

Disaster Plan for Animal Care and Use at the St. Cloud State University Aquatic Toxicology Laboratory

Prepared by:

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Reviewed by:

SCSU Institutional Animal Care and Use Committee (IACUC)

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Purpose

This document sets forth policies and procedures designed to prepare for, prevent, and respond to most foreseeable disasters which may affect the St. Cloud State University aquatic Toxicology Laboratory located in room 9 of the Robert H. Wick Science Building. It provides essential information regarding the causes and nature of disasters which have occurred, or may occur, and their potential impact on animals or personnel. Further, it explains the basic functions of the mechanical systems upon which the animal facility depends, and describes the use of critical animal housing equipment both during and prior to a disaster.

All information pertaining to matters of personnel health and safety is intended to complement, but does not supersede, policies and procedures set forth in the *St. Cloud State University Emergency Procedures Guide*. This guide is accessible online at <http://www.stcloudstate.edu/emergency> and is posted on the animal facility bulletin board.

1. GENERAL INFORMATION

A. Terminology

The following terms are used throughout this document as defined below:

- i. *Animal facility*: room 9 of the Wick Science Building in which animals are housed or could be housed. See the emergency evacuation route map.
- ii. *Disaster*: any circumstance or event occurring, or anticipated to occur, within or near the animal facility which may endanger the health and/or safety of either personnel or animals or compromise infrastructure upon which health and safety may depend.

B. Potential disasters

The disasters described below include circumstances and events which either have occurred or are considered likely to occur in the animal facility. Management of these disasters is discussed in section 3, *Disaster Response*. Other disasters are possible and must be managed in accordance with policies and procedures described below and in the *St. Cloud State University Emergency Procedures Guide*.

i. Natural gas leak

Natural gas is used as a source of thermal energy in numerous laboratory applications throughout the Wick Science Building. Although principally methane, natural gas also contains one or more sulfur-based compounds, which give it a “rotten egg” smell and aid in detection of a leak. No active outlets for natural gas currently exist in the animal facility. Detection of its characteristic odor, therefore, should be assumed to indicate a leak within or near the Wick Science Building.

When a leak occurs, natural gas enters the animal facility via the building ventilation system, causing it to disperse readily throughout the facility. Exposure to relatively low concentrations of natural gas generally does not pose a risk to human or animal health. As the concentration increases, however, the risk of explosion or adverse effects on both human and animal health and safety also increases.

ii. Fire/Smoke

Fire or smoke occurring within the Wick Science Building or an adjoining building can endanger personnel and animals. Not only may fire damage animal facility infrastructure or equipment and cause physical harm to personnel and animals, it can also release potentially hazardous chemicals that may be transported readily to the animal facility via the building ventilation system.

iii. Chemical fumes

With the exception of ethanol and exposure substances at low total masses, potentially hazardous chemicals are not routinely used or stored in the animal facility. Nonetheless, fumes from such chemicals used elsewhere in the Wick Science Building can be transported to the animal facility via the building ventilation system. Obvious examples include solvents or reagents used in chemical synthesis, as well as sealants, adhesives or solvents used in building construction and renovation projects.

iv. Civil disturbance

Civil disturbances may include animal rights demonstrations, threats of violence against personnel, or the discovery of unknown or suspicious individuals or incendiary/explosive devices within or near the animal facility. Such events may require evacuation of personnel from the animal facility, which can significantly reduce the level of care and security provided to animals.

v. HVAC failure

The animal facility houses only fish, which are maintained in well water supplied aquaria and not particularly susceptible to environmental changes due to HVAC failure.

vi. *Electrical failure*

The health and safety of all fish housed in the animal facility are critically dependent on an uninterrupted supply of electricity throughout the Wick Science Building. Loss of electricity can result in immediate cessation of aquarium aeration, disrupt well water supply and eliminate the ability to heat and control temperature of well water supply to WSB-9.

vii. *Water system failure*

Tap water reaches the animal facility via the campus water system. It is used only for cleaning and sanitation purposes. A reduction in the potability or supply of tap water, therefore, can reduce its suitability for these uses.

viii. *Outbreaks of disease among laboratory animals*

Any disaster that reduces sanitation or inhibits normal animal care activities can promote the introduction and spread of microbial pathogens in the animal facility. Such an event not only affects the health and longevity of infected animals, but it can diminish the quality and reliability of data obtained from animal models.

ix. *Severe weather*

Severe weather includes exceptional amounts of precipitation (snow, sleet, hail, or rain), electrical storms, and/or strong winds and tornadoes. Such events can cause mechanical or electrical failures and create safety concerns for animal facility employees attempting to travel to and from work.

C. Policy

In order of priority, the following general rules apply in a disaster situation.

- i. All persons present in the animal facility, as well as those responding to a disaster, must act in ways that do not endanger their own health and safety or that of others. Actions taken to ensure personnel safety may include leaving the animal facility and proceeding to a safe location without attempting to secure the health and safety of the animals.

REGARDLESS OF THE NATURE OF A THREAT TO THE ANIMALS, THE HEALTH AND SAFETY OF PERSONNEL ARE PARAMOUNT AND SUPERSEDE THE HEALTH AND SAFETY OF ANIMALS UNDER ALL CIRCUMSTANCES.

- ii. If the health and safety of personnel are not endangered, personnel should act in ways to secure the health and safety of the animals.

- iii. Upon discovery of a disaster, one or more of the authorities or emergency responders listed below must be notified immediately. If reasonable to do so, the conditions of personnel, animals, caging systems and animal facility infrastructure should be reported.

D. Authorities (*also see contact list*)

- i. In *all* matters of personnel health and safety, emergency responders such as SCSU Public Safety, the St. Cloud Police Department, and/or the St. Cloud Fire Department have authority and must be contacted first.
- ii. *Heiko L. Schoenfuss, Animal Facility Supervisor - primary contact.*

Dr. Schoenfuss will ensure that all individuals requiring knowledge of a disaster are contacted immediately. In consultation with other authorities, he will determine an appropriate course of action for addressing damage to animal facility infrastructure and caging systems and any threats to the health and safety of animals.

- iii. *Dr. Matthew L. Julius, Professor of Biology, Department of Biology.*

Excluding matters of personnel health and safety, Drs. Julius and Schoenfuss oversee disaster response and may delegate responsibilities as conditions require.

- iv. *Nancy Altena, DVM.*

As veterinarians serving on the IACUC, Dr. Altena is the authority for animal health and disposition in the event of a disaster. In her absence, however, Dr. Schoenfuss will have this authority.

- v. *Dr. Maureen Tubbiola, Professor of Biology and Chair, Department of Biology.*

As a member of the SCSU Department of Biology, Dr. Tubbiola will serve as an alternate contact in the event that Drs. Schoenfuss or Julius are unavailable.

E. Critical equipment

- i. *Aeration System*

All aquarium aeration is supplied by a blower in the utility room (WSB-9A) inside the animal facility. In the event of a power failure or mechanical break down of the blower, two backup systems exist: (i) in the anteroom of WSB-9 is a valve that connects the aeration system to building air. This valve is usually closed, but can manually be opened to provide an alternative air source for aquaria. (ii) battery-operated aerators are located prominently in the anteroom of WSB-9. These can supply aeration to groups of aquaria for approximately 36 hours on one set of D cell batteries.

- ii. *Well water supply*

Well water is supplied to the animal facility via an in-house well located in WSB-31. In the event of a power failure or mechanical break down of the well pump, no water will flow into the animal facility. There is no remedy to this situation other than restoration of the pumping system. However, fish in adequately aerated aquaria will not be affected by the break down for at least 24 hours.

iii. *Heat exchanger*

Well water is heated to the appropriate aquarium temperature through a heat exchanger located in WSB-31. In the event of a power failure or mechanical break down of the heat exchanger, only cold well water will flow to the facility. The rapid drop in aquarium temperature can be lethal to fish and two emergency shutoff valve above the entrance to WSB-9 need to be closed as soon as possible in the event that the heat exchanger fails.

2. DISASTER PREPAREDNESS AND PREVENTION

A. Ongoing preparations

- i. Ensure that sufficient food is available at all times to sustain animal colonies for up to two weeks in the event that these items need to be reordered.
- ii. Ensure that multiple battery operated aerators are available in the case of an aeration failure.
- iii. Maintain a fully supplied, all-purpose first aid kit in the animal facility.
- iv. Have basic tools available for simple repairs, turning off or disconnecting equipment, or removing/opening doors.
- v. Have flashlights and batteries readily available in the animal facility. Replace the supply of batteries at least every three years to insure against loss of charge.
- vi. Maintain up-to-date contact information for all authorities, emergency responders, and student workers who can assist with a disaster response.
- vii. Keep up-to-date inventories of animal colonies.
- viii. Post and maintain the current emergency evacuation route map for the second floor of the Wick Science Building and the *St. Cloud State University Emergency Procedure Guide* on the animal facility bulletin board.
- ix. Review and revise this document regularly to keep all information up to date. Keep a current copy of this document posted on the animal facility bulletin board at all times and distribute in both electronic and hardcopy forms to all contacts, members of the IACUC, and Barb Kjellberg in the Office of the Department of Biological Sciences.
- x. Have all student employees of the animal facility read this document at the start of their employment. The animal facility supervisor will review this document with student employees at least once per year.

B. Preventive measures

The following preventive measures are intended to reduce the likelihood of disease outbreaks or events resulting from unauthorized access to the animal facility.

- i. The animal facility supervisor will ensure that all scheduled tasks related to animal care are completed routinely and in a satisfactory manner to support the long-term health and safety of animals and personnel.

- ii. All SCSU faculty, staff and students will be required to complete training as described below prior to utilizing or providing care to animals housed in the animal facility.
 - Online training in laboratory animal welfare offered through the Collaborative Institutional Training Initiative (CITI) Program.
- iii. Animals will be acquired only from a widely recognized vendor of laboratory animals (e.g., Environmental Consulting & Testing, Superior, WI). Animals from field collections will be quarantined in separate aquaria that are thoroughly disinfected between use.
- iv. The access code for the perimeter door of the animal facility will be changed at least once per year in order to minimize the likelihood that individuals who do not require access to the animal facility possess a valid code.

3. DISASTER RESPONSE

A. General responsibilities

During a disaster, anyone present in the animal facility must:

- i. Determine immediately whether to exit the animal facility and proceed to a safe location.

SEE EMERGENCY EVACUATION ROUTE MAP.

- ii. Evaluate the status of all personnel present (injured, conscious, etc...), if reasonable to do so.
- iii. Contact SCSU Public Safety, the St. Cloud Police Department, and/or the St. Cloud Fire Department immediately if any threats to personnel health and/or safety exist.
- iv. Contact Dr. Schoenfuss, the animal facility supervisor, if he is away from the animal facility.

If Dr. Schoenfuss is unavailable, contact Dr. Julius and/or Dr. Maureen Tubbiola.

See contact list.

- v. Evaluate the status of aquaria and any damage to or malfunction of electrical and well water systems within the animal facility.

B. Responding to specific conditions and events

i. Unsafe conditions

ALL PERSONNEL MUST EVACUATE THE ANIMAL FACILITY *IMMEDIATELY* IF ANY OF THE FOLLOWING CONDITIONS ARE DISCOVERED WITHIN OR NEAR THE WICK SCIENCE BUILDING:

- a. Natural gas leak
- b. Fire/smoke
- c. Incendiary/explosive device
- d. Intruder(s) threatening violence in any form against personnel

See evacuation route map.

Other conditions may develop which pose an immediate threat to the health and/or safety of personnel. Under all such conditions, immediate evacuation of personnel is mandatory. See the *St. Cloud State University Emergency Procedure Guide* on the animal facility bulletin board for additional information regarding personnel health and safety procedures.

ii. *Animal rights demonstration*

If an animal rights demonstration is known to be occurring on or near campus, all doors within the animal facility, as well as the perimeter door, must remain closed and locked at all times. All entrance into the animal facility should be monitored closely by one of the authorities listed in this document for the duration of the demonstration. If a demonstration threatens the safety of personnel in any way, immediate evacuation of personnel from the animal facility is mandatory. SCSU Public Safety and/or the St. Cloud Police Department must be contacted immediately.

iii. *Aeration failure*

In the event of a power failure or mechanical break down of the blower, two backup systems exists: (i) in the anteroom of WSB-9 is a valve that connects the aeration system to building air. This valve is usually closed, but can manually opened to provide an alternative air source for aquaria. (ii) battery-operated aerators are located prominently in the anteroom of WSB-9. These can supply aeration to groups of aquaria for approximately 36 hours on one set of D cell batteries.

iv. *Well water failure*

In the event of a power failure or mechanical break down of the well pump, no water will flow into the animal facility. There is no remedy to this situation other than restoration of the pumping system. However, fish in adequately aerated aquaria will not be effected by the break down for at least 24 hours.

v. *Heat exchanger failure*

In the event of a power failure or mechanical break down of the heat exchanger, only cold well water will flow to the facility. The rapid drop in aquarium temperature can be lethal to fish and two emergency shutoff valve above the entrance to WSB-9 need to be closed as soon as possible in the event that the heat exchanger fails.

vi. *Severe weather*

If animal facility employees and/or authorities listed in this document are unable to travel safely to the animal facility as a result of severe weather, all animal care activities, including disaster response, will be postponed until safe travel is possible. Personnel present in the animal facility during or immediately prior to a tornado or damaging winds must seek shelter in the areas designated on the emergency evacuation route map. Additional information regarding severe weather response is provided in the *St. Cloud State University Emergency Procedures Guide* posted on the animal facility bulletin board and accessible online at <http://www.stcloudstate.edu/emergency>.

C. Evacuating animals

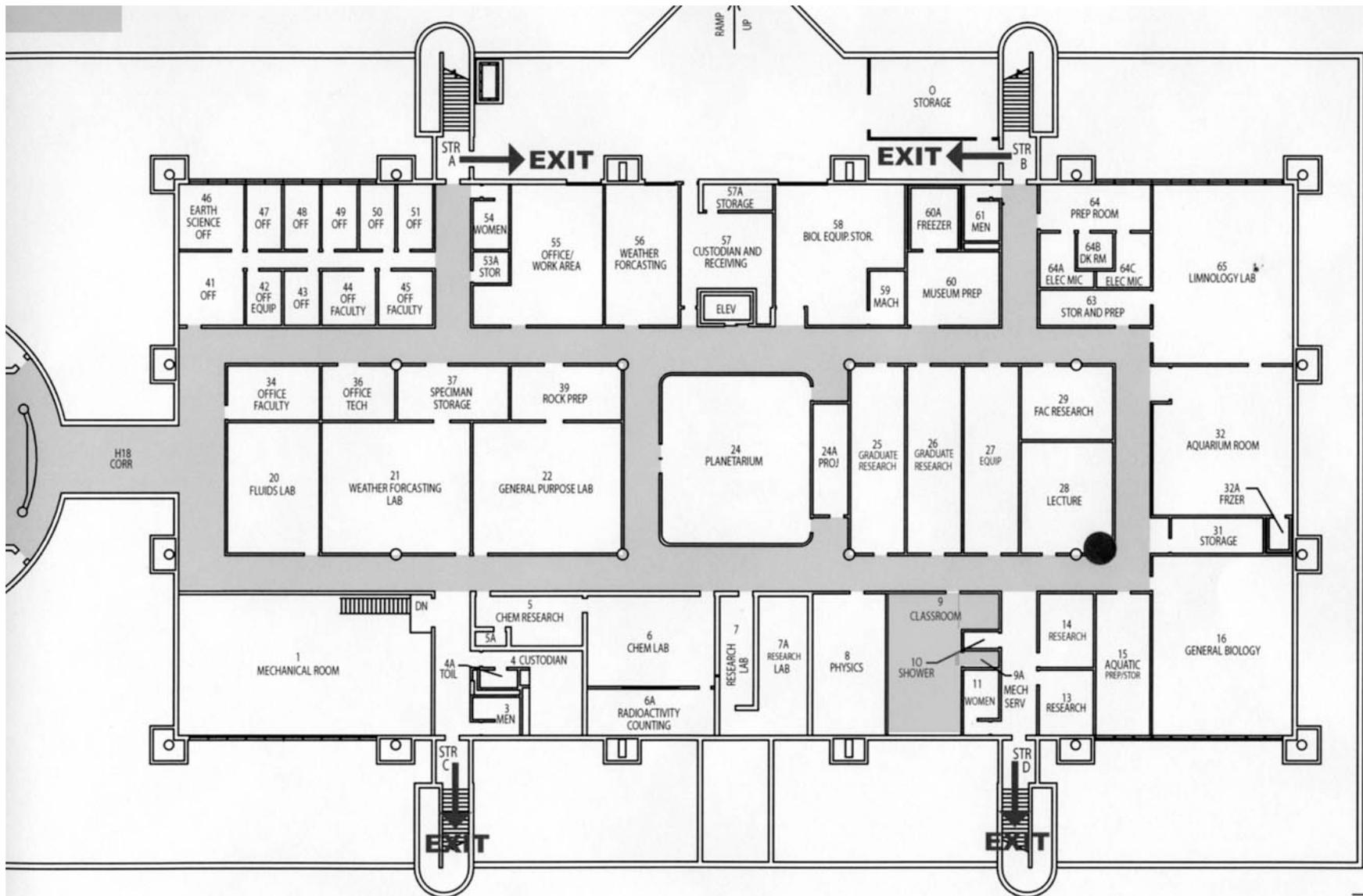
Given the needs of fish husbandry and the quality requirements for controlled exposure experiments, it is not feasible to move fish out of their current facility in the event of a severe or long-term system failure. Instead, euthanasia should be considered in the event a system failure exceeds 48 hrs. in duration.

D. Euthanasia

All animals currently housed in the animal facility are fish. A widely accepted and well-documented method of humane euthanasia for fish is an overdose of the fish anesthetic MS-222. A stock of MS-222 is maintained in WSB-60 for use in experiments and as primary form of fish euthanasia. In the unlikely event that MS-222 is not available, ice water may serve as an alternative form of euthanasia if cervical dislocation is performed on the iced animals after cessation of movement.

IN THE EVENT OF A DISASTER, EUTHANASIA MAY BE PERFORMED *ONLY* BY THE AUTHORITIES LISTED ON THE FOLLOWING PAGE.

Contacts	Position	Contact information
<i>Authorities</i>		
Dr. Heiko L. Schoenfuss	Animal Facility Supervisor	Wick Science Building 273 Office: 320-308-3130 Mobile: 612-207-4971
Dr. Matthew L. Julius	Professor of Biological Sciences	Wick Science Building 225 Office: 320-308-6684 Mobile:320-761-8979
Dr. Maureen Tubbiola	Professor of Biological Sciences	Wick Science Building 275 Office: 320-308-3035 or 320-308-4736 Mobile: 320-469-2069
Dr. Glenn Nielsen, DVM	IACUC Veterinarian	Waite Park Pet Hospital Office: 320-253-1061
Dr. Nancy Altena, DVM	IACUC Veterinarian	Office: 320-252-6700 Home: 320-202-9478 Mobile: 320-291-2689
<i>Emergency Responders</i>		
SCSU Public Safety Department	n/a	Safety/Security Concerns: 320-308-3333 Emergencies: 911
St. Cloud Police Department	n/a	Non-emergency: 320-345-4444 Emergencies: 911
St. Cloud Fire Department	n/a	Non-emergency: 320-255-7213 Emergencies: 911
<i>Electrical, HVAC, plumbing, or other mechanical issues</i>		
Buildings and Grounds Management	n/a	During business and non- business hours: 320-308-3166



UPON EVACUATING THE WICK SCIENCE BUILDING OR ITS ANNEX, PROCEED TO A LOCATION ON THE *OPPOSITE* SIDE OF ANY OF THE STREETS SURROUNDING THESE BUILDINGS. **DO NOT REMAIN NEAR THE BUILDINGS.**