STAFF SUMMARY FOR AUGUST 7-8, 2019

3. TRANSGENIC ZEBRAFISH (CONSENT)

Today's Item **Information ☐** **Action ☒**

Review and consider action on a restricted species permit approved by DFW for Chapman University to possess transgenic zebrafish.

Summary of Previous/Future Actions

- Recieved notice of application — Jun 12-13, 2019; Redding
- **Today consider action on DFW permit issuance** — **Aug 7-8, 2019; Sacramento**

Background

Fish and Game Code Section 15007(d) authorizes medical or scientific research conducted on transgenic finfish species by accredited California academic institutions, or by private entities for research only, through a restricted species permit issued by DFW pursuant to Section 671 of Title 14.

Pursuant to Section 671.1(a)(8)(H), when DFW determines that a restricted species permit for transgenic aquatic animals can be issued, the decision must be reviewed by FGC. FGC may deny DFW's issuance of the permit if it determines that the applicant is unable to meet the regulatory requirements for the importation, transportation, possession, and confinement of transgenic aquatic animals.

At the Jun 2019 FGC meeting, DFW notified FGC that it had received a restricted species permit application from Chapman University to posess transgenic fish for biomedical research, and recommended that a permit be issued. This item is an opportunity for FGC to review DFW's decision and to consider whether to deny issuance of the restricted species permit (Exhibit 1).

Significant Public Comments (N/A)

Recommendation

FGC staff: Do not deny the issuance of a restricted species permit to Chapman University, under a motion to adopt the consent calendar.

DFW: Allow issuance of a restricted species permit to Chapman University.

Exhibits

1. DFW memo and permit application from Chapman University, received Jun 4, 2019

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the staff recommendations for items 3-5 on the consent calendar.

State of California
Department of Fish and Wildlife

Received June 4, 2019
Original signed copy on file

Date: May 31, 2019

To: Melissa Miller-Henson
Acting Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

Subject: **Agenda Item for the June 12-13, 2019 Meeting: Receipt of Restricted Species Permit Application to Possess Transgenic Zebrafish**

Chapman University has applied for a Restricted Species Permit to possess transgenic zebrafish (*Danio rerio*). According to Title 14, Section 671.1(a)(8)(H), all approved applications to possess a transgenic aquatic animal shall be reviewed by the Commission at a regularly scheduled meeting. The Commission may deny the issuance of a permit if it determines that the applicant is unable to meet the regulatory requirements for the importation, transportation, possession, and confinement of transgenic aquatic animals.

The transgenic zebrafish will be used for biomedical research. Zebrafish have become a popular and commonly used organism for the study of vertebrate gene function and human genetic disease. The Department currently permits approximately 20 facilities to possess transgenic zebrafish for the purpose of biomedical research. Chapman University has agreed to comply with containment and security conditions as specified in Title 14 of the California Code of Regulations. Fisheries Branch has coordinated with the regional staff responsible for this area and the Fish Health Lab. The Department recommends issuing Chapman University a Restricted Species Permit to possess transgenic zebrafish.

If you have any questions or need additional information on this matter, please contact Kevin Shaffer, Chief, Fisheries Branch at (916) 327-8840.

Attachment

ec: Stafford Lehr, Deputy Director
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State of California – Department of [illegible] and Wildlife

2019 NEW RESTRICTED SPECIES PERMIT APPLICATION

DFW 1312 (REV. 09/11/18)

IMPORTANT! YOU MAY NOT OBTAIN ANIMALS PRIOR TO APPROVAL

CDFW Received APR 26 2019 BY LRB

PERMIT WILL BE ISSUED IN ☐ YOUR NAME ■ BUSINESS NAME

CDFW USE ONLY
PERMIT NUMBER 3265

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

FIRST NAME	M.I.	LAST NAME	EMAIL ADDRESS
na		na	piechota@chapman.edu
BUSINESS NAME *(If applicable)*		DRIVER'S LICENSE OR DMV ID NUMBER/STATE	DATE OF BIRTH
Chapman University		_____	
MAILING ADDRESS		CONTACT NAME	CONTACT TITLE
Von Neumann Hall, 545 W. Palm St.		Thomas Piechota	VP Research/Institutional Official
CITY		STATE / ZIP CODE	BUSINESS TELEPHONE/EXT.
Orange		CA 92866-0000	(714) 628-2897
STREET ADDRESS *(If different from mailing address)*			DAY TELEPHONE/EXT.
9401 Jeronimo Road (Bruce W. Kennedy, IACUC administrator)			(714) 628-2844
CITY		STATE / ZIP CODE	
Irvine		CA 92618-1908	

CHECK TYPE OF PERMIT **Fees includes a nonrefundable three percent (3%) application fee, not to exceed $7.50 per item. (Section 700.4, Title 14, California Code of Regulations (CCR)).*

- ☐ ANIMAL CARE WELFARE SPECIES $61.80
- ☐ ANIMAL CARE DETRIMENTAL SPECIES 506.50
- ☐ AQUACULTURE 506.50
- ☐ AZA DETRIMENTAL SPECIES 506.50
- ☐ BREEDING 506.50
- ☐ NONRESIDENT BROKER/DEALER 1,005.25
- ☐ NONRESIDENT EXHIBITING 1,005.25
- ☐ NONRESIDENT NUISANCE BIRD ABATEMENT 1,005.25
- ■ RESEARCH DETRIMENTAL SPECIES $506.50
- ☐ RESIDENT** BROKER/DEALER 506.50
- ☐ RESIDENT** EXHIBITING 506.50
- ☐ RESIDENT** NUISANCE BIRD ABATEMENT 506.50
- ☐ SHELTER 61.80
- ☐ SINGLE EVENT BREEDING 61.80
- ☐ FISH 506.50

**Resident means any person who has resided continuously in the State of California for six months or more immediately prior to the date of their application for a license or permit, any person on active military duty with the Armed Forces of the United States or auxiliary branch thereof, or any person enrolled in the Job Corps established pursuant to Section 2883 of Title 29 of the United States Code.

STANDARD INSPECTION FEE IS BASED ON THE NUMBER OF ENCLOSURES

CHECK NUMBER OF ENCLOSURES

- ■ 1-5 ENCLOSURES $248.49
- ☐ 6-25 ENCLOSURES 348.50
- ☐ 26-50 ENCLOSURES 566.75
- ☐ 51-100 ENCLOSURES 889.50
- ☐ 101-500+ ENCLOSURES 3,278.00

PERMIT(S) FEE SUBTOTAL	$	506 50
NONREFUNDABLE APPLICATION FEE	$	120.51
STANDARD INSPECTION FEE *(write-in inspection fee here)*		
**AQUACULTURE INSPECTION FEE $1,645.50		0 00
Applicants for aquaculture permits shall pay this inspection fee		
***ELE/MOU INSPECTION FEE $480.75		
Applicants for research permits may pay the ELE/MOU inspection fee in lieu of the standard inspection fee***		
GRAND TOTAL	$	875.50

WILL ANIMALS BE IMPORTED INTO CALIFORNIA? ■ YES, COMPLETE IMPORTATION SECTION ☐ NO, EXPLAIN: _____

IMPORTATION ONLY - COMPLETE NEXT PORTION OF THE APPLICATION IF YOU ARE IMPORTING ANIMALS INTO CALIFORNIA

LIST SPECIES TO BE IMPORTED	NUMBER OF ANIMALS	ORIGIN *(State or Country)*	
Danio rerio	100s	Oregon	
PERSON/BUSINESS SHIPPING ANIMALS		DAY TELEPHONE	
ZIRC, Zebrafish International Resource Center		(541) 346-6028	
ADDRESS	CITY	STATE	ZIP CODE
5274 University of Oregon	Eugene	OR	97403-5274
NAME OF CARRIER	POINT OF ENTRY INTO CALIFORNIA		
FEDEX	typically Irvine		

I certify under penalty of perjury under the laws and regulations of the State of California that all information on this application is true and correct and I am not violating any city or county laws. I agree to comply with the provisions of Section 671, Title 14, of the CCR. I understand it is unlawful to use or possess a permit which was obtained by fraud or deceit (Fish and Game Code Section 1052b). I understand that in the event that this information is found to be untrue or incorrect, the permit will be considered invalid and must be surrendered where purchased and I will be subject to criminal prosecution. I further understand that failure to comply with the terms and conditions of a permit may result in revocation of current permit and/or denial of future permits. Violation of this section is a misdemeanor, punishable by fine of not more than $1,000.00, imprisonment in the county jail for not more than six months, or both the fine and the imprisonment. In addition I may be subject to civil penalties as stated in Fish and Game Code Section 2125. I further certify that the animal(s) and their housing will be inspected at least once more within the next six months.

APPLICANT'S SIGNATURE *(Must be in ink)* DATE

X [signature] 4/22/19

FOR DEPARTMENT OF FISH AND WILDLIFE USE ONLY

REVIEWED BY/DATE	TRANSACTION #	ISSUED BY/DATE
W 5.2.19		

GOID# [redacted]

State of California – Department of Fish and Wildlife
RESTRICTED SPECIES PERMIT INVENTORY OF ANIMALS
DFW 1313 (REV. 07/16/14) Previously FG 1313

INSTRUCTIONS: TYPE OR PRINT CLEARLY IN INK. It is mandatory to complete all items. Incomplete forms will be returned. Copy and attach additional pages if necessary. Each page must be signed and dated by the applicant.

APPLICANT'S FIRST NAME	M.I.	LAST NAME

BUSINESS NAME (IF APPLICABLE)	NUMBER OF ENCLOSURES
Chapman University	1

LOCATION OF ANIMAL(S) HOUSING: Note: Animals being held at multiple locations require inspection by the Department to determine that each of those facilities meet minimum applicable housing requirements as set forth in subsection 671.1(a)(8)(A-F), Section 671.2 (nonresident only), Sections 671.3-671.4 and/or 671.7, Title 14, of the California Code of Regulations (CCR).

ADDRESS	CITY	STATE	ZIP CODE	COUNTY
9401 Jeronimo Road	Irvine	CA	92618	Orange
ADDRESS	CITY	STATE	ZIP CODE	COUNTY

List all restricted animals in your possession or **TO BE ACQUIRED** in the following order: mammals, birds, fish, or reptiles. Group animals by order, family, and species. Use the following letters to denote sex: M=Male, F=Female, and U=Neutered or Unknown. Mark an "X" in the **TO BE ACQUIRED** column for animals to be acquired within the next year. **Unique Identifiers:** Use the following letters to denote unique identifying methods (See Section 671.1(c)(3)(J), Title 14, of the CCR): M=Microchip, T=Tattoo, and A=Alternative Method. Aquaculture and fish applicants: Identify the actual number in the ID number field and identify either W=Weight, V=Volume or C=Count in the method field. Remember to complete the **Importation Only Section** of the **Restricted Species Permit Application** for animals being imported into California. For California Residents Only: All native species obtained from a licensed California Wildlife Rehabilitation Facility require a Native Species Exhibiting Permit. Contact the License and Revenue Branch at (916) 928-5845 and/or (916) 928-5853 or SPU@wildlife.ca.gov if you need additional information.

COMMON NAME	SCIENTIFIC NAME	ID NUMBER	METHOD	SEX	AGE	TO BE ACQUIRED
transgenic zebrafish	Danio rerio	1000	C	M&F	to 1 year	X

I certify under penalty of perjury under the laws and regulations of the State of California that all information on this Restricted Species Permit Inventory of Animals form is true and correct. I understand that false or incomplete information may result in denial or revocation of a permit and/or criminal prosecution.

APPLICANT'S SIGNATURE (MUST BE IN INK)
X

DATE 4/22/19

CHAPMAN UNIVERSITY **Office of Research**

Attachment to Restricted Species Permit Application
California Department of Fish and Wildlife (DFW)

Version April 10, 2019

Background

The permit will be issued to Chapman University (Business Name). The Contact Name is Vice-President of Research and Institutional Official Tom Piechota, who has administrative oversight of the animal use and care program at Chapman.

Bruce W. Kennedy is the IACUC administrator, who is located at the Irvine campus of Chapman, where the transgenic zebrafish used under this research permit will be located. The vivarium manager there is David Lopez, who has experience with zebrafish in research environments and will be training both husbandry staff and research scientists.

The type of permit is for research with detrimental species, specifically zebrafish (*Danio rerio*). Several faculty at Chapman conduct research in the pharmaceutical sciences and utilize zebrafish as one of several animal models. (Applying for the research permit to use transgenic zebrafish exempts Chapman from a (a) detailed statement of purpose, (b) a description of employee experience, (c) letters of recommendation, (d) USDA license, (g) statement of the type of business, (i) a description of any exhibits or demonstrations, and (j) USFWS permit).

Chapman University does not include any USDA covered species (item d) in its research program. It is supported by NIH and NSF funding, so therefore the program includes a PHS Assurance Statement (#D17-00960, valid until December 31, 2020) and an IACUC (item k). Protocols are written, reviewed, and approved as part of the oversight by the IACUC.

The program is supported by a contract veterinarian who has experience with zebrafish. Care and treatment of fish will be in accordance with veterinary practice and applicable regulations and guidelines, Including the ILAR Guide and AVMA Guidelines on Euthanasia.

A floor plan (f) of the Rinker vivarium is included. There are no drains (671.1.(a)(8)(A)) in the vivarium where water with fish eggs could potentially go [it would be a closed system for municipal water and not "waters of the state"]. The vivarium has restricted access (671.1.(a)(8)(B)). Movement (671.1.(a)(8)(C)) of zebrafish is contained largely within the vivarium, however, live fish may be moved out when high resolution and fluorescence imaging are needed for studies to look at heart beating, blood flow, etc.

The number of enclosures is entered as "1" for a single rack of many tanks. It will be an "education rack" (34.4-liter system with a maximum of 172 adult fish, 5 fish per liter). Later, a larger rack (140L system = 700 fish) may be purchased. Both systems are equipped with a complete bio-waste capture process (i.e., eggs).

The total fee includes the permit and application fees along with the ELE/MOU inspection for research permits. Some fees are charged annually. Chapman University intends to define itself as an eligible local entity (ELE) through a memorandum of understanding (MOU) with DFW. The obligation (671.8(g)) to provide semi-annual statements of a properly inspected program is understood.

Chapman University recognizes that a permit is dependent upon (671.8) an initial inspection and annual renewals, each with fees.

The "emergency action plan" (e) for the vivarium has been modified to include zebrafish.

Other

Chapman University as a bona fide academic institution submits this application with a request for "expedited permit review" under subsection (671.1.(b)(9)) that describes the research use and permit. That enables Chapman to import, transport, breed, and possess the zebrafish populations described here.

Accurate records will be kept for a minimum of three years after any activity with the zebrafish.

Appendix 1.B: Euthanasia & Depopulation - Aquatics

APP# 1. B	Date Issued: April 15, 2019	Date Revised:
Title	Euthanasia and Depopulation Disaster Response SOP	
Scope	All Vivarium Facilities	
Responsibility	Vivarium Manager, Attending Veterinarian	
Purpose	Establish and maintain procedures to safely, efficiently, and ethically carry out emergency euthanasia of laboratory animals	

1.B Aquatics (Zebrafish)

Preferred Method: Any method considered acceptable or acceptable with conditions in the AVMA Guidelines for the Euthanasia of Animals.[1]

Procedures for Constrained, Emergency, or Disaster Circumstances:

1. All zebrafish and zebrafish embryos carcasses must be disposed of as biohazardous waste through EH&S. Under no circumstances may zebrafish or zebrafish embryos be flushed down any drains or sinks.

2. For zebrafish ≥15 dpf (days post fertilization)
    a. Rapid Chilling via Ice Water
        i. Supplies/Equipment Needed
            1. Ice and Water to create 0-4^{0}C water
            2. Carcass Disposal Bags
        ii. Permissible Use
            1. For zebrafish ≥15 dpf
            2. Immobilization by submersion in ice water (5 parts ice/1-part water, 0-4º C) for at least 10 minutes following cessation of opercular (i.e., gill) movement. In any fish where it is difficult to visualize opercular movement, fish should be left in the ice water for at least 20 minutes after cessation of all movement to ensure death by hypoxia.
    b. Tricaine Methane Sulfonate (MS222)
        i. Supplies/Equipment Needed
            1. Tricaine Methanesulfonate MS-222
            2. Sodium Bicarbonate
            3. Nitrile Gloves
            4. Carcass Disposal Bags
        ii. Permissible Use
            1. Prepare 250mg/L solution under a chemical fume hood, if possible.
            2. MS222 overdose by prolonged immersion in 250mg/L solution. Fish should be left in the solution for at least 10 minutes following cessation of opercular movement.
            3. Buffer 250mg/L solution with sodium bicarbonate to a neutral pH before immersing fish.

a. Non-buffered MS222 is acidic and causes adverse reaction in unanesthetized fish

4. Depopulation wait time can be shortened by following MS222 overdose with liquid nitrogen rapid freezing
5. Waste solution (MS222 dissolved in water) must be diluted with plenty of water (minimum 4:1) and can be drain disposed.

3. For zebrafish larvae up to 8-15 dpf
    a. 2-Step Process: Anesthesia/Immobilization Followed by Secondary Method
        i. Supplies/Equipment Needed
            1. MS222 + Sodium Bicarbonate OR Ice Water
            2. Sodium Hypochlorite 6.5% (equivalent to household bleach)
        ii. Permissible Use
            1. A secondary method must be used in order to ensure death. Use of the ice water or MS-222 method as above should be used as a method of anesthesia/immobilization.
            2. An acceptable secondary method is the addition of bleach solution (sodium hypochlorite 6.15%) to the culture system water at 1-part bleach to 5 parts water. The larvae should remain in this solution at least five minutes prior to disposal to ensure death.

4. For embryos ≤ 7 dpf: Development should be terminated using bleach as described above or rapid freezing in -70^{0}C freezer. Pain perception has not developed at these earlier stages; this is not considered a painful procedure.

EMERGENCY ACTION PLAN FOR
Chapman University Zebrafish program at Rinker Campus
(version May 1, 2019; modeled after the CA DFW template)

1. List of the re-capture equipment available, including but not limited to darting equipment, nets, traps, and chemical immobilization drugs for animals listed on your inventory;
    a. *The tanks are self-contained.*
    b. *There are no drains in the vivarium where water with fish eggs could potentially go.*

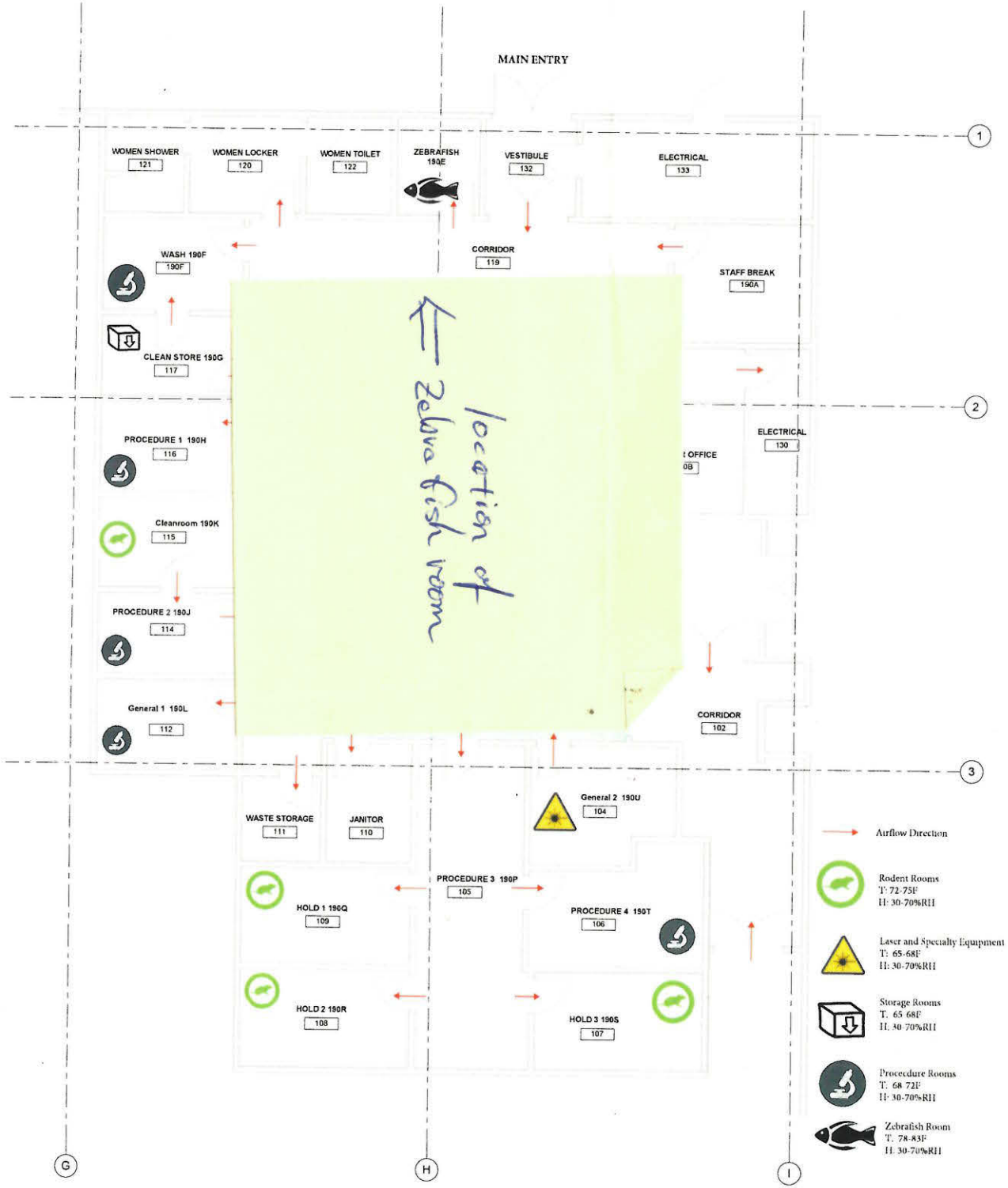
2. Description of humane lethal dispatch methods for various animals and a list of qualified personnel who are trained to carry out the methods;
    a. *As described on the previous pages. The vivarium manager, David Lopez, has the experience with zebrafish in research environments and will be training both husbandry staff and research scientists. This includes euthanasia.*

3. List of medical supplies/first aid kits (both animal and human) and where they are located;
    a. *There is a first aid kit in the Vivarium Break Room 190A.*
    b. *The Zebrafish Room 190E is stocked with aquatics-appropriate personal protective equipment, including elbow length nitrile gloves.*

4. Description and number of mobile transport cages and equipment on hand to accommodate all animals listed on your inventory;
    a. *The Aquaneering Two-Shelf Standalone Education Rack ZTEDU235 used in the vivarium is fully mobile and accommodates all animals listed on inventory.*

5. List of emergency telephone numbers;
    a. ***911***
    b. ***CA Fish & Wildlife Regional Office:*** *South Coast Region (Region 5); Regional Manager: Ed Pert; Main Office: 3883 Ruffin Road, San Diego, CA 92123; 858 467-4201*
    c. ***CA Fish & Wildlife Dispatch Number:*** *951-443-2944*
    d. ***County/City Animal Control Agencies:*** *Irvine Police Department Dispatch (Calls for Service), 949-724-7200; Irvine Police Department Animal Services Supervisor, Hope Darrow, 949-724-7091*
    e. ***Veterinarian:*** *Dr. Trinka Adamson, 916-956-5201.*

6. Written plan of action for various emergencies (i.e. animal escape, animal evacuation, animal attack).
    a. *Escape from the vivarium is not possible (no drains). In case of evacuation or other disaster, the fish would be euthanized as above. Attack is not possible.*



Chapman University
Animal Emergency Plan

Draft

David Lopez | Vivarium Manager

Adapted from: UCLA Surgery Disaster Plan| University of Arizona Emergency Preparedness

Contents

Record of Revisions

Originally Released

Review/Revision	Reviewed by	Date
Refining and Editing for Clarity	David Lopez	June 14, 2018
Refining and Editing for Clarity	David Lopez	August 8, 2018
Refining and Editing for Clarity. Added **Appendix 1** (Euthanasia and Depopulation Guidelines) and **Appendix 2** (RHSC Vivarium Contingency Plan Summary)	David Lopez	April 16, 2019

Chapter 1: Introduction

This plan pertains to unplanned events that could cause death or major injuries to employees (or animals), disrupt operations, cause physical or environmental damage, or threaten our facility's financial standing or public image (*i.e.,* the Federal Emergency Management Agency definition of a disaster). The goal of this document is to summarize the disaster-preparedness procedures that have been established and to address the requirements for such a plan put forth by the USDA Animal Plant Health Inspection Service (APHIS) and the 8th edition of the NRC Guide for the Care and Use of Laboratory Animals (The Guide).

The Guide requires that animal facilities have a disaster plan that:

> *…should define the actions necessary to prevent animal pain, distress, and deaths due to loss of systems such as those that control ventilation, cooling, heating, or provision of potable water. If possible, the plan should describe how the facility will preserve animals that are necessary for critical research activities or are irreplaceable…Animals that cannot be relocated or protected from the consequences of the disaster must be humanely euthanized. The disaster plan should identify essential personnel who should be trained in advance in its implementation. (p. 35)*

Critical Components

Therefore, a Disaster Plan should ensure the protection of three critical components:

- Environmental Health and Safety- to protect personal and environmental health of both employees and those in the surrounding community.
- Animal Welfare- to ensure cared and/or humane euthanasia is provided.
- Business Continuity- to ensure critical and unique animal resources (strains, data, and tissues) are preserved, and research operations can resume following a disaster.

Plan Components

This document speaks to the PHS Policy and Guide requirements for such a plan and addresses the following four questions:

- Who is in charge?
- When will the plan be activated?
- What actions will be taken?
- How will the necessary actions be carried out?

Animal Program Emergency Response Planning

MITIGATION

While many emergency and disasters cannot be entirely prevented, the impact can be mitigated by implementing an effective plan that encompasses preparedness, response, and recovery. It is an on-going process that is not finished once the disaster plan is written and implemented. It is also an iterative process involving training, testing, identifying weaknesses, and implementing improvements.

A Business Continuity Plan outlines contingency for ensuring continuation of mission critical functions during a large-scale disaster. The development of an animal program plan should consider the Business Continuity Plan and Emergency Management/Crisis Response Team (EM/CRT) Plan.

As part of the planning process, the program must identify mission critical activities, establish priorities, identify performance requirements, and identify potential limitations. A system-wide Hazard Vulnerability Assessment was completed and listed the following as hazards that should be addressed:

- Catastrophic Earthquake
- Fire
- Workplace Violence
- Animal/Crop Eco-terrorism
- Bomb
- Active Shooter
- Public/Sports Event Disturbance
- Public Health Emergency
- Utility Failure
- Civil Disturbance

For additional information on mitigation, see the Federal Emergency Management Agency (FEMA) website on Mitigation Best Practices:

http://www.fema.gov/plan/prevent/bestpractices/index.shtm

PREPAREDNESS

Training is an integral part of preparedness. It provides personnel with the knowledge, skills, and abilities to respond appropriately and to effectively manage a disaster event.

Staff training should be based upon the program disaster plan and response expectations. Table-top exercises should also be performed to help identify strengths and weaknesses within plans, policies, and procedures. These exercises help clarify roles, responsibilities, and lines of communication among response components, improve response coordination, and identify needed resources and opportunities for improvement.

In addition to preparedness in the workplace, all personnel should be encouraged to implement plans for their families.

RESPONSE

The response phase includes the actions that are taken immediately following the emergency or disaster event. **Human health and safety must always take precedence.** Immediate response by the animal program staff to notify the appropriate First Responders can help mitigate the event impact. First Responders may include outside Emergency Response personnel (fire, police, rescue squad), and Facilities Management personnel. Animal Program personnel should be trained to always follow instructions given by First Responders, the Officer in Charge, or other emergency response personnel.

RECOVERY

The recovery phase begins after the initial response to an emergency or disaster event has concluded. Assessment of the impact to the Animal Program is one of the first steps. The three critical areas to assess are: facility structure, utilities, and equipment; personnel; and research animals. Animal Program personnel may be denied entry or allowed only limited entry to an area that is deemed to be unsafe or compromised.

Once program and facility operations have returned to normal, a critical evaluation of the event cause, program response, and recovery process should be performed. It is important to identify program elements that may have contributed to the event or impeded the response and implement procedures to prevent or mitigate the effects of a similar event in the future.

Who is in charge?

The Vivarium Manager (VM) is the official responder for the RHSC Vivarium. The VM is responsible for coordinating the efforts required to care for laboratory animals in the event of a disaster.

David Lopez is the vivarium manager and official responder for the RHSC Vivarium. Should David Lopez not be able to reach the campus in the event of a disaster, then the following chain of command would apply:

1. Animal Health Technician
2. IACUC Administrator
3. IACUC Chair

Working in pairs if possible, the VM and vivarium staff will assess the condition of all animals in the facility as soon as access to the animal facilities is allowed. Animals suffering from injuries will be triaged or euthanized as necessary. Escaped animals will be captured and returned to cages or euthanized.

Once the initial evaluation and treatment of animals has been accomplished, veterinary support efforts will be directed towards contacting investigators and obtaining permission to euthanize animals that are part of studies that have been compromised due to the loss of scientific integrity (*e.g.*, animal injury/health concerns and/or the inability to dose and/or collect data at appropriate time points). Vivarium personnel will oversee the euthanasia of these animals as well.

Euthanasia: Mass euthanasia's would be performed using carbon dioxide asphyxiation, followed by a physical secondary method. Alternatively, injectable sodium pentobarbital euthanasia solution or 70% ethanol can be used if power or compressed gas cylinders are compromised. See Appendix 1 for a detailed response plan.

When will the plan be activated?

This section addresses common emergencies that could occur at the Chapman University Vivarium, including:

- Animal Activism Event
- Bite, Scratch, & Splash
- Chemical Hazard Spill or Exposure
- Biohazard Spill or Exposure
- Critical Animal Room Temperatures, Humidity, and Directional Airflow (Building HVAC Failure)
- Storms
- Telecommunications Failure
- Utility Failure – Electric Power, HVAC

Animal Activism Event

PREPAREDNESS

- Do not place yourself or others at risk. Contact Chapman Public Safety (Chapman Public Safety) at **(714) 997-6763** immediately if a situation appears to be escalating. Chapman Public Safety will contact the City of Irvine Police Department.
- Prevent crimes through employee awareness and securing offices, facilities, and property. Verify staff training on security and response procedures.
- Employees should always wear Chapman-issued identification badges.
- Check doors semi-annually for proper locking function. Review access database quarterly.
- Secure all movable/portable equipment.

RESPONSE

- Do NOT confront the individual(s).
- Check to see if anyone was injured and seek medical care, if needed.
- Immediately notify Chapman Public Safety by dialing (714) 997-6763.
- If this is a hit and run type attack, let the Police know that the activists have left and report any injuries and/or damage.
- Use the following list to assist in gathering specific details for the Police:
    - Identify yourself as a person working at an animal research facility
    - Location of the activity - including building, floor, and room number(s), etc.
    - Number of people involved
    - Characteristics of the people, i.e., gender, type of clothing, distinctive features, etc.
    - Type of activities being conducted, i.e., picketing, yelling, vandalism, releasing animals etc.
    - Type and number of weapons visible
    - Type and number of other tools and equipment, i.e., bullhorns, rope, spray paint cans, electrical wiring, backpacks, gym bags, signs, etc.
- Remain at your general location until the Police arrive. If necessary, move to a safe place or exit the facility (if this is occurring inside).
- Take photographs of the activists and their activities, but only if this can be done safely.

- Observe the route and means the activists use to leave the area, but only if this can be done safely.
- Note the exit path and vehicle information, including license plate numbers.
- Note any items or places physically touched by activists and protect those items/areas. If activists were not wearing gloves, law enforcement may attempt to get the activists fingerprints.
- Carefully examine the entire work area for damage, missing items, and any items left behind by activist. Do not touch any items left behind or anything suspicious. Point these items out to law enforcement officials.
- Things to look for include the following:
    - Noise makers: devices designed to make painfully loud noise, either immediately or later when activated by a timer
    - Stink bombs: these may be devices that are ignited by a flame immediately or later from a timer
    - Stinky fruit: activists may leave frozen pieces of fruit that smells of rotting flesh. Once thawed it can make a facility uninhabitable for some time.
    - Flyers or other printed information
    - Packages, boxes, backpacks, or other containers that could contain dangerous items (e.g., toxic/caustic chemicals, incendiary devices, bombs, etc.)
- Notify supervisor as soon as possible.

RECOVERY

- Re-enter the area only upon clearance by Emergency Responder, Facility Management, or Supervisory personnel.
- Report the animal program status to VM, Veterinarian and leadership team.
- Assess program elements contributing to the occurrence of the event and program areas impacted.
- Consider implementing barriers or procedures to prevent or lessen the effects of a future similar event.
- Debrief with staff after the event. For staff who are distressed, seek professional assistance through Human Resources at (714) 997-6686 or by email at hroffice@chapman.edu.
- Dial 911 for serious injuries
- Complete the online Incident/Accident Investigation Report.

- This form should be used to report an incident and document the findings of your preliminary investigation. An incident is defined to include any event that results in injury to a person or damage to property. Complete this electronic form as soon as possible but within 24 hours of the event. Your online report will be filed with the Chapman University Risk Manager.

Chemical Hazard Spill or Exposure

PREPAREDNESS

- Ensure proper signage is clearly posted in chemical hazard areas, including required PPE, handling, containment, and emergency instructions.
- Verify staff training on working with and around the chemical hazards on the risks of the hazard in accordance with EH&S guidance.
- Verify staff training on pertinent emergency response and first aid procedures.
- Maintain copy of the Standard Operating Procedure (SOP) and Material Safety Data Sheets (MSDS) for all chemicals present in facility.

RESPONSE

Large Spill (>200ml)

- Turn off gas burners.
- Evacuate personnel in the room/area of the spill, & close doors upon exit.
- Ensure any loose animals are secured in cages and/or racks.
- Exposed personnel should remove contaminated clothing as soon as possible and begin wash procedures if possible. Report to and remain in one safe location until the arrival of the Chapman Public Safety or other emergency response personnel.
- Immediately notify Chapman Public Safety - on-campus 911; or from a cell phone or off-campus (714) 997-6763. They will contact EH&S and authorized responders.
- Administer first aid if needed as per instructions below.
- Do not re-enter the room/area until the appropriate safety officials have cleared the area for re-entry.

Small Spill (<200 ml):

- Turn off gas burners.
- Put on appropriate protective clothing (gloves, safety goggles or glasses, and lab coat).
- Ensure any loose animals are secured in cages and/or racks.
- Address any exposure and administer first aid if needed as per instructions below.
- Cover small spills with absorbent towels or sheets to minimize volatilization.

- Clean spill area working from outside toward the center until there is no more removable contamination.
- Wipe down all equipment and surfaces potentially contaminated.
- Dispose of contaminated material as chemically hazardous waste.
- Remove PPE and wash hands with soap and warm water.
- For medical emergencies requiring emergency medical transportation, call 911, then notify Chapman Public Safety by dialing (714) 997-6763.
- Notify the immediate supervisor and email notice to risk@chapman.edu and ehs@chapman.edu

First Aid:

- **Personal safety is the first consideration. Avoid contact with blood or body fluids.**
- Immediately begin first aid to contaminated area—the individual assisting should wear gloves.
- **Eye exposure**: Flush exposed eyes or face immediately. Remove contacts. Hold eyelids open with thumb & fingers. Flush continuously with eyewash for 15 minutes. Roll eyes to thoroughly rinse.
- **Mouth exposure**: Rinse mouth with plain water for at least 15 minutes.
- **Skin exposure**: Remove contaminated clothing. Flush exposed skin with large amounts of water for 15 minutes.
- **If the incident occurs during business hours** (Monday through Friday from 7 am– 4:30pm), report to local US Health Works Urgent Care Facilities:
    - **Rinker Campus**: 15751 Rockfield Blvd., Irvine, CA 92618, Phone: (949) 206-9100 and 22741 Lambert St., Suite 1608, Lake Forest, CA 92630, Phone: (949) 581-3011
    - **Orange Campus**: 1045 North Tustin Street, Orange, CA 92867, Phone: (714) 288-8303 and 800 N Tustin Ave. Suite A, Santa Ana, CA 92705, Phone: (714) 245-0800
- **If the incident occurs outside business hours**: Report immediately to Emergency Room.
- **Emergency Patient Transportation**: Immediately dial 911 then notify Chapman Public Safety by dialing (714) 997-6763.
- Notify immediate supervisor.

RECOVERY

- Re-enter the work area upon clearance by EH&S, Facility Management, or Supervisory personnel.
- Assess program elements contributing to the occurrence of the event and program areas impacted.
- Consider implementing barriers or procedures to prevent or lessen the effects of a future similar event.
- Ensure the incident is reported to EH&S at (714) 628-2888 as per program SOP.
- Report serious injuries within 8 hours.
- Complete the online Incident/Accident Investigation Report. This form should be used to report an incident and document the findings of your preliminary investigation. An incident is defined to include any event that results in injury to a person or damage to property. Complete this electronic form as soon as possible but within 24 hours of the event. Your online report will be filed with the Chapman University Risk Manager.
- For Auto, Property or General Liability (injuries or property damage to 3rd parties) claims: To report an incident, contact Allan Brooks, Director, Risk Management at (714) 532-7794 or risk@chapman.edu.

Biohazard Spill or Exposure

PREPAREDNESS

- Ensure proper signage is posted in biohazard areas and lists PPE, handling, containment, and emergency response instructions.
- Ensure biohazards are properly handled and stored or contained.
- Verify staff training on the biohazard's risks in accordance with EH&S Biosafety guidance.
- Verify staff training on pertinent emergency response and first aid procedures.

RESPONSE

Large Spill (>200ml):

- Immediately notify Chapman Public Safety by calling (714) 997-6763. They will contact EH&S and the appropriate responding agency.
- Advise personnel in the room/area of the spill to evacuate immediately.
- Secure animals in cages and/or racks to maintain containment.
- Close windows and doors to the room/area of the spill and evacuate.
- To minimize spreading contamination, exposed personnel should remove contaminated clothing before leaving the area. If not possible, report to and remain in one safe location until the arrival of the Fire Department.
- Immediately administer first aid to contaminated area or wound (see below).
- Do not re-enter the room/area until the appropriate safety officials have cleared the area for re-entry.

Small Spill (<200 ml):

- Contact EH&S to assure that personnel are properly trained and have availability of necessary supplies and equipment. Secure any bio hazardous animals in cages and/or racks to ensure containment.
- Remove contaminated clothing and immediately administer first aid to contaminated area or wound. (See below)
- Put on protective clothing (gloves, safety goggles or glasses, and lab coat).
- Cover spill area with absorbent materials (e.g., paper towels).

- Soak absorbent materials with disinfectant. (E.g., a freshly made 1:10 dilution of bleach or alternative, and allow to sit for 30 minutes.
- Wipe down all equipment and surfaces potentially contaminated with disinfectant, allowing disinfectant to remain on surfaces for an appropriate contact time (e.g., 10 minutes for 10% bleach).
- Dispose of contaminated material as bio hazardous waste.
- Clean surfaces with sanitizer. Disinfect any tools which may have been used to clean bio hazardous materials
- Remove PPD and wash hands with soap and warm water.
- Notify the immediate supervisor and the Biosafety Office (714-516-7199)
- **First Aid:** Immediately begin first aid to contaminated area
    - **Eye exposure**: Flush exposed eyes or face immediately. Remove contacts. Hold eyelids open with thumb & fingers. Flush continuously with eyewash for 15 minutes. Roll eyes to thoroughly rinse.
    - **Mouth exposure**: Rinse mouth with plain water for at least 15 minutes.
    - **Skin exposure**: Remove contaminated clothing & place in biohazard bag. Flush exposed skin with large amounts of water for 15 minutes.
- **Seek medical attention** - Following the application of first aid:
- If the incident occurs during business hours (Monday through Friday from 7 am– 4:30pm), report to local US Health Works Urgent Care Facilities:
    - **Rinker Campus**: 15751 Rockfield Blvd., Irvine, CA 92618, Phone: (949) 206-9100 and 22741 Lambert St., Suite 1608, Lake Forest, CA 92630, Phone: (949) 581-3011
    - **Orange Campus**: 1045 North Tustin Street, Orange, CA 92867, Phone: (714) 288-8303 and 800 N Tustin Ave. Suite A, Santa Ana, CA 92705, Phone: (714) 245-0800
- If the incident occurs outside business hours: Report immediately to Emergency Room.
- Emergency **Patient Transportation:** Immediately call 911. Notify Chapman Public Safety to advise of transportation of patient(s).

RECOVERY

- Re-enter the area only upon clearance by Emergency Responder, EH&S, Facility Management, or Supervisory personnel.

- Assess program elements contributing to the occurrence of the event and program areas impacted.
- Report the animal program status to your supervisor.
- Re-establish pertinent biohazard control procedures.
- Re-establish all animal care programs and services.

Incident Reporting

- Complete the online Incident/Accident Investigation Report. This form should be used to report an incident and document the findings of your preliminary investigation. An incident is defined to include any event that results in injury to a person or damage to property. Complete this electronic form as soon as possible but within 24 hours of the event. Your online report will be filed with the Chapman University Risk Manager.

Critical Animal Room Temperatures, Humidity, and Directional Airflow (Building Automation Systems (BAS) and HVAC Failure)

PREPAREDNESS

- Prepare and maintain a plan for manual animal room temperature and humidity monitoring. Verify staff training on plan critical elements, such as:
    - Frequency of room temperature checks
    - Documentation requirements
    - Acceptable temperature ranges per species
    - Appropriate response procedures
    - Location of room temperature displays
- Use and location of manual temperature and humidity monitoring equipment
- Develop a plan to visually or electronically monitor directional airflow. Training should be provided to all in appropriate airflow monitoring. The Vivarium uses SkySpark monitoring systems; the VM and Building Controls Manager are points of contact for SkySpark access and use.
- Post step-by-step instructions for reporting abnormal high or low animal room temperatures or humidity or inappropriate directional airflow to the Facilities Management Trouble Call Desk [714- 997-6658.24 hours/7days a week] near a central facility telephone or staff entrance.
    - Direct Contact: Edward Spotswood, Building Controls Manager (x3138).
- Review staff responses to BAS failures (temperature/humidity emergencies) using table top exercises that practice BAS Failure reporting and response procedures to Vivarium Managers and the Facilities Management Trouble Call Desk.
- Periodically review animal relocation plans related to room temperature/humidity emergencies.
- Determine number of portable chillers, heaters humidifiers and de-humidifiers required to maintain animal room temperatures during an HVAC emergency event and incorporate into triage. If possible, keep portable chillers, heaters, humidifiers and de-humidifiers on-site or meet with Facilities Management personnel to determine what is readily available in the event of a temperature emergency.

RESPONSE

If directional airflow is altered in a bio containment (ABSL-2 facility) area, immediately secure all animals in cages in HEPA-filtered racks or cage enclosures, decontaminate work surfaces and exit the facility normally. Notify the Vivarium Manager, Building Controls Manager and Biosafety Officer (714-516-7199). If after hours, contact the BSO directly via cell phone (562-533-7207)

Notify the Vivarium Manager <u>immediately</u>, when:

- Animal room temp is outside the acceptable range. The Vivarium Manager or designee can validate actual room parameters using a handheld monitoring device.
- The Environmental Monitoring (EM) system is not working properly or is in alarm status.

Notify Facilities Management (714-293-3390: 24 hours/7 days a week):

- Report that the Animal Room Environmental Monitoring system is not working correctly, or the animal rooms are in alarm status and animal lives are at risk.
- Ask the Facilities Management Trouble Call Desk if the BAS failure is due to a scheduled utility shutdown. If the answer is "yes", contact the Building Facility Manager to help coordinate a response.

If an animal room temperature is elevated or falls to a critical Tier 2 temperature (Table 1);

- If the animal rooms contain Hazardous Agents (Infectious, Chemical, Radiological, etc.), contact EH&S at (714) 628-2888.
- Implement Triage SOP. Place portable fans, chillers, or heaters in the room, &/or prop open the animal room doors, if the animal room contains micro isolators, open racks, and/or conventionally housed animals. Evaluate bio- containment and security issues before taking above actions.
- If temperature rises due to HVAC malfunction, consult with Animal Facility Manager & Facilities Management Trouble Call Desk (714-997-6658) regarding shutting off room supply to conserve temperature.
- Evaluate bio-containment, animal and air quality issues before making air handler changes.

<u>Initiate manual animal room temperature/humidity monitoring procedures:</u>

- Check and record room temperatures and humidity levels hourly or more often as necessary.
- Report the status of the animal rooms to facility supervisor or manager at least once every hour until the room temperatures are in the normal range. Continue manual animal room temperature monitoring until supervisor announces the BAS/HVAC problem is resolved.

RECOVERY

- Report the program status to immediate supervisor.
- Reestablish hazard control procedures; and reestablish animal care programs and services.
- Assess program elements contributing to the occurrence of the event and program areas impacted.
- Consider implementing barriers or procedures to prevent or lessen the effects of a future similar event.
- File an Emergency Event After-Action Report, if necessary.
- Coordinate with EH&S to conduct an Incident Investigation if necessary.

Storms

PREPAREDNESS

Summer Storms:

Thunderstorms often generate severe winds, rain, hail and lightning. Power fluctuations or outages, and flash floods are common. Stay indoors and monitor local weather forecasts for thunderstorm, tornado, and other severe weather warnings.

Essential Personnel:

Designate qualified FTE individuals as "Emergency" and assign them the responsibility to provide required animal care services during a severe storm. Essential contract staff should be identified by their contract company, and a staffing plan in place for situations that may result in staffing shortages. Periodically review the responsibilities and expectations of essential personnel with all individuals. Establish SOPs for relieving and rotating essential personnel during prolonged storms.

Overnight Personnel Housing:

Identify and prepare administrative areas in the animal facility for essential Chapman personnel to sleep and prepare food if weather conditions warrant they overnight in the facility. Advise contract project managers to make similar arrangements for their essential personnel. Review the financial and contractual provisions authorizing essential personnel sleeping in or near the facility during a storm or disaster.

Food Supplies for Personnel:

The RHSC Vivarium is stocked with adequate food and water supplies in the facility for at least three essential personnel to eat for least three days.

Communications:

Maintain at least one type of alternative communication capability, such as walkie- talkies and/or cellular. Distribute home and work phone numbers for key car pool teams. Prepare response plans for communication system failures. Make wallet cards with key facility contacts and numbers each essential person designee.

Advise research personnel that the priorities during storms are to maintain care operations; however, research operations may need to wait until after the storm.

RESPONSE

Before the storm:

- Monitor Local Weather: Appoint a weather watcher among facility staff to monitor local weather developments throughout the storm period.
- Weather updates: www.weather.com or www.kabc.com.

- News/weather radio stations: KABC 790 am or KRLA 870 am
- Emergency Personnel: Notify emergency personnel to report to the facility prior to the storm. Confirm adequate food, water, emergency, and lodging arrangements are in place. Survey emergency personnel supplies: flashlights, walkie-talkies, batteries, contact lists, cell phones, etc.
- Animal Husbandry: If possible, move outside animals to indoor or sheltered housing. Ensure adequate amounts of food and water are available to support the animal colony for the duration of the storm. Pre-stage husbandry supplies.
- Research: Notify investigators of potential support modifications predicated by the storm.

During the storm:

- Monitor animal room environmental parameters on a periodic basis. Walk the animal facility and report any storm-related facility damage to the supervisor.
- Provide essential animal husbandry services as directed by your supervisor.
- Report building structure and service problems to Facilities Management (714-997-6658). Notify your VM/AV.
- Prepare to relocate or evacuate animals or animal colony rooms facing life- threatening environmental conditions consequent to the storm (flood, HVAC failure, electricity failure, structural damage, etc.)

RECOVERY

- Assess timeline, potential animal status, and identify resources needed.
- Assess program elements contributing to the occurrence of the event and program areas impacted.
- Consider implementing barriers or procedures to prevent or lessen the effects of a future similar event.
- Report serious injuries within 8 hours.
- Complete the online Incident/Accident Investigation Report. This form should be used to report an incident and document the findings of your preliminary investigation. An incident is defined to include any event that results in injury to a person or damage to property.

Complete this electronic form as soon as possible but within 24 hours of the event. Your online report will be filed with the Chapman University Risk Manager.

- For Auto, Property or General Liability (injuries or property damage to 3rd parties) claims:
  To report an incident, contact Allan Brooks, Director, Risk Management at (714) 532-7794 or risk@chapman.edu.

Utility Failure – Electric Power, HVAC

PREPAREDNESS

- Verify all animal care staff training on acceptable temperature ranges, reporting environmental fluctuations, and appropriate response procedures.
- Maintain contingency plans to ensure animals receive adequate care in the event of power loss or abnormal temperatures.
- Maintain list or location map of breakers, emergency power outlet locations, and equipment and animal housing that may be impacted by power loss.
- Determine number of portable chillers and heaters required to maintain animal room temperatures during an HVAC emergency event.
    - **RHSV Vivarium requires and maintains 4 portable space heaters and 4 humidifiers**
- Identify critical rooms and ensure that they remain locked or unlocked (as appropriate) in the event the security systems fail. Ensure that facility staff has keys or other methods to access locked doors in the event of card key system failure.
- Maintain equipment list of items such as extension cords, flashlights, light trees, batteries, generators, walkie-talkies, portable space chillers, heaters, and fans. Verify animal care staff training on location and use of equipment.
- RHSC Vivarium has two emergency power backups
    - **Natural Gas Generator**: Located on the rooftop of the 9401 Jeronimo building and maintained by Chapman Facilities Management. Generator turns on automatically in a power failure situation and turns off automatically when main power is restored. The natural gas lines will not function in the event of an earthquake, in which case the diesel generator on the ground floor will be used.
    - **Diesel Gas Generator**: Located in the parking lot adjacent to the vivarium and maintained by Chapman Facilities Management (FM). In the event of a power failure in which the natural gas generator could not be used, a trained FM staff person will connect and run the diesel generator to power the vivarium. The diesel gas generator is specifically for the vivarium.

RESPONSE

- Comply with all response items under HVAC Failure
- Manually check room temperature and humidity.
- Call Facilities Management Trouble Call Desk 714-997-6658. Inform them that animal lives are at risk due to abnormal environmental conditions.
- Notify the Vivarium Manager immediately.
- Check to see if the failure/fluctuation may be due to a scheduled utility shutdown.
- If animal room temperature is elevated to a critical temperature (i.e., animal lives are at risk), use portable fans, use portable chillers, &/or open doors.
- If animal room temperature falls to a critical temperature (i.e., animal lives are at risk), place portable space heaters in the room.
- If biohazard agents are used in a room, contact EH&S Biosafety at (714) 628-2888 before using portable fans or leaving animal room doors.
- Shut off the main breaker switches to equipment such as autoclave, ventilated racks, etc.
- Close sash on all hoods that are in use during power failure.
- If power outage impacts animal room temps, refer to "Critical Temperature" procedures.
- Once normal power is restored, or emergency generators are functioning:
    - Turn on light switches and ventilated racks first, then other equipment as needed.
    - Check each animal room temperature and humidity and directional airflow.
    - Check safety cabinets in each procedure room.
    - Check alarm panels for any alarms and repair if possible.
    - Report facility environmental status to Vivarium Manager.

RECOVERY

- Report the animal program status to supervisor and VM/AV.
- Re-establish pertinent biohazard control procedures.
- Re-establish all animal care programs and services.
- Assess program elements contributing to the occurrence of the event and program areas impacted.
- File an Emergency Event After Action Report.

What actions will be taken?

- In the event of a disaster, the AV will determine whether the scientific integrity of ongoing studies can/cannot be maintained.
- Scientific Integrity of Ongoing Studies Can Be Maintained - Preserve All or Most of the Animals
- Within 24 to 48 hours of any major disaster, it will become clear whether the scientific integrity of the ongoing animal studies can be maintained. To do so will require most, if not all, of the elements listed below. This scenario also assumes that research staff will be available to continue with their studies.
- Food, water, and bedding needs must be met without interruption - requires back-up supply of food, water, and bedding either on- or off-site.
- Animal rooms must be maintained within temperature limits – requires electrical power distribution systems to power the ventilation fans, which require intact piping and ducts. May require immediate operation of chilled water pumps, and intact low- pressure steam boilers to supply heating and cooling. Depending on the climate these systems may be brought on-line as needed.
- Light cycles must be maintained.
- Ability to remove animal waste from colonies – requires wash down water and garbage removal capabilities.
- Ability to dispose of carcasses – requires power to carcass freezer, and offsite transportation by commercial waste disposal firm.
- Containment of any animal area can be maintained for any hazardous research. This requires that there be electrical power and functional ventilation fans. Moreover, provisions for containment and removal of hazardous wastes must be in place.
- Scientific Integrity of Ongoing Studies Cannot Be Maintained - Preserve Only Unique and Irreplaceable Laboratory Animals (UILA)
- If the integrity of the scientific studies cannot be maintained (e.g., lack of scientific and/or support staff, lack of control of environmental parameters), the focus will turn to those species that are irreplaceable or of high economic value. This scenario also assumes that at

least the Veterinary staff has access to the animals. Animals that cannot be protected from the consequences of the disaster or relocated will be humanely euthanized. In this scenario, most, if not all, of the following activities will be necessary:

- Food, water, and bedding needs must be met without interruption - requires backup supply of food, water, and bedding.
- Animal rooms could be maintained with air circulation only – requires electrical power for ventilation fans, intact electrical power distribution systems, piping, ducts, and fans.
- Lighting could be maintained from temporary light standards and generators.
- Ability to remove animal waste from colonies – requires wash down water and garbage removal capabilities.
- Ability to euthanize most of the animals on site.
- Ability to hold/dispose of many carcasses – requires emergency power to carcass freezer, or another method for onsite storage of carcasses (e.g., 55- gallon drums).
- Ability to easily identify the unique and irreplaceable laboratory animals. A unique identifier/label (“UILA”) should be located on the cage card or cages of all unique and irreplaceable laboratory animals.
- In all cases, personnel should follow their department Injury and Illness Prevention Program instructions for personnel safety. For more information, contact the EH&S Injury Prevention Officer at (714) 532-7794.

How will the necessary actions be carried out?

Euthanasia Guidance for Disaster Events

Animal Program Staff Preparedness Information

Animal Program Status Report Information

Animal Program After-Action Report (AAR)

Calculating Minimum Water Requirements

Emergency Alert Notification Systems

Emergency Animal Care Resources

Information Technology Systems Failure (Computer, Email, Inter/Intranet, Servers)

Staffing Shortage Planning Guidance

Transportation Emergencies & Supply Failure (Weather, Road Blocks, Public Transportation Outage)

Triage Guidance for Disaster Events

Facility Alarm Set Points

Telecommunications Systems

Online Resources & Links

Euthanasia Guidance for Disaster Events

- The decision to euthanize animals and the selection of appropriate euthanasia methods requires careful consideration in all scenarios, but the urgency of these decisions is heightened in disaster-related events. Disaster events in a research animal setting often cause the loss of room access, environmental control, or safe working conditions which limit animal care and veterinary service support options.
- Euthanizing injured or distressed research animals in these situations may be the only way to relieve animal pain and suffering. Direction in this situation is frankly stated in the following excerpt from the 8th Edition of the Guide for Laboratory Animal Care and Use: "Animals that cannot be relocated or protected from the consequences of the disaster must be humanely euthanized."
- The AVMA Guidelines on Euthanasia addresses disaster-related instances where deviations from standard euthanasia methods are necessitated with the following statement: "Under unusual conditions, such as disease eradication and natural disasters, euthanasia options may be limited. In these situations, the most appropriate technique that minimizes human and animal health concerns must be used." Euthanasia may be the only management option available to alleviate pain or distress in the aftermath of an animal facility disaster.
- The identification, selection, and application of a method of euthanasia which minimizes or removes both human and animal health concerns rests in the professional judgment of the Attending Veterinarian. The Attending Veterinarian has the authority to ensure the delivery of timely adequate veterinary care and oversight of all other aspects of animal care and use for all animals in facilities within their programs. This includes the decision to euthanize a large population of research animals for health and welfare issues following a disaster or emergency.
- In a disaster scenario, human safety, the animal species, and the urgency to relieve animal pain and distress outweigh study considerations such as data gathering, sample collection, and experimental endpoints. Consequently, the euthanasia method for a set of study animals based on experimental priorities may not be the appropriate euthanasia method to use on the same set of animals in a disaster event.

- Disaster euthanasia decisions addressing the management of a large population of research animals following a facility disaster or emergency, rest with the Attending Veterinarian. However, implementation of these orders will fall to the facility management and staff.
- Disaster euthanasia resources required to conduct a large-scale euthanasia procedure include personnel proficient or trained in the selected euthanasia method, specialized equipment, specific euthanasia drugs and materials approved carcass disposal methods and carcass storage locations, and approved animal and carcass transportation assets. Several Federal Agencies possess Emergency Animal Care teams and/or resources capable of supporting large-scale euthanasia operations.
- These Federal Agencies may be able to supply euthanasia resources if requested. The Federal Agencies with animal euthanasia resources are the: Department of Health and Human Services, Federal Emergency Management Agency, National Disaster Medical System, United States Department of Agriculture, and Department of Defense.
- Disaster euthanasia plans are included in the Disaster Plan (Appendix 1). The Euthanasia Plan outlines trained personnel, equipment, drug, supply, transportation, and carcass disposal items required to support a large-scale euthanasia event. Euthanasia plans are reviewed annually by Vivarium leadership and updated as necessary to reflect the species maintained. The vivarium manager annually surveys their euthanasia resources.
- Disaster euthanasia methods are selected which safely implement humane euthanasia and minimize human and animal health/safety concerns. The decision to utilize modified versions of acceptable euthanasia methods listed in the AVMA Guidelines on Euthanasia should be based on veterinary professional judgment, as indicated by overriding, disaster-related circumstances.

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[1] References:

AVMA Guidelines on Euthanasia, AVMA Press, 2013.

Guidelines for Euthanasia of Rodents Using Carbon Dioxide, *ARAC*, Revised 12 Jan 2010.

Guide for Laboratory Animal Care and Use. 8th Edition, NAS Press, 2011.

Guidelines for the Euthanasia of Rodent Feti and Neonates, *ARAC*, Revised 9 Mar 2011.

Animal Program Staff Preparedness Information

- Sufficient preparation is critical to successful mitigation of emergencies. Everyone should review and be familiar with workplace evacuation routes, emergency response procedures, equipment, and supplies in all areas in which the individual works (including shared facilities such as the Vivarium and Core Labs) before an actual emergency occurs.

- A personnel training program using the response and recovery plan is critical to the outcome of specific situations. Subtle changes in routine operations may necessitate changes in the plan and require additional training of personnel. See Section 5 of this Plan to address training issues

- It is also important for staff to develop their own personal response plans at home so that they are assured that their family and loved ones know how to respond and are safe during an emergency. Information on developing a personal plan can be found under Preparedness at Home in the Other References section of this document.

- Read and understand the Animal Program Emergency Response and Recovery Plan.

- Be familiar with the building's floor plans, evacuation routes, rally location, and the Emergency Preparedness Handbook. If working in a shared facility, such as the Core Labs, ensure you are aware of the building's plans, routes and rally locations.

- Participate in practice scenarios - fire drills, power failure, animal escape, human- animal bite, chemical spill, eye splash, etc.

- Prepare yourself and your family so they know and understand what to do, where to go, and how to cope if you are unable to return home immediately.

- Read and familiarize yourself with the applicable SOPs, Waste Disposal Guide, emergency phone numbers, and applicable emergency procedures.

Know the location of the following:

- Emergency information (guides, manuals, SOPs, telephone numbers)
- Telephones
- Stairwells (avoid elevators)
- Fire alarms and extinguishers
- First Aid and Bite Kits
- Eyewash stations
- Emergency Showers
- Medical Care Providers

Keep the following items on hand and in a location known to all employees:

- Flashlights and fresh batteries
- Portable radio and fresh batteries

Keep the following items on hand and in a location known to appropriate supervisory staff:

- Personal information that may be required by emergency response personnel, *e.g.,* drug allergies, current medications, etc.
- Personal emergency telephone numbers, *e.g.*, children's schools, next-of-kin, significant other, doctor, etc.

In preparation for a prolonged evacuation event, each staff member who will be responsible for care should have a prepared "Go-Bag" that contains items that they may need for an extended evacuation period. It may contain items such as medication, drinking water, warm clothing, umbrella, etc. Re-entry may be delayed, so employees should also take personal items such as car keys, wallets, purses, and identification badges.

Animal Program Status Report Information

When making a report during an emergency event, the following information should be included:

- Animal Facility Location
- Sender Name
- Sender Contact Information (Provide best way to contact sender: e-mail, fax number, text, or phone number)
- Date/Time of Report
- Facility Status - Structural Damage, HVAC, Water, Steam, Electricity, etc.?
- Personnel Status - Appropriate Staffing Level, Injuries, Shelter-in-Place Status, etc.?
- Animals - No Issues, Injured, Compromised Biosecurity, Deaths, Unknown, etc.?
- Potential hazards in the area (biohazards, chemical hazards, radiation/radioactivity hazards)
- Does the facility need veterinary support? -Food, Bedding, Water, Veterinary Care, Relocation, Personnel, etc.? (Vivarium emergency resources are planned only for animals housed in vivaria and may not be available to support populations housed outside of vivaria.)
- Other Comments/Updates

Animal Program After-Action Report (AAR)

The After-Action Report should be generated after any extensive emergency or disaster. The report should fully describe the incident, immediate effects, methods used to resolve the situation and how the problem may be averted in the future. These reports are intended for internal use and should be tailored to fit the needs of the disaster response program. Copies of this report should be forwarded to Vivarium Manager, Attending Veterinarian, IACUC, and the Office of Research.

Include the following descriptions:

- Record the circumstances resulting in the disruption of normal operation
- Date
- Time
- Location
- Personnel affected - Animals/species involved
- Physical plant damaged
- Equipment affected
- Potential hazard containment compromise
- Did the incident compromise the health, safety or welfare of any animals or personnel? Does it have the potential to do so in the future?
- Were any animals relocated or evacuated?
- Was this reported to the Attending Veterinarian (either through the Vivarium Manager or Office of Research)?
- Describe how operations were restored. If only temporary or partial, when will operations be fully restored?
- Describe any loss of holding space for animals and how it was replaced.
- Describe any loss of containment and how this was restored.
- Describe any loss of equipment and how it is expected to be replaced.
- Describe how the incident impacted the research mission:
- Was there permanent loss of data; must experiments be repeated; was there loss of founder animals with/without offspring, or loss of strains that must be imported or derived from embryos?

- If there was a compromise of health status, are the animals to be re-derived or the facility restocked?
- Estimate the costs to your organization:
    - Personnel
    - Animals
    - Facility
    - Equipment
- Were there any premonitory signs that could have forewarned of the impending emergency? Were these premonitory signs reported to or discussed by the facility management and was some action taken prior to the incident?
- Were there some preparations for this type of emergency (mitigation) that could have prevented or lessened the detrimental effects on the operations of the facility?
- Was the disaster management plan consulted to resolve issues associated with the emergency?
- Was the personnel evacuation plan needed during this emergency, was it followed, and did it work appropriately?
- What other preparations would be useful to ensure the health and safety of personnel and animals?

Calculating Minimum Water Requirements

PREPAREDNESS

- Animal drinking water estimation should be performed periodically.
- Use the average facility census to allow management to conduct proactive planning for water supplies and logistics.
- Adjustments up or down can then be made after an actual water emergency has occurred.

Calculations:[3]

To calculate the daily drinking water needs:

- Count the number of animals in the building for each species.
- Multiply by the approximate total number of each species by the approximate average daily water consumption by that species.
- Average daily water consumption by species:
  - Mice - 6.7 ml per adult (225 ml/kg)
  - Rat - 45 ml per adult (80 – 110 ml/kg)
- Add the total average daily water by species. This equals the total volume of water in milliliters required per day for the entire facility.
- It may be useful to multiply the total amount calculate by 2 to account for varying rates of use and waste.
- **Calculations and storage guidelines are updated annually by Vivarium Staff and posted on the Feed/Water Storage Room Door (Room 190G)**

Emergency Alert Notification Systems

CHAPMAN EMERGENCY ALERT SYSTEMS

- **Panther-Alert:** Sends emergency messages to your mobile or fixed device of choice so you get emergency messages quickly wherever you are. https://www.chapman.edu/campus-services/public-safety/programs/panther-alert.aspx
- **Panther-Guardian:** Turn your phone into a personal safety device https://www.chapman.edu/campus-services/public-safety/programs/panther-guardian.aspx

LOCAL EMERGENCY ALERT SYSTEMS

California:

- California Emergency Digital Information System (EDIS)- Service of the Governor's Office that delivers information about emergencies and disasters to the public and news media in California: http://edis.oes.ca.gov/

Orange County:

- Alert OC: http://bos.ocgov.com/alertoc/alertoc_text.asp

NATIONAL EMERGENCY ALERT SYSTEMS

US Office of Personnel Management – Operating Status & Schedules http://apps.opm.gov/listserv_apps/list-_sub.cfm?targetlist=operatingstatus

- National Terrorism Advisory System (NTAS) https://www.dhs.gov/national-terrorism-advisory-system

Emergency Animal Care Resources

The Vivarium maintains a centralized repository of Emergency Animal Care Resources. Facilities that maintain animals outside of the Rinker Campus Vivarium should ensure that they maintain an adequate supply of Emergency Animal Care Resources. Items such as the following should be included:

- Climate Control Equipment – Chillers, Heaters, Dehumidifiers
- Communication – 2-way radios, CB radio
- Extension Cords, Batteries
- Light Sources – Flashlights, Headlamps, Light Trees
    - Transportation – Vehicles, Electric Mules
- Euthanasia - Equipment, CO_2, Drugs
- Personal Protective Equipment – Tyvek, Masks, Gloves, Shoe Covers, Goggles
- Animal Food, Bedding, & Water Supplies
- Shelter-in-Place – Food, Cots, Blankets
- Carcass disposal materials

Transportation Emergencies & Supply Failure (Weather, Road Blocks, Public Transportation Outage)

PREPAREDNESS

- Road closures and inclement weather can prevent transportation of staff and supplies. Maintain a current inventory list of supplies. Ensure adequate amounts of food and water are available to support the animal colony for the 5 – 7 days. Pre- stage husbandry supplies when possible.
- In preparation for adverse events that may close roads and impact public transportation, all essential employees should be advised in advance of their essential status and counseled on their role and responsibility within the animal program during these events. Consideration of altered work schedules comprised of shifts or teams to ensure continuation of mission critical activities may be necessary.
- Considerations need to be made if essential personnel are required to shelter in place during the event. Overnight accommodations may be needed. If local restaurants and food delivery services are not accessible, food and water for up to a 3-day period should be kept on-hand for essential personnel.
- Personnel that utilize public transportation should have alternate transportation plans in place if public transportation is impacted or shut down. Carpooling options should be considered.
- If a weather-related or other emergency arises before the workday begins, the University will issue an announcement regarding the Operating Status of Chapman using the Panther Alert System
- Current Operating Status: http://www.Chapman.edu

RESPONSE

- Implement staffing plans to maintain mission critical activities and monitor supply levels throughout event.
- If necessary, coordinate with local facilities to maximize use of essential personnel.
- If supply stockpile is low or inadequate, notify VM so they can coordinate with another animal program to obtain necessary supplies in a timely manner.

RECOVERY

- Resume normal operations.
- Meet with essential personnel and key staff members to identify problems experienced during the storm and potential corrective actions to strengthen future readiness and response efforts.
- Implement corrective actions.

Triage Guidance for Disaster Events

Triage = The determination of priorities for action in an emergency, *i.e.*, treatment, evacuation, husbandry

PREPARATION

- Establish a clear chain of decision-making authority for the triage of animal support activities during an emergency response.
- Establish emergency action (treatment, evacuation, and husbandry) priority lists. The triage lists may be based on: program services, animal species, animal ages, injury types, studies, animal health and infection status, and/or facility functions.
- Discuss the facility's triage priorities with the facility's supervisors and emergency response coordinators.
- Incorporate the facility's triage plan in day-to-day operational activities by the utilization of distinct color schemes or markers to signify the triage status of processes, equipment items or animals.
- Review the facility's emergency support priorities during the facility's annual disaster plan review.
- Identify alternative housing and transportation options.

RESPONSE

- Assess the situation: facility damage, facility support capability, emergency equipment availability, animal colony status,
- Focus emergency support to ensuring personnel safety, maintaining study integrity, conserving resources, and protecting animal life and well-being,
- Provide emergency support to the animal colony utilizing the facility's emergency support triage plan until directed otherwise by your supervisor.

RECOVERY

- Re-establish stable animal environments including containment for hazards.
- Re-establish pre-emergency food, medications, equipment, and supply levels.
- Review the effectiveness of the triage plan during the emergency response with the facility supervisors and leadership and incorporate these findings in the Emergency Response After-Action Report.
- Adjust the triage plan as needed.

Animal Facility Alarm Set Points & Tiered Response System

The Vivarium Manager and the Office of Research have developed the following list of standardized animal facility alarm set points for animal room temperatures, humidity, and air changes. During normal animal facility hours (Monday – Friday, 7:00am – 4:00pm) the animal facility personnel are responsible for monitoring and reporting any abnormal animal room parameters. Chapman Facilities Management and the Building Controls Manager are responsible for monitoring these parameters after-hours, and on weekends and holidays.

Two-tiered alarm response system.

- Tier 1 Warning Alarm - requires that Chapman Facilities Management (FM) personnel respond within 2 minutes. Within two hours of a Tier 1 response, FM will notify the appropriate animal facility personnel of the Tier 1 warning alarm and provide a summary of the event and resolution.
- Tier 2 Critical Response Alarm – requires that FM personnel be on-site of the alarm within 15 minutes to mitigate and resolve the issue and will contact the appropriate animal facility personnel within 15 minutes to notify them of the issue. FM will notify the animal facility personnel using the contact information posted on the Emergency Contact signage, so it is critical that this information be kept current and accurate.

Table 1

Rodent Facility Alarm Set Points:

Parameter	**Set Point**	**Tier 1:** **Warning Range**	**Tier 2:** **Critical Response Range**
Temperatures: (°F)	72°F	<69°F or >75°F	<64°F or >80°F
Humidity	50% RH	-	<30 or >70% RH
Air Changes	10-15 ach	<5 ach	

Table 2: CRITICAL CONCERNS FOLLOWING AN ANIMAL FACILITY CLOSURE

HOURS AFTER ANIMAL FACILITY CLOSURE:	**Zero hour** (Initial Building Closure)	**6 hrs.**	**12 hrs.**	**18 hrs.**	**24 hrs.**	**48 hrs.**
CRITICAL CONCERNS: (These concerns are cumulative over time until full staff access to the facility is re-established and the impact of the closure event is determined.)	**CONCERNS LISTED AT PREVIOUS TIMEPOINTS PLUS:**					
	ROOM ACCESS TO TREAT INJURIES AND EVACUATE ANIMALS IF NEEDED AIR QUALITY ROOM AND CAGE SECURITY BIOSECURITY	ROOM ACCESS TO ASSESS ANIMAL HEALTH CAGE TEMPERATURES ELECTRICITY TO VENTILATED CAGES/ISOLATORS	ROOM ACCESS TO TREAT CLINICAL AND SURGERY PATIENTS ROOM LIGHT CONTROL	ROOM ACCESS TO PROVIDE LIMITED HUSBANDRY CARE FOOD AND WATER AVAILABILITY STUDY INTEGRITY	ROOM ACCESS TO PROVIDE FULL HUSBANDRY CARE AND MONITOR ANIMAL HEALTH CAGE SANITATION	**CONCERNS LISTED AT PREVIOUS TIMEPOINTS**
FACTORS **MODIFYING** **CRITICALITY OF ANIMAL PROGRAM CONCERNS:**	EMERGENCY or DISASTER EVENT - (Fire, flood, weather, criminal activity, explosion ...) WEATHER CONDITIONS- (Snow, sleet, rainstorm, hurricane, tornado, seasonal temperature ...) TIME OF DAY – (Normal operating hours, morning, afternoon, evening, weekend, holiday...) SPECIES AND STRAINS HOUSED – (Mice, rats, immunocompromised, infectious …) TYPE OF RESEARCH PROGRAM – (Infectious disease, surgery, cancer, aging, drug toxicity ...) OPERATIONAL PROCEDURES of the ANIMAL PROGRAM– (Contractor, facility footpaths, cage wash, weekend staffing level …) ANIMAL CAGING SYSTEMS – (Ventilated racks, carts, specialty, isolators…) FACILITY DESIGN – (Multi-floor/story, biohazard, chemical hazard, barrier containment, elevators …) RELOCATION RESOURCES – (Transportation, crating, loading dock access, relocation space availability …) INSTITUTE MUTUAL AID AGREEMENTS – (Animal relocation space, communication, access, security, personnel …) PERSONNEL AVAILABILITY – (Contract specifications, temporary housing, technical qualifications, communications …) PUBLIC RELATIONS – (NIH Public Information emergency support team involvement, public awareness, public concerns ...) NIH COOP STATUS – (COOP activation level, concurrent emergency events, event response plan detail, reserve assets …) COMMUNITY ROAD NETWORKS - (Clogged access roads, temporary/permanent closures …) SUPPLIES— (Reserve levels, delivery schedules, storage spaces, security requirements, accounting systems…)					

CHAPMAN EMERGENCY RESPONSE CONTACT INFORMATION

EMERGENCY	
Vivarium Manager	520-401-4504
Police-Fire-Rescue-Hazmat-Off-campus	714- 744-7875
OC PD TTY Telephone Line	911
Facilities Management Trouble Call Desk	714-997-6658
Medical Center Emergency Department	911
Biosafety Officer	714-516-7199 or 562-533-7207(after hours)
Office of Insurance and Risk Management	714-532-7794
NON-EMERGENCY	
Chapman Media Relations & Public Outreach	714-744-7677
Chapman Public Safety	714-997-6763
Fire & Life Safety Manager	714-744-7875
Environment Health & Safety	714- 628-2888
Facilities Management Building Utilities Repair	714-997-6658
Reporting Hazards	714-628-2888 or 706-877-8783 (after hours)
Occupational Health	714-532-7794

Telecommunications Systems

During large or regional disaster/emergency events, the landline and cellular phone systems may be impacted due to damage or overwhelming call volume activity. Limit use of landline and cellular services, and maximize use of systems that require minimal bandwidth, such as Short Message Service (SMS text), Blackberry PIN, Instant Messaging, email, etc.

The National Communications Systems provides two telecommunication systems that can be used by national security and emergency response personnel to make priority landline and cellular calls.

Government Emergency Telecommunications Service (GETS) can be used on various types of phones by dialing a universal access number. Individuals must be registered to use GETS, and there is a charge per minute for each call. See the NCS GETS website for more information: http://gets.ncs.gov/program_info.html

Wireless Priority System (WPS) is for cellular phones. It requires that the cell phone be registered, and the feature added by the cellular service provider. There are fees associated with this service such as an activation fee, monthly subscription cost, and additional per minute fees. See the NCS WEP website for more information: http://wps.ncs.gov/

Online Resources & Links

The following list contains resources, institutional documents, and web sites that may be useful during emergency/disaster preparedness and response:

EVACUATION – ANIMALS

USDA Animal Care Emergency Programs

http://www.aphis.usda.gov/animal_welfare/ep/index.shtml

BIOHAZARDS

Biosafety in Microbiological & Biomedical Laboratories, 5th Ed. (BMBL)

http://www.cdc.gov/biosafety/

NIH Guidelines for Research Involving Recombinant and Synthetic Nucleic Acids

http://oba.od.nih.gov/rdna/nih_guidelines_oba.html

CHEMICAL HAZARDS

General Chemical Storage Compatibility

http://www.ors.od.nih.gov/sr/dohs/Documents/General_Chemical_Storage_Compatibility_Chart.pdf

Material Safety Data Sheets

http://www.ors.od.nih.gov/sr/dohs/labservices/msds/pages/material_safety_data_main.aspx

FIRST AID

Automated External Defibrillators (AED) Locations at CHAPMAN:

http://ehs.Chapman .edu/Pub/IPD_AEDBview_08.09.pdf **Survival Center First Aid Tutorial**
http://www.survival-center.com/firstaid/book.htm

NATURAL DISASTERS

Centers for Disease Control – Natural Disasters Preparedness Guide

http://www.bt.cdc.gov/disasters/index.asp **Federal Emergency Management Agency**
http://www.ready.gov/natural-disasters

PREPAREDNESS

APD Development of Bite, Scratch, and Splash Care Instructions for Employees Handling Macaques

http://oacu.od.nih.gov/UsefulResources/resources/APDGuideline_BiteScratchSplash.pd f

Disaster Planning and Response Resources – Office of Laboratory Animal Welfare

http://grants.nih.gov/grants/olaw/disaster_planning.htm **Guidelines for Standards of Care in Animal Shelters** http://oacu.od.nih.gov/disaster/ShelterGuide.pdf **Pandemic Flu Planning**

http://www.flu.gov/

USDA Emergency Preparedness & Response Factsheet

http://www.aphis.usda.gov/publications/aphis_general/content/printable_version/fs_emerpre.pdf

PREPAREDNESS AT HOME

Are You Ready? In-depth Guide to Citizen Preparedness – FEMA
http://www.ready.gov/document/are-you-ready-depth-guide-citizen-preparedness **Emergency Financial First Aid Kit - FEMA** http://www.operationhope.org/images/uploads/Files/effak2.pdf

Family Communication Tips - FEMA http://www.ready.gov/family-communications **Food and Water in an Emergency – FEMA** http://www.fema.gov/pdf/library/f%26web.pdf **Preparing for Disaster – The American Red Cross**

http://www.redcross.org/images/pdfs/preparedness/A4600.pdf

Prepare for Emergencies Now: Information for People with Disabilities - FEMA
http://www.ready.gov/sites/default/files/FEMA_Disabilities_R-6_web_june2012.pdf **Information for Pet Owners – FEMA** http://www.fema.gov/plan/prepare/animals.shtm

Preparing your Pets for Emergencies - FEMA

http://www.ready.gov/sites/default/files/documents/files/pets_brochure.pdf

TERRORIST HAZARDS

Department of Homeland Security Preparedness, Response, & Recovery

http://ipv6.dhs.gov/files/prepresprecovery.shtm **FEMA Terrorist Hazard Preparedness**
http://www.ready.gov/terrorism

National Terrorism Advisory System

http://www.dhs.gov/files/programs/ntas.shtm

Training and Documentation

Lab Membership

Please complete this section on an annual basis and whenever a new member is added to the lab and when changes are made to the plan. The IACUC will ask to see this documentation at the time of facility inspection.

Record the name of all laboratory staff that are involved in the care and/or use of animals.

List the date that each member confirmed receipt / training on this plan. Everyone must initial their entry.

Identify the primary contact for the lab.

PI Name: _____ Date: _____

Staff: _____ _____ _____

_____ _____ _____

_____ _____ _____

Date: _____

Date: _____

Date: _____

Date: _____

(Continue on additional pages, if needed)

Lab Primary Contact: _____

Home # _____ Cell # _____ Work # _____

Critical Resources and Continuity of Operations

The eighth edition of the Guide for the Care and Use of Laboratory Animals (http://grants.nih.gov/grants/olaw/Guide-for-the-care-and-use-of-Laboratory-animals.pdf) indicates that institutional plans should, when possible, describe "…how the facility will preserve animals that are necessary for critical research activities or are irreplaceable" (The Guide, p. 35). To help you determine those resources that are critical to continued research operations, please complete the self-assessment, located on the following page, on an annual basis.

Scientists are encouraged to share unique resources (*e.g.,* genetically modified mice/fish, tissue samples) with colleagues across the country and/or to cryopreserve these resources at an off-site facility, preferably one that is not in Southern California. The Vivarium Manager can help with cryopreservation services.

Data preservation is also key, therefore efforts to back-up or securely cloud-store these resources should also be addressed by the PI.

Self-Assessment

Topic	Question	Answer
Backup of Research Data	Do you back up your important research and instructional documents & data in a different location so that they are retrievable in the event their primary location such as a server, office, or computer is destroyed?	☐ Yes ☐ Partially/Somewhat ☐ No ☐ Don't Know ☐ Does not apply Comments:
Availability of resources used in research	Have you made arrangements to protect your research in the event normal service providers, materials, and/or utilities, are not available? For example, coping with the loss of refrigeration, loss of HVAC, etc.	☐ Yes ☐ Partially/Somewhat ☐ No ☐ Don't Know ☐ Does not apply Comments:
Alternate Location	If a disaster forced your building to close for lengthy repairs, are you able to conduct at least part of your research from another remote location? This could include having a collaborator in a different region who can be a backup for you	☐ Yes ☐ Partially/Somewhat ☐ No ☐ Don't Know ☐ Does not apply Comments:
Communications	Do you have and distribute a contact list of all important people who might need to be in contact with each other after a disruption?	☐ Yes ☐ Partially/Somewhat ☐ No ☐ Don't Know ☐ Does not apply Comments:
Comments	What other concerns regarding continuing your research after a disruptive event do you have?	Comments:

Glossary of Acronyms

AAR-After Action Report

AED-Automated External Defibrillator

APHIS-Animal Plant Health Inspection Service

ATC-Area Team Coordinator

AV-Attending Veterinarian

AVMA-American Veterinary Medicine Association

AWA-Animal Welfare Act

BAS-Building Automation System

BSO-Biosafety Officer

CPR-Cardio Pulmonary Resuscitation

CRT-Crisis Response Team

DEC-Department Emergency Coordinator

Chapman Public Safety- Chapman University Public Safety

EM-Emergency Management

EH&S-Environmental Health and Safety

FEMA-Federal Emergency Management Agency

FTC-Floor Team Coordinator

FTE-Full Time Equivalent

HVAC-Heating, Ventilation and Air Conditioning

IACUC-Institutional Animal Care and Use Committee

ISDN-Integrated Services Digital Network **IS&T**-Information and Systems Technology

MSDS-Material Safety Data Sheet

OEC-Occupant Emergency Coordinator

OHF-Occupational Health Facility

OIC-Officer in Charge

SOP-Standard Operating Procedure

UILA-Unique Identifier Label

VM-Vivarium Manager

References

Animal Welfare Disaster Contingency Plan Science North ... Retrieved from https://www2.indstate.edu/research/Files/IACUC_EmergencyResponsePlan.pdf

Office of Laboratory Animal Welfare - Disaster Planning and Response Resources. (2015, August 27). Retrieved January 06, 2017, from https://grants.nih.gov/grants/olaw/disaster_planning.htm

UCLA Animal Emergency Plan. (n.d.). Retrieved from http://surgery.ucla.edu/workfiles/research/Animal_Disaster_Plan_Template.pdf

Appendix 1.A: Euthanasia & Depopulation - Rodents

APP# 1. A	Date Issued: April 15, 2019	Date Revised:
Title	Euthanasia and Depopulation Disaster Response SOP	
Scope	All Vivarium Facilities	
Responsibility	Vivarium Manager, Attending Veterinarian	
Purpose	Establish and maintain procedures to safely, efficiently, and ethically carry out emergency euthanasia of laboratory animals	

1.A Rodents

Preferred Method: Any method considered acceptable or acceptable with conditions in the AVMA Guidelines for the Euthanasia of Animals.[1]

Procedures for Constrained, Emergency, or Disaster Circumstances:

- Inhalant Overdose
    a. Carbon Dioxide
        i. Equipment Needed:
            1. Electricity
            2. Euthanex Euthanasia Machine, accessory lids and hoses
            3. CO_2 tanks
        ii. Permissible Use:
            1. Use CO_2 asphyxiation euthanasia only if emergency power is operational and CO_2 tanks are viable.
            2. Ideally, animals should not exceed a confluent monolayer in the chamber and time animals are exposed to unfamiliar animals should be as short as possible to minimize stress and fighting.
        iii. Notes
            1. RHSC Vivarium can process 4 cages every 10 minutes (4c/10min)
    b. Isoflurane
        i. Equipment Needed:
            1. Required for Personnel Safety: Functional Ducted Biosafety Cabinet or Chemical Fume Hood
            2. Isoflurane – CHEMICAL INHALANT HAZARD
            3. Oxygen – FLAMMABLE HAZARD
            4. Isoflurane Vaporizer
        ii. Permissible Use:
            1. Use Isoflurane/Oxygen anesthetic overdose only if Emergency Responders have cleared the use of oxygen
            2. Ideally, animals should not exceed a confluent monolayer in the chamber and time animals are exposed to unfamiliar animals should be as short as possible to minimize stress and fighting.

- Injectable Methods
    a. Sodium Pentobarbital (Euthanasia Solution)
        i. Supplies/Equipment Needed
            1. Authorized Access to Controlled Substance Locker
            2. Sodium Pentobarbital Drug
            3. Needles/Syringes
        ii. Permissible Use:
            1. Use injectable sodium pentobarbital only if authorized to do so
            2. Dilute in saline to a concentration of 10mg/mL and injected 50-100mL solution intraperitoneally
            3. To facilitate delivery to a large number of animals in a timely manner, needles and syringes may be reused until dulling is noted.
            4. Use a larger than typical gauged needle (23-20g needle) to help speed the process in delivery of viscous solution.

    b. 70% Ethanol
        i. Supplies/Equipment Needed
            1. 70% Ethanol – Readily Available
            2. Needles/Syringes
        ii. Permissible Use
            1. FOR MICE ONLY
            2. Ideal for situations when controlled substance locker is inaccessible as ethanol is readily available throughout all labs
            3. Inject 0.5mL of 70% ethanol intraperitoneally in mice

Appendix 1.B: Euthanasia & Depopulation - Aquatics

APP# 1. B	Date Issued: April 15, 2019	Date Revised:
Title	Euthanasia and Depopulation Disaster Response SOP	
Scope	All Vivarium Facilities	
Responsibility	Vivarium Manager, Attending Veterinarian	
Purpose	Establish and maintain procedures to safely, efficiently, and ethically carry out emergency euthanasia of laboratory animals	

1.B Aquatics (Zebrafish)

Preferred Method: Any method considered acceptable or acceptable with conditions in the AVMA Guidelines for the Euthanasia of Animals.[1]

Procedures for Constrained, Emergency, or Disaster Circumstances:

1. All zebrafish and zebrafish embryos carcasses must be disposed of as biohazardous waste through EH&S. Under no circumstances may zebrafish or zebrafish embryos be flushed down any drains or sinks.
2. For zebrafish ≥15 dpf
    a. Rapid Chilling via Ice Water
        i. Supplies/Equipment Needed
            1. Ice and Water to create 0-4^{0}C water
            2. Carcass Disposal Bags
        ii. Permissible Use
            1. For zebrafish ≥15 days post fertilization (dpf)
            2. Immobilization by submersion in ice water (5 parts ice/1-part water, 0-4º C) for at least 10 minutes following cessation of opercular (i.e., gill) movement. In any fish where it is difficult to visualize opercular movement, fish should be left in the ice water for at least 20 minutes after cessation of all movement to ensure death by hypoxia.
    b. Tricaine Methane Sulfonate (MS222)
        i. Supplies/Equipment Needed
            1. Tricaine Methanesulfonate MS-222
            2. Sodium Bicarbonate
            3. Nitrile Gloves
            4. Carcass Disposal Bags
        ii. Permissible Use
            1. Prepare 250mg/L solution under a chemical fume hood, if possible.
            2. MS222 overdose by prolonged immersion in 250mg/L solution. Fish should be left in the solution for at least 10 minutes following cessation of opercular movement.
            3. Buffer 250mg/L solution with sodium bicarbonate to a neutral pH before immersing fish.

        a. Non-buffered MS222 is acidic and causes adverse reaction in unanesthetized fish
    4. Depopulation wait time can be shortened by following MS222 overdose with liquid nitrogen rapid freezing
    5. Waste solution (MS222 dissolved in water) must be diluted with plenty of water (minimum 4:1) and can be drain disposed.

3. For zebrafish larvae up to 8-15 dpf
    a. 2-Step Process: Anesthesia/Immobilization Followed by Secondary Method
        i. Supplies/Equipment Needed
            1. MS222 + Sodium Bicarbonate OR Ice Water
            2. Sodium Hypochlorite 6.5% (equivalent to household bleach)
        ii. Permissible Use
            1. A secondary method must be used in order to ensure death. Use of the ice water or MS-222 method as above should be used as a method of anesthesia/immobilization.
            2. An acceptable secondary method is the addition of bleach solution (sodium hypochlorite 6.15%) to the culture system water at 1-part bleach to 5 parts water. The larvae should remain in this solution at least five minutes prior to disposal to ensure death.

4. For embryos ≤ 7 dpf: Development should be terminated using bleach as described above or rapid freezing in -70^{0}C freezer. Pain perception has not developed at these earlier stages; this is not considered a painful procedure.

Appendix 1.C: Euthanasia & Depopulation – Avian & Poultry

APP# 1.C	Date Issued: April 15, 2019	Date Revised:
Title	Euthanasia and Depopulation Disaster Response SOP	
Scope	All Vivarium Facilities	
Responsibility	Vivarium Manager, Attending Veterinarian	
Purpose	Establish and maintain procedures to safely, efficiently, and ethically carry out emergency euthanasia of laboratory animals	

1.C Avian and Poultry

Preferred Method: Any method considered acceptable or acceptable with conditions in the AVMA Guidelines for the Euthanasia of Animals.[1] Use a 2-step method of euthanasia will enable more conservative use of drug resources.

Procedures for Constrained, Emergency, or Disaster Circumstances:

1. Inhalant Overdose + Secondary Method
    a. Isoflurane
        iii. Equipment Needed:
            1. Required for Personnel Safety: Functional Ducted Biosafety Cabinet or Chemical Fume Hood or EH&S approved gas respirator
            2. Isoflurane – CHEMICAL INHALANT HAZARD
            3. Scissors
            4. Carcass Disposal Bags
        iv. Permissible Use:
            1. Overdose with isoflurane followed by cervical dislocation or decapitation.
            2. Isoflurane overdose causes deep state of anesthesia allowing for untrained individuals to efficiently and effectively perform cervical dislocations or decapitations, thus increasing the number of individuals to help in case of disaster.

- Physical Methods
    a. Cervical Dislocation or Decapitation in a **conscious** animal
        i. Equipment Needed
            1. Decapitator guillotine or sharpened scissors
            2. Carcass Disposal Bags
        ii. Permissible Use
            1. FOR SKILLED PERSONNEL ONLY: PERSONNEL MUST BE TRAINED IN THESE PROCEDURES ON CONSCIOUS UNANESTHETIZED BIRDS
            2. Cervically dislocation is performed using two hands, a firm grip at the base of the skull and the body of the animal while performing one

swift pull apart movement. Confirmation is felt and/or heard with a snap of the vertebrae.

3. Decapitation is performed using a guillotine or sharp scissors.

Appendix 1 References

1. AVMA Guidelines for the Depopulation of Animals: 2019 Edition
2. AVMA Guidelines for the Euthanasia of Animals: 2013 Edition
3. Matthews M and Varga Z. (2012) Anesthesia and Euthanasia in Zebrafish ILAR Journal 53(2):192-204.
4. Roble GS, Lingenhol NM, Baker B, Wilkerson A, Tolwani RJ. A comprehensive laboratory animal facility pandemic response plan. J Am Assoc Lab Anim Sci. 2010;49(5):623-32.
5. Strykowski JL and Schech JM (2015) Effectiveness of recommended euthanasia methods in larval zebrafish (Danio rerio). JAALAS 54(1): 81-84.
6. Wilson JM, Bunte RM, Carty AJ (2009) Evaluation of rapid cooling and tricaine methanesulfonate (MS222) as methods of euthanasia in zebrafish (Danio rerio) JAALAS 48:785-789

Appendix 2: RHSC Vivarium Contingency Plan Summary

APP# 2	Date Issued: April 15, 2019	Date Revised:
Title	RHSC Vivarium Contingency Plan Summary	
Scope	All Vivarium Facilities	
Responsibility	Vivarium Manager, Attending Veterinarian	
Purpose	Establish and maintain procedures to safely, efficiently, and ethically carry out emergency response and contingency plans for the RHSC Vivarium housing mice, rats, and zebrafish	

Purpose

Chapman University is committed to ensuring that vertebrate animals used in research are treated in a humane, ethical manner, with the highest standard of care according to federal, state, and institutional regulations and policies. This plan is intended to provide CU's Institutional Animal Care and Use Committee (IACUC), faculty, staff and students, a summary of our general plan of action in the event of an emergency or disaster with potential impact to the animals housed on campus.

The intent of this plan is to protect and manage the animals on campus in the event of an emergency. However, under no circumstances should employees put themselves at risk at any time in attempting to implement animal protection procedures.

This plan supplements the campus-wide CU Disaster Plan and Animal Emergency Plan. All personnel should follow the procedures in the CU Disaster Plan and use this plan as a supplement to specifically address vertebrate animal needs in the event of an emergency.

Plan Statement

All personnel must comply with the CU Campus-Wide Emergency Plan. The sections below detail how emergencies will be handled within the animal facilities.

OVERVIEW OF ANIMAL CARE & SUPPORT NEEDS

Animal health checks and health maintenance:

Animals should be checked daily to confirm they are healthy. These observations may be performed by qualified Vivarium personnel or other qualified personnel. The Vivarium Manager will triage sick or injured animals and determine a treatment plan, in consultation with the Attending Veterinarian. Animals that cannot be relocated or protected from the consequences of the disaster must be humanely euthanized. When appropriate, animals will be euthanized at the discretion of the Vivarium Manager or designee using current American Veterinary Medical Association (AVMA) approved methods of euthanasia.

Food and water supplies:

Food and water are critical to maintaining animal health. Having the appropriate food for the species and research needs, in adequate quantities, in unadulterated form, is one goal of this plan. If the usual food is not available, professional judgment must be applied to identify acceptable

substitutes which are available. Potable water is especially important, as many animals can survive for several days with little food but may succumb within 1-2 days without water. Some species are especially sensitive to food or water deprivation (e.g., new born rats or mice) and should be given special attention.

Sanitation:

For purposes of animal health, animal welfare and support of research, adequate sanitation must be provided. Cages of some species must be changed often while others may go several days without inducing health or environmental problems. The goal of this plan is to approximate normal sanitation schedules with available resources. Increasing cage change intervals, spot cleaning instead of whole-cage changes, changing bedding instead of cage changes, hand washing some equipment, or deferring activities, such as floor mopping, may be required. The Vivarium Manager will decide which sanitation activities are performed in order to provide the greatest benefit to the animals if it is not possible to perform all normal activities due to disaster/emergency conditions.

Environmental support (ventilation, temperature control, utilities):

Maintenance of an appropriate environment is essential to the well-being of animals and for many research projects. Ventilation problems may include loss of or diminished air supply or exhaust, loss of pressure differentials in critical areas, unacceptable temperature variations, contamination with agents such as chemicals or smoke, or loss of utilities such as electricity needed for lights or powered equipment (e.g., hoods, autoclaves, ventilated racks). Ventilation problems should be addressed by the Vivarium Manager or Facilities Management Personnel with goals of maintaining at least some air movement in animal housing spaces, sustaining air pressure differentials in all rooms and keeping temperatures as close to the acceptable range as is possible. The minimal standard is to prevent animal deaths or contamination of the environment.

Personnel to provide animal care:

Personnel with adequate training are essential to maintaining animal colonies. They may be unable to work in facilities due to damage or dangerous conditions, physical obstructions (snow storm or chemical spill nearby), or interruption of work (bomb threat, picketing, etc.). The Vivarium Manager, or designee, will deploy available personnel to maintain animal health and well-being. Personnel may be asked to perform duties outside the scope of their normal responsibilities in order to protect animal health or well-being. As soon as possible after a disaster or prior to the incident, when possible, a list of current/essential personnel that may need to access campus and the animal facilities will be provided to the University Police Department (UPD) dispatch so they may further distribute it to local, state or federal authorities that may control access, including road closures.

EVACUATION OF ANIMALS

Disaster preparedness can mean the difference between undue loss and suffering of animals, which can compound trauma to human victims, and successful evacuation and care for both

people and animals. Safe evacuation of all people from the designated area is the common goal for all responding agencies.

Evacuation Space: Short-Term & Long-Term Housing

Chapman University does not have a back-up facility specifically prepared to evacuate all animals in the event of an emergency. However, Chapman "owns" several buildings on Jeronimo Road in Irvine (9501 and 9701 Jeronimo Rd) which has considerable space usable for temporarily housing animals and is about ¼ and ½ mile respectively from existing RHSC Vivarium.

Decision-Making for Evacuation

Evacuation will be considered based on the details of the disaster, type of animal, and feasibility of evacuation or relocation. The decision to evacuate animals will be made in consultation with the Vivarium Manager, Office of Research and Sponsored Programs, and Institutional Official.

Scenarios where evacuation of an animal may be appropriate include:

- Evacuation following an emergency that resulted in damage to the animal facility rendering it unsuitable for continued housing of animals.
- Pre-evacuation in the event of an impending disaster.

If there is an immediate threat to human health or safety – **PERSONNEL MUST NOT ATTEMPT TO EVACUATE THE ANIMALS!** Concern for animals is secondary to human life. Personnel should not place themselves in danger to remove animals from a building.

- If you are working with animals near their cages and time permits, put the animal(s) back in their cage(s).
- If you are in the middle of surgery, euthanize the animal if there is time.

A supervisory staff member shall confirm that the emergency is legitimate prior to euthanizing the animal.

If evacuation of the animals (which may not be practical) is being considered to avoid the hazard, evacuation procedures, places and routes should be followed. In the event relocation is required, the animals will be moved to another on-campus location temporarily or an off-campus site if necessary.

Since not all animals may be able to be evacuated, researchers should decide, in advance if possible, which are the most critical to save. PIs should be prepared to communicate priority to animal care staff in an emergency. All researchers are advised to cryopreserve sensitive lines off campus. Finally, animals requiring biohazard housing may not be removed from the animal facility without direct approval from the Vivarium Manager, Office of Research, IO, EH&S, and/or the Attending Veterinarian.

In the event of a catastrophic emergency, injured or affected animals will be triaged by trained animal care personnel (veterinarians, research investigators and/or research staff). Treatment will

occur on site if possible or after evacuation to a predetermined area/site. Those animals with injuries too severe to recover will be humanely euthanized.

NOTE: Any animal cage evacuated from the animal facility should have cage card information taped onto the cage with clear tape and/or cage card information written directly onto the cage with permanent marker as soon as possible.

After an evacuation of personnel, the responsible person should report to the Incident Command Post (ICP) to make the Incident Commander (IC), TBD, aware of the situation, and then work together to determine when it is safe to return to the area with the animals.

SHELTERING-IN PLACE

The term "shelter-in-place" means to seek immediate shelter and remain there during an imminent event instead of evacuating. There are occasions when the option to evacuate the area cannot be considered. Unless otherwise instructed to evacuate, sheltering in a pre-determined safe location is the preferred method of safely waiting out events. Proceed calmly to the location designated for the building you are located in. Windows, doors and HVAC systems in the designated area should be closed.

A second definition of "Sheltering in Place" may be used to describe when animal care personnel decide ahead of time to come to or remain in the facility for longer than a normal shift. For example, when extreme weather is predicted, such as snow, ice, or tropical storm which may prevent transportation or limit access to the animal facility to provide care as required by federal law, the Vivarium Manager or designee, will coordinate to ensure that someone is available to care for the animals. Since events like this allow time for planning, the Vivarium Manager, or designee will ensure that personnel support supplies such as food, water and bedding are available for the individual(s) remaining at the facility. If such a decision is made, the Vivarium Manager will notify Chapman Public Safety of the exact area where personnel remain; this is especially important when the University is "closed."

Generally, the amount of feed kept in-house (including food on cages, food in room feed supply bins and food in feed storage room) is projected to be an adequate supply to allow for any potential delays in feed shipment. Loss of power will be managed with redundancy. If such a situation is likely during the workday, the Vivarium Manager or designee will closely monitor weather conditions. Vivarium staff will be reassigned work tasks to assure that all critical tasks are completed (feed, water, security of animals) and then nonessential personnel will be sent home (timing to be consistent with recommendations from weather bulletin sources). For after-hours emergencies, Vivarium staff should call Chapman Public Safety.

Prior to a storm, when possible, cages will be topped off with food and fresh water. Rodent cage hoppers may be filled to the maximum and full water bottles provided the day before the expected storm even if it is not a normal water change-out day. Treated water may be held in clean containers in the facility.

When serious inclement weather is forecast, some of the Vivarium staff members who live close to the facility or who can take public transportation will be assigned to come to work. Vivarium staff may also stay at nearby hotels or choose to remain at the Vivarium. When staff are required to remain on campus to facilitate care of animals while the university is closed, they may eat the emergency food kit (365 rations) kept under the sink in the RHSC Vivarium Break Room.

NATURAL DISASTERS - FLOODS, EARTHQUAKES, TORNADOS, HURRICANE, FIRE:

Surgical procedures should not be conducted if there is advance notice of a potential disaster. In addition to the CU Emergency Plan, the following should be considered for animals.

Procedures & animal handling during or after a flood, earthquake, tornado, hurricane, or fire:

- If possible, leave rooms where hazardous materials and anesthetic agents are located (ex: surgery prep room, necropsy room).
- Secure radiation sources and other hazardous materials.
- If possible, turn off all gas lines and cylinders.
- If you are working with animals near their cages and time permits, put the animal(s) back in their cage(s).
- If you are in the middle of surgery and are required to evacuate, euthanize the animal if there is time.
- **Someone with supervisory authority must confirm that the emergency is legitimate prior to euthanizing**.
- After the area has been deemed safe by the Incident Commander (IC), Vivarium staff will be permitted inside the building to assess the need for evacuation and relocation of animals or humane euthanasia, if necessary.

HVAC LOSS:

The RHSC Vivarium has a dual-backup system that automatically transfers on. However, any major utility failure should be reported to Facilities Management. If animal room environment cannot be maintained within Guide parameters, the animals may need to be relocated.

Overheating**:**

Move animals to rooms that are not over heating or to the hallway if it is cooler.

If the whole animal facility is overheating, mobile cooling stations can be utilized to reduce the heat load.

If animal rooms cannot be cooled, the Vivarium Manager or designee will make the decision to relocate or euthanize the animals if they are in distress.

Loss of Heat:

Move animals to rooms that have heat or to the hallways if it is warmer.

Use auxiliary heaters in animal rooms that have no heat.

If animal rooms cannot be warmed or there is no warm place within the animal facility, the Vivarium Manager will make the decision to relocate or humanely euthanize the animals if they are in distress or danger.

Continued Power Outage

In the event of a continued power outage or if the emergency generators are not sustaining the Individually Ventilated Cage (IVC) racks, all mouse cage lids must be switched to a Innocage Mouse Static Short lid. This is a low-profile static mouse cage lid with a large filter media that fits into the IVC rack and is designed for emergency preparedness to operate without electricity allowing maximum unrestricted airflow into the cage. Without the short lid, the mice may suffocate in the standard cage setup.

Rats cage lids are not changed during a continued power outage. Instead, place on static green metro cart and increase cage change frequency as necessary per Vivarium Manager instructions.

The zebrafish rack is 100% mobile and must be moved to an area with a consistent power source if both emergency generators fail in the RHSC Vivarium.

ANIMAL RIGHTS ACTIVISTS: PROTESTS / PICKETING

In the event of protests or picketing (by animal rights groups, for example), animal facility personnel are to report to work as usual. In doing so, they are to avoid confrontations if they pass through picket lines or protest marchers. Chapman University Media Relations will handle the dissemination of information and address questions about research activities. Chapman Public Safety will handle all security related issues and will increase security measures for all animal housing and support facilities while helping keep all facilities secure.

- **Animal health checks**: If the number of employees on site is decreased, priority is given to activities which directly affect animal health and welfare: health checks and treatments, feeding, watering, and maintaining minimal sanitation requirements.
- **Food and water supplies**: Food and water supplies on-site should not be affected. Closing the main entry and deferring delivery locations may be considered if the primary location is unusable. Similarly, if the normal waste pick-up procedure is disrupted, waste may be taken out through a different exit location or kept in cold-storage temporarily.
- **Sanitation**: Sanitation should proceed normally, assuming enough personnel are present. If staff shortages occur, sanitation will be prioritized as described in Animal Health Checks above.
- **Environmental support**: Environmental systems are not expected to be affected. If the environment is altered, as by sabotage, for example, the specific problem will be addressed as described in the section for that emergency (see HVAC, Bomb Threat, Electrical power outage).

- **Personnel**: Chapman University personnel are expected to report to work. CU personnel may be required to perform duties outside their usual responsibilities in order to preserve animal health. The Vivarium Manager or designee will adjust duties as needed.

EMERGENCY SUPPLIES

The Vivarium will keep on hand enough food and water to provide proper care for animals in the event of a disaster. The Vivarium maintains an adequate feed supply to meet the needs of a temporary disaster predicted for our region.

Additional supplies that should be kept on hand include:

- Drinking water and Food for staff – Kept in RHSC Vivarium Breakroom
- Flashlights and extra batteries – Kept in RHSC Vivarium Breakroom
- Utility knife – All Staff have their own utility knife
- Sturdy, comfortable shoes and clean socks – Kept in RHSC locker rooms
- Heavy duty work gloves - Kept in RHSC Vivarium Breakroom
- Sanitation needs (such as tissue paper, bleach, plastic bags, plastic bucket) – Kept in RHSC Vivarium Janitor Room
- Duct tape and/or barrier tape – Kept in RHSC Vivarium Janitor Room
- Large sheets of paper, blank cage cards, markers, pens and pencils – Kept in RHSC Vivarium Manager Office
- Whistle - Kept in RHSC Vivarium Breakroom
- Campus and area maps – Posted throughout RHSC Vivarium
- Personal first aid kit – Kept in RHSC Vivarium Breakroom

A full list of facilities where animals are housed and a full list of animal facility and key personnel contact information will be maintained by the Vivarium and provided to Chapman University Dispatch, Irvine Police Department, and ORSP.

DISASTER PLAN TRAINING

The Office of Research will coordinate Emergency Preparedness training exercises with the Attending Veterinarian, Vivarium Manager and Vivarium Staff. The frequency of training will be determined by the Incident Response Team who is responsible for the overall emergency response program at Chapman University.