THE OHIO STATE UNIVERSITY

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Axel V. Wolff, M.S., D.V.M.
Director, Division of Compliance Oversight
Office of Laboratory Animal Welfare
National Institutes of Health
Rockledge One, Suite 360, MSC 7982
6705 Rockledge Drive
Bethesda, MD 20817

RE: Animal Welfare Assurance #A3261-01

Dear Dr. Wolff,

This correspondence provides the final report of the Institutional Animal Care and Use Committee's (IACUC) investigation into the July 12, 2006 power failure that resulted in the loss of 689 research animals in The Ohio State University's Graves Hall Vivarium. A preliminary report of this incident was provided to the Office of Laboratory Animal Welfare at the National Institutes of Health on July 13, 2006.

The IACUC's inquiry consisted of fact-finding discussions with Drs. Douglas Kniss, Senior Associate Vice President for Research and Valerie Bergdall, Deputy Director, University Laboratory Animal Resources (ULAR), analysis of the University's formal report on the power outage prepared by the University's Office of Research (attached), and review by the full IACUC at the Committee's meeting on October 20, 2006. The following summarizes the IACUC's findings and recommendations.

On July 12, 2006 scheduled maintenance was performed on a primary power grid feeding The Ohio State University Medical Center. The maintenance required taking the primary electrical source offline and switching to the backup source. The Medical Center power grid consists of two separate electrical circuits, a primary source and a backup secondary source, both of which are typically fully operational. Unfortunately, at approximately 6:00 P.M. on July 12, 2006, the secondary source failed, leaving at least 10 buildings on the Medical Center campus without power. A utilities crew was immediately dispatched to the site of the power outage, and power was eventually restored to all Medical Center buildings at approximately 2:30 A.M. on July 13, 2006. Therefore the affected buildings were without power for approximately 8 hours. Unfortunately, when the power was restored, the air conditioning service in the Graves Hall Vivarium was not reestablished.

As a result of the power outage, extreme temperature excursions within the Graves Hall Vivarium, housing 5,100 animals, resulted in the death of 689 research animals, including 598 mice, 90 rats, and one rabbit. This represents approximately 13% of the total Graves Hall Vivarium census. Monitors within the facility recorded temperatures which ranged from 96.3-105.9°F.

The IACUC identified two major problems. The first was that ULAR personnel involved in care of animals were not notified of the power outage. As a result, no interventions on behalf of the animals could be done until ULAR staff arrived on the morning of July 13, 2006. Two failures apparently contributed to this notification failure. One was that the University's Facilities, Operations and Development (FOD) Service Desk, a 24-hour emergency dispatch call-in service, did not contact ULAR after learning of the power outage both from the initial facilities crew's report and from a report by a postdoctoral researcher working in the Graves Hall Vivarium on the evening of July 12, 2006. The second failure resulted as the Graves Hall Vivarium alarm system, which had been installed as part of a recently completed renovation, was apparently not connected to the FOD Service Desk or to ULAR personnel, and therefore did not alert ULAR of the environmental problem. In addition, the alarm system did not have a battery backup power supply, and thus even had the alarm been properly installed and connected to the Service Desk, the loss of electrical power would have resulted in its failure to notify ULAR or FOD personnel.

The second major problem identified by the IACUC was that the HVAC system in Graves Hall was set on the "fail on" mode at the time of the outage, meaning that upon restoration of power the heating unit comes on to prevent the freezing of pipes within the building. This is a feature of many of the older buildings on campus and contributed to the excessive heat, which was introduced into the Vivarium when electricity was restored.

The IACUC fully supports the University's corrective responses to the problems described above. Specifically, the IACUC confirmed that the environmental alarms in the Graves Hall Vivarium have been fully installed and verified to operate correctly with alarms going to the FOD Service Center. The alarms are now on back-up power and a secondary system is also operating which now notifies ULAR staff.

During its inquiry, the IACUC also learned that the Graves Hall heating, ventilation and air conditioning (HVAC) unit has a pre-heat coil on the unit at the air intake to protect the cooling coils during cold weather. In case of HVAC failure, this coil fails "on" to protect the unit from freezing up. This heat does not, however, reach the animal facility. The HVAC unit is designed to provide 55 degree air to the animal rooms. At the room level, there are re-heat coils which bring the air up to the temperature required for that area. Modifications have been made to the system so it now turns the reheat coils "off" in the event of HVAC failure to prevent the area from over-heating. These are electronic controls which require power. If there is a power failure, the valves fail in "last position" which means the units remain at the level they were at prior to the power failure. As additional protection, the IACUC learned that a secondary spring valve is being installed which stays open as long as there is power. If the power fails, this spring valve snaps shut which closes the supply line to the reheat coils, thus preventing overheating.

While the spring valve is being installed, FOD and/or ULAR staff will be dispatched to the animal facility in the event of a power outage to physically monitor temperatures. If a room begins to get warm, the individual reheat coil supply will be manually closed.

The IACUC also confirmed that the Office of Research has completed an analysis of emergency notification equipment and procedures for all of the other campus animal facilities. The ULAR has developed a plan for the installation of alarm systems in all of the ULAR vivaria and to connect those alarms that have been already installed but are not yet operational. The IACUC has been informed that funding of approximately $1.3 million dollars has been allocated to support this project. Once installed, all alarm systems will be tested semi-annually to ensure full operational capability. The HVAC systems in all older buildings containing ULAR vivaria are currently being inspected and will be reset in the "fail off" mode to prevent heating in the event of a future power outage and restoration.

The IACUC will monitor the implementation of the additional improvements in the environmental alarms systems of the ULAR vivaria. The IACUC also plans to work with the Office of Research to assess the effectiveness of the communications between the FOD Service Desk and ULAR.

The Ohio State University remains committed to ensuring the proper care and treatment of animals used in research and teaching at our institution. Please feel free to contact either of us (Lane Wallace at 614-292-9917 or wallace.8@osu.edu or Dr. Robert McGrath at 614-292-1582 or mcgrath.66@osu.edu) if you require any further information.

Sincerely,

Lane J. Wallace

Lane J. Wallace, Ph.D.
Chair, IACUC

Robert T. McGrath

Robert T. McGrath, Ph.D.
Senior Vice President for Research and
Institutional Official

Attachments (1)

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