IACUC GUIDELINE: ANIMAL FACILITIES DISASTER CONTINGENCY PLAN

DATE IMPLEMENTED: May 20, 2011

DATE(s) REVISED: December 17, 2013; July 8, 2014; October 10, 2016

Introduction:

This plan pertains to unplanned events that disrupt normal business operations and could be expected to be detrimental to the good health and well-being of animals under our care (i.e. USDA-APHIS definition of disaster and emergency). The plan consists of the following four major components: a comprehensive risk analysis specific to Animal Resource Center (ARC) and other campus animal holding facilities, a comprehensive risk analysis specific to the Sierra Nevada Aquatic Research Laboratory (SNARL), an assessment of internal capabilities, and an assessment of external capabilities (i.e., surrounding laboratory animal research facilities and vendors). The goal of this document is to summarize the disaster-preparedness and contingency procedures that have been established.

The 8th edition of the NRC Guide for the Care and Use of Laboratory Animals requires animal facilities to have a disaster plan that: “defines the action 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.” It also recommends “the colony manager or veterinarian responsible for the animals should be a member of the appropriate safety committee at the institution, and “official responder” in the institution, and a participant in the response to a disaster (Vogelweid 1998).” This document meets those requirements.

Common Emergencies That Could Occur at our Facilities:

A disaster risk assessment (see Appendix) identifies and considers the common disasters and emergencies that our animal facilities could likely experience. This risk assessment is reviewed annually, and updated as needed.

Responsibility and Action:
The goal of this plan is to protect animal health and well-being, and minimize business interruption through effective preparedness and response activities involving safety, medical, security, animal welfare, public relations, and utilities/maintenance functions. UCSB has adopted the California Standardized Emergency Management System (SEMS), which includes the Incident Command System (ICS) for the management of emergency incidents resulting from natural, intentional, or technological hazards. UCSB is also National Incident Management System (NIMS) compliant. The Attending Veterinarian (AV) is the official responder for the UCSB animal facilities, and is integrated into the University’s Emergency Operations Center (EOC) that is responsible for strategic overview and coordination during any disaster. Specifically, the EOC is the central command and control facility responsible for carrying out emergency management, and ensuring the continuity of operation. Key campus emergency personnel and senior management, including ARC management and staff, are trained in Incident Command and their roles and responsibilities.

The AV is responsible for coordinating the efforts required to care for our laboratory animals in the event of a disaster, including:

1. Assessing the overall situation of the laboratory animals and the animal facilities
2. Directing the on-scene response activities
3. Requesting additional resources if needed
4. Interacting with campus-wide EOC command staff
5. Interacting with surrounding laboratory animal research facilities, outside vendors, and regulatory agencies
6. Documenting the disaster-related activities that pertain to the animals/animal facilities

Duty Checklist:

1. Obtain situation briefing from the EOC
2. Don identification vest, carry portable radio
3. Direct the on-scene response activities (e.g., assignments of personnel, treatment of injured animals, coordination of facility repairs, etc.)
4. Update EOC command staff (e.g., incident commander, public information officer, etc.)
5. Interact with other UC campuses, outside vendors, and regulatory agencies (e.g., AAALAC International, USDA, OLAW, Department of Fish and Wildlife)
6. Document the disaster-related activities (e.g., documentation of notification of scientific personnel, documentation of treatment/euthanasia of animals, etc.) Use EOC forms to document personnel time and to request resources from the EOC. EOC forms are included in the appendix.

Dr. Manuel Garcia, Director, ARC and AV is the official responder for the UCSB animal facilities. Should Dr. Garcia not be able to reach the campus in the event of a disaster, then the normal chain of command would apply (i.e. Manager, ARC). The procedures for contacting the AV and the back-up veterinarian are included in the appendix.

Comprehensive Risk Analysis

A comprehensive risk assessment was performed during the spring 2011 semi-annual Institutional Animal Care and Use Committee (IACUC) inspections. The risk assessment was updated in winter
and spring quarter 2013, and in the winter quarter 2016. The risk analysis team consists of individuals from the IACUC and Campus Emergency Management.

The risk analysis rated risks facing animal facilities and considered the impacts, likelihood, and controls for each risk in several categories. Disaster and emergency categories that we could likely experience includes: natural disasters, safety and security risks, animal facility mechanical functions and other animal facility functions such as animal husbandry. A copy of the current risk assessment worksheet is included in the appendix.

The risk analysis process also provided the opportunity to rank order our animal-related priorities in the event of a disaster. We identified the following two outcomes and ranked the related conditions according to priority.

1. Scientific Integrity of Ongoing Studies Can Be Maintained - Preserve All or Most of the Animals

Within 24-48 hours of the emergency or disaster, it will become readily apparent whether or not 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. For this contingency, it is assumed that the investigative staff will be available to continue with their studies.

   a. It has been deemed safe to access to the buildings containing the vivarium (i.e. green-tagged building).
   b. Food, water, and bedding needs must be met without interruption - requires back-up supply of food, water, and bedding either on- or off-site.
   c. Animal room environmental conditions must be maintained within specific parameters – 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.
   d. Light cycles must be maintained.
   e. Cage wash capabilities must continue with minimal interruption – requires electrical power, steam, water, and intact mechanical/sanitary systems.
   f. Ability to remove animal waste from colonies – requires wash down water and garbage removal capabilities.
   g. Ability to dispose of carcasses – requires power to carcass freezer, and offsite transportation by commercial waste disposal firm (i.e. Medical Waste Environmental Engineers).

2. Scientific Integrity of Ongoing Studies Cannot Be Maintained - Preserve 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, etc.), then the focus will turn to preserving those species that are irreplaceable or necessary for critical research activities. Investigators are encouraged to consider cryopreservation of germplasm (embryos or spermatozoa) from such valuable animals as a safeguard against loss from a disaster or emergency. If such disaster or emergency does occur, and assuming that at least the ARC staff has access to the animals, then 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.
a. Food, water, and bedding needs must be met without interruption - requires backup supply of food, water, and bedding.
b. Animal rooms could be maintained with air circulation only – requires electrical power for ventilation fans, intact electrical power distribution systems, piping, ducts, and fans.
c. Lighting could be maintained from temporary light standards and generators.
d. Ability to transport animals to offsite locations – requires activation of the assistance from other UC campuses under the Mutual Aid Agreement (see appendix).
e. Ability to remove animal waste from colonies – requires wash down water and garbage removal capabilities.

f. Ability to euthanize animals onsite, if removal, transportation, and relocation is not possible.
g. Ability to hold/dispose of a large number of carcasses – requires emergency power to carcass freezer, or another method for onsite storage of carcasses (e.g., 55-gallon drums).

h. 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.
i. At SNARL, any wild animal that was collected/captured from locations near or similar to the environment at animal facility, and which according to conditions of the collection permit may be released back into the wild, will be released to the wild in the case of an emergency rather than being euthanized.

The aforementioned lists also helped us identify the critical disaster-related services that would be required (e.g., food, water, bedding, HVAC, etc.).

Assessment of Internal Capabilities

Listed below is a current assessment of our internal capabilities and resources.

Employee Injuries/Availability/Skill Set: Attending to injured employees and protecting our employees from injury is the first priority in any disaster. Emergency medical services personnel are responsible for caring for injured employees during/after a disaster. The EOC is aware of the veterinary/medical expertise that exists within the ARC and would request assistance from us if necessary. First aid kits (i.e., for human use) are located throughout the buildings on-site and are regularly checked and restocked as part of routine facility inspections.

Many animal facility employees live in nearby communities and can be expected to reach the animal facilities in a reasonable length of time after a disaster. To aid in their decision on whether or not to come to work, UCSB has an emergency communications plan including a cell phone/email notification system (UCSB ALERT- https://alert.ucsb.edu.), and a toll free emergency number (1-888-488-UCSB). UCSB also can use the UCSB home page (http://www.ucsb.edu) as an emergency blog when needed.

At SNARL both the researchers working with the animals and reserve staff lives onsite and are available instantly in a disaster.

Current Official Responders:
- An up-to-date list of official responders for animal facilities is maintained by the UCSB IACUC and is available to the EOC. The AV is one of many official responders.

Working in pairs if possible, the AV and personnel in the animal facilities will assess the condition of all of the animals as soon as access to the animal facilities is allowed. All animals suffering from injuries will be triaged, and treated or euthanized as necessary.

Once the initial evaluation and treatment of animals has been accomplished, veterinary support efforts would be directed to contacting investigators and obtaining permission to euthanize animals on studies that had 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). The AV would oversee the euthanasia of these animals as well.

A separate plan for dealing with anesthetized animals during an evacuation has been developed.

- See “Rodent Survival Surgery and Postoperative Care”

The weekend/holiday schedules, emergency telephone numbers, pager numbers, and procedures for contacting animal care personnel are posted in all animal facilities and maintained by the IACUC. In the case of the ARC, the largest of all campus animal facilities, the weekend and holiday schedule is posted on the main ARC office calendar in room 6181. Every Friday the weekend care information is posted on the office board along with emergency back-up contact. Emergency telephone numbers are located in room 6175 Bio II and room 3607 Psychology. These numbers are distributed to key individuals anytime there is an update. Security also maintains updated copies of these numbers/procedures.

Animal Drinking Water:

The Goleta Water District (GWD) supplies all domestic water for the campus. The GWD receives water from Lake Cachuma, for which the water level is monitored and controlled by the State Water Board. Water is pumped to the Corona Del Mar Treatment Plant where it is treated and distributed by the GWD. For contingency planning, the GWD has existing wells and reservoirs to augment supply if needed. Goleta Water also has system ties with Santa Barbara that can supply additional water if necessary. Water is supplied to the campus via two, 10-inch water services from the GWD. The services are located at: Mesa Road/Los Carneros Road and El Colegio Road/San Clemente Housing.

Potable drinking water is supplied to our laboratory animals in pouches from the Hydropac™ system or water bottles. Emergency power is provided for the controls and the distribution pumps. In addition, approximately 2000 Hydropac™ pouches and an average of 5 gallons of bottled drinking water is stored in the Bio2 vivarium as an emergency supply. This water supply is sufficient to sustain the current animal population in the ARC for 2 weeks.

Reptiles housed in the Noble Hall satellite facility have a two weeks supply worth of drinking water with reduced tank cleaning frequency. Most turtles can be kept dry for one week if necessary.

Potable drinking water is supplied to the wild rodents housed at SNARL through water bottles. Potable drinking water is supplied from a well that is equipped with backup power, and in the event
of an emergency or utilities disruption (i.e. no power or municipal water) drinking water can continue to be supplied to the animals.

Aquatic Animal System:

For zebrafish and xenopus housed in the Bio2 vivarium, industrial water is purified and conditioned by reverse-osmosis, mechanical and activated carbon filtration, and ultraviolet sterilization before it is delivered to the recirculating Aquatic Habitats™ systems. Emergency power is provided for controls and recirculating pumps in these systems.

For amphibians housed in the Noble Hall satellite facility, purified drinking water (Nestle) is stored in the laboratory and supplied to the individual tanks containing the frogs. A 2-4 weeks supply is maintained at any given time.

For fish and amphibians housed in the SNARL facility, continuous flow of water through the tanks with water from Convict Creek is assured, because the gravity feed water delivery system will run without power.

Seawater System:

Fresh seawater is provided for all marine fish and invertebrates. The UCSB seawater system is an open flow design, meaning that water is brought in from the ocean, filtered, supplied to aquaria, and then returned to the ocean. The seawater intakes are located a half-mile offshore, 60 feet deep. Approximately 70% of incoming seawater is filtered to 20 microns using gravity fed sand, rock, and gravel filter beds. The remaining 30% of raw seawater provides filter-feeding organisms with a food source. Researchers can use filtered seawater, raw or both in their research aquaria. After filtration, water is pumped to various buildings on campus that house seawater space. After passing through individual buildings and the aquaria within, seawater is collected and discarded into the campus lagoon or directly back into the ocean.

The sea water system has two pumps, and a dedicated emergency generator, and remains operational during a power failure. The majority, if not all, aquatic animal facilities use a flow-through system; therefore, continued operation of the flow through system will maintain animal health and well-being during a power failure in any building. The campus seawater system is also hooked up to a Metasys alarm that notifies PF in the event of a seawater outage or other mechanical issue. PF then notifies the AV and collector/naturalist of the problem.

Animal Food and Bedding:

Combining what is stored in the animal feed and bedding room with what is stored in the individual animal rooms, there is enough food onsite to last for approximately seven days. Bedding changes could be reduced such that the amount of bedding on hand would last for a couple of weeks.

The EEMB Aquatic Facility maintains a minimum of one month’s supply of frozen squid to feed the carnivores and two weeks supply of kelp to feed the herbivores.

The Small Fish Facility maintains enough consumable material to provide care to animals for a minimum of one week.
The Nearshore Fish Facility maintains a 6 months’ supply of squid, sardines, and anchovies, stored in designated freezers in the Bio II building. This feed can also be purchased from a variety of markets in the event of an emergency. Pelleted feed is stored in covered metal bins on site and can last approximately 6 months.

The Noble Hall Reptile Facility stores at least a 2 months’ supply of food onsite in the freezers. Reptiles can easily survive a couple of weeks without regular feedings as long as they have access to adequate water. Turtles have a 3 months’ supply of dry pelleted food. Perishable foods (e.g. lettuce) are only stored for a day or two in the facility.

The Noble Hall Amphibian Facility stores enough food to last for approximately two weeks. However in the event of an emergency or disaster as long as the animals have access to clean water they can go without food for several weeks.

The REEF maintains enough frozen stock (sardines, squid, mussels) for its temperate tanks to last 3-5 days in the event of a disaster (that would lead to power failure). For the tropical tanks, a stock of mixed krill, mussel, arctipod, and Mysis is maintained that would last 3-5 days in the event of a disaster. Thereafter, tropical fish could be fed dried flake food for approximately 2 weeks.

At SNARL each PI will typically maintain enough feed and bedding (rodents only) in the animal housing area for the species being housed. In the Animal House, where wild rodents are housed, the PIs will maintain enough pelleted feed and bedding for the wild rodents to last 10 days. The aquatic animals that may be housed in the Fish House will have different food requirements depending on the animal species; however, here to the PIs will typically maintain enough feed (e.g. chow for fish, crickets for frogs) for the aquatic animals to last 3 days.

Sanitation:

Cage washing capabilities exist in both the Bio2 and Psychology buildings. No automated cage washing capabilities exist in any of the satellite animal holding facilities. In the event that these mechanical systems (e.g. cage washer, autoclave, boilers) are not operational, then limited manual sanitation could be performed in all of our animal facilities using chemical disinfectants that are stored on-site. Under these circumstances the sanitation frequencies would be reduced such that only a limited amount of cleaning (i.e., no cage exchanges, limited use of bedding, etc.) could be performed.

Euthanasia:

Rodents - Carbon dioxide sources (compressed gas cylinders) are located throughout UCSB and available to the ARC. In addition, the ARC maintains its own limited supply of carbon dioxide. Between the gas cylinders stored in Bio2 and the ARC, there should be enough carbon dioxide available to euthanize the entire rodent population, if needed. At SNARL, rodents are not housed year-round. During the active field study season (Spring and Summer) when the rodents are housed in the Animal House, the PIs maintain a supply of isoflurane sufficient to euthanize the wild rodents being housed, should the need arise (i.e. during an emergency).

Large animals – the ARC maintains enough injectable euthanasia solution in a locked cabinet in the Bio2 vivarium to euthanize all large animals in our colony, if needed. The volume necessary to
euthanize all of the guinea pigs, rabbits, and large animals on-site is recalculated each year to ensure an adequate supply.

Aquatic animals – the facilities where aquatic animals (fish and frogs) are housed maintain enough MS-222 to euthanize most aquatic animals in their colonies, if needed. Initially, fish (temperate species) maintained in the REEF would be returned to their natural habitat, if permitted by the permit. If this is not feasible, the responsible parties would contact the AV and coordinate the euthanasia of the animals housed at these facilities. At SNARL, aquatic animals (fish and frogs) are not housed year-round. During the active field study season (Spring and Summer) when the aquatic animals are housed in the Fish House, the PIs maintain a supply of MS-222 sufficient to euthanize the animals being housed, should the need arise (i.e. during an emergency).

Reptiles – the facilities where reptiles are housed maintain enough MS-222 to euthanize the animals if needed.

Carcass Storage/Disposal:

Carcass storage is available in large chest freezers in the following locations: Bio2 – 6200 hallway, and Psych - 3515. These freezers are connected to emergency power. A licensed medical waste hauler (i.e., Medical Waste Environmental Engineers) currently handles carcass disposal.

In the event of a major disaster, the various refrigerators and freezers in the laboratory buildings on campus could be used for carcass storage. Many of these refrigerators and freezers are connected to emergency powered outlets.

At SNARL, animal carcasses are double-bagged and picked up by Mammoth Disposal for standard disposal at the Benton Crossing landfill. In the event of a major disaster, the various refrigerators and freezers in the laboratory building at SNARL could be used for carcass storage. All of these refrigerators and freezers are connected to emergency powered outlets.

Animal Transportation/Relocation:

UCSB vehicles could be used to transport animals, supplies, carcasses, etc. between the various animal facilities in the event that only certain animal facilities were affected. Additionally, unique and irreplaceable laboratory animals could be transported to other UC campuses through the UC-wide Mutual Aid Agreement (see appendix).

Air Handling/HVAC:

Outside air is filtered to Minimum Efficiency Reporting Value (MERV) 13 standards, then pressurized using direct drive fans and delivered to the hot and cold decks. The cold deck coils are connected to the campus chilled water loop, which is not connected to emergency power. The hot deck coils are supplied by the building heating boilers. The local climate in Santa Barbara is temperate, and therefore the HVAC systems can maintain acceptable temperatures in the animal rooms for at least three hours without the chillers most of the year. The temperature of each occupied animal room is controlled by Direct Digital Controllers controls and monitored and documented by the Campus JCI Metasys System, which has remote alarming (SMS) capabilities and ARC and PF staff are immediately notified of temperature problems in animal housing rooms. A current phone list
of ARC management personnel is maintained in the police dispatch center. The site-wide utilities group has a swing shift to repair any mechanical failures/difficulties should they arise. In these instances, police dispatch notifies the utilities department concerning any requests.

The Animal House at SNARL has walls fans, a propane heater, and an air conditioner to maintain the appropriate environmental conditions. The large propane storage tank and 40 kW propane generator ensure that these systems can operate for up to 14 days in the event of a power failure.

Illumination:

In the ARC, lighting is controlled by individual room timers, which are set and maintained by the ARC. During an electrical power outage, lighting in the animal rooms may be temporarily interrupted, but should be restored when the emergency power kicks in. The animal room light control systems are independent and maintained by individual battery backup located in each timer so that the desired light cycle is generally maintained after normal power has been restored.

In the Animal House at SNARL, lighting is controlled by a light timer, which is set and maintained by the PI or SNARL facility Director. During an electrical power outage, lighting in the animal room may be temporarily interrupted, but should be restored when the emergency power kicks in.

In the satellite facilities, illumination is provided partly or completely by natural light. Furthermore, lighting control by artificial means is not a requirement for appropriate care or experimental use of these animals (birds, fish, amphibians).

Flashlights and emergency lights on battery power are available in all animal holding areas for personnel safety.

Steam:

Steam boilers provide the steam source for the ARC cage washers and humidifiers in both the Bio II and Psychology vivaria, and the autoclave in the Bio II vivarium. The boilers in each animal facility are monitored by the Campus JCI Metasys System and are supplied by the emergency power system.

Electrical Power:

UCSB owns and operates its own primary electrical distribution system. The campus electrical distribution circuits are designed and operated as a loop (versus traditional radial) system and have a dedicated fiber optic system which monitors the operational status of the system and provides alarm status in the event of a system problem. Building power is supplied from both sides of the loop simultaneously. This allows the building to continue to operate under normal conditions in the event of a circuit fault. The system will recognize the faulted condition, clear and isolate the fault within 0.1 seconds with no loss of power to the building. The Bio II building is served by the Research South Feeder loop from a high voltage switch (SW-571) located in the basement of Bio II. There are (3) three unit substations which provide electrical service for the building: T571-1; 1500kVA 277/480 volt, T571-2; 1000kVA 120/208 volt and T571-3; 1000 kVA 120/208 volt. The transformers are located in the basement of the Bio II building and provide power to two main electrical service rooms that are also located in the basement of Bio II where electrical power is distributed throughout the building. The Psychology building is served by the Central Academic Feeder loop from a high
voltage switch located by the Psychology Service Parking Lot on the southwest corner of the building. There is one unit substation serving the Psychology building: T551-1; 1000kVA 120/208 volt which is located in the Main Electrical Room on the 1st floor. There are alarms on critical equipment that will activate an alarm to Security and PF in the event of a power outage. The electric power to the vivarium controls critical environmental control systems including: the fan motors for the individually ventilated cage racks; pumps and filters for the aquatic habitat systems; and the biosafety cabinets.

At SNARL, electrical power is supplied by Southern CA Edison. Outages are uncommon. Backup power is supplied by a 40 KW generator fueled by propane from a 2500 gallon storage tank.

Emergency Power:

The ARC maintains and regularly updates the electrical power requirements for each occupied animal room in both vivaria. The Bio II building has an emergency standby diesel generator with the following rating: 500kW, 277/480 volt, which is located in the mechanical penthouse of the building. The generator has a belly tank with a capacity of 780 gallons of diesel fuel. In addition, there is a 2000 gallon diesel storage tank located on the ground level of the Bio II site which provides the generator with enough fuel to operate at full capacity for 80 hours. The generator starts automatically and transfers power to the emergency power system within 10 seconds after a power outage. The generator provides back up power to the critical animal facility systems including: exhaust and supply air fans, boilers, environmental control systems, and outlets in the animal facility for critical equipment (e.g. IVC racks).

The Psychology building has an emergency standby diesel generator with the following rating: 150kW, 120/208 volt, which is located by the west Service Parking Lot. The generator has a belly tank with enough fuel to operate the generator for 19 hours at full capacity. Both the Bio II and Psychology emergency generators have been listed as “high priority” for the campus, so in the event of an extended catastrophic event, these generators will be refueled to maintain operation. The generator starts automatically and transfers power to the emergency power system within 10 seconds after a power outage. This generator provides back up power to critical animal facility systems including: exhaust and supply air fans, boilers, environmental control systems, lighting for the vivarium, and outlets in the animal facility for critical equipment.

The emergency power systems are tested regularly, and the campus has the capability to re-fuel the storage tanks as needed during an emergency. The vivarium generators have a high priority for refueling during an emergency.

The SNARL facility has 40kW propane generator and a 2500 gallon propane storage tank, which can provide emergency power for all electrical systems for approximately 14 days.

Security:

In the ARC, access is controlled by an electronic system (Bosch), and the access control readers are on a battery powered back-up system. Each reader has a battery and the control unit has a UPS style battery to be utilized in the event of a short-term power outage. The battery life is dependent on usage. Each person working in the Bio2 and Psychology vivaria has an assigned “keycard,” which will access his or her work location exclusively. There are a minimum of two locked doors between the outside doors and any animal cage.
In the satellite facilities, access is controlled by a lock and key system. Each facility director, and facility personnel has a key to her/his satellite facility. Additionally, the AV has a key to each of the satellite facilities.

UCSB's police department is on duty 24 hours per day, and monitors campus activities after normal working hours. UCSB's police patrol all animal facility buildings after regularly scheduled working hours. Site security is controlled by the use of a card key system augmented by cameras and motion detectors.

In the event of an onsite emergency (e.g. intentional attack on the animal facility), UCSB employees are instructed to dial 9-911. This dedicated line is answered initially by police dispatch, who assess the situation and if necessary, connect with Occupational Health, Environmental Health and Safety, and the Incident Commander for a coordinated response. University phones are labeled with this emergency number.

SNARL is a remote facility with a perimeter fence and little traffic from the general public. Access to the animal holding rooms (Animal House and Fish House) is controlled by a lock and key system. The Director and members of the research team working on projects at SNARL have keys to the animal facilities. The Director is resident and patrols the compound.

Assessment of External Capabilities

Local Vendors

Replacement animals are available from the following local vendors: Charles River Laboratories, Inc. (Hollister, CA), and Envigo (Livermore, CA). Our primary food and bedding vendor (i.e., Newco) has a two-week inventory on hand for most feeds. Newco also normally has two loads (i.e., about a week and a half supply) on the road in transit to them at any time. Bedding is also available from Envigo Teklad (Hayward, CA).

At SNARL, the animals are all wild-caught, and the PIs will either bring with them the supplies that they need from their home institution, and/or they may purchase the feed and bedding from a commercial vendor in the local area (i.e. Bishop).

Outside Institutions

As part of the University of California organization, we also have the support of the other animal facilities in our organization (i.e. UCB, UCSF, UCLA, UCSD, UCD, UCI, UCR, UCSC, and UCM). These other sites have agreed provide us with supplies (e.g., food, bedding, etc.), animal transportation and housing, and support personnel in the event of a major disaster (see Mutual Aid Agreement in the appendix).

Governmental/Regulatory Agencies

County: The Santa Barbara County Fire Department responds to campus emergencies. Fire Station 17 is the first responder, and is located on the UCSB campus. The Santa Barbara County Sheriff and the Cities of Goleta and Santa Barbara provide mutual aid to the UCSB Police Department as needed.
These services are coordinated through the campus 911 dispatch system. The Santa Barbara County Office of Emergency Management maintains close working relations with the Campus Emergency Manager. The County maintains a website at http://www.countyofsb.org.

State: The State of California has an emergency plan that is maintained by California Emergency Services Agency (CAL OES). The plan is posted on their website at www.oes.ca.gov. Information can also be obtained at (916) 262-1843.

Federal: The Federal Emergency Management Association (FEMA) is responsible for disaster assistance at the federal level only if the area is declared a disaster by the State. Their website can be accessed at www.fema.gov. They are headquartered in Washington DC (202) 646-2500 and have a regional office in San Francisco, CA (415) 923-7100.

AVMA: The American Veterinary Medical Association (AVMA) authors the AVMA Emergency Preparedness and Response Guide. Section I of this guide contains contact/resource lists for all types of disaster services. The guide also outlines services that the AVMA can provide in a disaster to help with the animals involved.

CDFA: The California Department of Food and Agriculture (CDFA) would need to be notified of any escaped primates and/or Xenopus frogs. They can be reached at (916) 654-1447 or www.cdfa.ca.gov.
Appendix:

UCSB 211 – Personnel Sign-In

| Purpose:          | Records the time periods each responder is working for reimbursement purposes. |
|                  | Each section with responders should use one form per operational period. |
| When to fill out:| Anytime responders reports to duty, is relieved or takes a break of 15 min or more. |
| Completed by:     | All responders |
| Approved by:      | Documentation Unit Leader in the Finance Section |
| Send to:          | Send to Documentation Unit Leader in the Finance Section at the end of the Operational Period. Keep copy in Section Binder. |

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<th>Time Tracking</th>
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Last revised: 11/2013

EOC Form
# UCSB 308 – Resource Request

## Purpose:
- To transmit any **personnel or resource request**

## When to fill out:
- Anytime during the Operational Period

## Completed by:
- Any EOC Section

## Approved by:
- Section Coordinator
  - Resource requests for personnel or large amount of resources must be approved by Branch-level Leader

## Send to:
- Branch-level Leader → Section Coordinator → Logistics Section
  - Keep a copy in your Section Binder for future reference

## How to use this form:

### Resource Order

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### Order Status

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### Logistics Notes:

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**Logistics Coordinator Signature of Approval:**

Date / Time:

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Last revised: 03/2009

UCSB
EOC Order Form
Emergency and Backup Veterinary Care Contact Information

Animal Resource Center (ARC) personnel are available, on-site or on-call, and should be contacted according to the following process.

- **During normal hours of operation (M-F 8AM-5PM)**
  - To report an animal health disorder submit a Clinical Call form to any ARC staff, or call campus extension 2333 (ARC office) or 7344 (Campus Veterinarian).
  - In the event of a veterinary emergency immediately contact the Campus Veterinarian at extension 7344, or the ARC Manager at extension 3986, if the Campus Veterinarian is not available.

- **Outside of normal hours of operation or Holidays**
  - In the event of a veterinary emergency immediately contact the Campus Veterinarian (451-5931), or the ARC Manager (452-7716), if the Campus Veterinarian is not available. The ARC Manager will contact the back-up veterinarian, as needed.

ARC technicians have the permission of the Campus Veterinarian to euthanize an animal in the event of serious pain and distress, which cannot be treated/resolved by a licensed veterinarian. A licensed veterinarian has given appropriate training to these individuals.

<table>
<thead>
<tr>
<th>Veterinary Emergency</th>
<th>Primary Contact</th>
<th>(805) 451-5931 CELL</th>
<th>(805) 893-7344 OFFICE</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Dr. Manuel A. Garcia</td>
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<tr>
<td>Secondary Contact</td>
<td>Ronni Wynn</td>
<td>(805) 452-7716 CELL</td>
<td>(805) 893-3986 OFFICE</td>
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<tr>
<td>(back-up veterinarian)</td>
<td>Dr. Julie Barnes</td>
<td>(805) 403-8606</td>
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<tr>
<td>Facilities</td>
<td>PF Dispatch</td>
<td>(805) 893-8300</td>
<td></td>
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<tr>
<td>After hours/weekends</td>
<td>Police Dispatch</td>
<td>(805) 893-3446</td>
<td></td>
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<tr>
<td>Primary Contact</td>
<td>Chris Kelsey</td>
<td>(805) 618-8768</td>
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<tr>
<td>Security</td>
<td></td>
<td>Police Dispatch</td>
<td>(805) 893-3446</td>
</tr>
<tr>
<td>Primary Contact</td>
<td>Lt. Mark Signa</td>
<td>(805) 319-0006</td>
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<tr>
<td>Animal Facilities Risk</td>
<td>Impact</td>
<td>Likelihood</td>
<td>Control Effectiveness</td>
</tr>
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<td>---------------------------------------------</td>
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<tr>
<td>Earthquake</td>
<td>High</td>
<td>Lov</td>
<td>Moderate</td>
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<tr>
<td>Wildland Fire</td>
<td>High</td>
<td>Very low</td>
<td>Substantial</td>
</tr>
<tr>
<td>Flood</td>
<td>Moderate</td>
<td>Very low</td>
<td>Substantial</td>
</tr>
<tr>
<td>Tsunami/coastal flooding</td>
<td>High</td>
<td>Lov</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Safety and Security**

| Subsidence of research space, experimental animals | High   | Lov        | Substantial           | Adequately controlled | Risk profile is fairly low and good security measures are in place. |
| Compressed gas explosion                      | Moderate| Very low   | Substantial           | Adequately controlled | CO2 and O2 tanks are secured to wall and site is in good condition. |
| Computer network attack                       | Very low| Very low   | Substantial           | Adequately controlled | Campus IT security has good controls in place. (Nearly all security measures recommended by NIST in a 2003 security risk assessment of Phoe and Bio2). |
| Occupational safety issue                     | Moderate| Lov        | Substantial           | Adequately controlled | Engineering controls are good, safety procedures are good and training adequate. |
| Break in security of facility                 | Moderate| Lov        | Substantial           | Adequately controlled | Facilities have adequate security measures. |

**Animal Facilities Functions**

- **Ventilation/cooling system disruption**
  - Moderate | Lov | Substantial | Adequately controlled | Room temperature is closely monitored, reports are on-call, and room fans and portable AC units are available. |
- **Heating system disruption**
  - Moderate | Lov | Moderate | Potentially under-controlled | The vivaria should have a redundant boiler system. The boilers and associated equipment (pumps) are not on an emergency or back-up (double-check with FM). |
- **Water for cleaning/availability**
  - Moderate | High | Moderate | Potentially under-controlled | Cage sanitation in Bio2 and Psych vivaria cannot be performed without water. |
- **Power outage**
  - High | High | Substantial | Potentially under-controlled | There is a backup generator that goes on automatically. Recommend verifying generator capability and duration in Bio II and Phoech buildings. Neither the rack water nor the power is backed up. |
- **Sewage service disruption**
  - Moderate | Lov | Moderate | Potentially under-controlled | Without natural gas or electricity, the boilers won’t work and they are not on emergency power. Loss of water into buildings is the biggest vulnerability. |
- **Solid or bio waste removal issue**
  - Low | Moderate | Moderate | Adequately controlled | Fridges and refrigerators for carcass storage are on back-up power. |
- **Loss of overseas system for marine tanks**
  - Moderate | Moderate | Substantial | Adequately controlled | System has 2 pumps and 1 generator, some back-up oxygen systems are in place. Verify if sea water systems are gravity fed and what flow rates available. |
- **Cage sanitation - loss of steam**
  - Low | Moderate | Moderate | Adequately controlled | Without natural gas or electricity, the boilers won’t work and they are not on emergency power. Loss of water into buildings is the biggest vulnerability. |
- **Communication systems disruption**
  - Low | Lov | Substantial | Adequately controlled | Access to campus from north is likely if 21T route is inaccessible. |

**Animal Facilities Functions - Other**

- **Inability to provide veterinary care**
  - High | Lov | Substantial | Adequately controlled | The procedure for a backup vet is established. |
- **Inability to euthanize animals if needed**
  - High | Moderate | Substantial | Adequately controlled | The availability of euthanasia materials and methods for the satellite facilities must be verified. The ARC maintains enough TMS to euthanize aquatic animals and non-aminal. |
- **Disruption in ability to provide animal husbandry**
  - High | Moderate | Substantial | Adequately controlled | Animal facility employees are trained in emergency operations procedures. |
- **Accidental animal release**
  - High | Moderate | Substantial | Adequately controlled | Several layers of locked doors in Bio2 and Psych vivaria contain animals. This is not the case in all satellite facilities. For example, in the Aviary, a damaged fence would result in the release of birds. In Noble Hall broken lab windows and damaged/broken glass could result in the release of frogs. |
- **Shortage of animal food supply**
  - Moderate | Lov | Substantial | Adequately controlled | ARC staff can communicate on campus via 800MHz radio. Staff are trained in how to gather emergency information from EOC. |
- **Shortage of animal bedding supply**
  - Low | Lov | Substantial | Adequately controlled | Bedding supplies on hand, vendors and other UC’s can provide. |
- **Drinking water for animals - availability**
  - High | Moderate | Substantial | Adequately controlled | Hydropac water purification machines need water pressure, 2 weeks of stored water is on hand. |