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October 2, 2009

Attorney Ben Griffiths
UW Madison
Office of Administrative Legal Services
361 Bascom Hall
Madison WI 53706-1380

**RE: Animal Decompression – Complaint Regarding Alleged
Violation of § 951.025, Wis. Stats.**

Dear Mr. Griffiths,

I write in response to your letter and accompanying materials dated September 14, 2009, your email of September 29, 2009 and its six attachments following up on the Isthmus article, and your subsequent email of October 1, 2009, and its attachment of the Graduate School Animal Care and UW Committee minutes of April 13, 2009, all responding to the complaint I forwarded regarding alleged violations of § 951.025, Wis. Stats.

The role of this office on this issue is limited to assessing whether the terms of § 951.025 cover the research projects at issue, in which case this office would have responsibility for potential prosecution, if merited, for forfeiture or misdemeanor violations. See § 951.18(1), Wis. Stats. (“penalties”). This office does not have responsibility for critical decisions made on campus about acceptable research topics or methods, involving cost-benefit decisions weighing the value of efforts to prevent human suffering or deaths against harm to animals.

For the following reasons, I do not believe that the University has violated the criminal law, either at the intentional or negligent levels. I do believe, however, that each time a sheep has died by means of decompression the University has been subject to a Class C forfeiture for a violation of the statute. I also conclude, based on all available information, that it would not be a wise use of the resources of this office to pursue forfeiture actions for each sheep death in connection with peer reviewed, potentially life saving research that is subject to review for unnecessary cruelty to animals.

Research At Issue

My sources of information include:

- The two articles attached to Ms. Pauly's letter to me of August 3, 2009: Sobakin, Wilson, Lehner, Dueland, and Gendron-Fitzpatrick, "Oxygen Pre-Breathing Decreases Dysbaric Diseases In UW Sheep Undergoing Hyperbaric Exposure" (Undersea and Hyperbaric Medical Society, Inc., 2008); and Atkins, Lehner, Beck, Dubielzig, Nordheim, and Lanphier, "Experimental Respiratory Decompression Sickness In Sheep" (American Physiological Society, 1988).
- The six Animal Care And Use Protocol Review Forms (experimental protocols) forwarded to me on September 29, 2009, covering the period 2002 – 2008.
- The Graduate School Animal Care And Use Committee meeting notes of April 13, 2009, forwarded to me on October 1, 2009.

It does not appear necessary to review the additional article referenced by Ms. Pauly in her letter, "Dysbaric Osteonecrosis In Divers And Caisson Workers: An Animal Model" (Clin Orthop Relat Res. 1997).

In addition, you represented in two emails to me that some deaths of sheep have occurred as a result of the experiments, in advance of and not as a result of planned euthanasia. Three sheep out of 303 died in the hyperbaric chamber over the last 10 years, and during the same period an additional 23 sheep unexpectedly died within 24 hours of being removed from a chamber without having been humanely euthanized. Over the last three years, one out of 35 sheep has died in the pressure chamber. Two others died within the first 24 hours, after first appearing clinically normal.

The technical details in the above referenced articles involve complex physiology. I am not qualified to evaluate the details and implications of the science. At the same time, the relevant facts regarding the University's exposure of sheep to extreme decompression do not appear to be in dispute or unclear for legal purposes.

Rapid changes in ambient pressure can be lethal to sheep, as to humans. Decompression sickness (popularly known as divers' disease, the bends, or caisson disease) can result in effects ranging from joint pain, rash, paralysis or death. The research is intended to shed light on potential injuries or fatalities to

humans suffered by exposure to rapidly changing rates of ambient water or air pressure, as for example by Navy divers and submariners. The experimental protocols point out that "severe decompression cannot be tested ethically in human subjects."

Sheep are placed in a hyperbaric chamber and then subjected to increased atmospheric pressure, followed by decreased compression to atmospheric or less than atmospheric pressure (simulated altitude). The sheep are observed through the process, as the levels of pressure and oxygen are precisely controlled. Surviving sheep are then evaluated and euthanized humanely (jugular injection of pentobarbital). Following euthanasia, necropsies are performed in order to assess further the effects of these controlled pressure changes.

A sample passage from the article by Atkins, et al. provides context:

We observed restlessness, evidence of respiratory difficulty, collapse, and death in affected sheep. All but one sheep showed some or all of these signs. Nine sheep with clinical grades of 0-2 survived 2 h of altitude exposure. Five of these "survivors" had clear signs of [respiratory decompression sickness] but showed improvement after 90 min at altitude. Eight animals with more severe signs (grades 3-4) were judged to be moribund and were killed within 90 min at altitude. One sheep showed severe respiratory signs, collapsed, and died at surface shortly before scheduled altitude exposure.

"Experimental Respiratory Decompression Sickness In Sheep," p. 164 (references to charts omitted).

More specifically, there are two types of experiment. In the "recreational diver" sheep category, sheep are exposed to increased pressure for 2 to 24 hours, and are freely mobile in the chamber. The experimental protocol states that in the recreational diver experiments, "Outcomes that involve pain and distress are rare." In this model, "Euthanasia will be considered in unexpectedly severe cases when an animal's discomfort or distress cannot be resolved. In our experience, this situation is rare."

In contrast, the "submarine escape" experiments are more intense, seeking to imitate the severe conditions of human escape from a submarine on an ocean floor. Exposure lasts up to three days and during this time a sheep's

head is in an "oxygen headbox" so that it can be administered 92% oxygen, although the sheep is capable of standing, flexing its neck, and lying down and being recumbent. The sheep are not fed throughout this period to avoid methane production. "In severe submarine escape decompressions, discomfort in [the] sheep is expected," according to the experimental protocols. When an animal "shows discomfort," an analgesic is administered promptly. "If discomfort progresses rapidly," the sheep is euthanized with an injection of pentobarbital.

The University suggests that § 951.025 should be interpreted to address only the use of a high altitude decompression chamber that kills animals "by placing them in a sealed chamber and removing the air." If the distinction the University seeks to make is the following, I do not think it is meaningful for current purposes: on the one hand, the University's use of "a large, high pressure chamber" (Sobakin, et al. at 62), in which animals are first subjected to increased pressure followed by pressure decreasing to sea level or below sea level pressure, and, on the other hand, taking an animal from the equivalent of sea level pressure to the equivalent of high altitude, without first use of the equivalent of deep sea pressure. In both cases, decompression sometimes causes the death of the animal. Animals are killed by means of decompression, whether moving from high pressure to normal or from normal to low.

Neither the complainant nor the University attempt to highlight the degree to which, nor the time period over which, a sheep may suffer when it dies as a result of decompression in the research at issue. Yet details regarding actual suffering of animals are referenced in the articles and the experimental protocols (e.g., "discomfort or dysfunction occurs, if decompression sickness develops"). There is no question from these materials that a legislative determination that death by means of decompression is painful to an animal, and also that its flat prohibition would not be an irrational legislative choice. The wisdom of a prosecution under the statute, however, will depend on the circumstances in which an animal is killed by means of decompression.

Relevant Terms of §§ 951.025 / 951.18 and § 951.02

Section 951.025 provides:

Decompression prohibited. No person may kill an animal by means of decompression.

The import of the term "kill" in § 951.025, requires reference to the penalties provision, which provides in relevant part:

Any person violating ... s. 951.025... is subject to a Class C forfeiture... Any person who intentionally or negligently violates [s. 951.025] is guilty of a Class A misdemeanor.

This penalty scheme establishes that forfeiture liability for killing by means of decompression is a strict form of liability determined without reference to the mental state of the person(s) responsible for death by decompression.

Turning to § 951.02, which preexisted § 951.025, it provides:

Mistreating animals. No person may treat any animal, whether belonging to the person or another, in a cruel manner. This section does not prohibit bona fide experiments carried on for scientific research or normal and accepted veterinary practices.

It is evident that the second sentence of § 951.02, excluding bona fide research purposes, does not apply to § 951.025. It is equally clear that § 951.02 itself does not apply to this case, because of the research exclusion. As a matter of state law, this is not an anti-cruelty case but an anti-decompression resulting in death case.

Ms. Pauly's Position

The complainant asserts that these experiments contemplate that, at the least, some sheep will die "by means of decompression," and therefore the University is killing sheep by means of decompression, even if by far most sheep survive the decompression that follows the compression. High risk decompression is not safe for sheep just as it is not safe for humans and it is strictly unlawful to place any animal at such a risk of death under § 951.025.

I believe that Ms. Pauly would point to the following passage from one of the experimental protocols to support her view that fatalities resulting from decompression are anticipated as researchers adjust various conditions of the research: "From our analyses of lethal dose pressures from 24-hour hyperbaric exposures, we have shown a precipitous rise in lethal outcomes with approximately 10% of individuals exposed to 41 fsw pressure for 24 hours or greater."

The University's Position

The University responds that while some sheep die as a result of decompression, (1) the statute was intended to prohibit only decompression as a means of euthanasia, and (2) the experiments are not intended to kill sheep through decompression or any other means. Researchers affirmatively seek to *avoid* deaths as a result of decompression, calibrating conditions to minimize deaths as a result of decompression, and therefore are not intentionally killing these animals. I believe that the University reasonably supports its circumstantial argument that the legislature was inspired to enact § 951.025 because of nationwide attention to use of decompression chambers (sometimes called "high altitude chambers" in the statutes of other states) as a method of euthanasia.

The University also asks how the legislature could reasonably have intended to prohibit this research technique when the technique was in use and the subject of published research before the law was enacted, and from that time to this apparently no one has suggested a violation. (I note that the experimental protocols reference U.S. Navy studies using juvenile swine and Royal Navy studies using adult goats – suggesting widespread use of these techniques).

Analysis

Regardless of the source of its inspiration, the Wisconsin legislature decided to use the broadest, most unqualified language in § 951.025 to prohibit one specific manner in which an animal may be killed, namely decompression. This the state can do. See *Planned Parenthood of Wisconsin v. Doyle*, 162 F.3d 463, 477 (7th Cir. 1998) (states may regulate the manner in which animals are killed). This case appears to be one example of the striking variety in the ways that the states have decided to draw lines prohibiting various practices as animal abuse. See Livingston, "Desecrating the Ark: Animal Abuse And The Law's Role In Prevention," 87 Iowa L. Rev.1, 37 (2001) ("lack of uniformity" with respect to penalties).

The Wisconsin legislature elected not to include the research exclusion in § 951.025, even though the exclusion was well known, having already been included in § 951.02 at the time § 951.025 was enacted. From all appearances researchers and lawmakers did not communicate regarding these issues at the time the law was enacted, and in the subsequent years until recently, no person with an interest in this area focused on the application of § 951.025 in this context. Lack of prior enforcement is not a defense.

With all this as background, it is apparent that the University is not intentionally or negligently killing sheep by means of decompression. It is

intentionally subjecting them to experiments, but deaths that occur are unintended results in a minority of instances. If the research model called for the direct use of decompression to euthanize sheep, that would be an intentional violation, but that is not occurring here.

Nor does a criminal negligence standard apply. There is no suggestion that the deaths are the result of systematically substandard and inattentive scientific work. Instead, deaths by means of decompression are inadvertent results of the experiments, outcomes that the University seeks to avoid. The natural and probable result of the typical experiment, as it is designed, is that the sheep survives decompression, after which it is killed in a manner that is not the subject of this complaint.

In addition, the research as a whole does not violate even the strict liability standard in any experiment in which no sheep dies as a result of decompression. In other words, the statute does not prohibit risking fatalities, even if the risk level is high. It prohibits only deaths by this means.

For all of these reasons, however, it is also true that the lowest standard of liability applies to each instance in which a sheep dies as a result of decompression. The objective of this research is survival assessment; the method of the research causes some deaths by decompression. The fact that the deaths are considered adverse experimental events does not mean they are not occurring.

If the death of each sheep by means of decompression does not qualify as a forfeiture violation, one is hard pressed to imagine what conduct, not intentional or negligent, would fit the definition of a forfeiture violation. No intent whatsoever is required. The plain terms of the substantive statute and its penalty provision ban any practice that kills by this means.

It is irrelevant that Wisconsin's flat prohibition appears to have arisen out of concern about use of decompression chambers as a euthanasia technique, because the plain language of the statute is unambiguous and no purpose other than a flat ban can be read into the statute. The legislature established a per se category of offense, assigned it to the forfeiture level, and decided not to shield bona fide research from its reach, regardless of the degree to which these experiments are scientifically sound and morally justified. Legislators settled on language that goes beyond the euthanasia context. Whether or not the explicit thought ever passed through the mind of any legislator, the legislature decided to use sweeping language that unambiguously prohibits the use of decompression chambers for any use, even peer reviewed scientific research, that kills an animal.

Conclusion

It is not a criminal violation of the law to conduct these experiments, nor is it a civil violation to subject animals to decompression, even very painful and potentially lethal decompression. Yet it is a civil violation each time an animal dies by means of decompression. If the University views this as an absurd legal result, given the value of the research and the large investments already made in this research model, a remedy would be promptly to seek new legislation adding the research exclusion to the decompression statutes. As the University notes, there are ready models in Alaska and Indiana.

The University argues that this is a longstanding research model that has been supported by multiple federal and state agencies, and that it has been conducted in the good faith belief that it was lawful. Peer reviewed articles demonstrate that it has not been hidden from public scrutiny. Researchers believe that these large animal decompression experiments are critical to the health and safety of humans, including but not limited to U.S. Navy personnel. Moreover, the University has cooperated with this inquiry to date.

For all these reasons, based on the available information, my conclusion is that it would not be a wise use of the resources of this office to pursue a forfeiture violation in court. I invite Ms. Pauly to provide any further facts or perspective that she believes would be relevant to consider at this point if she would like to do that.

Thank you both for your cooperation in this matter.

Sincerely,

A handwritten signature in black ink that reads "Brian W. Blanchard". The signature is written in a cursive style with a large initial "B".

Brian W. Blanchard

cc: Ms. Lynn Pauly