monitoring:

Among the clinical techniques utilized to assess intraoperative consciousness are checking for movement, response to commands, opened eyes, eyelash reflex, pupillary responses or diameters,

perspiration and tearing. Conventional monitoring systems include ASA standard monitoring[17] as well as the end-tidal anesthetic analyzer.

No clinical trials or other comparative studies were found that examine the effect of clinical techniques or conventional monitoring on the incidence of intraoperative awareness. Correlational studies reported Pk values ranging from 0.74 to 0.76 for the association between reflex or purposeful movement and indicators for depth of anesthesia.[44] One study reported a significant association between response to command and memory when continuous infusions of propofol were used as the induction anesthetic.[45] Pk values for mean arterial pressure (MAP) ranged from 0.68 to 0.94 for distinguishing a responsive state from an unresponsive state, and from 0.81 to 0.89 for distinguishing an anesthetized state from emergence following anesthesia (i.e., first response). Pk values for heart rate (HR) ranged from 0.50 to 0.82 for distinguishing a responsive state from an unresponsive state, and from 0.54 to 0.67 for emergence.[44-46] Wide ranges of mean MAP and HR values were reported during various intraoperative times. Studies reported ranges of mean MAP values as follows: before induction or baseline, 90 to 103 mmHg; at induction, 58.4 to 88 mmHg; during surgery, 78 to 102 mmHg; at emergence or end of surgery, 58.7 to 97 mmHg; and during postoperative recovery, 86 to 104mmHg. Mean HR ranges were reported as follows: before induction or baseline, 61 to 82 bpm; at induction, 55 to 67 bpm; during surgery, 74 to 82 bpm; at emergence or end of surgery, 59 to 92 bpm; and during postoperative recovery, 82 to 89 bpm.[45-46] Awareness has been reported to occur in the absence of tachycardia or hypertension.[8,23,24]

The consultants and ASA members agree that clinical techniques (e.g., checking for purposeful or reflex movement) are valuable and should be used to assess intraoperative consciousness. In addition, the consultants and ASA members agree that conventional monitoring systems (e.g. ECG,

[17] American Society of Anesthesiologists: Standards for basic anesthetic monitoring. In ASA Standards, Guidelines and Statements; American Society of Anesthesiologists Publication: October, 2004.

The following practice advisory was approved by the ASA House of Delegates on October 28, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

BP, HR, end-tidal anesthetic analyzer, capnography) are valuable and should be used to help assess intraoperative consciousness.

B. Brain Electrical Activity Monitoring:

Most of the devices designed to monitor brain electrical activity for the purpose of assessing anesthetic effect record electroencephalographic (EEG) activity from electrodes placed on the forehead. Systems can be subdivided into those that process spontaneous EEG and electromyographic (EMG) activity and those that acquire evoked responses to auditory stimuli (auditory evoked potential, AEP). After amplification and conversion of the analog EEG signal to the digital domain, various signal processing algorithms are applied to the frequency, amplitude, latency and/or phase relationship data derived from the raw EEG or AEP to generate a single number, often referred to as an "index" typically scaled between 100 and zero. This index represents the progression of clinical states of consciousness ('awake', 'sedated', 'light anesthesia', 'deep anesthesia'), with a value of 100 being associated with the awake state, and values of zero occurring with an isoelectric EEG (or absent middle latency AEP). These processing algorithms may either be published and in the public domain or proprietary. Detailed descriptions of the various approaches to EEG signal processing, including bispectral analysis may be found elsewhere.[57] Artifact recognition algorithms intended to avoid contaminated, and therefore spurious, 'index' values are an important component of the software in most monitors.

Although EMG activity from scalp muscles can be considered an artifact from the viewpoint of pure EEG analysis, it may be an important source of clinically relevant information. Sudden appearance of frontal (forehead) EMG activity suggests somatic response to noxious stimulation resulting from inadequate analgesia and may give warning of impending arousal. For this reason, some monitors separately provide information on the level of EMG activity.

1. Spontaneous EEG Activity Monitors.

The following practice advisory was approved by the ASA House of Delegates on October 28, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

Bispectral Index. Bispectral index (BIS) is a proprietary algorithm (Aspect Medical Systems) that converts a single channel of frontal EEG into an index of hypnotic level (bispectral index; BIS). BIS is available either as a separate device (BIS monitor; Aspect Medical Systems) or incorporated - under license from Aspect Medical Systems - in 'BIS modules' made by various anesthesia equipment manufacturers. To compute the BIS, several variables derived from the EEG time domain (burst-suppression analysis), frequency domain (power spectrum, bispectrum: interfrequency phase relationships) are combined into a single index of hypnotic level. BIS values are scaled from 0 to 100, with specific ranges (e.g., 40-60) reported to reflect a low probability of consciousness under general anesthesia. The weight factors for the various components in the multivariate model that generates the BIS were empirically derived from a prospectively collected database of over 1500 anesthetics. The BIS model accounts for the nonlinear stages of EEG activity by allowing different parameters to dominate the resulting BIS as the EEG changes its character with increasing plasma concentrations of various anesthetics, resulting in a linear decrease in BIS. As more data have become available and as methods and algorithms to suppress artifacts have been improved, revised iterations of the algorithm and optimized hardware have been released.

Several RCTs have compared outcomes with BIS-guided anesthetic administration versus standard clinical practice without BIS. In one RCT that enrolled 2500 patients at high risk of intraoperative awareness, explicit recall occurred in 0.17% of patients when BIS monitors were used and in 0.91% of patients managed by routine clinical practice ($p < 0.02$).[36] A small ($N = 30$) single-blinded RCT (i.e., the anesthesiologists were blinded to the recorded BIS values) compared BIS monitoring with clinical signs during cardiac surgery), and reported one episode of recall in the clinical signs group compared to no episodes in the BIS-monitored group ($p > 0.50$).[37] In other RCTs, times to awakening, first response, or eye opening and consumption of anesthetic

drugs were reduced with the use of BIS.[40-48]

One nonrandomized comparison of the use of BIS monitoring versus a cohort of historical controls (N = 12,771) found explicit recall occurring in 0.04% of the BIS monitored patients versus 0.18% of the historical controls ($p < 0.038$).[48] Another prospective nonrandomized cohort study (N = 19,575) designed to establish the incidence of awareness with recall during routine general anesthesia and to determine BIS values associated with intraoperative awareness events reported no statistically significant difference when BIS was used (0.18% of patients) compared to when BIS was not used (0.10% of patients). Other nonrandomized comparative studies reported higher index values upon arrival in the PACU, shorter recovery times, and lower anesthetic usage among patients monitored with BIS compared to patients not monitored with BIS.[70,71] Numerous correlational studies reported Pk values for BIS ranging from 0.72 to 1.00 for awake versus loss of response following induction with propofol (with or without opioids); and from 0.79 to 0.97 for anesthetized versus first response.[40-48,70-78] One study reported a Pk value of 0.86 for movement from electrical stimulation.[44] Wide ranges of mean BIS values have been reported during various intraoperative times. Ranges of mean BIS values were as follows: before induction or baseline, 80 to 98; at or after induction, 37 to 70; during surgery, 20 to 58; at emergence or end of surgery, 42 to 96; and during postoperative recovery, 64 to 96.[20,51,54-56,79-110] Several case reports indicate that intraoperative events unrelated to titration of anesthetic agents can produce rapid changes in BIS values, e.g., cerebral ischemia or hypoperfusion, gas embolism, unrecognized hemorrhage, inadvertent blockage of anesthesia drug delivery.[111-119] Other case reports suggest that routine intraoperative events (e.g., administration of depolarizing muscle relaxants, activation of electromagnetic equipment or devices, patient warming or planned hypothermia) may interfere with BIS functioning.[120-128] Two case reports were found that reported patients experiencing intraoperative awareness in spite of monitored values indicating an

adequate depth of anesthesia.[129,130] Finally, still other case reports suggested that certain patient conditions may affect BIS values.[131-133]

Entropy. Entropy (GE Healthcare Technologies) describes the irregularity, complexity, or unpredictability characteristics of a signal. A single sine wave represents a completely predictable signal (entropy = 0), whereas noise from a random number generator represents entropy = 1. The algorithm for calculation of entropy in the EEG signal (as incorporated in the Datex-Ohmeda S/5 entropy Module) is in the public domain and detailed descriptions have recently been published.[134]

Entropy is independent of absolute scales such as the amplitude or the frequency of the signal. The commercially available Datex-Ohmeda module calculates entropy over time windows of variable duration and reports two separate entropy values. State entropy (SE) is an index ranging from zero to 91 (awake), computed over the frequency range from 0.8 Hz to 32 Hz, reflecting the cortical state of the patient. Response Entropy (RE) is an index ranging from zero to 100 (awake) computed over a frequency range from 0.8 Hz to 47 Hz, containing the higher EMG-dominated frequencies, and will thus also respond to the increased EMG activity resulting from inadequate analgesia. No clinical trials or other comparative studies were found that examine the impact of entropy monitoring on the incidence of intraoperative awareness. One clinical trial reported reduced times to eye opening, response to command, and consumption of anesthetic drugs with the use of entropy monitoring.[135]

Correlational studies report the following P_K values for loss of consciousness: for RE, 0.83 to 0.97; for SE, 0.81 to 0.90.[65,136-137] For anesthetized versus first response, the following P_K values are reported: for RE, 0.85; and for SE, 0.82.[46] Ranges of mean RE and SE values were as follows: before induction or baseline, 98 (RE) and 89 to 91 (SE); during surgery, 34 to 52 (RE) and 50 to 63 (SE); and at emergence or end of surgery, 96 (RE) and 85 (SE).[92,130,138,139]

The following practice advisory was approved by the ASA House of Delegates on October 25, 2005. It should be considered final. This practice advisory will be published in a future issue of the journal Anesthesiology.

Narcotrend. The Narcotrend (MonitorTechnik) is derived from a system developed for the visual classification of the EEG patterns associated with various stages of sleep. After artifact exclusion and Fourier transformation, the original electronic algorithm classified the raw (frontal) EEG according to the following system: A (awake), B (sedated), C (light anesthesia), D (general anesthesia), E (general anesthesia with deep hypnosis), F (general anesthesia with increasing burst suppression). The system included a series of sub-classifications resulting in a total of 14 possible sub-stages: A, B0–2, C0–2, D0–2, E0–1, and F0–1.[46] In the most recent iteration of the Narcotrend software (version 4.0), the alphabet-based scale has been "translated" into a dimensionless index, the Narcotrend Index, scaled from zero (deeply anesthetized) to 100 (awake), with the stated intention of producing a scale quantitatively similar to the BIS index.

No clinical trials or other comparative studies were found that examine the impact of Narcotrend monitoring on the incidence of intraoperative awareness. One RCT has compared the use of Narcotrend-controlled versus clinically controlled anesthetic administration and found a shorter recovery time in the Narcotrend group (i.e., opened eyes) after termination of anesthesia.[47] P_K values for Narcotrend ranged from 0.93 to 0.99 for awake versus loss of response following induction with propofol combined with an opioid, and from 0.94 to 0.99 for anesthetized versus first response.[47,48] Reported mean Narcotrend values are as follows: after induction (loss of response), 72 to 80; and at emergence or end of surgery (spontaneously opened eyes), 80.[71]

Patient State Analyzer. The Patient State Index, or PSI (Physiometrix) is derived from a 4-channel EEG. The derivation of the PSI is based on the observation that there are reversible spatial changes in power distribution of quantitative EEG at loss and return of consciousness. The Patient State Index (PSI) has a range of 0 to 100, with decreasing values indicating decreasing levels of consciousness or increasing levels of sedation, similar to BIS, Entropy and Narcotrend. The PSI algorithm was constructed using stepwise, discriminant analysis based on

multivariate combinations of quantitative EEG variables, derived after Fourier transformation of the raw EEG, and found to be sensitive to changes in the level of anesthesia.

No clinical trials or other comparative studies were found that examine the impact of PSI monitoring on the incidence of intraoperative awareness. One correlational study reported a Pk value of 0.70 for predicting response to command, with a sensitivity of 85.6% and specificity of 38.8%,[77] and another study reported a significant correlation of the PSI with unconsciousness.[141] Reported mean PSI values are as follows: before induction or baseline, 92; during surgery, 32; at emergence or end of surgery, 53; and during postoperative recovery, 81.[141]

SNAP Index. The SNAPII (Everest Biomedical Instruments) calculates a "SNAP index" from a single channel of EEG. The index calculation is based on a spectral analysis of EEG activity in the 0-18 Hz and 80-420 Hz frequency ranges, and a burst suppression algorithm. There are no published data on the actual algorithm used to calculate the SNAP index, which is based on a composite of both low (0-40 Hz) and high (80-420 Hz) frequency components.

No clinical trials or other comparative studies were found that examine the impact of SNAP monitoring on the incidence of intraoperative awareness. One correlational study was found that reported a mean SNAP index of 71 to be predictive of a loss of consciousness in 95% of elective surgery patients.[142]

Danmeter Cerebral State Monitor/Cerebral State Index. The Danmeter CSM is a handheld device that analyzes a single channel EEG and presents a cerebral state 'index' scaled from 0-100. In addition, it also provides EEG suppression percentage and a measure of EMG activity (75-85 Hz).

No published literature was found that examined the impact of Danmeter CSM monitoring on the incidence of intraoperative awareness.

2. Evoked Brain Electrical Activity Monitors.

The following practice advisory was approved by the ASA House of Delegates on October 25, 2006. It should be considered final. This practice advisory will be published in a future issue of the journal *Anesthesiology*.

AEP Monitor/2 (Danmeter). Auditory evoked potentials (AEP) are the electrical responses of the brainstem, the auditory radiation and the auditory cortex to auditory sound stimuli (clicks) delivered via headphones. The effects of anesthetics on AEP have been studied since the early 1980s.[143-145] The brainstem response is relatively insensitive to anesthetics while early cortical responses, known as the middle-latency AEP (MLAEP) change predictably with increasing concentrations of both volatile and intravenous anesthetics. The typical AEP response to increasing anesthetic concentrations is increased latency and decreased amplitude of the various waveform components. These signals are extremely small (less than one microvolt) necessitating extraction from the spontaneous EEG using signal averaging techniques. Prior to recent innovations, signal averaging was relatively time consuming (several minutes per averaged waveform). More recent signal filtering advances have resulted in an instrument (A-Line) that can record and rapidly update a single channel of AEP from forehead electrodes. From a mathematical analysis of the AEP waveform, the device generates an 'AEP-index' that provides a correlate of anesthetic concentration. The AEP index, or AAI, is scaled from 0 to 100. In contrast to many EEG indices, the AAI corresponding with low probability of consciousness is less than 25, rather than the higher numeric thresholds associated with the other monitors. The device is FDA approved but is not currently marketed in North America.

RCTs that compared MLAEP monitoring (e.g., to titrate anesthetics) to standard clinical practice without MLAEP reported reduced times to eye opening or orientation.[43,44,146] A Pk value of 0.79 was reported for loss of eyelash reflex following induction with propofol and an opioid,[74] and Pk values of 0.63 and 0.66 were reported for responsiveness following discontinuation of remifentanil or sevoflurane, respectively.[147] One study reported a Pk value of 0.87 for movement,[148] and another study reported a Pk value of 0.99 for awareness after LMA insertion.[149] Descriptive studies reported ranges of mean values as follows: before induction or baseline, 73.5

to 85; at or after induction, 33.4 to 61; during surgery, 21.1 to 37.8; at emergence or end of surgery, 24.6 to 40; and during postoperative recovery, 89.7.[34,88,144,150-151]

C. Consultant and ASA Member Survey Findings.

Consultants who participated in this Advisory typically either had a particular knowledge or an expressed interest in intraoperative awareness and brain function monitors. The majority of these consultants disclosed receipt of funds from or a financial interest in a company developing or manufacturing brain function monitors. Consultants were not asked to disclose similar relationships with other companies that may be indirectly affected by the use of brain function monitors. ASA members were randomly selected from a list of active members of the society.

The consultants and ASA members disagree that a brain electrical activity monitor is valuable and should be used to reduce the risk of *intraoperative awareness* for *all* patients. The consultants and ASA members disagree that a brain electrical activity monitor is valuable and should be used to reduce the risk of intraoperative awareness for *no* patient. The consultants agree that a brain electrical activity monitor should be used for patients with conditions that may place them at risk, patients requiring smaller doses of general anesthetics, trauma surgery, Cesarean section, and total intravenous anesthesia. They are equivocal regarding the use of brain electrical activity monitoring for cardiac surgery and emergency surgery. The ASA members agree with the use of such monitors for patients with conditions that may place them at risk, patients requiring smaller doses of general anesthetics, and patients undergoing cardiac surgery. They are equivocal regarding the use of these monitors for patients undergoing Cesarean section, emergency surgery, trauma surgery, and total intravenous anesthesia.

The consultants and ASA members disagree that a brain electrical activity monitor is valuable and should be used to assess intraoperative *depth of anesthesia* for *all* patients. The consultants and ASA members disagree with the statement that "a brain electrical activity monitor is valuable and

McConnell applies here because the district court instructed the jury that Rippo was accused of two counts of murder for killing the victims "willfully, feloniously, without authority of law, with malice aforethought and premeditation and/or during the course of committing Robbery and/or Kidnapping and/or Burglary." (Emphasis added.) The verdict form did not indicate whether the jury found first-degree murder based on premeditated murder, felony murder, or both. In the penalty phase, the jury found three felony aggravators based on robbery, kidnapping, and burglary—the felonies that underlay the State's felony-murder theory. These three aggravators therefore must be struck.

This court can still uphold Rippo's death sentence by reweighing the aggravating and mitigating circumstances if we are convinced that the effect of the invalid aggravating circumstances was harmless beyond a reasonable doubt.[12]

The State cites Brown v. Sanders,[13] a recent Supreme Court decision, in support of its argument that the jury's consideration of the invalidated felony aggravators was harmless error. In Brown, the Court concluded that an invalidated sentencing factor causes constitutional error "only where the jury could not have given aggravating weight to the same facts and circumstances under the rubric of some other, valid sentencing factor."[14] The State argues that the error here was harmless because the jury was permitted to consider the evidence relevant to the invalid felony

---

[12]State v. Haberstroh, 119 Nev. 173, 183, 69 P.3d 676, 682-83 (2003).

[13]546 U.S. ___, 126 S. Ct. 884 (2006).

[14]Id. at ___, 126 S. Ct. at 892.

aggravators as "other matter" evidence under Nevada's capital sentencing scheme. This argument fails to take into account that a Nevada jury may consider "other matter" evidence only after it has decided whether a defendant is eligible for the death penalty.[15] The consideration of invalid factors before that point skews the eligibility decision, even if those factors would be relevant in deciding subsequently whether a death-eligible defendant actually should receive a death sentence. The primary focus of our analysis, therefore, is on the effect of the invalid aggravators on the jury's eligibility decision, i.e., whether we can conclude beyond a reasonable doubt that the jurors would have found that the mitigating circumstances did not outweigh the aggravating circumstances even if they had considered only the three valid aggravating circumstances rather than six.

The three invalid felony aggravators all involved the circumstances of the murder itself, so striking them eliminates the weight of roughly one major aggravator.[16] Three aggravators found by the jury remain valid: the murder was committed by a person under a sentence of imprisonment, it was committed by a person previously convicted of a felony involving the use or threat of violence, and it involved torture. The bulk of the case in aggravation therefore remains intact.

A review of the record reveals that the mitigating evidence presented on Rippo's behalf was not weighty. Rippo's counsel called three witnesses. James Cooper testified that he was employed by the

---

[15]See, e.g., Evans v. State, 117 Nev. 609, 634, 28 P.3d 498, 515 (2001).

[16]Cf. Haberstroh, 119 Nev. at 184, 69 P.3d at 683.

Department of Prisons as a vocational education instructor and ran a prison ministry. He supervised Rippo's work and was his minister. Cooper was unaware of Rippo having ever caused a problem and believed that Rippo was an asset in the prison and would work and stay out of trouble. Next, Rippo's stepfather Robert Duncan testified that Rippo had not received the help he needed while previously incarcerated and was released without being placed in any transitional facility. Mr. Duncan testified that Rippo was likeable and the two had a good relationship. Rippo's sister Stacie Roterdan in turn testified that their stepfather (before Mr. Duncan) had been hard on Rippo and that Rippo did not get a fair chance when he was 15 years old.

Trial counsel also read two letters to the jury. The first letter was from a doctor and concerned the poor health of Rippo's mother Carol Duncan, which made it impossible for her to testify at trial. The second letter was from Mrs. Duncan. She stated that Rippo's biological father left her when Rippo was five years old. She described Rippo as an outgoing and carefree spirit who treated his sisters in a tender fashion and loved animals. After Rippo turned 15, he began arguing with his stepfather, a professional gambler, and ran away from home. After he was convicted of burglary, his mother had him placed in the Spring Mountain Youth Camp. While he was in the camp, his stepfather was diagnosed with cancer. After about four months, Rippo returned home, but his family was absorbed with his stepfather's terminal illness, and Rippo's relations with his mother and family deteriorated. After Mrs. Duncan hinted that Rippo might be sent back to Spring Mountain, she did not see her son again until he was arrested for sexual assault. While Rippo was incarcerated, he earned a GED, completed an electronics course, obtained a PELL grant,

taught himself a foreign language, and was employed by the corrections system. When he came home from prison, he had a job in construction and a nice girlfriend.

This evidence in mitigation was not particularly compelling. We conclude beyond a reasonable doubt that the jurors would have found that the mitigating circumstances did not outweigh the three valid aggravating circumstances and, after consideration of the evidence as a whole, would have returned a sentence of death.

This conclusion is not changed by the fact that one jury instruction included an incorrect implication regarding the consideration of mitigating circumstances. The last paragraph of Instruction No. 7 provided:

> A mitigating circumstance itself need not be agreed to unanimously; that is, any one juror can find a mitigating circumstance without the agreement of any other jurors. The entire jury must agree unanimously, however, as to whether the aggravating circumstances outweigh the mitigating circumstances or whether the mitigating circumstances outweigh the aggravating circumstances.

(Emphases added.) The final sentence of this instruction should have read simply: "The entire jury must agree unanimously as to whether the aggravating circumstances outweigh the mitigating circumstances." The emphasized language implied that jurors had to agree unanimously that mitigating circumstances outweigh aggravating circumstances, when

actually "a jury's finding of mitigating circumstances in a capital penalty hearing does not have to be unanimous."[17]

However, despite the inaccurate wording at the end of the instruction, the instruction clearly and properly stated that each individual juror could find mitigating circumstances without the agreement of any other jurors and further provided that the jurors had to be unanimous in finding that the aggravating circumstances outweighed the mitigating circumstances.[18] It is extremely unlikely that jurors were misled to believe that they could not give effect to a mitigating circumstance without the unanimous agreement of the other jurors. We conclude that the error was harmless beyond a reasonable doubt.

2. Claims of ineffective assistance of counsel

Rippo also claims that his trial and appellate counsel provided ineffective assistance in a variety of ways. We conclude that none of Rippo's arguments in this regard has merit. We briefly discuss those worthy of comment below.

Claims of ineffective assistance of trial or appellate counsel are properly raised for the first time in a timely first post-conviction

---

[17]Doleman v. State, 112 Nev. 843, 850, 921 P.2d 278, 282 (1996) (citing Mills v. Maryland, 486 U.S. 367, 374-82 (1988)).

[18]The latter statement contains a slight mistake that actually favored Rippo. Aggravating circumstances need not outweigh mitigating circumstances to impose a death sentence; rather, NRS 200.030(4)(a) provides in part that a defendant is eligible for death if "any mitigating circumstance or circumstances which are found do not outweigh the aggravating circumstance or circumstances."

petition.[19] A claim of ineffective assistance of counsel presents a mixed question of law and fact that is subject to independent review.[20] To establish ineffective assistance of counsel, a petitioner must demonstrate that counsel's performance was deficient and that the deficient performance was prejudicial.[21] To demonstrate prejudice, the petitioner must show that but for trial counsel's mistakes there is a reasonable probability that the result of the trial would have been different.[22] "To establish prejudice based on the deficient assistance of appellate counsel, the defendant must show that the omitted issue would have a reasonable probability of success on appeal."[23] Judicial review of a lawyer's representation is highly deferential, and a claimant must overcome the presumption that a challenged action might be considered sound strategy.[24]

Rippo alleges that his trial counsel were ineffective for insisting that he waive his right to a speedy trial and then allowing his case to languish for 46 months. Because of the delay, he asserts, jailhouse informants learned about his case and were able to fabricate the testimony used by the State. However, he does not support this claim with specific

---

[19]Pellegrini v. State, 117 Nev. 860, 882, 34 P.3d 519, 534 (2001).

[20]Kirksey v. State, 112 Nev. 980, 987, 923 P.2d 1102, 1107 (1996).

[21]Id. (citing Strickland v. Washington, 466 U.S. 668, 687 (1984)).

[22]Strickland, 466 U.S. at 694; Riley v. State, 110 Nev. 638, 650 n.7, 878 P.2d 272, 280 n.7 (1994).

[23]Kirksey, 112 Nev. at 998, 923 P.2d at 1114.

[24]Strickland, 466 U.S. at 689.

factual allegations, references to the record, or any citation to relevant authority. Nor does he describe the informant testimony or explain how it was prejudicial. Accordingly, Rippo has failed to demonstrate that the district court erred in denying this claim.

Rippo claims that trial counsel were ineffective because they failed to object to the State's use of a prison photograph of him. He argues that the photo was irrelevant and unduly prejudicial and constituted evidence of other bad acts. Rippo does not support this claim with references to the record, and the trial transcript shows that his counsel unsuccessfully objected to the admission of the photo. Accordingly, Rippo has failed to demonstrate that the district court erred in denying this claim.

Rippo maintains that his appellate counsel was ineffective for not raising claims of ineffective assistance of trial counsel. However, this court declines to address such claims on direct appeal unless the district court has held an evidentiary hearing on the question or an evidentiary hearing would be unnecessary.[25] Neither was the case here. Accordingly, Rippo has not demonstrated that appellate counsel was deficient. The district court did not err in denying this claim.

Rippo claims that appellate counsel was ineffective for not appealing on grounds that the jury instruction defining premeditation and deliberation was unconstitutional. This claim was not preserved for review by this court on direct appeal, so counsel would have had to show

[25]Pellegrini, 117 Nev. at 883, 34 P.3d at 534.

that any error was plain and affected Rippo's substantial rights.[26] Rippo contends his counsel should have challenged "the Kazalyn instruction" that this court abandoned in 2000 in Byford v. State.[27] But Byford is not retroactive, and use of the Kazalyn instruction in a case predating Byford is no ground for relief.[28] Rippo has failed to demonstrate any deficient performance by counsel. The district court did not err in denying this claim.

Rippo claims that appellate counsel was ineffective for not appealing on grounds that the jury did not adequately reflect Clark County's African-American population and so failed to represent a fair cross section of the community. Nothing in the record shows that this claim was properly preserved for appeal.[29] Nor has Rippo shown a reasonable probability that the claim would have succeeded on direct appeal. He failed to establish a prima facie violation of the fair cross-

---

[26]NRS 178.602; Cordova v. State, 116 Nev. 664, 666, 6 P.3d 481, 482-83 (2000).

[27]116 Nev. 215, 233-36, 994 P.2d 700, 712-14 (2000).

[28]See Evans, 117 Nev. at 643, 28 P.3d at 521; Garner v. State, 116 Nev. 770, 787-89, 6 P.3d 1013, 1024-25 (2000), overruled in part on other grounds by Sharma v. State, 118 Nev. 648, 56 P.3d 868 (2002).

[29]Cf. Rhyne v. State, 118 Nev. 1, 11 & n.26, 38 P.3d 163, 170 & n.26 (2002) (holding that failure to object to exclusion of jurors as unconstitutional under Batson v. Kentucky, 476 U.S. 79 (1986), precludes raising the issue on appeal); Hanley v. State, 83 Nev. 461, 464, 434 P.2d 440, 442 (1967) (recognizing that failure to challenge jurors when grounds for disqualification are known results in waiver of the challenge).

section requirement.[30] To demonstrate a prima facie violation, he must show: the group allegedly excluded is a distinctive group in the community; the representation of this group in jury venires is not fair and reasonable in relation to the number of such persons in the community; and this underrepresentation results from systematic exclusion of the group in the jury-selection process.[31] Rippo did not satisfy this three-part test. Although African Americans are a distinctive group, Rippo did not present any evidence that the representation of African Americans in venires is unfair and unreasonable in relation to their numbers in the community, nor did he present evidence that any underrepresentation resulted from their systematic exclusion.[32] Accordingly, he has not shown that appellate counsel was deficient and that the district court erred in denying this claim.

CONCLUSION

Three of the aggravating circumstances found by the jury in this case were invalid because they were based on felonies which were used to support the prosecution's theory of felony murder, and a portion of the jury instruction discussing mitigating circumstances was incorrect. Three aggravators found by the jury remain valid, and we conclude that

---

[30]See Evans v. State, 112 Nev. 1172, 1186, 926 P.2d 265, 275 (1996).

[31]Duren v. Missouri, 439 U.S. 357, 364 (1979); see also Evans, 112 Nev. at 1186, 926 P.2d at 275.

[32]Facts alleged in Rippo's opening brief are neither evidence nor part of the record. See Phillips v. State, 105 Nev. 631, 634, 782 P.2d 381, 383 (1989).

the jury's consideration of the invalid aggravating circumstances and the erroneous instruction were harmless beyond a reasonable doubt. We therefore affirm the district court's order denying post-conviction habeas relief.

Hardesty, J.

Hardesty

I concur:

Parraguirre, J.

Parraguirre

BECKER, J., with whom DOUGLAS, J., agrees, concurring in part and dissenting in part:

I concur with my colleagues' determination that appellant Michael Rippo's claims of ineffective assistance of counsel are without merit. I dissent in regard to the application of this court's holding in McConnell v. State.[1] As explained in my concurring and dissenting opinion in Bejarano v. State,[2] that holding should not be applied retroactively except in one limited instance not pertinent here. But even if it is applied here, I concur with the lead opinion in concluding that the erroneous instruction on mitigating circumstances was harmless and in upholding the death sentence.

The three felony aggravating circumstances found in this case would be invalid if McConnell applied. Nevertheless, three valid aggravators would remain: Rippo committed the murder while under a sentence of imprisonment, he was previously convicted of a felony involving the use or threat of violence, and the murder involved torture. These circumstances were the preponderant part of the case in aggravation, while the mitigating evidence was not substantial. I conclude beyond a reasonable doubt that, even absent the invalid aggravators and incorrect instruction, the jury would have found Rippo death eligible and returned a death sentence.

---

[1]120 Nev. 1043, 102 P.3d 606 (2004).

[2]122 Nev. ___, ___, ___ P.3d ___, ___ (Adv. Op. No. 92, November 16, 2006) (Becker, J., concurring and dissenting).

I therefore concur in affirming the district court's order denying post-conviction habeas relief.

Becker, J.
Becker

I concur:

Douglas, J.
Douglas

ROSE, C.J., with whom MAUPIN and GIBBONS, JJ., agree, concurring in part and dissenting in part:

I concur with my colleagues in concluding that appellant Michael Rippo's claims of ineffective assistance of counsel have no merit. I also concur with Justice Hardesty in his lead opinion that this court's holding in McConnell v. State,[1] which forbids basing an aggravating circumstance on a felony that also serves as a predicate for felony murder, applies here and that three aggravators must be struck. I dissent, however, from his conclusion that reweighing the aggravating and mitigating circumstances is feasible and that the error in the jury instruction regarding mitigating circumstances was harmless.

Even assuming that the bulk of the State's case in aggravation remains after striking the three felony aggravators and that the mitigating evidence was not weighty, it is not certain beyond a reasonable doubt that the misinstructed jury would have found Rippo death eligible absent the felony aggravators.

Instruction No. 7 informed the jurors that "[t]he entire jury must agree unanimously, however, as to . . . whether the mitigating circumstances outweigh the aggravating circumstances." This is definite error. This court, relying on Supreme Court case law, has stated: "In a capital case, a sentencer may not be precluded from considering any relevant mitigating evidence. This rule is violated if a jury believes that it cannot give mitigating evidence any effect unless it unanimously agrees

[1]120 Nev. 1043, 102 P.3d 606 (2004).

that the mitigating circumstance exists."[2] Nevertheless, my colleagues deem the error harmless despite the jury's consideration of three invalid aggravating circumstances and reweigh the evidence presented at the penalty hearing. This course is misguided.

Before reweighing, we must fully heed the United States Supreme Court's opinions "emphasizing the importance of the sentencer's consideration of a defendant's mitigating evidence."[3] And "[i]n some situations, a state appellate court may conclude that peculiarities in a case make appellate reweighing or harmless-error analysis extremely speculative or impossible."[4] Here, the error in instructing the jury regarding its consideration of mitigating circumstances renders reweighing too speculative. Contrary to the argument in the lead opinion, the accurate language in the jury instruction did not serve to correct the error inherent in the inaccurate language.

Given that a reasonable juror could have been misled to believe that mitigating circumstances he or she individually found could have no effect without the consensus of the entire jury, I cannot conclude that the effect of three invalid aggravators on the jury's decision was

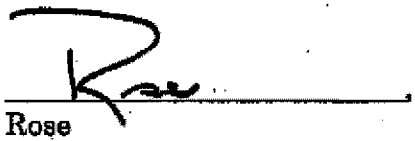
---

[2]Jimenez v. State, 112 Nev. 610, 624, 918 P.2d 687, 695 (1996) (citing Mills v. Maryland, 486 U.S. 367, 374-75 (1988)).

[3]Clemons v. Mississippi, 494 U.S. 738, 752 (1990).

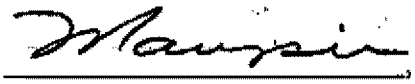
[4]Id. at 754.

harmless beyond a reasonable doubt. Remand to the district court for a new penalty hearing is required, and I therefore must dissent.



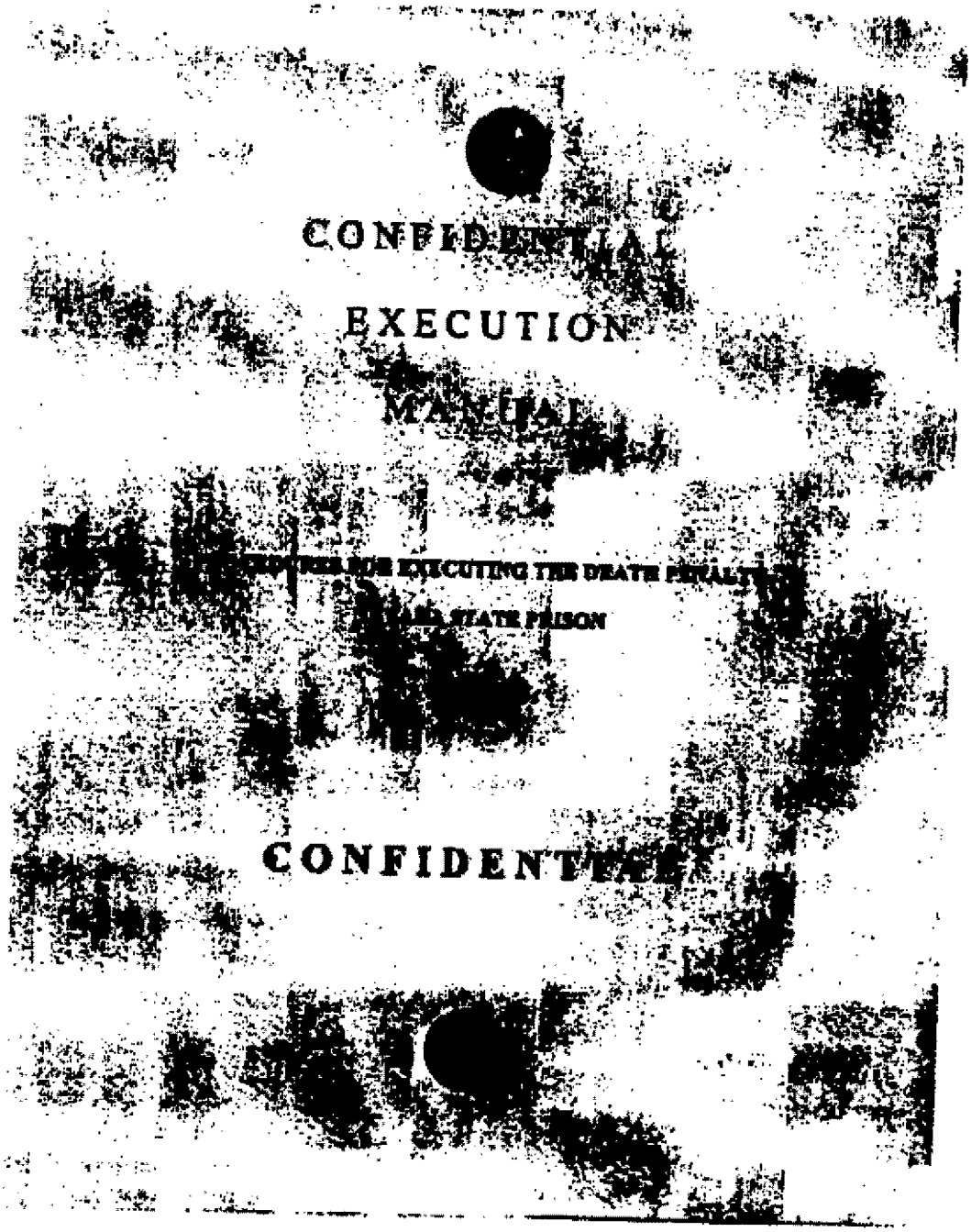
Rose, C.J.

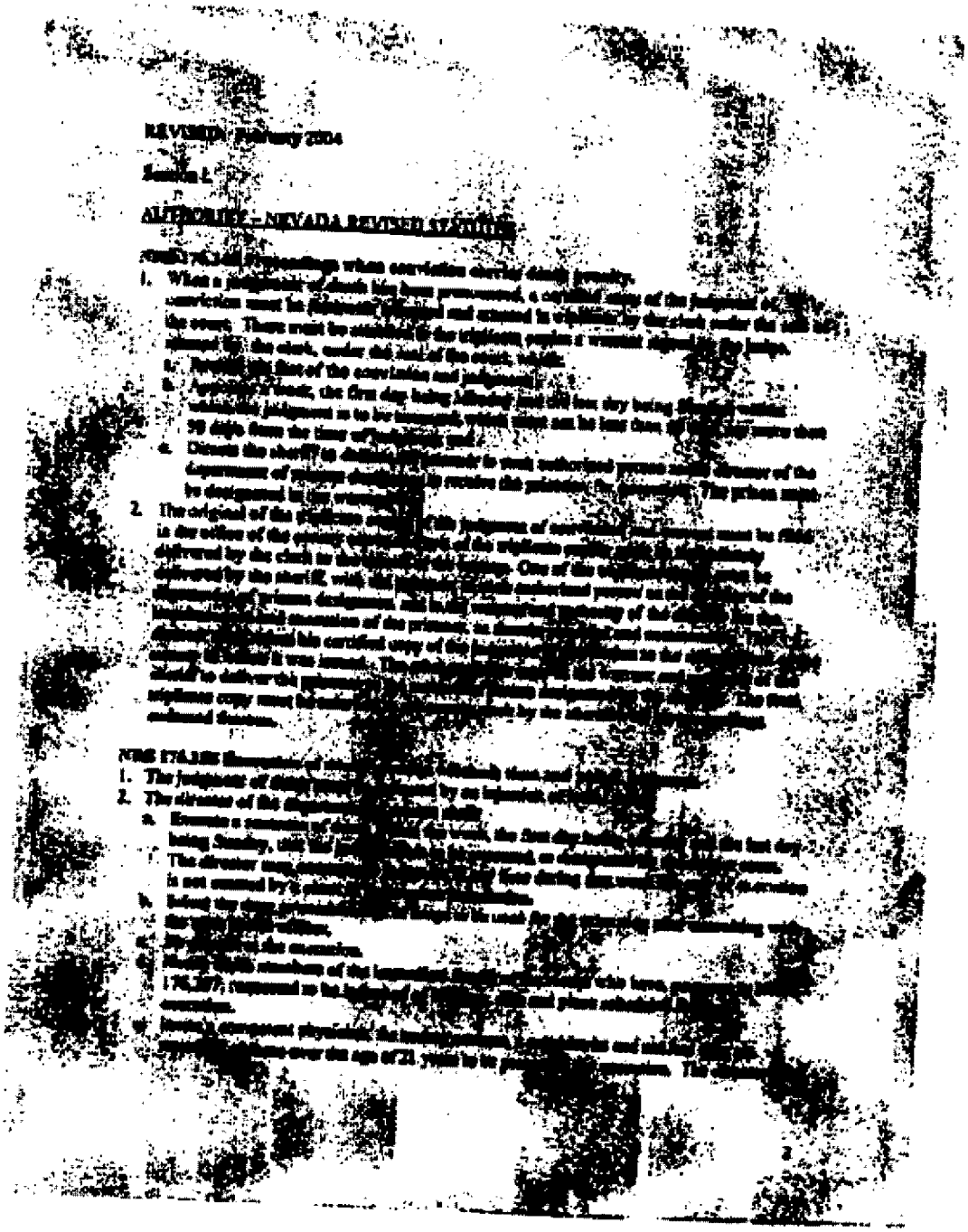
We concur:

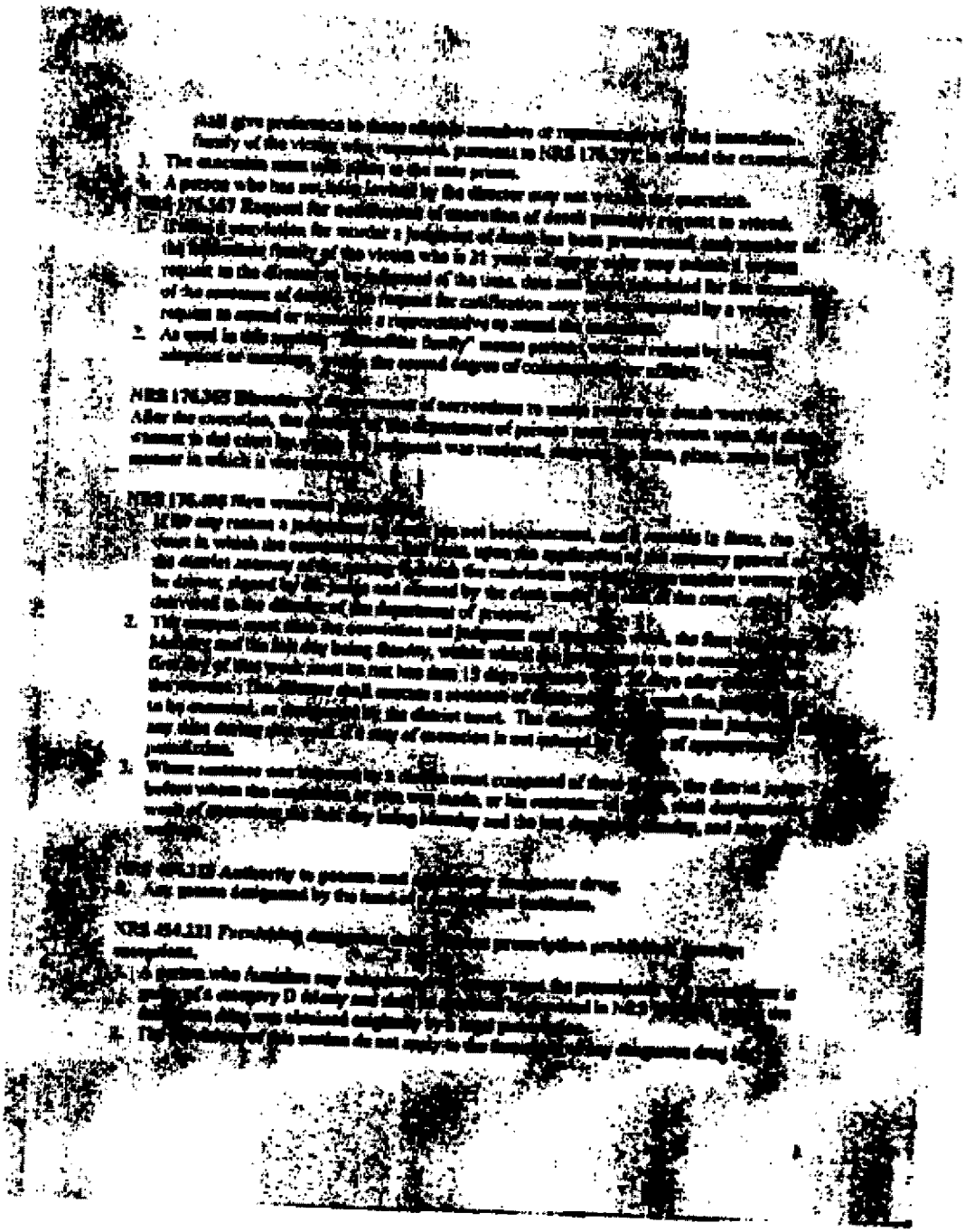


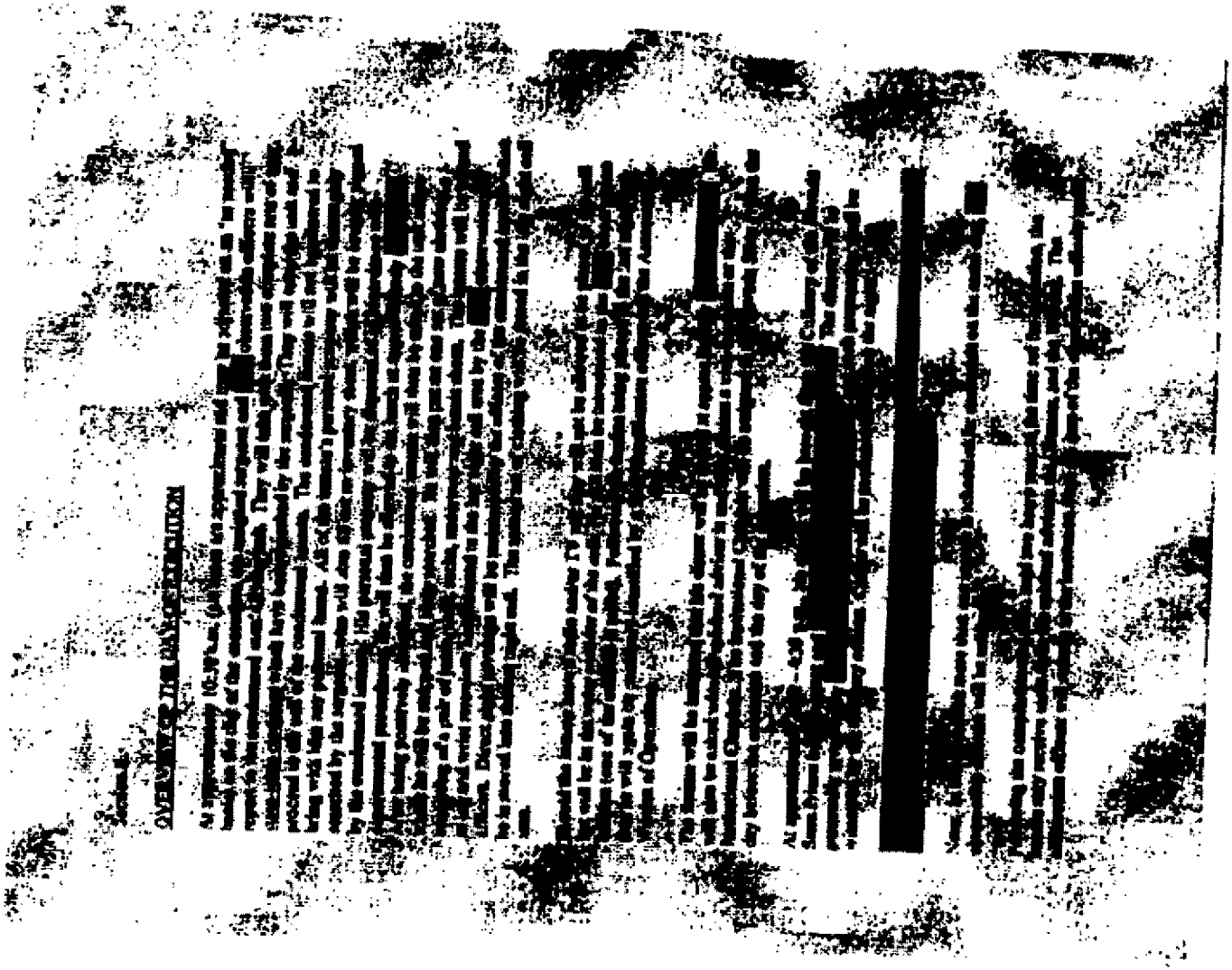
Maupin, J.

Gibbons, J.

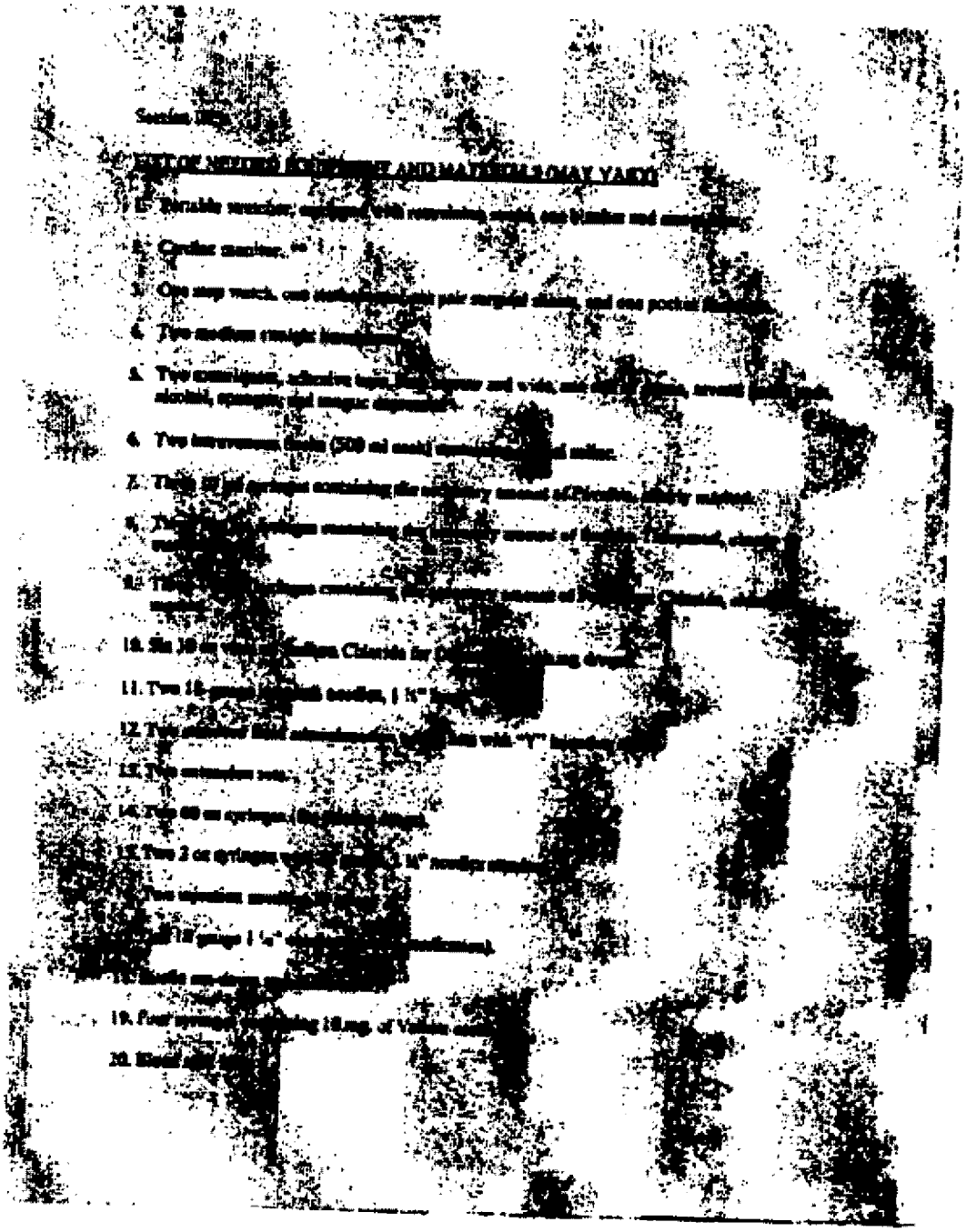


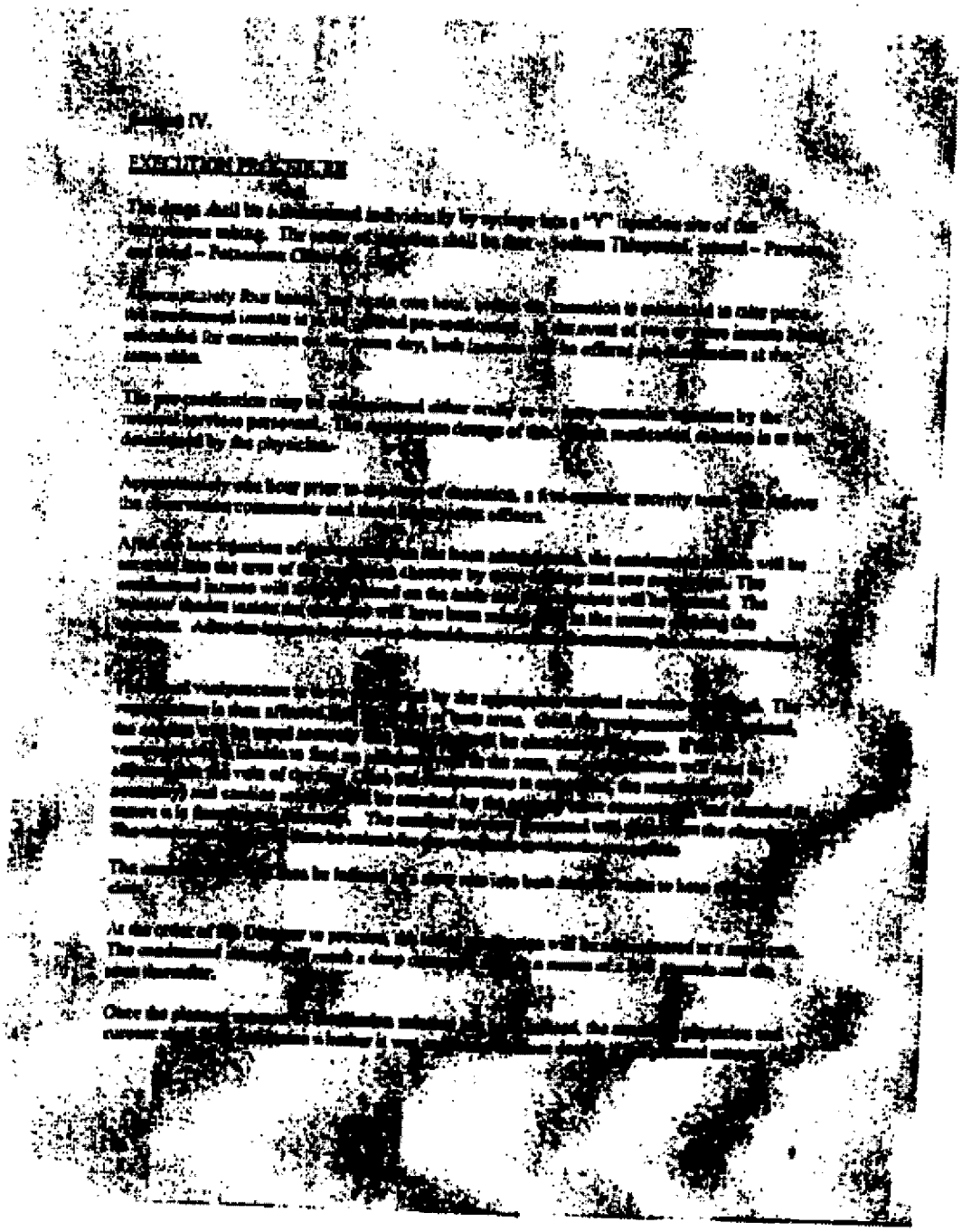






R.TDA-0000464R





[illegible] IV.

EXECUTION PROCEDURE

The drugs shall be administered individually by syringe into a "Y" injection site of the [illegible] tubing. The order of injection shall be first – Sodium Thiopental, second – Pavulon, and third – Potassium Chloride.

Approximately four hours [illegible] one hour, before the execution is scheduled to take place, the condemned inmate [illegible] pre-medication. In the event of two or more inmates [illegible] scheduled for execution on the same day, both inmates [illegible] be offered pre-medication at the same time.

The pre-medication may be administered either orally or by intra-muscular injection by the medical services personnel. The appropriate dosage of the [illegible] medication is as [illegible] determined by the physician.

Approximately one hour prior to [illegible] execution, a first-quarter security [illegible] the [illegible] community and [illegible] officers.

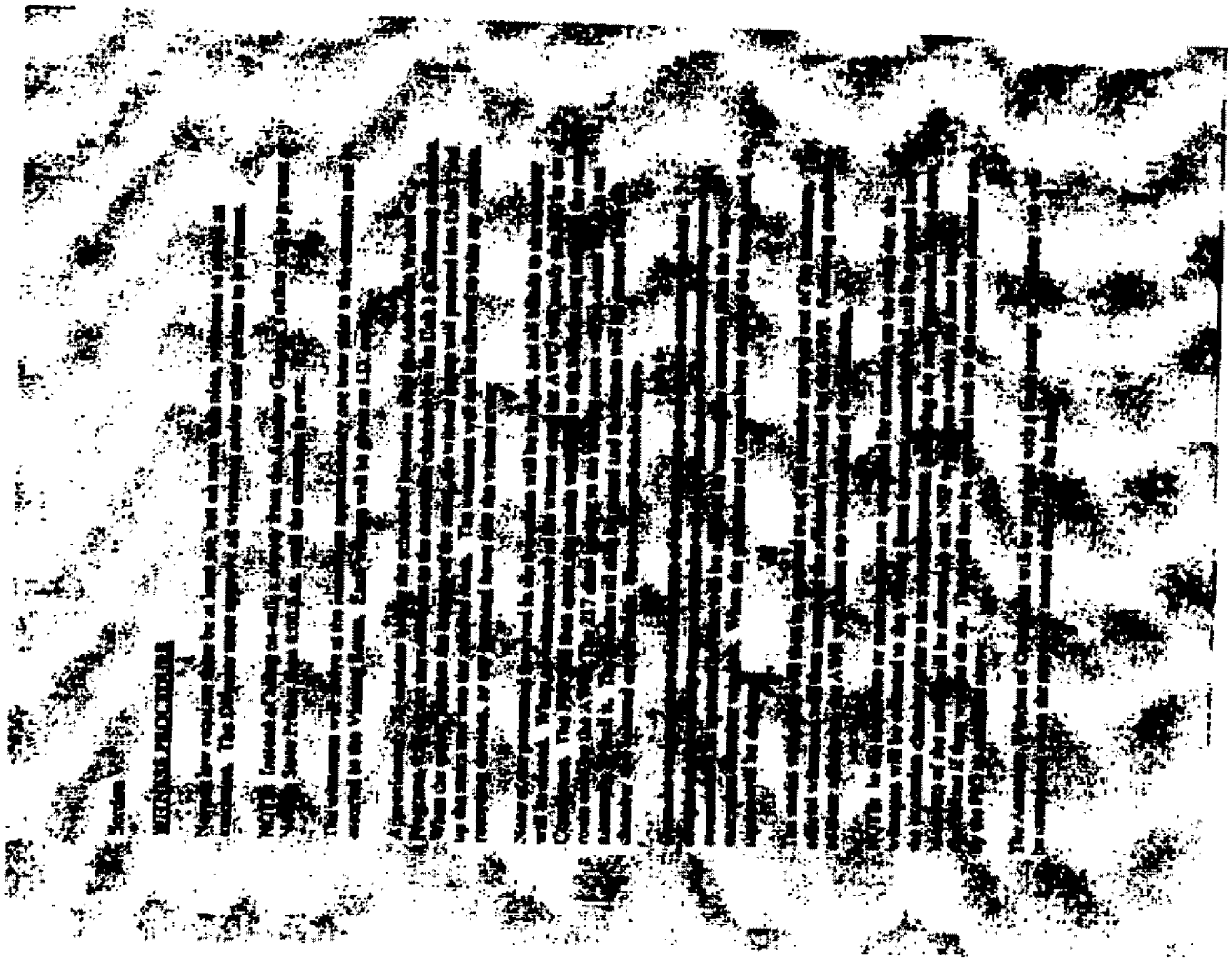
After the [illegible] has been administered, the condemned inmate will be escorted into the area of [illegible] chamber by [illegible] and [illegible]. The condemned inmate will [illegible] on the table [illegible] will be [illegible]. The [illegible] in the [illegible] the [illegible]

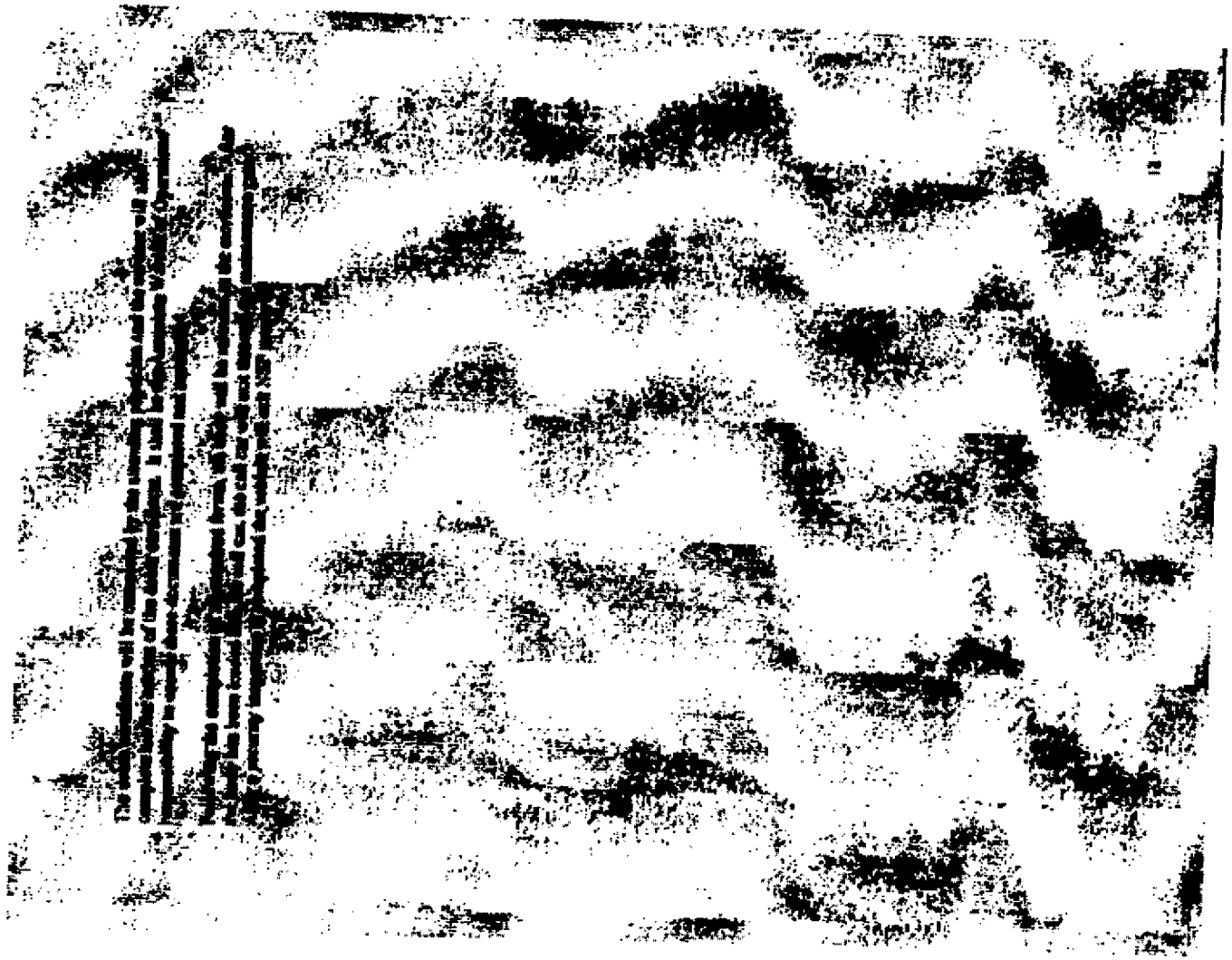
[illegible] by the [illegible]. The [illegible]

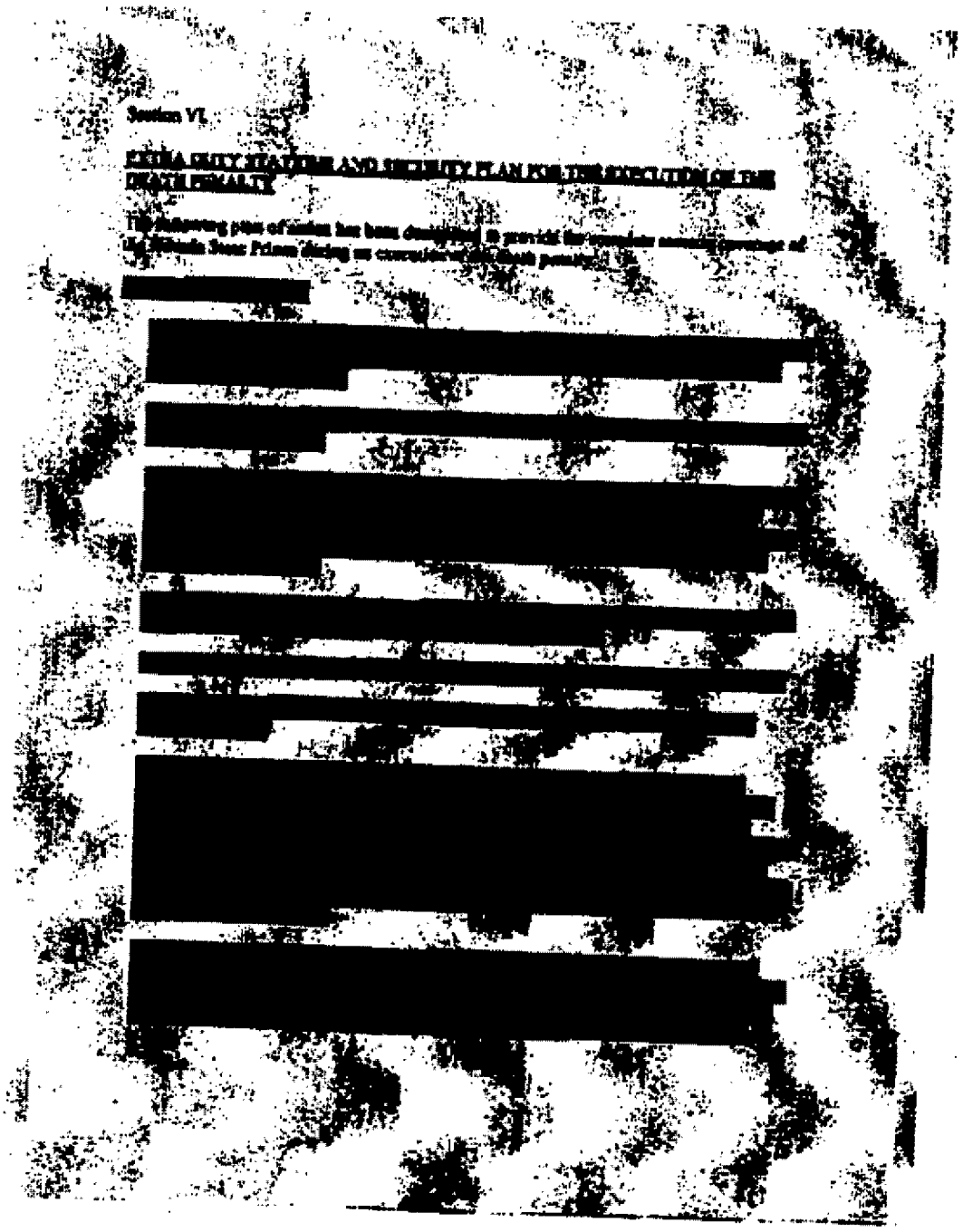
The [illegible] be [illegible]

At the order of the [illegible] to proceed, [illegible] will be [illegible]. The condemned [illegible] a deep [illegible] soon thereafter.

Once the [illegible] physician and [illegible]





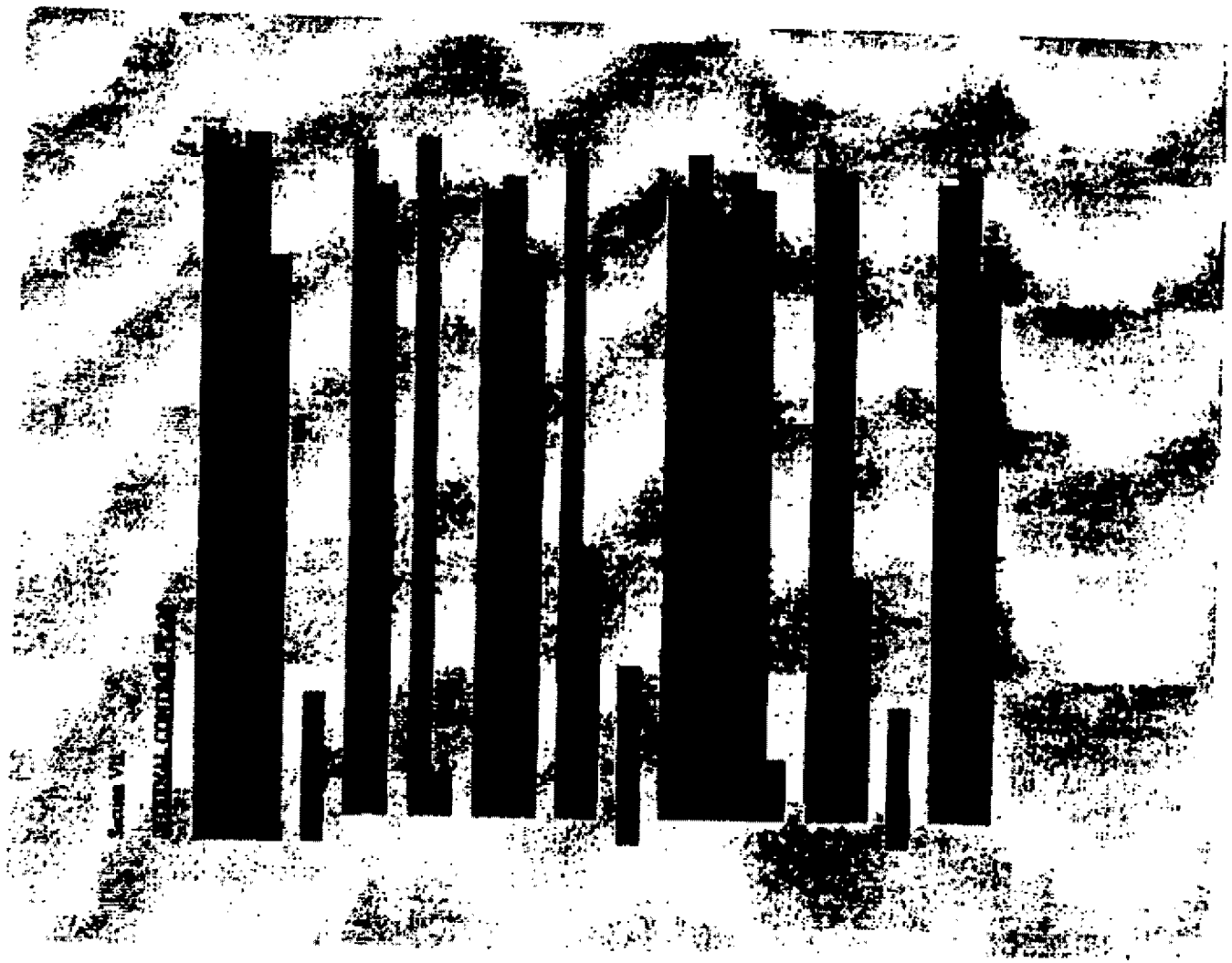


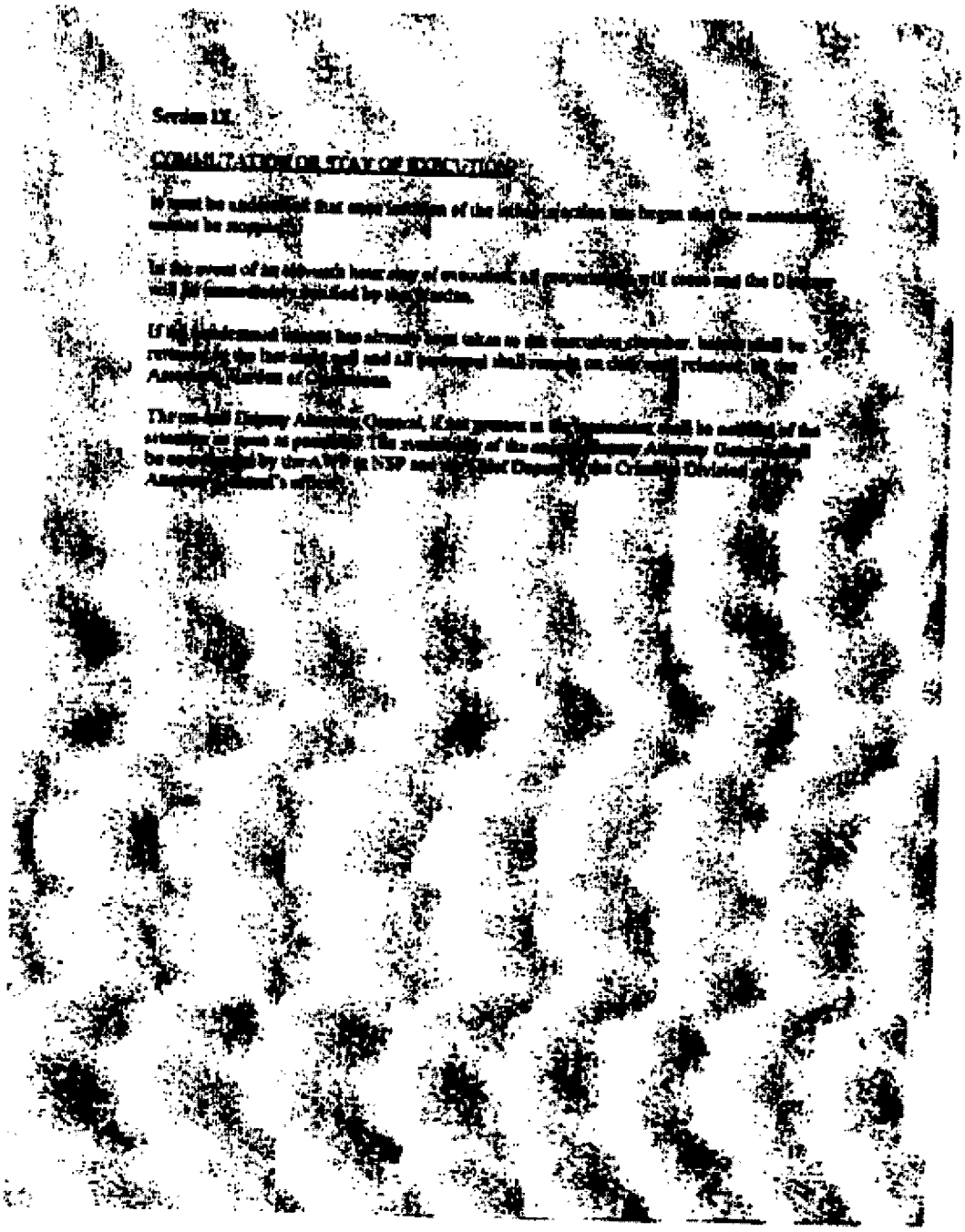
Section VI.

[redacted]

The following plan of action has been developed to provide for the [redacted] of the Florida State Prison during an execution of the death penalty.

[redacted]





Section 12.

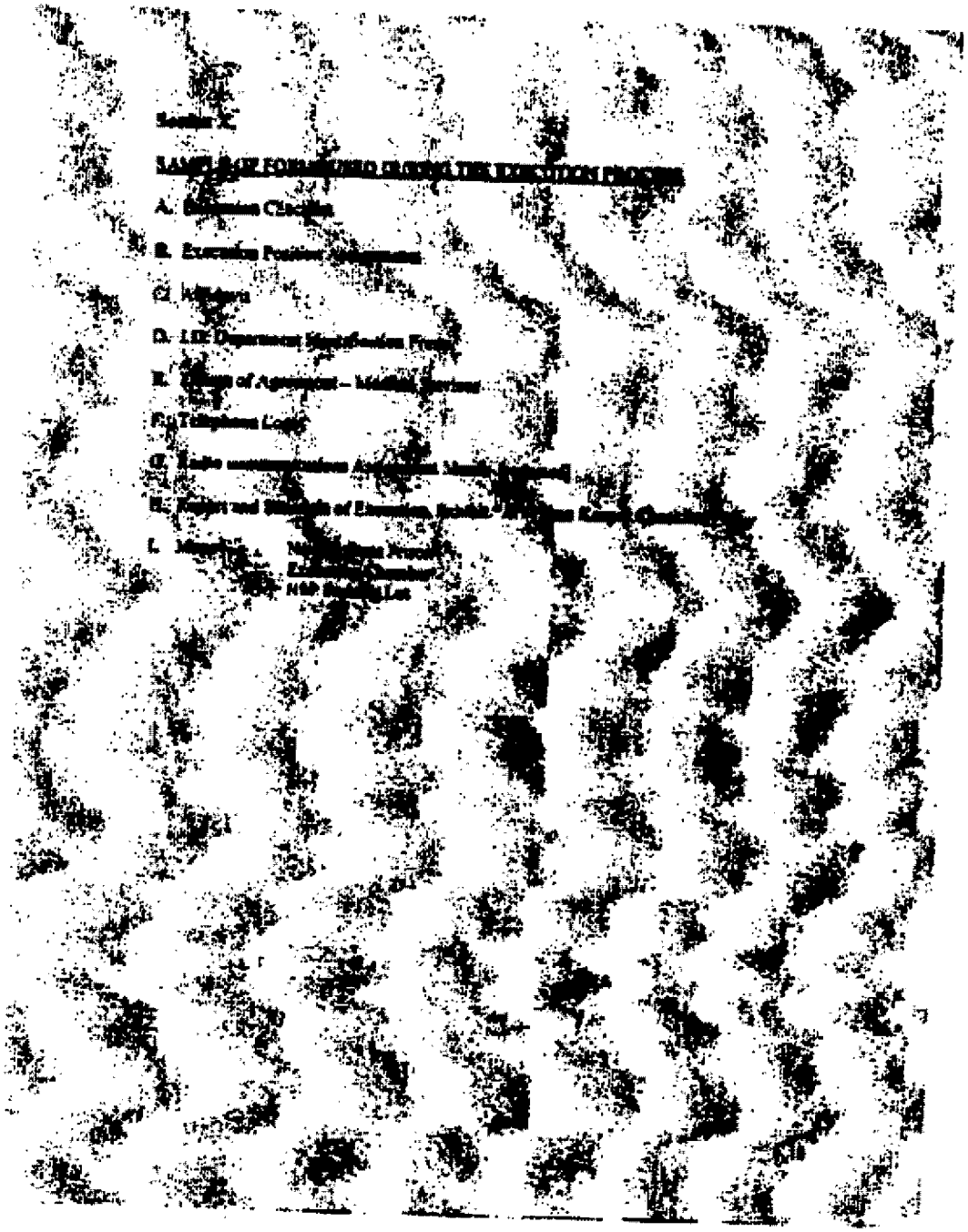
CONSULTATION OR STAY OF EXECUTION.

It must be established that every member of the initial execution has begun that the execution cannot be suspended.

In the event of an eleventh hour stay of execution all preparations will cease and the Director will be immediately notified by the Warden.

If the pronouncement thereof has already been taken on the execution chamber, he/she shall be removed to the lock-up cell and all personal shall comply on duty and remained in the Assembly Division of Operations.

The on-call Deputy Attorney General, if any present at the execution shall be notified of the proceedings as soon as possible. The availability of the on-call Deputy Attorney General shall be established by the Assistant Director or NSP and the Chief Deputy of the Criminal Division of the Attorney General's office.



Section K

SAMPLE QUESTIONS FOR ITEMS DURING THE EVALUATION PROCESS

A. Evaluation Checklist

B. Evaluation Position Statements

C. Addenda

D. LEA Disposition Specification Forms

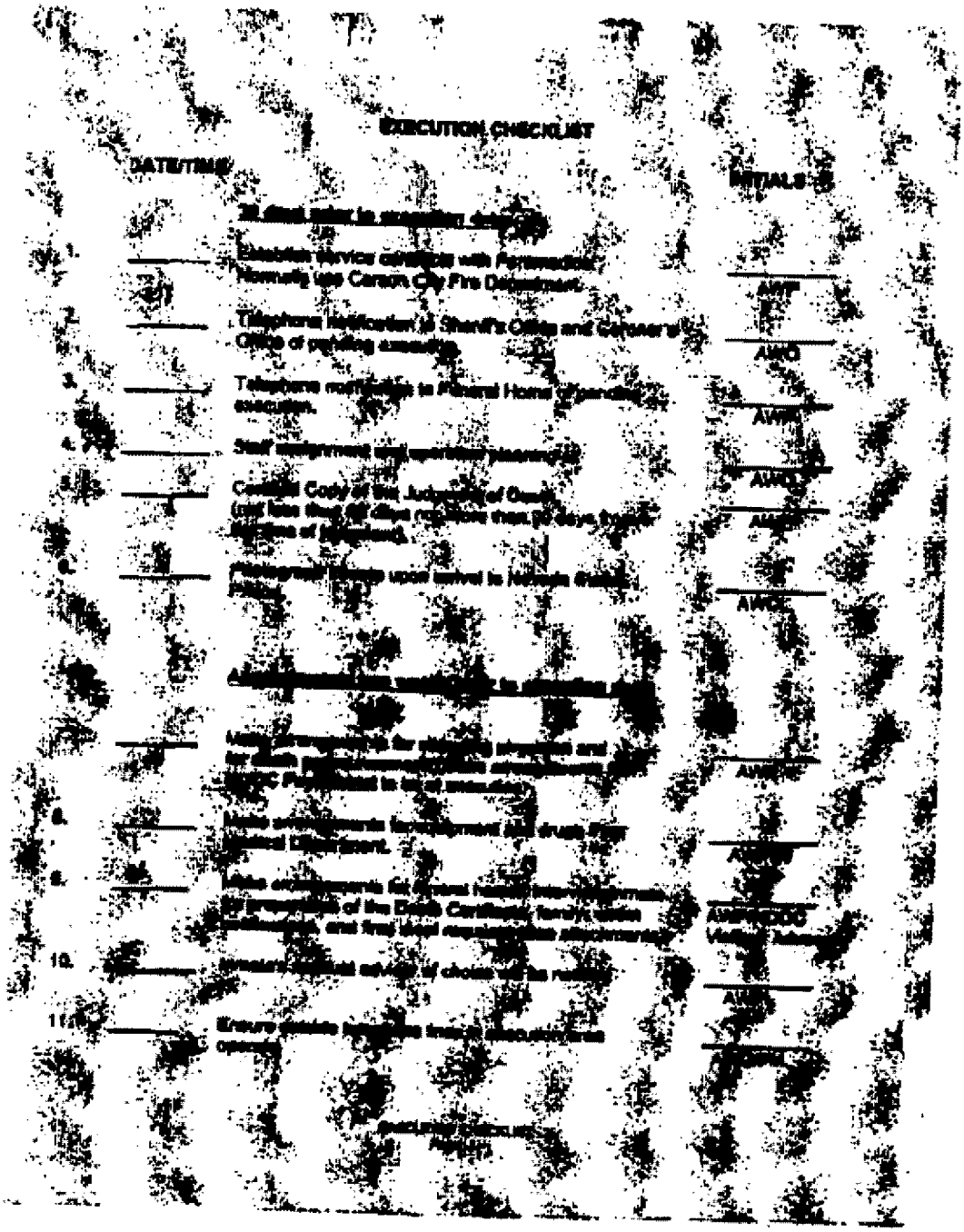
E. Minutes of Agreement – Modified Approval

F. Telephone Logs

G. Letter [illegible]

H. Project and Schedule of Evaluation Activities [illegible]

I. Miscellaneous
- [illegible]
- [illegible]
- [illegible]



EXECUTION CHECKLIST

DATE/TIME

INITIALS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

AWF

AWD

AWF

AWD

AWD

AWD

AWD

AWD

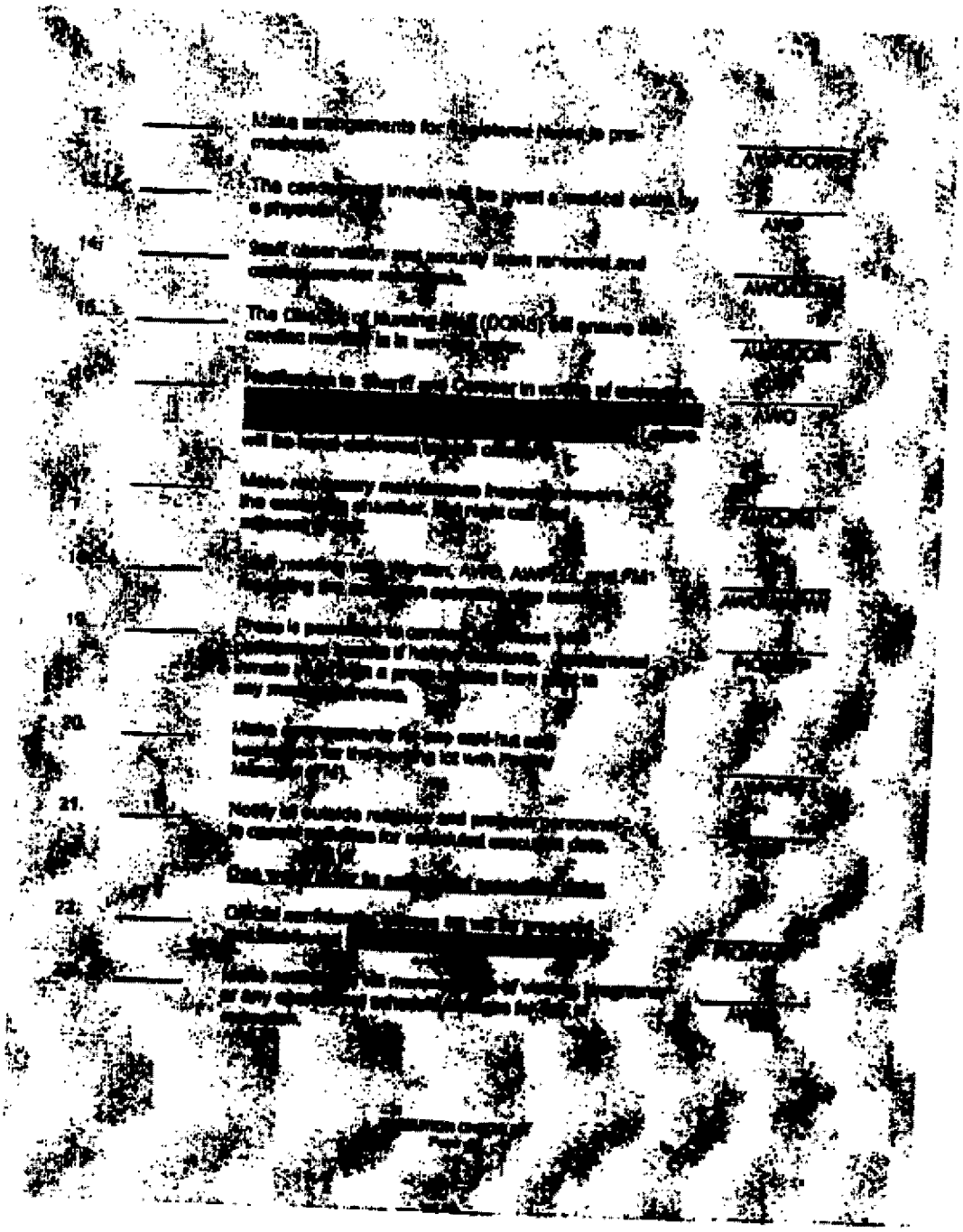
AWD

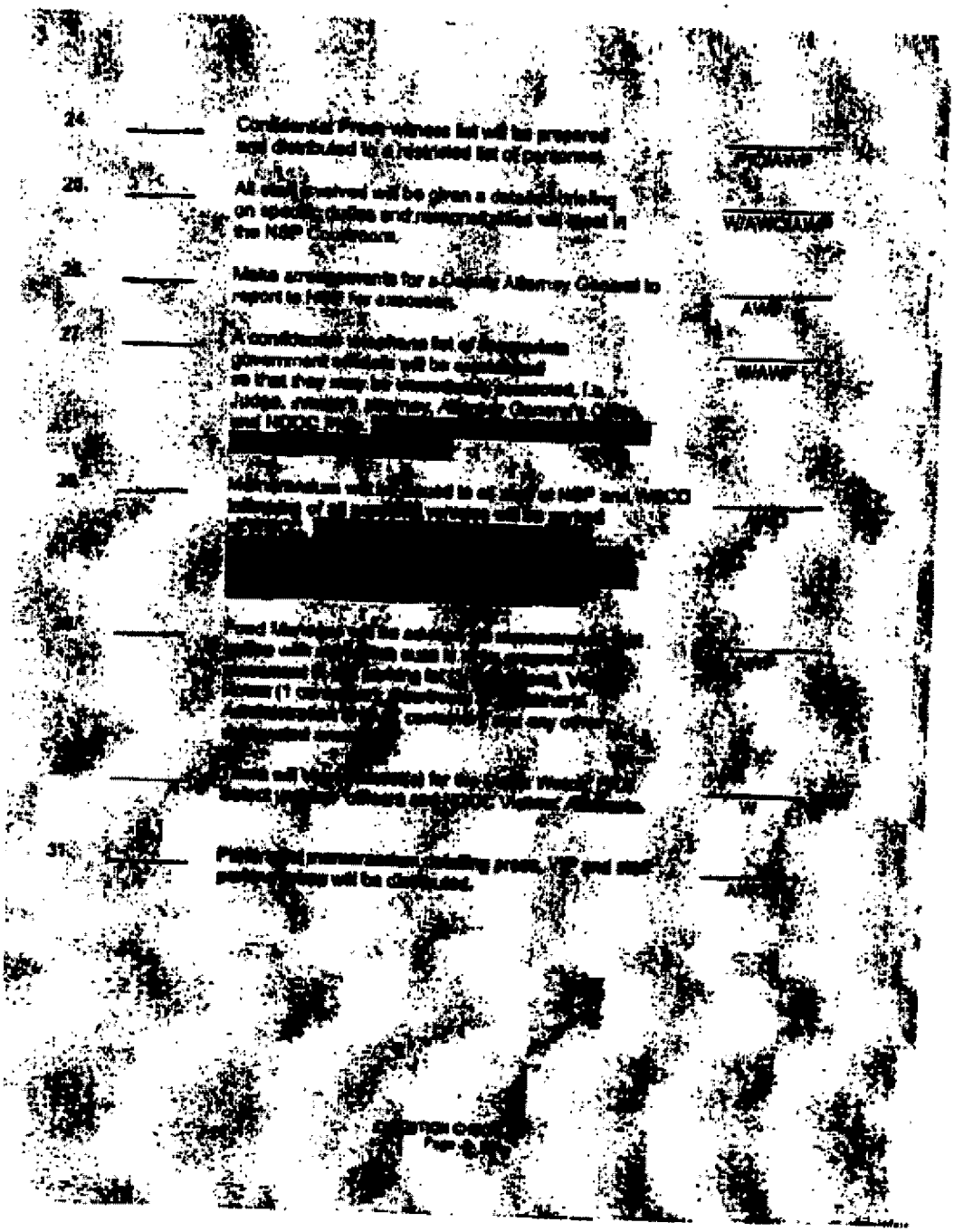
AWD

AWD

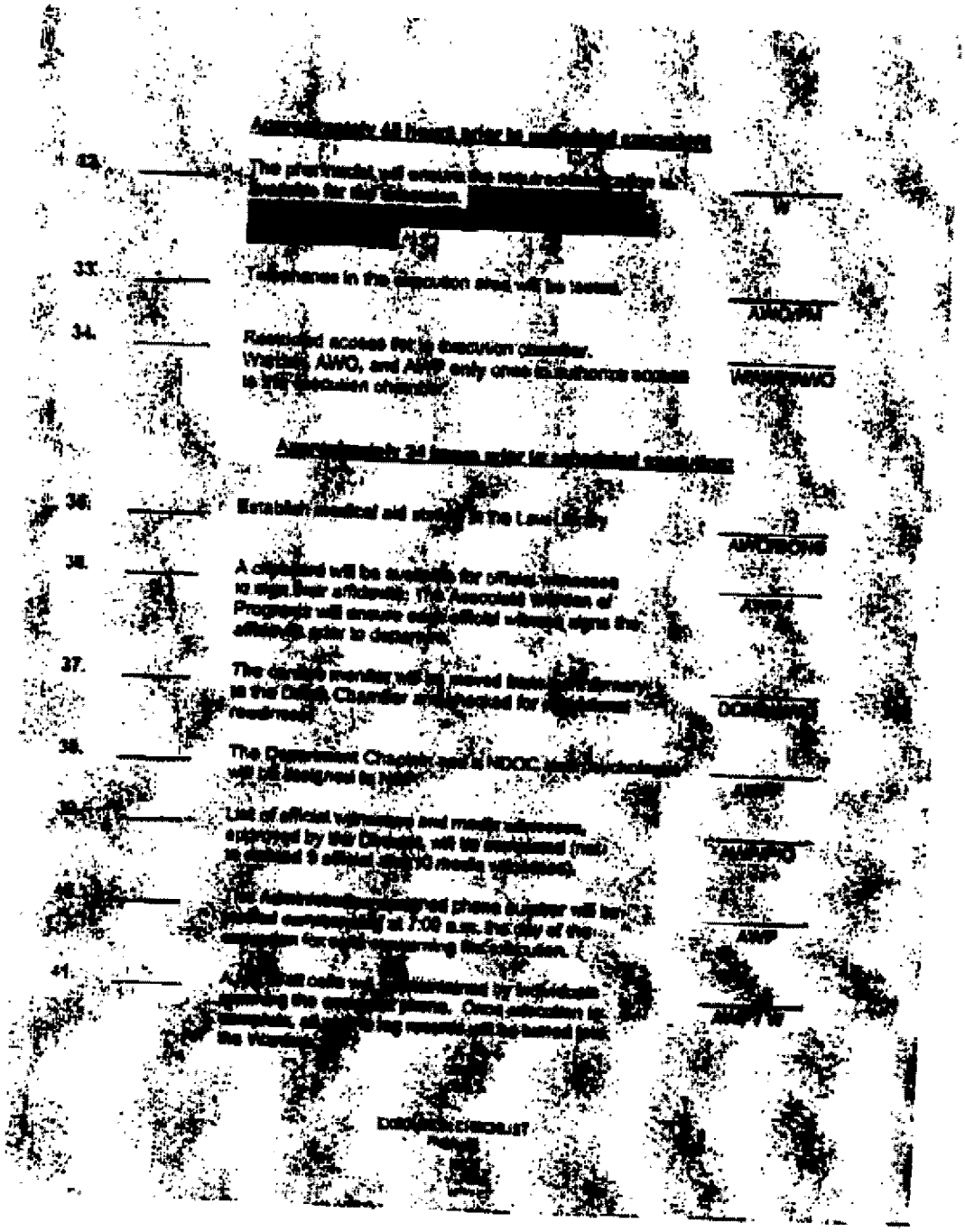
AWD

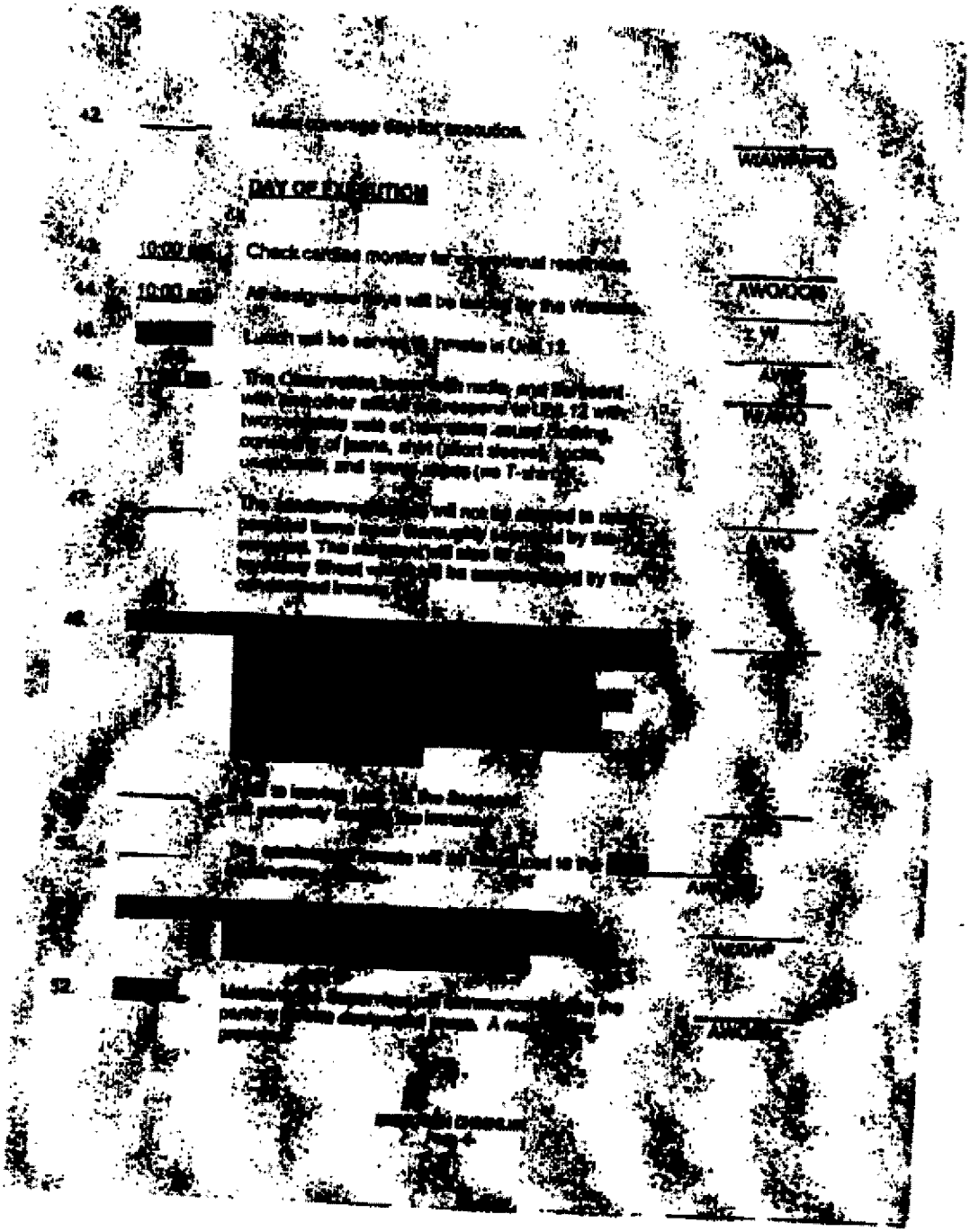
AWD





24.	______	Confidential Press-witness list will be prepared and distributed to a restricted list of personnel.	PIO/AWP
25.	5/7-C	All staff involved will be given a detailed briefing on specific duties and responsibilities will meet in the NSP Conference.	WAW/CJ/AWP
26.	______	Make arrangements for a Deputy Attorney General to report to NSP for execution.	AWP
27.	______	A confidential telephone list of appropriate government officials will be established so that they may be immediately contacted, i.e., Judge, [illegible] Attorney, Attorney General's Office and NDOC [illegible] [redacted]	WAWP
28.	______	Memorandum will be issued to all staff of NSP and NNCC informing of all [illegible] which will be in effect [redacted]	[illegible]
29.	______	Food [illegible] will be [illegible]	[illegible]
30.	______	[illegible] will [illegible] for [illegible] Officers and NDOC [illegible]	W
31.	______	Prepare [illegible] including press, VIP and staff [illegible] will be distributed.	AWP





DAY OF EXECUTION

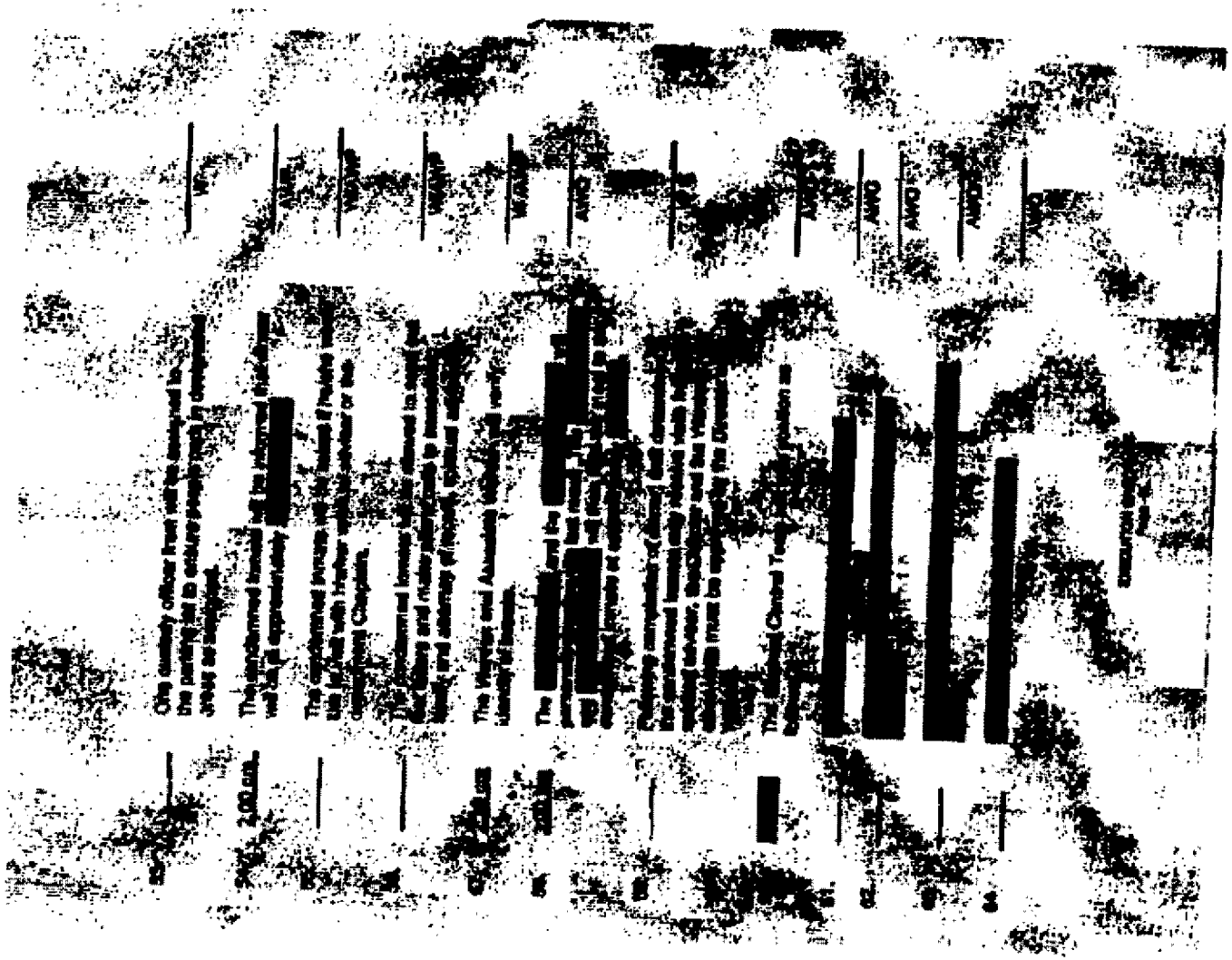
Check cardiac monitor for [illegible] rhythm.

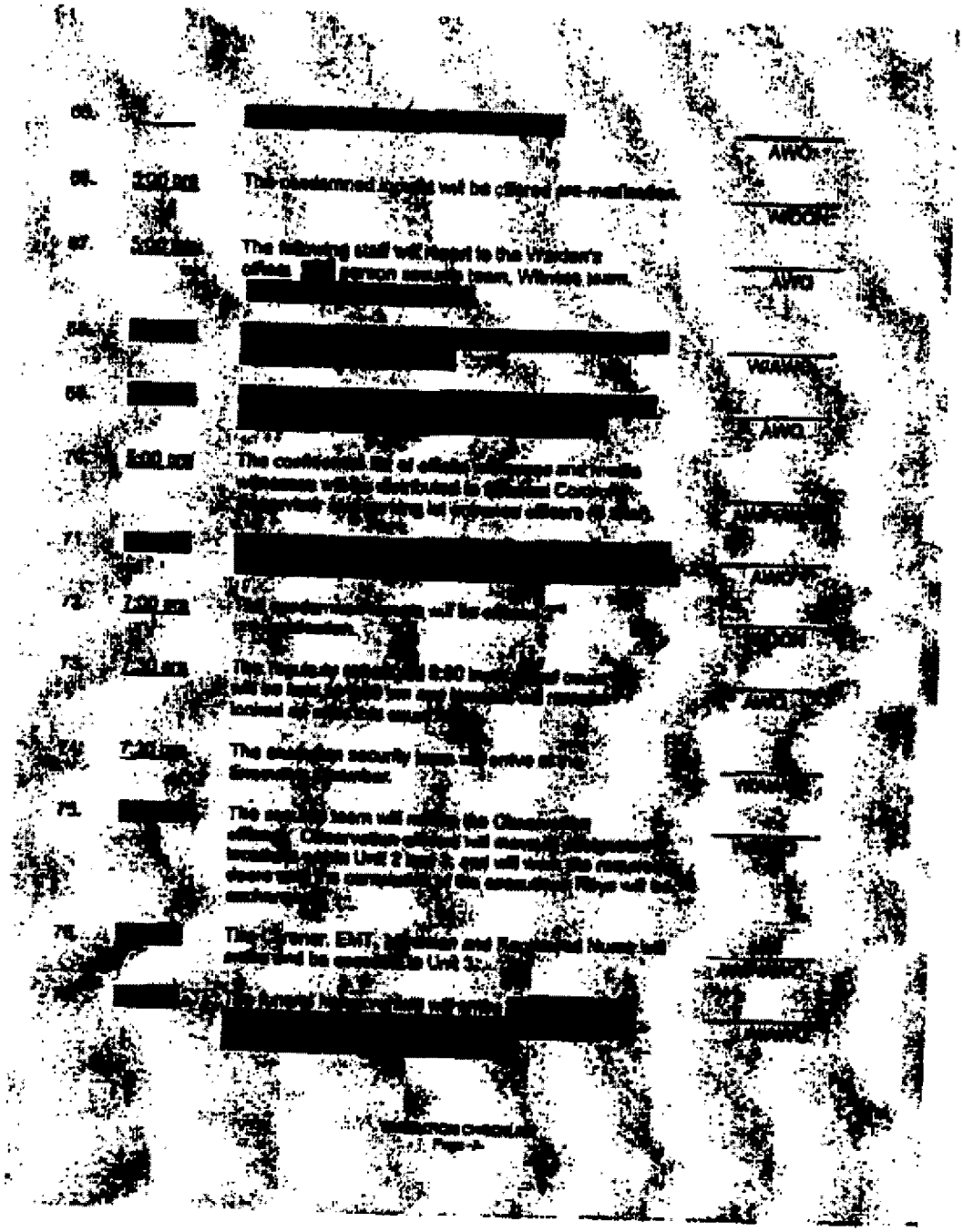
All designated guys will be [illegible] by the Warden.

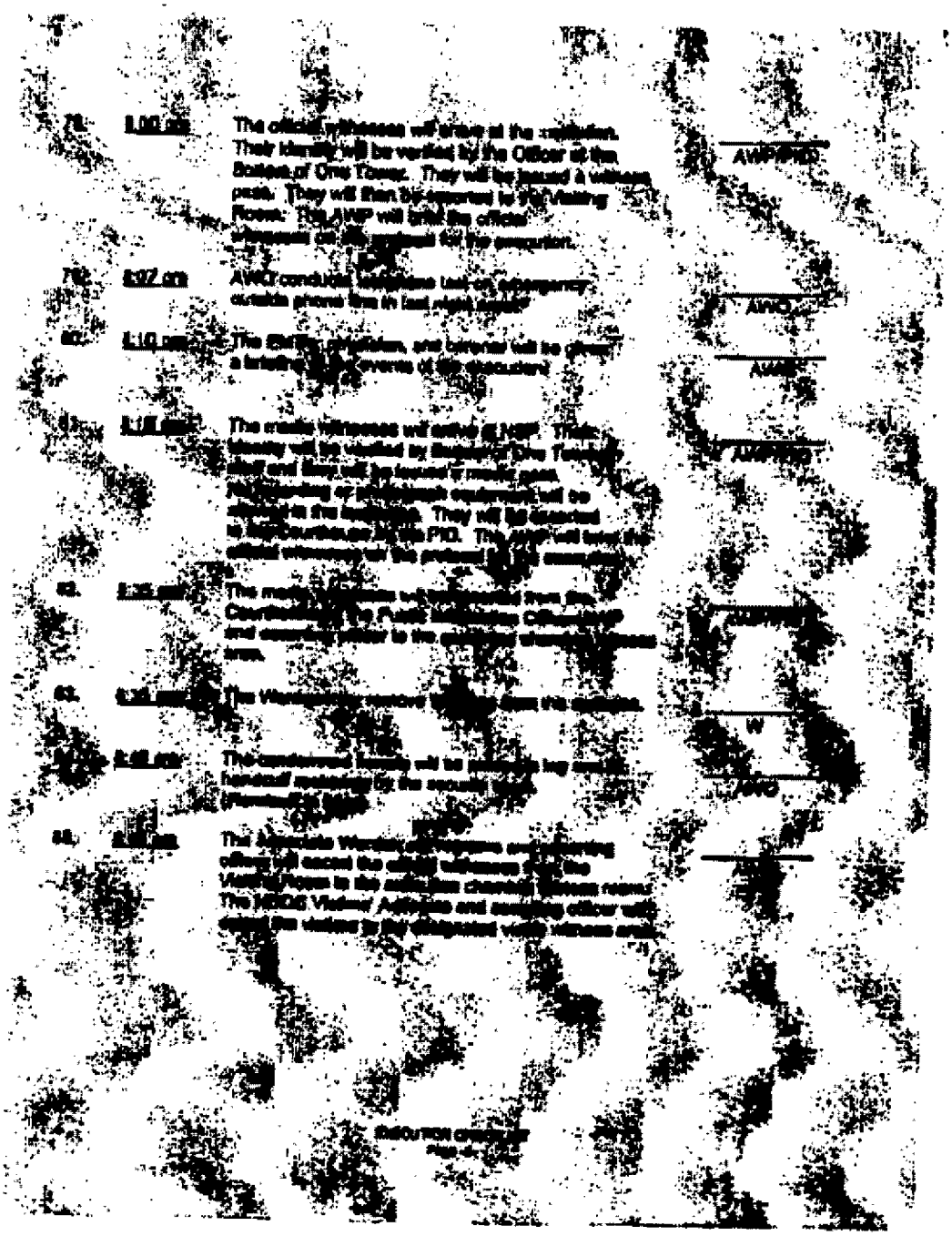
Lunch will be served [illegible] in Cell 12.

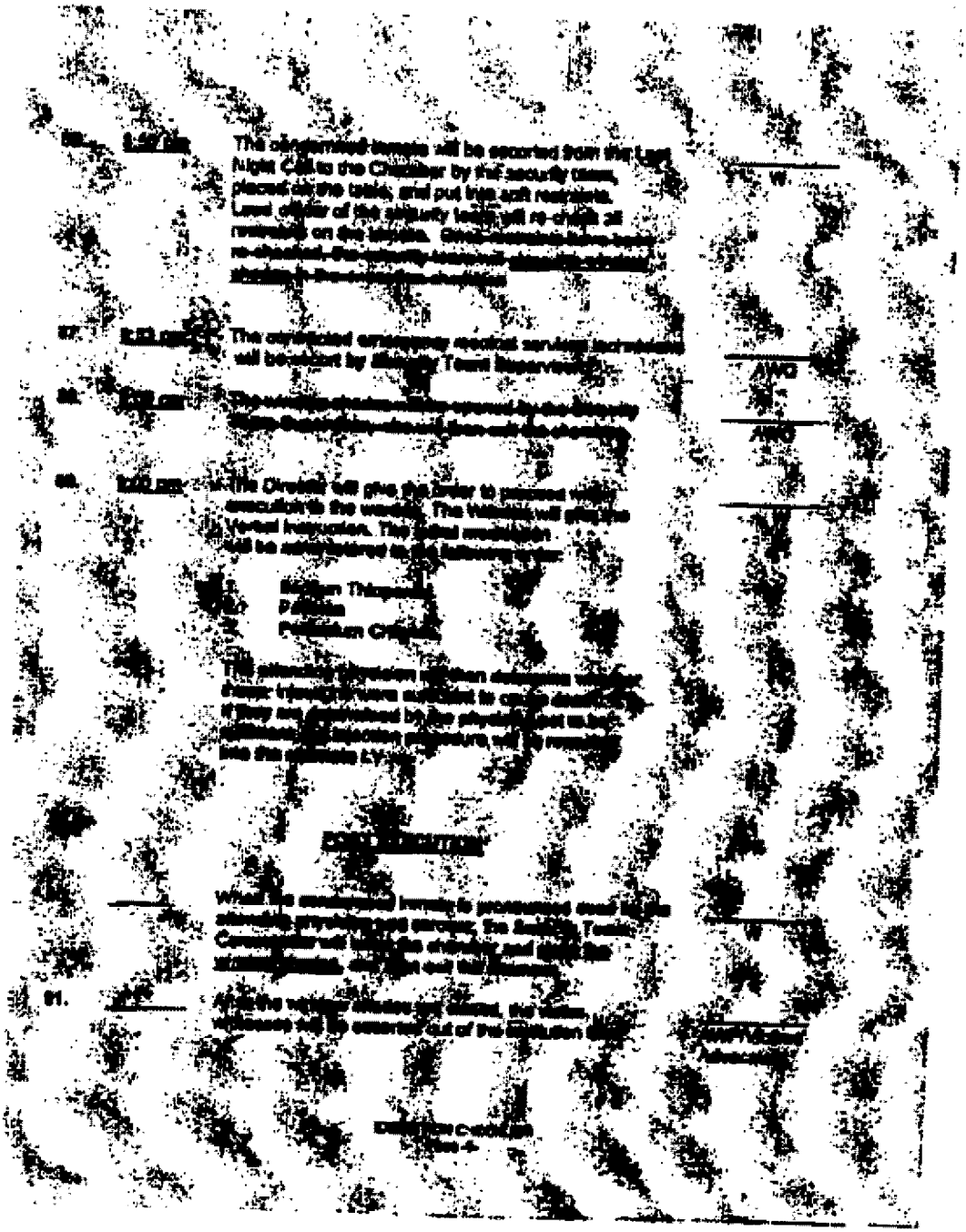
The Chaplain [illegible] with [illegible] will not be allowed in the [illegible] with [illegible] by the Warden. This [illegible] will also be [illegible] by the Chaplain.

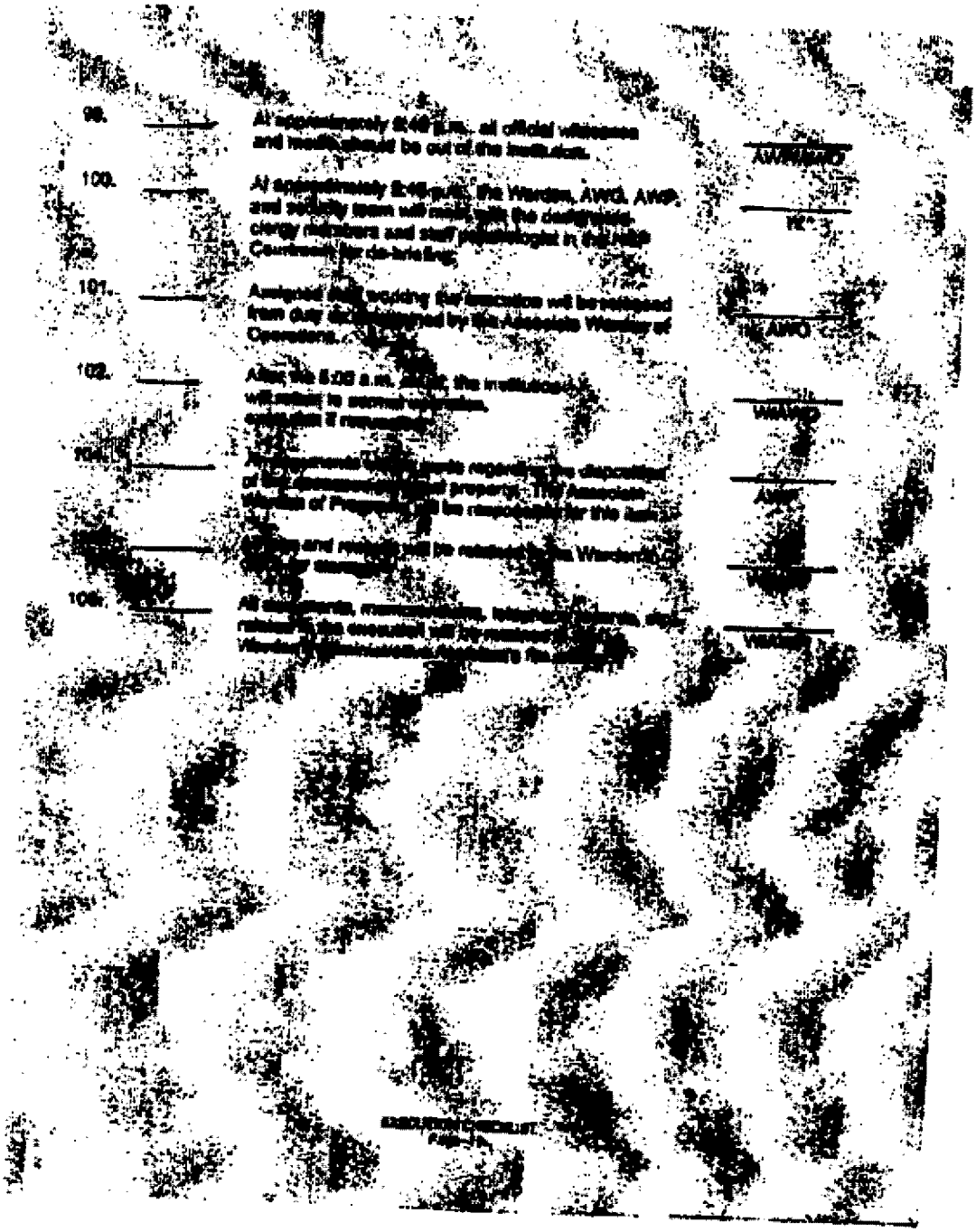
[illegible] will be [illegible] by the Warden.

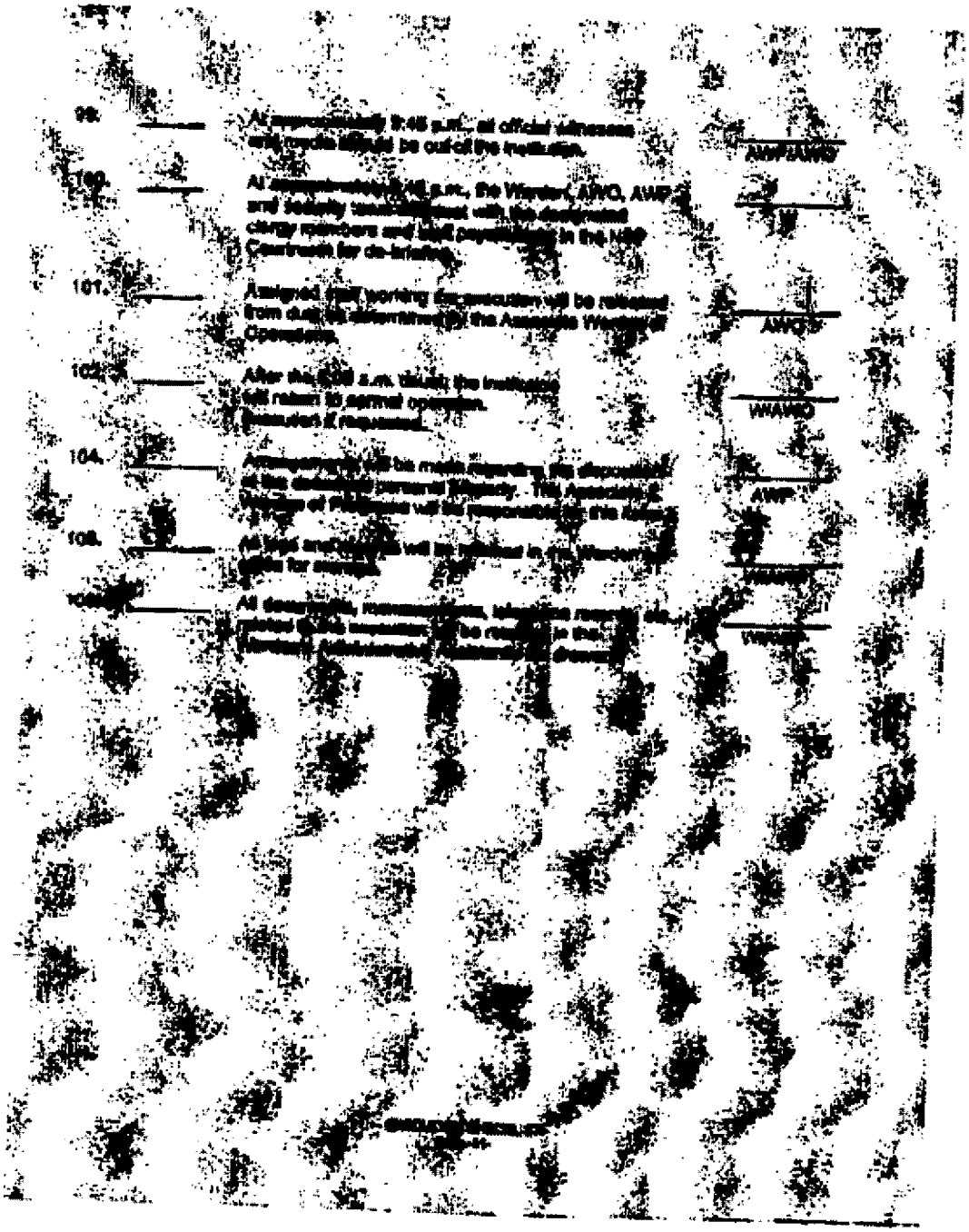


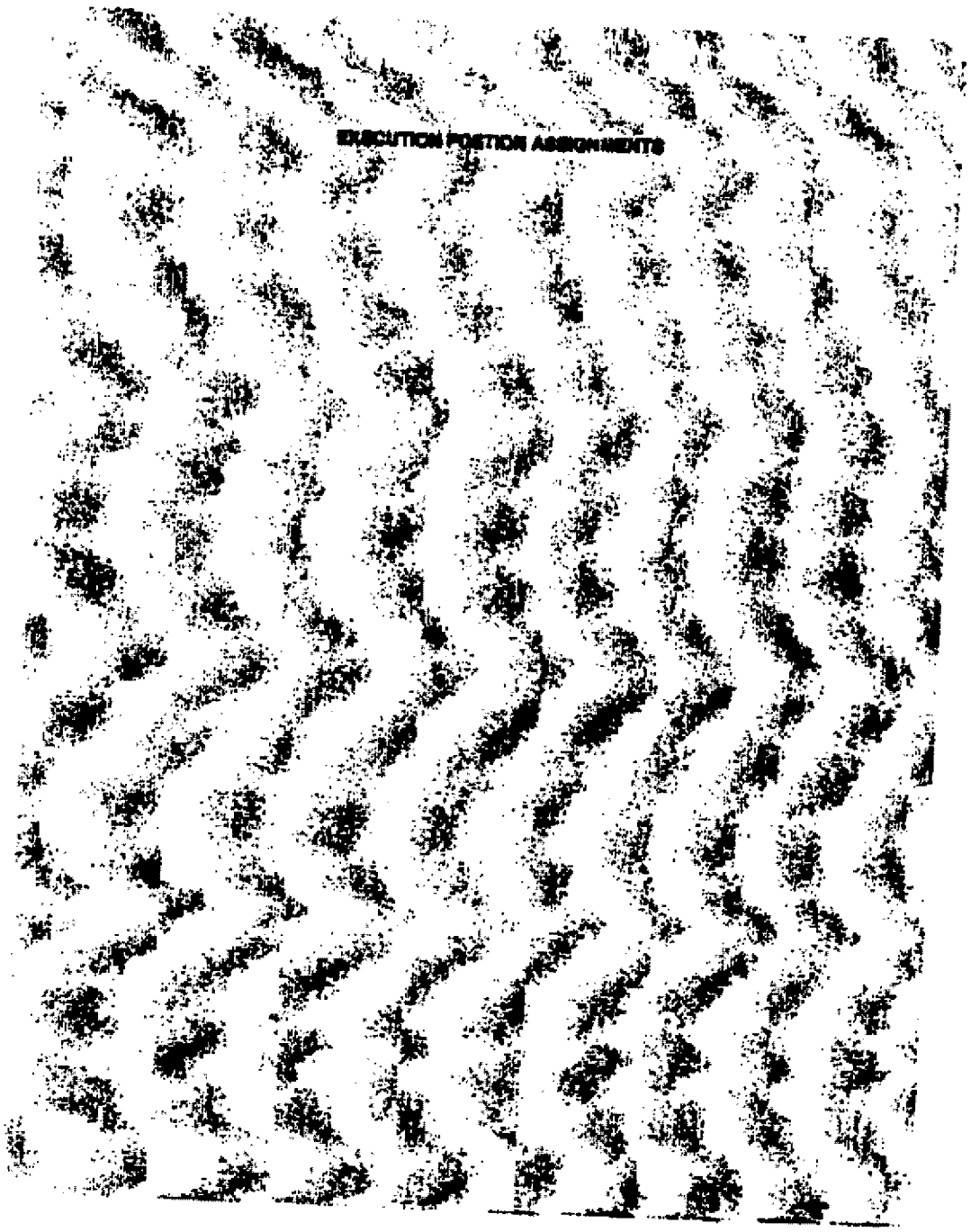


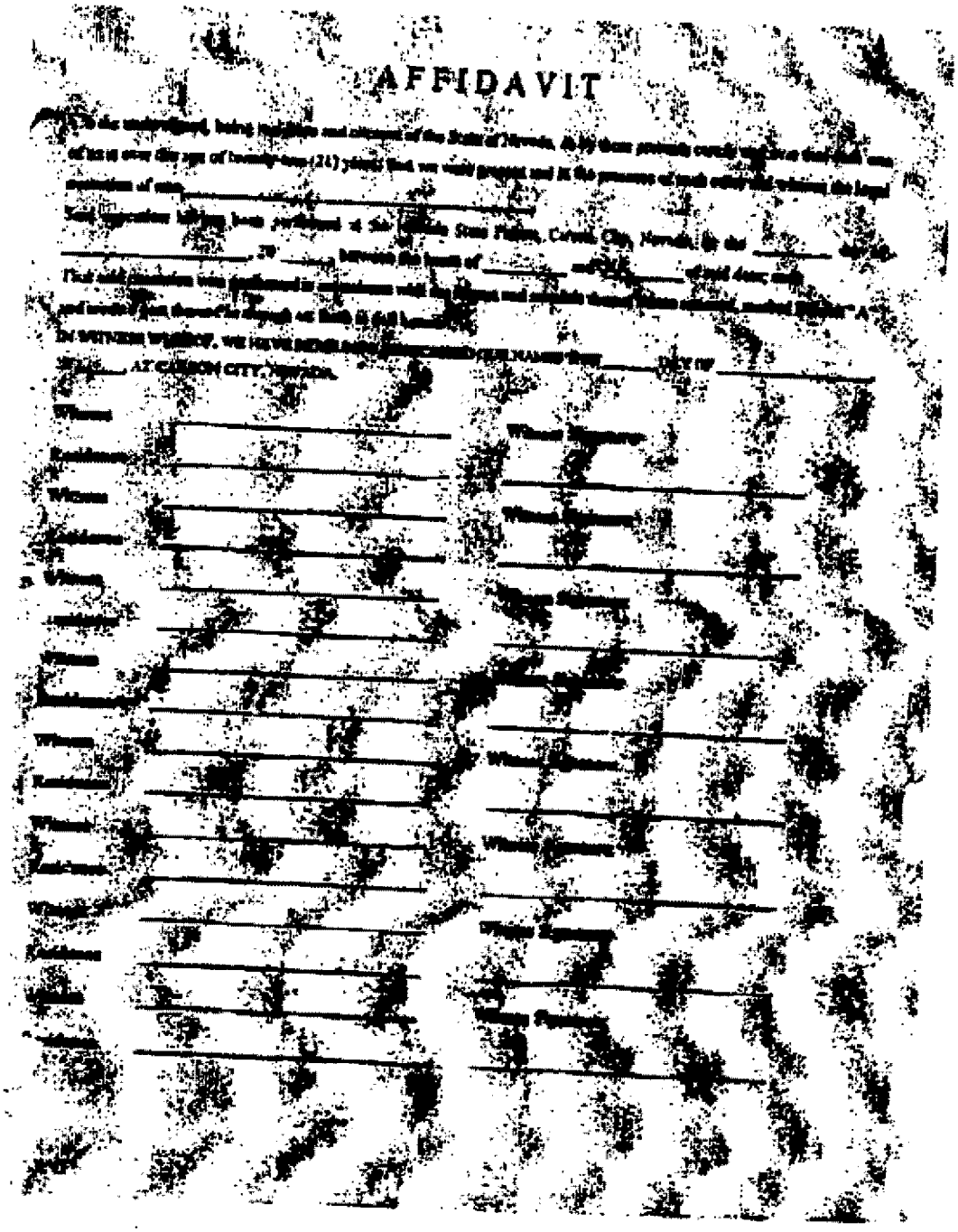












AFFIDAVIT

We the undersigned, being residents and citizens of the State of Nevada, do by these presents certify [illegible] each one of us is over the age of twenty-one (21) years; that we were present and in the presence of each other did witness the legal execution of one ______________________________

Said execution having been performed at the Nevada State Prison, Carson City, Nevada, on the ________ day of ______________, 19 ______ between the hours of __________ and __________ of said day; and

That said execution was performed in accordance with the laws and [illegible] [illegible] [illegible] and [illegible] thereof [illegible] [illegible] [illegible] [illegible]

IN WITNESS WHEREOF, WE HAVE HEREUNTO SUBSCRIBED OUR NAMES this ______ DAY OF ______________

19___, AT CARSON CITY, NEVADA.

Witness ______________________ Witness Signature ______________________

Residence ______________________

Witness ______________________ Witness Signature ______________________

Residence ______________________

Witness ______________________ Witness Signature ______________________

Residence ______________________

Witness ______________________ Witness Signature ______________________

Residence ______________________

Witness ______________________ Witness Signature ______________________

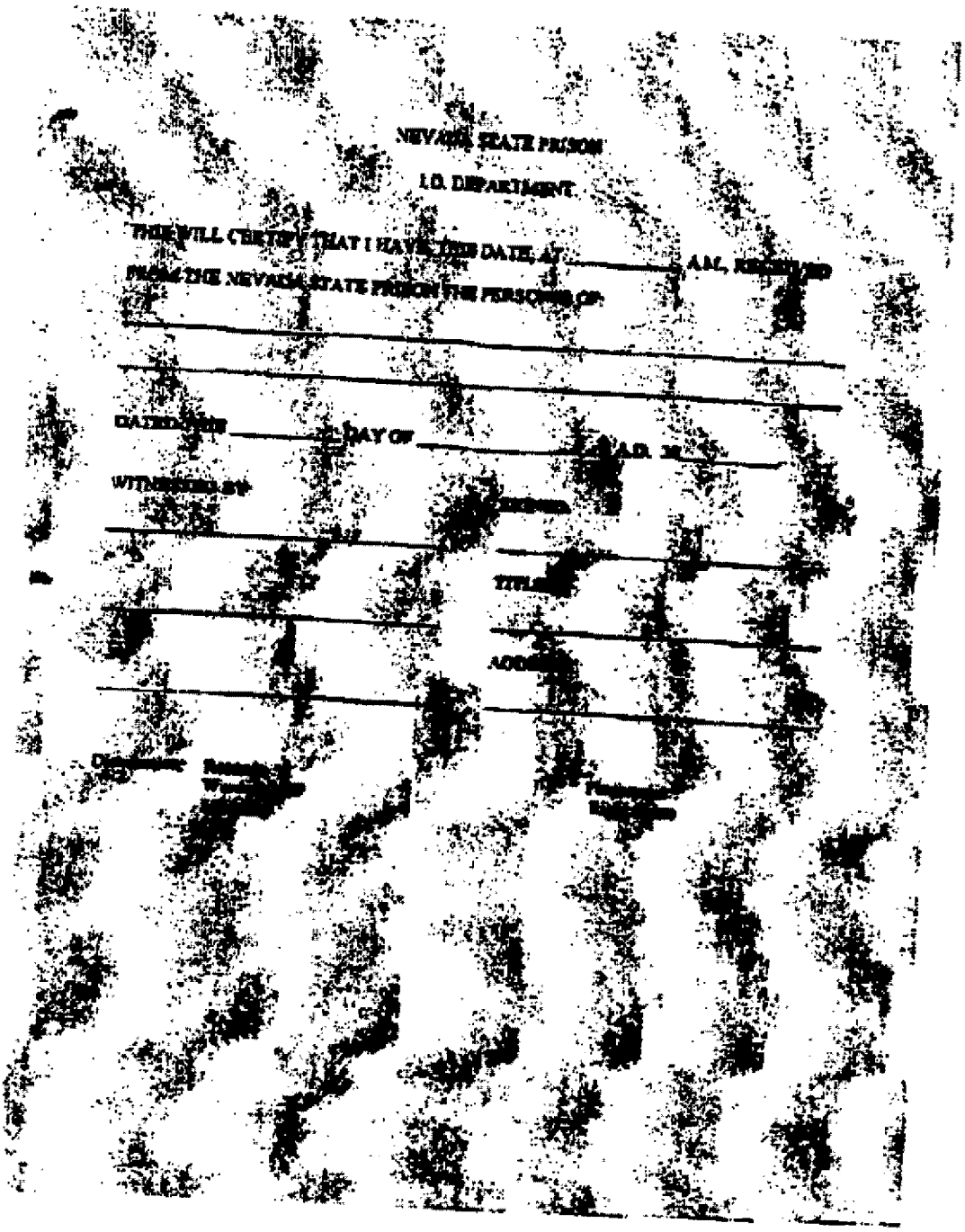
Residence ______________________

Witness ______________________ Witness Signature ______________________

Residence ______________________

Witness ______________________ Witness Signature ______________________

Residence ______________________



NEVADA STATE PRISON

I.D. DEPARTMENT

THIS WILL CERTIFY THAT I HAVE THIS DATE, AT _____ A.M., RECEIVED FROM THE NEVADA STATE PRISON THE PERSONS OF:

_____

_____

_____

DATED THIS _____ DAY OF _____ A.D. 20__

WITNESSED BY:

_____ SIGNED

_____

_____ TITLE

_____

_____ ADDRESS

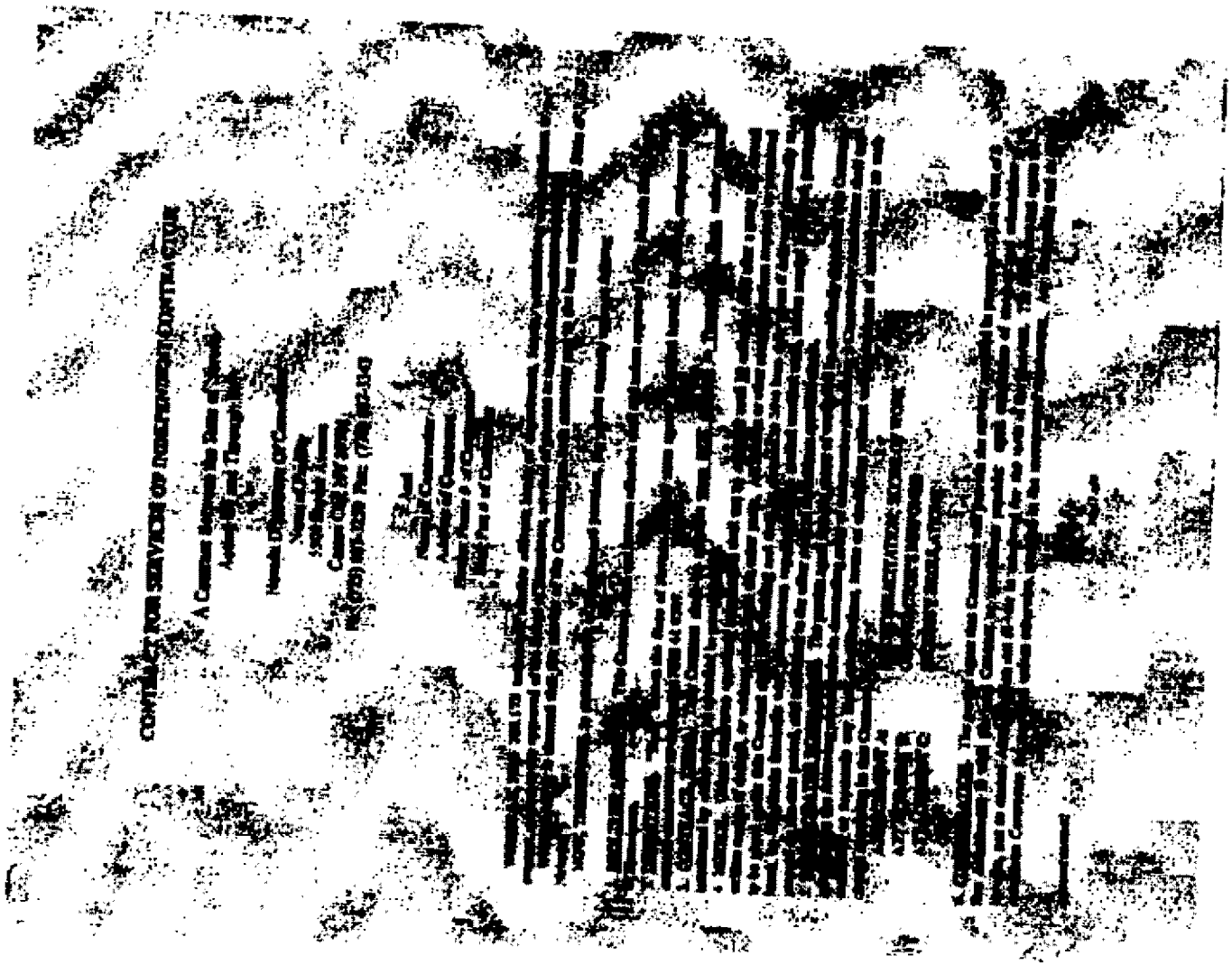
_____

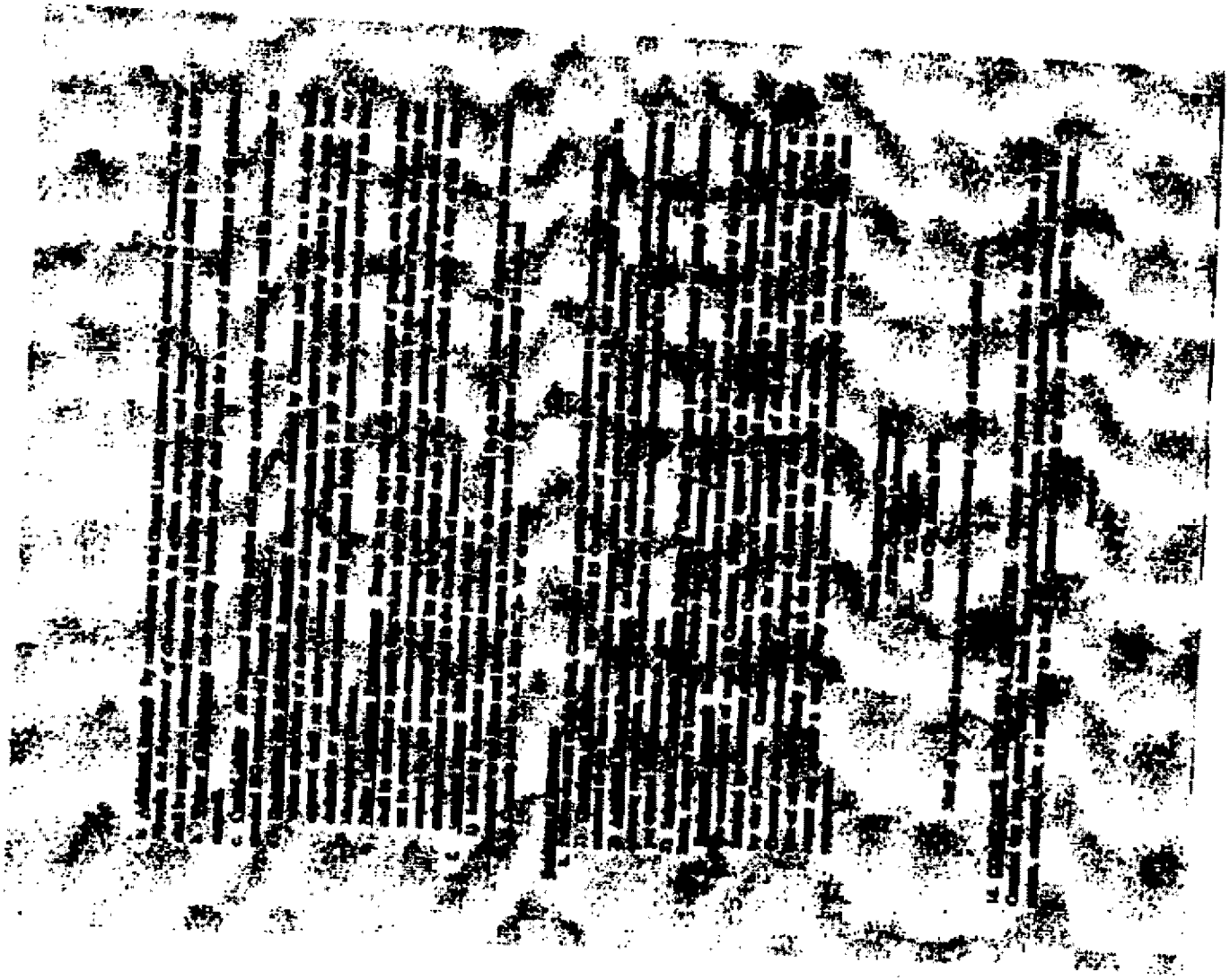
_____

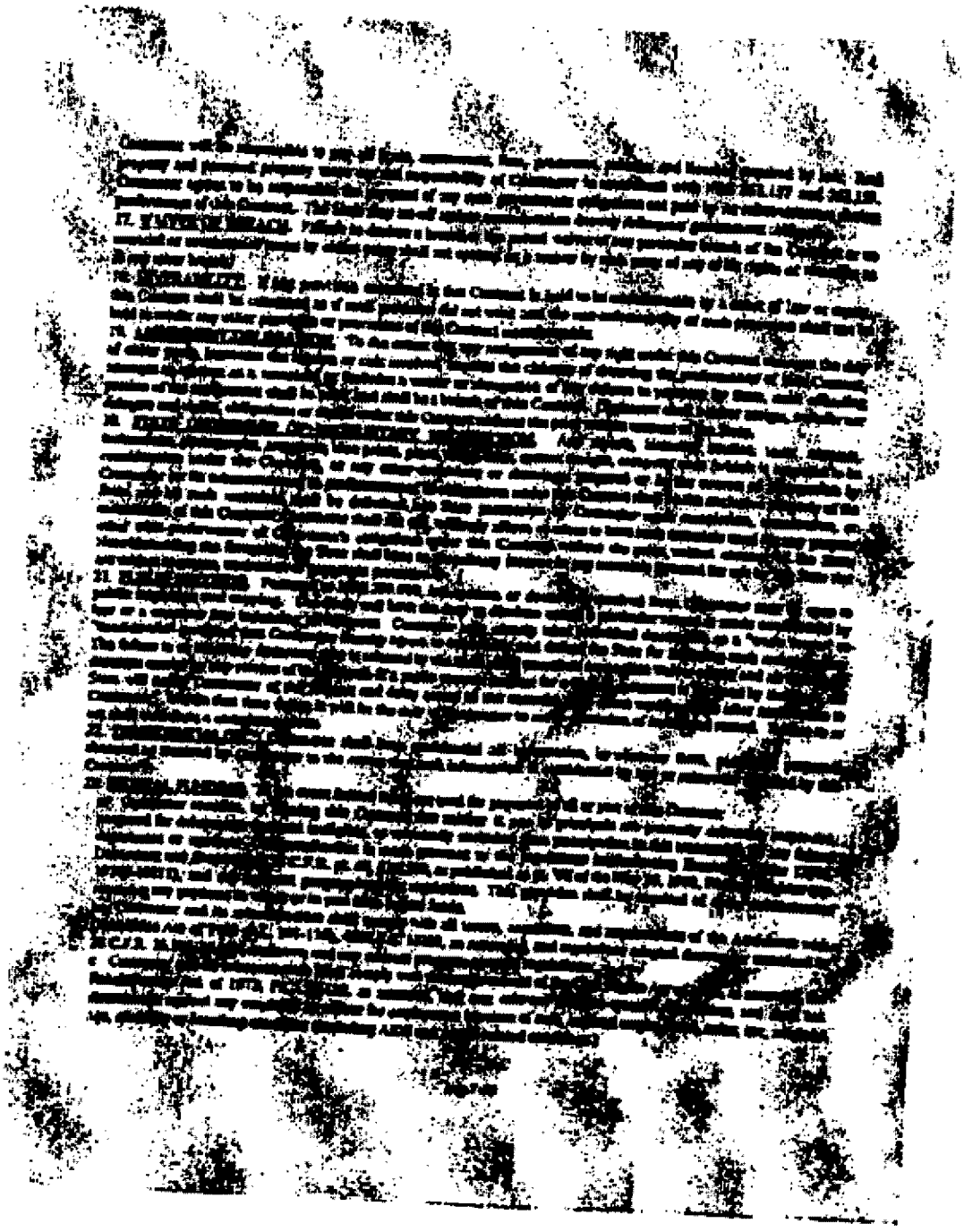
Defendant

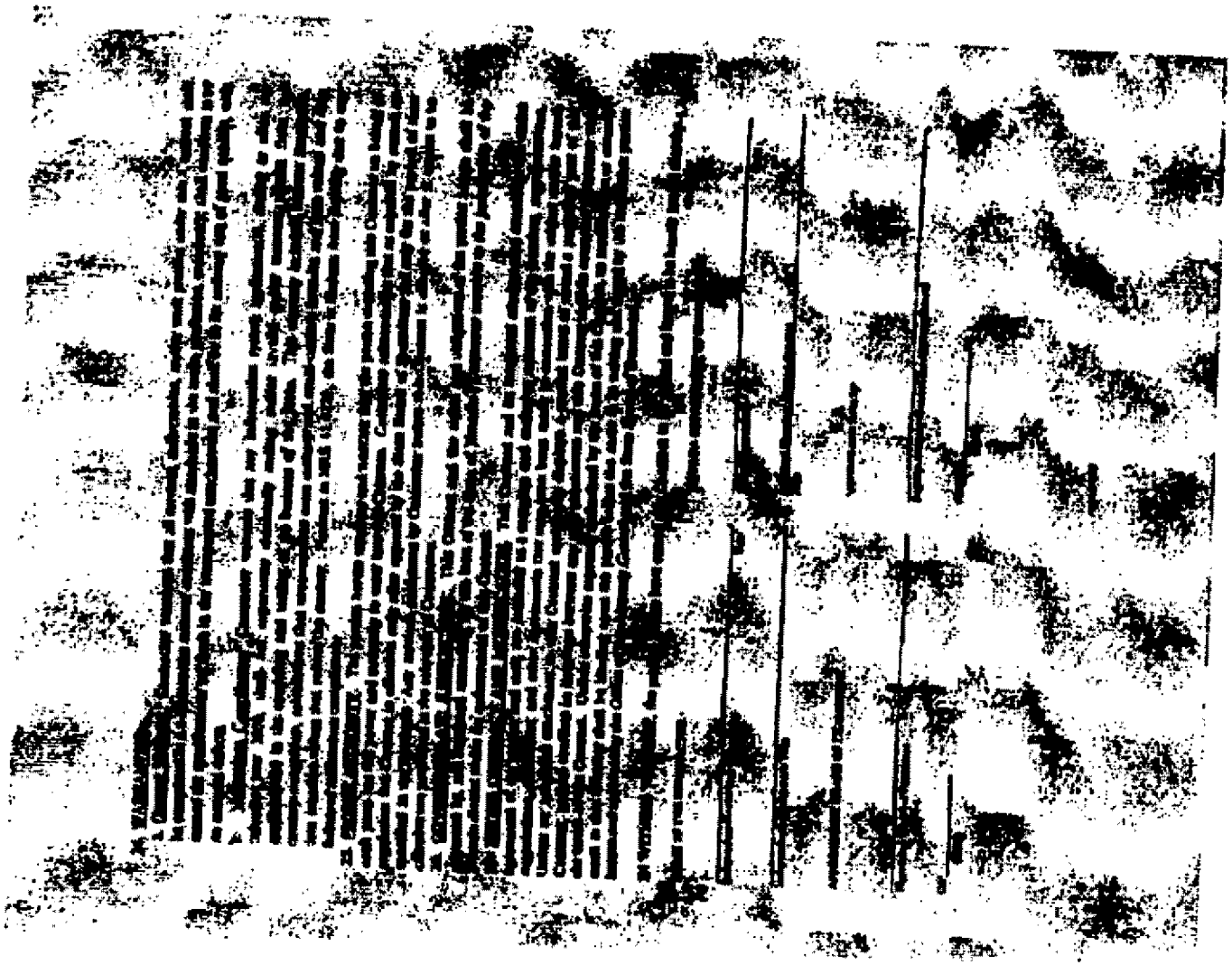
Witness

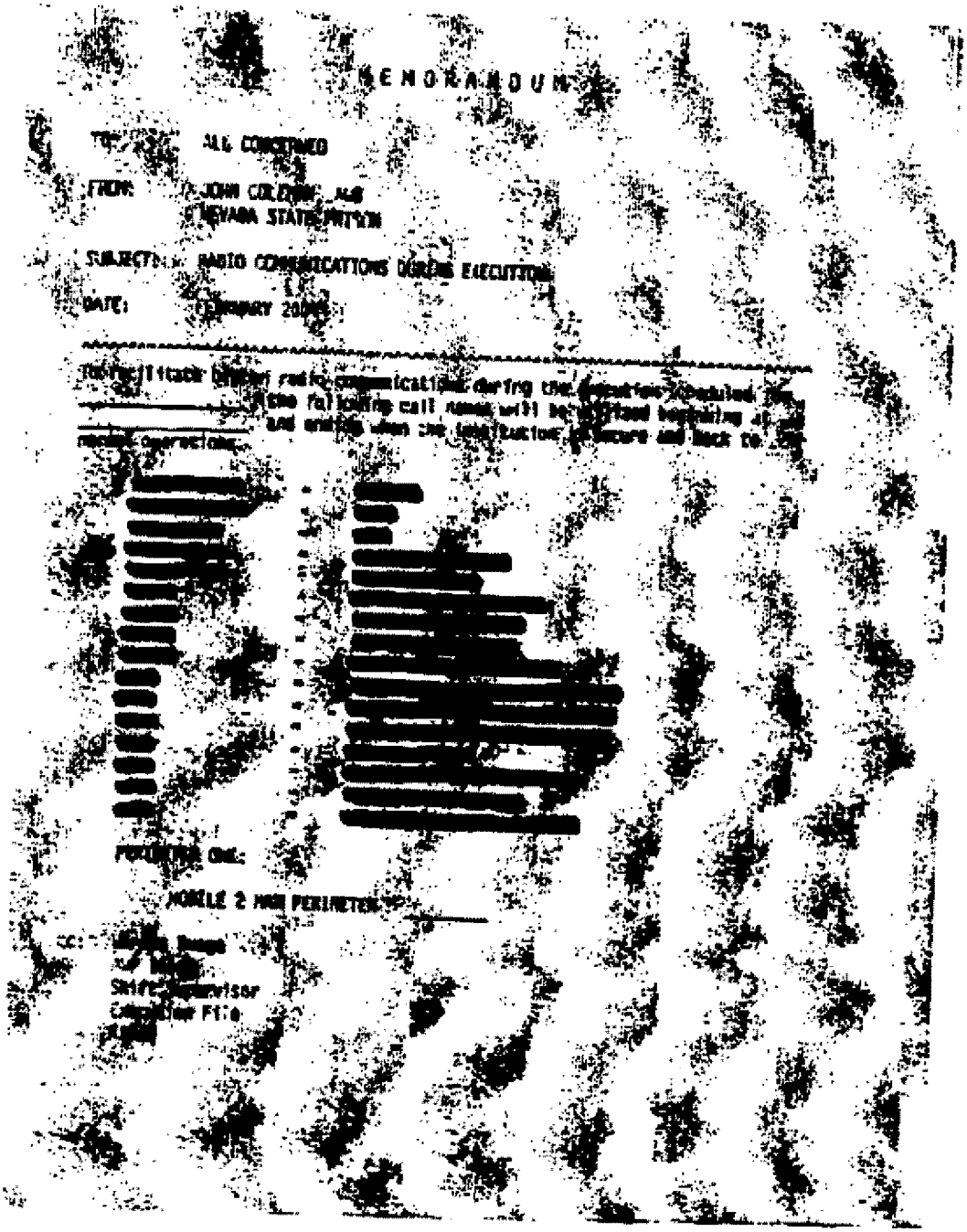
Witness











MEMORANDUM

TO: ALL CONCERNED

FROM: JOHN COLEMAN, AWO
NEVADA STATE PRISON

SUBJECT: RADIO COMMUNICATIONS DURING EXECUTION

DATE: FEBRUARY 2006

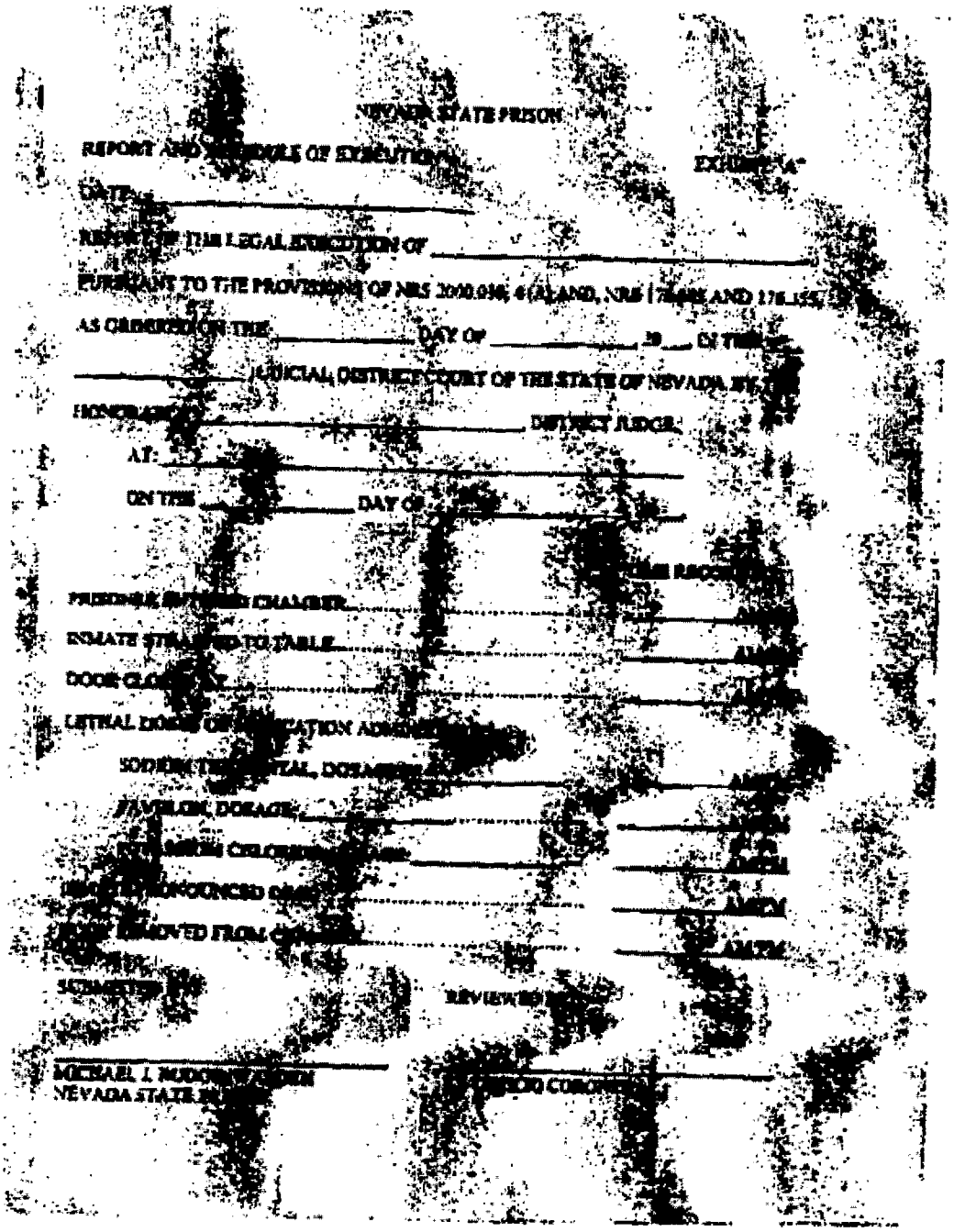
To facilitate better radio communications during the execution scheduled for ____________, the following call names will be utilized beginning at ________ and ending when the institution is secure and back to normal operations:

[redacted] .... [redacted]

PERIMETER ONE:

MOBILE 2 MAN PERIMETER VP ________

cc: [illegible] Range
[illegible]
Shift Supervisor
[illegible] File
[illegible]



NEVADA STATE PRISON

REPORT AND [illegible] OF EXECUTION

EXHIBIT "A"

DATE: _____

REPORT OF THE LEGAL EXECUTION OF _____

PURSUANT TO THE PROVISIONS OF NRS 200.030, 4 (A) AND, NRS 176.355 AND 176.355

AS CERTIFIED ON THE _____ DAY OF _____, 20__, BY THE

_____ JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA IN

HONORABLE _____ DISTRICT JUDGE.

AT: _____

ON THE _____ DAY OF _____

PRISONER [illegible] CHAMBER

INMATE STRAPPED TO TABLE

DOOR CLOSED AT

LETHAL DOSE OF [illegible] ADMINISTERED

SODIUM THIOPENTAL, DOSAGE

PAVULON, DOSAGE

POTASSIUM CHLORIDE, DOSAGE

PRONOUNCED DEAD

REMOVED FROM CHAMBER

SUBMITTED BY

REVIEWED BY

MICHAEL J. [illegible]

NEVADA STATE [illegible]

[illegible] CORONER

No.03-6821

IN THE UNITED STATES SUPREME COURT

October Term, 2003

DAVID LARRY NELSON,
Petitioner,

vs.

DONAL CAMPBELL,
Commissioner of the Alabama Department of Corrections,
and
GRANTT CULLIVER,
Warden of William C. Holman Correctional Facility,
Respondents.

ON PETITION FOR WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

BRIEF OF AMICI CURIAE IN SUPPORT OF PETITIONER

KATHRYN LOUISE LIPPERT
Alabama Bar No. ASB-8428-164K
Post Office Box 661111
Birmingham, Alabama 35266
Telephone (205) 426-3705
Fax Number (205) 426-3750

Counsel for Amici Curiae

AMICI CURIAE

Dr. Laurie Dill
Montgomery, Alabama

Dr. Frank J. Hogan
Montgomery, Alabama

Dr. David W. Hode
Selma, Alabama

Dr. Mark C. D. Mitchell
Atmore, Alabama

Dr. Jane Mobley
Birmingham, Alabama

Dr. William Winterwitz
Tuscaloosa, Alabama

TABLE OF CONTENTS

QUESTIONS PRESENTED

The Petitioner has raised the following two questions in his Petition for Writ of Certiorari before this Court:

1. Whether an action brought by a death-sentenced prisoner pursuant to 42 U.S.C. § 1983, which does not attack a conviction or sentence, is – simply because the person is under a sentence of death – to be treated as a habeas corpus case subject to the restriction on successive petitions which categorically precludes review of *any* constitutional violation not related to innocence (as the Fourth, Fifth and Eleventh Circuits hold), or can be maintained as § 1983 action (as the Sixth, Eighth and Ninth Circuits and several lower courts hold)?

2. Whether a cut-down procedure, which involves pain and mutilation, conducted prior to an execution by lethal injection, violates the Eighth Amendment to the United States Constitution?

STATEMENT OF INTEREST OF AMICI CURIAE

Each amicus curiae is a practicing physician in the State of Alabama[1]. The amici curiae have been informed of the medical procedures the Respondents have proposed using to gain venous access to the Petitioner to execute him by lethal injection.

The proposed medical procedures concern us as physicians for a number of reasons. First, obtaining central venous access is a complex medical procedure that involves serious risks and should only be performed by properly trained personnel. In this situation the Respondents will not disclose the credentials of the people who will be performing the procedure, including whether or not the physician is actually licensed to practice medicine in the State of Alabama or any other state. We are also concerned because it is apparent to us that the Respondents hope to implement a plan that was not designed by competent, credentialed physicians, and thereby are placing the Petitioner at high risk of enduring severe and needless pain and suffering.

1 Pursuant to Rule 37.6, Rules of the Supreme Court of the United States, counsel for neither party has authored this brief in whole or in part.

SUMMARY OF ARGUMENT

The Respondents must gain venous access to the Petitioner in order to execute him by lethal injection. Venous access may be obtained in most people by placing a very thin catheter under the skin in the hand or arm. Gaining venous access in this manner is referred to as peripheral venous access and is a relatively simple procedure.

Gaining peripheral venous access may be difficult or essentially impossible in some patients. When dealing with these people, central venous access must be obtained, which involves obtaining access to a central vein such as those in the chest and abdomen. Central venous access can only be achieved via a relatively complicated medical procedure.

The Respondents have essentially conceded that they will not be able to gain peripheral venous access to the Petitioner in order to execute him by lethal injection. As such, they will have to perform an invasive medical procedure to gain central venous access to the Petitioner prior to his execution.

There are two predominant methods for obtaining central venous access - - the percutaneous technique and the cut down

technique. In the overwhelming majority of situations where central venous access is required, the percutaneous technique is heavily favored over the cut down technique. This is because the percutaneous technique is less invasive, less painful, safer, faster, easier to learn, easier to teach, and easier to perform.

Attempts to gain central venous access should only be made by skilled, experienced physicians who have been specially trained to perform the requisite medical procedures. It cannot be emphasized enough that merely being a physician in no way qualifies a person to perform medical procedures to gain central venous access.

Many serious and painful complications may arise while a central venous catheter is being placed. These complications include severe pain, hemorrhage (severe bleeding), serious cardiac arrhythmias (abnormal beating of the heart causing shock), and pneumothorax (lung collapse due to collection of air between the lung and chest wall). Additionally, the amount of pain caused by the procedure is related to the experience of the medical practitioner performing the procedure.

For some unknown reason, the Respondents intend to use the cut down procedure instead of the percutaneous procedure. The Respondents also refuse to disclose the credentials and experience of the medical personnel who will be in charge of performing the cut down procedure.

Based on the scant information that the Respondents have disclosed, it appears that people with sufficient medical knowledge have not designed the medical procedure being prepared by the Respondents. Furthermore, there are no assurances that a competent, qualified, licensed physician will be performing the medical procedures proposed by the Respondents.

Of no small concern is the fact that the proposed medical procedures described by the Respondents include references to anatomy not present in human beings. In addition, the Respondents use the terms "percutaneous technique" and "cut down technique" interchangeably when the techniques are completely distinct.

Based upon the foregoing, the amici curiae have grave concerns about the medical procedures proposed by the Respondents. The amici curiae strongly recommend that the Petitioner's execution

be postponed until the Respondents disclose a medically sound, detailed description of the procedure that will be undertaken as well as a description of the experience and credentials of the medical personnel who will be performing the procedure.

ARGUMENT

I. INTRODUCTION

The Respondents have encountered a unique problem in the Petitioner's case involving the need for medical procedures to be performed on the Petitioner in order for the Respondents to gain intravenous access to the Petitioner for the purpose of executing him by lethal injection. It the intent of the amici curiae to outline some of the considerations surrounding intravenous access and also to explain the bases for our concerns about the medical procedures for gaining intravenous access to the Petitioner which are being contemplated by the Respondents.

II. BASIC CONSIDERATIONS REGARDING INTRAVENOUS ACCESS

Obtaining intravenous access is a common and essential procedure in the contemporary practice of medicine, because many drugs are only effective if delivered directly into the venous system.

In the vast majority of situations, intravenous access can be easily obtained by placing a very thin catheter (the same diameter or smaller than the wire of a coat hanger) into a vein located just under the skin in the hand or arm. This is called "peripheral access", as contrasted with "central access" which makes use of a "central vein" such as those in the chest and abdomen. Peripheral access is usually a minor procedure that causes a small amount of pain or discomfort, comparable to that caused by a vaccination.

Unfortunately, in some patients peripheral access cannot easily be obtained, or is essentially impossible to obtain. One circumstance where this problem is commonly encountered is in patients who have received chemotherapy, which causes injury and scarring of peripheral subcutaneous veins. As their veins deteriorate, a point is reached where the search for peripheral access becomes arduous and agonizing, and the patient and physician reach a joint decision to place a central intravenous catheter. This decision is not reached lightly, as placement of a chronic indwelling central catheter is a non-trivial surgical procedure that involves pain and risk. Often the patient is referred to a physician with expertise in obtaining vascular access; as

many physicians do not themselves have the experience and credentials to place a central catheter or to treat the complications that are associated with the procedure. Other clinical situations that involve difficult intravenous access include obese patients (in whom the subcutaneous veins are obscured by adipose tissue), patients who have taken corticosteroids for diseases such as arthritis and lupus, patients who suffer from diabetes and regularly inject insulin, and patients with a history of intravenous drug abuse. Additionally, some patients without any apparent reason just have no readily accessible peripheral veins.

Central venous access is indicated in several other clinical situations. As an example, patients undergoing major surgery often undergo central line placement (usually after general anesthesia has been induced) for the purposes of delivering large volumes of blood and fluids to treat anticipated intraoperative bleeding. Patients undergoing cardiac catheterization for diagnostic purposes may also require the placement of central venous catheters. Central access is also required for the placement of implanted cardiac pacemakers. The above list is not intended to be comprehensive, but rather is presented

for the purpose of conveying the scope of settings in which central intravenous access may be required.

It should be noted that in the great majority of the above-referenced therapeutic situations, peripheral intravenous access is obtained prior to embarking on the central venous access procedure. This allows the practitioner to administer painkillers and sedatives which render the central venous access procedure virtually innocuous. In the rare and unfortunate situation where peripheral intravenous access cannot be established before placing the central line, the experience is physically grueling, painful, and arduous for the person undergoing the procedure.

III. TECHNIQUES FOR OBTAINING CENTRAL VENOUS ACCESS

Putting aside rarely used methods, it is fair to say that two main techniques are used for obtaining central venous access. One technique, which is the most commonly used today, is called the "percutaneous technique". This involves inserting a needle through the skin and into the vein, then passing a thin wire through the lumen of the needle, then removing the needle over the wire to leave the wire placed in the vein, and then finally advancing a thin flexible catheter

over the wire into the vein. The wire can then be removed, leaving the catheter in the vein. Usually this procedure is performed in the groin (femoral vein), the neck (internal or external jugular vein), or under the collar bone (subclavian vein).

The second technique for obtaining central intravenous access is called the cut down technique. This involves the use of a scalpel to make a series of incisions through the skin, the subcutaneous fat, and the underlying muscle, to reach the relatively deeply located central vein. The length of these incisions is in the range of two inches and depends upon a variety of factors including location of the incision, degree of scarring, depth of the vessel, and the skill of the surgeon. As with the percutaneous technique, this procedure is usually performed in the groin (femoral vein), the neck (internal or external jugular vein), or under the collar bone (subclavian vein). The cut down technique is also used to obtain access to veins in the arm and leg, particularly in the setting of shock from trauma, where bleeding has emptied the vascular system and percutaneous access is thereby made difficult. Unlike the percutaneous technique, the cut down technique requires an array of surgical tools including hemostats, retractors, scissors, and

scalpels. The procedure typically requires the use of electrocautery, which is used to stop bleeding by burning the open ends of blood vessels.

The selection between these techniques is a therapeutic decision that is made by the practitioner based on the considerations of the individual situation. Nevertheless, we state with confidence that in the overwhelming majority of situations where central access is required, the percutaneous technique is heavily favored over the cut down procedure. The reasons for this are simple: compared with the cut down technique, the percutaneous technique is less invasive, less painful, less expensive, safer, faster, easier to learn, easier to teach, and easier to perform.

IV. QUALIFICATIONS FOR OBTAINING CENTRAL ACCESS

Obtaining central venous access, whether by the percutaneous technique or the cut down technique, is a significant medical procedure that requires skill, judgment, and experience. These procedures are typically taught during post-graduate medical residency training, and involve "elbow to elbow" supervision by an experienced practitioner. Some medical specialties (including surgery,

anesthesiology, cardiology, intensive care, and interventional radiology) frequently involve placement of central venous catheters. In other medical specialties, it is frequently the case that a patient requiring central venous access will be referred to a physician with expertise and proficiency in performing the procedure.

For physicians to be permitted to practice in a given hospital, they must apply for and receive admitting privileges. As part of this process, a physician will apply for permission to perform various procedures, and hospitals have in place systems for ascertaining whether such procedure privileges should be granted. Obtaining central venous access, whether by the percutaneous technique or the cut down technique, is a procedure that is specifically privileged by hospitals. This system is followed throughout the country as a means of ensuring that personnel possessing adequate training and experience care for patients. In particular, in granting privileges for performing central venous access a hospital board would need evidence that a physician performs the procedure with significant frequency and has appropriate credentials. Among the required credentials would be evidence of active state licensure. A hospital would also need to

review a physician's career record to ensure that there was no history of licensure revocation for misconduct or incompetence. It is very important to understand that merely being a physician in no way provides an assurance that proficiency or even familiarity with intravenous access exists.

V. COMPLICATIONS OF PLACING CENTRAL VENOUS CATHETERS

One of the reasons for requiring credentialing for obtaining central venous access is that the procedures are associated with significant complications. These complications include pain, hemorrhage (severe bleeding), cardiac arrhythmias, and pneumothorax (accumulation of air in the space between the lung and inner chest wall, causing lung collapse and suffocation). The amount of pain caused by the procedure is related to the experience of the practitioner. A skilled practitioner will spend less time "fishing around" to find the location of the vein and will be more adept at effectively infiltrating local anesthesia to make the procedure more comfortable.

Hemorrhage can occur because of lacerating or rupturing the large blood vessels that are the targets of the procedure. Hemorrhage can be external or internal. If it is external, one result can be

widespread distribution of blood throughout the operative field, including the drapes covering the patient's face, the floor, the medical personnel, and the operating table. If the hemorrhage is internal, expertise and experience is often required to recognize the problem and provide appropriate treatment. Hemorrhage, while not painful per se, is extraordinarily distressing and is associated with nausea, shortness of breath, a sense of suffocation, and terror.

Cardiac arrhythmias (abnormal beating of the heart) can be triggered by inadvertent stimulation of the heart muscle by the catheter or wire. These arrhythmias can cause a profound lowering of blood pressure, which like hemorrhage is extremely distressing. If that were to occur, the patient would likely require electrical defibrillation or electrical cardioversion, both of which would burn the skin and produce an extraordinarily agonizing experience for a conscious patient.

Finally, the complication of pneumothorax can be caused by inadvertently puncturing the thin sac that separates the lungs from the inner side of the chest wall. The resulting lung collapse is painful and extremely distressing, causing suffocation and sometimes death. The

treatment of pneumothorax involves the insertion of one or more large diameter tubes (approximately one-half inch in diameter) between the ribs and deep into the chest to evacuate the air. This procedure is painful, should only be performed by experienced practitioners, and is accompanied by its own set of catastrophic complications.

It should be noted that in most clinical situations in which central venous access is being obtained, peripheral intravenous access has already been established. Peripheral lines play a critical role in the treatment of the above-described complications because they permit the administration of painkillers and sedatives, drugs for treating arrhythmias, and allow for the infusion of blood and other fluids to treat hemorrhage. Logically, in a setting where central access is required because peripheral access could not be achieved, these complications are much more fearsome and difficult to manage.

VI. CONCERNS OF AMICI CURIAE REGARDING THE STATE OF ALABAMA'S PROPOSED PROCEDURES TO OBTAIN CENTRAL VENOUS ACCESS IN THE PETITIONER

It is our understanding that the Petitioner has a history of difficult intravenous access. The affidavit of Warden Grantt Culliver states that difficulty is anticipated in obtaining intravenous access and

that a plan has been formulated to obtain central venous access. It is our further understanding that this plan involves attempting catheter placement in the groin, the neck, or the arm.

It is our understanding that the Respondents have refused to disclose the State of Alabama's protocol for lethal injection and have disclosed very little information about the methods that will be employed in attempts to gain venous access in the Petitioner. It is our further understanding that the Respondents have not disclosed any information about the personnel who will be placing the central catheter in the Petitioner, including information about the personnel's credentials and experience. Indeed, it is not even known whether the individual who will be performing the medical procedure holds a current license to practice medicine in the State of Alabama or any other state. Thus, there is no assurance or basis for confidence that a suitably proficient practitioner will perform the medical procedure.

The failure on the part of the Respondents to provide this information makes it impossible to rationally ascertain whether or not reasonable steps have been taken to ensure that the procedure will not be bungled and cause extreme suffering and distress to the Petitioner.

Warden Culliver in his affidavit states that if the central intravenous access is obtained via the neck, the "external carotid vein" will be used. There is no such structure in human beings, and it is not credible to the amici curiae that a trained physician or practitioner would even mistakenly use this term. Oddly, an affidavit by Dr. Marc Sonnier also uses the term "external carotid vein". The use of this term bespeaks the presence of less than a glimmer of familiarity with the procedure and buttresses our concern that the personnel recruited by the Respondents for this procedure will not possess the requisite proficiency and expertise. It is difficult to believe that any personnel currently employed by the Respondents possess the requisite expertise to perform, review, or "sign off" on the procedures proposed by the Respondents.

It is our understanding that Warden Culliver's initial plan was to place the central line twenty-four hours in advance of the execution. This plan reflects a troubling lack of judgment. The fact that Warden Culliver retracted this ill-advised plan, eventually asserting that the procedure would be performed one or two hours prior to the execution, does nothing to mitigate the fact that he made the proposal and, for a

period of time, defended it. Also, it is our understanding that Warden Culliver initially informed the Petitioner that the procedure would involve an incision a quarter of an inch in length but later informed the Petitioner, as is reflected in his affidavit, that the incision would be approximately two inches in length. Warden Culliver clearly lacks the experience and expertise to make decisions about the medical features of the procedure.

It is also our understanding that during early discussions about plans to obtain intravenous access in the Petitioner, Warden Culliver used the term "cut-down" to refer to the percutaneous procedure. As described above, the two procedures are very different, and in virtually all cases it is preferable to use the percutaneous technique. Warden Culliver's failure to discern the distinctions between these procedures, in conjunction with his apparent prominent role in designing the procedure, strongly suggests that the Petitioner is at risk for being subjected to a poorly designed procedure.

In summary, the procedures for obtaining central venous access are complex medical procedures that require training and skill and should only be performed by experienced and credentialed personnel.

Warden Culliver's approach thus far has been to conceal from the Petitioner the nature of the procedure to be performed and the qualifications of the personnel who will be performing it. Based upon the scant information that has been provided by the Respondents, the amici curiae are concerned that the Petitioner is at great risk of experiencing unnecessary suffering and pain.

VII. CONCLUSION

In view of the above-described problems, each amicus curiae cannot escape the unfortunate conclusion that the Respondents have taken a haphazard and disarrayed approach to designing the procedure for obtaining intravenous access in the Petitioner's case. This situation brings to mind an adage of medical training, "failing to plan is planning to fail". We do not understand why it would not be in the best interest of the Respondents to contract with a demonstrably experienced physician to perform the procedure of obtaining central intravenous access on the Petitioner. We also do not understand why it would not be in the best interest of the Respondents to provide information about the physician's credentials so that it could be reasonably determined that central intravenous access would be

IN THE SUPREME COURT OF THE STATE OF NEVADA

* * * * * * * * * *

MICHAEL RIPPO,

Appellant,

-vs-

E.K. McDANIEL, et al.,

Respondent.

No. 53626

JOINT APPENDIX
Volume 22 of 48

Vol.	Title	Date	Page
2	Affidavit	02/14/94	JA00371-JA00377
2	Affidavit	03/07/94	JA00400-JA00402
18	Affidavit of David M. Schieck Regarding Supplemental Brief in Support of Writ of Habeas Corpus	08/17/04	JA04316-JA04320
3	Amended Indictment	01/03/96	JA00629-JA00633
3	Amended Notice of Intent to Seek Death Penalty	03/23/94	JA00583-JA00590
8	Answer in Opposition to Defendant's Motion for Mistrial Based on an Alleged Discovery Violation	02/08/96	JA01873-JA01886
17	Answer in Opposition to Motion for New Trial	05/01/96	JA04008-JA04013
48	Criminal Court Minutes	10/27/08	JA11603
2	Defendant's Motion to Strike Aggravating Circumstances Numbered 1 and 2 and for Specificity as to Aggravating Circumstance Number 4	08/20/93	JA00274-JA00281
18	Errata to Supplemental Brief in Support of Defendant's Petition for Writ of Habeas Corpus (Post-Conviction)	03/12/04	JA04257-JA04258

Vol.	Title	Date	Page
19	Findings of Fact, Conclusions of Law and Order	12/01/04	JA04411-JA04413
48	Findings of Fact, Conclusions of Law and Order	11/17/08	JA11604-JA11611
1	Indictment	06/05/92	JA00235-JA00238
15	Instructions to the Jury	03/06/96	JA03358-JA03398
16	Instructions to the Jury	03/14/96	JA03809-JA03834
17	Judgment of Conviction	05/31/96	JA04037-JA04039
11	Motion for Disclosure of Exculpatory Evidence Pertaining to the impact of the Defendant's Execution Upon Victim's Family Members	02/28/96	JA02620-JA02624
2	Motion for Discovery of Institutional Records and Files Necessary to Rippo's Defense	08/24/93	JA00286-JA00294
3	Motion for a Witness Deposition	06/19/94	JA00621-JA00628
17	Motion for New Trial	04/29/96	JA04002-JA04007
2	Motion in Limine to Exclude Testimony of Defendant's Prior Bad Acts	08/23/93	JA282-001 to JA282-005
2	Motion of Defendant for Discovery and to Inspect All Evidence Favorable to Him	10/21/92	JA00254-JA00259
11	Motion to Bar the Admission of Cumulative Victim Impact Evidence in Violation of the Due Process Clause	02/28/96	JA02603-JA02606
2	Motion to Disqualify the District Attorney's Office	02/07/94	JA00334-JA00345
2	Motion to Exclude Autopsy and Crime Scene Photographs	08/23/93	JA00282-JA00285
11	Motion to Preclude the Consideration of Victim Impact Evidence Pursuant to NRS 175.552, 200.033, and 200.035	02/28/96	JA02613-JA02619
11	Motion to Preclude the Introduction of Victim Impact Evidence Pertaining to Victim Family Members' Characterizations and Opinions About the Crime, the Defendant, and/or the Appropriate Sentence	02/28/96	JA02625-JA02629
2	Motion to Quash and for a Protective Order	09/09/93	JA00298-JA00303

Vol.		Title	Date	Page
		Case No. C083143, November 18, 1999		
42				JA10051-JA10057
	6	Decision, Bennett v. McDaniel, Case No. C83143, Eighth Judicial District Court, November 16, 2001		
42				JA10058-JA10061
	7	Declaration of Michael Pescetta regarding locating exhibits in Parker file, Bennett v. McDaniel, et al. Case No. CV-N-96-429-DWH, District of Nevada, January 8, 2003		
42				JA10062-JA10066
	8	Las Vegas Metropolitan Police Department Memorandum re: State v. Butler, Case No. C155791, December 30, 1999		
42				JA10067-JA10085
	9	Transcript of Defendant's Motion for Status Check on Production of Discovery, State v. Butler, Case No. C155791, Eighth Judicial District Court, April 18, 2000		
42				JA10086-JA10087
	10	Letter from Office of the District Attorney to Joseph S. Sciscento, Esq., re State v. Butler, Case No. C155791, Eighth Judicial District Court, November 16, 2000		
42				JA10088-JA10092
	11	Letter from Law Offices of Sam Stone to Hon. Michael Douglas, District Court Judge, State v. Butler, Case No. 155791, Eighth Judicial District Court, December 7, 2000		
42				JA10093-JA10107
	12	Motion for New Trial, State v. Butler, Case No. C155791, Eighth Judicial District Court, January 17, 2001		
42				JA10108-JA10112
	13	Affidavit of Carolyn Trotti, State v. Butler, Case No. C155791, January 19, 2001		
42				JA10113-JA10135
	14	Opposition to Motion for New Trial Based on Allegations of Newly Discovered Evidence, State v. Butler, Case No. C155791, Eighth Judicial District Court, February 16,		

Vol.		Title	Date	Page
42		2001		JA10136-JA10141
42	15	Reply to State's Opposition to Defendant's Motion for New Trial, State v. Butler, Case No. C155791, Eighth Judicial District Court, February 27, 2001		JA10142-JA10144
42	16	Order, State v. Butler, Case No. C155791, Eighth Judicial District Court, March 8, 2001		JA10145-JA10154
42	17	Fax Transmission from Terri Elliott with the Office of the Special Public Defender, State v. Butler, Case No. C155791, Eighth Judicial District Court, March 19, 2001		JA10155-JA10161
42	18	Order affirming in part, reversing in part and remanding, State v. Butler, Case No. 37591, May 14, 2002		JA10162-JA10170
42	19	Reporter's transcript of jury trial, United States v. Catania, June 11, 2002		JA10171-JA10177
42	20	Reporter's transcript of jury trial, United States v. Catania, June 13, 2002		JA10178-JA10184
42	21	Transcript of Status Conference/Scheduling Conference Before the Honorable Howard K. McKibben, United States District Judge, Case No. CV-N-00-101-HDM (RAM), District of Nevada, January 14, 2003 (Doyle)		JA10185-JA10200
42	22	Answer in Opposition to Motion for New Trial; or in the Alternative, Motion for New Appeal, State v. D'Agostino, Case No. C95335, Eighth Judicial District Court, September 21, 1993		JA10201-JA10207
	23	Declaration of Tim Gabrielsen, and partial FBI production in Echavarria v. McDaniel, et al., CV-N-98-0202, June 2004		

Vol.		Title	Date	Page
42				JA10208-JA10238
43				JA10239-JA10353
	24	Motion for Leave to Conduct Discovery, Emil v. McDaniel, et al.,		
43		August 24, 2001		JA10354-JA10357
	25	Criminal Complaint and Minutes of the Court, State v. Kenny, Case No. 85F-3637, Justice Court, Las Vegas		
43		Township, 1985 (Emil)		JA10358-JA10362
	26	Notice of Denial of Request, Clark County District Attorney, State v. Emil, Case No. C82176, Eighth Judicial District Court, August 13,		
43		1985		JA10363-JA10383
	27	Various reports of the Las Vegas Metropolitan Police Department, Detention Services Division, produced in State v. Haberstroh, Case No. C076013, regarding investigation into the identity of Clark County Detention Center inmate who manufactured a shank,		
42		1987		JA10384-JA10434
	28	Deposition of Sharon Dean in Haberstroh v. McDaniel, Case No. C076013, Eighth Judicial District, October 15, 1998 and December 7,		
42		1998		JA10435-JA10449
	29	Deposition of Arlene Ralbovsky in Haberstroh v. McDaniel, Case No. C076013, Eighth Judicial District, December 7, 1998 and January 28,		
43		1999		JA10450-JA10488
44				JA10489-JA10554
	30	Deposition of Patricia Schmitt in Haberstroh v. McDaniel, Case No. C076013, Eighth Judicial District, December 7, 1998 and January 28,		
44		1999		JA10555-JA10563
	31	Recorder's Transcript Re: Evidentiary Hearing, State v. Haberstroh, Case No. C076013, Eighth Judicial District Court, January 28, 2000		

Vol.		Title	Date	Page
44	32	Order, Hill v. McDaniel, et al., Case No. CV-S-98-914-JBR (LRL), District of Nevada, May 20, 1999		JA10564-JA10568
44	33	FBI memorandum to SA Newark, Homick v. McDaniel, (Homick 167), August 31, 1977		JA10569-JA10570
44	34	FBI memorandum, New York to Newark Homick v. McDaniel, (Homick 168), January 31, 1978		JA10571-JA10573
44	35	FBI Teletype, FM Director to Las Vegas (Homick 166), September, 1985		JA10574-JA10576
44	36	FBI Teletype San Diego to Las Vegas (Homick 165), October, 1985		JA10577-JA10582
44	37	Chronological record, Homick v. McDaniel (Homick 10), November 1985		JA10583-JA10584
44	38	FBI notes re Homick receiving money from LVMPD employee, Homick v. McDaniel, December 11, 1985		JA10585-JA10589
44	39	FBI notes, Homick v. McDaniel, December 1985 and January 1986		JA10590-JA10593
44	40	FBI notes, Homick v. McDaniel (Pennsylvania) January 4, 1986		JA10594-JA10595
44	41	FBI redacted notes, Homick v. McDaniel (New Jersey), January 7, 1986		JA10596-JA10597
44	42	FBI redacted notes, Homick v. McDaniel (Homick), January 9, 1986		JA10598-JA10599
44	43	FBI redacted notes, Homick v. McDaniel (Pennsylvania), January 13, 1986		JA10600-JA10601
44	44	FBI redacted notes, Homick v. McDaniel (Las Vegas), January 14, 1986		JA10602-JA10603

Vol.		Title	Date	Page
44	45	FBI 302 interview of Norma K. Thompson, Homick v. McDaniel, March 18, 1986		JA10604-JA10606
44	46	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10607-JA10608
44	47	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10609-JA10610
44	48	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10611-JA10612
44	49	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10613-JA10614
44	50	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10615-JA10616
44	51	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10617-JA10618
44	52	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10619-JA10620

Vol.		Title	Date	Page
44	53	FBI Director Webster letter to redacted LVMPD officer thanking him/her for work in connection with joint investigation, Homick v. McDaniel, June 10, 1986		JA10621-JA10622
44	54	FBI 302 memorandum of interview of Tim Catt, Homick v. McDaniel (Homick 164), August 18, 1988		JA10623-JA10625
44	55	Reporter's transcript of evidentiary hearing, partial, State v. Homick, March 7, 1989		JA10626-JA10637
44	56	Reporter's transcript of motions, State v. Homick (Homick 48), April 10, 1989		JA10638-JA10640
44	57	Reporter's transcript of jury trial Vol. 6, State v. Homick, April 25, 1989		JA10641-JA10652
44	58	Reporter's transcript of jury trial, partial, Vol. 7, State v. Homick, April 26, 1989		JA10653-JA10660
44	59	Reporter's transcript of jury trial Vol. 11, State v. Homick (Homick 52), May 2, 1989		JA10661-JA10664
44	60	Reporter's transcript of penalty hearing, State v. Homick, Vol. 1 (Homick 108), May 17, 1989		JA10665-JA10668
44	61	Reporter's transcript of trial, partial, Vol. 83, State v. Homick, November 10, 1992		JA10669-JA10673
44	62	Letter from Eric Johnson/Walt Ayers, Assistant United States Attorneys to Mark Kaiserman denying FBI joint investigation with LVMPD, Homick v. McDaniel, January 28, 1993		JA1674-JA10676
44	63	Letter from AUSA Warrington Parker to Judge Cooper, Homick v. McDaniel, May 7, 1993		JA10677-JA60678

Vol.		Title	Date	Page
44	64	Letter from AUSA Warrington Parker to Judge Cooper, Homick v. McDaniel, May 11, 1993		JA10679-JA10680
44	65	Reporter's transcript on appeal, State v. Homick Vol. 140 (Homick 102) June 29, 1994		JA10681-JA10684
44	66	Chart detailing evidence of joint investigation - joint activity between LVMPD and FBI, Homick v. McDaniel, October 9, 2003		JA10685-JA10692
44	67	Chart detailing evidence of joint investigation - information sharing between LVMPD and FBI, Homick v. McDaniel, October 9, 2003		JA10693-JA10696
44	68	Chart detailing evidence of joint investigation - admissions, Homick v. McDaniel, October 9, 2003		JA10697-JA10705
44	69	Declaration of Joseph Wright, Homick v. McDaniel (Homick 176), October 9, 2003		JA10706-JA10707
44 45	70	Petitioner's Motion for Leave to Conduct Discovery, Homick v. McDaniel, October 10, 2003		JA10708-JA10738 JA10739-JA10756
45	71	Recorder's Transcript Re: Evidentiary Hearing, State v. Jiminez,Case No. C77955, Eighth Judicial District Court, April 19, 1993		JA10757-JA10786
45	72	Transcript of Proceedings Sentence, State v. Bezak, Case No. CR89-1765, Second Judicial District Court, November 27, 1989 (Jones)		JA10787-JA10796
45	73	Response to Motion to Compel Discovery, Jones v. McDaniel, et al., Case No. CV-N-96-633-ECR, District of Nevada, March 1999		JA10797-JA10802

Vol.		Title	Date	Page
45	74	Declaration of David J.J. Roger, Chief Deputy District Attorney, concerning Jones v. McDaniel, Case No. CV-N-96-633 ECR, District of Nevada, June 30, 1999		JA10803-JA10805
45	75	Transcription of VCR Tape of the Adam Evans hearing in front of Judge Hardcastle, In The Matter of Adam Owens Evans, Case No. J52293, Juvenile Court (Lisle)		JA10806-JA10809
45	76	Excerpt of trial record, State v. Lisle, Case No. 129540, Vol. 10 page 15, March 12, 1996		JA10810-JA10812
	77	Not Used		
	78	Not Used		
45	79	Letter from Inv. Larry A. Schuchman, City of Orlando, Florida, Police Department, to Inv. Bob Milby, Nevada Division of Inv. and Narcotics re Terry Carl Bonnette, January 29, 1981 (Milligan)		JA10813-JA10816
45	80	Notice of Entry of Decision and Order and Amended Findings of Fact, Conclusions of Law, and Order, State v. Miranda, Case No. C057788, Eighth Judicial District Court, February 13, 1996		JA10817-JA10838
45	81	Reporter's Transcript of Proceedings, State v. Rippo, Case No. C106784, Eighth Judicial District Court, February 8, 1996		JA10839-JA10846
45	82	Reporter's Transcript of Calendar Call, State v. Morelli, Case Nos.C64603 and C64604, Eighth Judicial District Court, January 12, 1984 (Snow)		JA10847-JA10859

Vol.		Title	Date	Page
45	83	Reporter's Transcript of Proceedings (Testimony of Richard Morelli), State v. Snow, Case No.C61676, Eighth Judicial District Court, April 17, 1984		JA10860-JA10884
45	84	Letter from Melvyn T. Harmon, Chief Deputy, Office of the District Attorney, To Whom It May Concern re Richard Joseph Morelli, July 20, 1984 (Snow)		JA10885-JA10886
45	85	Deposition of Melvyn T. Harmon, Esq., Snow v. Angelone, Case No. 6-12-89-WPHC, Seventh Judicial District Court, September 25, 1992		JA10887-JA10921
45	86	Las Vegas Review Journal excerpt, May 3, 2004, "Police Say Binion Witness Not Credible" (Tabish)		JA10922-JA10924
45	87	Letter from Kent R. Robison of Robison, Belaustegui, Robb and Sharp, to E. Leslie Combs, Jr., Esq. Re: Kathryn Cox v. Circus Circus, et al., October 16, 1995, in relation to Witter v. McDaniel, CV-S-01-1034-RLH (LRL), District of Nevada		JA10925-JA10929
45	88	LVMPD Certificate of [Informant] Management Course completion, April 14, 1994		JA10930-JA10931
45	89	Las Vegas Metropolitan Police Department Cooperating Individual Agreement and Special Consent and Waiver of Liability		JA10932-JA10934
45	90	David J.J. Roger letter to Nevada State Parole Board Chairman regarding Robert Bezak (Jones), December 3, 1990		JA10935-JA10936
45	91	Declaration of Herbert Duzant dated May 15, 2008		JA10937-JA10938
45	92	Records request to Juvenile Justice Division dated May 14, 2008		JA10939-JA10948

Vol.		Title	Date	Page
45	93	Records request to Nassau County Department of Social Services dated May 15, 2008		JA10949-JA10973
46	94	Records request to Central Medicaid Office dated May 15, 2008		JA10974-JA10996
46	95	Records request to Central Medicaid Office dated November 29, 2007		JA10997-JA11007
46	96	Records request to Office of the Clark County District Attorney dated November 27, 2007 (re Bongiovanni)		JA11008-JA11010
46	97	Records request to Office of the United States Attorney dated November 27, 2007 (re Bongiovanni)		JA11011-JA11013
46	98	Records request to the Clark County District Attorney dated December 5, 2007 (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11014-JA11026
46	99	Records request to Clark County District Attorney dated December 5, 2007 (re Victim/Witness information)		JA11027-JA11034
46	100	Records request to Franklin General Hospital dated November 29, 2007		JA11035-JA11050
46	101	Records request to Justice Court, Criminal Records dated December 5, 2007		JA11051-JA11055
46	102	Records request to Nassau County Department of Social Services dated November 28, 2007		JA11056-JA11069
46	103	Records request to Nevada Department of Corrections dated November 29, 2007 (re: Levine)		JA11070-JA11080

Vol.		Title	Date	Page
46	104	Records request to Nevada Department of Parole and Probation dated November 29, 2007 (re Levine)		JA11081-JA11095
46	105	Records request to Nevada Department of Parole and Probation dated April 12, 2007 (re: Rippo)		JA11096-JA11103
46	106	Records request to Word of Life Christian Center Pastor David Shears, Assistant Pastor Andy Visser dated November 29, 2007		JA11104-JA11110
46	107	Response to records request from Nevada Department of Parole and Probation dated December 3, 2007		JA11111-JA11112
46	108	Response to records request from Office of the District Attorney dated January 28, 2008 (re Victim Witness)		JA11113-JA11114
46	109	Response to records request from Word of Life Christian Center Assistant Pastor Andy Visser dated December 11, 2007		JA11115-JA11116
46	110	Records request to Franklin General Hospital dated May 16, 2008 (re: Stacie Campanelli)		JA11117-JA11128
46	111	Records request (FOIA) to Executive Offices for the United States Attorneys dated November 27, 2007		JA11129-JA11132
46	112	Records request (FOIA) to the FBI dated November 27, 2007		JA11133-JA11135
46	113	Response to records request to Executive Offices for the United States Attorneys, undated		JA11136-JA11137
46	114	Records request to Nevada Division of Child and Family Services dated May 16, 2008 (re: Stacie)		JA11138-JA11144
46	115	Records request to Claude I. Howard Children's Center dated May 16, 2008 (re: Stacie Campanelli, Carole Ann Campanelli (deceased))		JA11145-JA11156

Vol.		Title	Date	Page
46	116	Records request to Clark County School District dated May 16, 2008 (re: Stacie Campanelli and Carole Ann Campanelli (deceased))		JA111457-JA11171
46	117	Records request to University Medical Center dated May 16, 2008 (re: Stacie Campanelli and Carole Ann Campanelli (deceased))		JA11172-JA11185
46	118	Records request to Valley Hospital Medical Center dated May 16, 2008 (re: Stacie Campanelli and Carole Ann Campanelli (deceased))		JA11186-JA11199
46	119	Records request to Desert Springs Hospital Medical Center dated May 16, 2008 (re: Stacie Campanelli and Carole Ann Campanelli (deceased))		JA11200-JA11213
46	120	Records request to Reno Police Department, Records and ID Section dated May 16, 2008		JA11214-JA11221
47	121	Records request to Washoe County Sheriff's Office dated May 16, 2008		JA11222-JA11229
47	122	Records request to Sparks Police Department dated May 16, 2008		JA11230-JA11237
47	123	Response to records request to Justice Court re: Michael Beaudoin		JA11238-JA11239
47	124	Response to records request to Justice Court re: Michael Thomas Christos		JA11240-JA11241
47	125	Response to records request to Justice Court re: Thomas Edward Sims		JA11242-JA11244
47	126	Response to records request to Justice Court re: request and clerk's notes		JA11245-JA11248
	127	Omitted.		

Vol.		Title	Date	Page
47	128	Subpoena to Clark County District Attorney, Criminal Division (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11249-JA11257
47	129	Proposed Order to the Clark County District Attoreny		JA11258-JA11267
47	130	Subpoena to Central Medicaid Office, New York, New York		JA11268-JA11272
47	131	Subpoena to Claude I. Howard Children's Center		JA11273-JA11277
47	132	Subpoena to City of New York, Department of Social Services		JA11278-JA11282
47	133	Subpoena to Desert Springs Hospital		JA11283-JA11288
47	134	Subpoena to Las Vegas Metropolitan Police Department Fingerprint Bureau		JA11289-JA11295
47	135	Subpoena to Las Vegas Metropolitan Police Department Communications Bureau		JA11296-JA11301
47	136	Subpoena to Las Vegas Metropolitan Police Department Confidential Informant Section		JA11302-JA11308
47	137	Subpoena to Las Vegas Metropolitan Police Department Criminalistics Bureau		JA11309-JA11316
47	138	Subpoena to Las Vegas Metropolitan Police Department Evidence Vault		JA11317-JA11323
47	139	Subpoena to Las Vegas Metropolitan Police Department Criminal Intelligence Section		JA11324-JA11330
47	140	Subpoena to Las Vegas Metropolitan Police Department Narcotics Sections I, II, and III		JA11331-JA11337

Vol.		Title	Date	Page
47	141	Subpoena to Las Vegas Metropolitan Police Department Property Crimes Bureau		JA11338-JA11344
47	142	Subpoena to Las Vegas Metropolitan Police Department Records Bureau		JA11345-JA11352
47	143	Subpoena to Las Vegas Metropolitan Police Department Robbery / Homicide Bureau		JA11353-JA11360
47	144	Subpoena to Nevada Parole and Probation (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11361-JA11368
47	145	Proposed Order to the Nevada Department of Parole and Probation		JA11369-JA11373
47	146	Subpoena to Las Vegas Metropolitan Police Department Gang Crimes Bureau		JA11374-JA11379
47	147	Subpoena to Las Vegas Metropolitan Police Department SWAT Division		JA11380-JA11385
47	148	Subpoena to Las Vegas Metropolitan Police Department Vice Section		JA11386-JA11392
47	149	Subpoena to Clark County Public Defender (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11393-JA11399
47	150	Subpoena to Henderson Police Department (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11400-JA11406

Vol.		Title	Date	Page
47	151	Subpoena to Nevada Department of Health and Human Services, Division of Child and Family Services		JA11407-JA11411
47	152	Subpoena to Reno Police Department (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11412-JA11418
47	153	Subpoena to Sparks Police Department (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11419-JA11427
47	154	Subpoena to University Medical Center		JA11428-JA11432
47	155	Subpoena to Valley Hospital		JA11433-JA11438
47	156	Subpoena to Washoe County Public Defender (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11439-JA11445
47	157	Subpoena to Washoe County Sheriff's Office, Records and ID Section (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11446-JA11453

Vol.		Title	Date	Page
47	158	Subpoena to Washoe County Sheriff's Office, Forensic Science Division (re: Michael Beaudoin, James Ison, David Jeffrey Levine, Michael Thomas Christos, Thomas Edward Sims (deceased), William Burkett (aka Donald Allen Hill), Diana Hunt and Michael Rippo)		JA11454-JA11460
47	159	Deposition Subpoena to Dominic Campanelli		JA11461-JA11463
47	160	Deposition Subpoena to Melody Anzini		JA11464-JA11466
47	161	Subpoena to the Clark County District Attorney's Office (re: Nancy Becker)		JA11467-JA11471
48	162	Subpoena to Nancy Becker		JA11472-JA11476
48	163	Subpoena to Clark County Human Resources Department (re: Nancy Becker)		JA11477-JA11481
48	164	Subpoena to Nassau County Department of Social Services		JA11482-JA11486
48	165	Subpoena to the Clark County School District		JA11487-JA11490
48	166	Subpoena to the Clark County District Attorney's Office (re: Gerard Bongiovanni)		JA11491-JA11495
48	167	Subpoena to the Office of the United States Attorney (re: Gerard Bongiovanni)		JA11496-JA11499
48	168	Subpoena to the Clark County District Attorney, Victim-Witness Assistance Center		JA11500-JA11505
48	169	Proposed Order to the Clark County District Attorney, Victim-Witness Assistance Center		JA11506-JA11508

Vol.		Title	Date	Page
48	170	Subpoena to the Office of Legal Services, Executive Offices for United States Attorneys -- FOIA (re: Bongiovanni)		JA11509-JA11513
48	171	Subpoena to the Federal Bureau of Investigation (re Bongiovanni)		JA11514-JA11518
48	172	Subpoena to the Las Vegas Metropolitan Police Department, Criminal Intelligence Section, Homeland Security Bureau, Special Operations Division (re Bongiovanni)		JA11519-JA11522
48	173	Subpoena to Leo P. Flangas, Esq. (re: Bongiovanni)		JA11523-JA11526
48	174	Subpoena to Nevada Department of Investigation		JA11527-JA11530
48	175	Subpoena to Bureau of Alcohol, Tobacco and Firearms		JA11531-JA11534
48	176	Subpoena to Robert Archie (re: Simms)		JA11535-JA11538
48	177	Subpoena to Nevada Department of Corrections (re: lethal injection)		JA11539-JA11545
48	178	Deposition subpoena to Howard Skolnik, NDOC		JA11546-JA11548
48	179	Deposition subpoena to Robert Bruce Bannister, D.O., NDOC		JA11549-JA11551
48	180	Deposition subpoena to Warden Bill Donat		JA11552-JA11554
48 1	181	Deposition subpoena to Stacy Giomi, Chief, Carson City Fire Department		JA11555-JA11 557
37		Opposition to Motion to Dismiss Petition for Writ of Habeas Corpus (Post-Conviction)	05/21/08	JA08758-JA08866
37		Exhibits to Opposition to Motion to Dismiss	05/21/08	JA08867-JA08869

Vol.		Title	Date	Page
37	329.	Leonard v. McDaniel, Eighth Judicial District Court, Case No. C126285, Reply to Opposition to Motion to Dismiss, filed March 11, 2008.		JA08870-JA08884
37	330.	Lopez v. McDaniel, Eighth Judicial District Court, Case No. C068946, State's Motion to Dismiss Petition for Writ of Habeas Corpus, filed February 15, 2008.		JA08885-JA08890
38	331.	Sherman v. McDaniel, Eighth Judicial District Court, Case No. C126969, Reply to Opposition to Motion to Dismiss, filed June 25, 2007.		JA08991-JA09002
38	332.	Witter v. McDaniel, Eighth Judicial District Court, Case No. C117513, Reply to Opposition to Motion to Dismiss, filed July 5, 2007.		JA09003-JA09013
38	333.	Floyd v. McDaniel, Eighth Judicial District Court, Case No. C159897, Recorder's Transcript of Hearing Re: Defendant's Petition for Writ of Habeas Corpus, filed December 28, 2007.		JA09014-JA09020
38	334.	Floyd v. McDaniel, Eighth Judicial District Court, Case No. C159897, State's Opposition to Defendant's Petition for Writ of Habeas Corpus (Post-Conviction) and Motion to Dismiss, filed August 18, 2007.		JA09021-JA09027
38	335.	State v. Rippo, Eighth Judicial District Court, Case No. C106784, Supplemental Brief in Support of Defendant's Petition for Writ of Habeas Corpus (Post-Conviction), filed February 10, 2004.		JA09028-JA09073
38	336.	Rippo v. State, Nevada Supreme Court, Case No. 28865, Appellant's Opening Brief.		JA09074-JA09185

Vol.		Title	Date	Page
38	337.	State v. Salem, Eighth Judicial District Court, Case No. C124980, Indictment, filed December 16, 1994.		JA09186-JA09200
38 39	338.	State v. Salem, Eighth Judicial District Court, Case No. C124980, Reporter's Transcript of Proceedings, Thursday, December 15, 1994.		JA09201-JA09240 JA09241-JA09280
39	339.	Declaration of Stacie Campanelli dated April 29, 2008.		JA09281-JA0289
39	340.	Declaration of Domiano Campanelli, February 2008, Mastic Beach, N.Y.		JA09290-JA09300
39	341.	Declaration of Sari Heslin dated February 25, 2008.		JA09301-JA09305
39	342.	Declaration of Melody Anzini dated February 26, 2008.		JA09306-JA09311
39	343.	Declaration of Catherine Campanelli dated February 29, 2008.		JA09312-JA09317
39	344.	Declaration of Jessica Parket-Asaro dated March 9, 2008.		JA09318-JA09323
39	345.	Declaration of Mark Beeson dated March 26, 2008.		JA09324-JA09328
39	346.	State's Trial Exhibit 1: Laurie Jacobson photograph		JA09329-JA09330
39	347.	State's Trial Exhibit 2: Denise Lizzi photograph		JA09331-JA09332
39	348.	State's Trial Exhibit 99: Michael Rippo		JA09333-JA09334
39	349.	State's Trial Exhibit 31: Autopsy photo Denise Lizzi		JA09335-JA09336
39	350.	State's Trial Exhibit 53: Autopsy photo Laurie Jacobson		JA09337-JA09338
39	351.	State's Trial Exhibit 125: Laurie Jacobson victim-impact scrapbook photographs		JA09339-JA09360

Vol.		Title	Date	Page
39	352.	State's Trial Exhibit 127: Denise Lizzi victim-impact scrapbook photographs		JA09361-JA09374
39	353.	Declaration of Jay Anzini dated May 10, 2008		JA09375-JA09377
39	354.	Declaration of Robert Anzini dated May 10, 2008		JA09378-JA09381
39	355.	Juvenile Records of Stacie Campanelli		JA09382-JA09444
39	356	Blackstone District Court Case Inquiry: Case No. C136066, State v. Sims, Case Activity, Calendar, Minutes		JA09445-JA09450
39 40	357	Justice Court Printout for Thomas Sims		JA09451-JA09490 JA09491-JA09520
40 41	358	Justice Court Printout for Michael Beaudoin		JA09521-JA09740 JA09741-JA09815
41	359	Blackstone District Court Case Inquiry: Case No. C102962, State v. Beaudoin, Case Activity, Calendar, Minutes		JA09816-JA09829
41	360	Blackstone District Court Case Inquiry: Case No. C95279, State v. Beaudoin, Case Activity, Calendar, Minutes		JA09830-JA09838
41	361	Blackstone District Court Case Inquiry: Case No. C130797, State v. Beaudoin, Case Activity, Calendar, Minutes		JA09839-JA09847
41	362	Blackstone District Court Case Inquiry: Case No. C134430, State v. Beaudoin, Case Activity, Calendar, Minutes		JA09848-JA09852
41	363	Justice Court Printout for Thomas Christos		JA09952-JA09907
41	364	Justice Court Printout for James Ison		JA09908-JA09930

Vol.		Title	Date	Page
41	365	State v. Rippo, Eighth Judicial District Court, Case No. C106784, Order dated September 22, 1993		JA09931-JA09933
41	366	Declaration of Michael Beaudoin dated May 18, 2008		JA09934-JA09935
41	367	State v. Rippo, Eighth Judicial District Court, Case No. C106784, Amended Indictment, dated January 3, 1996		JA09936-JA09941
41	368	State's Trial Exhibits 21, 24, 26, 27, 28, 32, 34, 38, 39, 40, 41, 42, 45, 46, 47, 48, 51, 56, 57, 58, 60, 61, 62		JA09942-JA09965
41	369	State's Trial Exhibit 54		JA09966-JA09967
41	370	Letter from Glen Whorton, Nevada Department of Corrections, to Robert Crowley dated August 29 1997		JA09968-JA09969
41	371	Letter from Jennifer Schlotterbeck to Ted D'Amico, M.D., Nevada Department of Corrections dated March 24, 2004		JA09970-JA09971
41	372	Letter from Michael Pescetta to Glen Whorton, Nevada Department of Corrections dated September 23, 2004		JA09972-JA09977
41	373	State v. Rippo, Eighth Judicial District Court, Case No. C106784, Warrant of Execution dated May 17, 1996		JA09978-JA09981
41	374	Declaration of William Burkett dated May 12, 2008		JA09982-JA09984
41	375	Handwritten Notes of William Hehn		JA09985-JA09986
48		Objection to Proposed Order	11/21/08	JA11612-JA11647
48		Opposition to Motion for Discovery	06/09/08	JA11558-JA11563
2		Order	11/12/92	JA00264-JA00265
2		Order	11/18/92	JA00266-JA00267
2		Order	09/22/93	JA00320-JA00321

Vol.	Title	Date	Page
3	Order	04/22/94	JA00619-JA00320
15	Order	03/08/96	JA03412
41	Order Appointing Counsel	02/13/08	JA09987-JA09988
5B	Order Sealing Affidavit	09/30/93	JA 1401-180 to JA 1401-185
2	Order to Produce Handwriting / Handprinting Exemplar	09/14/92	JA00252-JA00253
17	Petition for Writ of Habeas Corpus (Post-Conviction) and Appointment of Counsel	12/04/98	JA04040-JA04047
19 20	Petition for Writ of Habeas Corpus (Post-Conviction)	01/15/08	JA04415-JA04570 JA04571-JA04609
20	Exhibits to Petition for Writ of Habeas Corpus	01/15/08	JA04610-JA04619
20	101. Bennett v. State, No. 38934 Respondent's Answering Brief (November 26, 2002)		JA04620-JA04647
20	102. State v. Colwell, No. C123476, Findings, Determinations and Imposition of Sentence (August 10, 1995)		JA04648-JA04650
20	103. Doleman v. State, No. 33424 Order Dismissing Appeal (March 17, 2000)		JA04651-JA04653
20	104. Farmer v. Director, Nevada Dept. of Prisons, No. 18052 Order Dismissing Appeal (March 31, 1988)		JA04654-JA04660
20	105. Farmer v. State, No. 22562, Order Dismissing Appeal (February 20, 1992)		JA04661-JA04663
20	106. Farmer v. State, No. 29120, Order Dismissing Appeal (November 20, 1997)		JA04664-JA04670
20	107. Feazell v. State, No. 37789, Order Affirming in Part and Vacating in Part (November 14, 2002)		JA04671-JA04679
20	108. Hankins v. State, No. 20780, Order		JA04680-JA04683

Vol.	Title	Date	Page
	of Remand (April 24, 1990)		
20			JA04684-JA04689
	109. Hardison v. State, No. 24195, Order of Remand (May 24, 1994)		
20			JA04690-JA04692
	110. Hill v. State, No. 18253, Order Dismissing Appeal (June 29, 1987)		
20			JA04693-JA04696
	111. Jones v. State, No. 24497 Order Dismissing Appeal (August 28, 1996)		
20			JA04697-JA04712
	112. Jones v. McDaniel, et al., No. 39091, Order of Affirmance (December 19, 2002)		
20			JA04713-JA04715
	113. Milligan v. State, No. 21504 Order Dismissing Appeal (June 17, 1991)		
20			JA04716-JA04735
	114. Milligan v. Warden, No. 37845, Order of Affirmance (July 24, 2002)		
20			JA04736-JA04753
	115. Moran v. State, No. 28188, Order Dismissing Appeal (March 21, 1996)		
20			JA04754-JA04764
	116. Neuschafer v. Warden, No. 18371, Order Dismissing Appeal (August 19, 1987)		
20			JA04765-JA04769
	117. Nevius v. Sumner (Nevius I), Nos. 17059, 17060, Order Dismissing Appeal and Denying Petition (February 19, 1986)		
20			JA04770-JA04783
	118. Nevius v. Warden (Nevius II), Nos. 29027, 29028, Order Dismissing Appeal and Denying Petition for Writ of Habeas Corpus (October 9, 1996)		
20			JA04784-JA04788
	119. Nevius v. Warden (Nevius III), Nos. 29027, 29028, Order Denying Rehearing (July 17, 1998)		
20			JA04789-JA04796
	120. Nevius v. McDaniel, D. Nev. No. CV-N-96-785-HDM-(RAM), Response to Nevius' Supplemental Memo at 3 (October 18, 1999)		

Vol.	Title	Date	Page
20	121. O'Neill v. State, No. 39143, Order of Reversal and Remand (December 18, 2002)		JA04797-JA04803
20	122. Rider v. State, No. 20925, Order (April 30, 1990)		JA04804-JA04807
20	123. Riley v. State, No. 33750, Order Dismissing Appeal (November 19, 1999)		JA04808-JA04812
20	124. Rogers v. Warden, No. 22858, Order Dismissing Appeal (May 28, 1993), Amended Order Dismissing Appeal (June 4, 1993)		JA04813-JA04817
21	125. Rogers v. Warden, No. 36137, Order of Affirmance (May 13, 2002)		JA04818-JA04825
21	126. Sechrest v. State, No 29170, Order Dismissing Appeal (November 20, 1997)		JA04826-JA04830
21	127. Smith v. State, No. 20959, Order of Remand (September 14, 1990)		JA04831-JA04834
21	128. Stevens v. State, No. 24138, Order of Remand (July 8, 1994)		JA04835-JA04842
21	129. Wade v. State, No. 37467, Order of Affirmance (October 11, 2001)		JA04843-JA04848
21	130. Williams v. State, No. 20732, Order Dismissing Appeal (July 18, 1990)		JA04849-JA04852
21	131. Williams v. Warden, No. 29084, Order Dismissing Appeal (August 29, 1997)		JA04853-JA04857
21	132. Ybarra v. Director, Nevada State Prison, No. 19705, Order Dismissing Appeal (June 29, 1989)		JA04858-JA04861
21	133. Ybarra v. Warden, No. 43981, Order Affirming in Part, Reversing in Part, and Remanding (November 28, 2005)		JA04862-JA04873

Vol.	Title	Date	Page
21	134. Ybarra v. Warden, No. 43981, Order Denying Rehearing (February 2, 2006)		JA04874-JA04879
21	135. Rippo v. State; Bejarano v. State, No. 44094, No. 44297, Order Directing Oral Argument (March 16, 2006)		JA04880-JA04883
21	136. State v. Rippo, Case No. C106784, Supplemental Brief in Support of Defendant's Petition for Writ of Habeas Corpus (Post-Conviction), February 10, 2004		JA04884-JA04931
21	137. State v. Rippo, Case No. C106784, Findings of Fact, Conclusions of Law and Order, December 1, 2004		JA04932-JA04935
21	138. Rippo v. State, S. C. Case No. 44094, Appellant's Opening Brief, May 19, 2005		JA04936-JA04986
21	139. Rippo v. State, S. C. Case No. 44094, Respondent's Answering Brief, June 17, 2005		JA04987-JA05048
22	140. Rippo v. State, S. C. Case No. 44094, Appellant's Reply Brief, September 28, 2005		JA05049-JA05079
22	141. Rippo v. State, S. C. Case No. 44094, Appellant's Supplemental Brief As Ordered By This Court, December 12, 2005		JA05080-JA05100
22	201. Rippo v. State, Nevada Supreme Court Case No. 28865, Opinion filed October 1, 1997		JA05101-JA05123
22	202. Rippo v. State, Nevada Supreme Court Case No. 44094, Affirmance filed November 16, 2006		JA05124-JA05143
22	203. Confidential Execution Manual, Procedures for Executing the Death Penalty, Nevada State Prison		JA05144-JA05186

Vol.	Title	Date	Page
22	204. Brief of Amici Curiae in Support of Petitioner, United States Supreme Court Case No. 03-6821, David Larry Nelson v. Donal Campbell and Grantt Culliver, October Term, 2003		JA05187-JA05211
22	205. Leonidas G. Koniaris, Teresa A. Zimmers, David A. Lubarsky, and Jonathan P. Sheldon, Inadequate Anaesthesia in Lethal Injection for Execution, Vol. 365, April 6, 2005, at http://www.thelancet.com		JA05212-JA05214
22 23	206. Declaration of Mark J.S. Heath, M.D., dated May 16, 2006, including attached exhibits		JA05215-JA05298 JA05299-JA05340
23	207. "Lethal Injection: Chemical Asphyxiation?" Teresa A. Zimmers, Jonathan Sheldon, David A. Lubarsky, Francisco Lopez-Munoz, Linda Waterman, Richard Weisman, Leonida G. Kniaris, PloS Medicine, April 2007, Vol. 4, Issue 4		JA05341-JA05348
23	208. Rippo v. State, Nevada Supreme Court Case No. 28865, Appellant's Opening Brief		JA05349-JA05452
23	209. Rippo v. State, Nevada Supreme Court Case No. 28865, Appellant's Reply Brief		JA05453-JA05488
23	210. Rippo v. State, Nevada Supreme Court Case No. 44094, Appellant's Opening Brief, filed May 19, 2005		JA05489-JA05538
24	211. Rippo v. State, Nevada Supreme Court Case No. 44094, Appellant's Reply Brief, filed September 28, 2005		JA05539-JA05568
24	212. Rippo v. State, Nevada Supreme Court Case No. 44094,Appellant's Supplemental Brief as Ordered by this Court filed December 22, 2005		JA05569-JA05588

Vol.	Title	Date	Page
24	213. Rippo v. State, Nevada Supreme Court Case No. 44094, Order Directing Oral Argument filed March 16, 2006		JA05589-JA05591
24	214. Rippo v. State, Nevada Supreme Court Case No. 44094, Transcript of Oral Argument on June 13, 2006		JA05592-JA05627
24	215. Rippo v. State, Nevada Supreme Court Case No. 44094, Appellant's Petition for Rehearing filed December 11, 2006		JA05628-JA05635
24	216. Supplemental Points and Authorities in Support of Petition for Writ of Habeas Corpus (Post-Conviction) and attached exhibits filed August 8, 2002		JA05636-JA05737
24	217. Letter dated August 20, 2004 from Rippo to Judge Mosley		JA05738
24	218. State v. Rippo, Case No. 106784, Amended Notice of Intent to Seek Death Penalty, filed March 24, 1994		JA05739-JA05741
24	219. State v. Rippo, Case No. 106784, Jury Instructions, filed March 6, 1996		JA05742-JA05782
25	220. State v. Rippo, Case No. 106784, Notice of Alibi, filed September 2, 1993		JA05783-JA05785
25	221. Affidavit of Alice May Starr dated January 26, 1994		JA05786-JA05791
25	222. Letter dated October 12, 1993 from Starr to President Clinton		JA05792-JA05795
25	223. State v. Rippo, Case No. 106784, Order Sealing Affidavit (and exhibits), dated September 30, 1993		JA05796-JA05801
25	224. Las Vegas Metropolitan Police Department Property Report dated September 30, 1993		JA05802-JA05803

Vol.	Title	Date	Page
25	225. Letter dated November ??, 1993 from Starr to Rex Bell, District Attorney		JA05804-JA05807
25	226. State v. Rippo, Case No. C57388, Draft Affidavit in Support of Motion to Withdraw Guilty Plea		JA05808-JA05812
25	227. Justice Court Record, Thomas Edward Sims		JA05813-JA05881
25 26 27	228. Justice Court Record, Michael Angelo Beaudoin		JA05882-JA06032 JA06033-JA06282 JA06283-JA06334
27	229. Las Vegas Metropolitan Police Department Voluntary Statement of Michael Angelo Beaudoin dated March 1, 1992		JA06335-JA06349
27	230. Justice Court Record, Michael Thomas Christos		JA06350-JA06403
27	231. Justice Court Record, David Jeffrey Levine		JA06404-JA06417
27	232. Justice Court Record, James Robert Ison		JA06418-JA06427
27	233. MMPI (Minnesota Multiphasic Personality Inventory) Scoring for Diana Hunt dated September 2, 1992		JA06428-JA06434
27	234. Handwritten Declaration of James Ison dated November 30, 2007		JA06435-JA06436
27	235. Handwritten Declaration of David Levine dated November 20, 2007		JA06437-JA06438
27	236. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Government's Trial Memorandum, filed August 25, 1997		JA06439-JA06483
27	237. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Motion to Dismiss for Outrageous Government Misconduct, filed September 13, 1996		JA06484-JA06511

Vol.	Title	Date	Page
28	238. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 2, December 3, 1997		JA06512-JA06689
28 29	239. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 3, December 4, 1997		JA06690-JA06761 JA06762-JA06933
29 30	240. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 4, December 8, 1997		JA06734-JA07011 JA07012-JA07133
30 31	241. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 6, December 10, 1997		JA07134-JA07261 JA07262-JA06332
31	242. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 8, December 15, 1997		JA07333-JA07382
31 32	243. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 9, December 16, 1997		JA07383-JA07511 JA07512-JA07525
32	244. Rippo v. State, Nevada Supreme Court Case No. 28865, Respondent's Answering Brief, filed February 14, 1997		JA07526-JA07641
32	245. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Government's Trial Memorandum, filed December 2, 1997		JA07642-JA07709
32	246. State v. Salem, Eighth Judicial District Court, Clark County, Nevada, Case No. 124980, Criminal Court Minutes		JA07710-JA07713
32	247. State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, Motion for New Trial, filed April 29, 1996		JA07714-JA07719
32	248. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Superseding Criminal Indictment, filed May 6, 1997		JA07720-JA07751

Vol.		Title	Date	Page
33	249.	In the Matter of the Application of the United States for an Order Authorizing the Interception of Wire Communications dated October 11, 1995		JA07752-JA07756
33	250.	Clark County School District Records for Michael D. Rippo		JA07757-JA07762
33	251.	Neuropsychological Assessment, Thomas F. Kinsora, Ph.D., dated February 1, 1996		JA07763-JA07772
33	252.	Addendum to Neurological Assessment Report, Thomas F. Kinsors, Ph.D., dated March 12, 1996		JA07773-JA07775
33	253.	Pre-Sentence Report, State v. Rippo, Case No. 97388, dated April 23, 1982		JA07776-JA07782
33	254.	Psychiatric Evaluation, Norton A. Roitman, M.D., dated February 17, 1996		JA07783-JA07789
33	255.	SCOPE printout for Carole Ann Rippo		JA07790
33	256.	Progress Reports dated October 15, 1981		JA07791-JA07792
33	257.	Supplemental Report, Case No. 23042, Juvenile Division, Clark County, Nevada, filed April 29, 1981		JA07793-JA07801
33	258.	Order, Case No. 23042, Juvenile Division, Clark County, Nevada, filed May 9, 1981		JA07802-JA07803
33	259.	Terms of Probation, Case No. 23042, Juvenile Division, Clark County, Nevada, filed May 1, 1981		JA07804-JA07805
33	260.	Transcript of Proceedings, Case No. 23042, Juvenile Division, Clark County, Nevada, filed May 14, 1981		JA07806-JA07811

Vol.	Title	Date	Page
33	261. Petition No. 1, Recommendation for Adjudication and Order of Approval, Case No. 23042, Juvenile Division, Clark County, Nevada, filed April 19, 1981		JA07812
33	262. Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed April 8, 1981		JA07813
33	263. Certification, Case No. 23042, Juvenile Division, Clark County, Nevada, filed October 19, 1981		JA07814
33	264. Probation Officer's Report, Case No. 23042, Juvenile Division, Clark County, Nevada, filed April 29, 1981		JA07815-JA07823
33	265. Baseline Psychiatric Evaluation, Southern Desert Correctional Center, by Franklin D. Master, M.D., dated April 9, 1982		JA07824
33	266. Confidential Psychological Evaluation by Eric S. Smith, Ph.D., Timothy L, Boyles, M.A., James F. Triggs, Ed.D., dated February 11, 1982		JA07825-JA07827
33	267. Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 27, 1982		JA07828-JA07829
33	268. Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 27, 1982		JA07830-JA07831
33	269. Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 27, 1982		JA07832-JA07833
33	270. Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 27, 1982		JA07834-JA07835
33	271. Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 27, 1982		JA07836-JA07837

Vol.		Title	Date	Page
33	272.	Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 27, 1982		JA07836-JA07837
33	273.	Las Vegas Metropolitan Police Department Arrest Report dated January 27, 1982		JA07838
33	274.	Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed January 29, 1982		JA07839-JA07840
33	275.	Certification Report, Case No. 23042, Juvenile Division, Clark County, Nevada, filed February 23, 1982		JA07841-JA07853
33	276.	Petition, Case No. 23042, Juvenile Division, Clark County, Nevada, filed February 2, 1982		JA07854
33	277.	Judgment of Conviction, Case No. C57388, State v. Rippo, Clark County, Nevada, filed May 28, 1982		JA07855
33	278.	Psychological Report: Corrections Master, dated June 2, 1982		JA07856-JA07859
33	279.	Test of Educational Development dated March 9, 1983		JA07860-JA07862
33	280.	Psychological Evaluation dated December 2, 1983		JA07863
33	281.	Parole Progress Report, March 1985 Agenda		JA07864-JA07865
33	282.	Institutional Progress Report, March 1987 Agenda		JA07866-JA07868
33	283.	Psychological Evaluation for Parole dated January 29, 1987		JA07869
33	284.	Psychological Evaluation for Parole dated August 12, 1988		JA07870
33	285.	Parole Progress Report, September 1988 Agenda		JA07871-JA07872

Vol.	Title	Date	Page
33	286. Psychological Evaluation dated August 23, 1989		JA07873
33	287. Parole Progress Report, September 1989 Agenda		JA07874-JA07875
33	288. Parole Officers' Notes beginning December 4, 1989		JA07876-JA07884
33	289. Institutional Progress Report dated May 1993		JA07885-JA07886
33	290. Health Services, Psychology Referral Form dated April 28, 1993		JA07887
33	291. Handwritten notes dated February 17, 1994		JA07888
33	292. Handwritten notes dated March 9, 1994		JA07889
33	293. Handwritten exam notes (Roitman) dated January 13, 1996		JA07890-JA07894
33	294. Psychological Panel Results Notification dated January 10, 1996		JA07895
33	295. Norton A. Roitman, Addendum, dated March 11, 1996		JA07896-JA07897
33	296. Bongiovanni Off the Bench, *Las Vegas Sun*, April 18, 1996		JA07898-JA07899
33	297. Fraud probe led to judge, *Las Vegas Sun*, April 18, 1996		JA07900
33	298. Charge opens judge's race, *Las Vegas Sun*, April 18, 1996		JA07901-JA07902
33	299. Judge Bongiovanni Indicted, *Las Vegas Sun*, April 18, 1986		JA07903
33	300. Judge's actions examined, *Las Vegas Review-Journal*, April 19, 1996		JA07904-JA07906
33	301. Mental Health Progress Notes dated June 20, 1993		JA07907
33	302. Affidavit of David M. Schieck dated March 16, 1998		JA07908

Vol.	Title	Date	Page
33	303. Declaration of Carole A. Duncan dated January 19, 2000		JA07909-JA07910
33	304. Union Free School #24, Pupil History Record, Michael Campanelli		JA07911-JA07912
33 34	305. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 7, October 27, 1998		JA07913-JA08006 JA08007-JA08039
34	306. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 8, October 28, 1998		JA08040-JA08155
34	307. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Emergency Motion to Disqualify John Fadgen, Esq. From Representing Defendant Bongiovanni at Trial, July 24, 1997		JA08156-JA08225
	308. OMITTED		
34	309. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Notice of Tape Recordings Intended for Use in Government's Case in Chief, filed August 2, 1996		JA08226-JA08246
35	310. Letter from Donald J. Green requesting additional discovery dated July 9, 1996		JA08247-JA08253
35	311. United States v. Bongiovanni, CR-S-96-98-LDG(RJJ), Transcript of Jury Trial Day 5, December 9, 1997		JA08254-JA08399
35	312. State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, Answer in Opposition to Motion for New Trial, filed May 1, 1996		JA08400-JA08405

Vol.		Title	Date	Page
35	313.	State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, Defendant's Motion to Strike Aggravating Circumstances Numbered 1 and 2 and for Specificity as to Aggravating Circumstance Number 4, filed August 20, 1993		JA08406-JA08413
35	314.	State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, State's Response to Defendant's Motion to Strike Aggravating Circumstance Numbered 1 and 2 and for Specificity as to Aggravating Circumstance Number 4, filed February 11, 1994		JA08414-JA08417
35	315.	State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, Special Verdict filed March 14, 1996		JA08418-JA08419
35	316.	State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, Special Verdict filed March 14, 1996		JA08420-JA08421
35 36	317.	Social History		JA08422-JA08496 JA08497-8538
36	318.	Parental Agreement, Case No. 23042, Juvenile Division, Clark County, Nevada, dated April 29, 1981		JA08539
36	319.	Mark D. Cunningham, Ph.D., and Thomas J. Reidy, Ph.D., Integrating Base Rate Data in Violence Risk Assessments at Capital Sentencing, 16 Behavioral Sciences and the Law 71, 88-89 (1998)		JA08540-JA08564
36	320.	Letter from Michael Rippo to Steve Wolfson dated April 17, 1996		JA08565
36	321.	Report of Jonathan Mack, Ph.D.		JA08566-JA08596

Vol.	Title	Date	Page
36	322. Trial Exhibit: Photograph of Michael Rippo		JA08597
36	323. State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. 106784, Application and Order for Fee in Excess of Statutory Amount for Investigator, filed December 3, 1996		JA08598-JA08605
36	324. Wiretap Transcript, Tommy Simms [sic], dated June 8, 1992		JA08606-JA08609
36	325. State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case Nos. 57388, 57399, Reporter's Transcript of Proceedings -- Continued Initial Arraignment, heard March 25, 1982		JA08610-JA08619
36	326. State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case Nos. 57388, 57399, Reporter's Transcript of Further Proceedings and/or Continued Initial Arraignment heard March 30, 1982		JA08620-JA08626
36	327. State v. Rippo, Eighth Judicial District Court, Clark County, Nevada, Case No. C106784, Instructions to the Jury, filed March 14, 1996		JA08627-JA08652
36	328. Declaration of Elisabeth B. Stanton, dated January 15, 2008		JA08653-JA08664
48	Reply to Opposition to Motion to Dismiss	06/09/08	JA11564-JA11574
48	Reply to Opposition to Motion for Leave to Conduct Discovery	09/16/08	JA11575-JA11585
1	Reporter's Transcript of Arraignment	07/06/92	JA00242-JA00245
2	Reporter's Transcript of Arraignment	07/20/92	JA00246-JA00251
36	Reporter's Transcript of Defendant's Motion for Appointment of Counsel	02/11/08	JA08665-JA08668
2	Reporter's Transcript of Defendant's Motion to Continue Trial Proceedings; Defendant's Motion to Disqualify District	02/14/94	JA00378-JA00399

Vol.	Title	Date	Page
	Attorney's Office		
19	Reporter's Transcript of Evidentiary Hearing	09/10/04	JA04347-JA04408
48	Reporter's Transcript of Hearing	09/22/08	JA11586-JA11602
2	Reporter's Transcript of Hearing in re Attorney General's Motion to Quash and for Protective Order	09/20/93	JA00316-JA00319
2	Reporter's Transcript of Hearing in re Motion to Continue Jury Trial	09/10/93	JA00304-JA00315
3	Reporter's Transcript of Motions Hearing	03/09/94	JA00565-JA00569
18	Reporter's Transcript of Preliminary [sic] Hearing	11/27/02	JA04202-JA04204
19	Reporter's Transcript of Proceedings before the Honorable Donald M. Mosely	08/20/04	JA04321-JA04346
17	Reporter's Transcript of Proceedings: Argument and Decision	05/02/02	JA04048-JA04051
1	Reporter's Transcript of Proceedings: Grand Jury	06/04/92	JA00001-JA00234
3	Reporter's Transcript of Proceedings: Jury Trial, Vol. 1; 10:00 a.m.	01/30/96	JA00634-JA00641
3 4	Reporter's Transcript of Proceedings: Jury Trial, Vol. II; 1:30 p.m.	01/30/96	JA00642-JA00725 JA00726
4	Reporter's Transcript of Proceedings: Jury Trial, Vol. III; 3:30 p.m.	01/30/96	JA00727-JA00795
4	Reporter's Transcript of Proceedings: Jury Trial, 11:15 AM	01/31/96	JA00796-JA00888
4 5	Reporter's Transcript of Proceedings: Jury Trial, 2:30 PM	01/31/96	JA00889-JA00975 JA00976-JA01025
5	Reporter's Transcript of Proceedings: Jury Trial, Vol. I; 10:20 a.m.	02/01/96	JA01026-JA01219
5	Reporter's Transcript of Proceedings: Jury Trial, Vol. VI; 10:20 a.m.	02/02/96	JA01220-JA01401
5B	Reporter's Transcript of Proceedings: Jury Trial, Vol. 1, 1:30 p.m.	02/05/96	JA01401-001 to JA01401-179
5 6	Reporter's Transcript of Proceedings: Jury Trial, Vol. II; 2:30 p.m.	02/02/96	JA01402-JA01469 JA01470-JA01506

Vol.	Title	Date	Page
7	Reporter's Transcript of Proceedings: Jury Trial, 10:15 AM	02/06/96	JA01507-JA01688
8	Reporter's Transcript of Proceedings: Jury Trial, 2:30 PM	02/06/96	JA01689-JA01766
8	Reporter's Transcript of Proceedings: Jury Trial, 1:45 PM	02/07/96	JA01767 JA01872
8 9	Reporter's Transcript of Proceedings: Jury Trial, 10:15 AM	02/08/96	JA01887-JA01938 JA01939-JA02054
9 10	Reporter's Transcript of Proceedings: Jury Trial, 10:45 AM	02/26/96	JA02055-JA02188 JA02189-JA02232
10	Reporter's Transcript of Proceedings: Jury Trial, 11:00AM	02/27/96	JA02233-JA02404
11	Reporter's Transcript of Proceedings: Jury Trial, Vol. I, 10:30 a.m.	02/28/96	JA02405-JA02602
12 13	Reporter's Transcript of Proceedings: Jury Trial, Vol. I, 10:35 a.m.	02/29/96	JA02630-JA02879 JA02880-JA02885
13	Reporter's Transcript of Proceedings: Jury Trial 9:00 AM	03/01/96	JA02886-JA03064
13	Reporter's Transcript of Proceedings: Jury Trial Vol. I, 10:30 a.m.	03/04/96	JA03065-JA03120
14	Reporter's Transcript of Proceedings: Jury Trial, 11:00 a.m.	03/05/96	JA03121-JA03357
16	Reporter's Transcript of Proceedings: Jury Trial Vol. 1 11:30 a.m.	03/13/96	JA03594-JA03808
17	Reporter's Transcript of Proceedings: Jury Trial, 9:30 AM	03/14/96	JA03841-JA04001
3	Reporter's Transcript of Proceedings: Motions Hearing	03/18/94	JA00575-JA00582
3	Reporter's Transcript of Proceedings: Motions Hearing	04/14/94	JA00591-JA00618
15	Reporter's Transcript of Proceedings: Penalty Phase 10:00 a.m.	03/12/96	JA03413-JA03593
2 3	Reporter's Transcript of Proceedings Re: Defendant's Motion to Disqualify District Attorney's Office	03/07/94	JA00403-485 JA00486-564

Vol.	Title	Date	Page
2	Reporter's Transcript of Proceedings re: Oral Request of District Attorney	01/31/94	JA00322-JA00333
3	Reporter's Transcript of Proceedings: Ruling on Defense Motion	03/11/94	JA00570-JA00574
17	Reporter's Transcript of Proceedings: Sentencing	05/17/96	JA04014-JA04036
15	Reporter's Transcript of Proceedings: Verdict	03/06/96	JA03403-JA03411
2	Response to Defendant's Motion for Discovery of Institutional Records and Files Necessary to His Defense	02/07/94	JA00351-JA00357
36 37	State's Motion to Dismiss and Response to Defendant's Petition for Writ of Habeas Corpus (Post-Conviction)	04/23/08	JA08673-JA08746 JA08747-JA08757
2	State's Motion to Expedite Trial Date or in the Alternative Transfer Case to Another Department	02/16/93	JA00268-JA00273
2	State's Opposition to Defendant's Motion for Discovery and State's Motion for Reciprocal Discovery	10/27/92	JA00260-JA00263
2	State's Opposition to Defendant's Motion to Exclude Autopsy and Crime Scene Photographs	02/07/94	JA00346-JA00350
18	State's Opposition to Defendant's Supplemental Points and Authorities in Support of Petition for Writ of Habeas Corpus (Post-Conviction)	10/14/02	JA04154-JA04201
2	State's Response to Defendant's Motion to Strike Aggravating Circumstance Numbered 1 and 2 and for Specificity as to Aggravating Circumstance Number 4	02/14/94	JA00367-JA00370
18	State's Response to Defendant's Supplemental Petition for Writ of Habeas Corpus (Post-Conviction)	04/06/04	JA04259-JA04315
2	State's Response to Motion to Disqualify the District Attorney's Office and State's Motion to Quash Subpoenas	02/14/94	JA00358-JA00366
18	Supplemental Brief in Support of Defendant's Petition for Writ of Habeas Corpus (Post-Conviction)	02/10/04	JA04206-JA04256

Vol.	Title	Date	Page
17 18	Supplemental Points and Authorities in Support of Petition for Writ of Habeas Corpus (Post-Conviction)	08/08/02	JA04052-JA04090 JA04091-JA04153
15	Verdicts	03/06/96	JA03399-JA03402
16	Verdicts and Special Verdict	03/14/96	JA03835-JA03840

EXHIBIT 140

EXHIBIT 140

IN THE SUPREME COURT OF THE STATE OF NEVADA

* * * * *

MICHAEL RIPPO,

Appellant,

vs.

THE STATE OF NEVADA,

Respondent.

S.C. CASE NO. 44094

APPEAL FROM DENIAL OF PETITION FOR WRIT OF HABEAS CORPUS (POST-CONVICTION)
EIGHTH JUDICIAL DISTRICT COURT
THE HONORABLE DONALD M. MOSLEY, PRESIDING

APPELLANT'S REPLY BRIEF

ATTORNEY FOR APPELLANT
CHRISTOPHER R. ORAM, ESQ.
Attorney at Law
Nevada Bar No. 004349
520 S. Fourth Street, 2nd Floor
Las Vegas, Nevada 89101
Telephone: (702) 384-5563

ATTORNEY FOR RESPONDENT
DAVID ROGER
District Attorney
Nevada Bar No. 002781
200 S. Third Street, 7th Floor
Las Vegas, Nevada 89155
Telephone: (702) 455-4711

BRIAN SANDOVAL
Nevada Attorney General
Nevada Bar No. 0003805
100 North Carson Street
Carson City, Nevada 89701-4717

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

IN THE SUPREME COURT OF THE STATE OF NEVADA

*****

MICHARL RIPPO, Appellant, vs. THE STATE OF NEVADA, Respondent.	S.C. CASE NO. 44094

APPEAL FROM DENIAL OF PETITION FOR WRIT OF HABEAS CORPUS (POST-CONVICTION)
EIGHTH JUDICIAL DISTRICT COURT
THE HONORABLE DONALD M. MOSLEY, PRESIDING

APPELLANT'S REPLY BRIEF

ATTORNEY FOR APPELLANT
CHRISTOPHER R. ORAM, ESQ.
Attorney at Law
Nevada Bar No. 004349
520 S. Fourth Street, 2nd Floor
Las Vegas, Nevada 89101
Telephone: (702) 384-5563

ATTORNEY FOR RESPONDENT
DAVID ROGER
District Attorney
Nevada Bar No. 002781
200 S. Third Street, 7th Floor
Las Vegas, Nevada 89155
Telephone: (702) 455-4711

BRIAN SANDOVAL
Nevada Attorney General
Nevada Bar No. 0003805
100 North Carson Street
Carson City, Nevada 89701-4717

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

TABLE OF CONTENTS

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

TABLE OF AUTHORITIES

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

ISSUES PRESENTED FOR REVIEW

I. RIPPO'S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE JURY WAS ALLOWED TO USE OVERLAPPING AGGRAVATING CIRCUMSTANCES IN IMPOSING THE DEATH PENALTY, UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

II. RIPPO'S CONVICTION AND SENTENCE ARE INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE RIPPO WAS NOT AFFORDED EFFECTIVE ASSISTANCE OF COUNSEL ON DIRECT APPEAL. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

III. TRIAL COUNSEL WOLFSON INSISTED THAT RIPPO WAIVE HIS RIGHT TO SPEEDY TRIAL AND THEN ALLOWED THE CASE TO LANGUISH FOR 46 MONTHS BEFORE PROCEEDING TO TRIAL.

IV. THE PERFORMANCE OF TRIAL COUNSEL DURING THE GUILT PHASE OF THE TRIAL FELL BELOW THE STANDARD OF REASONABLY EFFECTIVE COUNSEL IN THE FOLLOWING RESPECTS:

a. Failure to Object to the Use of a Prison Photograph of Rippo as Being Irrelevant, Unduly Prejudicial and Evidence of Other Bad Acts.

V. THE PERFORMANCE OF TRIAL COUNSEL DURING THE PENALTY PHASE OF THE TRIAL FELL BELOW THE STANDARD OF REASONABLY EFFECTIVE COUNSEL IN THE FOLLOWING RESPECTS:

(a.) Failure to Object to Unconstitutional Jury Instructions at the Penalty Hearing That Did Not Define and Limit the Use of Character Evidence by the Jury.

(b) Failure to Offer Any Jury Instruction with Rippo's Specific Mitigating Circumstances and Failed to Object to an Instruction That Only Listed the Statutory Mitigators and Failed to Submit a Special Verdict Form Listing Mitigatating Circumstances Found by the Jury.

(c). Failure to Argue the Existence of Specific Mitigating Circumstances During Closing Argument at the Penalty Hearing or the Weighing Process Necessary Before the Death Penalty Is Even an Option for the Jury.

(d). Failure to Object to Improper Closing Argument at the Penalty Hearing.

(e) Trial Counsel Failed to Move to Strike Two Aggravating Circumstances That Were Based on Invalid Convictions.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

VI. THE INSTRUCTION GIVEN AT THE PENALTY HEARING FAILED TO APPRAISE JURY OF THE PROPER USE OF CHARACTER EVIDENCE AND AS SUCH THE IMPOSITION OF THE DEATH PENALTY WAS ARBITRARY NOT BASED ON VALID WEIGHING OF AGGRAVATING AND MITIGATING CIRCUMSTANCES IN VIOLATION OF THE FIFTH, SIXTH, EIGHTH AND FOURTEENTH AMENDMENTS TO THE CONSTITUTION.

VII. RIPPO'S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARNTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE JURY WAS NOT INSTRUCTED ON SPECIFIC MITIGATING CIRCUMSTANCES BUT RATHER ONLY GIVEN THE STATUTORY LIST AND THE JURY WAS NOT GIVEN A SPECIAL VERDICT FONT TO LIST MITIGATING CIRCUMSTANCES. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

VIII. RIPPO'S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL, AND RELIABLE SENTENCE BECAUSE THE NEVADA STATUTORY SCHEME AND CASE LAW FAILS TO PROPERLY LIMIT THE INTRODUCTION OF VICTIM IMPACT TESTIMONY AND THEREFORE VIOLATES THE PROHIBITION AGAINST CRUEL AND UNUSUAL PUNISHMENT IN THE EIGHTH AMENDMENT AND FURTHER VIOLATES THE RIGHT TO A FAIR AND NON-ARBITRARY SENTENCING PROCEEDING AND DUE PROCESS OF LAW UNDER THE 14TH AMENDMENT. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

IX. THE STOCK JURY INSTRUCTION GIVEN IN THIS CASE DEFINING PREMEDITATION AND DELIBERATION NECESSARY FOR FIRST DEGREE MURDER AS "INSTANTANEOUS AS SUCCESSIVE THOUGHTS OF THE MIND" INSTRUCTION VIOLATED THE CONSTITUTIONAL GUARANTEES OF DUE PROCESS AND EQUAL PROTECTION, WAS VAGUE AND RELIEVED THE STATE OF IT' S BURDEN OF PROOF ON EVERY ELEMENT OF THE CRIME. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTION 5, 6, 8, AND 14; ARTICLE IV, SECTION 21.

X. RIPPO'S CONVICTION AND SENTENCE INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, AND RELIABLE SENTENCE DUE TO THE FAILURE OF This Court TO CONDUCT FAIR AND ADEQUATE APPELLATE REVIEW. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE T, SECTIONS 3, 6 AND 8; ARTICLE IV,

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

SECTION 21.

XI. RIPPO'S CONVICTION AND SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEES OF DUE PROCESS, EQUAL PROTECTION, IMPARTIAL JURY FROM CROSS-SECTION OF THE COMMUNITY, AND RELIABLE DETERMINATION DUE TO THE TRIAL, CONVICTION AND SENTENCE BEING IMPOSED BY A JURY FROM WHICH AFRICAN AMERICANS AND OTHER MINORITIES WERE SYSTEMATICALLY EXCLUDED AND UNDER REPRESENTED. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

XII. RIPPO' S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE NEVADA STATUTORY SCHEME AND CASE LAW WITH RESPECT TO THE AGGRAVATING CIRCUMSTANCES ENUNCIATED IN NRS 200.033 FAIL TO NARROW THE CATEGORIES OF DEATH ELIGIBLE DEFENDANTS.

STATEMENT OF THE CASE

Appellant hereby adopts the statement of the facts as annunciated in Appellant's Opening Brief.

STATEMENT OF FACTS

Appellant hereby adopts the statement of the facts as annunciated in Appellant's Opening Brief.

ARGUMENT

I. RIPPO'S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE JURY WAS ALLOWED TO USE OVERLAPPING AGGRAVATING CIRCUMSTANCES IN IMPOSING THE DEATH PENALTY. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

After the penalty phase, the jury sentenced Mr. Rippo to death finding six aggravating circumstances. The aggravating circumstances relevant for purposes of this issue are 1) the

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

murder was committed by a person under sentence of imprisonment; 2) the murder was committed by a person who had been previously been convicted of a felony involving the use of threat of violence to another person; 3) the murders were committed by a person engaged in the commission of or an attempt to commit robbery; 4) the murder was committed while the person was engaged in the commission of or an attempt to commit burglary (S.A., VOL. 17, pp. 3163-3164). [1] On direct appeal, appellate counsel argued that Mr. Rippo's sentence of death had been improperly decided based upon the jury considering overlapping aggravators. On direct appeal, this Court concluded that Mr. Rippo could have been prosecuted separately for each of the underlying felonies and therefore each crime was properly considered as an aggravating circumstance. At the time of direct appeal, this Court had not yet decided McConnell v. State, 102 Ad. Op. 105, 102 P.3d 606 (December 29, 2004). In Mr. Rippo's opening brief, he requested that this Court revisit this issue based upon this Court's ruling in McConnell v. State.

In the State's Answering brief, the State argues that this issue is barred by the law of the case doctrine (State's Answering Brief, pp. 5). The State correctly points out that this argument was in fact raised on direct appeal. However, the Court can take notice that the McConnell decision was not decided at the time of Mr. Rippo's direct appeal. Additionally, the State argues that this issue was not briefed in the Defendant's Petition for Writ of Habeas Corpus in the district court below (State's Answering Brief, pp. 6). The State's argument is inaccurate. In fact, on August 8, 2002, Supplemental Points and Authorities in Support of the Petition for Writ of Habeas Corpus were filed on behalf of Mr. Rippo. Originally, Mr. David Schieck was appointed to represent Mr. Rippo in his Post-Conviction Relief. In the Supplemental Brief, Mr. Schieck wrote

---

[1] Mr. Rippo was also found to have committed murder that involved torture. This Court held on direct appeal there was sufficient evidence to find that the murder involved torture. Therefore, this aggravator had already been deemed to be valid.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

that this issue had been previously raised on direct appeal. At the end of informing the district court that the issue had been raised on direct appeal, Mr. Rippo states,

> Rippo as part of his Supplemental Petition, herein, reasserts that the death penalty was returned in violation of the Eighth and Fourteenth Amendment right to a fair sentencing proceedings and one not arbitrary and capricious in its use. (See, Supplemental Brief (A.A. VOL. I, pp. 031).

The State is correct when they argue that Mr. Rippo did not extensively brief the McConnell decision in the Writ of Habeas Corpus. However, Mr. Rippo clearly reasserted this issue for Post-Conviction Relief purposes. Hence, the State's argument that this issue was not briefed in the petition below is inaccurate. Mr. Rippo would respectfully request that this Court revisit this issue based upon McConnell v. State.

The State was permitted at the penalty phase to double count the same conduct in accumulating three aggravating circumstances(S.A., Vol. 17, pp. 3191-392). The robbery, burglary and kidnapping aggravating circumstances are all based on the same set of operative facts and unfairly accumulated to compel the jury towards the death penalty. Additionally, the aggravators for under sentence of imprisonment and prior conviction of a violent felony both arose from the same 1982 sexual assault conviction. In McConnell, this Court concluded that,

> The interpretation of our death penalty statutes that we now embrace will provide a more certain framework within which prosecutors statewide may exercise their very important discretion in these matters, and will provide greater certainty and fairness of application within the trial, appellate, and federal court systems. 102 P.3d. 606, 627.

This Court's conclusion provides the Court's concern that there be greater certainty and fairness in the application of the death penalty within the trial, appellate, and federal court systems. It therefore comes to reason that this Court was concerned about the entire weighing process of aggravators whether or not the defendant is at trial, on appeal, or in habeas review in the federal court system. Mr. Rippo raised this issue on direct appeal and reasserted the issue at post-

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

conviction. Moreover, Mr. Rippo has raised this issue again, before this Court.

This Court ruled in McConnell, that Nevada's definition of capital murder did not narrow enough and that the further narrowing of the death penalty eligibility in needed. Further, this Court stated that the aggravator does not provide sufficient narrowing to satisfy constitutional requirements.

The McConnell Court stated, "[N]evada's statutes defines felony murder broadly." Under NRS 200.030(1)(d), felony murder is "one that is committed in the perpetration or attempted perpetration of sexual assault, kidnapping, arson, robbery, burglary, invasion of the home, sexual abuse of a child, sexual molestation under the age under 14, or child abuse." Further, in Nevada, all felony murder is first degree murder, and all first degree murder is essentially capital murder. Felony murder in Nevada does not even require the intent to kill or inflict great bodily harm. In Nevada, the intent simply to commit the underlying felony is transferred to the implied malice necessary to characterize the death be murder. Ford v. State, 99 Nev. 209, 215, 660 P.2d 992,995 (1983).

The McConnell Court noted, "[N]evada's current definition Nevada's current definition of felony murder is broader than the definition in 1972 when Furman v. Georgia, 408 U.S. 238, 92 S.Ct. 2726, 33 L.ed 2d 346, which temporarily ended executions in the United States."

This Court further stated that, Nevada's definition of felony murder does not afford constitutional narrowing. The ultimate holding in McConnell is that this Court "deemed it impermissible under the United States and Nevada Constitution to place an aggravating circumstance in a capital prosecution on the felony on which the felony murder is predicated." Based upon McConnell, it was impermissible for the State to charge Mr. Rippo with felony capital murder because the State based the aggravating circumstances in a capital prosecution on two of those felonies upon which the State's felony murder is predicated. McConnell, further, held that,

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

in cases like Mr. Rippo's, "where the State bases a first degree murder conviction in whole or part of felony murder, to seek a death sentence the State will have to prove an aggravator other than one based on the felony murder predicate felony." McConnell v. State, at 624.

In the instant case, the State was successful in obtaining a death sentence against Mr. Rippo on three aggravating circumstances that would not be permitted pursuant to the McConnell decision. As this Court instructed in McConnell, the State would have to give the jury a special verdict form to determine whether they found Mr. Rippo guilty of premeditated and deliberate murder or whether they found Mr. Rippo guilty of First Degree Murder based upon the felony murder rule. Unfortunately, no one can answer this question. Mr. Rippo is sentenced to death after the jury found three aggravating circumstances that were clearly a result of inappropriate stacking(S.A., Vol. 17, pp. 3191-392).

Additionally, two aggravating circumstances against Mr. Rippo were found as a result of the same actions. One aggravator came as a result of Mr. Rippo being under sentence of imprisonment and another aggravator was that he had prior conviction (the same conviction) of a violent felony which arose from the same 1982 sexual assault conviction.

The Double Jeopardy Clause of the Fifth Amendment guarantees that no person shall "be subject for the same offense to be twice put in jeopardy of life or limb." The traditional test of the "same offense" for double jeopardy purposes is whether one offense requires proof of an element which the other does not. Bockburger v. U.S., 284 U.S. 299, 304 (1932). This test, does not apply, however, when one offense is an incident of another, that is, when one of the offenses is a lesser included of the other. U.S. v. Dixon, 509 U.S. 688, 113 S.Ct. 2849, 2857 (1993); Illinois v. Vitale, 447 U.S. 410, 420 100 S.Ct. 2260 (1980).

Courts of other jurisdictions have found the use of such overlapping aggravating circumstances to be improper. In Randolph v. State, 463 So.2d 186 (Fla. 1984) the court found that

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

the aggravating circumstances of murder while engaged in the crime of robbery and murder for pecuniary gain to be overlapping and constituted only a single aggravating circumstance. See also Provence v. State, 337 So.2d 783 (Fla. 1976) cert. denied 431 U.S. 969, 97 S.Ct. 2929, 53 L.Ed.2d 1065 (1977).

In essence, Mr. Rippo suffered as a result of two aggravating circumstances from the identical behavior. The State was not required to prove any additional facts to establish two separate aggravating circumstances.

In summary, at least four aggravating circumstances appear to be unconstitutional. Admittedly, the State would have been permitted to argue to a jury that Mr. Rippo was under sentence of imprisonment and that the murders involved torture. However, the other four aggravating circumstances (robbery, kidnaping, burglary and a previous violence offense) were all a result of unconstitutional stacking of aggravating circumstances(S.A., Vol. 17, pp. 3191-392).

In the State's answering brief, they claim that there is ample evidence of premeditation and deliberation just as there was in McConnell (State's Answering Brief, pp. 7). Unlike McConnell, Mr. Rippo did not plead guilty and admit to premeditated and deliberated First Degree Murder. In fact, there was a lengthy discussion by this Court in the McConnell, decision regarding the defendant's admission that he had committed first degree murder by premeditation and deliberation. In the instant case, that is not the case. Mr. Rippo denied culpability and proceeded to trial. Nevada is a weighing state, and there is no concrete evidence that a jury would have sentenced Mr. Rippo to death had they only been able to find two aggravating circumstances as opposed to the six that they did find. In Nevada, the jury is required to proceed through a weighing process of aggravators versus mitigators. Second, the jury has the discretion, even in the absence of mitigation to return a life sentence irregardless of the number of aggravating circumstances. The State can not argue that the numerical stacking of aggravating circumstances

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

wasn't the proverbial straw that broke the camel's back and tipped the scales of justice.

The stacking of aggravating circumstances based on the same conduct results in the arbitrary and capricious imposition of the death penalty, and allows the State to seek the death penalty based on arbitrary legal technicalities and artful pleading. This violates the commands of the United States Supreme Court in Gregg v. Georgia, 428 U.S. 153 (1976) and violates the Eighth Amendment to the United States Constitution and the prohibition in the Nevada Constitution against cruel and unusual punishment and that which guarantees due process of law. Trial counsel was deficient in failing to strike the duplicate and overlapping aggravating circumstances.

In the State's answering brief, they state, "[w]eighing three aggravators against no mitigating circumstances would produce the same penalty the jury found with six aggravators (State's Answering Brief, pp. 10). The State can not claim to know how a jury would have weighed the aggravators versus the mitigators had they only been able to find two and not six.

Lastly, the State claims that the McConnell decision should not be applied retroactively to Mr. Rippo's case. The State claims that this Court does not appear willing to apply the McConnell, decision retroactively. Mr. Rippo disagrees.

In 1982, this Court considered the issue of retroactivity in Franklin v. Nevada 98 Nev. 266, 646 P.2d, 543(1982). In Franklin, this Court stated, "[I]n places determining complete retroactivity or prospectivity of new constitutional rules, the Supreme Court has consistently considered three factors: 1) the purpose of the rule; 2) the reliance on prior contrary law; and 3) the effect retroactive application would have on the administration of justice. Franklin at 269 fn. 2. See Tehan v. United States, 382 U.S. 406 (1966).

In Gier v. Ninth Judicial District Court of Nevada, this Court provided that, "[n]ew rules apply prospectively unless they are rules of constitutional law, and then they apply retroactively only under certain circumstance." Gier v. Ninth Judicial District Court of the State of Nevada, 106

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

Nev. 208, at 212; 789 P.2d 1245 (1990). See Franklin v. State, 98 Nev. 2666, 646 P.2d 543 (1982). In Teague v. Lane, Director, Illinois Department of Corrections, 489 U.S. 288 109 S. Ct. 1060; 103 L.Ed 2d 334 (1989), the United States Supreme Court articulated that in a new rule of constitutional dimension would apply retroactively. In Teague, the majority opinion provided two exceptions when a new constitutional rule would apply retroactively. A new constitutional rule should be applied retroactively ". . . if it required the observance of the bedrock procedural elements that were absolutely prerequisite to the fundamental fairness implicit in the concept of ordered liberty." Id.

The United States Supreme Court has held that in general, a case announces a new rule when it breaks new ground or imposes a new obligation on the State or Federal government. Teague, 489 U.S.288 at 301.

Perhaps, Justice O'Connor was concerned with a legal principle the Supreme Court addressed in Teague. The Supreme Court explained that, "[f]urthermore, as we recognized in Engle v. Issac, [s]tate courts are understandably frustrated when they faithfully apply existing constitutional law only to have a federal court discover during a habeas proceedings, new constitutional commands" Teague, 489 U.S. 288 at 310. (citations omitted). In Teague, United States Supreme Court addresses the concerns mirrored by Justice O'Connor in her dissenting opinion in Ring. It is interesting and important to note that in both instances the Court was addressing defendants who are attacking constitutional issues in habeas proceedings after exhausting their state remedies.

In the instant case, Mr. Rippo specifically raised this issue on direct appeal. Therefore, the McConnell, decision should be applied to him. Second, a review of McConnell, does not make it clear whether or not the McConnell decision should be applied retroactively. However, based on the fact that this Court in McConnell, relied on prior case law. Combined with the fact that this

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

Court in McConnell concluded that the McConnell decision would provide greater certainty and fairness of application within the trial, appellate and federal court systems. This appears to indicate that this Court is willing to apply the McConnell decision to the instant case. Out of fairness and equity, Mr. Rippo specifically raised this issue prior to the McConnell decision on direct appeal. Mr. Rippo reasserted this issue on post-conviction relief. Mr. Rippo has extensively briefed this issue on appeal from post-conviction relief. Mr. Rippo should receive the benefit of this Court's ruling in McConnell and the application of McConnell to Mr. Rippo's case would provide to greater certainty and fairness of the application within the appellate and federal court system. Mr. Rippo respectfully request that this Court deem the four aggravating circumstances in question unconstitutional. Mr. Rippo would respectfully request that this Court reverse his sentences of death and remand the case for a new penalty phase.

II. **RIPPO'S CONVICTION AND SENTENCE ARE INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE RIPPO WAS NOT AFFORDED EFFECTIVE ASSISTANCE OF COUNSEL ON DIRECT APPEAL. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.**

This issue is submitted.

III. **THE PERFORMANCE OF TRIAL COUNSEL DURING THE PENALTY PHASE OF THE TRIAL FELL BELOW THE STANDARD OF REASONABLY EFFECTIVE ASSISTANCE OF COUNSEL IN THE FOLLOWING RESPECTS.**

A. **The failure to offer any jury instruction with Rippo's specific mitigating circumstances and failed to object to an instruction that only listed the statutory mitigators and failed to submit a special verdict form listing mitigating circumstances found by the jury.**

There was no verdict form provided to the jury for the purpose of finding the existence of

---

[2] This argument is taken out of chronological order from appellant's opening brief. The purpose is to address the penalty phase issues together for purposes of this reply brief.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

tailored mitigating circumstances. A review of the entire record on appeal demonstrates that a number of mitigating circumstances should have been urged to the jury. They were:

(1) Accomplice and participant Diana Hunt received favorable treatment and is already eligible for parole;
(2) Rippo came from a dysfunctional childhood;
(3) Rippo failed to receive proper treatment and counseling from the juvenile justice system;
(4) Rippo, at the age of 17, was certified as an adult and sent to adult prison because the State of Nevada discontinued a treatment facility of violent juvenile behaviors;
(5) Rippo was an emotionally disturbed child that needed long term treatment, which he never received;
(6) Rippo never committed a serious disciplinary offense while in prison, and is not a danger;
(7) Rippo worked well in prison and has been a leader to some of the other persons in prison;
(8) Rippo has demonstrated remorse; and
(9) Rippo was under the influence of drugs at the time of the offense.

Death penalty statutes must be structured to prevent the penalty being imposed in an arbitrary and unpredictable fashion. Gregg v. Georgia, 428 U.S. 153, 96 S.Ct. 2909, 49 L.Ed.2d 859 (1976); Furman v. Georgia, 408 U.S. 238, 92 S.Ct. 2126, 33 L.Ed.2d 346 (1972). A capital defendant must be allowed to introduce any relevant mitigating evidence regarding his character and record and circumstance of the offense. Woodson v. North Carolina, 428 U.S. 280,96 S.Ct. 2978, 49 L.Ed.2d 944 (1976); Eddings v. Oklahoma, 455 U.S. 104, 102 S.Ct. 869, 71 L.Ed.2d 1 (1982).

In Lockett v. Ohio, 438 US 586, 98 S.Ct 2954, 57 L.Ed. 2d 973 (1978) the Court held that in order to meet constitutional muster a penalty hearing scheme must allow consideration as a mitigating circumstance any aspect of the defendant's character or record or any of the circumstances of the offense that the defendant proffers as a basis for a sentence of less than death. See also Hitchcock v. Duacier, 481 US 393, 107 S.Ct. 1821, 95 L.Ed.2d 347 (1987) and Parker v. Duacer, 498 US 308, 111 S.Ct 731, 112 L.Ed.2d 812 (1991).

In response, the State argues that trial counsel failed to argue all of the mitigating circumstances listed in appellant's opening brief, based upon a trial tactic. The State contends,

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

"[t]hus, trial counsel was presented with an extremely delicate balancing act. That he chose to illuminate some details in his summation and leave others to be considered as part of the evidence as a whole was clearly a reasonable course" (State's Answering Brief, pp. 22). The State must remember that Mr. Rippo's life held in the balance. It can hardly be considered a tactical decision to fail to raise mitigating circumstances. By the State's own admission, trial counsel failed to argue that Mr. Rippo was remorseful and the he was under the influence of drugs at the time of the murder and that Diana Hunt had received favorable treatment after testifying against the defendant (Appellant's Opening Brief, pp. 21, lines 17-21).

During the evidentiary hearing, (post-conviction relief) appellate counsel, Mr. David Schieck explained,

> And it's been my experience that its much better to list what you believe your mitigators are in an instruction to the jury, number one, so that they know they can consider those, and that that's your theory of mitigation.
>
> Second, the jury, should be given the opportunity to check on a proper verdict form which mitigators they have found in the case, so with the Court at a later date is going to re-weigh the death penalty, they'll know that the jury found their were, in fact, the existence of mitigating circumstances. (A. A., Volume II, 329-330).

Mr. Schieck further stated, "[i]n hindsight, I believe I should have raised it. Failure to properly instruct, not the argument of counsel, the failure to properly instruct the jury as to the use of those mitigating circumstances, the Supreme Court since Mr. Rippo's direct appeal has ruled that the defense is entitled to an instruction that lists your mitigating circumstances, not just the laundry list. And I believe I should have raised it when I did the appeal back in 1992." (A.A., Vol. II, pp. 330-331).

Therefore, the State's contention that appellant's counsel was not remiss for failing to raise this issue on direct appeal is belied by the testimony of appellate counsel. Appellate counsel, agreed at the post-conviction evidentiary hearing that he should have raised the issue on direct

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

appeal. The appellate counsel and trial counsel failed to object to the improper closing argument at the penalty phase.

During closing argument, at the penalty phase, the prosecutor made the following argument to the jury: "[a]nd I would pose the question now: Do you have the resolve, the courage, the intestinal fortitude, the sense of commitment to do your legal duty?" (A.A. Vol. II, pp.108).

In Evans v. State, 117 Nev. Ad. Op. 50 (2002) this Court considered the exact same comments and found:

> Other prosecutorial remarks were excessive and unacceptable and should have been challenged at trial and on direct appeal. In rebuttal closing, the prosecutor asked, 'do you as a jury have the resolve, the determination, the courage, the intestinal fortitude, the sense of legal commitment to do your legal duty?' Asking the jury if it had the 'intestinal fortitude' to do its 'legal duty' was highly improper. The United States Supreme Court held that a prosecutor erred in trying 'to exhort the jury to do its job'; that kind of pressure . . .has no place in the administration of criminal justice' 'There should be no suggestion that a jury has a duty to decide one way or the other; such an appeal is designed to stir passion and can only distract a jury from it's actual duty: impartiality'. The prosecutor's words here 'resolve,' 'determination,' 'courage,' 'intestinal fortitude,' 'commitment,' 'duty'– were particularly designed to stir the jury's passion and appeal to partiality.

In the State's answering brief, they argue that trial counsel was not ineffective for objecting to this argument. The State cites to the district court's comment during the evidentiary hearing wherein the court determined that objected at closing argument is a rather dangerous situation that looks like counsel is hiding the ball (State's Answering Brief, pp. 24, lines 13-14). The State cites the district court's opinion from the bench that objecting during closing argument has the appearance to the jury that the defense is hiding the ball. Hypocritically, the State throughout their brief argues that issues can not be considered by this Court unless there is a contemporaneous objection. In fact, the State argues that since trial counsel failed to object to this comment that this should preclude appellate consideration (State's Answering Brief, pp. 22, lines 26-27). On the one hand, the State would have this Court believe that it is appropriate tactics for trial counsel to fail

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

to object because it has the appearance of "hiding the ball". On the other hand, since defense counsel failed to object this Court should not consider the issue. Mr. Rippo was damned if his attorney objects because it appears he is "hiding the ball". Mr. Rippo is damned if his attorney doesn't object because then the issue can't be raised for appellate consideration. This argument is obviously in direct contradiction to the rules of advocacy. Mr. Rippo was on trial for his live. When the State makes an objectionable comment during closing argument counsel should object so that this Court can consider the issues. The district court's determination that objecting has the appearance that the defense is hiding the ball is meritless. That type of tactic only leads to the State arguing on appeal that the issue should not be considered of the failure to object. Hence, the failure to object provides appellate counsel with an argument of plain error only.

The State correctly points out that in Evans, this Court considered other factors in reversing Mr. Evans sentence of death besides the single comments made by the prosecutor in closing argument. However, in viewing the record as a whole, this Court will note that Mr. Rippo endured numerous errors during the penalty phase.

Lastly, the State argues that at the evidentiary hearing, Judge Mosley stated, "[h]ow would defense counsel know they would have a legal ground to object without the benefit of the Supreme Court determination." (State's Answering Brief, pp. 24, lines 10-12). The district court inquired how appellate counsel would have been able to raise this issue on direct appeal and trial counsel having knowledge that this was objectionable given the fact that the Evans decision was subsequent to Mr. Rippo's penalty phase. To answer the district court's question, one only needs to review the testimony given by appellate counsel Mr. David Schieck at the evidentiary hearing. During the evidentiary hearing, Mr. Schieck was asked about this particular statement during the closing argument of the penalty phase. Mr. Schieck responded that the had heard that quote in many of his cases (AA., Vol. II, pp. 342). Mr. Schieck admitted that he had not raised the issue

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

on direct appeal. (AA.,Vol. II, pp. 342). Mr. Schieck explained that he had been the trial and appellate counsel for Billy Castillo and had heard the same prosecutor make an almost identical argument (AA.,Vol. II, pp. 343). During the Castillo trial, Mr. Schieck objected and raised the issue on direct appeal. This is an interesting coincidence, as the State cited to the Castillo decision in their answering brief (State's Answering Brief, pp. 23, footnote 7).

In Castillo v. State, 114 Nev. 271, 279-280, 956 P.2d 103, 109 (1998), this Court noted that Mr. Castillo's appellate counsel raised the issue as to the prosecutor's argument on future dangerousness not the reference to the jury's duty. Therefore, the district court concern that appellate counsel would not have known this issue is belied by the evidentiary hearing transcript of Mr. Schieck. Mr. Schieck was trial counsel for Billy Castillo and objected to a similar if not identical statement by the prosecutor. On appeal, Mr. Schieck raised the issue of improper argument by the prosecutor as an issue of future dangerousness and not moral duty. Therefore, the logical reasoning demonstrates that appellate counsel in the instant case, was aware of this issue and had seen this type of argument many times.

Admittedly, at the evidentiary hearing, Mr. Schieck explained that he could not recall if the Castillo matter went to trial before or after he competed the appellate brief for Mr. Rippo. However, the issue remains the same in both Mr. Rippo's case and in Mr. Evan's case. The prosecutor was the same in both cases. The prosecutor made an almost identical argument in both cases. In Evans, the prosecutor's argument was found to be a factor in determining that Mr. Evan's penalty phase should be reversed. Here, the prosecutor's argument was just as damaging and improper as it was in the Evans case. A review of the entire penalty phase demonstrates that the State was permitted to receive multiple overlapping and stacking aggravators along with improper argument. These problems are compounded by the fact that there was no jury instruction listing the tailored mitigators that could have been offered for Mr. Rippo.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

It was error for trial counsel to fail to object to this improper argument and failure to raise this matter on direct appeal.

IV. THE INSTRUCTION GIVEN AT THE PENALTY HEARING FAILED TO APPRAISE JURY OF THE PROPER USE OF CHARACTER EVIDENCE AND AS SUCH THE IMPOSITION OF THE DEATH PENALTY WAS ARBITRARY NOT BASED ON VALID WEIGHING OF AGGRAVATING AND MITIGATING CIRCUMSTANCES IN VIOLATION OF THE FIFTH, SIXTH, EIGHTH AND FOURTEENTH AMENDMENTS TO THE CONSTITUTION.

In the case at bar, in addition to the alleged aggravating circumstances there was a great deal of "character evidence" offered by the State that was used to urge the jury to return a verdict of death. The jury, however, was never instructed that the "character evidence" or evidence of other bad acts that were not statutory aggravating circumstances could not be used in the weighing process.

Instruction No. 7 given to the jury erroneously spelled out the process as follows:

> The State has alleged that aggravating circumstances are present in this case.
> The defendants have alleged that certain mitigating circumstances are present in this case.
>
> It shall be your duty to determine:
>
> (a) Whether an aggravating circumstance or circumstances are found to exist; and
> (b) Whether a mitigating circumstance or circumstances are found to exist; and
> (c) Based upon these findings, whether a defendant should be sentenced to life imprisonment or death.
>
> The jury may impose a sentence of death only if (1) the jurors unanimously find at least one aggravating circumstance has been established beyond a reasonable doubt and (2) the jurors unanimously find that there are no mitigating circumstances sufficient to outweigh the aggravating circumstance or circumstances found.
> Otherwise, the punishment imposed shall be imprisonment in the State Prison for life with or without the possibility of parole.
> A mitigating circumstance itself need not be agreed to unanimously; that is, any one juror can find a mitigating circumstance without the agreement of any other juror or jurors. The entire jury must agree unanimously, however, as to whether the aggravating circumstances outweigh the mitigating circumstances or whether the mitigating circumstances outweigh the aggravating circumstances." (SA., Vol. 17. pp. 3171).

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

The jury was also told in Instruction 20 that:

> The jury is instructed that in determining the appropriate penalty to be imposed in this case that it may consider all evidence introduced and instructions given at both the penalty hearing phase of these proceedings and at the trial of this matter (S. A. Vol. 17, pp. 3184).

The jury was never instructed that character evidence was not to be part of the weighing process to determine death eligibility or given any guidance as to how to treat the character evidence. The closing arguments of defense counsel also did not discuss the use of the character evidence in the weighing process and that such evidence could not be used in the determination of the existence of aggravating or mitigating circumstances.

In Brooks v. Kemp, 762 F.2d 1383 (11th Cir. 1985) the Court described the procedure that must be followed by a sentencing jury under a statutory scheme similar to Nevada:

> After a conviction of murder, a capital sentencing hearing may be held. The jury hears evidence and argument and is then instructed about statutory aggravating circumstances. The Court explained this instruction as follows:
>
> The purpose of the statutory aggravating circumstance is to limit to a large degree, but not completely, the fact finder's discretion. Unless at least one of the ten statutory aggravating circumstances exist, the death penalty may not be imposed in any event. If there exists at least one statutory aggravating circumstance, the death penalty may be imposed but the fact finder has a discretion to decline to do so without giving any reason ... [citation omitted]. In making the decision as to the penalty, the fact finder takes into consideration all circumstances before it from both the guilt-innocence and the sentence phase of the trial. The circumstances relate to both the offense and the defendant.
>
> [citation omitted] . The United States Supreme Court upheld the constitutionality of structuring the sentencing jury's discretion in such a manner. Zant v. Stephens, 462 13.5. 862, 103 S.Ct. 2733, 77 L.Ed.2d 235 (1963)" Brooks, 762 F.2d at 1405.

In Witter v. State, 112 Nev. 908, 921 P.2d 886 (1996) the Court stated:

> Under NRS 175.552, the trial court is given broad discretion on questions concerning the admissibility of evidence at a penalty hearing. Guy, 108 Nev. 770, 839 P.2d 578. In Robins v. State, 106 Nev. 611, 798 P.2d 558 (1990), cert. denied, 499 U.S. 970 (1991), this court held that evidence of uncharged crimes is admissible at a penalty hearing once any aggravating circumstance has been proven

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

beyond a reasonable doubt. Witter, 112 Nev. at 916.

Additionally in Gallego v. State, 101 Nev. 782, 711 P.2d 856 (1995) the court in discussing the procedure in death penalty cases stated:

> If the death penalty option survives the balancing of aggravating and mitigating circumstances, Nevada law permits consideration by the sentencing panel of other evidence relevant to sentence NRS 175.552. Whether such additional evidence will be admitted is a determination reposited in the sound discretion of the trial judge. Gallego, at 791.

More recently the Court made crystal clear the manner to properly instruct the jury on use of character evidence:

> To determine that a death sentence is warranted, a jury considers three types of evidence: 'evidence relating to aggravating circumstances, mitigating circumstances and 'any other matter which the court deems relevant to sentence' . The evidence at issue here was the third type, 'other matter' evidence. In deciding whether to return a death sentence, the jury can consider such evidence only after finding the defendant death—eligible, i.e., after is has found unanimously at least one enumerated aggravator and each juror has found that any mitigators do not outweigh the aggravators. Of course, if the jury decides that death is not appropriate, it can still consider 'other matter' evidence in deciding on another sentence. Evans v. State, 117 Nev. Ad. Op. 50 (2001).

On direct appeal, this issue was not raised. At the evidentiary hearing, appellate counsel, Mr. Schieck, explained, "... and I'm sure I had concerns over the instructions and the process that was being used in death penalty cases that - - and this is one of those issues that I believe I should have raised to preserve the issue, without necessarily believing the Supreme Court was going to change the existing precedent on it, in order to preserve for further challenges. And the Supreme Court has changed the instruction on talking about the use of character evidence, and when it can be build into the weighing process." (A.A., Vol. II, pp. 357).

Mr. Schieck admitted that this was an issue that should have been raised on direct appeal. In the instant case, there was a great deal of character evidence offered against Mr. Rippo. As in Evans, the prosecutor made a similar improper argument regarding the moral duty of the jury and

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

stressed the character of both Mr. Evans and Mr. Rippo. Mr. Evans received a new penalty phased based upon several assignments of error. In the instant case, Mr. Rippo has also suffered from numerous error in both the trial and penalty phase. For the foregoing reasons, Mr. Rippo respectfully requests that this Court reverse his sentences of death and remand the case for a new penalty phase based upon violations of the United States Constitution Amendments Five, Six, Eight and Fourteen.

V. **TRIAL COUNSEL WOLFSON INSISTED THAT RIPPO WAIVE HIS RIGHT TO SPEEDY TRIAL AND THEN ALLOWED THE CASE TO LANGUISH FOR 46 MONTHS BEFORE PROCEEDING TO TRIAL.**

This issue is submitted as set forth in opening brief.

VI. **THE PERFORMANCE OF TRIAL COUNSEL DURING THE PENALTY PHASE OF THE TRIAL FELL BELOW THE STANDARD OF REASONABLY EFFECTIVE COUNSEL IN THE FOLLOWING RESPECTS:**

(a.) Failure to Object to Unconstitutional Jury Instructions at the Penalty Hearing That Did Not Define and Limit the Use of Character Evidence by the Jury.

(b) Failure to Offer Any Jury Instruction with Rippo's Specific Mitigating Circumstances and Failed to Object to an Instruction That Only Listed the Statutory Mitigators and Failed to Submit a Special Verdict Form Listing Mitigatating Circumstances Found by the Jury.

©. Failure to Argue the Existence of Specific Mitigating Circumstances During Closing Argument at the Penalty Hearing or the Weighing Process Necessary Before the Death Penalty Is Even an Option for the Jury.

(d). Failure to Object to Improper Closing Argument at the Penalty Hearing.

(e) Trial Counsel Failed to Move to Strike Two Aggravating Circumstances That Were Based on Invalid Convictions.

This issue is submitted as set forth in opening brief.

VII. **RIPPO'S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARNTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE JURY WAS NOT INSTRUCTED ON SPECIFIC MITIGATING CIRCUMSTANCES BUT RATHER ONLY GIVEN THE STATUTORY LIST AND THE JURY WAS NOT GIVEN A SPECIAL VERDICT FONT TO LIST MITIGATING CIRCUMSTANCES. UNITED STATES**

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

This issue is submitted as set forth in opening brief.

VIII. RIPPO'S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE NEVADA STATUTORY SCHEME AND CASE LAW FAILS TO PROPERLY LIMIT THE INTRODUCTION OF VICTIM IMPACT TESTIMONY AND THEREFORE VIOLATES THE PROHIBITION AGAINST CRUEL AND UNUSUAL PUNISHMENT IN THE EIGHTH AMENDMENT AND FURTHER VIOLATES THE RIGHT TO A FAIR AND NON-ARBITRARY SENTENCING PROCEEDING AND DUE PROCESS OF LAW UNDER THE 14TH AMENDMENT, UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

This issue is submitted as set forth in opening brief.

IX. THE STOCK JURY INSTRUCTION GIVEN IN THIS CASE DEFINING PREMEDITATION AND DELIBERATION NECESSARY FOR FIRST DEGREE MURDER AS "INSTANTANEOUS AS SUCCESSIVE THOUGHTS OF THE MIND" INSTRUCTION VIOLATED THE CONSTITUTIONAL GUARANTEES OF DUE PROCESS AND EQUAL PROTECTION, WAS VAGUE AND RELIEVED THE STATE OF IT' S BURDEN OF PROOF ON EVERY ELEMENT OF THE CRIME, UNITED STATES CONSTITUTION AMENDMENTS 5, 6,\8, AND 14; NEVADA CONSTITUTION ARTICLE I, SECTION 5, 6, 8, AND 14; ARTICLE IV, SECTION 21.

This issue is submitted as set forth in opening brief.

X. RIPPO'S CONVICTION AND SENTENCE INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, AND RELIABLE SENTENCE DUE TO THE FAILURE OF This Court TO CONDUCT FAIR AND ADEQUATE APPELLATE REVIEW, UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE T, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

This issue is submitted as set forth in opening brief.

XI. RIPPO'S CONVICTION AND SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEES OF DUE PROCESS, EQUAL PROTECTION, IMPARTIAL JURY FROM CROSS-SECTION OF THE COMMUNITY, AND RELIABLE DETERMINATION DUE TO THE TRIAL, CONVICTION AND SENTENCE BEING IMPOSED BY A JURY FROM WHICH

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

AFRICAN AMERICANS AND OTHER MINORITIES WERE SYSTEMATICALLY EXCLUDED AND UNDER REPRESENTED. UNITED STATES CONSTITUTION AMENDMENTS 5, 6, 8, AND 14; NEVADA CONSTITUTION ARTICLE T, SECTIONS 3, 6 AND 8; ARTICLE IV, SECTION 21.

This issue is submitted as set forth in opening brief.

XII. **RIPPO' S SENTENCE IS INVALID UNDER THE STATE AND FEDERAL CONSTITUTIONAL GUARANTEE OF DUE PROCESS, EQUAL PROTECTION OF THE LAWS, EFFECTIVE ASSISTANCE OF COUNSEL AND RELIABLE SENTENCE BECAUSE THE NEVADA STATUTORY SCHEME AND CASE LAW WITH RESPECT TO THE AGGRAVATING CIRCUMSTANCES ENUNCIATED IN NRS 200.033 FAIL TO NARROW THE CATEGORIES OF DEATH ELIGIBLE DEFENDANTS.**

This issue is submitted as set forth in opening brief.

CONCLUSION

Based on the foregoing Mr. Rippo would respectfully request that this Court reverse his convictions based on violations of the Fifth, Sixth, and Fourteenth Amendments to the United States Constitution.

DATED this 21 day of September, 2005.

Respectfully submitted by:

CHRISTOPHER R. ORAM, ESQ.
Nevada Bar No. 004349
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101
Attorney for Appellant

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CERTIFICATE OF COMPLIANCE

I hereby certify that I have read this appellate brief, and to the best of my knowledge, information, and belief, it is not frivolous or interposed for any improper purpose. I further certify that this brief complies with all applicable Nevada Rules of Appellate Procedure, in particular NRAP 28(e), which requires every assertion in the brief regarding matters in the record to be supported by appropriate references to the record on appeal. I understand that I may be subject to sanctions in the event that the accompanying brief is not in conformity with the requirements of the Nevada Rules of Appellate Procedure.

DATED this 26 day of September, 2005.

Respectfully submitted by,

CHRISTOPHER R. ORAM, ESQ.
Nevada Bar No. 004349
520 S. Fourth Street, 2nd Floor
Las Vegas, Nevada 89101
(702) 384-5563
Attorney for Appellant

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CERTIFICATE OF MAILING

I hereby certify that I am an employee of CHRISTOPHER R. ORAM, ESQ., and that on the 30 day of September, 2004, I did deposit in the United States Post Office, at Las Vegas, Nevada, in a sealed envelope with postage fully pre-paid thereon, a true and correct copy of the above and foregoing **APPELLANT'S REPLY BRIEF**, addressed to:

David Roger
District Attorney
200 S. Third Street, 7th Floor
Las Vegas, Nevada 89155

Brian Sandoval
Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Jimmie Mirabito
An employee of Christopher R. Oram, Esq.

EXHIBIT 141

EXHIBIT 141

IN THE SUPREME COURT OF THE STATE OF NEVADA

* * * * *

MICHAEL RIPPO, Appellant, vs. THE STATE OF NEVADA, Respondent.	S.C. CASE NO. 44094

APPEAL FROM DENIAL OF PETITION FOR WRIT OF HABEAS CORPUS (POST-CONVICTION)
EIGHTH JUDICIAL DISTRICT COURT
THE HONORABLE DONALD M. MOSLEY, PRESIDING

APPELLANT'S SUPPLEMENTAL BRIEF AS ORDERED BY THIS COURT

ATTORNEY FOR APPELLANT
CHRISTOPHER R. ORAM, ESQ.
Attorney at Law
Nevada Bar No. 004349
520 S. Fourth Street, 2nd Floor
Las Vegas, Nevada 89101
Telephone: (702) 384-5563

ATTORNEY FOR RESPONDENT
DAVID ROGER
District Attorney
Nevada Bar No. 002781
200 S. Third Street, 7th Floor
Las Vegas, Nevada 89155
Telephone: (702) 455-4711

BRIAN SANDOVAL
Nevada Attorney General
Nevada Bar No. 0003805
100 North Carson Street
Carson City, Nevada 89701-4717

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

TABLE OF CONTENTS

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

TABLE OF AUTHORITIES

NEVADA SUPREME COURT CASES

OTHER CIRCUIT COURTS

UNITED STATES SUPREME COURT CASES

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

ISSUES PRESENTED FOR REVIEW

A. MCCONNELL MUST BE RETROACTIVELY APPLIED TO CASES ON COLLATERAL REVIEW.

B. THE RESULT IN MCCONNELL WAS DICTATED BY LOWENFIELD V. PHELPS.

C. MCCONNELL MUST BE RETROACTIVELY APPLIED BECAUSE IT IS A SUBSTANTIVE RULE OF LAW.

D. MCCONNELL IS RETROACTIVE UNDER THE ANALYSIS OF COLWELL V. STATE.

E. THE IMPROPER AND UNCONSTITUTIONAL AGGRAVATING CIRCUMSTANCE IS NOT HARMLESS ERROR.

STATEMENT OF THE CASE

On May 19, 2005, Mr. Rippo filed his opening brief with this Court. On June 17, 2005, the State submitted their answering brief. On September 30, 2005, the State requested leave to file a supplemental answering brief (formatting their brief to the supplement appendix submitted by Appellant). On October 18, 2005, this Honorable Court granted the State's motion for leave to file supplemental brief. This Court also ordered that supplemental briefing be conducted and submitted to the Court addressing the retroactivity of McConnell. Additionally, post-conviction counsel, David Schieck raised this issue in Mr. Rippo's supplemental brief (before McConnell was decided).

STATEMENT OF FACTS

Appellant hereby adopts the statement of the facts as annunciated in Appellant's Opening Brief.

ARGUMENT

A. MCCONNELL MUST BE RETROACTIVELY APPLIED TO CASES ON COLLATERAL REVIEW.

As a preliminary matter, the state is incorrect when it argues that this Court intended to hint at the non-retroactivity of McConnell in its decision on direct appeal. As this Court

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

made clear in its decision denying rehearing, the retroactivity question should only be decided when it is raised and briefed in a post-conviction case. See McConnell v. State, 121 Nev. __, 107 P.3d 1287, 1290 (2005) ("McConnell did not address whether the ruling regarding felony aggravators is retroactive, but we did not overlook this issue. Before deciding retroactivity, we prefer to await the appropriate post-conviction case that presents and briefs the issue."). Given the state's invocation of a retroactivity defense in its answer, Mr. Rippo's appeal presents an appropriate opportunity for this Court to resolve that question. As explained below, McConnell must be applied retroactively under the framework of Colwell v. State, 118 Nev. 807, 59 P.3d 463 (2003), as well as under this Court's prior decisions retroactively applying narrowing constructions of aggravating circumstances on collateral review.

The state argues that this Court's decision in McConnell is a new rule of law and therefore does not need to be applied to cases pending on habeas corpus under Colwell v. State, 118 Nev. 807, 59 P.3d 463 (2002). See Ans. Br. at 13-15. Mr. Rippo does not dispute the fact that his judgment of conviction is final. He does contest, however, the state's argument that McConnell created new law by holding that aggravating circumstances must be narrowly construed.

A review of similar cases reveals that in similar circumstances the courts have given full recognition to and retroactive application of decisions holding state death penalty schemes unconstitutional, in whole or in part, based upon the failure to narrowly define the class of persons eligible for the death penalty. These cases should be followed here as a failure to do so would be a violation of Mr. Rippo's constitutional rights of due process of

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

law and equal protection.

It has long been held by the United States Supreme Court that "a State's capital sentencing scheme ... must 'genuinely narrow the class of persons eligible for the death penalty." Hollaway v. State, 116 Nev. 732, 6 P.3d 987, 996 (2000) (quoting Arave v. Creech, 507 U.S. 463, 474 (1993) (in turn quoting Zant v. Stephens, 462 U.S. 862, 877 (1983)). This concept originated in Furman v. Georgia, 408 U.S. 238 (1972) as the Court found that a state's death penalty scheme was arbitrary and capricious in its operation. Following Furman, this Court invalidated all death sentences, without distinction as to whether the judgments were final or not:

> In as much as the decision in Furman v. Georgia, 408 U.S. 238, 92 S.Ct.2726, 33 L.Ed.2d 346 (1972), is fully retroactive, any prisoner now under the sentence of death, the judgment as to which is final, may file a petition for writ of habeas corpus in the district court from which he was sentenced inviting that court to modify its judgment to provide for the appropriate alternative punishment specified by statute for the crime for which he was sentenced to death.

Walker v. State, 88 Nev. 539, 540 n.1, 501 P.2d 651 n.1 (1972).

In response to Furman, various state legislatures took two approaches. Some limited the discretion of juries by prescribing guidelines that the jury or sentencing judge must consider in determining whether to fix the sentence at death or life imprisonment and other states provided for mandatory death sentences for certain narrowly defined crimes. In 1976, the United States Supreme Court considered five death penalty cases in which it upheld the guideline approach and rejected the mandatory death sentence approach. The guideline approach was upheld in Gregg v. Georgia, 428 U.S. 153 (1976); Proffitt v. Florida, 428 U.S. 242(1976); and Jurek v. Texas, 428 U.S. 262(1976). The mandatory

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

sentencing approach was rejected in Woodson v. North Carolina, 428 U.S. 280 (1976) and Roberts (Stanislaus) v. Louisiana, 428 U.S. 325 (1976). Nevada was one of the states that enacted a mandatory scheme. See Schuman v. Wolff, 791 F. 2d 788, 791 (9th Cir.1986). Accordingly, in 1977, the Nevada Legislature amended the statutory scheme for imposition of the death penalty to provide for the current system of weighing aggravating and mitigating circumstances. Id.

In the meantime, during the period in which the mandatory death penalty scheme was in operation, defendant Raymond Schuman was sentenced to death upon a finding that he committed murder of another inmate while under a sentence of life in prison without the possibility of parole. Id. at 790. This Court affirmed his conviction and sentence of death after finding that the mandatory death penalty was permissible under these limited circumstances. Shuman v. State, 94 Nev. 265, 578 P.2d 1183 (1978). Shuman then filed a state post-conviction petition and in 1982, several years after his judgment of conviction was final, he filed a federal habeas corpus petition. Shuman, 791 F. 2d at 790. The federal district court found that the mandatory death penalty scheme violated Shuman's constitutional rights and the Ninth Circuit affirmed this decision. Id. Upon the state's certiorari petition, the United States Supreme Court affirmed the Ninth Circuit and also concluded that the district court was proper in granting habeas corpus relief as the scheme under which Shuman was sentenced to death was unconstitutional. Sumner v. Shuman, 483 U.S. 66, 77-78 (1987). Thus, despite the fact that Shuman's judgment was final and the case was in habeas corpus proceedings, relief was granted based upon the unconstitutionality of that portion of the death penalty scheme that provided for a

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

mandatory sentence of death under Shuman's circumstances.

More recently, in Robins v. State, 106 Nev. 611, 629-30, 798 P.2d 558, 563 (1990), this Court narrowly construed the "depravity of mind" aggravating circumstance to require torture, mutilation or other serious and depraved physical abuse beyond the act of killing. This construction was made so as to avoid a claim that the "depravity of mind" aggravating circumstance did not provide clear and objective standards for the jury as set forth by the United States Supreme Court in Godfrey v. Georgia, 446 U.S. 420, 428-29 (1980) and Maynard v. Cartwright, 486 U.S. 356 (1988). The narrow construction defined in Robins has been applied in habeas corpus proceedings for cases that were final prior to Robins. See Browning v. State, 120 Nev. __, 91 P.3d 39, 50 (2004) (decision on direct appeal final in 1988); State v. Haberstroh, 119 Nev. ___, 69 P.3d 676, 682-83 (2003) (decision on direct appeal final in 1989); see also Valerio v. Crawford, 306 F.3d 742, 748, 754 (9th Cir. 2002) (applying Robins to a habeas corpus case in which the judgment was final in 1989); McKenna v. McDaniel, 65 F.3d 1483, 1489 (9th Cir. 1995) (reversing sentence based upon depravity aggravating circumstance for case in which the judgment was final in 1986 and citing Robins).

Most recently in Leslie v. Warden, 118 Nev. 773, 780, 59 P.3d 440, 445 (2002), this Court considered whether the aggravating circumstance of "random and without apparent motive" was constitutional when applied to a case where the sole basis was that the defendant unnecessarily killed someone in a robbery. Leslie was a habeas corpus proceeding and the Nevada Supreme court had affirmed the validity of the aggravating circumstance on direct appeal. Id. at 779, 59 P.3d at 444. The Court nonetheless

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

reconsidered the application of the aggravating circumstance because the refusal to do so would result in a fundamental miscarriage of justice. Id. at 780, 59 P.3d at 445. Likewise, in State v. Bennett, this Court applied Leslie retroactively to a petitioner whose conviction and sentence became final in 1990, see 119 Nev. 589, 81 P.3d 1, 6-8 (2003), and whose challenge to the same aggravating circumstances was rejected on direct appeal. See 106 Nev. 135, 143, 787 P.2d 797, 802 (1990). This Court did not discuss retroactivity in Leslie or Bennett when it applied a narrowing construction to aggravating circumstances in cases that were already final.

In McConnell, this Court followed the reasoning of the Tennessee Supreme Court in State v. Middlebrooks, 840 S.W.2d 317 (Tenn 1992) in concluding that felony-murder could not be used both as a theory of guilt and as an aggravating circumstance. McConnell, 102 P.3d at 620 n. 42. The retroactivity question at issue here was also considered by the Tennessee Supreme Court. In Barber v. State, 889 S.W.2d 185, 186 (Tenn. 1994), the state supreme court explained as follows:

> The State first argues that this Court's decision in Middlebrooks should not be retroactively applied to a case where the conviction became final long before the rule in Middlebrooks was announced. In State v. Meadows, 849 S.W.2d 748 (Tenn. 1993), authored by Justice Anderson, we departed from federal law on retroactivity and held that "a new state constitutional rule is to be retroactively applied to a claim for Post-conviction relief if the new rule materially enhances the integrity and reliability of the fact finding process of the trial." Id. at 755. We now hold that the rule in Middlebrooks materially enhances both the integrity and the reliability of the fact finding process in the sentencing phase of a capital trial and should therefore be applied retroactively.
>
> The constitutional concern in Middlebrooks was that the class of death-eligible murderers be narrowed so that only the worst offenders receive the death penalty. See Middlebrooks, 840 S.W.2d at 341-347. The court observed that the felony murder aggravating circumstance duplicates

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

> the cri me of felony murder and thereby makes all felony murderers susceptible to the death penalty. This Court found that such a result violates the Eighth Amendment to the United States constitution, as well as Article I, Section 16 of the Tennessee Constitution. 840 S.W.2d 346. When an aggravating circumstance is improperly injected into the process by which the jurors must weigh aggravating and mitigating circumstances to determine a sentence, the integrity and reliability of the sentencing process is jeopardized because the death penalty may not be reserved for only the most culpable defendant. For this reason, we apply Middlebrooks retroactively under the Meadows rule.

Barber v. State, 889 S.W.2d 185, 186-87 (Tenn. 1994).

This Court also noted that the Wyoming Supreme Court reached the same decision as McConnell in Engberg v. Meyer, 820 P.2d 70 (Wyo.1991). McConnell, 102 P.3d at 620 n.42. Engberg was a post conviction case, yet the Wyoming court both announced and applied its holding that felony murder could not be used both as a basis for finding of guilt and as an aggravating circumstance. In fact, the same issue was presented to the Wyoming Supreme court in Engberg's direct appeal and the court at that time rejected the argument. Engberg v. State, 686 P.2d 541, 558-62 (Wyo. 1984). Nonetheless, the court found it appropriate to reconsider the earlier decision in light of subsequent developments in case law. Engberg, 820 P.2d 87. Thus, the two cases cited favorably in McConnell both apply the rule to post-conviction cases.

B. THE RESULT IN MCCONNELL WAS DICTATED BY LOWENFIELD V. PHELPS.

In McConnell, this Court recognized that it did not correctly apply Lowenfield v. Phelps in its earlier decisions. See McConnell, 102 P.3d at 620-21. In Lowenfield, the United States Supreme Court reemphasized that in order to "pass constitutional muster, a capital sentencing scheme must 'genuinely narrow the class of persons eligible for the

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

death penalty and must reasonably justify the imposition of a more severe sentence on the defendant compared to others found guilty of murder'" Lowenfield, 484 U.S. at 245 (citing Zant and Gregg). The Court then explained that the narrowing process could be performed through the use of aggravating circumstances or by narrowly defining the categories of murders for which a death sentence could be imposed. Id. Thus, the United States Supreme Court recognized and reaffirmed that a state's sentencing scheme must genuinely narrow the class of murders eligible for the death penalty; and that is the same constitutional principle that was analyzed in McConnell as the Court concluded that Nevada's scheme, which permitted a finding of guilt and imposition of the death penalty upon a single showing of felony- murder, did not sufficiently narrow the class of persons eligible for the death penalty. Lowenfield was issued by the United States Supreme court on March 7, 1988, before Mr. Rippo's sentence in this case became final. It is therefore fully applicable to this case. See Griffith v. Kentucky, 479 U.S. 314, 328 (1987).[1]

C. MCCONNELL MUST BE RETROACTIVELY APPLIED BECAUSE IT IS A SUBSTANTIVE RULE OF LAW.

McConnell must be applied retroactively because it is a substantive rule of law imposing a judicially-created narrowing definition on the felony murder aggravating

---

[1] Mr. Rippo notes that the United States Supreme Court has observed that Lowenfield itself was not a new rule under the stringent non-retroactivity rules applicable in the context of federal habeas corpus proceedings. See Stringer v. Black, 503 U.S. 222, 232-34 (1992). Additionally, the Court announced Lowenfield in the context of a federal habeas corpus proceeding where new rules of constitutional law generally do not apply retroactively. The fact that the United States Supreme Court did not consider Lowenfield a new rule is consistent with Mr. Rippo's overarching position that it is simply not a new rule that aggravating circumstances must genuinely narrow the class of persons eligible for the death penalty.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

circumstances. Unlike new rules of criminal procedure, new rules of substantive law are always applied retroactively on collateral review. See, e.g., Bousley v. United States, 523 U.S. 614, 620 (1998). In Bousley, the Court held that the new rule announced in Bailey v. United States, 516 U.S. 137, 144 (1995) (holding that § 924(c)(1)'s "use" prong requires the government to show "active employment of the firearm"), must be applied to cases on collateral review because the rule concerned the interpretation of a statute. Bousley, 523 U.S. at 620. As such, the rule concerned a substantive rule of criminal law, which are presumptively applied retroactively, and the non-retroactivity rule of Teague is not implicated. Bousely, 523 U.S. at 620 ("Teague by its terms applies only to procedural rules . . . [and] is inapplicable to the situation in which this Court decides the meaning of a statute enacted by Congress."); accord Schriro v. Summerlin, 542 U.S. 348, 351-352 (2004). The distinction between substantive rules of criminal law, which are always applied retroactively, versus rules of criminal procedure, which are subject to Teague, is a well-established principle of law.[2]

McConnell is a rule of substantive law because it "narrows the scope of a criminal

---

[2] E.g., Davis v. United States, 417 U.S. 333, 346 (1974) (holding that a defendant may assert in a § 2255 proceeding a claim based on an intervening substantive change in the interpretation of a federal criminal statute); United States v. Benboe, 157 F.3d 1181, 1183 (9th Cir. 1998); Chambers v. United States, 22 F.3d 939, 942 (9th Cir. 1994); United States v. Sood, 969 F.2d 774, 775-76 (9th Cir. 1992); United States v. McClelland, 941 F.2d 999, 1000-01 (9th Cir. 1991); Santana-Madera v. United States, 260 F.3d 133, 139 (2d Cir. 2001); United States v. Lopez, 248 F.3d 427, 432 (5th Cir. 2001); United States v. McPhail, 112 F.3d 197, 199 (5th Cir. 1997); United States v. Brown, 117 F.3d 471, 479 (11th Cir. 1997); United States v. McKie, 73 F.3d 1149, 1153-54 (D.C. Cir. 1996); Ianniello v. United States, 10 F.3d 59, 63 (2d Cir. 1993); United States v. Guardino, 972 F.2d 682, 687 n.7 (6th Cir. 1992).

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

statute", see Summerlin, 542 U.S. at 351, by requiring furthering narrowing of the felony aggravators before Mr. Rippo is rendered death eligible. See also Id. at 354 ("a decision that modifies the elements of an offense is normally substantive rather than procedural.") Unlike the rule of Ring v. Arizona, 536 U.S. 584 (2002), which merely allocated decision making authority between judges and juries, see Summerlin, 542 U.S. at 353, McConnell imposes a substantive narrowing component when the state relies upon a felony murder theory in the guilt phase. By requiring further narrowing of the felony aggravators in the penalty phase, for example with a special verdict form indicating that the jury has found premeditation, this Court grafted an additional substantive element into the definition of the felony aggravators. Without such a finding, Mr. Rippo "faces a punishment that the law cannot impose upon him", see Summerlin, 542 U.S. at 352; therefore, McConnell must be applied retroactively as a substantive rule of law.

D. MCCONNELL IS RETROACTIVE UNDER THE ANALYSIS OF COLWELL V. STATE.

Returning to the framework announced by this Court in Colwell, it is clear that McConnell must be applied retroactively just as this Court has applied every other narrowing construction to an aggravating circumstance retroactively. The fact that this Court applied its holdings with respect to aggravating circumstances retroactively in Leslie, Bennett, Feazell, Haberstroh, and Browning without even mentioning it is telling. As explained above, this Court need not engage in a full retroactivity analysis because it is not a new rule that aggravating circumstances must genuinely narrow the class of death eligible defendants. Furthermore, as explained above, McConnell is a substantive rule of

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

law and is therefore automatically retroactive. However, even if it is considered a new rule of *criminal procedure*, McConnell fits comfortably within both Colwell exceptions to non-retroactivity.

McConnell prohibits "a certain category of punishment for a class of defendants because of their status or offense." Colwell, 59 P.3d at 470. For those defendants convicted under a felony murder theory in the guilt phase, their *status* prevents the state from seeking the death penalty using the same felony murder theory to justify the submission of those same aggravating circumstances to the jury. The state's argument that McConnell does not make it unlawful to prosecute those convicted of felony murder, see Ans. Br. at 14, misses the point. As this Court recognized in Colwell, the United States Supreme Court has recently held that it is unconstitutional to execute the mentally retarded. See Colwell, 59 P.3d at 470. The Court's decision in Atkins v. Virginia, 536 U.S. 304 (2002), does not hold that mentally retarded individuals cannot be prosecuted for murder. Rather, it is their status that prevents the infliction of a particular punishment, i.e., the death penalty. The same principles dictate that McConnell should apply retroactively here: Mr. Rippo's status as an individual convicted of first-degree murder using a felony murder theory prevents the state from using the robbery aggravating circumstance to render him eligible for a sentence of death. Therefore, Mr. Rippo is entitled to the retroactive application of McConnell under the first Colwell exception.

Mr. Rippo is undoubtedly entitled to the retroactive application of McConnell under the second Colwell exception because "accuracy is seriously diminished without the rule." Colwell, 59 P.3d at 472. It is axiomatic that *accuracy* in the context of a capital sentencing

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

proceeding requires that the sentencing scheme genuinely narrow the class of death eligible defendants. McConnell is the quintessential example of such a rule because it is based "on a perceived need to enhance accuracy in capital sentencings." Colwell, 59 P.3d at 473. As this Court noted in McConnell, "it is clear that Nevada's definition of felony murder does not afford constitutional narrowing" and "the felony aggravator fails to genuinely narrow the death eligibility of felony murderers and reasonably justify imposing death on all defendants to whom it applies." McConnell, 102 P.3d at 622, 624. This Court's decision in McConnell is the most important narrowing construction ever applied to the state's capital sentencing scheme since Furman for two reasons: (1) the felony aggravator contains seven qualifying felonies, see McConnell, 102 P.3d at 623-24, instead of one[3]; and (2) the felony aggravator fails to contain an adequate narrowing based on the defendant's mental state. See id. Therefore, it is inescapable that the felony murder aggravator is the most unconfined and overly broad part of the state sentencing scheme. In comparison, this Court's rulings in Leslie, Bennett, Haberstroh, Browning, and Feazell did not have nearly the far reaching application as McConnell since they only concerned single aggravating circumstances, and this Court did not even mention retroactivity in those cases.

The state may argue that a rule that could be found to be harmless error can never be held retroactive, but that very argument has been rejected in the context of federal

---

[3] As this Court noted in McConnell, Nev. Rev. Stat. § 200.033(4) includes five felonies and Nev. Rev. Stat. § 200.033(13) adds first-degree murders committed during the commission of a sexual assault or sexual abuse of a child. See 102 P.3d at 623.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

habeas corpus proceedings where the stringent Teague v. Lane, 489 U.S. 288 (1989) standard applies. See Bockting v. Bayer, 399 F.3d 1010, 1020 (9th Cir.) (rejecting argument that "rules of constitutional law subject to harmless error review can never be considered bedrock rules of procedure"), amended on denial of rehearing, 408 F.3d 1127 (9th Cir. 2005). Unlike the narrower federal habeas standard, it is much easier to understand that a constitutional rule can be harmless error and at the same time qualify as a rule without which the accuracy of the proceedings are seriously diminished in state habeas proceedings. In summary, it is apparent that this Court's decision in McConnell increases the accuracy of capital sentencing proceedings to such an extent that it should be considered retroactive under Colwell.

E. THE IMPROPER AND UNCONSTITUTIONAL AGGRAVATING CIRCUMSTANCE IS NOT HARMLESS ERROR.

The State may argue that Lowenfield-McConnell should not be applied here because the state argued at trial that Mr. Rippo was guilty under both premeditation and felony-murder theories. The jury was not given a special verdict form, however, and it is therefore impossible to know whether all of the jurors found Mr. Rippo guilty under a theory of premeditation and deliberation. Both theories were presented and argued to the jury, the jury was instructed on both theories, and it is certainly possible that the jury could have based its decision upon this theory. Unlike the defendant in McConnell, Mr. Rippo did not plead guilty to premeditated murder and has never stated that he committed any offense with premeditation and deliberation. Cf. McConnell, 102 P.3d at 620 (finding harmless error when defendant pleaded guilty and stated in his plea hearing that "[n]othing

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

justifies cold-blooded, premeditated, first-degree murder, which is what I did.").

Nevada is a "weighing" state, i.e., a state in which the existence of an aggravating factor is a necessary predicate to death eligibility, and in which the ultimate sentencing decision turns on the weighing of statutory aggravating factors against the mitigating evidence. In a weighing state where the aggravating and mitigating circumstances are balanced against each other, it is constitutional error for the sentence to give weight to an unconstitutional factor, even if other valid factors remain. Accordingly, Mr. Rippo's sentence of death must be vacated.

CONCLUSION

Based on the foregoing Mr. Rippo would respectfully request that this Court reverse his convictions based on violations of the Fifth, Sixth, and Fourteenth Amendments to the United States Constitution.

DATED this 12 day of December 2005.

Respectfully submitted by:

CHRISTOPHER R. ORAM, ESQ.
Nevada Bar No. 004349
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101
Attorney for Appellant

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CERTIFICATE OF COMPLIANCE

I hereby certify that I have read this appellate brief, and to the best of my knowledge, information, and belief, it is not frivolous or interposed for any improper purpose. I further certify that this brief complies with all applicable Nevada Rules of Appellate Procedure, in particular NRAP 28(e), which requires every assertion in the brief regarding matters in the record to be supported by appropriate references to the record on appeal. I understand that I may be subject to sanctions in the event that the accompanying brief is not in conformity with the requirements of the Nevada Rules of Appellate Procedure.

DATED this 2 day of December, 2005.

Respectfully submitted by,

CHRISTOPHER R. ORAM, ESQ.
Nevada Bar No. 004349
520 S. Fourth Street, 2nd Floor
Las Vegas, Nevada 89101
(702) 384-5563
Attorney for Appellant

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

CERTIFICATE OF MAILING

I hereby certify that I am an employee of CHRISTOPHER R. ORAM, ESQ., and that on the 12 day of December, 2005, I did deposit in the United States Post Office, at Las Vegas, Nevada, in a sealed envelope with postage fully pre-paid thereon, a true and correct copy of the above and foregoing **APPELLANT'S SUPPLEMENTAL BRIEF**, addressed to:

David Roger
District Attorney
200 S. Third Street, 7th Floor
Las Vegas, Nevada 89155

Brian Sandoval
Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

An employee of Christopher R. Oram, Esq.

CHRISTOPHER R. ORAM
520 South Fourth Street, Second Floor
Las Vegas, Nevada 89101

113 Nev. 1239, 946 P.2d 1017
(Cite as: 113 Nev. 1239, 946 P.2d 1017)

Rippo v. StateNev.,1997.

Supreme Court of Nevada.

Michael Damon **RIPPO**, Appellant,

v.

The STATE of Nevada, Respondent.

No. 28865.

Oct. 1, 1997.

Defendant was convicted of murder and other offenses and sentenced to death following jury trial in the Eighth Judicial District Court, Clark County, Gerard Bongiovanni, J., and he appealed. The Supreme Court held that: (1) no grounds existed to disqualify trial judge; (2) state's late disclosure of new witnesses did not warrant reversal; (3) prosecutor did not intimidate alibi witness; (4) defense counsel opened door to issue of witness intimidation by defendant; (5) prosecutor did not make improper remarks in closing argument; (6) disqualified prosecutor's continued interest in trial did not warrant disqualification of entire prosecutor's office; (7) state's failure to disclose two witnesses' testimony did not violate *Brady* rule; (8) evidence that defendant used victim's credit card was admissible; (9) testimony of defendant's fellow prisoner implying that defendant sold drugs was not improper; (10) prosecutor did not make improper remarks in penalty-phase opening and closing; (11) none of the victim-impact testimony was improper; (12) anti-sympathy penalty-phase instruction was not improper; (13) evidence supported murder-by-torture aggravating circumstance; (14) use of uncharged crimes in aggravation was not improper; and (15) death penalty was appropriate.

Affirmed.

West Headnotes

[1] Judges 227 ⇐49(1)

227 Judges
227IV Disqualification to Act
227k49 Bias and Prejudice
227k49(1) k. In General. Most Cited Cases
Criminal defendant's unsupported allegation that trial judge had opinion or interest in outcome of defendant's case because judge was subject of federal grand jury probe and thus was under pressure to look "tough" did not warrant disqualification of judge. N.R.S. 1.230; Code of Jud.Conduct, Canon 3, subd. E(1)(a).

[2] Judges 227 ⇐51(4)

227 Judges
227IV Disqualification to Act
227k51 Objections to Judge, and Proceedings Thereon
227k51(4) k. Determination of Objections. Most Cited Cases
Judge is presumed to be impartial.

[3] Judges 227 ⇐51(4)

227 Judges
227IV Disqualification to Act
227k51 Objections to Judge, and Proceedings Thereon
227k51(4) k. Determination of Objections. Most Cited Cases
Party seeking disqualification of judge carries burden of establishing sufficient factual grounds.

[4] Judges 227 ⇐51(3)

227 Judges
227IV Disqualification to Act
227k51 Objections to Judge, and Proceedings Thereon
227k51(3) k. Sufficiency of Objection or Affidavit. Most Cited Cases
Disqualification of judge must be based on facts, rather than mere speculation.

[5] Criminal Law 110 ⇐913(1)

110 Criminal Law

110XXI Motions for New Trial
110k913 Grounds for New Trial in General
110k913(1) k. In General. Most Cited Cases
Criminal defendant's unsupported allegation that he learned after trial that trial judge had relationship with business partner of victim did not support finding that judge abused his discretion in refusing to disqualify himself; accordingly, defendant was *not entitled to new trial. Code of Jud.Conduct,* Canon 3 comment.

[6] Judges 227 ⇐45

227 Judges
227IV Disqualification to Act
227k45 k. Relationship to Party or Person Interested. Most Cited Cases
In some circumstances, relationship between judge and victim may be relevant to issue of disqualification and should therefore be revealed on record. Code of Jud.Conduct, Canon 3 comment.

[7] Criminal Law 110 ⇐911

110 Criminal Law
110XXI Motions for New Trial
110k911 k. Discretion of Court as to New Trial. Most Cited Cases
Whether to grant or deny motion for new trial is within trial court's discretion.

[8] Criminal Law 110 ⇐632(5)

110 Criminal Law
110XX Trial
110XX(A) Preliminary Proceedings
110k632 Dockets and Pretrial Procedure
110k632(5) k. Pretrial Conference or Hearing; Order. Most Cited Cases
Criminal defendant's allegations did not entitle him to evidentiary hearing to determine whether state was involved in federal investigation of trial judge and extent of judge's relationship with business partner of victim, where factual grounds allowing for reasonable inference that judge had conflict of interest were lacking. Code of Jud.Conduct, Canon 3, subd. E.

[9] Criminal Law 110 ⇐1166(11)

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1166 Preliminary Proceedings
110k1166(11) k. Endorsing or Listing Witnesses. Most Cited Cases
Fact that state did not oppose motion for *continuance did not lead to conclusion that it* deliberately attempted to delay trial through late disclosure of new witnesses after receiving defendant's notice of alibi, even though it earlier tried to expedite trial date; thus, the late disclosure did not warrant reversal.

[10] Criminal Law 110 ⇐700(10)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(10) k. Nonproduction of Witness or Rendering Witness Unavailable. Most Cited Cases
Prosecutor's exhortations to alibi witness to tell truth when he accompanied police officers during search of witness' home did not constitute witness intimidation warranting new trial, where officers did *not draw their weapons, witness testified that she* did not feel threatened or compelled to change her testimony, and prosecutor was disqualified from case. U.S.C.A. Const.Amend. 6.

[11] Criminal Law 110 ⇐700(10)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(10) k. Nonproduction of Witness or Rendering Witness Unavailable. Most Cited Cases
Witness intimidation by prosecutor can warrant new trial if it results in denial of defendant's right to fair

trial. U.S.C.A. Const.Amend. 6.

[12] Criminal Law 110 ⇐700(1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(1) k. In General; Misconduct in General. Most Cited Cases
Prosecutor has duty to refrain from improper methods calculated to produce wrongful conviction.

[13] Witnesses 410 ⇐288(2)

410 Witnesses
410III Examination
410III(C) Re-Examination
410k285 Redirect Examination
410k288 New Matter on Cross-Examination
410k288(2) k. Particular Subjects of Inquiry. Most Cited Cases
Defense counsel's cross-examination of murder defendant's fellow prisoner about reasons for his confinement at psychiatric facility opened door to question of intimidation by defendant, and thus justified prosecutor's exploration of question when he was rehabilitating prisoner on redirect, where defense counsel (who was apparently trying to portray prisoner as mentally unstable) elicited information suggesting that prisoner had been threatened.

[14] Criminal Law 110 ⇐713

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k712 *Statements as to Facts*, Comments, and Arguments
110k713 k. In General. Most Cited Cases

Criminal Law 110 ⇐1171.1(3)

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1171 Arguments and Conduct of Counsel
110k1171.1 In General
110k1171.1(2) Statements as to Facts, Comments, and Arguments
110k1171.1(3) k. Particular Statements, Comments, and Arguments. Most Cited Cases
Prosecution's intimations of witness intimidation by defendant are reversible error unless prosecutor also presents substantial credible evidence that defendant was source of intimidation.

[15] Witnesses 410 ⇐288(2)

410 Witnesses
410III Examination
410III(C) Re-Examination
410k285 Redirect Examination
410k288 New Matter on Cross-Examination
410k288(2) k. Particular Subjects of Inquiry. Most Cited Cases
Where counsel opens door to question of witness intimidation by defendant, opposing counsel may rehabilitate witness on redirect.

[16] Criminal Law 110 ⇐1171.1(5)

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1171 Arguments and Conduct of Counsel
110k1171.1 In General
110k1171.1(2) Statements as to Facts, Comments, and Arguments
110k1171.1(5) k. Comments on Failure to Produce Witnesses or Evidence. Most Cited Cases
Prosecutor's impermissible references during closing argument to defendant's failure to call any witnesses on his behalf were harmless in light of overwhelming evidence of guilt.

[17] Criminal Law 110 ⇐721.5(1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k712 Statements as to Facts, Comments, and Arguments
110k721.5 Comments on Failure to Produce Witnesses or Evidence
110k721.5(1) k. In General. Most Cited Cases
It is generally improper for prosecutor to comment on defendant's failure to call witness; such comment can be viewed as impermissibly shifting burden of proof to defense.

[18] Criminal Law 110 ⇐721(6)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k712 Statements as to Facts, Comments, and Arguments
110k721 Comments on Failure of Accused to Testify
110k721(6) k. Reference to Failure to Produce Witness or Testimony. Most Cited Cases
Prosecutor's references during closing argument to lack of testimony supporting defendant's case were not improper comment on defendant's failure to testify where prosecutor did not directly comment on defendant's failure to testify and did not manifestly intend such comment. U.S.C.A. Const.Amend. 5.

[19] Criminal Law 110 ⇐719(1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k712 Statements as to Facts, Comments, and Arguments
110k719 Matters Not Sustained by Evidence
110k719(1) k. In General. Most Cited Cases

Criminal Law 110 ⇐1171.3

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1171 Arguments and Conduct of Counsel
110k1171.3 k. Comments on Evidence or Witnesses, or Matters Not Sustained by Evidence. Most Cited Cases
Prosecutor's references during closing argument to evidence not presented at trial were improper; however, in light of overwhelming evidence of guilt, error was harmless.

[20] Criminal Law 110 ⇐720(1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k712 Statements as to Facts, Comments, and Arguments
110k720 Comments on Evidence or Witnesses
110k720(1) k. In General. Most Cited Cases
Prosecutor's comments on evidence during closing argument did not amount to improper prosecutorial vouching where he did not characterize testimony of witnesses or express personal belief concerning evidence before jury.

[21] Criminal Law 110 ⇐639.4

110 Criminal Law
110XX Trial
110XX(B) Course and Conduct of Trial in General
110k638 Counsel for Prosecution
110k639.4 k. Grounds for Employment of Assistant or Substitute. Most Cited Cases
That prosecutor who had been disqualified showed continued interest in trial by being present in court for opening statements, by following order of witnesses, and by speaking with witness during trial did not warrant disqualification of entire prosecutor's office, where there was no evidence of his continued involvement, no evidence as to content or nature of his conversations with witness, and no evidence that he disobeyed judge's order not

to speak further with any witnesses.

[22] Criminal Law 110 ⇐700(3)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(2) Disclosure or Suppression of Information
110k700(3) k. Particular Cases and Problems. Most Cited Cases
State's failure to disclose that witness would testify that murder defendant confessed to him did not violate *Brady* rule, where state did disclose witness' grand jury testimony that defendant had offered to sell witness one victim's car on day of murders, and where exercise of reasonable diligence would have allowed defense counsel to obtain the information, especially considering that defendant was granted two-week continuance to interview witness.

[23] Criminal Law 110 ⇐700(2.1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(2) Disclosure or Suppression of Information
110k700(2.1) k. In General. Most Cited Cases
Under *Brady*, prosecution must disclose to defense evidence in its possession that is both favorable to defendant and material to guilt or punishment.

[24] Criminal Law 110 ⇐700(2.1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(2) Disclosure or Suppression of Information
110k700(2.1) k. In General. Most Cited Cases
In determining whether evidence is *Brady* material that must be disclosed to defense, court should look at following: (a) suppression by prosecution after request by defense; (b) evidence's favorable character for defense; and (c) materiality of evidence.

[25] Criminal Law 110 ⇐700(3)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(2) Disclosure or Suppression of Information
110k700(3) k. Particular Cases and Problems. Most Cited Cases
Defendant's statement to witness that "I killed those two bitches" was inculpatory admission which did not fall under *Brady* disclosure rule.

[26] Criminal Law 110 ⇐700(3)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k700 Rights and Duties of Prosecuting Attorney
110k700(2) Disclosure or Suppression of Information
110k700(3) k. Particular Cases and Problems. Most Cited Cases
Parole officer's penalty-phase testimony that defendant told officer's supervisor that he would rather be convicted of murder than sexual assault because murder sounded better was not exculpatory, and defense could have discovered the statement given state's open file policy; thus, state's failure to disclose the testimony did not violate *Brady*.

[27] Criminal Law 110 ⇐369.2(4)

110 Criminal Law

110XVII Evidence
110XVII(F) Other Offenses
110k369 Other Offenses as Evidence of Offense Charged in General
110k369.2 Evidence Relevant to Offense, Also Relating to Other Offenses in General
110k369.2(3) Particular Offenses, Prosecutions for
110k369.2(4) k. Assault, Homicide, Abortion and Kidnapping. Most Cited Cases

Criminal Law 110 ⇐371(12)

110 Criminal Law
110XVII Evidence
110XVII(F) Other Offenses
110k371 Acts Showing Intent or Malice or Motive
110k371(12) k. Motive. Most Cited Cases
Evidence that defendant used murder victim's credit card was admissible where it was relevant to show defendant's connection with victims and crime scene and to prove robbery motive, and where it was more probative than prejudicial. N.R.S. 48.045 , subd. 2.

[28] Criminal Law 110 ⇐374

110 Criminal Law
110XVII Evidence
110XVII(F) Other Offenses
110k374 k. Proof and Effect of Other Offenses. Most Cited Cases
Testimony of murder defendant's fellow prisoner that he delivered messages for defendant and would "hook up drug deals and stuff and handle things" was too limited and vague to imply that defendant was conducting drug sales while in jail, and thus was not *improper evidence of other bad acts*, especially considering that jury heard about defendant's involvement with drugs through testimony of other witnesses.

[29] Criminal Law 110 ⇐723(1)

110 Criminal Law
110XX Trial
110XX(E) Arguments and Conduct of Counsel
110k722 Comments on Character or Conduct
110k723 Appeals to Sympathy or Prejudice
110k723(1) k. In General. Most Cited Cases
Prosecutor's use, during penalty-phase opening statements, of terms "horror" and "horrendous" to describe murder defendant's actions in committing prior sexual assault did not deprive defendant of fair trial where prosecutor did not misstate evidence but indicated what evidence would, and did, show, and where court instructed jury to base its decision on evidence before it rather than on attorneys' arguments. U.S.C.A. Const.Amend. 14.

[30] Criminal Law 110 ⇐1171.1(2.1)

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1171 Arguments and Conduct of Counsel
110k1171.1 In General
110k1171.1(2) Statements as to Facts, Comments, and Arguments
110k1171.1(2.1) k. In General. Most Cited Cases
Criminal conviction is not to be lightly overturned on basis of prosecutor's comments standing alone, for statements or conduct must be viewed in context; only by doing so can it be determined whether prosecutor's conduct affected fairness of trial.

[31] Criminal Law 110 ⇐1171.1(2.1)

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1171 Arguments and Conduct of Counsel
110k1171.1 In General
110k1171.1(2) Statements as to Facts, Comments, and Arguments
110k1171.1(2.1) k. In General. Most Cited Cases

That prosecutor's statements are undesirable is not enough to overturn conviction.

[32] Criminal Law 110 ⇐1171.1(2.1)

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1171 Arguments and Conduct of Counsel
110k1171.1 In General
110k1171.1(2) Statements as to Facts, Comments, and Arguments
110k1171.1(2.1) k. In General. Most Cited Cases
In determining whether prosecutor's comments warrant overturning conviction, relevant inquiry is whether they so infected proceedings with unfairness as to make results denial of due process. U.S.C.A. Const.Amend. 14.

[33] Criminal Law 110 ⇐1037.1(2)

110 Criminal Law
110XXIV Review
110XXIV(E) Presentation and Reservation in Lower Court of Grounds of Review
110XXIV(E)1 In General
110k1037 Arguments and Conduct of Counsel
110k1037.1 In General
110k1037.1(2) k. Particular Statements, Arguments, and Comments. Most Cited Cases
By failing to object to prosecutor's reference to defendant as "evil" during opening statement in penalty phase, murder defendant precluded appellate consideration.

[34] Sentencing and Punishment 350H⇐1780(2)

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)3 Hearing
350Hk1780 Conduct of Hearing
350Hk1780(2) k. Arguments and Conduct of Counsel. Most Cited Cases
(Formerly 110k723(1))
Prosecutor's remarks during penalty-phase closing argument in murder trial concerning use of death penalty to send message to society were proper explanation of rationales supporting death penalty.

[35] Sentencing and Punishment 350H ⇐1752

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1752 k. Discretion of Court. Most Cited Cases
(Formerly 110k1208.1(6))
Questions of admissibility of testimony during penalty phase of capital trial are largely left to trial judge's discretion and will not be disturbed absent abuse of discretion.

[36] Sentencing and Punishment 350H ⇐1763

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1755 Admissibility
350Hk1763 k. Victim Impact. Most Cited Cases
(Formerly 203k358(1))
Jury considering death penalty for murder may consider victim-impact evidence as it relates to victim's character and emotional impact of murder on victim's family. N.R.S. 175.552.

[37] Sentencing and Punishment 350H ⇐319

350H Sentencing and Punishment
350HII Sentencing Proceedings in General
350HII(F) Evidence
350Hk319 k. Opinion Evidence. Most Cited Cases
(Formerly 110k986.6(3))

Sentencing and Punishment 350H ⇐1768

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings

350HVIII(G)2 Evidence
350Hk1755 Admissibility
350Hk1768 k. Opinion Evidence. Most Cited Cases
(Formerly 110k1208.1(6))
Victim can express opinion regarding defendant's sentence only in non-capital cases.

[38] Sentencing and Punishment 350H ⇐310

350H Sentencing and Punishment
350HII Sentencing Proceedings in General
350HII(F) Evidence
350Hk307 Admissibility in General
350Hk310 k. Harm or Injury Attributable to Offense. Most Cited Cases
(Formerly 203k358(1))
Five witnesses could give victim-impact testimony in penalty phase of murder trial where each testimonial was individual in nature and testimony was neither cumulative nor excessive.

[39] Sentencing and Punishment 350H ⇐310

350H Sentencing and Punishment
350HII Sentencing Proceedings in General
350HII(F) Evidence
350Hk307 Admissibility in General
350Hk310 k. Harm or Injury Attributable to Offense. Most Cited Cases
(Formerly 203k358(1))
Victim-impact testimony given by family members during penalty phase of murder trial about brutal nature of defendant's crimes was relevant to defendant's moral culpability and blameworthiness, even though it went beyond boundaries set forth by state.

[40] Sentencing and Punishment 350H ⇐310

350H Sentencing and Punishment
350HII Sentencing Proceedings in General
350HII(F) Evidence
350Hk307 Admissibility in General
350Hk310 k. Harm or Injury Attributable to Offense. Most Cited Cases
(Formerly 203k358(1))
State could present testimony of second victim-impact witness during penalty phase of murder trial after indicating it would only call one such witness where defense interposed no immediate objection and defendant showed no prejudice.

[41] Criminal Law 110 ⇐796

110 Criminal Law
110XX Trial
110XX(G) Instructions: Necessity, Requisites, and Sufficiency
110k796 k. Punishment. Most Cited Cases
(Formerly 203k311)
Anti-sympathy instruction given during penalty phase of murder trial did not violate defendant's constitutional right to present relevant mitigating evidence where jury was also instructed to consider mitigating factors.

[42] Sentencing and Punishment 350H ⇐82

350H Sentencing and Punishment
350HI Punishment in General
350HI(D) Factors Related to Offense
350Hk82 k. Brutality or Cruelty in Commission of Offense. Most Cited Cases
(Formerly 203k354(1))
Evidence that defendant not only strangled and restrained his victims but also blasted them multiple times with painful high-voltage stun gun was sufficient, when considered as whole, to show continuum or pattern of sadistic violence, and thus supported murder-by-torture aggravating circumstance in sentencing, even though stun gun did not cause death. N.R.S. 200.030, 200.033, subd. 8.

[43] Sentencing and Punishment 350H ⇐82

350H Sentencing and Punishment
350HI Punishment in General
350HI(D) Factors Related to Offense
350Hk82 k. Brutality or Cruelty in Commission of Offense. Most Cited Cases
(Formerly 203k354(1))
Evidence of murder defendant's attempts to kill his victims by strangling, by itself, did not establish murder-by-torture aggravating circumstance in sentencing. N.R.S. 200.030, 200.033, subd. 8.

[44] Sentencing and Punishment 350H ⇐82

350H Sentencing and Punishment
350HI Punishment in General
350HI(D) Factors Related to Offense
350Hk82 k. Brutality or Cruelty in Commission of Offense. Most Cited Cases
(Formerly 203k354(1))
Persons who taunt and torture their murder victims as part of killing process will not be allowed to escape murder-by-torture aggravating factor in sentencing merely because the torturing is not actual cause of death. N.R.S. 200.030, 200.033, subd. 8.

[45] Sentencing and Punishment 350H ⇐98

350H Sentencing and Punishment
350HI Punishment in General
350HI(E) Factors Related to Offender
350Hk93 Other Offenses, Charges, Misconduct
350Hk98 k. Arrests, Charges, or Unadjudicated Misconduct. Most Cited Cases
(Formerly 203k354(1))
State need not charge defendant with crime before that crime can be used as aggravating circumstance in sentencing for first-degree murder. N.R.S. 200.033, subd. 4.

[46] Sentencing and Punishment 350H ⇐1744

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)1 In General
350Hk1744 k. Notice of Sentencing Factors. Most Cited Cases
(Formerly 203k357(7))
That murder defendant was not charged with either burglary or kidnapping did not prevent those crimes from being offered as aggravating factors in sentencing, where defendant was put on notice of the factors by amended notice of intent to seek death penalty. N.R.S. 200.033, subd. 4.

[47] Sentencing and Punishment 350H ⇐141

350H Sentencing and Punishment
350HI Punishment in General
350HI(G) Dual Use
350Hk137 Elements of Offense
350Hk141 k. Other Offenses or Charges. Most Cited Cases
(Formerly 203k354(1))
If defendant can be prosecuted for each crime separately, each crime can be used as aggravating circumstance in sentencing for murder. N.R.S. 200.033, subd. 4.

[48] Sentencing and Punishment 350H ⇐1683

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(D) Factors Related to Offense
350Hk1683 k. More Than One Killing in Same Transaction or Scheme. Most Cited Cases
(Formerly 203k357(4), 203k356)
Death sentences for two murders were appropriate where jury after hearing evidence relating to both aggravating and mitigating circumstances found five valid aggravating circumstances and no mitigating circumstances, sentences were not imposed under influence of passion, prejudice, or any arbitrary factor, and sentences were not excessive considering both crimes and defendant. N.R.S. 177.055, subd. 2.

****1020 *1240** David M. Schieck, Las Vegas, for Appellant.
Frankie Sue Del Papa, Attorney General, Carson City; Stewart L. Bell, District Attorney,****1021** James Tufteland, Chief Deputy District Attorney, John P. Lukens, Deputy District Attorney, Clark County, for Respondent.

**1244 OPINION*

PER CURIAM:
A jury convicted appellant Michael Damon Rippo of two counts of first-degree murder, one count of robbery, and one count of unauthorized use of a credit card. Rippo received two sentences of death for the first-degree murder convictions. Rippo raises numerous issues on appeal. We conclude that Rippo was fairly tried, convicted, and sentenced to death.

FACTS

On February 20, 1992, the apartment manager of the Katie Arms Apartment Complex in Las Vegas discovered the bodies of Denise Lizzi and Lauri Jacobson in Jacobson's apartment. Officers from the Las Vegas Metropolitan Police Department (" LVMPD") arrived at the scene and recovered a clothing iron and a hair dryer, from which the electrical cords had been removed, a black leather strip, a telephone cord, and two pieces ***1245** of black shoelace. They observed glass fragments scattered on the living room and kitchen floor areas.

In April 1992, the LVMPD arrested Diana Hunt and charged her with the killing and robbery of Lizzi and Jacobson. As part of her plea agreement, Hunt agreed to testify at the trial of Michael Rippo. Hunt testified to the following:

At the time of the murders, Hunt was Rippo's girlfriend. On February 18, 1992, she and Rippo went to the Katie Arms Apartment Complex to meet Jacobson, who was home alone. Rippo and Jacobson injected themselves with morphine for recreational purposes. Shortly thereafter Lizzi arrived, and she and Jacobson went outside for approximately twenty minutes. While Jacobson and Lizzi were outside, Rippo closed the apartment curtains and the window and asked Hunt to give him a stun gun she had in her purse. Rippo then made a phone call.

When Jacobson and Lizzi returned to the apartment, they went into the bathroom. Rippo brought Hunt a bottle of beer and told her that when Jacobson answered the phone, Hunt should hit Jacobson with the bottle so that Rippo could rob Lizzi. A few minutes later the phone rang, and Jacobson came out of the bathroom to answer it. Hunt hit Jacobson on the back of her head with the bottle causing Jacobson to fall to the floor. Rippo and Lizzi were yelling in the bathroom, and Hunt could hear the stun gun being fired. Hunt witnessed Rippo wrestle Lizzi across the hall into a big closet. Hunt ran to the closet and observed Rippo sitting on top of Lizzi and stunning her with the stun gun. Hunt then went to the living room and helped Jacobson sit up. Rippo came out of the closet holding a knife which he had used to cut the cords from several appliances, told Jacobson to lie down, tied her hands and feet, and put a bandanna in her mouth.

Hunt next saw Rippo in the closet with Lizzi. Rippo had tied Lizzi's hands and feet. At this point, a friend of Jacobson's approached the apartment, knocked on the door, and called out for Jacobson. Rippo put a gag in Lizzi's mouth. Jacobson was still gagged and apparently unable to answer. After the friend left, Rippo began stunning Jacobson with the stun gun. He placed a cord or belt-type object through the ties on Jacobson's feet and wrists, and dragged her across the floor to the closet. As Rippo dragged her, Jacobson appeared to be choking. Hunt began to vomit and next remembered hearing an odd noise coming from the closet. She observed Rippo with his knee in the small of Lizzi's back, pulling on an object he had placed around her neck.

When Hunt accused Rippo of choking the women, Rippo told her that he had only temporarily cut off their air supply, and that Hunt and Rippo had to leave before the two women woke up. Rippo wiped down the apartment with a rag before leaving. ***1246** While cleaning up, Rippo went into the closet and removed Lizzi's boots and pants. He explained to Hunt that he needed to remove Lizzi's pants because he had bled on them.

Later that evening, Rippo called Hunt and told her to meet him at a friend's shop. When Hunt arrived, Rippo was there with ****1022** Thomas Simms, the owner of the shop, and another unidentified man. Rippo told Hunt that he had stolen a car for her and that she needed to obtain some paperwork on it. Hunt believed the car, a maroon Nissan, had belonged to Lizzi.

The next day, on February 19, 1992, Hunt and Rippo purchased a pair of sunglasses using a gold Visa card. Rippo told Hunt that he had purchased an air compressor and tools on a Sears credit card that morning. Later that day, Hunt, who was scared of Rippo and wanted to "get away from him[,]" went through Rippo's wallet in search of money. Hunt was unable to find any money, but she took a

113 Nev. 1239, 946 P.2d 1017
(Cite as: 113 Nev. 1239, 946 P.2d 1017)

gold Visa card belonging to Denny Mason, Lizzi's boyfriend, from Rippo's wallet. Hunt did not know who Mason was. Around February 29, 1992, Rippo confronted Hunt. Hunt suggested to Rippo that they turn themselves in to the LVMPD, but Rippo refused, telling Hunt that he had returned to Jacobson's apartment, cut the women's throats, and jumped up and down on them.

The medical examiner, Dr. Giles Sheldon Green, who performed autopsies on Lizzi and Jacobson, also testified at Rippo's trial. Dr. Green testified that Lizzi had been found with a sock in her mouth, secured by a gag that encircled her head. The sock had been pushed back so far that part of it was underneath Lizzi's tongue, blocking her airway. Pieces of cloth were found tied around each of her wrists. Dr. Green testified that Lizzi's numerous injuries were consistent with manual and ligature strangulation.

Dr. Green testified that Jacobson died from asphyxiation due to manual strangulation. Dr. Green found no traces of drugs in Jacobson's system. Neither of the womens' bodies revealed stun gun marks.

Thomas Simms also testified at trial that Rippo arrived at his shop on February 18, 1992, with a burgundy Nissan. When Simms asked about the ownership of the car, Rippo responded that someone had died for it. Rippo gave Simms several music cassette tapes, many bearing the initials D.L., and an empty suitcase with Lauri Jacobson's name tag. On February 21, 1992, Simms heard a news report that two women had been killed and that one of them was named Denise Lizzi. On February 26, 1992, Simms met Rippo in a parking lot to return a bottle of morphine that Rippo had left in Simms' refrigerator. When Simms inquired **1247 about the murders, Rippo admitted that he had "choked those two bitches to death" and that he had killed the first woman accidentally so he had to kill the other one.

On September 15, 1993, Deputy District Attorneys John Lukens and Teresa Lowry accompanied two police officers in the execution of a search warrant on the home of Alice Starr. Starr had testified on the State's behalf before the grand jury but subsequently was identified by Rippo as an alibi witness. Officer Roy Chandler, one of the two officers present at the scene, testified at an evidentiary hearing that Starr's sister responded to their knock on the door, admitted the officers and the prosecutors, and told them that she and her two children were the only ones in the house. Starr, however, suddenly came out of the kitchen area. Surprised at Starr's presence, the officers checked t he residence for other individuals. The officers removed their guns from their holsters. Starr corroborated the officers' version of the events, testifying that the officers did not draw their guns until she appeared from the kitchen.

During the search, one of the officers found drugs and placed Starr under arrest. Lukens testified that he told Starr:
I am concerned. When I was last here, you told me that your relationship with Mr. Rippo was as an acquaintance.... I don't think you were honest with me. And if there was anything else that you weren't honest in telling me the truth about, I'd like to give you a chance to tell me.

Starr testified that Lukens did not threaten her, but stated, "[I]f [you're] going to dangle on [Rippo's] star, [you're] going to go down like he is." Upon a motion by the defense, the district court disqualified Lukens and Lowry as a result of their participation in the search and requested the district attorney's office to transfer the case to different prosecutors.

The jury found Rippo guilty of two counts of first-degree murder, and one count each of **1023 robbery and unauthorized use of a credit card. After the penalty hearing, the jury sentenced Rippo to death, finding six aggravating factors: (1) the murders were committed by a person under sentence of imprisonment; (2) the murders were committed by a person who was previously convicted of a felony involving the use or threat of violence to another person; (3) the murders were committed while the person was engaged in the commission of or an attempt to commit robbery; (4) the murders involved torture; (5) the murders were committed while the person was engaged in the commission of or an attempt to commit

burglary; and (6) the murders were committed while the person was engaged in the commission of or an attempt to commit kidnapping.

*1248 DISCUSSION

Disqualification of the trial judge

[1] During the trial, the parties became aware that District Judge Gerard Bongiovanni was the subject of a federal grand jury probe. The defense requested that Judge Bongiovanni recuse himself from Rippo's trial because of the pending investigation. The defense argued that a potential conflict existed because the news media might pressure the judge, thereby making it "incumbent upon the Court to show how tough it can be and how it can be favorable to the State."

NCJC Canon 3E provides, in part:
(1) A judge shall disqualify himself or herself in a proceeding in which the judge's impartiality might reasonably be questioned, including but not limited to instances where:
(a) the judge has a personal bias or prejudice concerning a party or a party's lawyer, or personal knowledge of disputed evidentiary facts concerning the proceeding.

See also NRS 1.230.

[2][3][4] A judge is presumed to be impartial, and the party asserting the challenge carries the burden of establishing sufficient factual grounds warranting disqualification. *Hogan v. Warden*, 112 Nev. 553, 559-60, 916 P.2d 805, 809, *cert. denied*, 519 U.S. 944, 117 S.Ct. 334, 136 L.Ed.2d 245 (1996) (citing *Goldman v. Bryan*, 104 Nev. 644, 649, 764 P.2d 1296, 1299 (1988)). Disqualification must be based on facts, rather than mere speculation. *PETA v. Bobby Berosini*, 111 Nev. 431, 437, 894 P.2d 337, 341 (1995); *see also United States v. Cooley*, 1 F.3d 985, 993 (10th Cir.1993) ("Rumor, speculation, beliefs, conclusions, innuendo, suspicion, opinion, and similar non-factual matters" do not ordinarily satisfy the requirements for disqualification.), *cert. denied*, 515 U.S. 1104, 115 S.Ct. 2250, 132 L.Ed.2d 258 (1995).

In the instant case, Rippo's conclusory allegations that Judge Bongiovanni had an opinion or interest in the outcome of Rippo's case are not supported by any evidence. No evidence exists that the State was either involved in the federal investigation or conducting its own investigation of Judge Bongiovanni. A federal investigation of a judge does not by itself create an appearance of impropriety sufficient to warrant disqualification. No factual basis exists for Rippo's argument that Judge Bongiovanni was under pressure to accommodate the State or treat criminal defendants in state proceedings less favorably. Thus, we conclude that **1249 Rippo has failed to allege or establish legally cognizable grounds warranting disqualification.[FN1]

FN1. We further note that Judge Bongiovanni's disqualification in the instant case would lead to his disqualification in all criminal cases he heard while subject to the federal investigation. Such a result would be insupportable.

[5] Rippo also argues that after the conclusion of the trial, new information concerning the federal investigation of Judge Bongiovanni led to the discovery that Judge Bongiovanni "had a unique relationship with the business partner of ... Denny Mason." Denny Mason was a boyfriend of Lizzi and the owner of the stolen Visa card. Rippo moved for a new trial, alleging that "[a]t no time did the Judge advise that he knew [Mason] nor did the judge advise that he knew the business partner of Denny Mason; however the defense has learned that reputed Buffalo mob associate Ben Spano is the business partner of Denny Mason...." Judge James A. Brennan, hearing the motion, denied a new trial. Rippo contends **1024 that (1) Judge Bongiovanni should have revealed on the record his relationship, and (2) the appearance of impropriety is sufficient to grant a new trial.

[6] "A judge should disclose on the record information that the judge believes the parties or

their lawyers might reasonably consider relevant to the question of disqualification, even if the judge believes there is no real basis for disqualification." NCJC Canon 3E, Commentary.[FN2] We agree that, in some circumstances, a relationship between a judge and a victim may be relevant to the issue of disqualification and should therefore be revealed on the record. However, in the instant case, no evidence exists, beyond the allegations set forth by the defense, that Judge Bongiovanni knew either Denny Mason or his alleged business partner. Even if a relationship existed, Rippo has not shown that the judge's alleged acquaintance with Mason's business partner would result in bias. *See, e.g., Jacobson v. Manfredi,* 100 Nev. 226, 679 P.2d 251 (1984) (allegations that judge had professional relationship with respondent's aunt did not demonstrate judicial bias sufficient to find judge's failure to recuse himself an abuse of discretion). Accordingly, we conclude that Rippo's allegations that Judge Bongiovanni had a relationship, personal or professional, with the business partner of Mason does not support a ***1250** finding that Judge Bongiovanni abused his discretion in refusing to disqualify himself.

FN2. We have previously noted that the Commentary to the Code of Judicial Conduct gives guidance to the interpretation of the Canons and Rules and is not a statement of additional rules. *See PETA,* 111 Nev. at 436 n. 5, 894 P.2d at 340 n. 5.

[7][8] Whether to grant or deny a motion for a new trial is within the trial court's discretion. *State v. Carroll,* 109 Nev. 975, 977, 860 P.2d 179, 180 (1993). Because we conclude that disqualification was not warranted on the basis of Rippo's unsupported allegations, we conclude that Judge Brennan did not abuse his discretion in denying the motion for a new trial. *See Matter of Dunleavy,* 104 Nev. 784, 789, 769 P.2d 1271, 1274 (1988) (Summary dismissal of a challenge is appropriate where the party does not allege legally cognizable grounds supporting a reasonable inference of bias or prejudice.). [FN3]

FN3. Rippo also argues that we should remand the case for an evidentiary hearing to determine whether the State was involved in the federal investigation and the extent of Judge Bongiovanni's relationship with the business partner of Mason. Only then, Rippo contends, will it be known if a conflict of interest existed. We have held in other contexts that "bare" or "naked" allegations do not entitle an appellant to an evidentiary hearing. *See, e.g., Hargrove v. State,* 100 Nev. 498, 686 P.2d 222 (1984). The same rule should apply in this case. We therefore conclude that, absent factual grounds which would allow for a reasonable inference that a conflict existed, Rippo is not entitled to an evidentiary hearing.

Amendment of the indictment

On March 16, 1994, the State filed a motion to submit an amended indictment to allege felony murder and aiding and abetting. Upon the district court's denial of its request, the State filed a writ of mandamus with this court which was granted on April 27, 1995. Thereafter, the amended indictment was filed. Rippo now argues that the district court erred by amending the indictment without resubmitting it to the grand jury. In our April 27, 1995 order, we concluded that the amended indictment was proper. Accordingly, we decline to review Rippo's argument further.

Prosecutorial misconduct during the guilt phase

1. *Disclosure of new witnesses*

[9] Rippo asserts that the State's disclosure of several new witnesses after receiving Rippo's notice of alibi was improper. We conclude there is no merit to Rippo's contention that the State's failure to oppose the subsequent continuance granted by the district court was "out of the ordinary" because the State had earlier filed a motion to expedite the trial date. The fact that the State did not oppose the motion for a continuance does not lead to ***1251** the

conclusion that the State deliberately attempted to delay the trial through the late disclosure of the witnesses. Moreover, no evidence exists that the delay caused by the continuance prejudiced Rippo. **1025 We thus conclude that the prosecution's failure to disclose timely the witnesses' names does not warrant reversal.

2. *Witness intimidation*

[10][11][12] Rippo also contends that the original prosecutors assigned to the case intimidated Alice Starr during a search of her home. Witness intimidation by a prosecutor can warrant a new trial if it results in a denial of the defendant's right to a fair trial. *State v. Owens*, 753 P.2d 976, 978 (Utah.Ct.App.1988); *see also Webb v. Texas*, 409 U.S. 95, 93 S.Ct. 351, 34 L.Ed.2d 330 (1972) (defendant's due process rights violated where trial judge implied that he expected witness to lie and assured witness that if he lied he would be prosecuted and convicted for perjury); *United States v. MacCloskey*, 682 F.2d 468, 479 (4th Cir.1982) (U.S. Attorney's suggestion that witness would be well-advised to remember the Fifth Amendment violated defendant's right to present defense witness freely). A prosecutor has "a duty to refrain from improper methods calculated to produce a wrongful conviction." *Berger v. United States*, 295 U.S. 78, 88, 55 S.Ct. 629, 633, 79 L.Ed. 1314 (1935).

The testimony of the officers and of Starr indicates that the officers did not draw their weapons in an attempt to intimidate Starr. However, Luken's statements to Starr, made after she had been arrested for possession of drugs during a search conducted by four State authorities, may have been intimidating. Starr, however, testified that she did not feel threatened by Lukens or compelled to change her testimony.[FN4] Furthermore, Lukens and Lowry were disqualified from the case as a result of their participation in the search. Therefore, we conclude that prosecutors' conduct did not constitute witness intimidation warranting reversal.

FN4. The record indicates that Starr did not testify on behalf of either the State or Rippo during trial.

3. *Evidence of threats to witnesses*

[13] The following testimony was elicited by defense counsel during cross-examination of David Levine, a prison inmate incarcerated with Rippo:

Q: When you were released what facility were you released from?
A: Jean.
1252 Q. And was that the psychiatric facility?
A: Yes.
Q: And that's where you were housed?
A: Yes.
....
Q: How long did you spend on the psyche facility at prison?
A: .., almost two years, I think.
Q: Are you on any medications today?
A: No.
Q: How long have you been off them?
A: I never been on them.
Q: They didn't give you any medications when you were in the psyche ward?
A: No, they kept me in there for protection.
Q: And why would that be?
A: Because of this trial.

On redirect, the State inquired as to why Levine was in the psychiatric facility:

Q: Why were you in a psychiatric facility?
A: They put me in there 'cause-for protection.
Q: Protection from what?
A: Probably because of some threats were made on me.
Q: For what reason?
A: For this trial.
Q: Because you were going to come in and testify?
A: Yes.
....
Q: Anybody ever threaten you? ... Directly?
A: A couple of times.
Q: To your face?
A: Well, from a distance.
Q: You heard it though?
A: Yeah.

Q: Okay.
****1026** A: So did some of the staff members.
....
Q: And then you went into the psychiatric facility?
A: Yes....

[14][15] The prosecution's intimations of witness intimidation by a defendant are reversible error unless the prosecutor also presents substantial credible evidence that the defendant was the source of the intimidation. *Lay v. State,* 110 Nev. 1189, 1193, 886 P.2d 448, 450-51 (1994) (citing ***1253** *United States v. Rios,* 611 F.2d 1335, 1343 (10th Cir.1979); *United States v. Peak,* 498 F.2d 1337, 1339 (6th Cir.1974); *United States v. Hayward,* 420 F.2d 142, 147 (D.C.Cir.1969); *Hall v. United States,* 419 F.2d 582, 585 (5th Cir.1969)). Where counsel opens the door to the disputed questions, however, opposing counsel may properly question the witness in order to rehabilitate him or her. *Wesley v. State,* 112 Nev. 503, 513, 916 P.2d 793, 800 (1996), *cert. denied,* 520 U.S. 1126, 117 S.Ct. 1268, 137 L.Ed.2d 346 (1997).

Rippo's counsel opened the door when, on cross-examination, he asked Levine about his confinement at the psychiatric facility and the reasons why he was housed there. In an apparent attempt to portray Levine as mentally unstable, defense counsel elicited information suggesting that Levine had been threatened. Therefore, we conclude that the district attorney properly explored the testimony given during cross-examination and questioned Levine in an effort to rehabilitate his credibility.

4. *The State's closing argument*

[16] During closing argument, the prosecutor stated:
I'm talking about Mr. Rippo having the opportunity to kill them-to commit the murder. The opportunity was there, plain and simple. And interestingly, there has been no testimony that he was some place else.
The only person who tells us where he was on February the 18th, 1992, is Diana Hunt.
....
You haven't heard any witness come into this courtroom, take the oath and sit down there and say Michael Beaudoin told me that he did it. You haven't heard any witness come in here and say Tom Simms told me that he did it; or any of the other names that you've heard. There has been no indication in this case at all except what we have shown here.

At the next break, the defense moved for a mistrial on the ground that the prosecution had shifted the burden of proof to the defendant. The district court denied the motion. Rippo now argues that in addition to shifting the burden of proof, the prosecutor implicitly commented on Rippo's decision not to testify.

[17] It is generally improper for a prosecutor to comment on a defendant's failure to call a witness. *Whitney v. State,* 112 Nev. 499, 502, 915 P.2d 881, 882 (1996). Such comment can be viewed as impermissibly shifting the burden of proof to the defense. *Id.; accord Barron v. State,* 105 Nev. 767, 778, 783 P.2d 444, 451 (1989). We conclude that the prosecutor made ***1254** impermissible references to Rippo's failure to call any witnesses on his behalf and, in so doing, may have shifted the burden of proof to the defense. However, we conclude that error was harmless in light of the overwhelming evidence of guilt supporting Rippo's conviction. *Cf. Morris v. State,* 112 Nev. 260, 264, 913 P.2d 1264, 1267-68 (1996) (improper comment by prosecutor on post-arrest silence of defendant does not require reversal if references are harmless beyond a reasonable doubt and such references will be considered harmless beyond a reasonable doubt if there is overwhelming evidence of guilt).

[18] Although the prosecutor referred to the lack of testimony in support of Rippo's case, the remarks did not directly comment on *Rippo's* failure to take the stand. *See Barron v. State,* 105 Nev. 767, 778, 783 P.2d 444, 451 (1989). Further, we do not find that the prosecutor manifestly intended the comments as a reference to Rippo's failure to testify on his behalf. *See id.* at 779, 783 P.2d at 452 (When reference is indirect, the test for determining whether prosecutorial comment constitutes a

constitutionally impermissible reference to a defendant's failure to testify is whether "the language used was **1027 manifestly intended to be or was of such a character that the jury would naturally and necessarily take it to be comment on the defendant's failure to testify.") (quoting *United States v. Lyon*, 397 F.2d 505, 509 (7th Cir.1968)). Accordingly, we conclude that this argument lacks merit.

[19] During closing argument, the prosecutor also stated, "[Hunt] said that [Rippo] hit [Hunt] repeatedly in the face and then pulled out the stun gun, ... and she showed the marks that she has on her back from where he used the gun on her." The defense objected to the argument on the ground that Hunt never showed the court any marks on her back. In response, the prosecutor stated,

> You are the triers of fact. When I sit down, the role of the prosecutors ... is over. So I urge you to rely upon your own recollections.
> There are many things that happen, interviews outside of the courtroom, and so, occasionally, if there is some confusion about precisely what happened in the courtroom, I do beg your indulgence; but if she didn't do that in open court, then I misspoke making that argument.

The defense objected on the ground that the prosecution was referring to events outside of the court. On appeal, Rippo argues that the prosecutor's statements are so prejudicial as to warrant reversal.

*1255 We conclude that the prosecutor's comments concerning the stun gun and his subsequent comments to the effect that interviews and "things" happen outside the courtroom were improper references to evidence not presented at trial. *See Schrader v. State*, 102 Nev. 64, 714 P.2d 1008 (1986) (reference to information or conversations which occurred outside of the courtroom is improper during closing argument). However, we conclude that any error caused by these comments was harmless in light of the overwhelming evidence against Rippo. *See Ybarra v. State*, 103 Nev. 8, 16, 731 P.2d 353, 358 (1987).

[20] Finally, Rippo argues that the prosecutor improperly expressed his personal belief concerning the evidence. We conclude that the statements do not contain prosecutorial vouching. The prosecutor did not characterize the testimony of the witnesses, nor did he express a personal belief concerning the evidence before the jury. Therefore, this argument lacks merit. *Cf. Witherow v. State*, 104 Nev. 721, 724, 765 P.2d 1153, 1155 (1988) (improper for prosecutor to state opinion as to veracity of witness).[FN5]

FN5. We conclude that two errors occurred during the guilt phase of the trial, namely, the prosecutor referred to evidence not presented at trial and commented on Rippo's failure to call a witness. We conclude that, faced with the evidence in this case, the jurors would have reached the same outcome had the errors not occurred. Therefore, we conclude that Rippo's contention that cumulative error warrants reversal lacks merit. *See Sipsas v. State*, 102 Nev. 119, 716 P.2d 231 (1986).

Motion to disqualify the entire district attorney's office

[21] Rippo argues that the district court erred in failing to disqualify the entire prosecutor's office in light of Lukens and Lowry's misconduct preceding their disqualification and in light of Lukens' continued interest in the case after his disqualification. Rippo contends that although Lukens was disqualified, he was present in court for the opening statements, followed the order of the witnesses, and spoke with witness Diana Hunt during trial.

We conclude that Rippo failed to make a showing of extreme circumstances warranting disqualification of the entire district attorney's office. *See Collier v. Legakes*, 98 Nev. 307, 309, 646 P.2d 1219, 1220 (1982) (disqualification of a prosecutor's office is warranted only in extreme circumstances). First, the fact that Lukens was present for opening statements and followed the order of the witnesses may show a continued

interest in the trial, but it is not evidence of continued involvement. Second, although Lukens acknowledged that he "had occasion to have discussions with [Hunt] this week," no evidence exists as to the content or ***1256** nature of the conversations. Third, the judge admonished Lukens not to speak further with any witnesses, and no evidence has been presented****1028** that Lukens failed to abide by this order. The district court's disqualification of Lukens and Lowry was sufficient to ensure that Rippo received a fair trial. Thus, we conclude that the district court did not abuse its discretion in failing to disqualify the prosecutor's office.

Brady violations

[22] During his opening statement at the guilt phase, the prosecution told the jury that Thomas Simms would testify that Rippo had admitted to " strangling those bitches" and that when Simms asked Rippo why he killed the women, Rippo replied that he accidentally killed the first one, so he had to kill the second one. At the next break in the trial, Rippo moved for a mistrial based on an alleged discovery violation regarding Rippo's statements to Simms. Rippo argued that none of the statements concerning his confession to Simms had been included in the documents obtained pursuant to the discovery order. The State argued that (1) Simms was identified as a witness and the defense could have interviewed him prior to trial, (2) the prosecuting attorney learned of the admission during a pretrial conference one week earlier, at which time Simms disclosed the statements, and (3) the statements were never written down or recorded. The district court denied Rippo's motion.

After cross-examination of Simms at trial, another motion for a mistrial was made outside the presence of the jury on the ground that Simms testified that he had two years earlier informed former prosecutors about Rippo's statements. The district court conducted an evidentiary hearing on the matter. At the conclusion of the evidentiary hearing, the trial court denied the motion for a mistrial. The district court continued the trial for two weeks to give Rippo's counsel time to interview witnesses regarding the statements made to Simms.

[23][24] On appeal Rippo asserts that the State withheld the statements in violation of *Brady v. Maryland*, 373 U.S. 83, 83 S.Ct. 1194, 10 L.Ed.2d 215 (1963).[FN6] The prosecution must disclose to the defense evidence in its possession that is both favorable to the accused and material to guilt or punishment. *Brady*, 373 U.S. at 87, 83 S.Ct. at 1196; ***1257***Roberts v. State*, 110 Nev. 1121, 1127, 881 P.2d 1, 5 (1994). In determining whether evidence is *Brady* material, the court should look at the following: "(a) suppression by the prosecution after a request by the defense, (b) the evidence's favorable character for the defense, and (c) the materiality of the evidence." *Moore v. Illinois*, 408 U.S. 786, 794-95, 92 S.Ct. 2562, 2568, 33 L.Ed.2d 706 (1972); *Homick v. State*, 112 Nev. 304, 314, 913 P.2d 1280, 1287, *cert. denied*, 519 U.S. 1012, 117 S.Ct. 519, 136 L.Ed.2d 407 (1996).

FN6. Although Rippo argued below that the statements were withheld in violation of a discovery order, on appeal he does not set forth any authority to examine and analyze a discovery violation. Rather, his brief argues that the State violated *Brady*. Therefore, we address only the *Brady* claim.

Federal courts have consistently held that a *Brady* violation does not result if the defendant, exercising reasonable diligence, could have obtained the information. *See, e.g., Williams v. Scott*, 35 F.3d 159, 163 (5th Cir.) (*Brady* claim fails where appellant could have obtained exculpatory statement through reasonable diligence), *cert. denied*, 513 U.S. 1137, 115 S.Ct. 959, 130 L.Ed.2d 901 (1995); *United States v. Dupuy*, 760 F.2d 1492, 1501 n. 5 (9th Cir.1985) ("if the means of obtaining the exculpatory evidence has been provided to the defense, the *Brady* claim fails"); *United States v. Griggs*, 713 F.2d 672, 674 (11th Cir.1983) (where prosecution disclosed identity of witness, it was within the defendant's knowledge to have ascertained the alleged *Brady* material); *United States v. Brown*, 582 F.2d 197, 200 (2d

Cir.1978) (no violation where defendant was aware of essential facts enabling him to take advantage of the exculpatory evidence). [FN7]

FN7. *See also Moore*, 408 U.S. at 795, 92 S.Ct. at 2568, in which the Court observed, "We know of no constitutional requirement that the prosecution make a *complete and detailed accounting to the* defense of all police investigatory work on a case."

[25] We first conclude that the statement, "I killed those two bitches," is an inculpatory admission. Therefore, this statement does not fall under *Brady*. *See* **1029*Brady*, 373 U.S. at 87, 83 S.Ct. at 1196; *Roberts*, 110 Nev. at 1127, 881 P.2d at 5.

In the instant matter, the prosecution identified Simms as a witness and provided the defense with Simms' grand jury testimony revealing that Rippo had visited Simms the day of the murders and had offered to sell him a burgundy car belonging to one of the victims.[FN8] We conclude that the knowledge that Simms spoke with Rippo shortly after the murders should have put Rippo's counsel on notice that Simms might have potentially incriminating or exculpatory evidence, and that using reasonable diligence, Rippo's counsel could have obtained the information through an interview. Further, we note that the district court ***1258** granted Rippo a two-week continuance to interview Simms and other witnesses, thereby removing the prejudicial impact of learning of the statements after trial commenced.

FN8. Simms testified: "Well, I asked [Rippo] where the car came from and he told me that someone had died for the car... . [Rippo] wanted me to loan him some money.... He said he needed about $2,000 ... to leave town."

[26] During the penalty phase, the State called Howard Saxon, a state parole and probation officer. Saxon testified that Rippo was on parole and under a sentence of imprisonment at the time of the murders. Saxon testified that his supervisor was Officer Schmelz, and that Rippo told Schmelz that he would rather be convicted of murder than sexual assault because murder sounded better. Rippo contends that the State violated *Brady* by failing to turn over Saxon's statements. We conclude that no *Brady* violation occurred because (1) the statement is not exculpatory and (2) pursuant to the State's open file policy, the defense could have inspected the State's files and discovered the statement and thus the prosecution did not suppress the evidence. [FN9] *See, e.g., Dupuy*, 760 F.2d at 1501 n. 5.

FN9. Because we conclude that two of the statements were unfavorable to the defense and that the prosecution did not suppress the evidence and thus no *Brady* violations occurred, we need not reach the issue of whether the statements were material.

Other bad act testimony

1. *Use of Sears credit card*

[27] During trial, the State sought to introduce evidence that Rippo had used Lizzi's Sears credit card after the date of the murders.[FN10] Rippo objected, and following a *Petrocelli* hearing outside the presence of the jury, the evidence was admitted. *See Petrocelli v. State*, 101 Nev. 46, 692 P.2d 503 (1985) (before district court may admit evidence of an independent bad act, it must conduct a hearing outside the jury's presence, during which the state must prove by clear and convincing evidence that the defendant committed the act, and the district court must determine that the evidence is admissible and balance its probative value and prejudicial effect). Rippo argues that the district court abused its discretion in allowing testimony regarding Rippo's use of the Sears credit card.

FN10. Rippo was charged with the unauthorized use of a credit card; however, the charge related only to use of the gold Visa card belonging to Denny Mason.

During the *Petrocelli* hearing, the State introduced a credit card receipt from Sears and the testimony of Carlos Caipa, the sales **1259** manager at Sears. Caipa testified that a man resembling Rippo purchased several items with a credit card bearing Lizzi's name.

Upon review of the arguments in the record, we conclude that the district court did not abuse its discretion in admitting the evidence. *See Cipriano v. State*, 111 Nev. 534, 541, 894 P.2d 347, 352 (1995) (whether to admit or exclude evidence of other wrongs, crimes, or bad acts is within the trial court's discretion). The evidence is relevant to show Rippo's connection with the victims and the scene of the crime, and it tends to prove Rippo's motive of robbery. *See* NRS 48.045(2) (Evidence of other crimes is admissible to prove "motive, opportunity, intent, preparation, plan, knowledge, identity, or absence of mistake or accident."). In addition, we conclude that this evidence is more probative than prejudicial. *See* **1030*Armstrong v. State*, 110 Nev. 1322, 1323, 885 P.2d 600, 601 (1994) (district court must weigh the probative value of the proffered evidence against its prejudicial effect).

2. *Prior Sexual Assault*

During trial, Thomas Simms testified, without objection by Rippo's defense counsel, that Rippo told Simms with regard to the victims that "I could have f[-]ked both of them, but I didn't ... That means I'm cured." Rippo argues that the jury must have inferred from this testimony that Rippo had committed a prior sexual assault or had a criminal history. We decline to address this argument due to Rippo's failure to object during trial. *See Garner v. State*, 78 Nev. 366, 372-73, 374 P.2d 525, 529 (1962) (failure to object generally precludes appellate consideration).

3. *Drug transactions*

[28] Rippo contends that the testimony of a jail inmate was improper evidence that Rippo was conducting drug transactions within the jail. FN11 We conclude that Levine's testimony was too limited and vague to imply that Rippo was conducting drug sales while in jail. Moreover, the jury heard about Rippo's involvement with drugs through the testimony of Hunt and Simms. Therefore, we conclude that this argument lacks merit.

FN11. David Levine testified that he met Rippo while in jail and that he delivered messages from Rippo to Starr regarding drugs. He stated that he would "hook up drug deals and stuff and handle things, like for the-for the court; get in touch with the attorney, request [Rippo's] attorney, stuff like that." The defense objected to the testimony, and the State ceased this line of questioning.

**1260 *Prosecutorial misconduct during the penalty phase*

1. *The State's opening statement*

[29][30][31][32] During the opening statement at the penalty phase, the prosecutor used the terms " horror" and "horrendous" to describe Rippo's actions in committing a prior sexual assault. " '[A] criminal conviction is not to be lightly overturned on the basis of a prosecutor's comments standing alone, for the statements or conduct must be viewed in context; only by doing so can it be determined whether the prosecutor's conduct affected the fairness of the trial.' " *Greene v. State*, 113 Nev. 157, 169, 931 P.2d 54, 62 (1997) (quoting *United States v. Young*, 470 U.S. 1, 11, 105 S.Ct. 1038, 1044, 84 L.Ed.2d 1 (1985)). It is not enough that the prosecutor's statements are undesirable. *Darden v. Wainwright*, 477 U.S. 168, 181, 106 S.Ct. 2464, 2471, 91 L.Ed.2d 144 (1986). The relevant inquiry is whether the prosecutor's statements so infected the proceedings with unfairness as to make the results a denial of due process. *Id.* at 181, 106 S.Ct. at 2471; *Greene*, 113 Nev. at 169, 931 P.2d at 62.

We conclude that the prosecutor's use of the words " horror" and "horrendous" to describe Rippo's acts

did not deprive Rippo of a fair trial. The prosecutor did not misstate the evidence but indicated what the evidence would, and did, show. *See Garner*, 78 Nev. at 371, 374 P.2d at 528 (1962). Further, the district court instructed the jury to base its decision on the evidence before it, not on the attorneys' arguments.

[33] Rippo next contends that the prosecutor's reference to Rippo as "evil" was improper. Rippo did not interpose an objection below. Therefore, we conclude that Rippo's failure to object to the statement precludes appellate consideration. *See id.* at 372-73, 374 P.2d at 529.

2. The State's closing argument

[34] During the closing statement at the penalty phase, the prosecutor stated:
It is appropriate that society express its moral outrage at the murder of innocent human beings.... And it furthermore is important that stiff, severe penalties be imposed because that deters, because what you do today will deter Mr. Rippo, and because what you do today sends out a message to other persons that indicates this society, this country will not. [Objection by defense counsel]
....
1261** This community must know that we will not tolerate double murders perpetrated upon young women.... There are reasons*1031** for the death penalty.... That's to send a message to society.

Rippo contends that the prosecutor's statements improperly urged the jury to send a message to society through imposition of the death penalty.

We conclude that the prosecutor's statements constitute an explanation of the rationales supporting the death penalty. This is a proper area for prosecutorial comment. *See Collier v. State*, 101 Nev. 473, 705 P.2d 1126 (1985) (the prosecutor may discuss general theories of penology such as the merits of punishment, deterrence, and the death penalty); *see also Witter v. State*, 112 Nev. 908, 921 P.2d 886, *cert. denied*, 520 U.S. 1217, 117 S.Ct. 1708, 137 L.Ed.2d 832 (1997).

Victim-impact testimony

[35][36][37] Questions of admissibility of testimony during the penalty phase of a capital trial are largely left to the trial judge's discretion and will not be disturbed absent an abuse of discretion. *Smith v. State*, 110 Nev. 1094, 1106, 881 P.2d 649, 656 (1994). A jury considering the death penalty may consider victim-impact evidence as it relates to the victim's character and the emotional impact of the murder on the victim's family. *Payne v. Tennessee*, 501 U.S. 808, 827, 111 S.Ct. 2597, 2609, 115 L.Ed.2d 720 (1991); *Homick v. State*, 108 Nev. 127, 136, 825 P.2d 600, 606 (1992); *see also* NRS 175.552. A victim can express an opinion regarding the defendant's sentence only in non-capital cases. *Witter*, 112 Nev. at 922, 921 P.2d at 896.

[38] Five witnesses testified as to the character of the victims and the impact the victims' deaths had on the witnesses' lives and the lives of their families. We conclude that each testimonial was individual in nature, and that the admission of the testimony was neither cumulative nor excessive. Thus, we conclude that the district court did not abuse its discretion in allowing all five witnesses to testify.

[39] Three of the witnesses referred to the brutal nature of the crime. [FN12] The State instructed the family members not to testify ***1262** about how heinous the crimes were, and the district court apparently relied, in part, on these instructions in allowing the victim-impact testimony. Thus, the testimony, insofar as it described the nature of the victims' deaths went beyond the boundaries set forth by the State. However, the fact that the murders were brutal certainly contributed to the emotional suffering of the victims' families. Therefore, we conclude that the statements were relevant to Rippo's moral culpability and blameworthiness. *See Payne*, 501 U.S. at 825, 111 S.Ct. at 2608; *see also Atkins v. State*, 112 Nev. 1122, 1136, 923 P.2d 1119, 1128 (1996) (prosecutor's statements that defendant "brutally murdered" and "savaged" the victim were proper to describe the impact of the crime on the victim and her family), *cert. denied*, 520 U.S. 1126, 117 S.Ct. 1267, 137 L.Ed.2d 346

(1997).

FN12. Orell Maxwell, Jacobson's mother-in-law, testified that her son and granddaughter "must cope with the horror of the brutal and violent manner of [Jacobson's] death." Nicholas Lizzi, Lizzi's father, referred to the "horror" of losing his daughter "so brutally." Nicholas Lizzi, Jr., Lizzi's brother, spoke about preparing for her funeral and stated, "[We] decide[d] to keep the casket closed because she looked so fake, covered with makeup to hide the trauma she had been through." He further stated, "[K]nowing she was murdered in the horrible way she was makes it ever so difficult to trust any human being. It overwhelms me that anyone is capable of committing such heinous crimes and lives on this planet."

[40] Rippo also argues that the district court abused its discretion by allowing Orell Maxwell to testify after the State indicated it would only call one witness to testify on behalf of Jacobson. We conclude that the testimony of Maxwell was relevant to the jury's determination of the appropriate sentence. We further note that Rippo's counsel did not object to the introduction of Maxwell's testimony nor did he object to the statements she made. Rather, he waited until all five witnesses had testified before moving to strike the death penalty. We conclude that the district court did not abuse its discretion by allowing the State to present the testimony of a second witness because the defense interposed no immediate objection, and Rippo has failed to show any prejudice.

**1032 *Jury instructions*

[41] Rippo contends that the district court's anti-sympathy instruction violated his constitutional right to present relevant mitigating evidence. A district court may instruct the jury not to consider sympathy during a capital penalty hearing, as long as the court also instructs the jury to consider mitigating facts. *Riley v. State*, 107 Nev. 205, 215-16, 808 P.2d 551, 557 (1991); *Hogan v. State*, 103 Nev. 21, 25, 732 P.2d 422, 424 (1987). Here, the district court instructed the jury to consider mitigating factors in deciding the appropriate penalty. Therefore, this argument lacks merit.

*1263 *Torture as an aggravating circumstance*

[42] Rippo argues that insufficient evidence exists to support the aggravating circumstance of torture set forth in NRS 200.033(8).

The State argues that the testimony of Hunt and Dr. Green are evidence that Rippo tortured the victims. Hunt testified that Rippo instructed her to hit Jacobson over the head with a beer bottle; Rippo continually stunned Lizzi with a stun gun; Rippo tied the hands and feet of Jacobson, dragged her across the floor, and placed a gag in her mouth; Rippo tied the hands and feet of Lizzi; and while Rippo was choking Lizzi, the whole front of her body was off the ground and she was making an animal-like noise. Dr. Green testified that both women's injuries included scrapes, stab wounds, and ligature marks. He testified that Lizzi died from manual and ligature strangulation, but could not testify as to whether the stab wounds or the ligature wounds occurred first. Dr. Green testified that Jacobson died from asphyxiation due to manual strangulation. The State also points out that it takes several minutes to strangle someone to death manually. In sum, the State argues that the stunning, stab wounds, scratches, and slow strangulation are evidence that Rippo tortured the women before he killed them.

[43] Most of the evidence presented by the State is comprised of evidence of Rippo's attempts to kill the women by strangling. These killing acts, by themselves, do not constitute torture. The only evidence that can support a finding of torture murder is Hunt's testimony that Rippo repeatedly assaulted each of the women.

NRS 200.030 defines murder by torture in terms of murder that is "[p]erpetrated by means of ... torture." This language would seem to indicate that the

torturing acts must be the killing acts, that is to say killing *by means of* torture. The district court instructed the jury that in order to find torture, it must find that "the act or acts which caused the death must involve a high degree of probability of death, and the defendant must commit such an act or acts with the intent to cause cruel pain and suffering for the purpose of revenge, persuasion, or for any other sadistic purpose.... [T]orture ... [does not] require any proof that the defendant intended to kill the deceased, nor does it necessarily require any proof that the deceased suffered pain." Under the instruction as given, the jury was required to find that the acts of torture must have "caused the death" and must have "involve[d] a high degree of probability of death." Like the statute, the instruction seems to require that the killing itself was ***1264** accomplished *by means* of torture. In other words, the actions which inflict the pain must also be the "cause of the victim's death." I CALJIC § 8.24, at 401 (6th ed.1996) (murder by torture requires that acts of perpetrator be the "cause of victim's death").

[44] Obviously, these two murder victims were not killed *by means of* a stun gun; and, even if it were to be argued that the use of the stun gun was done sadistically, under a strict reading of NRS 200.030 and the proffered instruction, Rippo's' shooting his victims with a stun gun would not involve murder by torture. Nonetheless, we conclude that there is evidence which would support a finding of "murder by means of ... torture" because the intentional infliction of pain is so much an integral part of these murders. Persons who taunt and torture their murder victims as part of the killing process will not be allowed to escape the murder-by-torture aggravating factor merely because the torturing is not the actual cause of death.

****1033** Our interpretation of murder by torture finds support in the California case, *People v. Proctor*, 4 Cal.4th 499, 15 Cal.Rptr.2d 340, 842 P.2d 1100 (1992). In *Proctor* the California Supreme Court held that "acts of torture may not be segregated into their constituent elements in order to determine whether any single act by itself caused the death; rather, it is the continuum of sadistic violence that constitutes the torture."

There seems to be little doubt that when Rippo was shocking these victims with a stun gun, he was doing so for the purpose of causing them pain and terror and for no other purpose. Rippo was not shocking these women with a stun gun for the purpose of killing them but, rather, it would appear, with a purely "sadistic purpose." When we review the facts of this case and consider the entire episode as a whole-the strangulation and restraint, accompanied by the frightful, multiple blasts with a painful high voltage stun gun-we conclude that even though the stun gun shocks were not the cause of death, there is still evidence, under our interpretation of murder perpetrated by means of torture, to support a jury finding that there was, as an inseparable ingredient of these murders, a " continuum" or pattern of sadistic violence that justified the jury in concluding that these two murders were "perpetrated by means of ... torture."

Aggravating circumstances

[45][46] NRS 200.033(4) does not require that the State first charge the defendant with a crime before that crime can be used as an ***1265** aggravating circumstance. *Bennett v. State*, 106 Nev. 135, 141, 787 P.2d 797, 801 (1990). "A primary concern with respect to the finding of aggravating circumstances at the penalty hearing is to provide an accused notice and to insure due process so the accused can meet any new evidence which may be presented during the penalty hearing." *Id.* at 142, 787 P.2d at 801. Rippo was put on notice that burglary and kidnapping would be presented as aggravating factors through the amended notice of intent to seek the death penalty. Accordingly, we conclude that the fact that Rippo was not charged with either burglary or kidnapping does not prevent them from being offered as aggravating factors.

[47] If a defendant can be prosecuted for each crime separately, each crime can be used as an aggravating circumstance. *Bennett*, 106 Nev. at 142, 787 P.2d at 801. Upon review, we conclude that Rippo could have been prosecuted separately for each of the underlying felonies, and therefore each crime was properly considered as an aggravating circumstance.

[48] NRS 177.055(2) requires this court to review whether the sentences of death were imposed under the influence of passion, prejudice, or any arbitrary factor, and whether the sentences are excessive considering both the crime and the defendant. The jury heard evidence relating to both aggravating and mitigating circumstances, finding five valid *aggravating circumstances* and no *mitigating* circumstances. We conclude that the sentences of death were not imposed under the influence of passion, prejudice, or any arbitrary factor, and that the sentences were not excessive considering both the crimes and the defendant. Therefore, we hold that the sentences of death were appropriate under NRS 177.055(2).

CONCLUSION

The judgment of conviction for two counts of first-degree murder, one count of robbery, one count of unauthorized use of a credit card, and two sentences of death are affirmed.

Nev.,1997.
Rippo v. State
113 Nev. 1239, 946 P.2d 1017

END OF DOCUMENT

122 Nev., Advance Opinion 93

IN THE SUPREME COURT OF THE STATE OF NEVADA

C106784

MICHAEL RIPPO,
Appellant,
vs.
THE STATE OF NEVADA,
Respondent.

No. 44094

Appeal from an order of the district court denying a post-conviction petition for a writ of habeas corpus. Eighth Judicial District Court, Clark County; Donald M. Mosley, Judge.

Affirmed.

Christopher R. Oram, Las Vegas,
for Appellant.

George Chanos, Attorney General, Carson City; David J. Roger, District Attorney, and Steven S. Owens, Chief Deputy District Attorney, Clark County,
for Respondent.

BEFORE THE COURT EN BANC.

OPINION

By the Court, HARDESTY, J.:

This is an appeal from an order of the district court denying a post-conviction petition for a writ of habeas corpus in a death penalty case. Appellant Michael Rippo invokes this court's holding in McConnell v. State that "it [is] impermissible under the United States and Nevada Constitutions to base an aggravating circumstance in a capital prosecution

on the felony upon which a felony murder is predicated."[1] This court has concluded in Bejarano v. State[2] that McConnell's holding is retroactive; we therefore apply it here. Three of the aggravating circumstances found by the jury in this case were invalid under McConnell, but three valid aggravators remain. We conclude that the jury's consideration of the invalid aggravating circumstances was harmless beyond a reasonable doubt and therefore affirm.

FACTS

On February 18, 1992, Rippo and Diana Hunt robbed and killed Denise Lizzi and Lauri Jacobson. Rippo and Hunt went to Jacobson's apartment where Hunt knocked Jacobson to the floor with a beer bottle and Rippo used a stun gun to subdue both Jacobson and Lizzi. Rippo then bound and gagged the women, dragged them to a closet, and strangled them. He took Lizzi's car and credit cards and later used the credit cards to make several purchases. The medical examiner testified that both women died of asphyxiation and that their injuries were consistent with manual and ligature strangulation.[3]

Under a plea agreement with the State, Hunt pleaded guilty to robbery and testified against Rippo. The State presented two theories of first-degree murder: the murder was premeditated and deliberate, and the murder was committed during the commission of a felony. The jury

---

[1]120 Nev. 1043, 1069, 102 P.3d 606, 624 (2004).

[2]122 Nev. ___, ___ P.3d ___ (Adv. Op. No. 92, November 16, 2006).

[3]See Rippo v. State, 113 Nev. 1239, 1244-46, 946 P.2d 1017, 1021-22 (1997).

found Rippo guilty of two counts of first-degree murder and one count each of robbery and unauthorized use of a credit card.

In the penalty phase, the State presented evidence that Rippo was convicted of committing a violent sexual assault in 1982 as well as juvenile burglaries. The State also presented testimony by five relatives of the two murder victims. The defense called three witnesses to testify on Rippo's behalf: a prison vocational instructor and minister, Rippo's stepfather, and Rippo's sister. Defense counsel also read a letter from Rippo's mother to the jury. The jury found that six circumstances aggravated the murder: it was committed by a person under a sentence of imprisonment, it was committed by a person previously convicted of a felony involving the use or threat of violence, it was committed during a burglary, it was committed during a kidnapping, it was committed during a robbery, and it involved torture. The jury further found that the aggravators outweighed any mitigating circumstances and returned verdicts of death for the two murders.

This court affirmed Rippo's judgment of conviction and sentence.[4] Rippo filed a timely petition for a writ of habeas corpus in the district court. After conducting an evidentiary hearing, the district court denied Rippo's petition in December 2004.

[4]Id. at 1265, 946 P.2d at 1033.

DISCUSSION

1. Invalid aggravating circumstances under McConnell

Citing McConnell,[5] Rippo contends that the State impermissibly based three aggravating circumstances in the penalty phase on felonies used to support the felony-murder charge in the guilt phase. Because the district court had already denied Rippo's habeas petition when this court issued its decision in McConnell, he first raised this issue in this appeal. However, after supplemental briefing on the matter, we conclude, and the State agrees, that the issue is appropriate for our resolution on appeal. First, Rippo has good cause for raising his McConnell claim now because its legal basis was not available at the time he pursued his habeas petition in the district court.[6] Second, the McConnell issue presents questions of law that do not require factual determinations outside the record. The State concedes that no purpose would be served by requiring Rippo to file a successive petition invoking McConnell in order to decide his claim.

We held in McConnell that in any case where the State seeks a death sentence and "bases a first-degree murder conviction in whole or part on felony murder," an aggravating circumstance cannot be based on the felony murder's predicate felony.[7] Absent a verdict form "showing that the jury did not rely on felony murder to find first-degree murder, the

---

[5]120 Nev. 1043, 102 P.3d 606.

[6]See Clem v. State, 119 Nev. 615, 621, 81 P.3d 521, 525-26 (2003).

[7]120 Nev. at 1069, 102 P.3d at 624.

State cannot use aggravators based on felonies which could support the felony murder."[8] This court has concluded that the new rule set forth in McConnell is substantive and retroactive.[9] We will therefore apply it here.

We address first the State's argument that the theory of felony murder in this case can be disregarded under McConnell because there is "ample evidence" that Rippo committed premeditated murder. This approach has no basis in McConnell. The holding and rationale in McConnell do not involve determining the adequacy of the evidence of deliberation and premeditation; rather, they are concerned with whether any juror could have relied on a theory of felony murder in finding a defendant guilty of first-degree murder. We did conclude that McConnell's own conviction for first-degree murder was "soundly based on a theory of deliberate, premeditated murder," leaving the felony-murder theory without consequence.[10] That conclusion, however, is effectively limited to the facts of McConnell. First, McConnell pleaded guilty, so a jury did not determine his guilt. Second, McConnell expressly testified that he had premeditated the murder. Third, "[h]is other testimony and the evidence as a whole overwhelmingly supported this admission."[11] Thus, in McConnell there was no chance that a finding of guilt, particularly a jury verdict, depended even partly on a theory of felony murder.

---

[8]Id.

[9]Bejarano, 122 Nev. at ___, ___ P.3d at ___ (Adv. Op. No. 92).

[10]McConnell, 120 Nev. at 1062, 102 P.3d at 620.

[11]Id.