

Disaster Plan for Animal Care and Use at the St. Cloud State University Vivarium

Prepared by:

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Reviewed by:

SCSU Institutional Animal Care and Use Committee (IACUC)
Office of the Dean of the College of Science and Engineering, SCSU

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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 vivarium. 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 vivarium 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/procedures> and is posted on the vivarium bulletin board.

1. GENERAL INFORMATION

A. Terminology

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

- i. *Disaster*: any circumstance or event occurring, or anticipated to occur, within or near the vivarium which may endanger the health and/or safety of either personnel or animals or compromise infrastructure upon which health and safety may depend.
- ii. *ISELF*: Integrated Science and Engineering Laboratory Facility. This is the building on the campus of St. Cloud State University in which the vivarium is located.
- iii. *Vivarium*: rooms 305 through 316B of the ISELF Building and all other spaces secured by the east and west perimeter doors of the facility.
- iv. *Holding room*: any of rooms 307, 308, 311, 314, or 315 of the ISELF Building in which animals currently are housed or could be housed.

B. Potential disasters

The disasters described below include circumstances and events which either have occurred or are considered likely to occur in the vivarium. Management of these disasters is discussed in section 3, *Disaster Response*, beginning on page 10. 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 ISELF. 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 outlets for natural gas currently exist in the vivarium. Detection of its characteristic odor, therefore, must be assumed to indicate a leak elsewhere within or near ISELF.

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 anywhere within ISELF or an adjoining building can endanger personnel and animals. Not only may fire damage vivarium infrastructure or equipment and cause physical harm to personnel and animals, it can also release hazardous chemicals that may be transported to the vivarium via the building ventilation system.

iii. *Chemical fumes*

With the exception of ethanol and several federally regulated controlled substances, potentially hazardous chemicals are not routinely used or stored in the vivarium. Nonetheless, fumes from hazardous chemicals used outside of ISELF may be drawn into the vivarium via the building ventilation system. Obvious examples include sealants, adhesives or solvents used in building construction and renovation projects, as well as diesel exhaust produced by the standby generator located on the ISELF loading dock.

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 vivarium. Such events may require evacuation of vivarium personnel, which can reduce the level of care and security provided to animals.

v. *HVAC failure*

The vivarium houses only mice and rats, all of which are kept in four *actively ventilated* caging systems: two NexGen™ 70-cage mouse systems and two NexGen™ 35-cage rat systems (Allentown, Inc., Allentown, NJ, USA).

All cages within the NexGen™ systems are individually ventilated. Supply and exhaust blowers mounted atop each cage rack provide air changes at user-specified rates (detailed

information on caging systems is provided in section E below). Air is drawn from and exhausted into the holding room. As such, both the temperature and quality of air provided to cages depends on the temperature and quality of air within a holding room.

The recommended ranges for temperature and the rate of air change for the macroenvironments of laboratory rodents are 64-79°F (18-26°C) and 10-15 per hour, respectively (*Guide for the Care and Use of Laboratory Animals*, 8th ed., National Research Council, 2011). Deviations from the normal operation of the heating, ventilation and/or cooling systems in ISELF can cause the temperature of the macroenvironment, and thus the temperature within each cage, to exceed these limits.

vi. *Electrical failure*

The health and safety of all animals housed in the vivarium are critically dependent on an uninterrupted supply of electricity. Loss of electricity can result in immediate cessation of active cage ventilation, disrupt breeding activities or other physiological processes that depend upon or follow a circadian rhythm, and cause spoilage of animal foods maintained in frozen storage. In anticipation of such events, all lighting and many receptacles in the vivarium are linked to an industrial standby generator next to the ISELF loading dock.

vii. *Water system failure*

The ISELF building is equipped with two EMD Millipore Elix 100 reverse-osmosis water purification systems (EMD Millipore, Darmstadt, Germany). Both units are installed in a stacked configuration in ISELF 14 (mechanical room). A pump immediately “downstream” of the purification systems pressurizes a water distribution system through which purified water is distributed to numerous faucets and major equipment throughout ISELF. Two such faucets are in the surgical suite of the vivarium (ISELF 316 and 316B) and provide the only suitable source of drinking water for animal colonies.

Improper or inadequate maintenance of these systems (e.g., failure to replace reverse-osmosis membrane cartridges or pretreatment packs regularly) can cause them to fail. Similarly, a loss of pressure in the water distribution system caused by a pump failure, a leak within the distribution system, or a sudden spike in demand for purified water in ISELF can result in a failure of the water distribution system to provide purified water to the vivarium.

viii. *Card reader system failure*

All ISELF building entrances and most spaces within ISELF, including the vivarium, are secured by an electronic card reader system managed remotely and exclusively by the SCSU Department of Public Safety. No member of the IACUC, including the Institutional Official, nor any member of the COSE Dean’s Office or other university employee assigned to management of the vivarium or spaces that support activities conducted therein, bear authority over vivarium security and access control. Designation of this authority is set forth in the St. Cloud State University Key and Electronic Key Cards policy, which is attached to this document.

Mounted on or next to each door secured by this system is a magnetic stripe reader through which the magnetic stripe of an SCSU campus card must be passed in order to gain entry into the vivarium. The reading head of the card reader perceives the magnetically stored information on the card and communicates it to a remote database via the campus network.

The card reader then either grants (i.e., releases the door locking mechanism) or denies entry through a door depending upon the access rights assigned to a cardholder in the card-swipe database.

All doors bearing a card reader in the vivarium are also accessible with the ISELF master key or a campus grand master key. In light of the presence of the card-swipe system, however, keys for doors in ISELF are issued on a highly selective basis.

A failure in the electronics of a card reader, errors or omissions in the data entered into the card reader system database, or a loss of communication between a card reader and the database can result in a denial of access to campus cardholders who would otherwise have access to a particular door or doors within the vivarium and throughout ISELF. Loss of electronic access to the vivarium, or selected spaces within it, can prevent animal care staff and other users of the vivarium from performing critical animal care tasks or time-sensitive experimental treatments. It also inhibits disaster response by precluding immediate and sustained access to spaces in which equipment and supplies required for disaster response are housed.

Among the disasters described herein, unforeseen losses of electronic access and/or failures of campus card readers are the most frequently encountered issues impacting the vivarium.

ix. 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 vivarium. 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.

x. Epi- or pandemics

The emergence of an infectious disease at the municipal, county, state, or national level can preclude safe use of the vivarium and spaces that support activities conducted therein by students and personnel responsible for animal care and use. Guidance provided by governmental agencies and/or the university in response to such an event may require reduction, suspension, or termination of selected or all animal care and use activities.

xi. 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 preclude safe travel of vivarium employees and users to and from the vivarium.

C. Policy

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

- i. All persons present in the vivarium, 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 vivarium 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 and on page 17 must be notified immediately. If reasonable to do so, the conditions of personnel, animals, caging systems and vivarium infrastructure should be reported.

D. Authorities (*also see contact list on page 17*)

- i. In *all* matters of personnel health and safety, emergency responders such as the St. Cloud Police Department, the St. Cloud Fire Department, and/or SCSU Public Safety have authority and must be contacted first.
- ii. *Brian Lorenz, COSE Technical Staff.*

Brian Lorenz 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 vivarium infrastructure and caging systems and any threats to the health and safety of animals. In the absence of the veterinarians serving on the IACUC, Brian will have authority for animal health and disposition.

- iii. *Dr. Marina Cetkovic-Cvrlje, IACUC Member and Associate Professor of Biology.*

Excluding matters of personnel health and safety, Dr. Cetkovic-Cvrlje and Brian Lorenz will oversee disaster response and may delegate responsibilities as conditions require.

- iv. *Nancy Cowardin, DVM.*

As the attending veterinarian on the IACUC, Dr. Cowardin is the authority for animal health and disposition. In her absence, however, Brian Lorenz will have this authority.

E. Critical equipment

All animals currently housed in the vivarium are kept in two *actively ventilated* NexGen™ 70-cage mouse caging systems (Figure 1, Allentown, Inc., Allentown, NJ, USA).

All cages in the NexGen™ caging system are individually ventilated. A supply blower mounted atop each cage rack forces air into the rack's vertical rear supply plenum. Air is distributed from the plenum horizontally across the rear of each row of cage docking stations and supplied to each cage via a single air inlet (Figure 2a). All air drawn into the supply blower passes initially through a coarse pre-filter and subsequently through a HEPA filter to remove 99.995% of particulate matter from all air delivered to cages.

An exhaust blower mounted next to the supply blower draws air from each cage via an exhaust outlet on the rear of each cage docking station. All air exhausted from the cage rack passes initially through a course pre-filter and subsequently through a HEPA filter to ensure that particulates drawn from cages are not returned to the macroenvironment.

On the rear side of each cage bottom is a ventilation port that engages the supply air inlet of a docking station. On the rear side of each cage lid is a ventilation port that engages the exhaust outlet (Figure 2b). In order to achieve proper cage ventilation, a cage must be inserted into a docking station until the spring-loaded latch on the front of the docking station is completely closed. If the latch fails to close completely (i.e., cage is not inserted fully into the docking station), a yellow dot remains exposed on the docking station latch (Figure 2a).

The rates at which air is supplied and exhausted from cages are regulated by altering blower settings using proprietary software installed on a laptop PC linked to a blower via a Bluetooth connection. All cages currently receive between 55 and 60 air changes per hour.

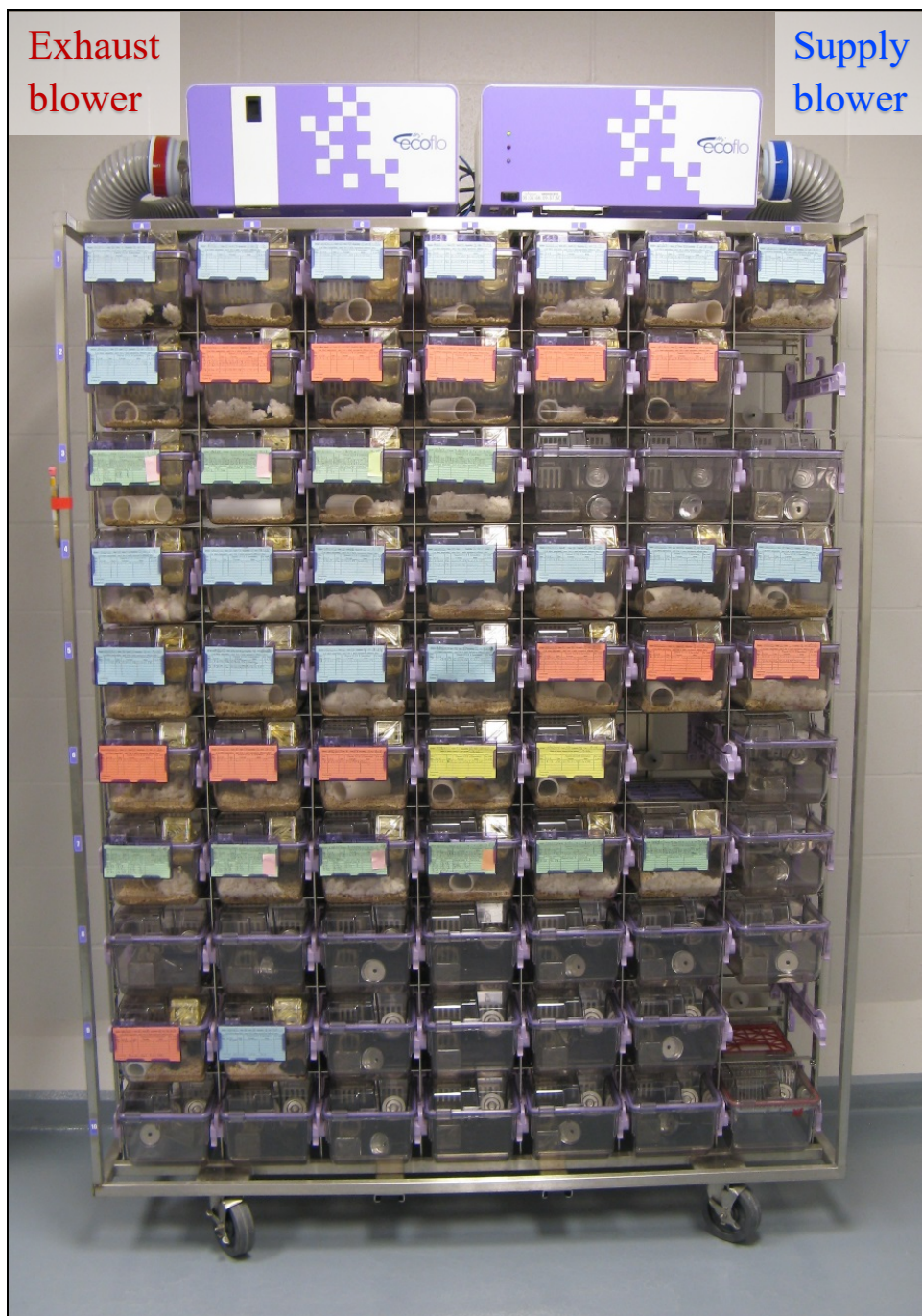


Figure 1. The NexGen™ mouse caging system

The NexGen™ caging system supports 70 cages and currently houses two strains of mice - C57/BL6J and NOD/ShiLtJ. Husbandry practices are identical for all strains.

Air flow requirements per cage

Recommended minimum: 50 Air changes per hour (ACH)

Actual: 55-60 ACH

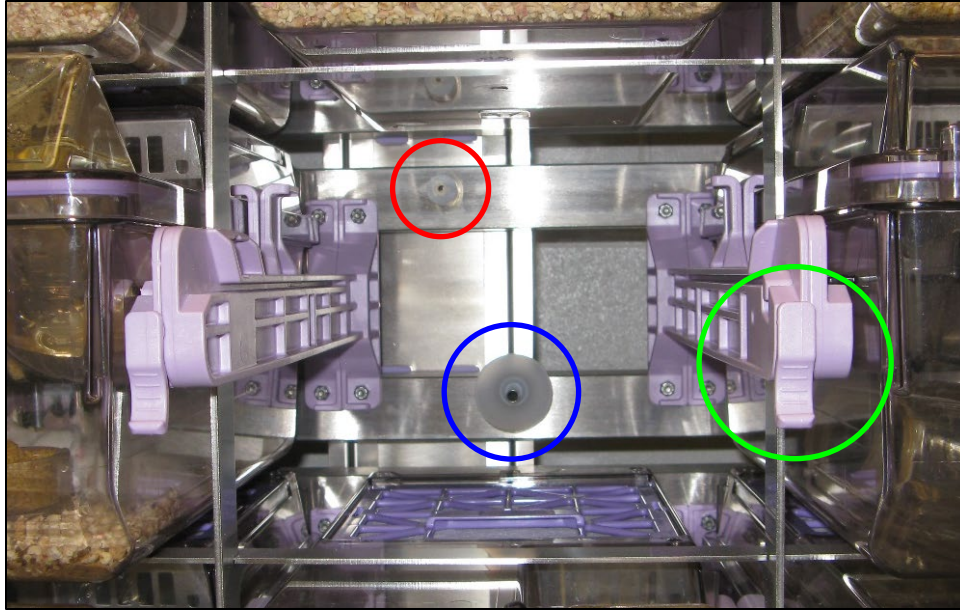


Figure 2a. Cage docking station, NexGen™ mouse caging system. Note the single stainless steel inlet for supply air (circled in blue) and the outlet for exhaust air (circled in red). The docking station latch (circled in green) must be closed completely in order to ensure proper cage ventilation. A yellow dot beneath the latch is exposed when a cage is *not* inserted fully into the docking station.

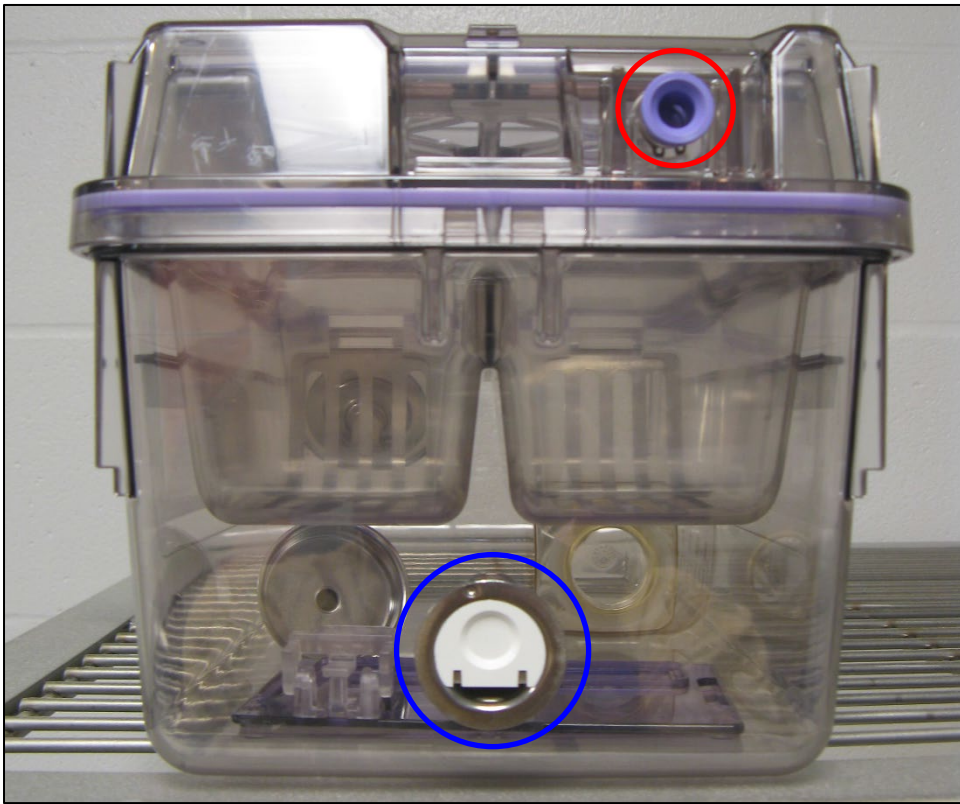


Figure 2b. NexGen™ mouse cage, rear view. Note the single-hole supply ventilation port (circled in blue) and the exhaust port (circled in red).

2. DISASTER PREPAREDNESS AND PREVENTION

A. Ongoing preparations

- i. Ensure that sufficient food and bedding are available at all times to sustain animal colonies for up to one month in the event that these items need to be reordered.
- ii. Maintain a fully supplied, all-purpose first aid kit in the vivarium.
- iii. Have basic tools available for simple repairs, turning off or disconnecting equipment, or removing/opening doors.
- iv. Have flashlights and batteries readily available in the vivarium storage room (ISELF 312). Replace the supply of batteries at least every three years to insure against loss of charge.
- v. Keep at least one spare cylinder of carbon dioxide available at all times in the Biology department stockroom (WSB 280).
- vi. Maintain up-to-date contact information for all authorities, emergency responders, and student employees who can assist with disaster response.
- vii. Keep up-to-date inventories of animal colonies.
- viii. Post and maintain a current version of the vivarium disaster plan and the *St. Cloud State University Emergency Procedure Guide* on the vivarium bulletin board.
- ix. Review and revise the disaster plan at least once annually to keep all information up to date. Distribute the disaster plan in electronic and hardcopy forms to all contacts, members of the IACUC, and Barb Kjellberg and Ann Sieben in the Biology department office (WSB 262).
- x. Review the vivarium disaster plan in full with all vivarium student employees at the start of their employment. Brian Lorenz 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 vivarium.

- i. Brian Lorenz will ensure that all scheduled tasks related to animal care and vivarium sanitation are completed daily 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 vivarium.
 - 1) The online safety training course entitled “Laboratory Emergencies – BASE” offered through the St. Cloud State University Office of Occupational Health and Safety.
 - 2) Online training in laboratory animal welfare offered through the Collaborative Institutional Training Initiative (CITI) Program.

- iii. ONLY animals currently housed in the vivarium or acquired from a widely recognized vendor of laboratory animals (e.g., The Jackson Laboratory or Charles River Laboratories) will be allowed to enter/re-enter the vivarium. All shipments of animals to be housed in the vivarium must be accompanied by documentation assuring animal health, such as a health status report for the breeding room in which the animals were produced and/or from which they were shipped.

ABSOLUTELY NO OTHER ANIMALS, OR PARTS THEREOF, ARE ALLOWED IN THE VIVARIUM.

- iv. Examination gloves will be worn by all vivarium users and employees when handling animals and/or cages in which they are housed.
- v. All electronic access issues encountered by vivarium users will be reported immediately to SCSU Public Safety. Brian Lorenz will be copied on all email communications submitted to Public Safety requesting restoration of access rights. All such access issues reported to SCSU Public Safety will be recorded on a log posted on the vivarium bulletin board. This information will be transmitted to the IACUC at least twice annually.
- vi. Brian Lorenz will consult SCSU Public Safety at least twice annually to request that all spaces within the vivarium, as well as all spaces that support activities conducted therein, remain accessible via the ISELF master key. This measure is intended to prevent loss of access to the vivarium during a failure of the campus card reader system and to ensure that the disaster responses described herein are not impeded by such failures. At a minimum, Brian Lorenz, the IACUC veterinarian, and the COSE Dean's Office will retain a copy of the ISELF master key.

(As noted previously, university policy assigns SCSU Public Safety exclusive authority over all physical locksets and electronic access control systems. As such, physical key access to the vivarium and all spaces that support activities conducted therein is subject to change.)

- vii. All sanitation tasks (e.g., cage washing, sweeping/scrubbing floors, cleaning countertops, etc...) will be performed by a vivarium employee. General Maintenance Workers have been instructed not to enter the vivarium for any reason. This measure is intended to minimize the likelihood of contamination of vivarium equipment by individuals unfamiliar with its use and also to minimize access to the vivarium for the health and safety of the animals.

3. DISASTER RESPONSE

A. General responsibilities

During a disaster, anyone present in the vivarium must:

- i. Determine immediately whether to exit the vivarium and proceed to a safe location.
- ii. Evaluate the status of all personnel present (injured, conscious, etc...), if reasonable to do so.
- iii. Contact the St. Cloud Police Department, the St. Cloud Fire Department and/or SCSU Public Safety immediately if any threats to personnel health and/or safety exist.

- iv. Contact Brian Lorenz if he is away from the vivarium.

If Brian is unavailable, contact Dr. Marina Cetkovic-Cvrlje.

See contact list on page 17.

- v. Evaluate the status of cages and caging systems and any damage to or malfunction of electrical and HVAC systems within the vivarium.
- vi. Return all animals in use to their cages. This includes animals outside of cages during cage-changing and cleaning, in a teaching or research lab, or otherwise being manipulated.

However, the impact of cessation of anesthesia or surgery on an animal should be considered prior to returning an animal to its cage.

B. Responding to specific conditions and events

i. Unsafe conditions

ALL PERSONNEL MUST EVACUATE THE VIVARIUM *IMMEDIATELY* IF ANY OF THE FOLLOWING CONDITIONS ARE DISCOVERED WITHIN OR NEAR ISELF:

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

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 vivarium bulletin board for additional information regarding personnel health and safety procedures.

Any unsafe condition discovered in the vivarium or elsewhere in ISELF must be reported to one or more of the authorities and/or emergency responders listed on page 17.

ii. Animal rights demonstration

If an animal rights demonstration is known to be occurring on or near campus, all doors within the vivarium, as well as the east and west entry doors, must remain closed and locked at all times. All entrance into the vivarium 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 vivarium is mandatory. The St. Cloud Police Department and/or SCSU Public Safety must be contacted immediately.

iii. *HVAC failure*

a. *Ventilation*

Air is supplied to all spaces within the vivarium via a dedicated air handler known as Air Handling Unit 3 (abbreviated AHU-3). In the event that air is no longer proceeding from one or more of the ceiling-mounted air diffusers, SCSU Facilities Management must be notified immediately.

See contact list on page 17.

Air is exhausted from all spaces within the vivarium via a dedicated exhaust fan known as Exhaust Fan 3 (abbreviated EF-3). In the event that air is no longer being drawn into either the ceiling mounted exhaust grills or holding room exhaust drops, SCSU Facilities Management must be notified immediately.

See contact list on page 17.

b. *Excessive heat*

The temperature throughout the vivarium is usually maintained at 72°F. If there is reason to suspect that the temperature has exceeded 79°F, verify the temperature in each holding room and throughout the remainder of the vivarium using a thermometer - one is kept among the office supplies in the glass-front cabinets in room 316 of the vivarium.

If any temperature reading within the vivarium exceeds 79°F, SCSU Facilities Management must be notified immediately. When contacting Facilities Management, be prepared to indicate the identity of the air handling unit and/or exhaust fan that serves the vivarium (discussed in Section a above).

See contact list on page 17.

If the temperature within the vivarium cannot be reduced to less than 79°F within one half-hour, the caging system(s) within that room should be moved to a cooler location outside of the vivarium. See section 3C, *Evacuating animals*, on pages 15 for more information.

c. *Insufficient heat*

The temperature throughout the vivarium is usually maintained at 72°F. If there is reason to suspect that the temperature is less than 64°F, verify the temperature in each holding room and throughout the remainder of the vivarium using a thermometer - one is kept among the office supplies in the glass-front cabinets in room 316 of the vivarium.

If any temperature reading within the vivarium is less than 64°F, SCSU Facilities Management must be notified immediately. When contacting Facilities Management, be prepared to indicate the identity of the air handling unit and/or exhaust fan that serves the vivarium (see Section a above).

See contact list on page 17.

The professional judgment of one or more of the authorities listed on page 17 should be considered when the temperature within a holding room falls below 64°F. Heat loads created by animals usually keep the temperature within a cage slightly higher than that of the macroenvironment.

When the temperature within a holding room falls to a point considered by one or more of the authorities to be potentially detrimental to the health of the animals, or if the temperature cannot be raised sufficiently to ensure the health of the animals, the caging system(s) within that room should be moved to a warmer location outside of the vivarium. See section 3C, *Evacuating animals*, on pages 15 for more information.

iv. Electrical failure

All lighting, electrical receptacles in holding rooms, and selected receptacles elsewhere in the vivarium are linked to the large Generac industrial generator situated on the southwest side of the ISELF loading dock. All receptacles on standby power are labelled as such. In the event of an electrical failure within ISELF, lighting, all caging system blowers, and the small refrigerator/freezer in ISELF 308 will be maintained on standby power. No intervention should be necessary.

If it becomes necessary, however, to obtain items from other spaces in ISELF or adjacent buildings that are not supported by standby power, flashlights and spare batteries are kept in ISELF 312 (storage) for this purpose. An ISELF master key may be necessary for access to this space.

See contact list on page 17 to determine whom to contact for access.

v. Food and water

In the event that conventional foods, such as rodent chows for rats and mice, become unavailable, alternative foods may be used. In most cases, however, an attempt should be made to acquire appropriate animal foods from a local feed supply company or pet store (e.g., PetSmart, or Petco).

In the event that purified water from the ISELF water purification systems is not available or becomes unsuitable for consumption by laboratory animals, bottled drinking water may be used.

vi. Card reader system failure

In the event of a failure of the campus card reader system and/or one or more card readers or locksets securing the vivarium or any space supporting activities conducted therein, SCSU Public Safety must be contacted first. An SCSU Public Safety officer will be dispatched to provide remedial physical key access. The event must be reported to Brian Lorenz on the day on which it occurs and documented on the card reader log posted on the vivarium bulletin board. Brian Lorenz must be copied on all email communications submitted to SCSU Public Safety regarding such loss of electronic access.

Per university policy (see attached), Brian Lorenz will not provide to anyone remedial physical key access to the vivarium or any spaces that support activities conducted therein in the event of a loss of electronic access.

In lieu remedial physical key access, five back-up electronic access cards are maintained in the vivarium. The door plans associated with these cards provide expanded hours access to all spaces within and outside of the vivarium currently utilized for IACUC-approved research activities conducted by members of the laboratory of Dr. Marina Cetkovic-Cvrlje. These cards will be issued by, and at the discretion of, Brian Lorenz exclusively to vivarium users and only on an as-needed basis. They may be retained by the individual(s) to whom they are issued until all approved access rights are restored to their campus cards.

In the event of a building- or campus-wide failure of the card reader system, back-up electronic access cards will not be issued, as they will not be operational.

See contact list on page 17.

vii. Epi- or pandemics

In light of the highly variable nature of infectious agents, their communicability, and the severity of symptoms that may result from exposure to them, management of animal colonies housed in the vivarium must be responsive to evolving information, most notably any changes in the level of threat that an epi- or pandemic presents to those who utilize the vivarium or support activities conducted therein. This response must be guided by Brian Lorenz and/or the IACUC and incorporate all guidance provided by university administration, the Chancellor of the Minnesota State Colleges and Universities system, the Minnesota Department of Health, the Minnesota Governor's Office, and any federal agencies with oversight in epi-/pandemic response.

viii. Severe weather

If vivarium employees and/or authorities listed in this document are unable to travel safely to the vivarium 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 vivarium during or immediately prior to a tornado or damaging winds must seek shelter in the areas designated on the emergency evacuation route map on page 20. Additional information regarding severe weather response is provided in the *St. Cloud State University Emergency Procedures Guide* posted on the vivarium bulletin board and accessible online at <http://www.stcloudstate.edu/emergency/procedures>.

If severe weather is anticipated to occur, the following steps should be taken on the day prior to the anticipated weather event to minimize risks to the health and safety of the animals:

- a. Fill feeders and water bottles in all cages to maximum capacity;
- b. Replace bedding in all cages;
- c. Fill storage bins for food and bedding;
- d. Wean all litters that are between 18 and 20 days of age;
- e. Unplug all electrical equipment that *does not* require a continuous supply of electricity.

HVAC and/or electrical failures resulting from severe weather should be managed as discussed in sections B.iii and B.iv. above.

C. Evacuating animals

The removal of animals and caging systems from the vivarium should be considered only when this activity does not threaten personnel health and safety and after all other options for the assurance of animal health and safety have been considered. A decision to remove animals and caging systems from the vivarium must be made by, or in consultation with, one or more of the authorities listed on page 17.

Below is a list of rooms that have been pre-designated for temporary storage of animals and caging systems. Rooms are listed in the order in which they should be considered for this purpose. Regardless of where caging systems are placed, active ventilation of all systems must be restored immediately by connecting both blowers on each rack to live electrical receptacles.

i. *Wick Science Building, room 203.*

Animals and caging systems may be stored in this room only if all components of the building HVAC and electrical systems are working properly. Caging systems should be situated along the northern wall of this room between its two doors.

ii. *Brown Hall, room 218 (Science Education Prep Room) OR
Brown Hall, room 217 (Science Education classroom) – may only be used on days when classes are not scheduled.*

Animals and caging systems may be stored in either of these rooms when conditions resulting from a disaster require their removal from the ISELF building.

In room 218, caging systems should be situated as nearly as possible to the back wall.

In room 217, caging systems should be situated near the dry-erase boards (i.e., the “front” of the room).

In order to minimize exposure of the animals to sunlight, which can induce phototoxic retinopathy in albino animals, window openings should be covered as completely as possible by pulling down the shades.

Regardless of where animals and caging systems are stored following a disaster, security for the animals must be maintained. Any room in which animals and caging systems are stored must remain locked, and access to the animals should be minimized.

When placing animals in a room with interior windows (e.g., windows within or around entry doors), cages must be placed in locations that minimize their visibility from outside of the room.

As none of the rooms listed above provide for the regulation of diurnal light cycles, an attempt should be made to provide daily light:dark cycles of approximately 14:10 hours (e.g., turn on lights at 5:30 AM and turn off lights at 7:30 PM). All animal care activities must be completed on a daily basis.

D. Euthanasia

The ISELF vivarium houses only laboratory mice and rats. A widely accepted and well-documented method of humane euthanasia for small rodents is carbon dioxide (CO₂) asphyxiation (*AVMA Guidelines for the Euthanasia of Animals: 2020 Edition*). A cylinder of compressed CO₂ is kept in ISELF 316 at all times for this purpose. A spare cylinder of CO₂ can be found in Wick Science Building room 280, the Biology department stockroom.

The standard chamber for CO₂ asphyxiation is an empty 10-gallon aquarium. If no chamber is present near the CO₂ cylinder in ISELF 316, or if the one present is damaged in any way, additional 10-gallon aquaria may be found in the vivarium cage wash room, ISELF 310.

IN THE EVENT OF A DISASTER, EUTHANASIA MAY BE PERFORMED ONLY BY ONE OF THE THREE *AUTHORITIES* LISTED BELOW.

Contacts	Position	Contact information
<i>Authorities</i>		
Brian Lorenz	Animal Facility Supervisor	Wick Science Building 290 ISELF 305 Office: 320-308-4911 Mobile: 320-249-9686
Dr. Marina Cetkovic-Cvrlje	Professor of Biology; IACUC member	Wick Science Building 268 Office: 320-308-3490 Home: 651-748-3750 Mobile: 651-434-1992
Dr. Nancy Cowardin, DVM	IACUC Veterinarian	Mobile: 320-291-2689
<i>Emergency Responders</i>		
SCSU Public Safety Department	n/a	320-308-3333 Emergencies: 911
Mamun Raman, SCSU Public Safety Department	Access Control Manager	For all card reader access concerns: 320-308-2040
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>		
Facilities Management	n/a	During business and non-business hours: 320-308-3166



Emergency Evacuation Route Map

IN CASE OF FIRE:

Take closest stair down two levels and exit the building.
Elevators will be out of service.

SEVERE WEATHER:

In case of Severe Weather go to interior rooms or proceed down three levels to basement.



UPON EVACUATING THE ISELF BUILDING, PROCEED TO A LOCATION ON THE *OPPOSITE SIDE* OF ANY OF THE STREETS SURROUNDING THE BUILDING. **DO NOT REMAIN NEAR THE BUILDING.**