Northern Kentucky University

Institutional Animal Care and Use Committee (IACUC)

Animal Care and Disaster Management Plan

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I. Purpose and Scope

Northern Kentucky University (NKU) is committed to ensuring that animals used by NKU faculty, staff and students are treated in a humane, ethical manner and with the highest standard of care according to Federal, State, and local regulations. This document is intended to provide NKU's Institutional Animal Care and Use Committee (IACUC), faculty, staff and students, a plan of action in the event of an emergency that impacts the animals housed on campus.

The purpose of this plan is to protect and manage the animals on campus in the event of an emergency, but under no circumstances should any researcher, staff or student put themselves at risk or personal danger at any time.

II. Background

Responsibility of taking care of and moving animals, if necessary, resides with the Principal Investigator (PI).
If the situation does not allow time for PI or delegated research staff to move animals, the Director of Safety and Emergency Management may delegate this activity to resources available.

An emergency is an event such as a fire, tornado, hurricane, earthquake, severe snowstorm, chemical spill, civil disturbance, electrical or water outage or equipment failure that may cause harm or injury to an animal.

Emergency response and recovery plans are required by the PHS Policy on Humane Care and Use of Laboratory Animals, the Guide for the Care and Use of Laboratory Animals (Guide), the Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching (Ag Guide), and the USDA Animal Welfare Act Regulations.

This plan covers animal care and use facilities. Contact the IACUC Chair or the IACUC Administrators for a full list of active laboratories and rooms.

Normative State
All NKU labs have access to backup generators and emergency electrical outlets.

III. Chain of Command

The PI and/or designee, appropriate Lab Manager, IACUC Chair and IACUC Administrator should be enrolled in Norse Alert. To obtain additional information regarding the emergency, the PI and/or designee should contact the NKU Department of Safety and Emergency Management.

The chain of command may be emergency and building-specific. The PI is responsible for notifying the following individuals after any event that may impact or has impacted animals on campus:

1. The appropriate Lab Manager – immediately;
2. The IACUC Chair – within 24 hours;
3. The IACUC Administrator – within 24 hours.

If the emergency/disaster results in animal pain, distress or death:

1. The Institutional Official - within 72 hours;

2. The Veterinarian (both study-specific (if utilized) and the IACUC Veterinarian) – within 24 hours.

In the case of an emergency or disaster discovered by someone other than the PI, that person/department should:

1. Use appropriate means to notify those in the immediate area. Contact University Police by calling 911 or 572-7777. Follow the NKU Emergency Guide, which can be found on the NKU Safety and Emergency Management website.
2. Notify the appropriate PI via the IACUC Lab-Specific Disaster Plan Worksheet (located in each lab) – once it is safe to do so.

If the NKU Emergency Operation Plan is activated, all activities shall be coordinated through the Emergency Operation Center (EOC) Academic Coordinator (859-448-8605). If the EOC is not required then coordination will be through the Incident Command Post (typically this will be the Police Officer in Charge or the Fire Chief on scene).

IV. Preparation for Emergencies

A. Appropriate steps will be taken to assist in preventing the occurrence of emergency situations by:
   1. Maintaining building and laboratory security by allowing only authorized individuals access to animal care and use rooms. Principal Investigators and study staff are required to notify University Police if there are problems with unauthorized personnel or crisis (break-in, vandalism, etc.) in an animal facility.
   2. Minimizing safety hazards by following KY OSH Regulations and applicable university policies and procedures. NKU university-specific safety policies can be found here.
   3. Keeping abreast of extreme weather conditions when appropriate.

B. Documentation
   Each Principal Investigator, in conjunction with the appropriate Lab Manager, is responsible for completing the IACUC Lab-Specific Disaster Plan Worksheet with relevant lab-specific information to utilize in case of an emergency or disaster.

   1. Each animal housing facility must have:
      a. IACUC Lab-Specific Disaster Plan Worksheet
         i. Which includes names and contact information for the following:
            - Principal Investigator
            - Primary Laboratory Contact
            - Lab Manager
            - IACUC Veterinarian
            - Any study-specific Veterinarian
         ii. Acceptable locations to move animals to:
            - Within the same building
            - To a different NKU building
            - Off campus
      b. Cage/tank cards that clearly state which animals are deemed critical or irreplaceable to save if it becomes necessary to choose per the NKU Cage and Tank Card Requirement SOP.

C. Supplies

Each lab should have all emergency supplies on hand in preparation of a disaster or emergency.

1. Store a supply of food, bedding, water (or water substitute like hydrogels) and personal protective equipment (PPE) at all times;
2. Ensure adequate euthanasia and basic medical supplies for all animals on census;
3. Obtain and store the following supplies: flashlights/head lamps, batteries, first-aid kit;
4. For locations that may require animal care staff to remain on site overnight, obtain and store air mattress/cots, food rations for personnel, flashlights/head lamps, drinking water;
5. Ensure essential personnel have necessary access, keys to supply storage, etc.

V. Emergency Plan Activation

A. Level 1 Emergency - Most emergency events can be handled by research personnel and facility staff. These include short term power outages and severe weather.

B. Level 2 Emergency - Though infrequent, there may be catastrophic emergencies, such as a tornado or fire, which might require outside assistance (or require priority care to human safety over animal care if that outside assistance is not immediately available). Section XI of this document outlines appropriate action in the event of a minor or catastrophic emergency.

C. Advance Notice
If advance notice of emergency is given (e.g. blizzard, pandemic flu), the following provisions should be made:
1. Fill all food containers in animal rooms with food;
2. Fill all receptacles with water (plastic lined garbage cans, carboys, etc.);
3. For animals on automatic water (rodents in IVC racks, some NHPs, etc.) place extra water bottle on cage.
4. For aquatic animals:
    a. Fill extra tanks with de-chlorinated water;
    b. Feed per protocol specification;
    c. Ensure water levels in aquatic tanks are adequate.

D. In the event of power failure, back up energy generators, ventilation systems, etc. should work. If for some reason, the backup systems fail:
1. Verify that all ventilated cage racks are plugged into emergency power outlets and are operational. If units are not operational, open doors to animal rooms to aid in ventilation;
2. Open all animal room doors to interior hallway.

VI. Action Plans

A. Triage

Never endanger your personal safety. First responders should triage all emergencies to the Incident Command Post or Emergency Operation Center.
1. Determine overall safety of the situation
2. Assess structures (safe to enter?)
3. Assess scale of emergency (see Animal Evacuation Plans below)
4. Anticipate length of time to regain normalcy
    a. Less than 24 hours = shelter in place

b. ≥ 24 hours = move per Animal Evacuation Plans listed below

B. Animal Evacuation Plans

NKU IACUC Transportation of Animals SOP will be followed unless transportation can be arranged through NKU tunnels.

1. Small-scale incident (e.g., those involving 1 - 4 animal housing rooms)
   Animals should be relocated to nearby rooms or facilities with the goal of continuing routine animal care procedures. Available space should be evaluated in terms of strengths and weaknesses in accommodating the species to be moved, equipment needed, and staff to reassign as needed. A list of acceptable rooms for relocation can be located on the IACUC Lab-Specific Disaster Plan Worksheet which is displayed on the information wall within each lab.

2. Medium-scale incident (e.g. large segments of a facility or building, including animal treatment rooms)
   Animals may be relocated (in cages plus cage racks, transport cages, etc.) to essentially open available space (corridors, tunnels, receiving dock). These spaces are not designed to house animals and would be a temporary stop-gap as animal care would be severely constrained by the lack of environmental control or lack of design features such as HVAC, plumbing, etc. The goal of this evacuation would be to save animal lives when no alternative is available or as a temporary solution prior to primary relocation. A list of acceptable building/rooms for relocation can be located on the IACUC Lab-Specific Disaster Plan Worksheet which is displayed on the information wall within each lab.

3. Large-scale incident (e.g. whole buildings, animal facilities, campus are impacted)
   Relocation of animals to a different building or campus, as transportation is available. The goal of this approach is to get the animals to a new location in which basic animal care procedures can be performed. A list of acceptable off-campus locations for relocation can be located on the IACUC Lab-Specific Disaster Plan Worksheet which is displayed on the information wall within each lab.

C. Animal Euthanasia

In the event that all other options have been exhausted, the Institutional Veterinarian can give the order that animals should be humanely euthanized. Any responsible veterinarian can make a euthanasia determination at any point in time about specific animals based on their health and welfare, but only the Institutional Veterinarian can make the determination that all animals will be euthanized. Cage cards should be consulted to determine if there is a priority order to saving animals.

VII. SPECIAL CIRCUMSTANCES

A. HVAC loss

Essential animal facility HVAC systems have backup power and systems that will automatically transfer on, however, any major utility failure should be reported per NKU Department of Operations and Maintenance for the building where the facility is located. If the animal room environment cannot be maintained within Guide parameters, the animals may need to be relocated (refer to Animal Evacuation Plans).

1. Overheating: What is causing the overheating?
    a. Move animals to rooms that are not over heating or to the hallway if it is cooler.
    b. If the whole animal facility is overheating, mobile cooling stations can be utilized to reduce the heat load.
    c. If animal rooms cannot be cooled, the Principal Investigator (in consultation with the Veterinarian) if necessary will make the decision to relocate (refer to Animal Evacuation Plans) or euthanize the animals if they are in distress.

2. Loss of Heat:
    a. Move animals to rooms that have heat or to the hallways if it is warmer.
    b. Use auxiliary heaters in animal rooms that have no heat.
    c. If animal rooms cannot be warmed or a warm place within the animal facility cannot be found, the Principal Investigator (in consultation with the Veterinarian if necessary) will make the decision to relocate (refer to Animal Evacuation Plans) or humanely euthanize the animals if they are in distress or danger.

VIII. NKU Animal Research Pandemic Phased Contingency Plan (Last revision: August 17, 2021)

A. Introduction

This plan has been developed to: 1) mitigate the spread of pathogens that may affect the care and use of research animals, and 2) maintain animal care and use in an optimal manner under pandemic conditions while minimizing risks to personnel. It is based on a plan developed by Johns Hopkins University on March 18, 2020 in response to spread of the SARS-CoV 2 virus, a pandemic plan posted by the National Institute of Health (NIH) Division of Veterinary Resources, a webinar presented by the Office of Laboratory Animal Welfare (OLAW) on March 19, 2020, and the experiences of researchers at Northern Kentucky University (NKU) during the 2020-21 COVID-19 campus closures and restrictions.

The guidance provided by this plan is not intended to supersede the existing NKU Institutional Animal Care and Use Committee (IACUC) disaster plan. The NKU Institutional Official, IACUC chair, IACUC committee members, and principal investigators (PIs) will be charged with deciding the best course of action in cases where the two plans diverge or do not provide sufficient guidance.

NOTE: *It is likely that some aspects of this plan will change in response to unexpected conditions.*

B. Background

Guiding Principles**:**
Throughout the planning and execution of this plan and all other activities, the NKU IACUC and animal researchers have three primary obligations. In order of priority, these are:

1. Ensuring the safety and well-being of employees, researchers, and other people working with animals or performing ancillary work (e.g., custodial personnel) related to their care.
2. Ensuring the health and welfare of research animals.
3. Ensuring the continuity and integrity of animal research at NKU.

With these obligations in mind, the IACUC has developed this phased contingency plan. These phases are specific to the animal research mission and do not reflect the overall approach by NKU to pathogen containment and mitigation.

C. Actions to be taken if significant community pathogen spread seems imminent:
    1. Each PI provides up-to-date information on critical lab personnel (names, role, email, campus phone, and cell phone) to IACUC chair.
    2. Each PI provides current census of animals by species to IACUC chair.
        a. Indicate number of animals by species that are critical (i.e., irreplaceable genetic strains or lines). Provide animal identification numbers if possible for critical animals.
    3. Contact IACUC (iacuc@nku.edu) immediately in the case that lab staff are unable to maintain normal animal care, monitoring, or required experimental treatments/procedures.

D. Phased Deployment of Contingency Plan:

    1. PHASE ONE:
        a. Examples of triggering conditions for deployment**:** Evidence of community spread within Northern Kentucky, confirmed cases among NKU employees, other significant forms of impact on the NKU community (e.g., campus-wide move to remote instruction, social separation measures).

        b. Changes to research operations:
        Rodent users:
            i. Limit ordering of new animals and breeding.
            ii. Delay non-time-sensitive animal experiments.
            iii. Changes to animal care operations:
            iv. All work performed respectful of social distancing recommendations. Limit one person per room in animal housing rooms.
            v. Wear PPE (gloves, mask, lab coat) at all times when in housing or testing rooms. Sanitize hands before and after animal work. Sanitize work surfaces with 70% alcohol, germicidal wipes, or other appropriate disinfectant.
            vi. Coordinate with key university safety and health personnel to determine if supplemental training is needed for safe operations and minimizing pathogen exposure and spread.
            vii. IACUC chair confers with Founders Hall Vivarium staff on a regular basis to review operational and staffing concerns and to plan actions to ensure that staff are safe and animal care is not compromised.
            viii. IACUC chair monitors guidance from NKU, NIH, OLAW, Centers for Disease Control, and other sources regarding potential impact of containment strategies and restrictions on personnel safety and animal care.
            ix. IACUC chair summarizes and communicates this information to NKU animal users and staff, and administrators on an as needed basis.

    2. PHASE TWO:
        a. Examples of triggering conditions for deployment**:** Evidence of community spread within Northern Kentucky or among NKU employees, significant absenteeism, significant disruption to local infrastructure (e.g., city or county school closures).

        All changes listed here are in addition to or extend those listed above for Phase One.

        b. Changes to research operations:
        Rodent users:
            i. PIs should mark cages and tanks according to priority and make provisions for necessary ongoing experimental treatments/procedures.

ii. Animal orders and imports/exports will be halted except in extenuating circumstances.
iii. Breeding of genetically unique lines of animals should be restricted to the minimum necessary to sustain each line.
iv. Labs should not begin new experiments involving BSL-2 agents.
v. Labs must inform the IACUC immediately if lab staff are unable to continue required ongoing experimental treatments, breeding colony management, etc.

c. Changes to animal care operations:
   i. IACUC chair shares emergency contact and census information from each lab with campus police and the institutional official.
   ii. Campus police are notified that vivarium manager, faculty and research staff are working with animals, and students assigned to animal care are deemed essential and should be allowed to access facilities.
   iii. Faculty, staff, and students assigned to animal care should only be on campus to perform essential animal care and experimental procedures. All other non-animal duties should be performed away from campus.
   iv. Caretaking duties include:
      a. Cage changing,
      b. Feed and water to animals,
      c. Cage and tank cleaning,
      d. Facilities sanitation.
   v. IACUC chair will contact NKU Facilities to ensure that essential services are provided (HVAC, lighting, water, access to buildings and rooms related to animal care, custodial service where possible).
   vi. Vivarium manager and IACUC chair to coordinate receipt of any deliveries.

3. PHASE THREE:

a. Examples of triggering conditions for deployment**:** NKU on emergency closure (e.g., operations support staff are not allowed on campus, restrictions on some essential staff), massive disruption of local infrastructure, government-imposed movement restrictions.

b. Changes to research operations:
   i. As above in phase 2.
   ii. Labs must not begin any new animal experiments except those approved by Dean or Provost.
c. Changes to animal care operations:
   i. As above in phase 2, with the below additions/changes.
   ii. Decrease routine facility cleaning in common areas by 50%.
   iii. If a supply issue is limitation, then do not discard masks, gloves, and coveralls as frequently; use more durable equipment than disposable.
   iv. Change individually vented cages every two weeks. Static cages with filter tops will need to be maintained on a regular weekly change schedule.
   v. Completely dump and refill feed every other week (being mindful of preserving feed).
   vi. PIs and IACUC chair to consider euthanasia of animals based on PI priorities and required and available effort to maintain animal health and well-being.

NOTE: Regarding protocol modifications necessitated by limitations enacted in each phase:
If an investigator ramps down animal research activities, they may consider transferring their animals to a holding protocol, with the expectation that their research protocols may require modifications when facilities become operational. As with individual protocols, the transfers must be documented, and the investigator should determine beforehand that capabilities are in place to provide husbandry and veterinary care to transferred animals. Animal care costs (e.g., food, bedding) during this time are allowable for animals placed on an IACUC-approved holding protocol and maintained throughout the duration of a research stoppage. NIH grant recipients may re-budget funds to accommodate unanticipated costs without prior approval when re-budgeting does not constitute a change in scope and is not restricted by the terms and conditions of award (see NIH GPS 8.1).

IX. Training

See Table 2 Role Specification for details regarding training on the IACUC Disaster and Emergency Plan.

X. External Coordination

The NKU Emergency Operations Center will maintain regular communications with appropriate city, county and state agencies throughout the duration of a disaster.

XI. Response and Recovery

A. Once access is granted back in to the facility, the environmental conditions must be assessed and recommendations communicated if conditions need to be improved.
B. Locate areas of known hazards (or animals injected with hazards); stabilize these animals and environments first.
C. Animal health assessments should be completed in order to provide critical care and maintain biosecurity. Triage all animal survivors and classify them into categories of health and exposure to environmental conditions outside of the cage. Remove animal carcasses and store for disposal.
D. Conduct brief animal inventory to assess animals unaccounted for.
E. Provide animal enclosure cleaning as necessary to minimize animals being in wet or dirty cages. If equipment or power failure still exists, hand sanitization of caging or other equipment with a diluted bleach solution and rinse may be necessary
F. Euthanasia determining factors:
    a. Pain/distress, beyond rescue;
    b. Availability of feed, caging, rooms, environment, species requirements;
    c. Investigator input, unless suffering as determined by veterinarian;
    d. Loose, unidentified animals;
    e. Euthanasia should only be completed by a trained individual.

XII. Emergency Outline and Contacts

Table 1 Emergency Contacts

Description of Emergency	Contact	Response
Chemical spill, radiation or biohazard exposure/spill	Department of Safety and Emergency Management #6522, NKU Police #7777	Avoid contact, warn others in area
Equipment or Power Failure/Malfunction	Operations and Maintenance #5660/ #7777after hours	Avoid hazards
Demonstration	Marketing and Communication #6574 NKU Police #7777	Stay calm, do not speak to demonstrators
Bomb Threat	NKU Police #7777	Wait for emergency personnel to arrive
Fire	NKU Police #7777 and/or #911	Evacuate the premises
Catastrophic disaster (Earthquake, terrorism, tornado)	NKU Police #7777 and/or #911	Protect self (lock doors, under tables)

XIII. Role Specification

Table 2: Role Specification

Role	Responsibility
Principal Investigator, Research Staff and Lab Manager	Trained on disaster plan, management and implementation
	Familiarity with the facility floor plans and evacuation routes
	Animal transport
	Create and maintain a project/lab specific IACUC Lab-Specific Disaster Plan Worksheet
	Knowledge of fire extinguishers, emergency phone numbers, fire alarms, and emergency supplies such as flashlights and first aid kits.
Student	Familiarity with the facility floor plans and evacuation routes
Veterinarian	Trained on disaster plan, management and implementation
IACUC Chair	Trained on disaster plan, management and implementation
IACUC Administrator	Trained on disaster plan, management and implementation
	Knowledge of fire extinguishers, emergency phone numbers, fire alarms, and emergency supplies such as flashlights and first aid kits.
	Completion of the NKU IACUC Disaster/Emergency Tracking Form
Maintenance workers	Trained on disaster plan, management and implementation
NKU Safety and Emergency Mgmt	Trained on disaster plan, management and implementation
Police	Incident dependent
Housekeeping	Incident dependent
Marketing	Incident dependent

Approvals

Title	Approved	Date Approved	Not Applicable
Manager of Research Compliance	☒	11/27/2018	☐
IACUC Chair	☒	11/27/2018	☐
Director, Safety & Emergency Mgmt	☒	03/04/2019	☐
Institutional Official	☐		☐

Revisions

Title	Approved	Date Approved	N/A	Summary
Manager of Research Compliance	☒	10/07/2021	☐	Addition of Pandemic Plan, other minor revisions
IACUC Chair	☒	10/07/221	☐	Addition of Pandemic Plan, other minor revisions
Institutional Official	☐		☐	