



DEPARTMENT OF HEALTH & HUMAN SERVICES

PUBLIC HEALTH SERVICE  
NATIONAL INSTITUTES OF HEALTH

FOR US POSTAL SERVICE DELIVERY:

Office of Laboratory Animal Welfare  
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Home Page: <http://grants.nih.gov/grants/olaw/olaw.htm>

FOR EXPRESS MAIL:

Office of Laboratory Animal Welfare  
6700B Rockledge Drive, Suite 2500  
Bethesda, Maryland 20817  
Telephone: (301) 496-7163  
Facsimile: (301) 480-3387

June 1, 2021

Re: Animal Welfare Assurance  
A3914-01 [OLAW Case 1P]

Dr. Timothy Denning  
Vice President for Research and Economic Development  
Georgia State University  
100 Auburn Ave NE, (b) (4)  
Atlanta, GA 30303

Dear Dr. Denning,

The Office of Laboratory Animal Welfare (OLAW) acknowledges receipt of your May 11, 2021 letter reporting an instance of noncompliance with the PHS Policy on Humane Care and Use of Laboratory Animals at the Georgia State University. This letter had not been preceded by a preliminary report to OLAW.

According to the information provided, this Office understands that the Georgia State University Animal Care and Use Committee (ACUC) determined that an adverse event occurred with respect to: animals deaths due to wet filters on cages containing rats preventing proper ventilation. The final report states on March 29, 2021, the Division of Animal Resources (DAR) was informed that 5 rats were found dead in their cages. The animal deaths involved two cages on an ACS ventilated cage rack system, containing 3 large adult Sprague Dawley rats. Condensation was present on the interior surface of each cage and each cage was also warm to the touch. It is stated that one animal was found in distress and recovered uneventfully after removal from the cage and receiving supportive care/treatment. It is further stated that both cages were properly docked, and additional cages were identified on the rack with condensation, while others were not. No additional rats were found to be in distress per the report.

It is stated all cages in the room were changed that morning, and no one (including DAR Animal Healthcare Technicians and research lab members) observed any animal health or environmental issues later that morning. Ventilation at the rack level was determined to be normal. However, cage level filters were discovered wet when checked, which impeded air flow and prevented proper cage ventilation, resulting in heat and condensation buildup. In response, all the rats housed in cages with pleated style filters were immediately changed into new cages with dry, flat filters.

It is understood that DAR has been successfully utilizing the ACS caging system for rodents since 2010. Per the report, ACS rat cages with pleated filters undergo a drying process after going through the cage washer. In this instance, a DAR cage washer technician skipped the drying process and proceeded to bed the cages with wet filters. It is noted the cage wash technician was trained in February 2020 on how to dry the filters and while aware of the process, decided to skip it. As a result, the cages with wet filters were put into use and led to the animal welfare incident, and the technician responsible has received disciplinary action. In response to this incident, DAR implemented the following actions:

- When rat ACS cages come out of the cage washer they are placed on a "bulk truck" and a fan is used to first dry the front filters, then the cages are rotated hours later to dry the back filters. The following day the cages are bedded and put into use. A log will be attached to each drying rack and the cage wash technician will check a box indicating when the front and back filters are independently dried.
- The husbandry technician, who receives the bedded clean cages, will confirm that the filters are dry by applying absorbent material (e.g., paper towel or cotton swab) between the pleats to ensure no water wicks onto the absorbent material. This will also be documented for each load of cages.
- The DAR Assistant Director will oversee this process to ensure all documentation is completed properly.

The IACUC reviewed the matter at the April 23, 2021 meeting. It is understood DAR has utilized established procedures for successful drying of cages with pleated filters for many years without incident until this event involving a staff member not following the established protocol. This Office acknowledges that the IACUC considered this incident an adverse event. However, this Office considers this incident an instance of noncompliance with the PHS Policy due to failure to adhere to institutional policies/procedures resulting in harm and deaths to animals. It is noted that the final report did not include the funding source involving the incident. In the future, please include the source of funding and provide grant numbers for all PHS, NSF or NASA supported work.

Based on its assessment of this explanation, OLAW understands that the Georgia State University has implemented appropriate measures to correct and prevent recurrences of these problems and is now compliant with provisions of the PHS Policy.

We appreciate being informed of these matters and find no cause for further action by this Office.

Sincerely,

Jacquelyn T.

Tubbs -S

Digitally signed by Jacquelyn T.  
Tubbs -S  
Date: 2021.06.01 14:57:47 -04'00'

Jacquelyn T. Tubbs, DVM, DACLAM  
Animal Welfare Program Specialist  
Division of Compliance Oversight  
Office of Laboratory Animal Welfare

cc: IACUC Contact

VICE PRESIDENT FOR RESEARCH & ECONOMIC DEVELOPMENT  
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May 11, 2021

To: Brent Morse, DVM  
Director, Division of Compliance Oversight  
Office of Laboratory Animal Welfare  
National Institutes of Health  
Rockledge 1, Suite 360, MSC 7982  
6705 Rockledge Drive  
Bethesda, MD 20892-7982

Re: Adverse Event  
Rat Deaths

On March 30, 2021, the Georgia State University (D16-00527 (A3914-01)) Institutional Animal Care and Use Committee received an email from a Division of Animal Resources (DAR) veterinarian stating that an adverse animal health event, which was husbandry related, had occurred. This adverse event was not associated in any way with the research protocol on which the animals were used, but rather, was associated with a cage-related incident. The adverse event occurred due to wet ACS cage system filters.

On March 29, 2021, DAR was notified that five rats (protocol number A21036) were found dead in their cages. These deaths involved two cages on an ACS ventilated cage rack system each containing 3 large adult male Sprague Dawley rats. Both cages had condensation on the interior cage surfaces which is indicative of insufficient ventilation and were warm to the touch. The one rat was found in distress. He was immediately moved to a clean cage, provided nutritional supplements, and recovered uneventfully.

Both cages were found to be docked correctly on the ACS rack. Other cages on the rack also contained condensation on the interior surfaces of the cage, but other cages did not. None of the other rats were found to be in distress, but these were smaller rats. In the same animal housing room, there was another ACS cage rack and two static racks of cages. The cages on the second ACS rack, as well as all the static rat cages, were fine with no condensation and no animal health issues were observed.

All the cages in this room had been changed that morning. No animal health issues were observed during the cage change and all animals appeared to be in good health. Later that morning, one of

the DAR Animal Healthcare Technicians, as well as the research lab members were in the housing room for various reasons, and no one noticed any animal health or environmental issues.

An anemometer was used to assess the ventilation at the rack level, and it was found to be normal. The cage level filters were then checked and were found to be wet. The involved cages had two pleated filters at the front of the cage and one pleated filter at the back of the cage. A paper towel and a cotton swab were used between the pleats of the filters and they wicked water from the filters. Wet filters do not allow cages to ventilate correctly and even though the cages were properly docked on the cage rack, the presence of the wet filters impeded the air flow through the cage resulting in condensation and heat.

The fact that two cages each contained 3 large rats greatly compounded the problem, as they generated more heat than the smaller rats. The cages on the rack containing 1-2 of the smaller rats had no problems. The newer model ACS cages utilize flat, not pleated, filters and none of the flat filters were wet.

All the rats housed in the cages containing the pleated style filters were immediately changed into new cages with dry, flat filters. Necropsies were performed on three of the five dead rats and revealed gross pulmonary hemorrhage consistent with heat distress. No other gross pathological lesions were observed, and the rats were otherwise in good gross health and body condition.

The DAR has been successfully using the ACS caging system for rats and mice since 2010. ACS rat cages with pleated filters undergo a drying process after going through the cage washer. This ensures that the filters are dried prior to being bedded and put back into use. In the case at hand, a DAR cage wash technician skipped the drying process and proceeded to bed the cages with wet filters. The cage wash technician was trained (February 2020) on how to dry the filters and was aware of the process but decided to skip it, which resulted in cages with wet filters being put into use and causing the animal welfare issue. The cage wash technician received disciplinary action.

DAR's plan to prevent wet filters in animal cages in the future consists of:

1. When rat ACS cages come out of the cage washer they are placed on a "bulk truck" and a fan is used to first dry the front filters, then the cages are rotated hours later to dry the back filters. The following day the cages are bedded and put into use. A log will be attached to each drying rack and the cage wash technician will check a box indicating when the front and back filters are independently dried.
2. The husbandry technician, who receives the bedded clean cages, will confirm that the filters are dry by applying absorbent material (e.g., paper towel or cotton swab) between the pleats to ensure no water wicks onto the absorbent material. This will also be documented for each load of cages.
3. The DAR Assistant Director will oversee this process to ensure all documentation is completed properly.

The IACUC discussed this adverse event at the April 23, 2021 IACUC meeting. The IACUC asked DAR if it was possible for only the flat style of filter to be used in all the rodent cages. DAR

responded that they would certainly like to use the flat style filtered cages for all rodents, but the cost to replace these cages would be very high. The cages with pleated filters have historically performed well. Quality assurance standards, in which the exhaust airflow to the cage and housing rack is tested quarterly, has been largely successful for years. The DAR has utilized established procedures for successful drying of cages with pleated filters for many years now with no issues until this occurred due to one staff member not following the established protocol. The oversight of the drying process has revised/improved as indicated above. The DAR management is confident in the proposed plan to prevent further issues with wet filters.

If you have any questions concerning these issues, please feel free to contact me.

Sincerely,

(b) (6)

Timothy L. Denning, Ph.D.  
Vice President for Research and Economic Development

Cc: IACUC file  
IACUC Chair  
Attending Veterinarian  
AAALAC

**Wolff, Axel (NIH/OD) [E]**

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**From:** OLAW Division of Compliance Oversight (NIH/OD)  
**Sent:** Friday, May 14, 2021 7:33 AM  
**To:** (b) (6)  
**Cc:** OLAW Division of Compliance Oversight (NIH/OD)  
**Subject:** RE: Non-Compliance and Adverse Event at Georgia State University (PHS Assurance Number D16-00527 (A3914-01))

Thank you for these reports. We will send responses soon.

Axel Wolff, M.S., D.V.M.  
Deputy Director, OLAW

**From:** (b) (6)  
**Sent:** Wednesday, May 12, 2021 9:59 PM  
**To:** OLAW Division of Compliance Oversight (NIH/OD) <olawdco@od.nih.gov>  
**Cc:** AAALAC International <accredit@aaalac.org>; (b) (6) Timothy Luke Denning <tdenning@gsu.edu>; (b) (6) Ming-Hui Zou <mzou@gsu.edu>  
**Subject:** Non-Compliance and Adverse Event at Georgia State University (PHS Assurance Number D16-00527 (A3914-01))

Georgia State University IACUC (PHS Assurance Number D16-00527 (A3914-01)) is reporting a non-compliance with the drug STZ and an adverse event in which wet filters in ventilated cages resulted in the death of rats. The individual documents are attached.

If you have any questions, please feel free to contact the IACUC Office.

*Regards,*

(b) (6)



(b) (6)