Program Description
Animal Care and Use Program

VETERINARY MEDICAL UNIT

MINNEAPOLIS VA HEALTH CARE SYSTEM

ONE VETERANS DRIVE
MINNEAPOLIS, MN 55417

August 2019

For
AAALAC International

Table of Contents

Appendices (attached separately)

Program Description

Instructions for Completing and Submitting the Program Description for the Institutional Animal Care and Use Program

Section 1. Introduction

A. State the name of the program unit and, if applicable, its parent organization. List all organizations (schools, centers, etc.) included within the program unit.

Veterinary Medical Unit AAALAC #VA-083
Minneapolis VA Health Care System
Department of Veterans Affairs, Minneapolis, Minnesota

B. Give a brief overview of the institution, its purpose and how the animal care and use program relates to the mission of the institution.

The Minneapolis VA Health Care System (MVAHCS) is a university-affiliated, academically oriented tertiary care hospital with a capacity of 310 beds. It is located about seven miles from the (b)(6) campus and is near the Minneapolis/St. Paul International Airport. Most of the full-time physicians have faculty appointments at the (b)(6) and many do research involving human and/or animal subjects. The research projects here have a primary focus on the potential to benefit the health and lives of the veteran population. The Research Service staff is comprised of approximately 100 principal investigators, 62 physicians and 36 Ph.D. scientists. There are about 20 investigators with protocols involving animals.

C. Note that AAALAC International's three primary standards are *the Guide for the Care and Use of Laboratory Animals* (*Guide*), NRC, 2011; the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (*Ag Guide*), FASS, 2010, and the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, Council of Europe (ETS 123). Other regulations and guidelines used (U.S. Department of Agriculture (USDA), Public Health Service (PHS) Policy, Good Laboratory Practice (GLP), Canadian Council on Animal Care (CCAC), etc.) may also apply. Describe which of the three primary standards and other regulations and guidelines are used as standards for the institutional animal care and use program and how they are applied. For example, an academic institution in the United States with an Office of Laboratory Animal Welfare (OLAW) Assurance may use the standards of the *Guide* and PHS Policy for all animals, the Animal Welfare Act regulations for covered species, and the *Ag Guide* for agricultural animals used in agricultural research and teaching (see also *Guide*, pp. 32-33). In the European Union,

the standards applied might be the *Guide*, ETS 123, Directive 2010/63, and any country-specific regulations.

The standards by which the Minneapolis VA Health Care System (MVAHCS) animal care program operate are:
The Guide for the Care and Use of Laboratory Animals (Guide), NRC, 2011; *The Veterans Health Administration (VHA) Handbook* 1200.07, 2011; and Public Health Service (PHS) Policy for all animals.
Additional standards include the USDA Animal Welfare Act and Animal Welfare Regulations for covered species.

D. Describe the organization and include an accurate, current, and detailed organizational chart or charts (see **Appendix 4**) detailing the lines of authority from the Institutional Official to the Attending Veterinarian, the Institutional Animal Care and Use Committee/Oversight Body (IACUC/OB), and the personnel providing animal care. Please include the title, name (*Note:* For individuals whose information is publically available, provide the titles and names; for individuals whose information is not publically available, you may provide titles only.), and degree (if applicable) of each individual at the level of supervisor or above. Names of animal care staff below the title of supervisor need not be included, but the titles and number of animal care personnel under each supervisor should be included. If animal care responsibility is administratively decentralized, including the management of satellite housing areas/locations, the organizational chart or charts must include all animal care programs, indicating the relationship between each administrative unit and personnel, the Attending Veterinarian, and the Institutional Official.

Patrick Kelly, FACHE, Medical Center Director, is the Institutional Official for Animal Care and Use.

The MVAHCS Research Service is directed by (b)(6), the Associate Chief of Staff for Research. (b)(6) is the Deputy Associate Chief of Staff for Research.

The Veterinary Medical Unit (VMU) is responsible for providing animal care and veterinary services. Veterinarians include Matthew S. Rassette, DVM, DACLAM (attending veterinarian or AV), and (b)(6) (clinical veterinarian). Within the VMU, there are three animal technicians (two lead technicians and one animal caretaker).

Janeen Trembley, PhD is the IACUC Chair. As in other VA facilities, the IACUC is considered a subcommittee of the Research and Development Committee. Operationally, however, the IACUC functions autonomously with full authority as outlined in Animal Welfare Act regulations, PHS policy, and the *Guide*.

(b)(6) is the MVAHCS Research Compliance Officer (RCO) and reports to the Office of the Director.

The detailed MVAHCS animal care program organizational chart is provided in Appendix 4.

E. Identify the key institutional representatives (including, but not limited to, the Institutional Official; IACUC/OB Chairperson; Attending Veterinarian; animal program manager; individual(s) providing biosafety, chemical hazard, and radiation safety oversight; etc.); and individuals anticipated to participate in the site visit.

Patrick Kelly, FACHE, Medical Center Director and Institutional Official
(b)(6) Chief of Staff
(b)(6) Associate Chief of Staff for Research
(b)(6) Deputy Associate Chief of Staff for Research
(b)(6) Research Compliance Officer (RCO)
Matthew S. Rassette, DVM, DACLAM Attending Veterinarian/Veterinary Medical Officer
(b)(6) Clinical Research Animal Veterinarian
(b)(6) Large Animal Program Coordinator
(b)(6) Small Animal Program Coordinator
Janeen Trembley, PhD, Institutional Animal Care and Use Committee Chair
(b)(6) IACUC Coordinator
(b)(6) Chair Subcommittee on Research Safety, Chair Institutional Biosafety Committee
(b)(6) MPH, Director, Occupational Health MVAHCS

F. Briefly describe the major types of research, testing, and teaching programs involving animals and note the approximate number of principal investigators and protocols involving the use of animals. As mentioned in the instructions, please complete **Appendix 5** (Animal Usage) or provide the information requested in a similar format as an Appendix.

There are approximately 20 investigators with over 30 different research protocols involving animals. Research areas range from biochemistry and molecular biology to disease pathogenesis, physiology and pharmacology. Particularly active areas of research include obesity and appetite regulation; neurophysiology; cardiovascular disease; cancer; targeted drug delivery; prevention and treatment of urinary tract infections; and treatment for arthritis and joint pain.

G. Note the source(s) of research funding (grants, contracts, etc.) involving the use of animals.

Most funding for VA investigators comes through competitive merit review from either the Department of Veterans Affairs, the Department of Defense, or the Public Health Service. A PHS assurance is on file. VA Central Office provides a portion of the funds (about 30%) needed to operate the animal facility. The rest comes from per diem charges and service charges.

H. List other units (divisions, institutes, areas, departments, colleges, etc.) of your organization that house and/or use animals that are not included in this Description. If any of these are contiguous, physically or operationally (e.g., same IACUC/OB, same animal care staff), with the applicant unit, describe the association. Explain why such units are not part of this program application.
Note: Questions regarding this section should be forwarded to the AAALAC Office.

Not applicable. All animals housed at the Minneapolis VA Health Care System (MVAHCS) are included in this Program Description.

I. Contract Facilities: If the institution contracts for animal care facilities or services for animals owned by the institution, the contractor and its AAALAC International accreditation status must be identified. If a contractor's animal care and use program is not accredited by AAALAC International, a brief description, following this Program Description outline, of the relevant contractor's programs and facilities must be provided. In addition, the species and approximate average number of animals housed in the contract facilities and the approximate distance between the institution's animal facility and the contract facility must be noted. Incorporation of the contractor program into the site visit schedule will be discussed with institutional representatives. If the institution does not contract for animal care facilities or services, so note.

The Minneapolis VA Health Care System (MVAHCS) does not contract for animal care facilities or services; however, VA investigators are permitted to keep animals at the (b)(6) for collaborations, which is located about seven miles away. This is rare, but could occur if an investigator had a need for specialized equipment that is not available at the VA. Any such collaboration would require a protocol approved by the (b)(6) IACUC, and the (b)(6) animal care and use program is AAALAC accredited. The (b)(6) would provide transportation in a vehicle dedicated to animal transport. Any transport or housing of animals by VA investigators at the (b)(6) would also be described in the animal use protocol approved by the VA IACUC. The current MOU with the (b)(6), signed in March 2017, is available for review.

J. Note other relevant background that will assist reviewers of this report.

The flooring in the vivarium and rodent procedure rooms have been resurfaced to meet *Guide* standards.

Our program has adopted a new protocol management software system (b)(6) to facilitate more efficient reviews of protocols and organization/archiving of protocols.

The VMU has implemented a sensor system to alarm key players (including the veterinarian on-call and the engineering staff of the hospital) if animal room temperatures go out of a specified range.

Section 2. Description

I. Animal Care and Use Program

A. Program Management

1. Program Management Responsibility [*Guide*, pp. 13-15]

a. The Institutional Official [*Guide* pp. 13-14]
Describe how program needs are clearly and regularly communicated to the Institutional Official by the Attending Veterinarian, IACUC/OB, and others associated with the program.

The Attending Veterinarian/Veterinary Medical Officer (AV, VMO), IACUC Chair, Assistant Chief of Staff/Research (ACOS/R), Deputy Assistant Chief of Staff/Research (dACOS), and Research Compliance Officer (RCO) meet at least twice per year with the Institutional Official (IO) to discuss the IACUC's Semi-annual Program Review. Any program deficiencies or needs are discussed with the IO. If significant facility resources are needed for the Program, the IO may assist with prioritizing these types of projects.

b. Role of the Attending Veterinarian [*Guide*, p. 14]

i. Describe the institutional arrangement for providing adequate veterinary care. Although individual name(s) and qualifications will be described below, identify by title the veterinarian(s) responsible for the veterinary care program, including:

- a list of responsibilities
- a description of the veterinarian's involvement in monitoring the care and use of laboratory animals
- the percentage of time devoted to supporting the animal care and use program of the institution if full-time; or the frequency and duration of visits if employed part-time or as a consultant.
  Note: If preferred, this information may be provided in a Table or additional Appendix.

Dr. Matthew Rassette, DVM, DACLAM is the Attending Veterinarian/Veterinary Medical Officer for the MVAHCS and has responsibility for the health and well-being of all laboratory animals within the ACUP. Dr. Rassette currently works eighty percent time, Monday-Thursday, and is available by phone Friday-Sunday.

(b)(6) DVM provides programmatic and clinical support to the

institution, reports to Dr. Rassette, and currently works every Friday (twenty-percent time) and on-call every other weekend.

Responsibilities include: developing and implementing animal husbandry, animal procurement, and veterinary care programs; monitoring and overseeing research projects involving animals; participating in the Institutional Animal Care and Use Committee; training staff and investigators in the proper care and use of laboratory animals; providing advice and assistance to investigators; coordinating occupational health and safety programs pertaining to the animal facility; ensuring compliance with applicable standards and regulations.

Dr. Rassette and (b)(6) share after-hours and holiday duties. A third laboratory animal veterinarian is currently being sought to provide backup coverage in the event both Dr. Rassette and (b)(6) are unavailable for call.

ii. List others (e.g., Principal Investigators, veterinarians serving as Principal Investigators, veterinary faculty/staff, technical staff, farm managers) who have a *direct role in the provision of veterinary care* and describe their responsibilities. The Organizational Chart(s) provided in **Appendix 4** must depict the reporting relationship between these individuals and the Attending Veterinarian.
Note: If preferred, this information may be provided in a Table or additional Appendix.

(b)(6) (Large Animal Program Coordinator) and (b)(6) (b)(6) (Small Animal Program Coordinator), help Drs. Rassette and (b)(6) with routine veterinary care. This includes treatments, postoperative monitoring and incoming animal exams.

c. Interinstitutional Collaborations [*Guide*, p. 15]
Describe processes for assigning animal care and use responsibility, animal ownership and IACUC/OB oversight responsibilities at off-site locations for interinstitutional collaborations.

Our ACUP had a written memorandum of understanding (MOU) with the (b)(6) (b)(6) . The MOU supports the current practice of placing responsibility for veterinary care, IACUC/OB oversight, and compliance with all applicable regulations on the program housing the animals, regardless of ownership. In practice, this is quite rare, with only one such project having occurred in the past seven years. Both programs have independent AAALAC accreditations and OLAW Assurances and would have respective IACUC-approved animal protocols in place to cover such work.

If VA-owned animals were being housed or treated at the (b)(6) the VA would

inspect the relevant (b)(6) locations as part of the VA's Semi-annual Program evaluation. Alternatively, the VA would receive and maintain on record information from the (b)(6) Semi-Annual Program Review relevant to the collaborative activity.

2. Personnel Management

a. Training, Education, and Continuing Educational Opportunities

Describe *how* the IACUC/OB provides *oversight* and *evaluates the effectiveness* of training programs and the assessment of personnel competencies. Describe how training is documented.

Note: Do not include details about the training program, which should be described in the following sections.

Within the animal use protocol, reviewed and approved by the IACUC, each person working on animals for the particular study is noted, along with that person's education, training and experience with the experimental animal species and the exact procedure described in the protocol. The description must be complete enough for the IACUC to determine if all animal manipulations (including, but not limited to, surgery and intra-operative monitoring, anesthesia, euthanasia, and injections) are performed by individuals qualified to accomplish the procedures skillfully and humanely. If personnel do not have experience with the exact procedures, the principal investigator must describe how the personnel will be trained, by whom, and the training qualifications for the trainer.

The Veterinary Medical Officer (VMO) or one of the lead VMU staff meets with all new animal users for orientation to the program. The VMO assesses the training, experience and competency of the individual and assigns additional training, as needed. Persons performing large animal surgery receive individual training, the details of which depend on the background of the individual, species used and procedures performed. The VMO and VMU staff is available to give assistance to any investigator.

Training through (b)(6) is tracked by the IACUC coordinator, who confirms for the committee that assigned training is current. On the annual update for animal studies, the PI verifies that study-related and safety training is current.

Evaluation of effectiveness of training programs is determined by post-approval monitoring, including daily health checks by animal care staff, frequent rounds by the veterinary staff, protocol audits by the RCO, and semi-annual inspections by the IACUC/OB.

i. Veterinary and Other Professional Staff [*Guide*, pp. 15-16]

For the Attending Veterinarian and other individuals having a direct role in providing veterinary medical care (veterinarians, other professional staff listed

above, private practitioners, etc.), provide: name, credentials (including degrees), and a description of their qualifications, training, and continuing education opportunities.
Note: Please do not provide curriculum vitae of personnel; if preferred, this information may be presented in a Table or additional Appendix.

Matthew Rassette, DVM, DACLAM is the Attending Veterinarian and a Veterinary Medical Officer assigned to the Veterinary Medical Unit. Following three years of experience as a clinical research veterinarian at the (b)(6) (b)(6) he became the Senior Program (Attending) Veterinarian for the (b)(6) at the (b)(6) for a year prior to accepting his present position. He received CPIA certification in 2013 and was admitted to the American College of Laboratory Animal Medicine in 2016. Dr. Rassette regularly attends national conferences, including AALAS, PRIM&R, Charles River Short Course, and local continuing education offerings.

(b)(6) is a clinical research veterinarian assigned to the Veterinary Medical Unit. She is a laboratory animal veterinarian with 11 years of combined academic and corporate preclinical research experience as well as private mixed animal practice. She regularly attends continuing education offerings, including AALAS, Charles River Short Course and MVMA.

(b)(6) Large Animal Program Coordinator, is responsible for surgical support, large animal husbandry and miscellaneous department administrative functions including billing. (b)(6) assists Drs. Rassette and (b)(6) with treatments, postoperative monitoring, and incoming animal exams. She attends national conferences (AALAS) and has completed several non-human primate enrichment workshops.

(b)(6) Small Animal Program Coordinator, is responsible for diverse support of animal studies, oversees the VMU's rodent breeding colonies, and assists with miscellaneous administrative functions such a staff scheduling. (b)(6) assists Drs. Rassette and (b)(6) with treatments, postoperative monitoring and incoming animal exams. She attends national conferences (such as AALAS).

ii. Animal Care Personnel [*Guide*, p. 16]

1) Indicate the number of animal care personnel.

3

2) Summarize their training, certification level and type, experience, and continuing education opportunities provided.

Note: If preferred, this information may be provided in a Table or additional Appendix.

There are three FTE animal care personnel. The range of animal care experience is from 16-20 years. There is one Certified Manager of Animal Resources (CMAR) who is also an AALAS-certified Laboratory Animal Technician, and one AALAS-certified Assistant Laboratory Animal Technician. The VA pays the full cost of AALAS certification and provides on-the-job time to study. Continuing education is offered during regular VMU staff meetings and, as available, opportunities such as AALAS national or regional meetings. Animal care personnel participate in a VMU orientation and must complete species-specific on-line training. Online training modules are provided by VA Headquarters at (b)(6). Separate modules are available for all common laboratory animal species

iii. The Research Team [*Guide*, pp. 16-17; 115-116; 122; 124]

1) Describe the *general mechanisms* by which the institution or IACUC/OB ensures that research personnel have the necessary knowledge and expertise in the animal procedures proposed and the species used.

In the animal use protocol reviewed and approved by the IACUC, each person working on animals for a study is noted, along with that person's education, training and experience with the experimental animal species and the exact procedure described in the protocol. The description must be complete enough for the IACUC to determine if all animal manipulations (including, but not limited to, surgery and intra-operative monitoring, anesthesia, euthanasia, injections) are performed by individuals qualified to accomplish the procedures skillfully and humanely. If personnel do not have experience with the exact procedures, the principal investigator must describe how the personnel will be trained, by whom and the training qualifications for the trainer.

All persons participating in an animal study must complete species-specific training and "Working with the VA IACUC" training using the web-based (b)(6)

The Veterinary Medical Officer (VMO) or one of the lead VMU staff meets with all new animal users for orientation to the program. This session provides an opportunity to discuss each employee's specific research project and identify special training needs. The VMO assesses the training, experience and competency of the individual and assigns additional training, as needed. Persons performing large animal surgery receive individual training, the details of which depend on the background of the individual, species used and procedures performed. Training is tailored to accommodate a wide range of

education and experience of our investigators and technicians. The VMO and VMU staff are available to give assistance to any investigator. Training is documented.

a) Briefly describe the content of any required training.

Investigators are assigned online (b)(6 training that covers species-specific training such as injections, blood drawing, care pre-, intra-, and post-procedurally, analgesia, anesthesia, and euthanasia. Investigators are also required to take the (b)(6 class "Working with the VA IACUC" which covers the why and how of an IACUC.

The VMU orientation covers "Ten Things to Know About Animal Experimentation at the VA Medical Center." Topics such as IACUC functions and procedures (animal use protocols and amendments), the 3 R's, the individual's experience with animals (including as necessary handling, surgery, analgesia, anesthesia, and euthanasia), reporting of animal concerns, and occupational health are covered. A brochure entitled 'Occupational Health and Safety Program for Personnel with Laboratory Animal Contact' is also given to all personnel with animal contact and all visitors.

Additional training is given to investigators conducting survival surgery. Topics covered include a strong emphasis on aseptic technique and sterilization of instruments, surgical station and patient preparation, patient monitoring, analgesia and post-operative care records.

In particular, investigators conducting rodent survival surgery are required to adhere to the standards set down in "Pre-through Postoperative Care of Rodents", VMU SOP OPR-202, current revision and the expectations of the IACUC as detailed in the approved protocol. An experienced rodent surgeon will train and observe the new surgeon and approves that this person is qualified to conduct surgery without further supervision.

Non-human primate users always meet with the VMO on a one-to-one basis, which includes but not limited to Herpes B training.

b) Describe the timing of training requirements relative to the commencement of work.

All training, including VMU orientation, (b)(6 training and enrollment with the occupational health program, must be completed prior to any work being done on an animal.

c) Describe continuing education opportunities offered.

Animal users and IACUC members train triennially on species-specific training and IACUC modules on-line ((b)(6)). All Research Service personnel train annually on safety and security and this training is documented and maintained by the Subcommittee on Research Safety.

IACUC members discuss educational topics at monthly IACUC meetings. Examples of educational material distributed to IACUC members include articles from Lab Animal, Journal of the American Association for Laboratory Animal Science and e-mailed briefs from VA Central Office.

Animal husbandry staff meet approximately weekly to discuss the animal care program and to train on related animal care issues. Examples would include training on a new VMU SOP or training on reporting sick animals, including species-specific signs of discomfort or distress. Animal care personnel read and review VMU SOPs on an individual basis approximately annually. Funds are available for additional training (such as non-human primate enrichment workshops), and AALAS training and certification is offered to all VMU animal care personnel. The program attempts to send at least one VMU employee to the annual AALAS national meeting.

Additional training on topics such as privacy, data and information security, sexual harassment and conflict in the work place are required annually.

Funds are available for IACUC members to attend PRIM&R and other national meetings.

2) Describe the process(es) to ensure surgical and related procedures are performed by qualified and trained personnel, including:

- who determines that personnel are qualified and trained for surgical procedures
- the roles that the Attending Veterinarian and IACUC/OB have in this determination [*Guide*, pp. 115-116]

Both the IACUC and AV are responsible are determining that personnel are qualified and trained to perform surgical procedures.

First, the animal use protocol must name individuals and describe their training for the exact surgical procedure on the named species. If described training is adequate, then the IACUC is unlikely to require further modifications. However, if the individual's training is not adequate, then the principal investigator must describe how training will occur and by whom, and the

IACUC may require further modifications to secure approval, such as additional training or observation by the veterinary staff.

Second, the standards for surgery and use of anesthetics and analgesia are also covered in the individual VMU orientation session that includes "Ten Things to Know About Animal Experimentation at the VA Medical Center." The VMO assesses a surgeon's qualifications based on prior training and experience during this meeting. Persons performing surgery also receive species-specific training through the web-based courses.

Generally, the principal investigator trains the technicians in the details of each procedure. The veterinary staff provides training about the principles of experimental surgery and aseptic technique, interspecies differences, and the use of anesthetics and analgesics pre-, intra- and post-operatively. An inexperienced surgeon is mentored and trained by an experienced, senior surgeon prior to performing any procedure independently.
It is also important that the investigator and technicians know how to properly prepare the animal to humanely undergo the procedure; supporting the animal's physiological function during the procedure; and provide additional supportive care to aid the animal in recovering from the procedure.

3) Describe the training and experience required to perform anesthesia. [*Guide*, p. 122]

Qualifications of personnel performing anesthesia are evaluated during the protocol review process. Detailed information about anesthetic administration is provided in the required web-based (b)(6 training modules. Additional information is available from the veterinary staff. Many researchers also refer to the (b)(6) web site:
(b)(6)

Due to the increased interest in the use of isoflurane anesthesia for rodents, new vaporizer equipment has been implemented and engaged. To promote their use and provide training between the different styles of equipment, a program-wide seminar including both didactic and participatory sessions have occurred. New personnel would receive substantially the same information as part of the initial VMU orientation and/or initial training by the individual's laboratory.

The veterinary staff will have input and will have approved the anesthetic drug(s) and regimen for every animal undergoing surgery within the ACUP.

4) Describe how the proficiency of personnel conducting euthanasia is ensured (especially physical methods of euthanasia). [*Guide*, p. 124]

The veterinary staff provides euthanasia training for VMU personnel, and either the veterinary staff or the principal investigator provides training for research technicians. General standards for euthanasia are covered during the VMU orientation and in species-specific courses within the (b)(6 training. The IACUC evaluates qualifications of personnel performing euthanasia during protocol review, as the ACORP form asks how the animals will be euthanized, who will perform the euthanasia, and whether they have experience with the proposed method.

If an individual does not have experience, the name of the person who will provide training must be listed prior to protocol approval. Should the IACUC/OB or the AV have any concerns, further training and observation by the veterinary staff may be required. For some physical methods of rodent euthanasia, such as decapitation, laboratory SOPs and training procedures are provided to the IACUC/OB to ensure compliance with the most recent version of the AVMA Guidelines on Euthanasia. Proficiency is further ensured by regular and frequent observation provided by the VMOs and veterinary staff.

Euthanasia must be performed by a skilled person in a respectful and compassionate manner. Death is confirmed in all cases prior to final disposition of the animal. How such confirmation occurs depends upon the approved method used, but most often involves confirming lack of respiration or heart beat for a required amount of time.

b. Occupational Health and Safety of Personnel [*Guide*, pp. 17-23]

i. Institutional Oversight [*Guide*, pp. 17-19]

1) List the institutional entities (units, departments, personnel, *etc.*) that are involved in the planning, oversight, and operation of the institutional occupational health and safety program related to animal care and use (e.g., office(s) of environmental health, institutional health services or clinics (*including contracted health services*), industrial hygienists, Institutional Biosafety Committee(s) and/or Officer(s), Radiation Safety Committee(s) and/or Officer(s).

- Include a brief description of their responsibilities and qualifications.
- If contracted services are used, also include their location (e.g.,remote offices to which personnel must report).

The medical aspect of the program is administered by Occupational Health and coordinated by Director, (b)(6) . Dr.

(b)(6) is a member of the SRS and IACUC committees and actively participates in overseeing occupational health issues for all animal studies. Additionally, (b)(6) (b)(6) (b)(6) is a member of the Occupational Health Department staff and very involved with the Occupational Health program and its relationship with the VMU. All personnel that have animal contact are included in the program, regardless of being a VA employee.

The IACUC reviews/approves every animal component of research protocol (ACORP), a section of which requires information about study personnel and their participation in our Occupational Health and Safety Program, or comparable alternative program. Additionally, the ACORP requests information about any study's non-routine procedures that may require special vaccines or additional health screening. The PI must also include in the ACORP Test Substance Appendix a list of any toxic, infectious, biological, radioactive, recombinant or other hazardous agents that may be used in the study.

In addition to completing the ACORP for IACUC review, the PI must also complete the Research Protocol Safety Survey (RPSS) which the Subcommittee on Research Safety (SRS) reviews/approves prior to a study being cleared for approval by the Research and Development (R&D) Committee and the ACOS/Research. The RPSS form requests information on any hazards associated with the study and the plan to mitigate risk. The SRS confirms that any safety training required for the study is completed on at least an annual basis. If indicated by initial SRS review, the MVAHCS Institutional Biosafety Committee will review protocols that involve the use of recombinant or synthetic nucleic acid.

Monitoring the health and safety of animal users is an ongoing process. In addition to the entities described above, health care professionals and risk assessors such as industrial hygienists, environmental and radiation safety specialists, an emergency preparedness coordinator and the VA Police are actively engaged with the research animal program.

2) Describe methods to identify work-related hazards and the processes used to evaluate the significance of those hazards in the context of duties and tasks. Describe both common approaches and differences, if applicable, for categories of personnel such as, but not limited to, researchers, veterinarians, husbandry staff, cage-washing staff, students, housekeeping, physical plant staff, security personnel, IACUC/OB members (including non-affiliated members), contractors, visitors, etc. [*Guide*, pp. 18-19; see also Chapters 2 and 3 in Occupational Health and

Safety in the Care and Use of Research Animals, NRC 1997.].

Hazard identification and managing risk is a continuous process for the MVAHCS ACUP and occurs in multiple ways.

Animal protocols involving potentially hazardous agents are identified during the protocol review process. Hazardous agents are listed on the Test Substances Appendix of the ACORP form and the precautions that will be followed are summarized there. Additionally, all investigators submitting an animal protocol must complete a Research Protocol Safety Survey (RPSS), which describes agents and procedures used in their study. The RPSS also addresses precautions, waste disposal, training and other elements of concern for their study. The SRS reviews all RPSS documents at convened monthly SRS meetings. The SRS may request additional information and confirms that safety training is current to assure that appropriate precautions will be taken. The RPSS is attached to the ACORP. Final authorization from the Research and Development Committee (RDC) to conduct research only occurs once the SRS, IACUC, and the ACOS/R have given their approval.

Safety Data Sheets (SDS) for chemicals and reagents used in the VMU are available electronically on the VA network. All Research Service laboratories maintain a chemical inventory on the VA network and the SRS reviews these at least annually.

The MVAHCS SRS and VMU also maintain several types of written risk assessment documents which are updated annually (or as needed), and which address the significance of the hazards considering the duties and tasks involved. One document is entitled “Hazard Assessment and PPE Selection” and focuses on the use of PPE for a given hazard for VMU staff. A second document, incorporated in the MVAHCS Research Safety Manual, is entitled “VMU Risk Assessment, Categories Biological, Chemical, Physical and Security” and has additional focus on engineering controls, practices and training for hazards that might not be otherwise detailed in an ACORP. The Research Service Safety manual is available to all electronically on the VA network, and includes a section devoted to occupational health and safety issues for those working with research animals. The manual is updated on a rolling basis and completely reviewed every three years, but is updated annually, or more frequently, if needed. Finally, the industrial hygienists also use the “VHA-VISN 23 Qualitative Industrial Hygiene Exposure Assessment” to evaluate potential hazards, document controls in use, and list exposure assessments within the VMU.

Training is fundamental for mitigating risk. The animal care staff trains formally on safety issues on an annual basis. The Research Service’s safety

program requires formal, documented safety training led by the PI or designee for all research staff, including those using animals. The training is a requirement for approval of any new project or continuation at the time of a study's annual review by the SRS. Individuals such as housekeeping, physical plant staff, security personnel, contractors, and visitors receive a VMU orientation which includes a discussion of potential work-related hazards that those individuals may encounter and how to best avoid or minimize them.

Further, the VMU receives several annual safety audits to help identify hazards and to assess and manage risk. Audits include an Annual Workplace Evaluation (AWE) by the regional Veteran's Integrated Service Network (VISN) office; a Research Service safety audit; an Annual Vulnerability Assessment conducted by a multi-disciplinary team representing the Research Service, Safety and Security (VA Police); and annual Environment of Care (EOC) audits by a multidisciplinary group including Safety, Research and Engineering. These audits also help identify and report potential new hazards and evaluate risks on a continual basis.

3) Describe methods and frequency of reassessing work-related hazards.

Reassessing work-related hazards occurs in multiple ways.

Initially, each person is provided a baseline health questionnaire that is designed specifically for employees with potential animal contact. Follow-up questionnaires are sent out every twelve to eighteen months and are also used to reassess work-related hazards. Occupational Health reviews the completed questionnaires and arranges additional workup, if indicated. For example, all VA VMU staff involved with hazardous drugs in research or animal care will be asked to enroll and participate in the hazardous drug medical surveillance program administered by the Occupational Health Department. Participation by the employee is voluntary but strongly recommended.

Additionally, work-related hazards are reassessed via annual laboratory safety training and whenever new hazards are being added to the workplace. Reported work-related injuries involve documentation of corrective or preventative action, and these can be a means of reassessing workplace hazards. These actions are discussed within one's work group and within the SRS.

4) Describe institutional programs or methods used to track and evaluate safety-related workplace incidents, including injuries, exposures, accidents, etc. Include the frequency of such assessments. [*Guide*, pp. 18-19]

Accidents, bites and exposure to hazardous agents are reported immediately to

one's supervisor and to Occupational Health. If Occupational Health is closed, employees report to the VA emergency room for assistance and evaluation. Employees are given an ECOMP form to complete with the aid of their supervisor, which is then to be reported in the Federal Employees' Compensation Act (FECA) workers' compensation tracking program. The MVAHCS SRS requests information regarding workplace illness/injury as part of the continuing review process.

In the event of a non-human primate exposure, which includes either an actual or suspected NHP bodily fluid contacting a mucus membrane or penetrating skin, the program makes available 'NHP bite kits', which include additional instructions. Occupational Health has an SOP for handling exposures as well as copies of pertinent publications. While all non-human primates are seronegative for Herpes-B virus prior to arrival, the veterinary staff will perform an examination of the affected animal(s) following an exposure and send blood to a laboratory for confirmation of that status.

Reported work-related injuries involve documentation of corrective or preventative action, and these can be a means of reassessing workplace hazards. These actions are discussed within one's work group and within the SRS.

ii. Standard Working Conditions and Baseline Precautions

The following section pertains to the Occupational Health and Safety Program for all personnel associated with the animal care and use program. Specific information regarding the use of hazardous agents is included in ***subsection iii*** below.

1) Medical Evaluation and Preventive Medicine for Personnel [*Guide*, pp. 22-23] *Note:* Include blank forms used for individual health assessment as **Appendix 6.**

a) Describe who (e.g., personnel assigned to job/task categories in I.A.2.b.i.2) above) receives personal medical evaluation as a component of individual risk assessment. Describe who are ***not*** included and/or exempted from personal medical evaluation. *Note:* Do not include the names of personnel.

All VA staff that have (or may have) laboratory animal contact complete/update an annual periodic animal exposure form, including individuals such as housekeepers and physical plant staff. This form is reviewed by Occupational Health. If additional interaction between the staff member and Occupational Health is needed, an appointment is scheduled.

Prior to having any exposure to laboratory animals, newly hired VMU animal care staff and all VA staff complete a baseline medical history/animal exposure questionnaire and meet with the health care professionals with the VA Occupational Health Service. During this meeting, the risks and hazards of working with laboratory animals are discussed. Topics covered include zoonoses, immunizations, allergens and PPE. The health care professional also addresses the risk of working with chemicals and the physical hazards of an animal care facility. VA staff must be medically cleared to work with animals prior to starting work at the VMU.

Individuals who would be exempted from personal medical evaluation would include the Institutional Official as well as, in rare cases, individuals who participate in another institution's occupational health program instead of the MVAHCS.

b) Describe provisions for allowing an individual (following completion of individual health and job-related risk assessments) to decline participation in all or part(s) of subsequently available medical and preventive medicine components of the institutional program, e.g., vaccinations, physical examinations, respiratory protection, as applicable. Provide an estimate (percentage) of personnel associated with the animal care and use program that have declined participation in the medical evaluation program.
Note: Do not include names of the personnel

Individuals who decline participation in all or part of the medical and preventative medicine components of the institutional program are rare and would be required to discuss this with the Occupational Health Service. Presently, Occupational Health has no one who has declined participation.

Some individuals have chosen to have their Occupational Health monitored by the (b)(6) as that is their primary work station. Before they are allowed to work with animals at the MVAHC they must document their enrollment in the (b)(6) Occupational Health Program with the MVAHCS Occupational Health Service. The (b)(6) Occupational Health program has been reviewed by the MVAHCS Occupational Health Service. The percentage of individuals in this category is 5-10%.

c) Describe provisions for assuring confidentiality of medical information.

All medical information is under HIPAA (Health Insurance Portability and Accountability Act of 1996). This is a United States legislation that provides data privacy and security provisions for safeguarding medical information. Training on HIPAA is performed annually with medical staff.

d) Describe safety considerations for individuals with incidental exposure to animal care and use (e.g., contractors, personnel working in open laboratories).

All VMU visitor/contractors are given an orientation, informative brochure regarding occupational safety in the animal research environment, and a check off sheet to sign prior to incidental exposure. Entrance into animal vivariums are not allowed until Occupational Health is made aware of potential exposure and all personnel have been trained/precautioned appropriately.

e) Describe general features of the medical evaluation and preventive medicine programs, within the context of work duties, including:

- pre-employment/pre-assignment health evaluation,
- medical evaluations (including periodicity),
- diagnostic tests (e.g., for tuberculosis),
- precautions for working with potentially hazardous species (e.g., nonhuman primates, sheep, venomous species)
- immunization programs, and
- procedures for communicating health related issues.

Prior to being cleared to work with animals in the animal facility, new staff completes a baseline health questionnaire that is designed specifically for employees with potential animal contact. These potential staff members meet with Occupational Health personnel as part of their pre-employment exam to review their health questionnaire and to follow up with any concerns or additional screening deemed necessary by the health care professionals. Occupational Health must clear staff to work with animals, prior to their beginning work. All staff with animal contact completes an annual health update survey which is reviewed by Occupational Health.

Tetanus vaccines are provided. Annual tuberculosis tests (typically a blood test such as Quantifuron-TB) are required for all employees having contact with non-human primates. Flu shots are required and provided to all VA staff on an annual basis, staff declining a flu shot may require additional protective precautions such as a respirator during flu season..

A representative from Occupational Health attends as many Research Service SRS meetings as possible. Approximately annually, Occupational Health addresses all Research Service staff during a General Research Safety meeting. Approximately biennially, Occupational Health addresses the VA Engineers and Shops to discuss occupational health issues related to working in an animal facility.

f) Describe any other entities that provide medical services (e.g., emergency care, after-hours care, special medical evaluation, contracted services). Include a brief description of their credentials and/or qualifications, and how these entities remain knowledgeable about animal- or institution-related hazards and risks.

The VA also provides urgent, emergency and after-hours care. The medical aspect of the program is administered by Occupational Health and coordinated by Director, (b)(6). Dr. (b)(6) is a member of the SRS and IACUC committees and actively participates in overseeing occupational health issues for all animal studies. Additionally, (b)(6), is also regularly involved as an active member of the Occupational Health Department.

2) Personnel Training Regarding Occupational Health and Safety
[*Guide*, p. 20]

Describe general educational program(s) to inform personnel about:

- allergies,
- zoonoses,
- personal hygiene,
- physical injuries in animal facilities (e.g., noisy areas, large quantities of chemicals such as disinfectants, ergonomics) or species used (e.g., nonhuman primates, agricultural animals),
- other considerations regarding occupational health and safety.

Include in the description a summary of the topics covered, including:

- Entities responsible for providing the training
- Frequency of training or refresher training

Note: Do not include special or agent-specific training for personnel exposed to experiment-related hazardous agents; this will be provided in **Section iii.3** below.

A new hire (such as a new animal research technician) receives extensive initial training from the VMO and the lead animal care technicians. This training is in the form of one-on-one discussion, reading the brochure entitled Occupational Health and Safety Program for Personnel with Laboratory Animal Contact, and training on the VMU SOPs, which clearly define procedures and the PPE needed to work safely with animals in the vivarium. Subjects covered include: VMU procedures and associated hazards and risks working with animals and their waste in the VMU, including those associated with non-human primates; the use of engineering controls and PPE to reduce risk; zoonoses and other biological, chemical, physical hazards and waste handling issues; and good

personal hygiene, including the use of complete PPE as appropriate.

The VMU has regular staff meetings in which occupational health and study specific hazards are discussed. All Research Service staff receives annual general and lab specific safety training that is documented and tracked. On-line training ((b)(6)) associated with animal use is required of staff triennially.

3) Personal Hygiene [*Guide*, p. 20; *Ag Guide* pp. 4-5]

a) List routine personal protective equipment and work clothing provided and/or required for animal care personnel, research and technical staff, farm employees, etc.

Protective clothing is required when working with animals or performing related activities such as cleaning. Lab coats are issued to all VA employees. Scrubs are available for persons working in surgery or those that prefer extra coverage during animal handling or procedures. Animal care workers are issued uniforms or scrubs; lab coats are used to cover uniforms if workers must leave the facility for short periods during the day. Non-latex disposable gloves are kept in animal rooms and support rooms. Gloves must be worn when handling animals. Entry into the rodent areas requires a lab coat. Entry into the rodent high-health area requires a clean or dedicated uniform and/or lab coat or gown, as well as microisolator technique. Surgical masks are provided for discretionary use.

N-95 respirators are also provided where indicated by the RPSS and/or ACORP. Should an employee be unable to wear a respirator, a PAPR unit would be provided. Fit-tested respirators are worn when dumping soiled bedding and when indicated by the RPSS and/or ACORP. Use of an N-95 respirator is optional for most other activities. Employees are advised that if they develop allergic symptoms they should consult with Occupational Health for respiratory protection recommendations. A HEPA-filtered clean air scrubber module is used for dumping dirty rodent bedding.

Work with BSL-2 agents requires additional PPE, a list of which is posted on the outside of the room to make certain persons entering the room are protected by PPE as described in the ACORP and required by the SRS. Additional PPE may include disposable lab coat, head cover and shoe covers, disposable gloves and face covering (surgical mask/N-95 respirator and face shield, etc.). After use, disposable PPE garments are placed in bio-hazardous waste containers kept in (or just outside) the BSL-2 room. Non-human primate rooms require a lab coat or disposable gown, gloves, shoe covers, hair cover, mask and eye protection. Tyvek jumpsuits and N-95 respirators are used for cleaning and other activities that may generate

aerosols.

Protective equipment used in cleaning large animal rooms and the cage wash area includes rubber aprons, boots and gloves, face shields, masks, and ear protectors.

b) Describe arrangements for laundering work clothing.

Lab coats, scrubs, and uniforms are washed in the hospital laundry.

Dirty work clothes and linens are collected in (b)(6) within several laundry bins located about the facility. Generally, twice per week, dirty laundry is transported to (b)(6) to be washed in the central laundry facility. Delivery of clean laundry from (b)(6) occurs twice per week.

c) Describe provisions and expected practices for washing hands, showering, and changing clothes, including instances where work clothes may be worn outside the animal facility.

Locker rooms and shower facilities are available (b)(6) (b)(6). Employees are not required to shower on site, but they are required to wear uniforms or scrubs during work hours and to change into street clothes at the end of the day. Uniforms must be covered with a clean VA-issued lab coat if an animal research technician leaves (b)(6) and enters another building on the VA campus.

Sinks for hand washing are located in all animal housing rooms and all procedure rooms. Break rooms and restrooms have a sink for hand washing.

Six alcohol-based hand sanitizing stations are mounted on walls throughout (b)(6).

d) Describe policies regarding eating, drinking, and smoking in animal facilities.

Smoking is prohibited on the VA campus. Eating and drinking are not permitted in animal areas or in laboratories. In (b)(6) eating and drinking are confined to offices, two conference rooms and a break room with a sink, soap dispenser and paper towels.

4) Standard Personnel Protection [*Guide*, pp. 21-22]

a) Describe facility design features, equipment and procedures employed to reduce potential for physical injury inherent to animal facilities (e.g., noisy areas, large quantities of chemicals such as disinfectants,

ergonomics) or species used (e.g., nonhuman primates, agricultural animals).

The facility has multiple design features, equipment, and procedures in place to reduce potential for injury. Design features include mechanical systems for the building being located on different areas or floors (sub-basement and rooftop) from animal areas and main workspaces, as well as construction materials that limit noise. Storage spaces for chemicals are located away from animal house spaces, and chemicals are stored in such a manner that leaks or breakage would be safely contained. Equipment includes an air scrubber used where rodent bedding is emptied from cages, as well as multiple biosafety cabinets and chemical fume hoods in procedure rooms. Procedures such as using a lift table to help move heavier animals (such as pigs) also contribute to minimizing physical injuries.

b) Describe likely sources of allergens and facility design features, equipment, and procedures employed to reduce the potential for developing Laboratory Animal Allergies (LAA).

Exposure to allergens is most likely to occur in animal rooms with open top cages and in the dirty-side cage wash. Appropriate PPE is available to reduce the potential for exposure to allergens, including but not limited to: gloves, lab coat (dedicated or disposable), disposable sleeves, goggles or face shields and respirators (N-95 or PAPR). A HEPA-filtered clean air scrubber module is used is provided at the dirty cage dump station to prevent allergen exposure to dirty rodent bedding. Handwashing is required after any animal handling.

c) Describe likely sources of zoonoses and facility design features, equipment, and procedures employed to reduce potential exposure to zoonoses.

Zoonoses may be encountered by working with any of the species of animals present in the MVAHCS program. The most likely sources of zoonoses include the pigs and the NHPs. Limited physical interaction (NHP), PPE and handwashing are implemented to reduce potential exposure.

d) Describe the procedures for the maintenance of protective equipment and how its function is periodically assessed.

The PPE that is not-single use and disposable is replaced as it becomes worn.

Lead protective coverings (e.g. aprons, thyroid shields) are tested annually for integrity and discarded if determined to be defective.

Fume hoods and BSCs are certified on an annual basis and pulled out of service if they do not meet standards. Other facility equipment such as anesthetic vaporizers and the fluoroscopy unit have annual preventative maintenance and are certified.

e) Respiratory Protection

i) Describe situations where respiratory protective equipment is available or required, such as cage washing facilities, feedmills, etc.

N-95 respirators are provided; should an employee be unable to wear a respirator, a PAPR unit would be provided. Fit-tested respirators are worn when dumping soiled bedding and when required for rooms with BSL-2 status. Use of an N-95 respirator is optional for most other activities. Employees are advised that if they develop allergic symptoms they should consult with Occupational Health for respiratory protection recommendations. As previously mentioned, a HEPA-filtered clean air scrubber module is also used for additional respiratory protection.

ii) Describe programs of medical clearance, fit-testing, and training in the proper use and maintenance of respirators.

Respirators (N-95) are required to be worn by the animal research technicians for dumping dirty bedding. Occupational Health and Safety review medical certification for the Respiratory Protection Program and the Safety Department monitors and conducts annual fit testing for N-95 respirators. Instruction is given on selecting the proper size respirator and donning the respirator. An odor test is used to verify the user has a proper fit and that the respirator is working properly.

Expanded use of a respirator would be at the direction of Occupational Health and Safety.

iii) Describe how such respiratory protective equipment is selected and its function periodically assessed.

Respirators are selected based on availability, preference and compliance of users. Fit testing is performed annually. The proper size and style are subject to each individual user and is discussed during fit testing. Disposable respirators are discarded after each daily use.

f) Heavy Equipment and Motorized Vehicles

i) Provide a general list of the types of cage-processing equipment used, such as rack/cage washers, tunnel washers, robotics, and bulk autoclaves. Describe training programs, informational signage, and other program policies designed to ensure personnel safety when working with such equipment.
Note: Details of specific equipment installed in animal facility(ies) are to be provided in **Appendix 15** (Facilities and Equipment for Sanitizing Materials).

New staff is trained by the lead animal technicians on the use of cage-processing equipment, such as the rack washer, autoclaves and power washers. SOPs are in place for using the cage washer and autoclaves, including lock-out / tag-out procedures. VMU staff train on these SOPs approximately annually. Safety training also occurs annually at which time VMU staff discuss and re-train on the unique physical hazards associated with working in an animal care facility. Safety features of items such as the cage washer are tested during preventative maintenance.

ii) List other heavy equipment such as scrapers, tractors, and farm machinery (manufacturer name, model numbers, etc. are not necessary). Describe training programs, informational signage, and other program policies designed to ensure personnel safety when working with such equipment.
Note: If preferred, this information may be provided in a Table or additional Appendix.

The VA Engineering shops provide trained individuals and equipment to the VMU when there is a need for a forklift, pallet jack, or other similar type equipment.

iii) If motorized vehicles are used for animal transport, describe how the driver is protected from exposure to hazards such as allergens or zoonoses and decontamination methods employed. Also describe instances where vehicles may be shared between animal and passenger transport.

Typically, the (b)(6) (b)(6) provides transportation for research animals between the VA and the (b)(6) This environmentally controlled van is designed for animal transport, with the back of the vehicle separated into individual compartments that are separated from the driver. The rodents are moved between the VA and (b)(6) using disposable plastic micro-isolator transfer cages. The driver is a trained (b)(6) staff person and wears an employer-provided and laundered

uniform; PPE is also available as needed. The driver is exposed to allergens and zoonoses to the same degree as when working with rodents at the (b)(6), and all (b)(6) staff are enrolled in the occupational health and safety program at the (b)(6)

If needed, the VMU has an animal transport van equipped with heating and air conditioning. The van is stored in an indoor garage contiguous with the animal facility located in (b)(6) The rodents are transported in disposable plastic micro-isolator transfer cages, which reduce the exposure of the van environment and the driver to allergens. The driver is a VMU animal research technician, fully trained on working with rodents and would wear PPE including uniform or lab coat. The driver is exposed to allergens and zoonoses to the same degree as when working with rodents in the VMU. At the present time, there are no projects where this van is used to transport animals.

g) Describe safety procedures for using medical gases and volatile anesthetics, including how waste anesthetic gases are scavenged.

Isoflurane is used at the VMU for gas anesthesia for both rodent and non-rodent species. Rodent inhalation anesthesia occurs using a vaporizer and canister charcoal filters to capture waste gases, as well as typically occurring inside a fume hood or a class II BSC exhausted outdoors. An active scavenge unit is also available, as needed.

Non-rodent inhalation anesthesia is performed using anesthesia machines equipped with a vacuum-based waste scavenging system.

Lines and connections should be checked for leaks prior to each use of an anesthesia unit. Vaporizers are checked and calibrated annually by the VA biomedical instrumentation service.

MVAHCS industrial hygienists have performed badge monitoring for waste anesthesia gases for both rodent and non-rodent surgeons to help ensure safe workplace practices. Additional badge or air monitoring would occur for a significant change in procedure.

iii. Animal Experimentation Involving Hazards [*Guide*, pp. 20-21]

1) List, according to each of the categories noted below, hazardous or potentially hazardous agents currently approved to be used in animals that are or will be maintained for more than a few hours following exposure. If the hazardous agent cannot be listed by name for security/proprietary reasons, identify it by the general category of agent and level of hazard.

Note: If preferred, this information may be provided in a Table or additional Appendix.

a) Biological agents, *noting hazard level* (CDC Biohazard Level, Directive 93/88 EEC, CDC or USDA/DHHS Select Agent, etc.). Examples may include bacteria, viruses, viral vectors, parasites, human-origin tissues, etc.

E. coli (BSL-1 and BSL-2)
Botulinum toxin, BSL-2, CDC select agent, exempt criteria
Listeria monocytogenes (BSL-2)
Cell lines (rodent and human), (BSL-1 and BSL-2)
Nanocapsules / nanoparticles, NIH Guidelines
Adenovirus Ad5 (BSL-2)
Adeno associated viral vectors (BSL-1 and BSL-2)
Lentivirus (BSL-2)
Influenza A (BSL-2)

b) Chemical agents, *noting general category* of hazard (toxicant, toxin, irritant, carcinogen, etc.). Examples may include streptozotocin, BrdU, anti-neoplastic drugs, formalin, etc.

BrdU (mutagenic, teratogenic)
AraC (mutagenic, teratogenic)
Muscimol (toxic, irritant)
Fluorouracil (toxic, irritant)
Freund's Adjuvant (toxic, irritant)
Carrageenan (toxic)
Sodium thiocyanate (toxic)
Type IV Collagenase (irritant)
Dextran sodium sulfate (irritant)
Isofluane (toxic, irritant)
Pentobarbital (controlled substance, toxic)
Ketamine (controlled substance, toxic, irritant)
Carbon dioxide (toxic)
Xylazine (toxic, irritant)
Paclitaxel (possible teratogen)
Cyclophosphamide (toxic)
1,4-Bis benzene TCPOBOB (carcinogenic)
Diethylnitrosamine DEN (carcinogenic)
Dexamethasone (teratogenic, irritant)
Phencyclidine (hallucinogenic)
Nicotine (acute toxin, sensitizer)
Clozapine-N-oxide (acute toxin, irritant)
Capsaicin (acute toxin, irritant)

Squaric acid dibutyl ether (sensitizer)
Dinitrochlorobenzene (sensitizer)
PTX-008 (possible toxin, as noted by PI)
Telazol (controlled substance)
Morphine (controlled substance, sensitizer)
Buprenorphine (controlled substance, irritant)
Acrylamide (carcinogenic)

c) Physical agents (radiation, UV light, magnetic fields, lasers, noise, etc.).

Magnetic resonance imaging
X-ray radiation (fluoroscopy)
Class 1 Lasers (Pearl Trilogy and/or Odyssey CLx Imaging Systems)

2) Experiment-Related Hazard Use [*Guide*, pp. 18-19; See also Chapters 2 and 3 in *Occupational Health and Safety in the Care and Use of Research Animals*, NRC 1997].
Note: Written policies and standard operating procedures (SOPs) governing experimentation with hazardous biological, chemical, and physical agents should be available during the site visit.

a) Describe the process used to identify and evaluate experimental hazards. Describe or identify the institutional entity(ies) responsible for ensuring appropriate safety review prior to study initiation.

Animal protocols involving potentially hazardous agents are identified during the protocol review process. Hazardous agents are listed on the Test Substances Appendix of the ACORP form and the precautions that will be followed are summarized there. Additionally, all investigators submitting an animal protocol must complete a Research Protocol Safety Survey (RPSS), which describes agents and procedures used in their study. The RPSS also addresses precautions, waste disposal, training and other elements of concern for their study. The SRS reviews all RPSS documents at convened monthly SRS meetings. The SRS may request additional information and confirms that safety training is current to assure that appropriate precautions will be taken. The RPSS is attached to the ACORP. Final authorization from the Research and Development Committee (RDC) to conduct research only occurs once the SRS, IACUC, and the ACOS/R have given their approval.

b) Describe how risks of these hazards are assessed and how procedures are developed to manage the risks. Identify the institutional entity(ies) responsible for reviewing and implementing appropriate safety or containment procedures.

The risks associated with the hazards identified in the protocol are assessed

by both the IACUC and the SRS, as previously described. These committees are also review appropriate safety and/or containment procedures which are summarized in applicable sections of the ACORP and RPSS. Because implementation of these procedures is a responsibility ultimately shared throughout the program—from carestaff, research staff, and veterinary staff through to the PI—training is critical. The MVAHCS requires annual safety training for each lab (and the VMU) in recognition of this. Additionally, industrial hygienists from the MVAHCS safety department work with PIs and the AV to develop documents such as "Hazard Assessment and PPE Selection" which focus on the use of PPE for a given hazard. These in turn form a special area of emphasis during the annual safety trainings.

Even further, the ACUP receives several annual safety audits (described previously). These audits further help identify and report potential hazards and evaluate risks (including experimental) on a continual basis.

c) Describe the handling, storage, method and frequency of disposal, and final disposal location for hazardous wastes, including infectious, toxic, radioactive carcasses, bedding, cages, medical sharps, and glass.

Hazardous wastes are labeled with the appropriate designation (biohazard, caustic, toxic, sharps, cancer hazard) and treated according to procedures approved by the SRS and comprehensively outlined in the Research Service's Chemical Hygiene Plan. Generally, hazardous wastes are collected in the VMU in red plastic (biohazard containers with different containers for sharps) and black plastic containers (some chemicals and chemo drugs). Biohazardous animal waste (bedding) is double-bagged and autoclaved before it is removed from the animal facility for disposal. Caging used to house animals exposed to hazardous agents may also be autoclaved prior to being washed and returned to general use.

Hazardous waste containers are picked up by the MVAHCS's contracted licensed hazardous waste disposal vendor (currently (b)(6) (b)(6) for final disposition. The vendor currently is on-site at least weekly.

The MVAHCS has a very active, involved Safety and Hazardous Waste program. Several industrial hygienists are on staff, plus a GEMS Coordinator who directs the MVAHCS on its green mission to act locally and think globally in terms of waste disposal. The Research Service trains regularly on labeling, storage and disposal of hazardous waste. The MVAHCS is audited for compliance by local, county, state and federal agencies such as the EPA and VISN.

d) Describe aspects of the medical evaluation and preventive health program specifically for personnel potentially exposed to hazardous

agents.

As previously described, for all animal protocols the PI provides detailed information to the Subcommittee on Research Safety (SRS) through a comprehensive review document called a research protocol safety survey (RPSS). In this manner, the hazards within the study, including hazardous agents, are managed and addressed. As needed, Safety and Occupational Health work with the PI and staff on a wide range of complex safety issues to determine risk. Expert evaluation and consultation, combined with engineering controls, PPE and possibly immunization are tools used to mitigate risk. For example, all VA VMU staff involved with hazardous drugs in research or animal care will be asked to enroll and participate in the hazardous drug medical surveillance program administered by the Occupational Health Department. Participation by the employee is voluntary but strongly recommended.

Staff working with nonhuman primates receive special training and PPE for working with NHPs. Staff is trained on emergency procedures involving membrane exposure, bites or scratches from NHPs.

3) Hazardous Agent Training for Personnel [*Guide*, p. 20]
Describe special qualifications and training of staff involved with the use of hazardous agents in animals.

Staff involved with the use of hazardous agents in animals receive clearly defined procedures found in the RPSS and ACORPs that provide them with an understanding of the PPE and other controls used to promote safety, both of themselves as well as others. As described above, the PI works with the MVAHCS safety team (including SRS and industrial hygienists) to develop these procedures. Training occurs annually within the lab and can then be tailored to the unique needs and procedures of that lab.

4) Facilities, Equipment and Monitoring [*Guide*, pp. 19-20]

a) Describe locations, rooms, or facilities used to house animals exposed to hazardous agents. Identify each facility according to the hazard(s) and containment levels (if appropriate*).*
Note: If preferred, information may be provided in a Table or additional Appendix.

Animals exposed to hazardous agents are separated from the general population by separate rooms and, where practical, at the cage level. Currently, the majority of the animals in our program that receive hazardous agents are mice, and this is limited to BSL-2 level agents described

previously. These animals would be kept in designated, labeled rodent rooms and handled using biosafety cabinets and microisolators. Containers for biohazardous waste disposal are kept at each room for disposal of used PPE, supplies and equipment.

Appropriate signage is posted at areas housing studies with hazardous agents. Signs contain relevant information such as the hazardous agent(s), the investigator with contact information, precautions and PPE required for working the area.

b) Describe circumstances and conditions where animals are housed in rooms outside of dedicated containment facilities (i.e., in standard animal holding rooms). Include practices and procedures used to ensure hazard containment.

Animals are not currently housed in rooms outside of dedicated containment facilities.

c) Describe special equipment related to hazard containment; include methods, frequency, and entity(ies) responsible for assessing proper function of such equipment.

Special equipment related to hazard containment within our program would principally involve biosafety cabinets and chemical fume hoods. Both types of containment systems are certified annually by an outside vendor. This certification is verified during IACUC facility inspections. End users can also assess some aspect of the functioning of this equipment through being attentive to alarms (for biosafety cabinets) and flutter strips (for fume hoods).

Autoclaves are calibrated regularly according to the recommended practice, but not less than annually. Chemical indicators are run with each load; biological indicators are run at least monthly by trained VMU staff.

d) Describe the husbandry practices in place to ensure personnel safety, including any additional personnel protective equipment used when work assignment involves hazardous agents.

Multiple husbandry practices are used to ensure personnel safety when hazardous agents are used. Timing of cage change can be used to limit exposure of personnel to potentially hazardous material. For example, using a fresh cage after exposure of the animal to a particular viral vector could allow the material to be completely shed from the animal prior to the next cage change. The use of disposable plastic liners can also minimize exposure to cage waste.

As has been already mentioned, working with exposed animals under biosafety cabinets can further isolate potentially hazardous materials and is typically required by the SRS. PPE routinely used in biosafety level 2 containment at the MVAHCS include disposable lab coat, gloves, hair covering, shoe covering, facemask (including respirator, if indicated), and face shield / safety goggles, as directed by the ACORP and RPSS forms (and hazard assessment and PPE selection form, if used by SRS). Any non-standard PPE needed (e.g. a PAPR) would be provided by the institution.

e) Incidental Animal Contact and Patient Areas

i) List and describe facilities that may be used for both animal- and human-based research or patient areas, including the policies and procedures for human patient protection, facility decontamination, animal transport through common corridors or elevators, and other personnel protection procedures.

On occasion, an IACUC and SRS-approved protocol calls for an animal (typically monkey or pig) to be transported to the (b)(6) (b)(6) for specific procedures, such as an (b)(6) or a (b)(6) . The PI completes an appendix to the ACORP that justifies the need to transport the animal to the (b)(6) , and describes the equipment to be used, the transport of the animal, sanitization of the (b)(6) after use and the timing of the study. Approval requires contact with the management of that area to appropriately coordinate the procedure, which is performed

(b)(6)

Transport is discrete and secure. The animal is anesthetized, placed on a transport cart and is carefully concealed with a drape. The animal is attended at all times by persons directly involved with the study. Personal protective equipment including outerwear appropriate to the species (such as a lab coat or scrubs for pigs) are worn.

The (b)(6) on which the animal lies is completely covered with a water-proof drape, so there is no direct contact of the animal with the equipment. After the procedure, the equipment is cleaned and sanitized according to the (b)(6) practices that include the use of Accel TB Germicidal Disposable Cloths.

After the procedure, the animal is returned via the same route to the home

cage and observed until sternal recumbency has returned.

Any study (b)(6) must be approved by the Chair or Service Chief (b)(6) Additionally, the ACOS, the Chief of Staff and the Facility Director must approve the study. These (b)(6) are inspected by the IACUC during semiannual review.

ii) Describe any *other* circumstances in which animals or caging equipment are transported in common use corridors or elevators (e.g., have the potential to come in contact with individuals not associated with the animal care and use program), and measures taken to mitigate risks associated with such use.

Rodents are sometimes transported from (b)(6) to (b)(6) (b)(6) (b)(6) for procedures. Cages are discretely covered and either carried or moved via a cart from (b)(6)

Nonhuman primates are transported from their housing to laboratories within (b)(6) for testing using specially-designed booths that prevent physical contact between the animals or their byproducts and any individuals not associated with the animal care and use program.

A freight elevator is used to move animals between floors within (b)(6).

B. Program Oversight

1. The Role of the IACUC/OB [*Guide*, pp. 24-40]

a. IACUC/OB Composition and Function [*Guide*, pp. 17; 24-25]

Please provide a Committee roster, indicating names, degrees, membership role, and affiliation (e.g., Department/Division) as **Appendix 7**.

i. Describe Committee membership appointment procedures.

Members of the MVAHCS IACUC are appointed by the Institutional Official for three-year terms. Recruitment of individuals occurs primarily through referral by current and/or former members, as well as through the ACOS/R.

ii. Describe frequency of Committee meetings. Note that **Appendix 8** should contain the last two IACUC/OB meeting minutes.

Our IACUC/OB meets on the third Thursday of each month, with extra meetings as

needed for events such as Semi-Annual Program Review.

iii. Describe the orientation, training, and continuing education opportunities for IACUC/OB members. [*Guide*, p. 17]

The new member would be oriented to their committee responsibilities by the IACUC/OB Chair, coordinator, and possibly also the attending veterinarian. Topics discussed would include the relevant legislation and regulatory sources (including the AWA, HREA of 1985, the US Government Principles, and the *Guide*), as well as the particulars of our IACUC/OB's Policies and Procedures manual.

Training and continuing education is primarily received as a regular part of committee meetings. Members with interest and ability have also been given funds to attend the PRIM&R and IACUC 101 meetings.

b. Protocol Review [*Guide*, pp. 25-27]

A blank copy of your institution's protocol review form should be provided as **Appendix 9**. Also include forms used for annual renewal, modifications, amendments, etc., as applicable.

i. Describe the process for reviewing and approving animal use. Include descriptions of how:

- the IACUC/OB weighs the potential adverse effects of the study against the potential benefits that may result from the use ("harm-benefit analysis"),
- protocols that have the potential to cause pain or distress to animals are reviewed and alternative methodologies reviewed,
- veterinary input is provided, and
- the use of animals and experimental group sizes are justified.

Note: Make sure you address each of the items above.

The review of animal study protocols (regardless of funding source) begins with a veterinary pre-review where input is given and changes are recommended directly to the investigator. Once completed, the full committee reviews new and three-year renewal proposals, as well as annual updates, at its monthly meetings. If the committee requires modifications to secure approval of an animal study protocol, these modifications are reviewed through a designated member review process in which any interested committee member may participate. This procedure has been approved in writing by all members of the IACUC.

Weighing the potential adverse effects of the study (including the potential for the study to cause pain or distress to the animal subject) against the potential benefits, solicitation of veterinary input, consideration of alternatives, and justification for

animal use and group size are all inherent in the VA protocol application (called an 'animal component of research protocol' or ACORP). These items are called out directly within the protocol form to allow for enhanced review at the IACUC/OB level.

Currently, study proposals that do not involve a formal grant proposal are reviewed and approved in the same manner as described above. If desired by the IACUC/OB, a separate scientific review of proposed studies not formally reviewed elsewhere may be required to facilitate IACUC/OB review of a proposal.

ii. Describe the process for reviewing and approving amendments, modifications, and revised protocols. If applicable, include a description/definition of "major" vs. "minor" amendments.
Note: If preferred, this information may be provided in a Table or additional Appendix.

Modifications are summarized in an Amendment form (with some administrative action items called out) and then the ACORP is revised as per the proposed amendment. The Committee reviews the requested amendment in the context of the entire protocol and can easily see what the requested changes are by comparing the approved and proposed protocols.

The IACUC/OB distinguishes between major and minor amendments. Minor (or 'administrative') amendments include changes that do not significantly affect the experience of the animal, specifically alterations in grant or proposal title, vendor source, and personnel (not including PI) changes. The IACUC/OB has determined that such amendments may be reviewed and approved by the attending veterinarian and the chair of the committee.

Major (or 'full') amendments include changes that significantly affect the experience of the animal, such as addition of animal numbers, creation of a new experimental group, or a request for non-standard husbandry. The IACUC/OB has determined that such amendments will be considered for designated member review (DMR) on a rolling basis. The proposal is emailed to all committee members, who then have 3 business days to determine whether the amendment is appropriate for DMR or should be reviewed by the full committee. If no committee member calls for full review, then two members whose appointment is overseen by the chair review the amendment and may approve as written, require modifications to secure approval, or send to full committee for consideration if the reviewers do not agree on a course of action.

The SRS reviews all IACUC amendments and final IACUC approval of an amendment is not granted until SRS has given approval (or determined that no SRS review is needed).

c. Special Considerations for IACUC/OB Review [*Guide*, pp. 5; 27-33]

i. Experimental and Humane Endpoints [*Guide*, pp. 27-28]

1) Describe the IACUC/OB's review of "humane endpoints," i.e., alternatives to experimental endpoints to prevent or in response to unrelieved animal pain and distress.

> Criteria for determining alternatives to experimental endpoints (humane endpoints) are developed initially through consultation between the PI, who knows the desired research data, and the veterinarian, who brings knowledge of the animal physiology to bear on endpoints, during the pre-review of an animal research proposal. Approval occurs following IACUC/OB review of the proposed endpoints in the protocol. Application of these endpoints occurs during the experiment itself and can be initiated by either the animal research technician, laboratory staff, or the veterinary staff.

2) For studies in which humane alternative endpoints are not available, describe the IACUC/OB's consideration of animal monitoring and other means used to minimize pain and distress (e.g., pilot studies, special monitoring, other alternatives).

> Presently there are no studies without humane endpoints within our program. Were such a study (such as an LD50 study) to be proposed, it would be rigorously reviewed by the IACUC, with emphasis on justification and evaluation of alternatives (such as a moribund state in place of mortality). Assuming the IACUC was convinced of the necessity of such a study, then pilot studies and enhanced monitoring would be emphasized.

3) Identify personnel responsible for monitoring animals for potential pain and distress and describe any mechanisms in place to ensure that the personnel have received appropriate species- and study-specific training.

> Monitoring occurs through systems of health checks performed daily by facility animal research technicians, regular rounds by veterinary staff, and by laboratory staff according to the stipulations of their protocol. Communication with the IACUC/OB during and after studies regarding the efficacy of endpoints occurs via the monthly report from the attending veterinarian. Should personnel be found by one of these systems to need additional training, it would be provided before the study would continue.

ii. Unexpected Outcomes that Affect Animal Well-being [*Guide*, pp. 28-29]

Describe how unexpected outcomes of experimental procedures (e.g., unexpected morbidity or mortality, unanticipated phenotypes in genetically-

modified animals) are identified, interpreted, and reported to the IACUC/OB.

Unexpected outcomes of experimental procedures are identified through systems of health checks performed daily by facility animal research technicians, regular rounds (and necropsies, where applicable) by veterinary staff, and by study staff. Communication between these three groups is vital in evaluating and interpreting any unexpected outcomes, especially one that may have detrimental effects on animal well-being or on research outcomes. Communication with the IACUC/OB during and after such studies occurs at a minimum via the monthly report from the attending veterinarian. The AV also communicates with the committee chair between meetings, as appropriate.

iii. Physical Restraint [*Guide*, pp. 29-30]

Note: This section is to include only those protocols that require prolonged restraint. Brief restraint for the purpose of performing routine clinical or experimental procedures need not be described.

1) Briefly describe the policies for the use of physical restraint procedures or devices. Include, if applicable, the IACUC/OB definition of "prolonged."

The MVAHCS program does not have explicit policies for the use of prolonged physical restrain procedures/devices, relying instead on documents such as the *Guide for the Care and Use of Laboratory Animals* (8th ed) and *Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research* (NAS 2003) for direction. Each application would be evaluated individually.

2) Describe animal restraint devices that are used or have been used within the last three years. For each device, briefly describe

- the duration of confinement
- acclimation procedures
- monitoring procedures
- criteria for removing animals that do not adapt or acclimate, and
- provision of veterinary care for animals with adverse clinical consequences.

Note: If preferred, this information may be provided in a Table or additional Appendix.

Restraint chair (non-human primate): The duration of confinement typically is 4-5hrs, but does not exceed 6 hrs. Acclimatization occurs prior to any surgical manipulation to ensure that if an animal is not suited for the experiment, they are removed prior to invasive procedures. We have not experienced any difficulties in incorporating non-human primates into the training program due to our extensive and careful acclimatization procedures, including clicker

training and positive reinforcement techniques. Additionally, non-human primates are conditioned to walk to the chair using a pole and collar method. Criteria for removal of animals that do not adapt or acclimate include continued struggle against the device and/or vocalization while in the device, persistent refusal to focus on tasks once in the device, and/or loss of conditioning or development of stereotypy. The veterinary staff remain in close contact with the laboratory staff during this process. In the event of adverse clinical consequences, the veterinary staff would be notified and respond accordingly, up to and including removing an animal from the restraint and/or the activity itself.

iv. Multiple Survival Surgical Procedures [*Guide*, p. 30]
Note: One survival surgical procedure followed by a non-survival procedure is not included in this category.

1) Describe the IACUC/OB's expectations regarding multiple survival surgery (major or minor) on a single animal.

The procedure for approving multiple survival surgery involves careful review of the scientific justification given by the investigator. The IACUC/OB weigh the potential impact on the animals' well-being against this justification in determining whether to grant approval. Criteria used to determine the potential impact on the animals' welfare include the nature of the procedures (major, minor and specific type), the time between the procedures, and the relative likelihood for complications or pain/distress to result from the procedures themselves. Special attention is also paid in the event an animal with a previous major survival surgery is transferred to another protocol, to avoid an additional surgery occurring on an unrelated protocol without consent of the USDA / VA Central Office.

2) Summarize the types of protocols currently approved that involve multiple major survival surgical procedures

Note: If preferred, this information may be provided in a Table or additional Appendix.

There are two protocols currently approved by the MVAHCS IACUC allowing multiple major survival surgery. They are summarized below.

(b)(6) 170601: This protocol examines neurological function using a non-human primate model. To produce the model, the cranial implants may be placed in stages, with the head fixation posts being placed first followed by placement of one-two chambers exposing the dura. These chamber implantation procedures would occur no sooner than one month after the initial head fixation post implantation procedure. If possible, however, the surgical

procedures would be performed in one step. In recent experience, the entire implantation has occurred in a single procedure.

(b)(6) 160903: This protocol involves the study of mitochondrial function using a porcine reperfusion injury model. To produce the model, thoracic surgery is performed to place an occluder around a cardiac artery, followed three months later by a bypass procedure.

v. **Food and Fluid Regulation** [*Guide*, pp. 30-31]. *Note:* This does not include pre-surgical fast.

Summarize the types of protocols that require food and/or fluid regulation or restriction, including:

- justification
- species involved
- length and type of food/fluid regulation
- animal health monitoring procedures and frequency (e.g., body weight, blood urea nitrogen, urine/fecal output, food/fluid consumption)
- methods of ensuring adequate nutrition and hydration during the regulated period

Note: If preferred, this information may be provided in a Table or additional Appendix.

(b)(6) VAM-18-00258: Cyclin D1 and CDK2 in hepatocyte proliferation
Mice will have food (but not water) withheld for a period of up to 24 hrs. In one group, we will harvest mice after a 24 hr fasting period, which induces an adaptive response in the liver. In another group, mice will be fasted for 24 hr followed by refeeding for 24 hr, which induces a lipogenic response in the liver. These two metabolic states are key parts of our investigation. A major focus of our studies is to elucidate the effects of cyclin D1 on hepatic metabolism, which (we believe) will provide insight into the mechanisms by which cyclin D1 regulates metabolism in tumor cells. The liver serves as the major metabolic processor during the fasting and fed states. Our prior data suggest that cyclin D1 regulates diverse aspects of hepatic metabolism. In order to gain insight into these actions of cyclin D1, we aim to study its effects during both the fed and fasting states, which represent very distinct metabolic programs. As the animal will be euthanized shortly after the fast, if there is evidence that the animal is unable to clinically handle the fast (ie, if an animal becomes ill during the fast), then it would not participate in this portion of the protocol and would be either euthanized or returned to normal rations and monitored by veterinary staff.

(b)(6) 171101: Novel Plant Alkaloids for the Treatment of Obesity in Rats.

Rats will be given controlled access to ad libitem water for a defined period of time each day to test for conditioned taste aversion. The use of controlled access to water in evaluating condition taste aversion learning is crucial for motivating the animals to consume enough of the solutions for the pairing to a drug to form. Animals quickly learn to consume enough of the fluid available during this time, so that dehydration and rapid weight loss are not problematic. The conditioned taste aversion task itself is important because it is the gold standard for evaluating the extent to which drugs produce gastrointestinal malaise in rodents. This is a crucial aspect of the proposed studies, as it will determine if the reductions in food intake seen following alkaloid administration are due to the animals feeling unwell or do to specific reductions in appetite. The length of this would be two testing periods of approximately one month each. Animal weight, food and water intake will be monitored daily during the testing. Hydration would be assessed using multiple parameters, including weight/food/water intake, skin turgor, condition of fecal output, and general clinical appearance of the animal. Should it be abnormal, the animal may be removed from this arm of the experiment.

(b)(6) 170601: Cellular and Synaptic Basis of Cognitive Function in Prefrontal Cortical Networks.

Rhesus macaques used in neurophysiology studies are trained to perform visuomotor tasks by maintaining moderate fluid restriction and using fluid and clicker training as a reward for the correct response during a training session. Before approving the protocols, the IACUC considered evidence that positive reinforcement with juices and food treats alone is ineffective because of the complexity of the tasks. Each day, the animals are allowed a calculated amount of fluid based on body weight (minimum of 20-30ml/kg/day). Food intake is recorded and monitored daily during the training period and is a sensitive indicator of the animal's status. Free access to water is typically provided overnight once each week. The restriction is stopped if body weight decreases significantly or the animal is not actively being studied. Non-human primates on fluid restriction have body weight measured multiple times a week, as well as periodic measurements of urine specific gravity. An assessment of fecal consistency/output for signs of increased hardness or lack of output occurs as part of regular animal care staff health checks. Food and fluid consumption are measured and recorded daily by laboratory staff while an animal is on fluid restriction.

(b)(6) 170801: Brain-derived Neurotrophic Factor Involvement in Exercise Modulation of Appetite

Rats will be fasted overnight prior to perfusion to be tested for neuronal cellular response. As the animal will be euthanized shortly after the fast, if there is evidence that the animal is unable to clinically handle the fast (ie, if an animal becomes ill during the fast or prior to it), then it would not participate in this portion of the protocol, and would be either euthanized or returned to normal rations and monitored by veterinary staff.

Adequate nutrition and hydration are ensured by health monitoring procedures (described above) performed by both laboratory staff and animal research technicians and veterinary staff. In general, if an animal loses condition or body weight past a certain point (usually 20%) or if the animal is found to have clinical signs related to dehydration (e.g. loss of appetite, depression), then the animal is removed from the food/fluid regulation portion of the study.

vi. Use of Non-Pharmaceutical-Grade Drugs and Other Substances [*Guide*, p. 31]

Describe the IACUC/OB's expectations regarding the justification for using non-pharmaceutical-grade drugs or other substances, if applicable.

Pharmaceutical-grade substances will be used in situations where analgesia, anesthesia, or euthanasia is indicated and wherever possible in the experimental procedures. Explicit justification (such as requirement to meet scientific goals) must be provided for the IACUC/OB to allow the use of non-pharmaceutical grade substances. Such substances are identified and described in Appendix 3 of the VA protocol form. The investigator assures the IACUC/OB that the use of such substances will be suitable for the route of administration, including but not limited to pH, sterility, and stability.

vii. Field Investigations [*Guide*, p. 32]

Describe any additional considerations used by the IACUC/OB when reviewing field investigations of animals (non-domesticated vertebrate species), if applicable.

Not-applicable. At present, there are no field investigations approved within our program.

viii. Animal Reuse [*Guide*, p. 5]

1) Describe institutional policies regarding, and oversight of, animal reuse (i.e., on multiple teaching or research protocols).

The IACUC/OB has oversight over the reuse of animals on multiple protocols, as the source of animals used on a protocol is called out in item H of the protocol itself. Animals transferred from one protocol to another are tracked by veterinary medical unit staff and require prior veterinary approval in addition to approval from the IACUC/OB.

2) Briefly describe the types of activities currently approved that involve the reuse of individual animals.

Note: A list of specific protocols involving reuse of animals should be available during the site visit.

The protocols currently involving reuse of animals include the following:

(b)(6) 19-00388 Mouse sentinel protocol: Sentinels may be used to demonstrate basic handling techniques to new lab members.

(b)(6) 19-00389 Rat sentinel protocol: Sentinels may be used to demonstrate basic handling techniques to new lab members.

(b)(6) 19-00419 Mouse holding and training protocol
(b)(6) 19-00420 Rat holding and training protocol
(b)(6) 17-00203 Rabbit holding and training protocol

Animals assigned to these protocols may come from other approved protocols to demonstrate/practice techniques for lab members. Prior veterinary approval is required, and is generally given if animals are naïve, such as cull animals of an incorrect genotype in a breeding colony.

(b)(6) 18-00318 Fatty Acid Binding Protein-4 (FABP4)/Adipocyte Protein 2 Knockout (AKO) Mouse Breeding Colony

(b)(6) 18-00215 Mouse Breeding Colony for Hepatocyte Proliferation Research Studies

(b)(6) 19- 00399 Breeding Colony of Transgenic Models for Obesity Research

Animals assigned to these breeding protocols are bred for use on other, experimental, protocols. Such transfers are tracked through the VMU.

3) Describe other instances where the final disposition of animals following study does not involve euthanasia, including adoption, re-homing, rehabilitation, etc.
Note: A list of specific protocols involving reuse of animals should be available during the site visit.

With the permission of the IACUC/OB, animals may be transferred to another protocol at another institution. This can occur when an investigator provides breeding rodents of a particular genotype to a colleague. It also occurs in our program when pigs transfer to the (b)(6) for continued imaging study prior to sacrifice.

2. Post-Approval Monitoring [*Guide*, pp. 33-34]

a. Describe mechanisms for IACUC/OB review of ongoing studies and periodic proposal/protocol reviews (e.g., annual, biennial, triennial, or other frequency).

The IACUC/OB reviews ongoing studies using multiple mechanisms, including both annual updates and three-year renewals, for all protocols approved within the program. Annual updates include a summary of work completed to-date as well as any unexpected adverse outcomes. Three-year renewals involve a complete de novo review of the project and must be completed prior to the three-year anniversary of committee approval allow animal use under that protocol to proceed.

At any time, but especially in the context of amendment review, the IACUC/OB may determine that further clarification within a given protocol is warranted based on its evolving understanding of the relevant regulations. Additionally, the VA uses a secondary veterinary review for projects involving Just-In-Time funding that provides additional review perspectives for the IACUC/OB to consider.

The IACUC/OB is also considering enhancing the post-approval monitoring (PAM) program to include a periodic deep dive into selected protocols, related procedures, and documentation.

b. Describe the process and frequency with which the IACUC/OB reviews the program of animal care and use.

The IACUC/OB reviews the animal care and use program (including facility and laboratory inspections) every six months according to a VA-mandated checklist. This semi-annual program review includes a careful line-by-line review of the program based on the *Guide* (8th ed.) and a focused checklist of items to review while on inspection of areas that either involve procedures or housing of research animals.

c. Describe the process and frequency with which the IACUC/OB conducts facility and laboratory inspections.

- Describe the rationale or criteria used for exempting or varying the frequency of reviewing satellite holding facilities and/or animal use areas.
- If contract facilities or contractor-provided personnel are used, describe procedures used by the IACUC/OB to review such programs and facilities.

Note: A copy of the last report of these reviews should be included as **Appendix 10**.

The IACUC/OB reviews the animal care and use program (including facility and laboratory inspections) every six months according to a VA-mandated checklist. As mentioned above, this review includes a checklist of items to review while on inspection of areas that either involve procedures or housing of research animals.

There are no exemptions for satellite holding facilities or animal use areas.

When contractors have used our facilities, they must have met the program's expectations regarding training and have had a protocol approved by our local IACUC/OB to do so.

Please see our last semi-annual program review attached below as an appendix.

d. If applicable, summarize deficiencies noted during external regulatory inspections within the past three years (e.g., funding agencies, government, or other regulatory agencies) and describe institutional responses to those deficiencies. *Note:* Copies of all such inspection reports (if available) should be available for review by the site visitors.

As of the writing of this program description, no deficiencies have been noted during external regulatory inspections. The VA's Office of Research Oversight (ORO) has just performed a focused review of a portion of the ACUP. Findings are expected within two months.

e. Describe any other monitoring mechanisms or procedures used to facilitate ongoing protocol assessment and compliance, if applicable.

In addition to daily health checks performed on all animals used in the research program, veterinary staff makes regular rounds of the vivarium assessing the outcomes in relation to the approved protocol and current standards of veterinary care. The attending veterinarian makes regular monthly reports to the IACUC/OB regarding any outcomes that are not consistent with either approved protocols or standards of veterinary care.

Additionally, the program uses the services of a Research Compliance Officer (RCO), who provides audits of every protocol at least once during its three-year term of approval. The officer uses a template designed by VA Office of Research Compliance to evaluate the protocol for items such as current CITI training and scientific justification for USDA Category E studies. The RCO reports quarterly to the IACUC/OB during a monthly meeting.

3. Investigating and Reporting Animal Welfare Concerns [*Guide*, pp. 23-24]
Describe institutional methods for reporting and investigating animal welfare concerns.

Reporting of animal welfare concerns occurs through multiple methods, including through the AV, a member of the IACUC/OB, the chief Veterinary Medical Officer for the VA, or an anonymous tip line maintained by the VA. Contact information for these options are prominently posted throughout the veterinary medical unit and pointed out during the mandatory orientation to the facility that forms part of the training requirement for participation in the animal care and use program.

Investigations of animal welfare concerns would be directed by the IACUC/OB and would involve reviewing the reported allegation(s) and may include direct observations, interviewing relevant personnel, consulting with outside authorities, preparing a report summarizing findings, and reporting to oversight agencies (OLAW, USDA, AAALAC, ORO/ORD) through the IO, as suitable in the circumstances.

4. **Disaster Planning and Emergency Preparedness** [*Guide* p. 35]
Briefly describe the plan for responding to a disaster potentially impacting the animal care and use program:
   - Identify those institutional components and personnel which would participate in the response.
   - Briefly describe provisions for addressing animal needs and minimizing impact to animal welfare.

   Note: A copy of disaster plan(s) impacting the animal care and use program must be available for review by the site visitors.

Multiple individuals and departments of the institution would participate in the event of a disaster potentially impacting the animal care and use program, as appropriate to the situation. This could include the VA police, multiple divisions of the engineering service, including the (b)(6), as well as Safety. The VMU disaster plan addresses human and animal safety and describes procedures for responding to emergency situations such as fire, storms, power failure, a breech in security or significant animal care absenteeism. In each case, provisions are made to address animal needs and minimize impact to animal welfare. For example, in the event of HVAC failure, alternative means to heat or cool the macroenvironment would be provided and, if unable to adequately address animal needs, animals would be evacuated or euthanized.

II. Animal Environment, Housing and Management

Note: Complete each section including, where applicable, procedures performed in farm settings, field studies, aquatic environments, etc.

A. Animal Environment

Note: Facility-specific details regarding mechanical system construction and operation is requested in Section IV.B.5. and **Appendix 11**; current (measured ***within the last 12 months***), detailed (by room) performance data must also be provided as indicated in **Appendix 11.**

1. **Temperature and Humidity** [*Guide*, pp. 43-45]

   a. Describe the methods and frequencies of assessing, monitoring, and documenting that animal room or housing area temperature and humidity is appropriate for each species.
   Note: If preferred, this information may be provided in a Table or additional

Appendix.

Assessing, monitoring, and documenting animal room temperature and humidity occurs in multiple ways. Daily, each animal room is inspected by a member of the VMU staff. Each husbandry room is equipped with its own thermometer / hygrometer that records current, maximum and minimum readings. Using this unit, the animal caretaker records current, maximum and minimum temperature and humidity readings for the past 24 hours on the daily room log. Significant temperature deviations are noted on the log sheet and are brought to the attention of the attending vet and/or lead animal technicians who investigate and submit a work order, if needed.

In addition, each animal room has a temperature and humidity sensor that is connected to monitoring computers in the (b)(6) and in the (b)(6) (b)(6). The VMU HVAC system was updated in 2011, with major repairs made in the spring of 2019. Following that 2011 update, it features a feedback mechanism whereby the system monitors and adjusts itself continuously. Should temperatures deviate from the set point (72˚F for all species except rabbits at 68˚F), this triggers a warning on the monitoring computers. Temperatures that deviate beyond the *Guide* recommendations trigger an alarm that registers at the (b)(6), the (b)(6) (b)(6), and on a display panel located in the administrative area of the VMU. Additionally, text messages are sent automatically to select VA engineering and VMU staff, including the veterinarians and small animal lead technician. Engineering investigates the problem and is responsible for finding a solution. If an alarm occurs outside of normal working hours, the same set of alarms and text messages are activated. Phone contact is made between the (b)(6) (b)(6) and the veterinarian and/or the small animal lead technician, as well as the (b)(6) (if needed). Together, they confirm the problem and work to determine an action plan, as appropriate.

b. List, by species, set-points and daily fluctuations considered acceptable for animal holding room temperature and relative humidity.
Note: If preferred, this information may be provided in a Table or additional Appendix. [*Guide*, pp. 44 and 139-140]

(b)(6) **Temperature Alarm Key / Action Plan**

Set Point	Warning Temp (b)(6) (b)(6) alerted / responding)	Alarm Temp ((b)(6) investigating/fixing; **must call VMU staff until speak with someone** VMU alarm panel lights Text alarm sent to VMU staff)
72˚F (all animal rooms except (b)(6)	<69 ˚F or >76 ˚F	<68 ˚F or >79 ˚F
68 ˚F (room (b) rabbits)	<64 ˚F or >70 ˚F	<61 ˚F or >72 ˚F

Regarding humidity levels, the setpoints for the facility are within the *Guide* recommendations of 30-70%. However, fluctuations can occur, particularly in the winter months. The program has a performance standard set out in a VMU SOP that allows for humidity levels to be outside this range, provided no adverse impacts (such as ringtail) occur.

c. Temperature set-points in animal housing rooms and/or environmental conditions are often outside of the species-specific thermoneutral zone. Describe the process for enabling behavioral thermoregulation (e.g., nesting material, shelter, etc.) or other means used to ensure that animals can control their thermoregulatory environment. Include a description of IACUC/OB approved exceptions, if applicable. [*Guide*, p. 43]

Our program enables behavioral thermoregulation through a variety of means, including provision of nesting material, shelters, and (when scientifically practicable) using social housing. At present, there are no IACUC/OB approved exceptions relating to the temperature set points for the species within our program.

2. Ventilation and Air Quality [*Guide*, pp. 45-47]

a. Describe the methods and frequencies of assessing, monitoring, and documenting the animal room ventilation rates and pressure gradients (with respect to adjacent areas).
Note: If preferred, this information may be provided in a Table or additional Appendix.

Animal room and support area ventilation rates are being monitored continuously by the (b)(6) computer monitoring system, as described previously. The air exchange rate and pressure gradients are documented at a minimum every three years by the VA (b)(6), and this information is found in the HVAC System Summary Appendix.

b. Describe ventilation aspects of any special primary enclosures using forced ventilation.

The VMU uses an Individually Vented Caging system (IVC) Modular Animal Caging System manufactured by (b)(6) for our high health SPF rodents. The IVC system operates in the positive mode and supplies HEPA-filtered air to each individual rodent micro-barrier cage at a rate of 60 air changes per hour. Exhaust air, also HEPA-filtered, is discharged into the housing room.

c. If any supply air used in a room or primary enclosure is recycled, describe the percent and source of the air and how gaseous and particulate contaminants are removed.

This does not apply to our facility.

3. Life Support Systems for Aquatic Species [*Guide*, pp. 84-87]

a. Provide a general description of institutional requirements for enclosures using water as the primary environmental medium for a species (e.g., aquatics).

This does not apply to our facility.

b. Provide a general description of overall system(s) design, housing densities, and water treatment, maintenance, and quality assurance that are used to ensure species appropriateness.
Note: Facility-specific tank design and parameter monitoring frequencies should be summarized in **Appendix 12** (Aquatic Systems Summary).

Not Applicable

4. Noise and Vibration [*Guide*, pp. 49-50]
Describe facility design features and other methods used to control, reduce, or prevent excessive noise and vibration in the animal facility.

The VMU is contained within its own structure, (b)(6). This building is constructed of cement block, cement floors and heavy steel doors. The mechanical systems for the building are located on different areas or floors (sub-basement and roof-top) from the animal rooms.

Different species are housed in different areas of the vivarium. Pigs, nonhuman primates, and rabbits are housed in separate corridors on the (b)(6). Rodents are housed on the (b)(6).

Radios are not generally allowed in the animal housing rooms, except for the large animal rooms (including NHP and pigs). For these species, music and even occasionally TV may be used as part of their enrichment programs.

B. Animal Housing (all terrestrial, flighted, and aquatic species)

1. Primary Enclosures
Note: A description of primary enclosures used (e.g., cages (conventional, individually-ventilated cage systems (IVCS), etc.), pens, stalls, pastures, aviaries, tanks) should be included in **Appendix 13**.

a. Describe considerations, performance criteria and guiding documents (e.g. *Guide*, *Ag Guide*, ETS 123 and/or other applicable standards) used by the IACUC/OB to verify adequacy of space provided for all research animals, including traditional laboratory animal species, agricultural animals, aquatic species, and wildlife when reviewing biomedical, field and agricultural research studies.

The MVAHCS VMU and IACUC uses the *Guide for the Care and Use of Laboratory Animals*, Eighth Edition, NRC, 2011 to verify adequacy of space provided our research animals. The program has no sheltered, outdoor or naturalistic housing.

Primary enclosure information is listed in Appendix 13.

b. Describe space exceptions to the guiding documents (*Guide*, *Ag Guide*, ETS 123, and/or applicable standards), indicating the references, considerations and performance criteria used (e.g., by the IACUC/OB) to verify adequacy of space provided for all animal species covered by the program. [*Guide*, pp. 55-63]

The MVAHCS ACUP has no space exceptions at this time.

2. Environmental Enrichment, Social, and Behavioral Management [*Guide*, pp. 52-55; 63-65: *Ag Guide*, Chapter 4]

a. Environmental Enrichment

i. Describe the structural elements of the environment of primary enclosures that may enhance the well-being of animals housed (e.g., resting boards,

privacy areas, shelves/perches, swings, hammocks).

Rodents are provided huts, igloos, cubes and PVC tubes in their cages. Rats that are housed on wire-bottom cages have plastic inserts and polycarbonate tunnels on which to rest.

Rabbits are provided polycarbonate huts in their cages.

Pigs are provided scratching boards.

All non-human primates (NHP) have access to a specially-designed activity area during weekdays and on some weekends (known locally as 'zoo-time'), unless their study participation prevents this. This area includes ramps, tunnels, hammocks, bridges, a climbing wall, PVC pipe tree, perches, swings, ropes and platforms, all of which rotate to provide novel enrichment. Their regular home cages include perches and side boards. NHP also are provided extra vertical space by connecting higher and lower cages as part of the standard housing regimen.

ii. Describe nonstructural provisions to encourage animals to exhibit species typical activity patterns (e.g., exercise, gnawing, access to pens, opportunity for exploration, control over environment, foraging, denning, burrowing, nesting materials, toys/manipulanda, browsing, grazing, rooting, climbing).

Rodents are provided nesting material (crink'l nesting, nestlets), tissue, nylabones and food treats (nuts, cereal).

Rabbits are provided jinglers, balls, interlocking rings, nyla-toys, hay, fresh produce and other food treats.

Pigs are provided Kong and other chew toys, jinglers, balls, mirrors, hay and aspen pools for rooting and occasionally water pools. Additionally, they are provided food treats such as fresh and dried fruits and vegetables.

NHPs are provided mirrors, puzzles, destructables, such as cardboard boxes with crinkle paper, logs to shred, logs with treats, foraging boards with nuts and other food treats, fruit cups, fresh and dried fruits and peanut butter treats. Additionally, all non-human primates have access to a specially-designed activity area during weekdays and some weekends (known locally as 'zoo-time'), unless their study participation or health prevents this. This area includes ramps, tunnels, hammocks, bridges, a climbing wall, PVC pipe tree, perches, swings, ropes and platforms, all of which rotate to provide novel enrichment.

b. Social Environment [*Guide*, p. 64]

i. Describe institutional expectations or strategies for social housing of animals.

The MVAHCS ACUP expectation is that animals are pair or group housed wherever possible. Single housing of social species is the exception and not the default approach to husbandry. Strategies include retaining littermates as a group, acquiring paired animals, or creating social groups.

ii. Describe exceptions to these expectations (e.g., veterinary care, social incompatibility) and other typical justification approved by the IACUC/OB for housing animals individually.

Situations that may result in single-housing of animals include social incompatibility resulting from aggressive animals; veterinary-related concerns regarding animal welfare; or scientific requirements/experimental necessity of the research as approved by the IACUC. For example, if a rat study involves the exact measurement of food intake on an individual basis, the IACUC may approve single housing with robust investigator scientific justification.

Single housing of social animals post-operatively is considered part of appropriate animal care and does not require specific approval. Quarantined animals are exempt from social housing requirements.

iii. Describe steps taken with isolated or individually housed animals to compensate for the absence of other animals (interaction with humans, environmental enrichment, etc.).

Singly housed animals will be provided with housing that permits visual, auditory and olfactory interaction in a protected fashion with conspecifics, where possible. Environmental and food enrichment will be provided and may be enhanced in terms of quantity. Where the animal would benefit from positive human interaction, it would be provided.

c. Enrichment, Social and Behavioral Management Program Review [*Guide*, pp. 58, 69]
Describe how enrichment programs and exceptions to social housing of social species are regularly reviewed to ensure that they are beneficial to animal well-being and consistent with the goals of animal use.

The institution's enrichment programs are reviewed on a yearly basis and approved by the IACUC together with the veterinarians. Exceptions to the program's approach to social housing would be detailed in the protocol and reviewed as needed but at a minimum once during the triennial approval period. The animal research technicians observe singly housed animals daily and report any issues to the AV. The AV reports monthly to the IACUC and would discuss any health issue a singly housed animal is experiencing. The IACUC itself also makes observations during the facility review

portion of the semiannual program review. When necessary, the focus shifts to minimizing the amount of time spent in single housing to balance both study and animal-related goals.

d. Procedural Habituation and Training of Animals [*Guide*, pp. 64-65]
Describe how animals are habituated to routine husbandry or experimental procedures, when possible, to assist animals to better cope with their environment by reducing stress associated with novel procedures or people.

Animals are generally given a 2-7 day acclimation period to adjust to their new environment, prior to any experimental manipulation. No surgery may be performed on an animal within 48 hours of arrival to the facility.

Rodents whose activity or behavior are being measured are acclimated 2-7 days to the type of caging (spa chambers, for example) in which these measurements will be taken.

Swine are given at least a 48-hour acclimation period prior to any testing procedure. Upon arrival, they are transferred to their assigned pen and provided water and feed. Animals are observed closely to make certain they are drinking, eating and producing normal urine and feces.

Upon arrival, new NHPs undergo extensive habituation to their new cage or zoo-mates and research technicians. Following this acclimation, NHPs are habituated to collaring, chairing and training on their experimental tasks. The NHPs are clicker trained which facilitate transfers. Each NHP will be on its own training schedule and will advance at a pace unique to that NHP, and only when coping well with their new situation.

e. Sheltered or Outdoor Housing [*Guide*, pp. 54-55]

i. Describe the environment (e.g., barn, corral, pasture, field enclosure, flight cage, pond, or island).

Does not apply to MVAHCS ACUP at this time.

ii. Describe methods used to protect animals from weather extremes, predators, and escape (windbreaks, shelters, shaded areas, areas with forced ventilation, heat radiating structures, access to conditioned spaces, etc.).

Does not apply to MVAHCS ACUP at this time.

iii. Describe protective or escape mechanisms for submissive animals, how access to food and water is assured, provisions for enrichment, and efforts to group compatible animals.

Does not apply to MVAHCS ACUP at this time.

f. Naturalistic Environments [*Guide*, p. 55]

i. Describe types of naturalistic environments (forests, islands) and how animals are monitored for animal well-being (e.g., overall health, protection from predation).

Does not apply to MVAHCS ACUP at this time.

ii. Describe how food, water, and shelter are provided.

Does not apply to MVAHCS ACUP at this time.

iii. Describe how animals are captured.

Does not apply to MVAHCS ACUP at this time.

C. Animal Facility Management

1. Husbandry

a. Food [*Guide*, pp. 65-67]

i. List type and source of food stuffs.

Species	Diet	Supplier
Rodent	Teklad Global 18% Diet 2918 (Irradiated) Teklad Laboratory Diet Rodent 8604 Teklad Laboratory Breeder Diet Rodent 8626	(b)(6)
	Cereal, nuts treats	(b)(6)
Rabbit	Teklad Global High Fiber Rabbit Diet 2031 Timothy Hay	(b)(6)
Swine	Teklad vegetarian pig diet 7200	(b)(6)
	Canned dog food for meds	(b)(6)
	Canned dog food, fruit, veggies	
NHP	Lab Diet Monkey Diet 5038	(b)(6)
	Tang, nuts, fruits, peanut butter	(b)(6)
		(b)(6)

ii. Describe feed storage facilities, noting temperature, relative humidity, and vermin control measures, and container (e.g., bag) handling practices, for each of the following:

- vendors (if more than one source, describe each)
- centralized or bulk food storage facilities if applicable
- animal facility or vivarium feed storage rooms
- storage containers within animal holding rooms

Unopened bags of rodent, rabbit, swine, and NHP feed are stored stacked on pallets in feed storage (b)(6), located on the (b)(6). An elevator is used to transport the rodent feed to the (b)(6). Feed is then dispensed to rooms with the oldest in-date food being used first. Some special diets require refrigeration and are stored in the kitchen in (b)(6) or in (b)(6). Additional diet storage occurs in (b)(6). This includes unopened cans of dog food (used to medicate pigs) and a variety of dried enrichment foods. Foods are labeled with arrival dates and expiration dates, as provided. Opened or fresh foods are stored in the refrigerator, freezer, or sanitizeable air-tight containers (sanitized monthly or sooner), as appropriate.

The temperature and humidity of (b)(6) is monitored and recorded daily. Setpoints for the rooms are 70 degrees F (or below) and lower than 50% humidity.

For the rodents and rabbits, open feed for that room is stored in its original bag contained in a plastic barrel with a tight-fitting lid. The plastic barrel sits on a dolly with casters and is labeled with the lot number, the fill date, expiration date and the date on which the barrel was sanitized. Smaller quantities of feed may be stored in a secondary plastic container with a tight-fitting lid, and is labeled appropriately to indicate mill date, expiration, date filled and date container was last sanitized.

For the swine and NHPs, open feed is stored in its original bag in a plastic barrel stored in feed (b)(6) located on the same level as the animals are housed. The barrel is labeled with the mill date, fill date and date that the container was sanitized. The feed barrel sits on a dolly with casters. The feed barrel is rolled down the hall to the appropriate animal housing rooms, as those rooms are being sanitized and the animals are replenished with feed.

All feed rooms and support areas are monitored for vermin (insect traps, visual checks for gnawed bags, feces) and the contracted pest control technician visits the building weekly, reports verbally to the VMU staff, documents rooms checked in the VMU Pest Control Log book and submits an electronic report for the log book

(b)(6)
(b)(6), with over 40 years experience manufacturing laboratory animal diets, follow the strictest standards (ISO 9001:2008 certified) to ensure consistency in animal nutrition to minimize confounding variables. (b)(6) has its own company-owned distribution system to ensure the highest quality and storage of their products. Their facility is climate-controlled and has a rigorous sanitation program. Vermin control is in place, as is quality control/assurance of incoming materials.

(b)(6) feed facilities produce custom grain-based and purified diets for animal research. Their facility is GMP-compliant and ISO 9001:2008 certified. Their facilities are closely monitored according to industry's standard practices and all ingredient protocols are part of their ISO and GMP certification. (b)(6) (b)(6) and Pest Control Program information sheets are on file.

(b)(6) is a local chain grocery store.

(b)(6) is a small, local wholesale food business distributing produce.

(b)(6) is a local produce distributor, which also serves as a specialty grocery vendor for many dried goods, such as nuts and dried fruit. They have state of the art food-safety systems, including surveillance and controlled access. (b)(6) participates in Pro*Act which ensures they meet strict risk-based food safety and security standards, including 100% food traceability, allowing for immediate recall of items. (b)(is audited by a third-party verification system to ensure compliance (b)(also has an in-house lab for chemical and microbiological analyses, and shelf-

life studies.

iii. Describe special food preparation areas, such as feedmills and locations where special diets are formulated, if applicable. Include in the description sanitation and personnel safety practices (noting that respiratory protection is described in Section 2.I.A.2.b. ii. Standard Working Conditions and Baseline Precautions above).

Special diet preparation for rodents occurs in the kitchen (b)(6). This room has two refrigerators, one sink, cabinets, and a dishwasher.

Food enrichment treats for the NHPs and pigs are prepared in (b)(6). This room has a refrigerator/freezer, sink, cabinets and counter.

Refrigerators storing feed are continuously monitored for temperature. The temperature and humidity for (b)(6) are monitored and recorded daily.

iv. Describe how food is provided to various species (*ad libitum*, limited amounts, types of feeders).

Rodents are provided pelleted rodent chow, from a stainless-steel feeder hanging from the cage lid or mounted on the side of the cage. Feeders are topped off as needed and sanitized every two weeks. Some rodents on study have measured amounts of food and some have their consumption measured according to approved protocol; however, most rodents are provided chow ad libitum.

Rabbits are provided pelleted rabbit chow, from a stainless-steel J feeder. Rabbits typically are with the VMU and on study for about 5 days. Rabbits are fed ad libitum, as caloric management for this short time has not been necessary. Rabbit banks, including feeders, are sanitized once per week.

Swine are provided from 0.5-1.0 scoops of pelleted pig chow in a bowl once per day. Larger pigs receive 1 scoop which equals 3 pounds of food and smaller pigs receive ½ scoop which equals about 1.5 pounds of food. The bowl is washed when empty.

NHPs are provided a specific number of food biscuits each day from a feed hopper mounted on the side of the cage. Food consumption is recorded for each NHP daily. Feed hoppers are emptied each morning, washed and readied for the next biscuit feeding.

v. Describe special food quality control procedures including procedures for rotating stock, monitoring milling dates, nutritional quality, bio load, chemical

contaminants, etc.

When food is delivered, bags are checked and those that are damaged or are more than two months past their mill date, are rejected. Stock is rotated such that the oldest food is used first. All standard diets must be used within 6 months of their mill date. Irradiated diets must be used within 12 months of their mill date. Outdated feed is discarded.

All feed storage rooms are monitored for temperature and humidity and this information is recorded daily on a log sheet.

Because all base-diet feed comes from established, reputable dealers ((b)(6) with guaranteed analysis, we do not routinely analyze such diets for nutritional contents or contaminants.

b. Drinking Water [*Guide*, pp. 67-68]

i. Describe the water source, treatment or purification process, and how it is provided to the animals (e.g., bowls, bottles with sipper tubes, automatic watering, troughs, ponds, streams).

Drinking water is supplied by the City of Minneapolis. The VMU has an(b)(6) automatic watering system equipped with stainless steel room distribution system, automatic flush and a central monitoring system. The monitoring system detects leaks and pressure problems. A chlorine flush is performed annually. The system is used for rabbits, swine and for some NHPs.

Water bottles and sipper tubes are used for rodents. Rodents in high-health areas have autoclaved water.

ii. Describe methods of quality control, including monitoring for contaminants.

Comprehensive water quality reports are published by the city of Minneapolis annually and are available on line. A copy of the most recent analysis (2017) has been reviewed and is on file in the QA/QC book. During June 2016 and August 2017, a Drinking Water Laboratory Test was performed on tap water from(b)(6) (b)(6)and was negative for coliform bacteria, and within EPA Guidelines for nitrate and arsenic levels.

iii. If automatic water delivery systems are used, describe how they are maintained and sanitized.

The(b)(6) automatic water system flushes two times per day. The system has a chlorine flush annually and has its 5 micron filters changed quarterly.

c. Bedding and Nesting Materials [*Guide*, pp. 68-69]

i. Describe type(s) and how used for various species.

Type	Species	How used
Corn Cob	rodent	contact
Sani-Chip	rodent	contact
Crink-l-nest	rodent	contact
Pure-O'Cel	rodent	contact
Nestlets	rodent	contact
Tissues	rodent	contact
Paper Cage-liners	rodent	non-contact
Non-contact tray liners	rabbit	non-contact
Timothy hay	rabbit	enrichment, bedding
Aspen bedding	NHP	non-contact
Aspen bedding	swine	enrichment bedding

ii. Describe bulk bedding storage facilities, if applicable, including vermin control measures.

Bedding is stored on pallets in (b)(6) and (b)(6). Open bags are kept in sealed containers and labeled date filled and sanitized. Bedding for high-health rodent rooms is autoclaved. Temperature for the storage areas is monitored and recorded daily. Vermin are monitored by insect traps and checked weekly. Visual checks for other traces of vermin (gnawed bags, feces) are conducted by VMU animal care takers. The facility has a contract with an outside pest control company to further enhance our vermin control measures.

iii. Describe quality control procedures, including monitoring for contaminants.

Bedding material is purchased from creditable dealers (b)(6), which monitor their facilities and products for vermin and contaminants. Analyses are available from the company upon request.

Once in the facility, the bedding bags are checked to be certain they are intact. Once opened, containers of bedding are stored in plastic barrels with tightly fitting lids. Bedding is visually checked for purity prior to use.

d. Miscellaneous Animal Care and Use Equipment

i. Describe motorized vehicles and other equipment (e.g., trailers) used for transporting animals, noting the type and how the cargo compartment is environmentally controlled, if applicable.

The VMU has an animal transport van, though not often used, equipped with heating and air conditioning. The van is kept in a heated garage in the animal facility. Temperature extremes are therefore avoided during loading and unloading. There is minimal risk of an animal escaping out of the facility because the garage is enclosed, and loading occurs only when the garage door is shut.

When shipment does occur, animals are much more commonly transported by the (b)(6) van to and from facilities. This van is designed for animal transport and is climate controlled. The (b)(6) is AAALAC accredited.

ii. Describe other animal care related equipment used in the animal care program (specialized equipment for exercise or enrichment, high pressure sprayers, vacuum cleaners, tractors, trailers, spreaders, etc.).

The VMU has a portable high-pressure washer, hydraulic lift tables, transfer cages, a clean air scrubber module and a hepa-filtered vacuum.

The VMU uses a unique wire tunnel to transfer the NHPs from their cages to the zoo, which has various pieces of equipment (ladders, ropes, slides) for exercise and enrichment.

The VMU does not use tractors, trailers or spreaders.

If a forklift were needed, VA engineering services would provide assistance.

e. Sanitation [*Guide*, pp. 69-73]

i. Bedding/Substrate Change

1) Describe frequency of contact and non-contact bedding change for each species and enclosure type (solid-bottom or suspended) or pen.

Species	Type Enclosure	Frequency
Mouse	polycarbonate, solid	1/week
Mouse	IVC, solid	1/week
Mouse	Operant chambers, polycarbonate, polysulfone, solid	~daily, study-driven
Rat	polycarbonate, solid 1/week	
Rat	Suspended SS, paper liner	2-3/week, rack 2/month
Rat	Operant chambers, polycarbonate, polysulfone, solid	~daily, study-driven
Rabbit	SS cage, paper lined pan	3/week paper,1/week banks

Swine	SS pen	1/day
NHP	SS cage, catch pan 1/day pan, 1/week cage change	
NHP	SS Zoo	1/week
NHP	tunnel to zoo	1/day

2) Describe any IACUC/OB approved exceptions to frequencies recommended in the *Guide* or applicable regulations and the criteria used to justify those exceptions.

There are no exceptions to frequencies recommended in the *Guide* or applicable regulations at this time.

3) Note the location where soiled bedding is removed from the cages/enclosures and where clean bedding is placed into the cages/enclosures.

Soiled contact bedding is removed from the cages on the dirty side of the cage washer ((b)(6)) and clean bedding is placed into sanitized boxes on the clean side of the cage washer ((b)(6)).

Non-contact bedding (papers) are changed in the housing rooms.

ii. Cleaning and Disinfection of the Micro- and Macro-Environments
Note: A description of the washing/sanitizing frequency, methods, and equipment used should be included in **Appendix 14** (Cleaning and Disinfection of the Micro- and Macro-Environment) and **Appendix 15** (Facilities and Equipment for Sanitizing Materials).

1) Describe any IACUC/OB approved exceptions to the *Guide* (or applicable regulations) recommended sanitation intervals.

There are no exceptions to the *Guide* (pg. 42) or applicable regulations recommended for sanitization intervals at this time.

2) Assessing the Effectiveness of Sanitation and Mechanical Washer Function

a) Describe how the effectiveness of sanitation procedures is monitored (e.g., water temperature monitoring, microbiological monitoring, visual inspections).

The effectiveness of sanitization is determined by several methods. A (b)(6) pass-through rack washer is used to wash and

sanitize our animal cages and equipment. Each run is digitally recorded and monitored for time, water temperature (180F) and addition of reagents. The data tape is dated, initialed and placed in a permanent record book.

Temperature sensitive labels (180-degree verification labels) are used weekly and are in place in a permanent record.

The (b)(6) ATP-detection system is used monthly to assess sanitation of individual items that have been run through the cage washer (cages, bottles, sipper tubes, feeders, toys), plus items that are hand cleaned such as pens.

Sanitized and cleaned equipment is visually inspected prior to use.

Monthly, the two autoclaves used to sterilize animal equipment are monitored using a biological indicator (BI) system. The results of the BI test are kept in a permanent record in the VMU and are also sent to the MVAHCS Infection Control Department for their review and records.

b) Describe preventive maintenance programs for mechanical washers.

The VMU cage washer operator cleans the (b)(6) course filters located under the floor at the start of each day manually. The spray manifolds located on the sides of the washer are checked daily and cleared of any debris. Three times per week the pipe housing filter located to the left of the washer is opened and the filter cleaned.

Monthly, the exterior of the washer is cleaned and polished.

The VMU, through the MVAHCS, contracts with a provider (currently (b)(6) via a service agreement to perform quarterly preventative maintenance on the rack washer. The reports are on file with VA Engineering.

Quarterly, the reagents used in the cage washer, Alka-Det, Acid-Power and pH Neutralizer, are checked and balanced by a company representative from (b)(6) our supplier of these reagents. This report is on file in the VMU.

f. Conventional Waste Disposal [*Guide*, pp. 73-74]
Describe the handling, storage, method and frequency of disposal, and final disposal location for each of the following:

i. Soiled bedding and refuse.

Soiled bedding and refuse are collected daily Monday through Friday in the VMU in heavy plastic garbage bags and then transferred to the hospital's central collection site for refuse and then transported for incineration. Waste collected over the weekend, which is minimal, is transferred to the hospital on Mondays for disposal.

ii. Animal carcasses.

Animal carcasses are stored in sealed/closed plastic bags. Carcasses are kept refrigerated in (b)(6) (in a refrigerator/freezer) or (b)(6) walk-in cooler), or frozen in freezer in (b)(6), all dependent on the size of the animal and whether a necropsy is planned. The temperatures of the cooling units are monitored remotely on a continuous basis.

The VMU contracts with a licensed waste disposal firm (currently (b)(6) for final disposition of carcasses. The waste disposal firm assures regulatory compliance and safety of handling carcasses. Collected carcasses are eventually pooled in large plastic bins with tight fitting lids, which are picked up weekly by the vendor. Carcasses are treated as biohazardous waste, are tracked from their pick up at the VMU to their final point of incineration out of state. The tracking record for each bin of carcasses is available online.

g. **Pest Control** [*Guide*, p. 74]

i. Describe the program for monitoring and controlling pests (insects, rodents, predators, etc.). Include a description of:

- monitoring devices and the frequency with which devices are checked
- control agent(s) used and where applied, and
- who oversees the program, monitors devices, and/or applies the agent(s).

The MVAHCS and VMU contract with a pest control vendor (currently (b)(6)) to provide pest control services. The company's representative visits the animal facility on a weekly basis. They inspect groups of rooms on a rotating basis. Some rooms such as the feed and bedding storage are checked weekly, with all other rooms checked at least every other week. Insect traps are used as one method of monitoring. The VMU has a pest control SOP (MVAHCS-VMU-FAC-305, current revision). The company representative documents his visits and the results are reviewed by the small animal lead technician. The pest control program emphasizes preventative measures such as sanitation and good building hygiene, keeping the facility clean of harborages and keeping the exterior doors shut. Sweep strips are used on most exterior doors. Any live traps in operation are checked daily. Pesticides are not used in the animal housing or in feed and bedding storage areas. No natural predators are used for pest and predator control.

ii. Describe the use of natural predators (e.g., barn cats) or guard animals (e.g., dogs, donkeys) used for pest and predator control, if applicable.

Not applicable at MVAHCS at this time.

iii. Note how animal users are informed of pesticide use and how animal users may opt out of such use in specific areas.

Pesticides are not currently used within the VMU animal facility, however may be used as-needed outside the animal facility. The exterior of the building may be treated on occasion for crawling insects, or sprayed for wasps, as wasp nests tend to form on the outside of the (b)(6) windows. If pesticides were ever needed within the animal vivarium, the (b)(6) technician would consult with VMU staff, veterinarian and applicable PI(s).

h. Weekend and Holiday Animal Care [*Guide*, pp. 74-75]

i. Describe procedures for providing weekend and holiday care. Indicate who (regular animal care staff, students, part-time staff, etc.) provides and oversees care and what procedures are performed.

The VMU is staffed every day of the year by regular VMU full-time animal care staff.

Weekend/holiday responsibilities include health checks on all animals; feeding and watering all animals; providing environmental enrichment, as instructed (especially for the NHPs); sanitizing the large animal pens and primate cages; administering medicine or basic animal treatments; changing bedding, as needed. The holiday/weekend staff checks in with the veterinarian on-call at the end of the shift to confirm that the animals have been attended and that the facility has no issues.

ii. Indicate qualifications of weekend/holiday staff if not regular staff.

Not applicable. Weekend/holiday staff is regular full-time staff.

iii. Describe procedures for contacting responsible animal care and/or veterinary personnel in case of an emergency.

The VMU currently has two veterinarians on staff, one of whom is always on-call. Contact information and instructions for reaching the on-call veterinarian are posted at several locations within the facility in case of an animal emergency or facility emergency.

Temperature is monitored continuously by VA Engineering and by the (b)(6) (b)(6). The veterinarians and the lead small animal technician

are automatically texted with temperature alarms when they occur.

Both VA Engineering and the (b)(6) are also provided a call list of VMU staff. If a temperature alarm occurs outside of regular business hours, both groups are instructed to make phone contact with VMU personnel to discuss the situation and to make certain a plan of action is agreed upon.

VA Police do security checks on the building after normal working hours. The VA Police also have a regularly-updated call list of VMU personnel to contact if they have an emergent concern.

The VMU has a Disaster Plan in place that addresses human and animal safety and describes procedures for responding to emergency situations such as fire, storms, power failure, a breech in security or significant animal care staff absenteeism.

The AV also serves on the SRS committee.

2. Population Management [*Guide*, pp. 75-77]

a. Identification

Describe animal identification methods for each species (e.g., microchips, cage/tank cards, collars, leg bands, tattoo, ear tags, brands).

All animals/cages have a cage card. Rodents and rabbits are generally identified by cage card only that includes the source, strain, arrival date, sex, birth date and/or weight, protocol number, PI and contact information. Some rodents are tattooed, or ear tagged with a number for identification.

NHPs are identified with a tattoo and a cage card.

Swine are identified with an ear tag and a cage card.

b. Breeding, Genetics, and Nomenclature

i. Describe the program for advising investigators on the selection of animals based on genetic characteristics.

The selection of animals used for a study is the responsibility of the PI. The VMU and the VMO have vendor files outlining stock and strains of laboratory animals available for any staff requesting this type of information. Selection of the appropriate animal model is considered by the VMO during protocol pre-review and is addressed by the IACUC during protocol review.

ii. Describe the program for advising investigators on using standardized nomenclature to ensure proper reporting of the identification of the research

animals with regard to both the strain and substrain or the genetic background of all animals used in a study.

The VMU and VMO have access to the standardized nomenclature and the correct designation of various stocks, strains and sub-strains and the genetic background of laboratory animals, should the PI need assistance.

iii. Describe genetic management techniques used to assess and maintain genetic variability and authenticity of breeding colonies, including recordkeeping practices (*Guide*, pp. 75-76).

Records are retained by the lab maintaining the breeding colony. These records will include the species, animal identification, sire and/or dam, sex, birth, source, wean date and any other pertinent information to the lab.

iv. For newly generated genotypes, describe how animals are monitored to detect phenotypes that may negatively impact health and well-being. Note that the methods used to report unexpected phenotypes to the IACUC/OB should be described in section 2.1.B.1.c.ii, "Unexpected Outcomes that Affect Animal Well-Being."

At this time, our program does not purposefully generate previously unknown genotypes. However, a health check is performed on all animals daily, including those with already-modified genotypes. The PI and the AV would be notified if an animal caretaker or research technician noticed an animal with a health concern or a group of animals that were moribund or found dead. A morbidity record would be generated, and this animal or group of animals would be followed by the AV. In case of deceased animals, a mortality report would be generated, reviewed and filed. The VMO reports monthly to the IACUC on various issues, one of which would be unexpected health issues with animals.

The PI is asked to provide information addressing any characteristic clinical signs or abnormal behaviors related to the genotype of animals being used for the study within the protocol. The animal care staff would have access to this information and it would additionally be discussed at the weekly VMU staff meeting.

III. Veterinary Care [*Guide*, pp. 105-132]

Note: Complete each section, including, where applicable, procedures performed in farm settings, field studies, aquatic environments, etc.

A. Animal Procurement and Transportation [*Guide*, pp. 106-109; *Ag Guide*, pp. 8; 45; 50-57]

1. Animal Procurement

Describe the method for evaluating the quality of animals supplied to the institution (from commercial vendors, other institutions, etc.).

The methods for evaluating the quality of animals supplied to the institution depend on the species and the supplier. For rodents, suppliers are most often commercial vendors such as (b)(6). Based on past review of performance, these vendors are considered approved vendors and animals from these sources may enter the vivarium directly. To receive rodents from other research institutions (universities, etc.), a review of those animals' previous health history occurs, and they are subject to a quarantine period upon arrival to our facility.

For other species, an evaluation of the health status of the animals based on review of information provided by the supplier occurs prior to approval for shipment. Once a relationship is established between a high-quality supplier and the program, they may be considered an approved vendor and animals from these sources may enter the vivarium directly. Site visits can be used to further evaluate the quality of the vendor.

2. Transportation of Animals

Describe how animals are transported between outside sources and the institution and within the institution, including loading, unloading, level of biosecurity, immune status and specific pathogen status (consider all species, including aquatic and semi-aquatic species).

All animals are transported to the institution using commercial carriers with a proven track record of excellence in the care and shipment of live animals. Upon arrival, the animals are unloaded into a climate-controlled bay, the external containers are sprayed with a disinfectant (such as bleach) and depending on prior determination of health status and the status of the supplier, may be moved directly into the vivarium or placed into quarantine.

As the vivarium is contained within one facility (known as (b)(6)), transportation within the facility depends on the species and their original health status. For immunocompromised mice or mice with a high health status, transportation within the facility occurs within a microisolator cage on a cart. For mice and rats within our SPF setting, the animals would be transported in a shoebox cage without microisolator lids on a cart within the barrier. For species such as rabbits and pigs, transportation occurs within an enclosed cart on wheels.

For species such as non-human primates, a specially-designed booth allowing a chaired primate to be completely enclosed is in use. The booth is sanitizeable and has a window for observation of the animal, but effectively prevents the animal or its fluids from coming into contact with others during transport between housing areas and procedure spaces.

B. Preventive Medicine

1. Animal Biosecurity [*Guide*, pp. 109-110]

a. Describe methods used to monitor for known or unknown infectious agents. Note that if sentinel animals are used, specific information regarding that program is to be provided below.

For all species, regular health checks by both animal technician staff and veterinary staff help monitor for the presence of infectious agents. Laboratory staff also play a role in noting any deviation in data that may suggest a subclinical infection.

In addition, rat and mouse colonies are monitored for infectious agents using a combination of regular serologic evaluation of soiled bedding sentinels, tape tests, fecal flotation slides, and PCR testing of colony animals. Non-human primates are sedated and given a physical examination at a minimum of once a year, during which the animals are tested for exposure to tuberculosis.

b. Describe methods used to control, contain, or eliminate infectious agents.

There are multiple layers used to control, contain, or eliminate infectious agents. Pro-active measures to control/prevent infectious agents is established here by a system of approved vendors and quarantine that has been sufficient to prevent introduction of most significant diseases in our animal colonies. Further control of infectious agents occurs at the level of facility sanitization, where regular cleaning and disinfecting the animal rooms helps prevent disease spread. Where used, individually ventilated caging and microisolator technique aid in controlling and containing any rodent pathogens. Finally, appropriate personnel protective equipment (or PPE, such as lab coats and gloves) also serves to help control and contain infectious agents.

For the known diseases present in the rodent portion of the vivarium, containment is implemented. There are three levels of rodent health status: SPF / high health, SPF, and isolation. Traffic patterns are established to encourage movement of personnel, equipment, or animals from an uncontaminated area to a potentially contaminated one. The design of the facility allows for automatic separation of clean and soiled caging and equipment, enhancing the containment of potential disease. Additionally, the use of animal biosafety level 2 (ABSL-2) pathogens requires additional PPE to ensure the safety of both human and non-human animals.

Methods to eliminate infectious agents depend greatly on the agent in question and would be decided upon after consultation with the relevant investigator(s). These could include therapeutic treatment, testing and removing positive animals from areas that exclude for particular pathogens to an area that allows that particular pathogen, humanely euthanizing the animal(s), or a combination.

2. Quarantine and Stabilization [*Guide*, pp. 110-111]

a. Describe the initial animal evaluation procedures for each species.

All arriving animals are initially evaluated by the animal research technicians who are unpacking the animals from their shipping containers and placing them into their new caging and room, as appropriate. Veterinarians are consulted immediately if there is any health concern, and animals are evaluated within a week of their arrival by the veterinary staff.

b. Describe quarantine facilities and procedures for each species. For each species, indicate whether these practices are used for purpose-bred animals, random-source animals, or both.

All animals used in our research program are purpose-bred. Quarantine procedures depend greatly on review of previous health history prior to veterinary approval for shipment of animals. If an animal is from a vendor with an established relationship and demonstrated record of animals free of specified pathogens, these animals may be allowed to enter the facility directly; the exception is non-human primates, who would be quarantined regardless of originating health status. Otherwise, the animals would undergo a period of separation from other animals in the facility where diagnostic testing could occur to establish or confirm the health status (quarantine).

For mice and rats, quarantine would involve isolation from the SPF facility by traffic pattern and PPE. Evaluation of the health status would involve testing via PCR and/or serological sampling for selected external and internal parasites, viruses, and bacteria. The length of time in quarantine would depend on the method of testing which could range from three weeks to three months.

For rabbits and swine, quarantine would involve isolation from others of the same species in the facility by traffic pattern and PPE. Evaluation of health status would include a physical examination and may include further testing, including serology, CBC/chemistry panels, and/or PCR. The length of time in quarantine would depend on the method of testing which could range from three weeks to three months.

For non-human primates, quarantine would involve isolation from others of the same species in the facility by traffic pattern and PPE. Evaluation of health status would include a physical examination, TB testing, and serologic evaluation for select pathogens, and may include CBC/chemistry panels and/or PCR. The length of time in quarantine depends upon test results, but typically runs 4-6 weeks.

Our program does not use random source animals for research.

Quarantine occurs, whenever possible, in a room separated from others of a similar species by traffic pattern and by PPE. Should the use of an SPFroom be required for

rodent quarantine, the point of entry becomes the soiled corridor side and the clean barrier side is locked and only used to introduce clean caging and supplies.

c. Describe the required/recommended stabilization period for each species.

The MVAHCS animal care and use program requires a 48hr acclimatization period and recommends up to one week to promote optimum animal health and well-being. Exceptions may be made for terminal studies at the request of the investigator. No study activity can be performed prior to completion of quarantine.

3. Separation by Health Status and Species [*Guide*, pp. 111-112]

a. Describe the program for the separation of animals by species, source, and health status. If the animals in different status are not maintained separately, describe circumstances in which mixing occurs and explain the rationale for mixing.

Non-rodents are separated by species, source, and health status by default, as investigators are typically given separate rooms. If the species and health status are common, and the animals are socially compatible as determined by the veterinary staff with significant input from both the laboratory and animal care staffs, then mixing may occur to enhance the well-being of the animals.

Rodents are separated into different rooms by species and health status. There are three different tiers of health status, which are (from first to last in terms of order of entry):

- SPF/high health: this includes immunocompromised animals, individually ventilated caging, microisolator technique, and a significantly more stringent pathogen exclusion list;
- SPF: this includes immunocompetent animals, standard shoebox caging, and a moderate pathogen exclusion list
- Isolation: this includes animals in quarantine or in isolation based on health monitoring results.

b. Describe situations where multiple species may be housed in the same room, area, or enclosure.

Multiple species are not housed in the same room, area, or enclosure in our animal care and use program.

c. Describe isolation procedures and related facilities for animals.

Should an outbreak of either a clinically significant or excluded pathogen occur, the affected animals would be isolated in similar fashion to animals undergoing quarantine

or be euthanized, after discussion with the relevant investigator. Steps would be taken to enhance the isolation of affected animals where possible, including separate PPE and housing in rooms outside the barrier (rodents) or in rooms as distal as possible from others of the same species.

C. Clinical Care and Management [*Guide*, pp. 112-115]

1. Surveillance, Diagnosis, Treatment and Control of Disease [*Guide*, pp. 112-113]

a. Describe the procedure(s) for daily observation of animals for illness or abnormal behavior, including:

- the observers' training for this responsibility
- method(s) for reporting observations (written or verbal)
- method(s) for ensuring that reported cases are appropriately managed in a timely manner.

Animal research technicians perform observations of animals for illness or abnormal behavior daily, including weekends and holidays. In addition to mentored experience on the job for new hires, animal research technicians receive approximately annual training by the veterinary staff regarding what to look for during these daily observations, including signs of pain or distress in the relevant species. The method for reporting irregular observations include both oral and written. The care staff either calls or reports in person to the veterinarian on duty at the time, as well as marks the relevant cage (rodent or rabbits) and/or writes in the relevant medical record.

Appropriate veterinary care is a team process and can involve veterinary staff for diagnostics and therapy and/or appropriately trained laboratory or animal care staff for treatment. Good communication helps ensure that reported cases are appropriately managed in a timely manner. Additionally, the use of treatment sheets, treatment boards, veterinary treatment cards, daily observations and regular veterinary rounds help ensure that reported cases are appropriately managed in a timely manner.

b. Describe methods of communication between the animal care staff and veterinary staff and the researcher(s) regarding ill animals.

Methods of communication between animal care staff/veterinarians and members of the research team include oral methods, such as phone calls, discussions in-person, and user group/town hall discussions; and written methods, including veterinary treatment cards, medical records, and email.

c. Describe the preventive medicine and health management/monitoring programs (e.g., physical examination, TB testing, vaccination, hoof/nail trimming, teeth cleaning/floating, vendor surveillance, use of sentinel animals) for each species.

For rodents, the health monitoring program utilizes quarterly serologic evaluation of soiled bedding sentinels, tape tests and fecal floats of colony animals, as well as annual PCR testing to assess the health status at the level of the room.

For rabbits and swine, the health monitoring program includes initial examination of the animals and annual physical examinations (if present long-term). Vendor surveillance may be used if indicated based on clinical findings.

For non-human primates, the health monitoring program includes initial examination of the animals and annual physical examination, including TB testing.

2. Emergency Care [*Guide*, p. 114]

a. Describe the procedures to ensure that emergency veterinary care is continuously available for animals during and outside of regular work hours, including access to drugs or other therapeutics and equipment.

Emergency veterinary care is available continuously during business hours as well as after hours, during weekends and holidays. During business hours, veterinarians are available in person or at their desk phone, or by contacting their personal cell phones, numbers for which are posted at several prominent locations throughout the facility. After hours, during weekends, and holidays, a veterinarian is always on-call. Instructions for reaching the veterinarian on call are posted at several prominent locations throughout the facility. All staff veterinarians have access to drugs and therapeutic equipment. If a new or not-stocked drug is required, the veterinarian also has access to the VHA pharmacy.

b. Describe the authority of the Attending Veterinarian or his/her designee relative to the emergency treatment of animals in the program.

The attending veterinarian or their designee has the authority to conduct appropriate emergency treatment of the animals within the MVAHCS animal care and use program.

3. Clinical Record Keeping [*Guide*, p. 115]

a. Describe the procedure for maintaining medical records and documenting treatment of ill animals including: clinical laboratory findings, diagnoses, treatments, medical progress records, etc. Identify the species for which individual records are maintained and where such records are kept.

Medical records are maintained for documenting and communicating the treatment of ill animals, and may include clinical pathology findings, diagnoses, records of treatments and medical progress. Records are kept either with the animal or in the rodent morbidity binder located by the veterinary office.
Individual records are kept for all USDA species and individual rodents receiving medical attention/monitoring. These are maintained on the rodent cage or on the clipboards right outside the animal room for large animals and in the lead large animal technician office (b)(6) for NHPs. Completed small animal records are filed in (b)(6).

b. Identify individual(s) (titles, not necessarily names) responsible for maintaining such records and identify where the records are maintained and who, including the IACUC/OB has access to the records.

The veterinary staff, research team, and/or the animal care staff may make entries, as appropriate, into the medical records for the animals within the program. The veterinary medical unit staff maintains these records pursuant to all applicable regulations for animals used for VA-funded research, and the veterinary and research staffs have access to them.

c. Describe the role of the Attending Veterinarian in recordkeeping.

The attending veterinarian is involved in the establishment, review, and oversight of the medical records of the animals used in research in our program.

4. Diagnostic Resources. Describe available diagnostic methods used in the program including:

a. In-house diagnostic laboratory capabilities.

Our program has the following in-house diagnostic laboratory capabilities: hematocrit, total protein, urine specific gravity, ophthalmoscope, otoscope, fluorescein staining, fecal floatation, microscopy/cytology (including dissecting and conventional), tape preparations, and skin scrapes/smears.

b. Commercially provided diagnostic laboratory services.

Our program utilizes the commercially provided diagnostic laboratory services of (b)(6) as well as the veterinary clinical pathology and microbiological laboratory at the (b)(6) Non-human primate serology is performed through (b)(6)

c. Necropsy facilities and histopathology capabilities.

Our program has an in-house necropsy facility for gross pathology. We rely on other facilities (such as the veterinary pathology services at the (b)(6) for histopathology services.

d. Radiology and other imaging capabilities.

The veterinary staff has access to fluoroscopy and has received training on how to use it for capturing radiographic images. The program also has access to rodent digital radiography.

5. Drug Storage and Control

a. Describe the purchase and storage of controlled and non-controlled drugs.

Purchase of non-controlled drugs occurs through the purchasing officer for the Research Department of the MVAHCS. Storage of non-controlled drugs occurs in procedure spaces and refrigerators (as indicated) within the vivarium.

Purchase of controlled drugs occurs through the MVAHCS pharmacy. Storage of controlled drugs occurs in double-locked cabinets in (b)(6) of the vivarium or in (b)(6) .

b. Describe record keeping procedures for controlled substances.

Record keeping procedures for controlled substances involve two separate tracking sheets; one sheet records the number and amount of substances maintained within the veterinary medical unit's storage center and another sheet is dispensed with the controlled substance to the investigator and is used to document the use of the compound in research. The MVAHCS pharmacy department maintains strict control and oversight over the use of controlled substances within our research program by unannounced inspections of these records and the security of the controlled substances themselves.

D. Surgery [*Guide*, pp. 115-123]

1. Pre-Surgical Planning [*Guide*, p. 116]
Describe the process(es) used to ensure adequate pre-surgical planning, including: identifying personnel; locating equipment, supplies, veterinary involvement for selecting analgesic and anesthetic agents and facilities; planning; and pre- and post-operative care.

Pre-surgical process includes but is not limited to the veterinary review and consultation during the protocol pre-review. At this time, personnel and their training in the described procedure is evaluated. The veterinary team scrutinizes the available facilities, equipment,

supplies, analgesic and anesthetic agents described, and the research team makes changes as appropriate. This occurs in writing and/or orally during a meeting with the research team. In this manner, the procedure, including pre-and postoperative care, is described in detail in the protocol.

2. **Surgical Facilities** [*Guide*, pp. 116-117, 144-145]
   List building name(s) and room number(s) or other locations (coded, if confidential) where surgical procedures are performed. For each, describe:
   - the type of species (including rodents, fish, agricultural species, etc.)
   - nature of procedure(s) (major/minor/emergency, survival and non-survival, etc.)
   - the amount of use [heavy (daily), moderate (weekly), or light]
   - major surgical support equipment available (gas anesthesia machines, respirators, surgical lights, etc.)
   - facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery
   - construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and other means of enhancing contamination control

   Note: If preferred, the information requested in this section may be provided in Table.

(b)(6)

Surgical Suite (b)(6): non-rodent (e.g. swine, rabbit, NHP); major, minor, or emergency; survival and non-survival; light. Gas (isoflurane) anesthesia machine, respirator, ECG/pulse oximeter. Prep room, surgeon scrub area outside OR, sterile surgeon attire. Each surgical suite has its own designated anesthesia machine, surgical table, surgical lighting and surgical supplies. Rooms (b)(6) are epoxy-coated concrete block walls, the floors are epoxy-coated concrete, the ceiling is epoxy-coated plaster. The fixtures are sealed. There are at least 10-15 changes of 100% fresh air per hour. The ORs are under positive pressure. The operating rooms are lit by recessed fluorescent lights. Ceiling mounted Amsco lights provide surgery-specific lighting. Electrical outlets are moisture proof and connected to emergency power. Waste anesthetic gases are scavenged by a dedicated waste vacuum system. The only fixed equipment is one supply cabinet located in one of the rooms. The cabinet is used to store drugs and supplies needed for cardiovascular procedures.

Room (b)(6): rodent (e.g. rats, mice); major, minor, or emergency; survival and non-survival; light to moderate. Multiport gas (isoflurane) anesthesia machine, thermal support (e.g. recirculating water blankets). Dedicated hood with ventilation and lighting. There are at least 10-15 changes of 100% fresh air per hour. Ceiling lighting is recessed fluorescent bulbs. The walls are epoxy-coated concrete block, the floors are epoxy-coated concrete and the ceilings are epoxy-coated plaster or plaster board. The procedure rooms have exhaust hoods under which rodent surgery is performed. Charcoal canisters (passive or active) are used to capture waste anesthetic gases. As an added safety precaution, gas anesthesia is performed under the exhaust hoods, as is formalin perfusion of animals.

All surgical areas are held to high standards of cleanliness and prevention of unnecessary traffic.

3. Surgical Procedures [*Guide*, pp. 117-118]

a. Describe the criteria used to differentiate major from minor survival surgery, including classification for certain procedures (e.g., laparoscopic technique).

Minor surgery is defined as those procedures that do not penetrate and expose a major body cavity, include extensive tissue dissection, and/or do not result in a substantial physiologic or functional impairment to the animal.

Major surgery is defined as those procedures that enter a major body cavity, result in a substantial physiologic or functional impairment to the animal, or involve extensive tissue dissection or transection.

Laparoscopic, arthroscopic, or similar techniques are defined as major or minor depending on the specific circumstances of the research protocol; for example, simple visualization of a structure or placement of an experimental device may be considered minor, whereas procedures that involve extensive tissue manipulation or resection may

be considered major. All laparoscopic surgeries are evaluated on a case-by-case basis.

b. How is non-survival surgery defined?

In non-survival surgery, an animal is euthanized before recovery from anesthesia (*Guide*, NRC 8th ed, pg. 118).

4. **Aseptic Technique** [*Guide*, pp. 118-119]

a. Describe procedures, equipment, and protective clothing used for aseptic surgery. Include patient and surgeon preparation.

Aseptic technique for non-rodent mammalian surgery includes the following:
For patient preparation, the animal is anesthetized, the surgical site is clipped in a separate location from the procedure, prepped using a surgical scrub, and then draped. Thermal support (such as the B/AIR hugger warm air unit) is always used regardless the length of procedure. For surgeon preparation, the surgeon wears a hair cover and face mask, performs a surgical scrub on their hands, wears a surgical gown and sterile gloves. For non-human primate surgery, additional PPE (including a face shield) is worn, as appropriate. Sterile instruments and surgical supplies are always used, and major survival procedures are performed only in an approved and dedicated surgical suite.

Aseptic technique for rodent surgery includes the following:
For patient preparation, the animal is anesthetized, the surgical site is clipped or a depilatory cream is used in a separate location from the procedure, prepped using a surgical scrub, and then may be draped. Depending on the length of the procedure, thermal support (such as a recirculating water blanket or heating pad) is used. For surgeon preparation, the surgeon wears a hair cover and face mask, and dons gloves and a clean lab coat. Sterile instruments and surgical supplies are used, and a bead sterilizer may be employed to sanitize instruments if serial procedures are performed, provided the instruments are cooled prior to their reuse. Procedures are performed in a clean area dedicated to that purpose at the time.

Protective clothing and practices employed in non-survival procedures: At a minimum, investigators performing non-survival surgery are required to clip the surgery site, wear gloves, wear scrubs/clean lab coat, use clean instruments, utilize a dedicated area for surgery, and keep the surrounding area clean and neat. Additional aseptic measures are required if the procedure is long enough for signs of infection to show. If the surgery is performed on a non-human primate, appropriate PPE must be worn.

b. Describe methods used to sterilize instruments and protective clothing, including a description of approved liquid sterilants and instrument exposure time(s)

required for each, if applicable.

Methods used to sterilize instruments and protective clothing include steam autoclaves as well as glass bead sterilizers (for instrument re-sterilization between serial surgeries). For autoclave sterilization, an indicator strip is placed directly into the pan and indicator tape holds the surgery packs closed.
Liquid sterilants are typically not used as a sole means of sterilizing instrumentation for any major procedures, as alternate means of sterilization (such as ethylene oxide or vaporized hydrogen peroxide gas) are preferred. Occasionally, liquid sterilants such as Actril may be used to sanitize instruments. Manufacturers' recommendations for exposure times are followed, ranging from 10m to 24 hours; all instruments must be clean at the time of exposure to the cold sterilant and must be thoroughly rinsed with sterile water or saline prior to use.

c. Describe methods for instrument re-sterilization between serial surgeries.

Glass bead sterilizers can be used to re-sterilize instruments between surgeries for rodents after cooled. Cool sterilants (liquid) can also be used in between serial surgeries.

d. Indicate how effectiveness of sterilization is monitored.

For autoclave sterilization, an indicator strip is placed directly into the pan and indicator tape holds the surgery packs closed.

e. Describe surgical support functions provided by the program to investigators.

Veterinary staff assistance with surgery and anesthesia is provided to investigators upon request of the PI or directive of the IACUC/OB and/or veterinary staff. Such assistance includes post-operative health checks, use of veterinary staff and technicians in procedures, central autoclaving within the facility, instruction in the use of anesthesia equipment and monitoring, and instruction in surgical techniques.

5. Intraoperative Monitoring [*Guide*, p. 119]
Describe monitoring and recording requirements for each species, including the type of record(s) maintained. Also note monitoring of anesthesia during non-survival procedures.

For surgical procedures, the IACUC protocol form calls for a listing of the physiologic parameters that will be monitored to aid in achieving a successful outcome.

Monitoring and recording requirements for each species includes an assessment of anesthetic depth prior to performing any surgical procedure. This is usually assessed by checking for a withdrawal response (e.g. toe pinch) and adjunct methods such as palpebral reflex and jaw tone. Monitoring to assure anesthetic depth during surgery is also required.

Parameters used to assess the quality of anesthesia include measures of circulation (heart rate, color of mucus membranes/extremities), respiration (rate, character), and may include temperature and blood oxygen saturation. Such records are filed with the animals' medical records and may be maintained with either the lab (rodents) or the veterinary medical unit staff (e.g. for USDA covered species). Monitoring is also required during non-survival surgical procedures.

6. **Postoperative Care** [*Guide*, pp. 119-120]
   Describe the postoperative care program, including who is responsible for overseeing and providing the care, types of records maintained (e.g., perioperative), where the records are maintained, etc.

The responsibility for post-operative care lies primarily with the investigator and staff, though the veterinary and/or animal care staff do provide specific follow-up checks on post-surgical animals for a minimum of three days post-procedure for both USDA covered and non-covered species. A specialized post-operative record is used, which includes the recovery period following completion of the procedure through the three-day post-operative period (or longer). These records are considered part of the animal's medical record and may be maintained with the lab as well as with the veterinary medical unit.

E. Pain and Distress [*Guide*, pp. 120-121]

1. Describe how and by whom pain and distress are assessed.

The VA protocol form, called an ACORP, includes a section dedicated to assessing pain/distress that may result from the experimental use of the animal, including categorization and means of alleviation, if possible. This is subject to veterinary approval through the pre-review process and the protocol must be approved by the IACUC/OB before any work can commence. Pain and distress are assessed by laboratory members, animal care staff, and veterinary staff. If pain and distress are determined as not being appropriately alleviated by the protocol-approved analgesic regimen, veterinarians provide different analgesic regiments until any pain or distress is sufficiently alleviated. Humane euthanasia is employed if pain cannot be sufficiently alleviated.

2. Describe training programs for personnel responsible for monitoring animal well-being, including species-specific behavioral manifestations as indicators of pain and distress.

Personnel responsible for monitoring animal well-being are provided training in multiple ways within our program. First, the IACUC/OB requires didactic training ((b)(6) training) that is species-specific and includes behavioral manifestations as indicator of pain and/or distress. Additionally, part of the VMU orientation involves an additional discussion regarding pain/distress, including how to contact a veterinarian should this be observed. VMU SOPs also describe behavioral manifestations of pain/distress, and are trained on by VMU staff. Finally, hands-on training occurs during review of postsurgical outcomes by

the veterinary staff, which discuss either in writing or often in person the condition of postsurgical animals with the research team.

F. Anesthesia and Analgesia [*Guide*, pp. 121-123]

1. List the agents used for each species.
Note: If preferred, this information may be provided in Table or additional Appendix.

Species	Anesthesia	Analgesia
Mice	Isoflurane Ketamine combination	Buprenorphine SR Buprenorphine Meloxicam
Rat	Isoflurane Ketamine combination	Buprenorphine SR Buprenorphine Meloxicam
Rabbits	Isoflurane Ketamine combination	Buprenorphine Proparacaine Meloxicam
Swine	Isoflurane Telazol and Xylazine	Buprenorphine SR Buprenorphine Meloxicam
Non-Human Primates	Isoflurane Ketamine combination	Buprenorphine SR Buprenorphine Meloxicam

During protocol pre-review and review, a veterinarian may direct a multi-modal anesthesia/analgesia approach, such as the use of a combination of local and systemic anesthetic, or an NSAID with an opioid.

2. Describe how the veterinarian provides guidance and advice to researchers concerning choice and use of anesthetics, analgesics or other pain moderating methods.

The veterinarian provides guidance on the use of anesthetics and analgesics primarily during the protocol review and development process. In addition, they are available for

consult with investigatory and research staff during procedures and as part of ad hoc training sessions.

In most cases, anesthesia is administered by trained research personnel. The protocol form asks for information regarding the training of individuals who will be participating in surgical procedures. This information is reviewed and approved by the IACUC/OB. In some cases (e.g. when assistance from veterinary staff is requested) anesthesia is administered by a veterinarian or a trained animal care technician.

3. Describe the monitoring of the effectiveness of analgesics, including who does the monitoring. Include in the description any non-pharmacologic means used to diminish pain and distress.

Monitoring the use of analgesics and anesthetics is a responsibility shared among the investigators, the veterinary and animal care staff, and the IACUC/OB. The veterinarian examines written descriptions of the use of analgesics and anesthetics as part of the protocol review process. Issues of concern are communicated to the investigator before the protocol is approved. Additionally, if the VMU staff or the research team notes problems during the post-operative period, the veterinarian will investigate to ensure that adequate anesthesia and analgesia are being provided. Research staff are responsible for ensuring that approved anesthesia and analgesia protocols are executed as written and for notifying the veterinary staff if they or their support staff observe problems. The IACUC/OB may observe anesthesia protocols in progress or interview investigators during semiannual inspections.

Non-pharmacologic means to diminish pain and distress include: the return of rodents to the home cage when possible (familiar environment) after a procedure, placing feed and water in easily accessible locations (e.g. feed pellets or hydrogels on cage floor or in special trays for rodents), providing protected conspecific social interaction, and providing appropriate post-operative thermal support.

4. Describe how the veterinarian(s) and the IACUC/OB evaluate the proposed use of neuromuscular blocking agent to ensure the well-being of the animal.

Any proposed use of neuromuscular blocking agents must be stated and justified in the protocol, and the protocol must be approved by the IACUC/OB. Veterinarians evaluate the proposed use of neuromuscular blocking agents via the protocol pre-review and review. As per the *Guide*, appropriate amount of anesthetic and monitoring autonomic changes must be addressed prior to use, as neuromuscular blocking agents can eliminate many signs and reflexes used to assess anesthetic depth.

5. Describe policies and practices for maintaining and ensuring function of equipment used for anesthesia.

Yearly maintenance/calibration of inhalant anesthetic vaporizers is required and verified during IACUC/OB semiannual inspections.

G. Euthanasia [*Guide*, pp. 123-124]

1. Describe approved methods of euthanasia, including humane slaughter (for additional guidance, see pertinent AAALAC Reference Resources). Include:
   - consideration of species, age, condition (e.g., gestational period, or neonatal) and
   - location(s) for the conduct of the procedure.

   Note: If preferred, this information may be provided in Table or additional Appendix.

Euthanasia, depending on the method and need, may be performed in any of the vivarium rooms which are inspected semi-annually by the IACUC/OB. However, it is most commonly performed in procedure rooms apart from other animals. With approval of the IACUC/OB, euthanasia may be performed in an investigator's laboratory. These rooms must be listed on an IACUC/OB approved protocol and are inspected semi-annually.

The following euthanasia methods are used, by species:

Mice—barbiturate overdose; compressed CO2 gas from a cylinder, introducing 100% carbon dioxide at a rate of 10-30% of the chamber volume per minute without pre-charging the chamber; anesthesia followed by physical method (such as cervical dislocation, exsanguination, or decapitation by trained personnel). If physical methods such as those listed are requested without prior sedation, then justification and appropriate training/equipment must be evaluated by the IACUC/OB.

Rats—barbiturate overdose; compressed CO2 gas from a cylinder, introducing 100% carbon dioxide at a rate of 10-30% of the chamber volume per minute without pre-charging the chamber; anesthesia followed by physical method (such as cervical dislocation, exsanguination, or decapitation by trained personnel). If physical methods such as those listed are requested without prior sedation, then justification and appropriate training/equipment must be evaluated by the IACUC/OB.

Rabbits—barbiturate overdose.

Swine—barbiturate overdose; anesthesia followed by exsanguination.

Non-human Primates—barbiturate overdose

For rat/mouse fetuses, it is unnecessary to remove the fetuses from the dam, and the dam may be euthanized as per above. For rat/mouse pups up to day 7, decapitation with a sharp scissor/blade or an adult decapitator in good working order, cervical dislocation, or injection with a chemical euthanasia agent (e.g. barbiturate overdose) may be performed. Neonates are resistant to hypoxia and require prolonged (up to 60 min) exposure to CO2;

accordingly, a secondary physical means of euthanasia is required when CO2 is used in rodent (rat/mouse) neonates.

2. Describe policies and practices for maintaining and ensuring function of equipment used for euthanasia.

CO2 regulators are immediately replaced if there is any indication of improper function. Rodent guillotines, neonate scissors are checked according to lab and VMU SOP prior to any use to ensure appropriate function.

3. Describe the methods used to confirm death of an animal.

All personnel who euthanize research animals must at the very least verify cardiac and respiratory arrest. This is discussed within the context of (b)(6) training as well as other training opportunities, such as VMU orientation and intra-laboratory training. In many instances, a secondary physical means of euthanasia (such as bilateral pneumothorax, exsanguination, or, in the case of rodents, cervical dislocation or decapitation) is employed.

IV. Physical Plant [*Guide*, pp. 133-155]

A. Facilities Overview

Provide a brief introduction to the animal housing and use facilities. Note that this overview should augment the information provided in **Appendix 2** (Summary of Animal Housing and Support Sites), which includes area, average daily census, and person responsible for each site. Please use consistent terminology for the buildings/areas/sites described in the Location section of the Appendix. Please do not repeat information, but supplement the descriptions provided elsewhere to assist the reviewers understanding of the interaction between facilities, special housing locations, and separate procedural areas.

The VMU is located in (b)(6) on the campus of the Minneapolis VA Health Care System. The facility has the ability to support both large and small animal work, as we as rodent (mouse) projects up to ABSL-2. The large animals (currently swine, NHP, and rabbits) are housed in (b)(6). Rodents are primarily housed on the (b)(6).

There are rodent behavior laboratories located on the (b)(6) in rooms (b)(6) (b)(6) where rodents may be brought during data collection for studies. Rodents may be housed in electronically monitored behavior chambers in (b)(6) When animals are on study, husbandry and room sanitation is managed by the VMU animal care staff in coordination with the PI and study technicians.

Under certain IACUC-approved studies, animals may be (b)(6)

(b)(6) for certain procedures, including (b)(6) and for terminal procedures due to scientific requirements of the study. (b)(6) (b)(6) hat facilitates discrete transport of animals.

(b)(6) has ample housing room for research animals. Animal housing rooms may be changed from one species to another or from one health status to another, as the needs of the research animal program change.

B. Centralized (Centrally-Managed) Animal Facility(ies)

In this section, describe each centralized or centrally-managed animal housing and use facility. Include in **Appendix 3** the floor plans of each on 8.5" x 11" or A4 paper. Ensure that the drawings are legible and the use of each room is indicated (animal housing, procedure room, clean cage storage, hazardous waste storage, etc.). Note that a separate section for describing "satellite housing areas" is included below.

Separately describe **each** Location or Animal Facility, addressing each of the features outlined below (1-8). A complete description of each must be provided; however, common features among locations or facilities may be indicated as such and do not need to be repeated.

1. General arrangement of the animal facilities (conventional, clean/dirty corridor, etc.).
2. Physical relationship of the animal facilities to the research laboratories where animals may be used.
3. Types of available animal housing spaces used, such as conventional, barrier, isolation/quarantine, hazard containment (infectious, radioactive, chemical), "animal cubicles" or facilities specifically designed for housing certain species such as ponds, pastures, feedlots, etc.
4. Finishes used throughout the animal facility for floors, walls, ceilings, doors, alleyways, gates, etc. (note any areas that are not easily sanitized and describe how these are maintained).
5. Engineering features (design, layout, special HVAC systems, noting exhaust air treatment, if applicable) used in hazardous agent containment.
6. Security features, such as control of entry, perimeter fences, gates, entryways, cameras, guards; identify and describe exceptions for individual facilities or areas incorporating fewer or additional security features than the general features described.
7. Consideration for facilities with exterior windows, if applicable, including management of environmental conditions (i.e., temperature and photoperiod control) and potential security risks.
8. Storage areas for flammable or hazardous agents and materials (e.g., disinfectants, cage-washing chemicals, pesticides, fuel).

There is only one facility for animal housing in our program. It is located on the MVAHCS

campus in (b)(6) and referred to as the Veterinary Medical Unit or VMU.

1, 2, and 3: The general arrangement of the program's animal facilities (including the physical relationship of the animal facilities to the research labs and the types of available animal housing spaces) follows a (b)(6) building plan. The large animals and rabbits reside (b)(6) (b)(6) level of (b)(6). The swine are housed in the swine room in stainless steel pens with vinyl covered floors. The NHPs are SPF and are housed in (b)(6) compliant with BSL-2 standards. The rabbits are from a single source and are housed conventionally in the rabbit room. (b)(6) has a single corridor system, with swine, NHP and rabbits housed in rooms some distance apart.

Generally, the rodents are housed on the (b)(6); however, there are three rooms ((b)(6) (b)(6) managed by VMU staff) located on the (b)(6) where rodents may be housed longer than 12 hours during data collection studies. The (b)(6) is set up with a 'clean' and 'dirty' corridor system. The clean side of the (b)(6) is located in the interior of the floor and the dirty side is located around the perimeter of the floor. Clean and dirty sides are separated by steel doors. Animal rooms on the (b)(6) have two doors, which may open to the clean or dirty side and will change the room's health status, depending on investigator needs. Rodents are separated into three different tiers of health status: SPF/high health; SPF; and isolation. When needed, the VMU uses one or two rooms outside this corridor system on the 'dirty' side to house rodents of uncertain health status (isolation or quarantine). Rodents that are housed on the (b)(6) are considered SPF. Rodent studies involving hazard containment are done in a separate, labeled room and, as required by SRS, employ static microisolators with cage change and animal handling performed under a biosafety cabinet.

The (b)(6) houses (b)(6) and the aforementioned several animal housing rooms managed by the VMU, as well as multiple other procedure rooms where animals are kept for less than 12 hours. With IACUC approval of the protocol, rodents are occasionally housed in several different styles of caging for data collection; for example, wire cages with or without running wheels, sound-proof chambers or clear Plexiglas cages enabling the use of light beams to measure activity. The animals are checked daily for food, water and health. The care of these animals on study is generally performed by the investigator, while the VMU staff usually continues with maintenance of the room along with daily health checks. These cages are generally cleaned two-five times per week by the investigators, coordinating around the collection of data, and according to protocols and lab SOPs.

4. Floors in the animal facility's (b)(6) and (b)(6) are methyl methacrylate and were newly refinished in 2017. Walls are epoxy-coated concrete block. Ceilings are epoxy-coated plaster or plaster board. Fixtures are sealed. All corridors are at least 6 feet wide and are equipped with stainless steel wall bumpers and corner guards. Doors are 83 inches high and 42 inches wide and are epoxy-coated steel. Most doors have viewing panels covered with red or blackout film to limit the effect of stray light on circadian rhythms.

5. As mentioned above, rodent studies involving hazard containment are done in a separate, labeled room and, as required by SRS, employ static microisolators with cage change and

animal handling performed under a biosafety cabinet.

6. Security features. Access to (b)(6) is electronically controlled using a 'PIV' card sensor system that involves a specially coded proximity card and the entry of a personal access code. Additionally, the front exterior security door to (b)(6) foyer is key controlled. Entry to all access doors is controlled and each access is recorded in a report that is reviewed monthly by the SRS and other security personnel. All exterior doors are connected to an alarm system which is monitored at the central security computer and by the VA Police at the dispatch desk. VA Police monitor the facility during non-working hours.

7. While there are no (b)(6) in the animal housing areas, the facility does have (b)(6) laboratories. Security risks are managed by having (b)(6).

8. Storage areas for potentially hazardous chemicals (such as acids for cage washing) are present in the facility, and are reviewed by the MVAHCS Safety team. Features include redundant storage containers, such that leaks or breakage of the primary container results in the material being safely contained in the secondary containment unit.

C. Satellite Animal Housing Facilities

In addition to the Appendices summarizing Heating, Ventilation, and Air-Conditioning (**Appendix 11**) and Lighting Systems (**Appendix 16**), summarize animal housing areas that are not centrally-managed or maintained in (**Appendix 17)**, "Satellite Animal Housing Areas."

1. Describe the criteria used to determine/define a "Satellite Animal Housing Area," which may include remote housing facilities or laboratories temporarily or consistently housing animals.

A satellite animal housing area would be an area not managed by the VMU staff where animals were kept longer than 12 hours. While there are some areas on the (b)(6) of (b)(6) that house animals for longer than 12 hours, they are managed by the VMU staff and thus are considered part of the VMU, not satellite animal housing areas.

2. Describe the process used by the IACUC/OB to authorize, provide oversight of, and ensure compliance with *Guide* standards for the housing of animals outside of centrally-maintained facilities. Include a description of Attending Veterinarian access and physical security.

Were our program to have such sites, the IACUC/OB would authorize them by their inclusion in the ACORP; would provide oversight and ensure compliance with the *Guide* by providing semiannual inspections; would ensure the AV had access to provide appropriate veterinary care; and would ensure that physical security concerns were addressed, as appropriate.

D. Emergency Power and Life Support Systems

Note: Complete a Heating, Ventilation, and Air-Conditioning (HVAC) Summary (**Appendix 11**) and Lighting Summary (**Appendix 16**) for each Location described in the Summary of Animal Housing and Support Sites (**Appendix 2**).

1. Power [*Guide*, p. 141]

For each Location, Centralized Animal Facility, and Satellite Housing Facility, provide a brief description of the following:

- Availability of emergency power and if so, what electrical services and equipment are maintained in the event the primary power source fails.
- History of power failures, noting frequency, duration, and, if emergency power was not available, steps taken to ensure the comfort and well-being of the animals present and the temperature extremes reached in animal rooms during the failure.

The VMU received a new emergency generator in 2014. The new generator provides sufficient power to run most HVAC and electrical systems in (b)(6).

The IVC cages, most lights, the security system, cooling units and the operating suites are fully supported by the emergency generator. There are emergency power outlets throughout the facility and these are identified by their red color.

Most research data collection systems are supported by uninterruptible power supply (UPS).

On rare occasion (once per year), the VMU may experience a brief storm-related power outage. These have been very brief (minutes) and have not impacted the VMU's ability to provide animal care. If a power failure was prolonged, the building's emergency generator would provide sufficient power to run the HVAC system and provide electrical energy for fans and lighting. Animals would be checked frequently for signs of stress.

(b)(6) is solidly constructed and has a history of being temperature-stable.

Every three years, the MVAHCS schedules a campus-wide power outage drill in which the VMU participates. The last drill occurred in April 2017 and the animal care facility remained stable over this time without power. Illumination, communication, ventilation and building security were areas that were followed closely and documented in a report.

The MVAHCS VMU has an agreement (MOU) with the (b)(6) to assist with housing animals for the other's program in case of a prolonged emergency event.

There have been no health issues or loss of animal life due to power, HVAC or other life support systems failures.

2. **Other System Malfunctions.** If not previously reported, describe animal losses or health problems resulting from power, HVAC, or other life support system (e.g., individually ventilated cages) failures, and mechanisms for reporting such incidences. AAALAC International Rules of Accreditation (Section 2.f).

As previously stated, there have been no health issues or loss of animal life due to power, HVAC or other life support systems failures.

However, this past winter saw temperatures reach record lows, which resulted in damage to our HVAC system's chiller coils. This damage left the building without the ability to provide cooling for several months. This resulted in several days where room temperatures spiked above *Guide* recommendations but were controlled by external AC cooling units brought in from the main hospital. Repairs were fast-tracked, and building cooling was reestablished late this spring. Final repairs of the chiller coils were completed on or about 7/23/19, with additional balancing of the air handling ongoing. This is reflected in our HVAC Summary Appendix 11, which is complete at the time of this document but will be updated by the time of the site visit. No adverse animal or scientific effects have been observed as a result of this damage.

Nevertheless, mechanisms for reporting such instances would mainly rest with the VMO providing a report to the IACUC, who would then evaluate the need to report to applicable regulatory agencies.

E. Other Facilities [*Guide*, pp. 144, 150]

1. **Other Animal Use Facilities** [*Guide*, pp. 146-150]
Describe other facilities such as imaging, irradiation, and core/shared behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

Our program has several areas that fall into this category. With the exception of the (b)(6) and (b)(6) these spaces are located within the footprint and direct oversight of the VMU and are not separate facilities.

An Echo MRI Whole Body Composition Analyzer for rodents is located in (b)(6) This unit is self-contained and requires no special plant considerations. In between uses, the unit is cleaned using hot water and bleach.

Rodent chambers that strictly control external stimulation are used by several investigators to record certain behaviors such as activity and feeding patterns. These chambers are located within (b)(6) near the animal housing rooms. Cleaning and sanitizing the chambers depends on the study and is typically performed by the investigator per specific lab or study SOP. As an example, if the chamber is being "cleaned by hand" between data collections, the rodent is removed and the surfaces in the chamber are wiped clean with

water or Accel TB Germicidal Disposable wipes. At the end of a study, the components of the chamber and equipment that can be sanitized in the rack washer are washed in that manner. The components that cannot be sanitized in the rack washer are decontaminated by wiping with germicidal disposable cloths. Special care is used to avoid contamination of wires, computers and the support equipment.

Spontaneous Physical Activity (SPA) chambers which measure physical activity are used in accordance with the investigating labs' SOPs. Generally, these chambers are cleaned by the study team according to lab SOPs.

Rodent caging designed to give animals access to running wheels and treadmills are used for some studies. The cages are run through the rack washer weekly. Generally, the study staff is responsible for cleaning and sanitizing the running wheels and treadmills, according to lab SOPs.

(b)(6) rodent cages that allow precise measurement of food intake, calorimetry, body weight, and/or activity are used for some studies. The cage bottoms are cleaned and sanitized weekly using the rack washer. The components that are too fragile for the rack washer are cleaned by the study team using lab SOPs.

Other rodent behavioral tests (such as (b)(6) water maze, elevated T maze, open field, and novel object recognition) are also located on the second floor of (b)(6) in rooms (b)(6), (b)(6). These are decontaminated between animals and sanitized between groups of rodents.

A (b)(6) Small Animal Imaging System for imaging rodents has been installed in (b)(6). This unit is self-contained and requires no special plant considerations. Rodents are anesthetized within a chamber that would be sanitized between groups of rodents.

A (b)(6) and a (b)(6) are located in (b)(6), room (b)(6) (b)(6) and are (b)(6). However, occasionally these units are used to collect information on swine or NHP. Coordinating with (b)(6) (b)(6) animals are anesthetized (b)(6), completely draped and (b)(6) (b)(6). The animal is placed on a waterproof wrap (b)(6) (b)(6), so there is no direct skin contact. A (b)(6) would assist the researcher in obtaining the scans. Alcohol and Accel TB Germicidal Disposable cloths are used to clean and sanitize the equipment after being used (b)(6) (b)(6).

2. Other Animal Program Support Facilities

Describe other facilities providing animal care and use support, such as feedmills, diagnostic laboratories, abattoirs, etc.

As mentioned previously, a kitchen is located within (b)(6) in (b)(6) This room is equipped with cabinets, counters, sink, a dish washer, stove top burners, and a refrigerator/freezer. Also within (b)(6) is used to prepare NHP and swine enrichment treats. (b)(6) also has cabinets, counters, a sink and a refrigerator/freezer.

There are no additional facilities outside of (b)(6) used for support or food preparation.

According to the privacy principles on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, we wish to advise you that the personal data in the Program Description will become part a permanent file owned by AAALAC International, and that can be shared with AAALAC International offices and representatives in order to perform an evaluation of the institution´s animal care and use program and provide accreditation services. The institution has the option of exercising rights of data access, rectification, cancellation, and opposition at: accredit@aaalac.org

Appendices to the Program Description
Animal Care and Use Program
VETERINARY MEDICAL UNIT
VETERANS AFFAIRS HEATH CARE SYSTEM
ONE VETERANS DRIVE
MINNEAPOLIS, MN 55417

1. Glossary of Abbreviations and Acronyms
2. Summary of Animal Housing and Support Sites
3. Line Drawings
4. Organizational Chart(s)
5. Animal Usage
6. Personnel Medical Evaluation Form(s)
7. IACUC/OB Membership Roster
8. IACUC/OB Minutes
9. IACUC/OB Protocol Form(s)
10. IACUC/OB Periodic Report
11. Heating, Ventilation and Air Conditioning (HVAC) System Summary
12. Aquatic Systems Summary (N/A)
13. Primary Enclosures and Animal Space Provisions
14. Cleaning and Disinfection of the Micro- and Macro-Environment
15. Facilities and Equipment for Sanitizing Materials
16. Lighting Summary
17. Satellite Housing Facilities (N/A)

Appendix 1: Glossary of Abbreviations and Acronyms

Please provide a Table defining abbreviations and acronyms used in this Program Description.

Abbreviation/Acronym	Definition
VMU	Veterinary Medical Unit
MVAHCS	Minneapolis Veterans Affairs Health Care System
ACORP	Animal Component of Research Protocol (synonymous with protocol)
SPF	Specific Pathogen Free
IO	Institutional Official
AV	Attending Veterinarian
SRS	Subcommittee on Research Safety
RPSS	Research protocol safety survey (synonymous with safety protocol)
IBC	Institutional Biosafety Committee
IACUC	Institutional Animal Care and Use Committee
RDC	Research and Development Committee
HVAC / AC Shop	Heating, Ventilation, Air Conditioning (synonymous with Air Conditioning) Shop
ACOS/R	Associate Chief of Staff / Research
dACOS/R	Deputy Associate Chief of Staff / Research
SAPR	Semi-Annual Program Review (synonymous with IACUC Periodic Report)
ACR	Authorization to Conduct Research
DMR	Designated Member Review
FCR	Full Committee Review
PI	Principal Investigator
ORO	Office of Research Oversight
ORD	Office of Research and Development

Appendix 2: Summary of Animal Housing and Support Sites

Briefly summarize in the following Table the animal facility or facilities, noting the number of areas in which animals are housed (buildings, floors, farms, satellite housing facilities, etc.), the total square footage/metres (or acreage) for animal care and use, and the total square footage/metres (or acreage) for necessary support of the animal care and use program covered by this Description (water treatment plant/area if housing aquatic or amphibian species, cagewashing facilities, service corridors, etc. and additional areas to be considered are enumerated in the *Guide*). Detailed information for satellite housing facilities is requested in Appendix 17. Include only one line entry for satellite housing facilities in this table to provide the total square footage for all satellite housing areas listed in appendix 17. If more than one facility/site, note the approximate distance (yards/miles or meters/kilometers) to each facility from a reference point such as from the largest animal facility. A campus/site map (with a distance scale) may be included as an additional Appendix (Appendix 2.1) to provide this information. See Instructions, Addendum A - Animal Facility Square Footage/Meters Compilation Form for guidance in calculating the size of your animal care and use program.

Animal Housing and Support Sites						
Location (building, site, farm name, etc.[a])	**Distance from main facility[b]**	**Approx. ft^2, m^2, or acreage for animal housing**	**Approx. ft^2, m^2, or acreage for support or procedures**	**Species housed**	**Approx. Daily Animal Census by species**	**Person in charge of site**
(b)(6)	n/a	8440 sq.ft.	23720 sq.ft.	Rhesus swine rabbit rat mice	4 3 4 82 2257	Rassette

Totals:	**8440 sq.ft.**	**23720 sq.ft.**	
Total animal housing and support space:	**32160 sq.ft.**		
	(please specify ft^2 or m^2)		

[a]Please state name and/or use acronyms described in **Appendix 1** for building names, if not coded for confidentiality.
[b]Campus or site map(s) may also be provided in lieu of this information.

Research Service

(b)(6)

(b)(6)

Research Service

(b)(6)

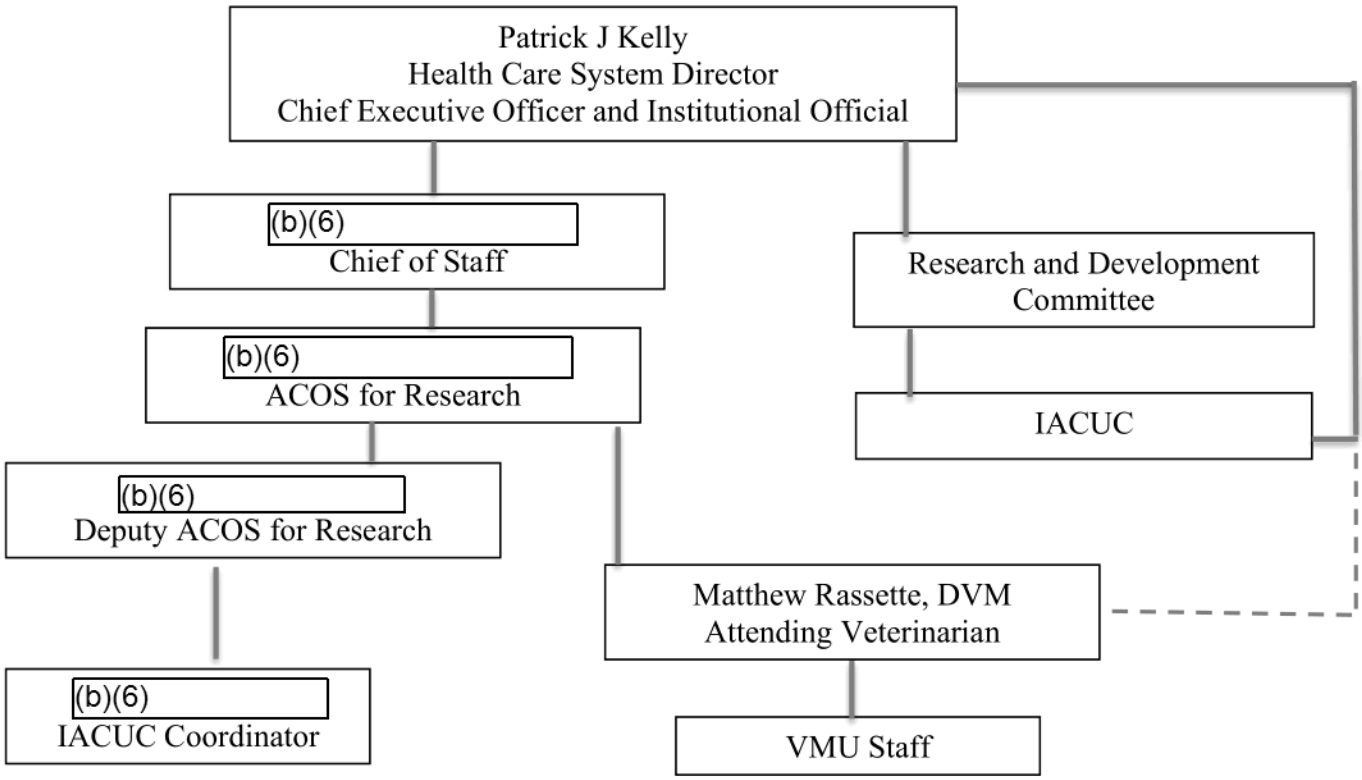
(b)(6)

Research Service

(b)(6)

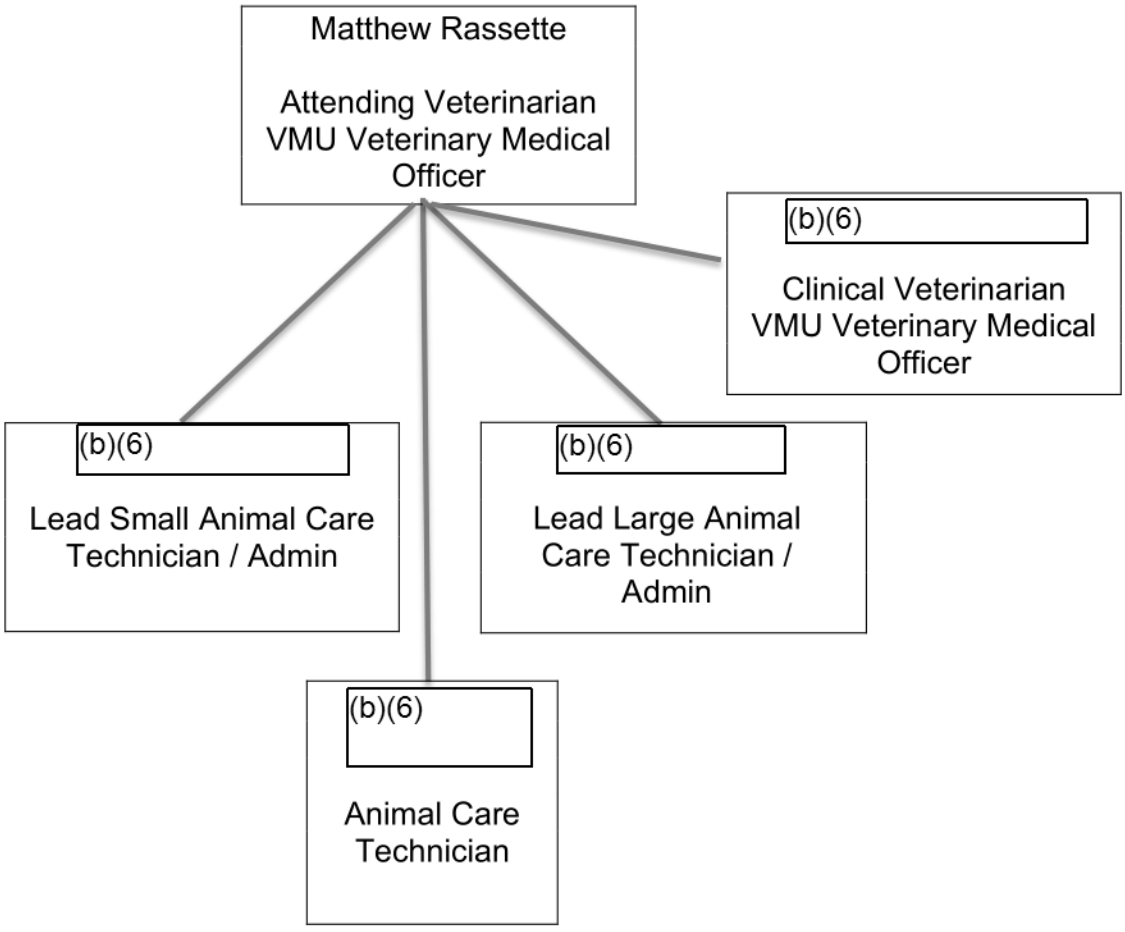
(b)(6)

MVAHCS
Organizational Chart
Animal Care and Use Program



6/2019

ORGANIZATIONAL CHART
VETERINARY MEDICAL UNIT (VMU)



Animal Usage (Appendix 5)

In order to assist the site visitors in their evaluation of the animal care and use program, please provide the information requested below. Information should be provided for all animals approved for use in research, teaching or testing, including those which may be used or housed in laboratories outside the animal care facility. Of particular interest is information on those animals which are used in research projects involving recovery surgical procedures, behavioral or other testing requiring chairing or other forms of restraint, or exposure to potentially hazardous materials.

Protocol Title	IACUC/ OB No.	Principal Investigator	Species	# Animals Approved	Pain & Distress Category (1)	Special Considerations (use checkmark if applicable)					
						SS (2)	MSS (3)	FFR (4)	PR (5)	HAU (6)	NCA (7)
Pharmacogenetic control of physical activity in food intake	160802	(b)(6)	Mouse	1716	D	+	-	-	-	+	+
Holding Protocol (Swine)	160901	(b)(6)	Swine	12	B	-	-	-	-	-	-
Holding Protocol (NHP)	160902	(b)(6)	Rhesus	6	B	-	-	-	-	-	-
Surgical Revascularization's Impact on Mitochondria in Hibernating Myocardium	160903	(b)(6)	Swine	62	D	+	+	-	-	-	-
Orexin and Serotonin interactions to promote physical activity and prevent obesity	170201	(b)(6)	Mouse	464	D	+	-	-	-	+	+
Investigation into Targeting CK2 in Melanoma	170301	(b)(6)	Mouse	92	D	-	-	-	-	+	+

Microglial Fatty Acid Signaling in Alzheimer's Disease	170401	(b)(6)	Mouse	240	D	-	-	-	-	-	+
Rodent model of systemic immune activation to study cognitive impairment in Gulf War Illness	170402	(b)(6)	Mouse	220	D	-	-	-	-	+	+
Orexin and IL-6 Antagonism in Treatment of Cancer Cachexia	170501	(b)(6)	Mouse	112	D	+	-	-	-	+	+
Title 1: Cellular and synaptic basis of cognitive function in prefrontal cortical networks. Title 2: Characterizing thalamocortical prefrontal network dynamics underlying cognitive control in a model of schizophrenia.	170601	(b)(6)	NHP	8	D	+	+	+	+	+	+
Brain Derived Neurotrophic Factor involvement in exercise modulation of appetite	170801	(b)(6)	Rat	404	D	+	-	+	-	+	+
Impairment and recovery of CD4 T cell-dependent B cell responses after sepsis	170901	(b)(6)	Mouse	2905	E	+	-	-	-	+	-
Novel Plant Alkaloids for the Treatment of Obesity in Rats	171101	(b)(6)	Rat	734	C&D	+	-	+	-	+	+

Novel Plant Alkaloids for the Treatment of Obesity in Mice	171102	(b)(6)	Mouse	116	C&D	+	-	-	-	+	+
Holding and Training Protocol (Rabbit)	17-00203	(b)(6)	Rabbit	55	B&C	-	-	-	-	-	-
In vitro Neural Networks	17-00205	(b)(6)	Mouse	112	C	-	-	-	-	-	-
Rat hepatocyte isolation	18-00214	(b)(6)	Rat	40	D	-	-	-	-	-	-
Mouse breeding colony for hepatocyte proliferation research study	18-00215	(b)(6)	Mouse	2878	B&C	-	-	-	-	-	-
Targeting Mitochondrial Trx2 for HCC therapy	18-00225	(b)(6)	Mouse	32	D	-	-	-	-	+	-
Cyclin D1 and CDK2 in hepatocyte proliferation	18-00258	(b)(6)	Mouse	4743	C&D	+	-	+	-	+	-
A comparative vitreous replacement study in the rabbit model	18-00273	(b)(6)	Rabbit	750	D	+	-	-	-	-	-
Dietary fat effect on brain immune response and inflammation	18-00281	(b)(6)	Mouse	1020	B,C&D	-	-	-	-	-	+
Fatty Acid Binding Protein-4 (FABP4)/Adipocyte Protein 2 Knockout (AKO) Mouse Breeding Colony	18-00318	(b)(6)	Mouse	1377	B&C	-	-	-	-	-	-
Refining the Effect of Articular Neurotoxin on Joint Pain and Neurochemical Signature	19-00380	(b)(6)	Mouse	6000	E	-	-	-	-	+	+

Veterinary Medical Unit Mouse Sentinel Program	19-00388	(b)(6)	Mouse	144	D	-	-	-	-	-	-
Veterinary Medical Unit Rat Sentinel Program	19-00389	(b)(6)	Rat	72	D	-	-	-	-	-	-
Breeding Colony of Transgenic Models for Obesity Research	19-00399	(b)(6)	Mouse	17241	D	-	-	-	-	-	+
Holding and Training Protocol (Mouse)	19-00419	(b)(6)	Mouse	1150	C	-	-	-	-	-	-
Holding and Training Protocol (Rat)	19-00420	(b)(6)	Rat	650	D	-	-	-	-	-	-

(1) Please provide a description / definition of any pain/distress classification used within this Appendix. (Nb. The USDA pain/distress classification is being used here.)
(2) Survival Surgery (SS)
(3) Multiple Survival Surgery (MSS)
(4) Food or Fluid Regulation (FFR)
(5) Prolonged Restraint (PR)
(6) Hazardous Agent Use (HAU)
(7) Non-Centralized Housing and/or Procedural Areas (NCA), *i.e.,* use of live animals in any facility, room, or area that is not directly maintained or managed by the animal resources program, such as investigator laboratories, department-managed areas, teaching laboratories, *etc*.

In the Table below, provide an approximate annual usage for all species:

Animal Type or Species	Approximate Annual Use
Rhesus	5
Rabbit	162
Mouse	5975

Animal Type or Species	Approximate Annual Use
Swine	15
Rat	276

[Create additional rows by pressing TAB in the bottom-right box.]

ANIMAL EXPOSURE BASELINE HISTORY

1. Name: _____S.S.#: (Last 4)_____

2. Date of Birth: _____Male: _____ Female: _____Pregnant? _____

3. Service: _____ Job Title: _____

4. Extension: _____ Pager: _____E-mail: _____

5. Routing Symbol: _____ Building and Room #: _____

6. Supervisor's Name:_____ Supervisor's Phone:_____

7. Animal contact within the Minneapolis VAMC (check all that apply):

_____Dogs
_____Cats
_____Nonhuman Primates (i.e., monkeys)
_____Rabbits
_____Other: _____ _____ _____

_____Pigs
_____Sheep
_____Rodents (ie rats, mice)
_____Guinea Pigs

_____Only incidental contact with potentially all animals for housekeeping/audits/inspections

8. Total amount of contact time with animals (include contact with animal tissues, waste, body fluids, carcasses or animal quarters):

_____More than one hour / week
_____One or less hour / week
_____Other (explain): _____

9. Does your work with animals involve any human or animal pathogens or infectious diseases?
_____Yes _____No

If yes, please list pathogens or diseases: _____

_____

10. If you are in contact with nonhuman primates (i.e., monkeys):

a. Have you ever had Tuberculosis (TB)? ____Yes ____No

If yes, please list medications and how long you took them: _____

_____

b. Have you been vaccinated with BCG for TB? _____Yes _____No _____Year

c. Have you ever had a positive reaction to a TB test (Tine Test, PPD, Mantoux)? ___Yes ____No

If yes, please name any medications you took and the length of time you took them: _____

_____

11. Are you receiving immunosuppressive therapy such as prednisone, steroids or anti-cancer drugs?
_____Yes _____No

12. How often do you wear Personal Protective Equipment when working with animals? Check the appropriate responses.

PPE	Never	Rarely	Sometimes	Always
Gloves	_____	_____	_____	_____
Gown	_____	_____	_____	_____
Mask	_____	_____	_____	_____
Cap	_____	_____	_____	_____
Goggles/Glasses	_____	_____	_____	_____

13. Do you smoke, eat or drink in the animal areas? ____Yes _____No

14. How often do you do the following after handling animals at work?

	Never	Rarely	Sometimes	Always
Wash Hands	_____	_____	_____	_____
Change clothing	_____	_____	_____	_____
Shower	_____	_____	_____	_____

15. Do you have a history of the following conditions? Circle those you have or have had.
Hay fever Asthma Allergic skin problems Eczema Sinusitis
Other chronic respiratory infections

16. Has any one in your family ever had hay fever, asthma, eczema or allergic skin problems?
_____Yes ____No

17. Do you have sneezing spells, runny or stuffy nose, watery or itch eyes, coughing, wheezing, or shortness of breath, skin rash or hives, or difficulty swallowing after working with laboratory animals or their cages? Circle those you have.
_____Yes ____No

18. Which animals cause the above problems?_____

_____

19. How frequently are you bothered by the symptoms below?

Symptoms	Never	Monthly	Weekly	Daily
Watery, itchy eyes	_____	_____	_____	_____
Runny or stuffy nose	_____	_____	_____	_____
Sneezing spells	_____	_____	_____	_____
Frequent dry cough	_____	_____	_____	_____
Wheezing in chest	_____	_____	_____	_____
Rash or hives	_____	_____	_____	_____
Shortness of breath	_____	_____	_____	_____
Trouble swallowing	_____	_____	_____	_____

20. Do you have any house pets? ____Yes ____No

If yes, what type of animals do you have?_____

21. Do you have any symptoms with your pets? ____Yes ____No

If yes, what type of symptoms do you have?_____

_____

22. Do you have a chronic respiratory disease? ____Yes ____No

If yes, please explain:_____

_____

23. Have you ever had a hernia (rupture)? _____Yes ____No

If yes, please explain:_____

_____

24. Have you ever had back trouble or pain that required treatment, surgery or loss of time at work? ____Yes ____No

If yes, please explain:_____

_____

25. Do you have joint problems or any form of arthritis? _____Yes _____No

If yes, please describe:_____

_____

26. Do you work with chemicals? _____Yes _____No

Do you have symptoms from the chemicals? _____Yes _____No

Comments:_____

_____

27. Please note any other health history you consider significant:

_____

_____

_____

_____

_____

28. Immunization / TB Screening History

VACCINE / TEST	DATE	SIDE EFFECT / REACTION	OTHER
a. Tetanus (most recent)	_____	_____	_____
b. Rabies series, initial	_____	_____	_____
c. Rabies booster	_____	_____	_____
d. Rabies booster	_____	_____	_____
e. Rabies immune globulin	_____	_____	_____
f. Hepatitis B series	_____	_____	_____

g. Tuberculin Mantoux (PPD)	_____	_____	_____
h. Other:_____	_____	_____	_____
i. Chest X-ray	_____	_____	_____

Signature of employee:_____ Date_____

Print name:_____

Signature of interviewer: _____ Date_____

Print name: _____

PERIODIC ANIMAL EXPOSURE QUESTIONNAIRE

Name: _____SS#: (Last 4)_____

Job Title:_____Extension:_____Bldg/Room #:_____

1. _____I no longer work with animals (including animal tissues, waste, body fluids, carcasses or animal quarters) at the VAHCS (if true, skip to #4).

2. Please indicate what animals you worked with during the last 12 months and will be continuing to work with.

_____Dogs	_____Pigs
_____Cats	_____Sheep
_____Nonhuman Primates	_____Rodents
_____Rabbits	_____Guinea Pigs
_____Other:_____	

_____Only incidental contact with potentially all animals for housekeeping/audits/inspections

3. Check total amount of contact time with animals in the past year (include contact with animal tissues, waste, body fluids, carcasses or animal quarters):

_____More than one hour / week
_____One hour or less / week
_____Other (Explain)_____

4. List any additions or deletions of human or animal pathogens or infectious diseases you have worked with in the past year:

Additions:_____

Deletions:_____

5. List the date of your last TB screening: (Mantoux/PPD, serum test, or TB Symptoms Checklist): _____. **Primate handlers must document this each year to Employee Occupational Health**.

6. List date of Hepatitis B, Tetanus or Rabies immunizations received this past year:

Tetanus_____ Rabies_____ Hepatitis B_____
Please include any documentation for any of above immunizations.

7. Circle any condition(s) you have developed over the past year: Hay fever, Asthma, Allergic skin problems, Eczema, Sinusitis, Other chronic respiratory infections.

Comments:_____

_____

_____

_____

8. Check symptoms you developed this past year and how often you have them:

Symptoms	Never	Monthly	Weekly	Daily
Watery, itchy eyes	_____	_____	_____	_____
Runny or stuffy nose	_____	_____	_____	_____
Sneezing spells	_____	_____	_____	_____
Frequent dry cough	_____	_____	_____	_____
Wheezing in chest	_____	_____	_____	_____
Rash or hives	_____	_____	_____	_____
Shortness of breath	_____	_____	_____	_____
Trouble swallowing	_____	_____	_____	_____

9. Do animals cause the above symptoms? If so, please list the animals.

_____

10. List any **NEW** pets you obtained in the past year and symptoms you have with them.

New Pets	Symptoms
_____	_____
_____	_____

11. List any medical problems, pregnancies, hospitalizations or surgeries this past year.

_____

_____

_____

_____

Signature of employee:_____Date: _____

Print name:_____

Signature of reviewer:_____ Date: _____

Print name: _____

Physical examination: Recommended_____ Not Recommended_____

IACUC Roster					
Name of Member	**Degree/ Credentials**	**Voting Status**	**Position Title**	**PHS Policy Membership Requirements/Role**	**VA Requirements/Role**
Janeen Trembley	PhD	Voting	Assistant Professor	Chairperson, Scientist with animal experience	Chairperson, Scientist with animal experience
(b)(6)		Voting	Medicinal Chemist, consulting	Scientist with animal experience	Scientist with animal experience
(b)(6)		Voting	Office Manager	Non-affiliated, Non-scientist	Non-affiliated Member
(b)(6)		Voting	Director, Occupational Health	Scientist	Scientist
(b)(6)		Voting	Associate Professor	Scientist with animal experience	Scientist with animal experience
(b)(6)		Voting	Research Scientist	Scientist with animal experience	Scientist with animal experience
(b)(6)	(Education)	Voting	Retired/Veteran	Non-scientist	Lay Member
Matthew Rassette	DVM	Voting	Veterinary Medical Officer (attending)	Veterinarian	Attending Veterinarian / SRS and RDC Member
(b)(6)		Alternate	Veterinary Medical Officer	Alternate for Rassette	Alternate for Rassette

MINNEAPOLIS VETERANS AFFAIRS HEALTH CARE SYSTEM-618
ONE VETERANS DRIVE MINNEAPOLIS MINNESOTA 55417
INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE
MAY 16, 2019
*******FINAL MINUTES*******

Present: Janeen Trembley, Ph.D., Research Service, Chair, Voting
(b)(6), Scientist, Voting
(b)(6), Non-scientist, Non-affiliated, Voting
(b)(6), Non-Scientist, Voting
Matthew Rassette, D.V.M. Veterinarian, Research Service, Voting
(b)(6) Veterinarian, Research Service, Voting (Alternate Vet—via teleconference)

A quorum of 5 of 8 voting members was present.

Excused: (b)(6), Research Service, Voting
(b)(6), Occupational Health, Voting
(b)(6), Research Service, Voting

Staff: (b)(6), Research Service, IACUC Coordinator
(b)(6), Research Compliance Officer, Consultant

PREVIOUS MINUTES REVIEW:

1. Minutes from April 18, 2019 were reviewed.
Committee Action: The Committee voted for approval of the Minutes.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

Minutes from Spring 2019 SAPR April 25, 2019 were reviewed.
Committee Action: The Committee voted for approval of the Minutes.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

NEW BUSINESS:

2. Continuing Reviews of previously approved ACORPs:
#170401 –(b)(6): Microglial Fatty Acid Signaling in Alzheimer's Disease
Committee Discussion: The Committee is satisfied that the study is progressing as approved and the number of animals used is consistent with the progress reported. There were no complications, adverse events or unanticipated outcomes reported. There were two typos in the abstract which the IACUC requires to be corrected before approval.
Readability Consensus score: 15
Committee Action: The Committee voted to require modifications to secure approval of this Continuing Review:
4.3 (minor) Change “pharacologic loss” to “pharmacologic loss”.
4.3 (minor) Change “prime microglial” to “prime microglia”.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

#170402 –(b)(6): Rodent model of systemic immune activation to study cognitive impairment in Gulf War Illness

Committee Discussion: Pending clarification regarding findings and the use of animals, the study is progressing as planned in the approved protocol. No complications, adverse events or unanticipated outcomes were reported. All (b)(6 trainings for all study personnel are current.
Committee Action: The Committee voted to require modifications to secure approval of this Continuing Review:
4.4 This continuing review indicates that no animals have been used for this protocol. Please clarify that the findings referenced do not involve research with animals under this protocol.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

#VAM-18-00258 -(b)(6) : Cyclin D1 and CDK2 in hepatocyte proliferation
Committee Discussion: The study is progressing as planned in the approved protocol. The number of animals used is consistent with the progress reported. No complications, adverse events or unanticipated outcomes were reported. All (b)(6 trainings for all study personnel are current.
IACUC Office record keeping notes:
3.1 The two entries for the Species Table are an artifact of trying to address the Pain Classification Table bug during the most recent amendment (B). The approved application version 1.9 is correct but this Continuing Review form was begun during the amendment process, when the application was in version 1.8, and thus captured information which was incorrect at the time.
The correct entry is the bottom entry with a request of 4743 animals. The request was approved by the IACUC on 4/2/2019.
The bug has been reported and (b)(6) was requested to delete the erroneous species entry.
3.2 The first line of this table is an artifact from the "bug in the Pain Classification Table" and has been reported to iMedRIS with the follow up request to delete the erroneous entry from the database.
The CORRECT line is the bottom line with an approval for 4743 animals for all strains approved on this protocol in Pain Category C (2574) & D (2169). The top line is the error and should be disregarded. 4743 animals total are approved. A note to file in iRIS has been made.
Committee Action: The Committee voted for approval of this Continuing Review.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

3. ACORP Reviews:
#19- 00399 – (b)(6) . Breeding Colony of Transgenic Models for Obesity Research (RENEWAL of 160601)

SUMMARY:
This is a 3-year renewal of a mouse breeding protocol. Three types of mice will be bred to be transferred to protocols for studies of effects of altering brain orexin on mouse behavior. These mice differ in the ways in which orexin may be manipulated. The first type of mice express CRE protein in the orexin neurons (OREXIN-CRE+/-). Orexin in these mice may be manipulated by administration of a drug to activate receptors using the DREADD technique. The second type of mice (newly added to this renewal) will allow switching on or off of orexin cells by administration of doxycycline in their drinking water (Orexin-tTA/tetO DTA). The third type will be orexin-deficient mice, the orexin/ataxin-3 mice (OA3+/-). These mice experience a gradual progressive loss of orexin-producing neurons.

The following modifications were required to secure approval:
5.1 (minor) Change “which will then” to “which then”.

5.1 (minor) (edits in red font and cross thrus)
COPY PASTE of your text from the section: This protocol describes the creation and continuation of a breeding colony of 3 types of mice, whose offspring will be used in other approved animal protocols. One type of ~~mice~~ mouse expresses a special compound in the brain that allows us to manipulate specific cells within the brain. To manipulate specific brain cells, a drug will be injected into the body, which will then ~~can~~ temporarily turn on or off these cells, and the compound produced within them (called orexin). The compound orexin is known to affect physical activity. The second type of mouse is produced by breeding mice that can have the same brain compound (orexin) switched on and off by giving them a drug in their drinking water instead. This allows for complete or partial shutdown of the cells that make orexin. Usage of the second type of mice will allow for making the change to cells quickly (less shutdown) or over time (most orexin is shut off), without the need to physically inject the animal while in its home housing. The last strain of mouse is bred to produce offspring that gradually lose the cells that produce the compound (orexin) that affects physical activity, which is permanent. All three types of mice are used to test physical activity patterns and calories used to explore ways that might be useful in creating treatments for veterans/humans that are obese or have other mobility or brain degradation problems.

5.1 Note: May also want to define Orexin at the beginning of introducing it - "either of two hormones (*orexin-A* or *orexin-B*) produced by the mammalian hypothalamus and functional in the regulation of appetite and sleep."

5.2 Please define Tet, (assuming Tetracycline). Please include for “regulating gene expression”.

5.3 (minor) Change “to use of two” to “to use two”.

5.3 (minor) Change “diseasessuch” to “diseases such”.

5.3 (minor) (edits in red font and cross thrus)
COPY PASTE of your text: This protocol describes the creation and maintenance of a breeding colony of three types of mice with altered genes. Two of these contain brain compounds that will allow us to use ~~of~~ two new methods called DREADDs (designer receptors exclusively activated by designer drugs) and tet-on/off to change the level of a compound to alter activity. Using these mice will help us to determine how a group of brain cells affect spontaneous physical activity (SPA). The third strain of mice show specific brain cell death over time in a region of the brain known to also affect SPA. These mice have already proven to be a valuable tool for the application of DREADDs and tet-on/off manipulation to the study of other brain functions. We believe these studies can begin to address the gap in knowledge of the brain’s role in SPA and obesity. Overweight and obesity are by themselves a disease present within the veteran population and contribute significantly to other diseases such as diabetes and heart disease. Determining potential avenues for future treatments provide hope in dealing with this national health issue.
The protocol covers breeding and maintenance of breeding animals as a source for producing transgenic mice for other approved experimental protocols.

6.6 Please list the protocols to which the mice were transferred.
IACUC OFFICE NOTE: the VMU records indicate the following transfers: (b)(6) 140302, (b)(6) 160401, (b)(6) 160802, (b)(6) 160203, (b)(6) 170201, (b)(6) 170501 and (b)(6) 160501 (this protocol isn't really related so you can debate if this should be included or not, given the question phrasing.)

7.1 (minor) Change “orexin-tTA mice expresses” to “orexin-tTA mice express”.
(minor) Change “congential malformations” to “congenital malformations”.

7.1 (minor) Change “Orexin-tTA mice are founders” to “Orexin-tTA mice founders”.

7.1 (minor) "Congenital " not "congential

8.1 This reviewer calculated the following totals:
For tet colony, 1005 mice x 3 yrs= 3015
For o-cre colony, yrs 1 and 3 = 2287; yr 2 = 4350, for total = 8924
For OA3 colony, 1505 x 3 yrs = 4515
3015 + 8924 + 4515 = 16454. The total animals requested by the project in section 10.1 is 13913. Please clarify.
(Suggest that you consult with (b)(6))
9.1 – ear tagging procedure (minor) Change “it will used” to “it will be used”.
11.1 (minor) Change “Appendicx” to ”Appendix” in the second column
14.4 Please remove reference to 'decapitation without anesthesia' for (b)(6) and (b)(6) . Thank you.
14.4 For entry under (b)(please only list experience with euthanasia. Thank you.
15.2: Under (b)(6) please add 'see section 16' for tatooing. Please address how (b)(6) will be trained at (b)(6) to perform tatooing (ie from the (b)(6) services? From another lab--if so, which lab and what is their experience?). Thank you.
16.1 As stated above, please detail how (b)(6) will learn tattooing sufficiently to act as a trainer to staff here at the VA. Please include who will train (b)(6) and provide some assurance that they are qualified (so ‘(b)(6) will learn tattooing from the (b)(6) lab at the (b)(6) who have successfully performed this technique over 100 times in the past 6 months.”).
20.1 (minor) "Congenital" not "congential"
20.3 The responses in this section appear to be inconsistent. Explain why some animals on this protocol WILL require customized routine husbandry, and yet this ACORP does NOT include use of any animals that will require customized routine husbandry. (Suggest uncheck one of the boxes)
23.1 Brain is collected post-euthanasia. Deselect option under "For collection BEFORE euthanasia".
26.1 Please deselect the VMU SOP “Maintenance of Guillotines / U. / SOP-EQP-410”.
27.1 For each item listed, please review whether this will be pharmaceutical grade or non-pharmaceutical grade (if the supplier is sigma, then it is non-pharmaceutical grade). This is especially true for the saline (listed as non pharmaceutical grade but more likely to be pharmaceutical grade), for the CO2 (which is unanswered but is likely to be non pharmaceutical grade), alcohol (very likely pharmaceutical grade), and doxycycline (could be either--depends!). Please then respond to 27.2 appropriately.
27.1 For the doxycycline, please consider adding in the ability to add sucrose or acidification (to 3 pH) if needed for palatability and/or stability.
27.1 (minor) Change “Intraperitonea” to “intraperitoneal” (in the saline entry).
27.2 Please review answers to 27.1 and respond appropriately, depending on whether the substances administered are non pharmaceutical grade or not. If not, please provide justification (such as unavailability of substitute, or the need for a higher purity than that provided by the pharmaceutical grade product) as appropriate.
28.1 (minor) Change “Tain snip” to “Tail snip”.
30.1 The reverse light cycle procedure should be listed in column 1 of this table.
IACUC OFFICE NOTE: in order to accomplish this you will need to include "reverse light cycle" as a procedure in section 9.1 (you can say "see App6" for the description)
30.2 The reverse light cycle and doxycycline in drinking water procedures should be listed in column 1 of this table.
30.3 The answer to this question should be 'no,' as neither reverse light cycle nor administration of doxycycline through the drinking water should be expected to cause pain or distress.
30.3 The procedure should be listed in column 1 of this table, and the potential pain or distress should be described in column 2.

30.3 (3a) The procedure should be listed in column 1 of this table.
30.3 (3b) The procedure should be listed in column 1 of this table.
IACUC OFFICE NOTE: in order to accomplish this you will need to include "reverse light cycle" as a procedure in section 9.1
30.3 (3b) (minor) Change “timei” to “time”.
30.4 Please add 'Doxycycline in the drinking water' as a procedure. There is differing opinion regarding the effect on murine water intake of addition of doxycycline to drinking water. See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2062538/ for example of paper showing mice becoming dehydrated; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4128569/ describes mice having unchanged consumption. The difference is likely related to dosing, and this study is proposing a concentration between those used in these two papers. Optimally, the lowest dose possible to elicit effects should be used.
For 'monitoring methods,' please list water consumption (as stated in above section), but also weigh the mice, at a minimum every day for first 3d, then every other day for the remainder of a week. For 'endpoint criteria', suggest weight loss of 20% or more would result in a return to normal water for at least 48hrs, followed by a lowering of the dose of doxycycline and another week of monitoring as described above. Once dosing/concentration is stabilized, then monitoring for future pairs could be relaxed or even eliminated. Should it prove difficult, the doxycycline could also be administered by gavage or by feed.
Committee Discussion: There was a discussion regarding how to review animal transfers from the breeding colony to research protocols (or training protocols) and how many animals are euthanized without being used. The VMU tracks data relevant to this question but the study team does not necessarily have access to this information. The IACUC reviewed the VMU animal use file for this protocol and determined that the percentage of the animals transferred to research protocols was appropriate. At future Continuing Reviews, for breeding protocols the IACUC may choose to review the VMU animal use file to keep informed of this information.
(b)(6) **NOTE:** There will be an additional question added to section 4 of the application requesting the “Best contact phone number: name and number”. This will be included in the next application update. FOLLOW UP: The Research Office initially approved this but upon further reflection (and discussion with IRB) it was decided that a contact phone number is not useful within the Application as the information can be obtained from the personnel section and in the event the phone number changes, an amendment to the application is not required.

Committee Action: The Committee voted to require modifications to secure approval of this ACORP. Revisions are to be reviewed by DMR subsequent to FCR.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

#19- 00419 – (b)(6) : Holding and Training Protocol (mouse) (RENEWAL of 160501)
SUMMARY: This protocol provides capability for “holding” mice to provide basic husbandry in the potential situation where the mice are not covered by an IACUC approved protocol. The protocol also provides researchers the opportunity to learn or improve mouse procedural skills in order to perform research that will benefit human and non-human animals. The protocol ensures that important safeguards are in place for the well-being of the mice and supports continued skill development of the animal research community.

The following modifications were required to secure approval:
5.1 Readability is evaluated as equivalent to grade 19. Please simplify the language.
5.3 Readability is evaluated as equivalent to grade 20. Can you relate the significance more closely to Veterans? Also simplify the language.

8.1 Suggest changing “large animal user” to ”high quantity animal user” as this reviewer first read ”large animal” to mean a large animal such as a pig.
10.4 If some of these animals are subject to retroorbital phlebotomy under anesthesia, they should be in category D.
10.5 If some of these animals are subject to retroorbital phlebotomy under anesthesia, they should be in category D.
11.1 If some of these animals are subject to retroorbital phlebotomy under anesthesia, they should be in category D.
27.1 Include the name Retroorbital, the first time it is abbreviated to RO. Did you mean to include RO as a route for euthanasia? Please remove if no.
34.2 Where is the double-locked vault? (please consider clarifying this phrase for the SRS)
Committee Discussion: The Committee discussed the potential for any animal to be used to train on a retro-orbital bleed procedure, which is a USDA Category D procedure and the PI determined that it would be reasonable to move all the animals to Category D as any animal may have the possibility of having this procedure performed on them for training purposes.

Committee Action: The Committee voted to require modifications to secure approval of this ACORP. Revisions are to be reviewed by DMR subsequent to FCR. ((b)(6) recused, (b)(6) called in for the review discussion and vote.)
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 1.

#19- 00420 –(b)(6): Holding and Training Protocol (rat) (RENEWAL of 160502)
SUMMARY: This protocol provides capability for “holding” rats to provide basic husbandry in the potential situation where the rats are not covered by an IACUC approved protocol. The protocol also provides researchers the opportunity to learn or improve rat procedural skills in order to perform research that will benefit human and non-human animals. The protocol ensures that important safeguards are in place for the well-being of the rats and supports continued skill development of the animal research community.

The following modifications were required to secure approval:
5.2 (minor) Remove "to"..."as this protocol is designed to for holding.
10.4 The response here indicates that some animals should be placed in category D, but the number of such animals is not listed in section 10.5. (The IACUC understands that this was originally a left over from the surgical group but now understands that you will put all animals in this category because of the retro-orbital bleed potential procedure.)
10.5 Please provide the number of animals that should be placed in category D. (The IACUC now understands that you will put the all animals in this category – for potential RO procedure.)
11.1 The response here is inconsistent with the response given in section 10.4. If some of these animals are subject to retroorbital phlebotomy under anesthesia, they should be in category D.
14.4 - Personnel. Add(b)(6)
15.2 (minor) Change “1. Handing” to “1. Handling” (in two places).
15.2 - Personnel. Add(b)(6)
24.1 Personnel. Include(b)(6).
27.1 Typo. In Methylene blue dye section. For dose, it is stated “1-2 mg/kg for avg mouse”. Correct to be ”rat”.
27.3 - Please define RO as Retroorbital for the initial acronym.

Committee Discussion: The Committee discussion was similar to the mouse protocol regarding the potential for any animal to get a retro-orbital bleed procedure and thus all animals will be moved to USDA category D.

Committee Action: The Committee voted to require modifications to secure approval of this ACORP. Revisions are to be reviewed by DMR subsequent to FCR. ((b)(6) recused, (b)(6) called in for the review discussion and vote.)
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 1.

4. Report from the Veterinary Medical Officer: Dr. Rassette
Clinical: none
SRS/RDC/IBC: The SRS now has a new handbook/directive from VA central office. This now allows for the committee to review minor amendments using DMR.
ETC: Biosafety cabinet installation update: The BSC in (b)(6) is now certified. The BSC in (b)(6) will be repaired in the coming fiscal year.
Air handler repair update: Chiller coils are being replaced today, with piping and installing to occur over the weekend. Full cooling is anticipated by the end of next week. With few exceptions, temperatures have been held within Guide recommendations thanks to the terrific efforts of the AC shop and VMU staffs. In the few instances where temperatures exceeded Guide recommendations, they were temporary and did not result in animal health issues.

5. RCO report (next report June)

6. Miscellaneous New Business
a) FUTURE IACUC TRAINING EVENT on August 21-22, 2019 in (b)(6)
   i) MVAHCS IACUC Members can attend and the facility will pay the registration fee
b) iRis update/issues/features:
   i) iRis Continuing Review form and CR Reviewer Checklist (no concerns)
c) Annual Reports completed during this period:
   i) Annual Report to the RDC: Completed May 7, 2019

OLD BUSINESS:

7. Amendments to previously approved ACORPs:

#170201F -(b)(6): Orexin and serotonin interactions to promote physical activity and prevent obesity
Amendment is to add 3 behavioral tests of learning and memory in characterizing (previously approved) compound RTIOXA-47. Behavioral tests are: Two-Way Active Avoidance, (b)(6) Maze and Novel Object Recognition Task. (Personnel were removed: (b)(6) and (b)(6))
This amendment included a request for an additional 64 animals.
The following modifications were required to secure approval:
C.2.a, pg. 6: Please clarify the following sentence: 16 male and 16 female OA3 positive and WT littermates, to test learning and cognition in TWAA, (b)(6) OIC and NOIC for peripheral injection of RTIOXA-47 in a dose range of 20-60mg/kg (saline control), Eight animals would receive the RTIOXA-47, and 8 would receive saline injections on test day, per sex.
C.2.a, pg 6: The statement: "we likely will start with the hippocampus first. " makes it unclear whether you are proposing to perform more than one surgery on these animals. Please clarify

what your intent is here, as you seem to state later that you will be cannulating only one site. Thank you.
(b)(6 reference number: 2209
Committee Action: All required modifications were completed. This amendment was reviewed and approved by IACUC designated member review on 4/30/2019. No SRS review was needed. The IACUC Chair indicated final approval on the paper Amendment Summary form on 4/30/2019.

#VAM-18-00215A -(b)(6) : Mouse Breeding Colony for Hepatocyte Proliferation Research Studies
Amendment is to add(b)(6) to this protocol.
All required CITI trainings, VMU orientation and OccH participation have been completed.
(b)(6)reference number: #2147
Committee Action: This amendment was reviewed by IACUC administrative process for personnel additions and approved on 5/1/2019. After SRS review and approval, the IACUC Chair indicated final approval for the new personnel to work on the study with an(b)(6) personnel approval memo on 5/6/2019.

#18-00281B –(b)(6) : Dietary fat effect on brain immune response and inflammation
Amendment is to add(b)(6) and(b)(6) to this protocol.
All required CITI trainings, VMU orientation and OccH participation have been completed.
iRIS reference number: 2075
Committee Action: This amendment was reviewed by IACUC administrative process for personnel additions and approved on 4/19/2019. After SRS review and approval, the IACUC Chair indicated final approval for the new personnel to work on the study with an(b)(6) personnel approval memo on 5/6/2019.

8. Semi-Annual Program Review

a) The report was distributed electronically to all members on 5/13/2019 and was reviewed during the meeting on the screen.
b) Part 1A checklist contained checks only in the “Acceptable” or the “not applicable” columns with the exception of item 500 (physical plant infrastructure) which was determined to be a Minor Deficiency.
c) Part 1B checklist contained checks in the “Acceptable”, “not applicable” or “could not evaluate” columns with the exception of Minor Deficiencies for the following items:
   i) 1750: “Temperature and humidity in animal rooms within acceptable ranges”
   ii) 2301: “Analgesics and anesthetics are used within their expiration date”
d) Part 2 had 3 deficiencies to report this period. Two of the deficiencies were corrected by 5/2/2019 and the third (air handler chiller coils inoperable) is in the process of repair
e) The Part 3 narrative was reviewed and approved and there were no Minority Opinions.
f) There were no concerns or revisions to the prepared report.

Committee Discussion: An overriding theme for the VMO to bring up with the IO is that repeated delays in addressing infrastructure problems can lead to more costly repairs when the infrastructure fails.

Committee Action: The Committee voted for approval of the Spring 2019 SAPR report. The report was signed by all Committee members present at the Meeting and will be brought to absent Members as available for their review and certification.
Total voting = 5 Vote: For = 5, Opposed = 0, Abstained/Recused = 0.

9. Follow up during DMR subsequent to Full Committee Review of Amendments: None

10. Final Approvals and Closures:

The following ACORPs have received final approval:

#19-00380 –(b)(6): Refining the Effect of Articular Neurotoxin on Joint Pain and Neurochemical Signature (IACUC final approval: 4/25/2019.) (RDC final approval not needed as this is a 3 year renewal.)

The following Continuing Reviews requiring modifications have received approval: none

The following amendments requiring FCR have received final approval: none

The following ACORPs were closed: none

11. Miscellaneous Old Business

a) RDC's response to the IACUC's Annual Report
   i) The RDC was curious about the possibility of bringing in(b)(6) to expand the use of the VMU. Specifically, is there a price-point low enough where it would be worth it to(b)(6) to overcome the challenges present within the VA system? The VMO discussed the challenges inherent within that approach, including the possible regulatory issues involved in(b)(6) (b)(6).

OTHER:

The committee was provided with the following information and handouts:
a. The Spring 2019 SAPR Report (electronically)

EDUCATIONAL MATERIAL:

Article: Lab Animal Vol. 47 August 2018. Protocol Review: Lawyer Up.

_____ _____

JANEEN TREMBLEY, Ph.D. CHAIR DATE
Institutional Animal Care and Use Committee

MINNEAPOLIS VETERANS AFFAIRS HEALTH CARE SYSTEM-618
ONE VETERANS DRIVE MINNEAPOLIS MINNESOTA 55417
INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE
JUNE 20, 2019
*******FINAL MINUTES*******

Present: Janeen Trembley, Ph.D., Research Service, Chair, Voting
(b)(6), Scientist, Voting
(b)(6), Research Service, Voting
(b)(6), Occupational Health, Voting
(b)(6), Non-scientist, Non-affiliated, Voting
(b)(6), Non-Scientist, Voting
Matthew Rassette, D.V.M. Veterinarian, Research Service, Voting
(b)(6), Research Service, Voting
(b)(6). Veterinarian, Research Service, Alternate - Vet.

A quorum of 8 of 8 voting members was present.

Excused: None

Staff: (b)(6), Research Service, IACUC Coordinator
(b)(6), Research Compliance Officer, Consultant

PREVIOUS MINUTES REVIEW:

1. Minutes from May 16, 2019 were reviewed.
Committee Discussion: If there are typos in the material that is sent to the study team then those typos should be recorded as is in the Minutes, and not corrected during committee review. The Committee discussed the decision of the Research Office to not include a study contact/PI phone number directly in the application. The Committee was told that if they wish to contact the PI or a study team member, they could do so thru the IACUC Coordinator.
Committee Action: The Committee voted for approval of the Minutes.
Total voting = 8 Vote: For = 8, Opposed = 0, Abstained/Recused = 0.

NEW BUSINESS:

2. Continuing Reviews of previously approved ACORPs:

#170601 -(b)(6).: Title 1: Cellular and synaptic basis of cognitive function in prefrontal cortical networks. Title 2: Characterizing thalamocortical prefrontal network dynamics underlying cognitive control in a model of schizophrenia.
Committee Discussion: The Committee is satisfied that the study is progressing as approved and the number of animals used is consistent with the progress reported. There were no complications, adverse events or unanticipated outcomes reported. All(b)(6 trainings for all study personnel are current.
Readability Consensus score: 20
Committee Action: The Committee voted for approval of this Continuing Review.
Total voting = 8 Vote: For = 8, Opposed = 0, Abstained/Recused = 0.

#VAM-18-00273 –(b)(6) / Insight Biomedical: A COMPARATIVE VITREOUS REPLACEMENT STUDY IN THE RABBIT MODEL
Committee Discussion: The Committee is satisfied that the study is progressing as approved and the number of animals used is consistent with the progress reported. There were no complications, adverse events or unanticipated outcomes reported. All (b)(6) trainings for all study personnel are current.
Readability Consensus score: 16
Committee Action: The Committee voted for approval of this Continuing Review.
Total voting = 8 Vote: For = 8, Opposed = 0, Abstained/Recused = 0.

3. ACORP Reviews:
#19- 00435 –(b)(6) : Protective Effects of Probiotic E. coli against E. coli ST131 (NEW)
SUMMARY: The purpose of this study is to determine if treatment with an E. coli strain that has been engineered to produce a probiotic protein that kills certain other E. coli strains will be effective in reducing infection by a multi-drug-resistant ST131 target strain of E. coli. Mice will be pretreated with streptomycin to reduce bacterial colonization to a low level, and then infected with the ST131 target strain by oral gavage. The mice will then be divided into two groups. One group of mice will be administered the probiotic strain, and the other (control) group will receive the recombinant vector plasmid only. Bacterial counts from stool samples will be compared to determine the effectiveness of the probiotic treatment.

The following modifications were required to secure approval:
5.1 (minor) Change " refered" to " referred" .
5.3 Clinical Significance: Include how this research is intended to improve the health of people and animals. (ig. treat intestinal colonization of ST131 with probiotic E. coli strains versus antibiotics, antibiotic resistant strains). State the "Big Picture" of this study and the significance to public health.
5.3 Please add a NOTE at the bottom of question 5.3 where you clarify the relationship between (b)(6) and General Probiotics and this project. Please note that each person on this protocol will be expected to fill out (and attach to this submission) a COI (Conflict of Interest) form for RDC review. The IACUC Office will provide the COI forms (by separate communication) and can assist with the attachment process.
10.3 Please list this as "SPF" not "Conventional".
10.4 Since any pain experienced by these mice during the oral gavage procedure is brief and not relieved by appropriate anesthetics, sedatives, or analgesics, these animals should be listed in Category C.
11.0 What product, when and with what frequency is the rectal enema given? If you are performing a rectal enema please include rectal enema in a separate procedure from the oral gavage.
IACUC OFFICE NOTE: if this is a copy paste error from another protocol and you are not performing a rectal enema procedure (as the IACUC suspects) and if you change the animals from Category D to C in section 10.4, then your answer to this question should be changed from "yes" to "no", which will make this table will disappear and you will be unable to remove the reference to the rectal enema. Having this table (and the rectal enema reference) disappear is understood and acceptable to the IACUC, please contact me (or the Vet) if it is not acceptable to you or if you do intend to perform a rectal enema procedure.
11.1 Rectal enemas are mentioned here and no place else. If they are to be performed, they should be added to the appropriate sections, otherwise they should be removed from this section. IACUC OFFICE NOTE: see the note in the above stipulation, this is essentially the same concern and the resolution is likely to be the same as the resolution for that stipulation.

14.1 Please clarify which group/age/description from section 7 above will receive this type of euthanasia (all?). It appears to have been overwritten by the 'method of ensuring death' section. Please correct.
14.1 (minor) Change " C02" to " CO2". IACUC OFFICE NOTE: Sorry, this is an existing typo in the "pre-fill-selection" and it will be corrected in the database going forward, but for this protocol, please substitute an "uppercase O" for the "zero" in the "Euthanasia Method" entry. However, it is possible that this can't be changed in your protocol, and so if that is the case, then just say that in the stipulation response and complete the stipulation with no changes.
14.1 Entries for " Volume" and " Method of Ensuring Death" are incomplete.
IACUC OFFICE NOTE: when doing copy pastes of large blocks of text into small text boxes, the text will frequently be cut off, and it is sometimes hard to detect this has happened because the space is constrained (this one part is a locked in feature of (b)(6). For this entry, the IACUC suggests that you simply replace the cut off material with "to effect" for the Volume line and "see below" for the Method of Ensuring Death line.
22.1 Under 'experiment completion', you list (b)(6). However, to this reviewer's knowledge, there is no (b)(6). Please correct.
23.1 According to the entry in section 9.1, fecal pellets will be collected from live animals (BEFORE euthanasia). Therefore, " Other collection from LIVE animals" should be checked.
27.1 For all E coli listed, please change 'yes' to 'no' under Pharmaceutical Grade.
27.1 (minor) Change " plasmmid" to " plasmid" (first entry).
27.1 (minor) Change " Recominant" to " Recombinant" (second entry).
27.1 (minor) Change " 0..2 ml" to " 0.2 ml" (second entry).
27.1 Gavage complications - possible aspiration, perforation, tooth fracture
diarrhea - relief or comfort if area becomes raw
27.2 Further justification is needed here. Please state why this is scientifically necessary--for example, is there no pharmaceutical grade formulation of E coli probiotic? Please then state that the formulation used will be appropriate for the route of administration (oral).
34.6 IACUC OFFICE NOTE: as discussed with the lab manager, should you wish to modify the RPSS to include any specific information about the strain (or antibiotic resistance) you can do so when making the other IACUC specific revisions. Any changes in the RPSS will be reviewed by SRS after IACUC review of the ACORP is completed. The change to the RPSS might be in section 34.6 or 34.3...either place is appropriate to revise to include strain information.
The IACUC notes that you do provide some additional information in section 27.8 and the SRS does have access to that answer. And finally, if you make no changes in the RPSS, then that is fine, just indicate 'completed' in the Review Response form for this one stipulation and move on with the revision process.
Committee Discussion: A discussion regarding the MVAHCS policy for donated research material (such as animal, viruses, bacteria and other material) occurred. The IACUC will request clarification from the Research Office regarding when is an MTA (Material Transfer Agreement) is required and how is that determined.
This protocol is funded with residual funds and did not receive a scientific review but the studies proposed are comparable to other studies the PI has proposed (and was funded for) previously.
A Conflict of Interest form will be requested to be completed and attached to the submission for all study personnel and for review by the RDC before final approval.

Committee Action: The Committee voted to require modifications to secure approval of this ACORP. Revisions are to be reviewed by DMR subsequent to FCR.
Total voting = 8 Vote: For = 8, Opposed = 0, Abstained/Recused = 0.

4. Report from the Veterinary Medical Officer: Dr. Rassette

Clinical: Two NHP on protocol 170601 received/are receiving treatment for implant infections.
One pig on protocol 160903 has a small mass on L flank that is being monitored for response to conservative therapy.

SRS/RDC/IBC: None

ETC: Air handler repair update: Chiller coils have been replaced for one of the two main air handlers; the second / backup air handler is still in the process of being repaired. With few exceptions, temperatures have been held within Guide recommendations during this interim period. In the few instances where temperatures were outside Guide recommendations, they were temporary and did not result in animal health issues.
ORO has announced a focused site visit to examine our nonhuman primate program. You are invited to provide comments (if desired) via phone conference on Wednesday 10 July 2019 from 10am-1130am. Please contact myself or (b)(6) if you have interest. The site visit team will be on-site 17-18 July 2019.
ORD is publishing on their public facing website summaries as well as redacted version of all cat, dog, and NHP studies done within the VA. This includes our program and protocol 170601. Website:
https://www.research.va.gov/programs/animal_research/current_research.cfm

5. RCO report (attached)

a) The Committee reviewed the audit report
b) There were no Significant Findings
c) The Committee had no comments or concerns.
d) This audit marked the end of the paper file audits, from now on all protocols will have audits using the materials available in (b)(.

6. Miscellaneous New Business

a) iRIS application template revisions
   i) In section 25, "Appendix Determination" for question 25.5 "Special Procedures" the option "Procedures (section 9) will be removed…that section describes procedures, not *Special* Procedures.
   ii) In App3, question 27.2 (for NPG material) the phrase "provide the source" should be included in the requirements for each listed item.
b) iRIS training
   i) What the PI sees when completing "data value tables" in the application
c) Annual Reports completed during this period:
   i) Annual ACOS Quality Assurance Report: Completed May 31, 2019

OLD BUSINESS:

7. Amendments to previously approved ACORPs:

#160903H –(b)(6) : Surgical Revascularization's Impact on Mitochondria in Hibernating Myocardium
Amendment is to eliminate the blood draw for arterial blood gas, BNP and Troponin levels done during the terminal studies. We would like to reserve the ability to draw up to 20 mL of blood for future testing as our work moves forward. This change will not affect the animal work

done at the VA, only at the (b)(6) but it is requested at the VA because we like to have the protocols at the 2 facilities to mirror each other.
IACUC OFFICE NOTE: this is a legacy study on word documents which the study team agreed to try to process completely in (b)(6) to provide experience and training for other users. This is very much appreciated!
No modifications were required to secure approval.
(b)(6) reference number: 1882
Committee Action: This amendment was reviewed by IACUC administrative process on the basis that it does not have significant impact on animal welfare or increased animal numbers. After SRS review and approval on 5/20/2019, the IACUC Chair indicated final approval on the iRIS amendment approval memo on 5/20/2019.

8. Semi-Annual Program Review Update

a) Part 2 Table of Deficiencies was reviewed and updated to include:
   i) "One fully functional air handler as of 6/20/2019 report. The back-up air handler repair is nearing completion." for the air handlers chiller coils deficiency
   ii) All deficiencies are now considered corrected
b) SAPR material shared with the (b)(6) as per MOU
   i) MVAHCS to (b)(6): "Our chiller coils ruptured in the extreme cold last January and have subsequently been repaired. In the interim, room temperature and humidity (including those housing the animals affected by our MOU) were maintained within the standards of the Guide using portable air conditioning devices."
   ii) (b)(6) to MVAHCS: "There were no findings upon our inspection of the (b)(6) lab."

9. Follow up during DMR subsequent to Full Committee Review of Amendments: None

10. Final IACUC Approvals and Closures:

The following ACORPs have received final approval:

#19- 00419 – (b)(6): Holding and Training Protocol (mouse) (IACUC final approval: 6/3/2019.)
#19- 00420 – (b)(6): Holding and Training Protocol (rat) (IACUC final approval: 6/3/2019.)

The following Continuing Reviews requiring modifications have received approval: none
The following amendments requiring FCR have received final approval: none
The following ACORPs were closed: none

11. Miscellaneous Old Business

a) Future IACUC TRAINING EVENT on August 21-22, 2019 in (b)(6)
   i) One IACUC Board Member will attend
   ii) The IACUC Coordinator will attend

OTHER: None

EDUCATIONAL MATERIAL:

Article: The Scientist, May 1, 2019. Thomas Hartung. Opinion: AI Beats Animal Testing at Finding Toxic Chemicals.

OLAW Webinar: " The 4th R – Rehoming, Retirement and Release" on June 13, 2019.

_____ _____

JANEEN TREMBLEY, Ph.D. CHAIR DATE
Institutional Animal Care and Use Committee

ANIMAL COMPONENT OF RESEARCH PROTOCOL (ACORP)
Main Body
VERSION 4: (VERSION 4 MUST BE USED AS OF 1/01/14) MPLS VAHCS APRIL 2019

See Instructions for Completion of the Animal Component of Research Protocol (ACORP Instructions), for help in completing specific items.

A. **ACORP Status.**

1. Full Name of Principal Investigator►

   a. Contact Person: Please provide below the name and contact information for a person who can provide further information or clarification concerning this ACORP►

2. VA Station Name (City) and 3-Digit Station Number► **Minneapolis VA Health Care System - 618**

3. Protocol Title►

4. Single Animal Species covered by this ACORP►

5. Funding

   a. Funding Source(s). Check each source that applies:

►( ) Department of Veterans Affairs.
►( ) US Public Health Service (e.g. NIH).
►( ) Private or Charitable Foundation -- Identify the Foundation:
►( ) University Intramural Funds – Identify the University and Funding Component:
►( ) Private Company – Identify the Company:
►( ) Other – Identify Other Source(s):

   b. Funding Administrator: Indicate the entity that will be administering the research funds (check all that apply)

►( ) Department of Veterans Affairs.
►( ) MVMREF (MN Veterans Medical Research & Education Foundation)
►( ) University of Minnesota
►( ) Other (includes MMF): Specify_____

6. Related Documentation for IACUC reference.

   a. If this protocol applies to a project that has already been submitted to the R&D Committee for review, identify the project: (Note: this is unusual)

      (1) Title of project►

      (2) If approved by the R&D Committee, give the date of approval►

   b. Triennial review. If this protocol is being submitted for triennial *de novo* review, complete the following:

      (1) Identify the previously approved ACORP by IACUC assigned number and title
      ►

      (2) Identify/list the studies described in the previously approved ACORP that have already been completed and summarize the results, findings or conclusions.
      ►

(3) Indicate the numbers of animals of each breed/strain/genotype that have already been used, and adjust the numbers shown in Item I accordingly
►

(4) Describe any study results or methodology adaptations that have prompted changes or additions to the protocol for this renewal, and briefly summarize those changes, to guide the reviewers to the details documented in this renewal application..
►

c. List any other relevant previously approved animal use protocols (copy the lines below as needed for each protocol listed).

(1) Title of other protocol ►
(2) IACUC approval number of other protocol ►
Give the name of the VA station or other institution that approved it, if it was not approved by the IACUC that will review this ACORP ►

7. Indicate the type(s) of animal use covered by this protocol (check all that apply):

►( ) Research
►( ) Teaching or Training
►( ) Testing
►( ) Breeding and colony management only; not for any specific research project
►( ) Holding protocol (as specified by local requirements; not required by VA, PHS, or USDA)
►( ) Other. Please specify►

Proposal Overview

B. **Description of Relevance and Harm/Benefit Analysis.** Using non-technical (lay) language that a senior high school student would understand, briefly describe how this research project is intended to improve the health of people and/or other animals, or otherwise to serve the good of society, and explain how these benefits outweigh the pain or distress that may be caused in the animals that are to be used for this protocol.
►

C. **Experimental Design.**

1. **Lay Summary**. Using non-technical (lay) language that a senior high school student would understand, summarize the conceptual design of the experiment in no more than one or two paragraphs.
►

2. **Complete description of the proposed use of animals.** Use the following outline to detail the proposed use of animals.

a. **Summarize** the design of the experiment in terms of the specific groups of animals to be studied.
►

b. **Justify the group sizes and the total numbers of animals requested.** A power analysis is strongly encouraged; see ACORP instructions.
►

c. **Describe each procedure** to be performed on any animal on this protocol. (Use Appendix 9 to document any of these procedures that involve "departures" from the standards in the *Guide*. Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.)
►

D. **Species.** Justify the choice of species for this protocol.

►

Personnel

E. **Current qualifications and training.** (For personnel who require further training, plans for additional training will be requested in Item F.) Qualifications to perform specific procedures: include an approximate number of times the procedure has been performed, including time frame of most recent experience (e.g., has performed >20 retro-orbital bleeds during the last 2 years). **If refresher training is desired, please contact the VMU.**

1. PI

Name►
Animal research experience ►

Qualifications to perform specific procedures

Specific procedure(s) that the PI will perform personally	Experience with each procedure in the species described in this ACORP

2. Other research personnel (copy the lines below for each individual who will be responsible for performing any of the experimental procedures on the animals on this protocol)

Name►
Animal research experience ►

Qualifications to perform specific procedures

Specific procedure(s) that this individual will perform	Experience with each procedure in the species described in this ACORP

3. VMU animal care and veterinary support staff personnel (copy the lines below for each individual member of the VMU animal care and veterinary staff who will perform support procedures other than routine husbandry on the animals on this protocol.)

Name►

Qualifications to perform specific support procedures in the animals on this protocol

Specific support procedure(s) assigned to this individual	Qualifications for performing each support procedure in the species described in this ACORP (e.g., AALAS certification, experience, or completion of special training)

4. For each of the research personnel listed in items 1 and 2 above, enter the most recent completion date for each course (this refers to the CITI training courses):

Name of Individual	Working with the ~~VA~~ IACUC	ORD web-based species specific course (Identify the species)	Any other training required locally (Identify the training)

F. **Training to be provided.** List here each procedure in Item E for which anyone is shown as "to be trained", and describe the training. For each procedure, describe the type of training to be provided, and give the name(s), qualifications, and training experience of the person(s) who will provide it. If no further training is required for anyone listed in Item E, enter "N/A"
►

G. **Occupational Health and Safety.**

1. Complete one line in the table below for each of the personnel identified in Item E:

Name	Enrollment in OHSP		Declined optional services	Current on Interactions with OHSP? (yes/no)
	VA program	Equivalent Alternate Program – identify the program and submit documentation of participation		
	( )	( )	( )	
	( )	( )	( )	
	( )	( )	( )	

2. Are there any non-routine OHSP measures that would potentially benefit, or are otherwise required for, personnel participating in or supporting this protocol?

► ( ) Yes. Describe them ►

► ( ) No.

Animals Requested

H. **Animals to be Used.** Complete the following table, listing the animals on separate lines according to any specific features that are required for the study (see ACORP Instructions, for guidance, including specific terminology recommended for the "Health Status" column):

Description (include the species and any other special features not shown elsewhere in this table)	Gender	Age/Size on Receipt	Source (e.g., Name of Vendor, Collaborator, or PI of local breeding colony)	Health Status

I. **Numbers of animals requested.** See ACORP Instructions, for descriptions of the categories and how to itemize the groups of animals.

USDA Category B

Procedures►						
Species / Experimental Group / Procedures(s)	Year 1	Year 2	Year 3	Year 4	Year 5	**Category B TOTAL**

USDA Category C

Procedures►						
Species / Experimental Group / Procedure(s)	Year 1	Year 2	Year 3	Year 4	Year 5	**Category C TOTAL**

USDA Category D

Procedures►						
Species / Experimental Group / Procedure(s)	Year 1	Year 2	Year 3	Year 4	Year 5	**Category D TOTAL**

USDA Category E

Procedures►						
Species / Experimental Group / Procedure(s)	Year 1	Year 2	Year 3	Year 4	Year 5	**Category E TOTAL**

TOTALS over all Categories

Species / Experimental Group /Procedure(s)	Year 1	Year 2	Year 3	Year 4	Year 5	**GRAND TOTAL**

J. **Management of USDA Category D procedures**. Indicate which statement below applies, and provide the information requested.

► ( ) This protocol does NOT include any Category D procedures.

► ( ) This protocol INCLUDES Category D procedures. List each Category D procedure and provide the information requested. (For surgical procedures described in Appendix 5, only identify the procedure(s) and enter "See Appendix 5 for details.)

Procedure	Monitoring (indicate the method(s) to be used, and the frequency and duration of monitoring through post-procedure recovery)	Person(s) responsible for the monitoring	Method(s) by which pain or distress will be alleviated during or after the procedure (include the dose, route, and duration of effect of any agents to be administered)

K. **Justification of Category E procedures.** Indicate which statement below applies, and provide the information requested.

► ( ) This protocol does NOT include any Category E procedures

► ( ) This protocol INCLUDES Category E procedures. Identify each Category E procedure included in this ACORP and justify scientifically why the pain or distress cannot be relieved.
►

Veterinary Care and Husbandry

L. **Veterinary Support**.

1. Identify the laboratory animal veterinarian who is responsible for ensuring that the animals on this protocol receive appropriate veterinary medical care.

   Name► Drs. Matthew Rassette, (b)(6)
   Institutional affiliation► Minneapolis VA Health Care System
   email contact► (b)(6) (b)(6)
   VMO Office► (b)(6)

2. Veterinary consultation during the planning of this protocol (must have occurred within one year of submission).

   Name of the laboratory animal veterinarian consulted►
   Date of the veterinary consultation (meeting date, or date of written comments provided by the veterinarian to the PI) ►

M. **Husbandry.** As a reference <u>for the animal husbandry staff</u>, summarize here the husbandry requirements of the animals on this protocol. (Use Appendix 6 to justify the use of any special husbandry and to detail its effects on the animals. Use Appendix 9 to document any aspects of the husbandry that involve "departures" from the standards in the *Guide*. Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.)

1. Caging needs. Complete the table below to describe the housing that will have to be accommodated by the housing sites for this protocol:

a. Species	b. Type of housing*	c. Number of individuals per housing unit**	d. Is this housing consistent with the *Guide* and USDA regulations? (yes/no***)	e. Estimated maximum number of housing units needed at any one time

*See ACORP Instructions, for guidance on describing the type of housing needed. If animals are to be housed according to a local Standard Operating Procedure (SOP), enter "standard (see SOP)" here, and enter the SOP into the table in Item Y. If the local standard housing is not described in a SOP, enter "standard, see below" in the table and describe the standard housing here:
►

** The *Guide* states that social animals should generally be housed in stable pairs or groups. Provide a justification if any animals will be housed singly (if species is not considered "social", then so note)
►

***Use Appendix 9 to document "departures" from the standards in the *Guide*.

2. Enrichment. Complete the table below to indicate whether "standard" exercise and environmental enrichment will be provided to the animals on this protocol, or whether any special supplements or restrictions will be required (See ACORP Instructions, for more information on enrichment requirements. Use Appendix 9 to document any enrichments requirements that represent "departures" from the standards in the *Guide*.):

a. Species	b. Description of Enrichment*	c. Frequency

*If enrichment will be provided according to a local SOP, enter "standard (see SOP)" and enter the SOP into the table in Item Y. If the local standard enrichment is not described in a SOP, enter "standard, see below", and describe the standard species-specific enrichment here.
►

3. Customized routine husbandry. Check all of the statements below that apply to the animals on this protocol, and provide instructions to the animal husbandry staff with regard to any customized routine husbandry needed.

► ( ) This ACORP INCLUDES genetically modified animals.

List each group of genetically modified animals, and describe for each any expected characteristic clinical signs or abnormal behavior related to the genotype and any customized routine husbandry required to address these. For genetic modifications that will be newly generated on or for this protocol, describe any special attention needed during routine husbandry to monitor for unexpected clinical signs or abnormal behavior that may require customized routine husbandry.
►

► ( ) Devices that extend chronically through the skin WILL be implanted into some or all animals on this protocol. Describe any customized routine husbandry to be provided by animal husbandry staff to minimize the chances of chronic infection where the device(s) penetrate the skin.
►

► ( ) Some or all of the animals on this protocol WILL require other customized routine husbandry by the animal husbandry staff, beyond what has been described above. Describe the special husbandry needed.
►

► ( ) This ACORP does NOT include use of any animals that will require customized routine husbandry.

N. **Housing Sites**. Document in the tables below each location where animals on this protocol may be housed.

► ( ) Housing on VA property. Identify each location on VA property where animals on this protocol will be housed, and indicate whether or not each location is inside the VMU.

Building	Room number	Inside of VMU?	
		Yes	No
		( )	( )
		( )	( )
		( )	( )

► ( ) Housing in non-VA facilities. Identify each location not on VA property where animals on this protocol will be housed, and provide the information requested in the table.

Name of Non-VA Facility	Is this facility accredited by AAALAC?	Building	Room Number

	Yes -- enter status*	No**		
	( )	( )**		
	( )	( )**		
	( )	( )**		

*See ACORP Instructions, for a list of AAALAC accreditation status options.

**For any facility listed above that is not accredited by AAALAC, attach documentation that a waiver has been granted by the CRADO.

Special Features

O. **Antibody Production.** Will any of animals on this protocol be used for the production of antibodies?

► ( ) Some or all of the animals on this protocol WILL be used in the production and harvesting of antibodies. Check "Appendix 2" in Item Y, below, and complete and attach Appendix 2, "Antibody Production".

► ( ) NO animals on this protocol will be used in the production and harvesting of antibodies.

P. **Biosafety.** Will any substances (other than those used in routine husbandry or veterinary care) be administered to the animals on this protocol?

► ( ) This protocol INVOLVES administration of substances to the animals other than those used in routine husbandry and veterinary care. Check "Appendix 3" in Item Y, below, and complete and attach Appendix 3, "Biosafety".

► ( ) This protocol does NOT involve administration of any substances to the animals other than those used in routine husbandry and veterinary care.

Q. **Locations of procedures.** Complete the table below, listing the location(s), inside or outside of the animal facility, for each of the procedures to be performed on animals on this protocol.

Procedure	Surgical?		Bldg/Room Number	Requires transport through non-research areas?	
	Yes	No		Yes – describe method of discreet transport	No
	( )	( )		( )	( )
	( )	( )		( )	( )
	( )	( )		( )	( )
	( )	( )		( )	( )

R. **Body Fluid, Tissue, and Device Collection.** List each body fluid, tissue, or device to be collected, and complete the table below to indicate the nature of the collection. Check the relevant Appendices in Item Y, below, and complete and attach them, as shown in the column headings.

Body Fluid, Tissue, or Device to be	Collected AFTER	Collected BEFORE Euthanasia

Collected	Euthanasia	Blood Collection Associated with Antibody Production (Appendix 2, "Antibody Production")	Collected as Part of a Surgical Procedure (Appendix 5, "Surgery")	Other Collection from Live Animals (Appendix 4, "Antemortem Specimen Collection")
	( )	( )	( )	( )
	( )	( )	( )	( )
	( )	( )	( )	( )

S. **Surgery.** Does this protocol include any surgical procedure(s)?

► ( ) Surgery WILL BE PERFORMED on some or all animals on this protocol. Check "Appendix 5" in Item Y, below, and complete and attach Appendix 5, "Surgery".

► ( ) NO animals on this protocol will undergo surgery.

T. **Endpoint criteria.** Describe the criteria that will be used to determine when animals will be removed from the protocol or euthanatized to prevent suffering. (Use Appendix 9 to document any "departures" from the standards in the *Guide* represented by these criteria. Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.)
►

U. **Termination or removal from the protocol**. Complete each of the following that applies:

► ( ) Some or all animals will NOT be euthanized on this protocol. Describe the disposition of these animals. (Use Appendix 9 to document any "departures" from the standards in the *Guide* represented by these methods of disposition. Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.)
►

► ( ) Some or all animals MAY be euthanized as part of the planned studies. Complete the table below to describe the exact method(s) of euthanasia to be used. (Use Appendix 9 to document any departures from the standards in the *Guide* represented by these methods. Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.)

Check each method that may be used on this protocol	Method of Euthanasia	Species	AVMA Classification		
			Acceptable	Conditionally Acceptable	Unacceptable
( )	CO_2 from a compressed gas tank Duration of exposure after apparent clinical death► Method for verifying death► Secondary physical method►		( )	( )	( )

( )	Anesthetic overdose Agent► Dose► Route of administration►		( )	( )	( )
( )	Decapitation under anesthesia Agent► Dose► Route of administration►		( )	( )	( )
( )	Exsanguination under anesthesia Agent► Dose► Route of administration►		( )	( )	( )
( )	Other (Describe) ►		( )	( )	( )
( )	Other (Describe) ►		( )	( )	( )

1. For each of the methods above that is designated as “Conditionally Acceptable” by the AVMA, describe how the conditions for acceptability will be met:
   ►

2. For each of the methods above that is designated as “Unacceptable” by the AVMA, give the scientific reason(s) that justify this deviation from the AVMA Guidelines:
   ►

3. Identify all research personnel who will perform euthanasia on animals on this protocol and describe their training and experience with the methods of euthanasia they are to use in the species indicated.
   ►

4. Instructions for the animal care staff in case an animal is found dead.
   a. Describe the disposition of the carcass, including any special safety instructions. If disposition is to be handled according to a local SOP, enter “according to local SOP” and enter the information requested about the SOP into the table in Item Y.
      ►

   b. Describe how the PI’s staff should be contacted.

► ( ) Please contact a member of the PI's staff immediately. (Copy the lines below for each individual who may be contacted)
Name►
Contact Information►

► ( ) There is no need to contact the PI's staff immediately. Describe the routine notification procedures that will be followed. If the routine notification procedures are described in a local SOP, enter "according to local SOP" and enter the information requested about the SOP into the table in Item Y.
►

V. **Special Procedures.** List each special procedure (including special husbandry and other special procedures) that is a part of this protocol, and specify where the details of the procedure are documented. See ACORP Instructions, for examples.

Name of Procedure	Identify Where the Details of the Procedure are Documented		
	SOP (title or ID number)*	Other Items in this ACORP -- specify the Item letter(s)	Appendix 6
		Items:	( )**
		Items:	( )**
		Items:	( )**
		Items:	( )**

*If any special procedure is detailed in a SOP, identify the SOP and enter the information requested about the SOP in the table in Item Y.

**If any special procedure is detailed in Appendix 6, check "Appendix 6" in Item Y, below, and complete and attach Appendix 6.

(Use Appendix 9 to document any "departures" from the standards in the *Guide* represented by these procedures. Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.)

W. **Consideration of Alternatives and Prevention of Unnecessary Duplication.** These are important to minimizing the harm/benefit to be derived from the work.

1. Document the database searches conducted.
List each of the potentially painful or distressing procedures included in this protocol.
►

Then complete the table below to document how the database search(es) you conduct to answer Items W.2 through W.5 below address(es) each of the potentially painful or distressing procedures.

Name of the database	Date of search	Period of years covered by the search	Potentially painful or distressing procedures addressed	Key words and/or search strategy used	Indicate which mandate each search addressed			
					Replacement of animals (item W.2)	Reduction in numbers of animals used (item W.3)	Refinement to minimize pain or distress (item W.4)	Lack of unnecessary duplication (item W.5)
					( )	( )	( )	( )
					( )	( )	( )	( )
					( )	( )	( )	( )
					( )	( )	( )	( )

2. Replacement. Describe the replacements that have been incorporated into this work, the replacements that have been considered but cannot be used, and the reason(s) that further replacements are not acceptable.
►

3. Reduction. Describe how the number of animals to be used has been minimized in this protocol and explain why further reduction would disproportionately compromise the value of the data.
►

4. Refinement. Describe the refinements that have been incorporated into this work and explain why no further refinements are feasible.
►

5. Describe how it was determined that the proposed work does not unnecessarily duplicate work already documented in the literature.
►

X. **Other Regulatory Considerations**.

1. **Controlled drugs**.

a. Complete the table below for each drug that is used in animals on this protocol and that is classified as a controlled substance by the DEA. See ACORP Instructions, for explanations about the information requested.

Controlled substances	Storage		Personnel Authorized to Access	Location for Use		Procurement	
	Double-locked	Not Double-locked*		VA Property	Not on VA Property	VA Phar-macy	Non-VA
	( )	( )*		( )	( )	( )	( )
	( )	( )*		( )	( )	( )	( )
	( )	( )*		( )	( )	( )	( )

*For any controlled substance that will NOT be stored under double lock, with limited access, describe how it will be stored, and explain why this is necessary.
►

b. Check each statement below that applies, to confirm that all controlled substances used on this protocol will be procured according to VA pharmacy policies:

► ( ) Some controlled substances will be used on VA property, and all of these will be obtained through the local VA pharmacy.

► ( ) Some controlled substances will not be obtained through the local VA pharmacy, but none of these will be used on VA property. See the ACORP Instructions, for further information.

► ( ) Other. Explain►

2. **Human patient care equipment or procedural areas**. Does this protocol involve use of any human patient care equipment or procedural areas?

► ( ) Yes, some human patient care equipment or procedural area(s) will be used for the animal studies on this protocol. Check "Appendix 7" in Item Y, below, and complete and attach Appendix 7, "Use of Patient Procedural Areas for Animal Studies".

► ( ) No human patient care equipment or procedural areas will be used for the animal studies on this protocol.

3. **Explosive agents**. Does this protocol involve use of any explosive agent?

► ( ) Yes, some explosive agent(s) will be used on this protocol. Check "Appendix 3" and "Appendix 8" in Item Y, below, and complete and attach Appendix 8, "Use of Explosive Agent(s) within the Animal Facility or in Animals", as well as Appendix 3, "Biosafety".

► ( ) No explosive agent(s) will be used as part of this protocol.

Y. **Summary of Attachments.** To assist the reviewers, summarize here which of the following apply to this ACORP.

Appendices. Indicate which of the Appendices are required and have been completed and attached to this protocol. Do not check off or include (i.e., delete) any appendices that are not applicable to this ACORP.

► ( ) Appendix 1, "Additional Local Information"
► ( ) Appendix 2, "Antibody Production"
► ( ) Appendix 3, "Biosafety"
► ( ) Appendix 4, "Ante-mortem Specimen Collection"
► ( ) Appendix 5, "Surgery"
► ( ) Appendix 6, "Special Husbandry and Procedures"
► ( ) Appendix 7, "Use of Patient Care Equipment or Areas for Animal Studies"
► ( ) Appendix 8, "Use of Explosive Agent(s) within the VMU or in Animals"
► ( ) Appendix 9, "Departures from "Must" and "Should" Standards in the *Guide*"

Standard Operating Procedures (SOPs). List in the table below, each of the SOPs referred to in this protocol, providing the information requested for each one. The approved SOPs must be included when the approved ACORP and Appendices are submitted for Just-in-Time processing before release of VA funding support.

***NOTE* If referencing SOPs specific to your lab you MUST ensure that the IACUC office is supplied with the most current version for IACUC review at the time of submission or amendment.**

Item	SOP		IACUC
	Title	ID	Approval Date*

C.2.c			
M.1			
M.2			
U.4.a			
U.4.b			
V			

***Current SOPs and corresponding IACUC Approval Dates are kept on file in the IACUC Office and may supersede those listed here.**

Z. **Certifications.** Signatures are required here for any ACORP that is to be submitted to VA Central Office in support of an application for VA funding. Include the typed names and dated signatures as shown below for the Main Body of the ACORP and for each of the Appendices that apply to this protocol. Do NOT include signatures for, or attach, any appendices that do NOT apply.

1. **Main Body of the ACORP.**

   a. **Certification by Principal Investigator(s):**

   I certify that, to the best of my knowledge, the information provided in this ACORP is complete and accurate, and the work will be performed as described here and approved by the IACUC. I understand that IACUC approval must be renewed at least annually, and that the IACUC must perform a complete *de novo* review of the protocol at least every three years, if work is to continue without interruption. I understand further that I am responsible for providing the information required by the IACUC for these annual and triennial reviews, allowing sufficient time for the IACUC to perform the reviews before the renewal dates, and that I may be required to complete a newer version of the ACORP that requests additional information, at the time of each triennial review.

   I understand that further IACUC approval must be secured before any of the following may be implemented:

   - Use of additional animal species, numbers of animals, or numbers of procedures performed on individual animals;
   - Changing any procedure in any way that has the potential to increase the pain/distress category to which the animals should be assigned, or that might otherwise be considered a significant change from the approved protocol;
   - Performing any additional procedures not already described in this ACORP;
   - Use of any of these animals on other protocols, or by other investigators.

   I further certify that:

   - No personnel will perform any animal procedures on this protocol until the IACUC has confirmed that they are adequately trained and qualified, enrolled in an acceptable Occupational Health and Safety Program, and meet all other criteria required by the IACUC. When new or additional personnel are to work with the animals on this protocol, I will provide this information to the IACUC for confirmation before they begin work;
   - I will provide my after-hours contact information to the animal care staff for use in case of emergency.

Name(s) of Principal Investigator(s)	Signature	Date

b. **Certification by IACUC Officials.**

We certify that:

- We, with the IACUC, have evaluated the care and use of animals described on this ACORP, in accordance with the provisions of the USDA Animal Welfare Act Regulations and Standards, PHS Policy, the *Guide for the Care and Use of Laboratory Animals*, and VA Policy;
- The IACUC has determined that the care and use of animals described in this ACORP is appropriate, and has therefore approved the protocol;
- The full text of any minority opinions is documented here as indicated below:

► ( ) No minority opinions were submitted by any IACUC participant for inclusion.

► ( ) Minority opinions submitted by IACUC participants are copied here ►

► ( ) Minority opinions submitted by IACUC participants are attached on separate pages labeled "IACUC Minority Opinion" (indicate the number of pages►)

Name of Attending Veterinarian (VMO or VMC)	Signature	Date
Matthew Rassette D.V.M.		
Name of IACUC Chair	Signature	Date
Janeen Trembley Ph.D.		

2. **Appendix 2. Antibody Production.** No signatures required.

3. **Appendix 3. Biosafety.**

a. **Certification by PI(s) and IACUC Officials:**

We certify that:

- Before any animal experiments involving hazardous agents (identified in Item 10.a of Appendix 3) are performed, SOPs designed to protect all research and animal facility staff as well as non-study animals will be developed and approved by the appropriate VA or (b)(6) and by the IACUC;

- All personnel who might be exposed to the hazardous agents (identified in Item 10.a of Appendix 3) will be informed of possible risks and will be properly trained ahead of time to follow the SOPs to minimize the risks of exposure.

Name(s) of Principal Investigator(s)	Signature(s)	Date

Name of Institutional Veterinarian	Signature	Date
Matthew Rassette D.V.M.		
Name of IACUC Chair	Signature	Date
Janeen Trembley Ph.D.		

b. **Certification by Biosafety Official.** I certify that:

- Each agent to be administered to animals on this protocol has been properly identified in Item 1 of Appendix 3 as to whether it is “toxic”, “infectious”, “biological”, or “contains recombinant nucleic acid”;
- The use of each of the agents thus identified as “toxic”, “infectious”, or “biological”, or “contains recombinant nucleic acid” is further documented as required in Items 4, 5, 6, and/or 8, as applicable, and in Item 10.a of Appendix 3;
- The use of each of these agents has been approved by the appropriate committee(s) or official(s), as shown in Item 10.a of Appendix 3.

Name of the Biosafety Officer, or of the Chair of the Research Safety or Biosafety Committee	Signature	Date
(b)(6)		

c. **Certification by Radiation Safety Official.** I certify that:

- Each agent to be administered to animals on this protocol has been properly identified in Item 1 of Appendix 3 as to whether it is “radioactive”;
- The use of each radioactive agent is further documented as required in Items 7 and 10.a of Appendix 3;
- The use of each radioactive agent has been approved by the appropriate committee(s), as shown in Item 10.a of Appendix 3.

Name of the Radiation Safety Officer, or of the Chair of the Radiation Safety or Isotope Committee	Signature	Date
(b)(6)		

4. **Appendix 4. Ante-mortem Specimen Collection.** No signatures required.

5. **Appendix 5. Surgery. Certification by the PI(s).** I certify that:

   - To the best of my knowledge, the information provided in Appendix 5 of this ACORP is complete and accurate;
   - The surgical procedures will be performed and the post-operative care (including administration of post-operative analgesics) will be provided as described;
   - The spaces where any survival surgical procedures will be performed (listed in Item 4 of Appendix 5) are suitable for sterile/aseptic surgery;
   - The names and contact information for research personnel to notify or consult in case of emergencies will be provided to the VMU supervisor and veterinary staff;
   - Post-operative medical records will be maintained and readily available for the veterinary staff and the IACUC to refer to, and will include the following:

     - Identification of each animal such that care for individual animals can be documented.
     - Daily postoperative medical records for each animal, that include documentation of daily evaluation of overall health and descriptions of any complications noted, treatments provided, and removal of devices such as sutures, staples, or wound clips;
     - Documentation of the administration of all medications and treatments given to the animals, including those given to reduce pain or stress.
     - Daily records covering at least the period defined as “post-operative” by local policy.
     - The signature or initials of the person making each entry.

Name(s) of Principal Investigator(s)	Signature(s)	Date

6. **Appendix 6. Special Husbandry and Procedures.** No signatures required.

7. **Appendix 7.** (b)(6)

   a. **Certification by the Principal Investigator(s).** I certify that, to the best of my knowledge, the information provided in Appendix 7 of this ACORP is complete and accurate, and the use of patient care equipment or areas for these animal studies will be as described.

Name(s) of Principal Investigator(s)	Signature(s)	Date

b. **Certification by the officials responsible for the use of any human patient care equipment in animal procedural areas.** Each of the following must sign to indicate that they have granted approval for the (b)(6) (b)(6) to be moved to the (b)(6) or other animal procedural area to be used on animals and then returned to the (b)(6), as described in Appendix 7. Leave this section blank, if not applicable.

Name of IACUC Chair	Signature	Date
Janeen Trembley Ph.D.		
Name of the Manager of the (b)(6) (b)(6)	Signature	Date

c. **Certification by the officials responsible for the use of the equipment in (b)(6) for these animal studies.** Each of the following must sign to indicate that they have granted approval for animals to be transported into (b)(6) for study or treatment, as described in Appendix 7. Leave this section blank, if not applicable.

Name of IACUC Chair	Signature	Date
Janeen Trembley Ph.D.		
Name of Attending Veterinarian (VMO or VMC)	Signature	Date
Matthew Rassette D.V.M.		
Name of the Chair of the Clinical Executive Board, or the Service Chief responsible for the (b)(6) and Equipment	Signature	Date
Name of ACOS for R&D	Signature	Date

(b)(6)		
Name of Chief of Staff	Signature	Date
(b)(6)		
Name of Director or CEO of the Facility (Hospital or Clinic)	Signature	Date
Patrick J. Kelly, FACHE		

8. **Appendix 8. Use of Explosive Agent(s) within the Animal Facility or in Animals.**

   a. **Certification by the Principal Investigator(s).**

   I certify that, to the best of my knowledge, the information provided in Appendix 8 of this Animal Component of Research Protocol (ACORP) is complete and accurate, and the use of explosive agents in these animal studies will be as described.

   I further certify that:

   - Procedures involving explosive agent(s) will be performed within a properly operating, ventilated safety hood;
   - All electrical equipment operating when explosive agent(s) are in use will be positioned and powered outside of the hood;
   - Once the seal is broken on any containers of explosive agents, they will be kept in a safety hood throughout use, stored in an explosion-proof refrigerator or other approved storage area, and discarded properly once completely emptied;
   - Proper procedures will be used for safe and appropriate disposal of items (including animal carcasses) that may contain residual traces of the explosive agent(s).

Name(s) of Principal Investigator(s)	Signature(s)	Date

   b. **Certification by the officials responsible for overseeing the use of explosive agent(s) in this protocol.** Each of the following must sign to verify that they or the committee they represent have granted approval.

Name of IACUC Chair	Signature	Date
Janeen Trembley Ph.D.		
Name of Attending Veterinarian (VMO or VMC)	Signature	Date

Matthew Rassette D.V.M.		
Name of Safety/Biosafety Officer for the Facility	Signature	Date
(b)(6)		
Name of ACOS for R&D	Signature	Date
(b)(6)		
Name of VISN Regional Safety Officer	Signature	Date

9. **Departures from "Must" and "Should" Standards in the *Guide*.** No signatures required.

ACORP Appendix 1 (not used, please delete unused Appendices)

ADDITIONAL LOCAL INFORMATION
VERSION 4 MPLS VAHCS NOV 2013

(This appendix may be used to collect additional information required by the local IACUC. See ACORP App. 1 Instructions, for more detailed explanations of the information requested.)

ACORP APPENDIX 2
ANTIBODY PRODUCTION
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 2 Instructions, for more detailed explanations of the information requested.

1. **Immunization.** Provide the information requested below for any animals to be used for raising antibodies specifically for use in this protocol.

   a. Describe the immunization protocol in the table below, using a separate row for each day on which any agent (including primer, antigen, and/or adjuvant) will be administered. (Make sure that each primer, antigen, and adjuvant is also included in Appendix 3.)

Immunization day (e.g. day -7, 0, 7, 30, etc.)	Antigen		Adjuvant – give name, concentration, and volume (ml)	Total injection volume (ml) per animal (antigen plus adjuvant)	Divided among how many injection sites?	Injection route and location of injection site(s) on body
	Name	Total amount (mg) and volume (ml)				

   b. Describe how each antigen will be screened to make sure that it does not harbor infectious agents that could infect other laboratory animals or people after injection.
   ►

   c. List possible adverse effects that might be observed in animals receiving the proposed primer, antigen, and/or adjuvant injections, and describe the measures that will be taken if these adverse effects occur:
   ►

   d. Give the justification for using any primer or adjuvant that is expected to cause pain or distress in the animals.
   ►

2. **Survival Blood Collection.** Will blood be collected as a survival procedure for the production and harvesting of antibodies on this protocol?

   ► ( ) No, the production and harvest of antibodies on this protocol does not involve survival collection of blood.

   ► ( ) Yes, this protocol requires the collection of blood in a survival procedure, before (as a “pre-bleed”) and/or after immunization. Make sure this is included in Item R of the ACORP, and complete items 2.a, 2.b, and 2.c, below.

   a. Describe each survival collection of blood in the table below, including any “pre-bleeds” prior to immunizations:

Site of Blood Collection	Amount of Blood Collected at any one time, expressed as volume (ml) and as % of body weight (assume 1 ml = 1 gram)	Number of Blood Collections	Time Interval(s) Between Successive Collections	Volume Replace-ment? (yes/no)

b. Will anesthetics, tranquilizers, or analgesics be administered for blood collection?

► ( ) No anesthetics, tranquilizers, or analgesics will be administered for blood collection. Explain why it is appropriate or necessary NOT to administer pain-relieving agents:
►

► ( ) Yes. Describe the administration of pain-relieving agents, including the name of each agent, and its dose (mg/kg), volume (ml), and route and frequency/duration of administration (Make sure this information is also included in Appendix 3):
►

c. Will volume replacement be provided for blood that is collected?

► ( ) Volume will NOT be replaced for some of the blood collection listed. For each collection listed in Item 2.a, above, for which volume will NOT be replaced, explain why not.
►

► ( ) Volume WILL be replaced for some of the blood collection listed. For each collection listed in Item 2.a, above, for which volume WILL be replaced, describe the replacement(s) that will be provided (including the composition of the replacement(s), volume, and route of administration).
►

3. **Terminal Blood Collection.** Will animals be euthanatized by exsanguination, for harvest of antibodies?

► ( ) No, this protocol does NOT involve terminal blood collection for harvest of antibodies.
► ( ) Yes, this protocol DOES require terminal blood collection for the harvest of antibodies. Make sure this is included in Item R of the ACORP, and complete Items 3.a., 3. b., and 3.c., below:

a. Describe the method(s) to be used for euthanasia and exsanguination:
►

b. Will anesthetics, tranquilizers, or analgesics be administered for exsanguination?

► ( ) No anesthetics, tranquilizers, or analgesics will be administered for the exsanguination(s). Explain why it is appropriate or necessary NOT to administer pain-relieving agents:
►

► ( ) Yes. Describe the administration of pain-relieving agents including the name of each agent, and its dose (mg/kg), volume (ml), and route and frequency/duration of administration (Make sure this information is also included in Appendix 3):
►

c. Describe how you will make sure that the animals are dead after collection of the blood:
►

4. **Harvesting Feeder Cells.** Describe the exact procedures (including administration of pain-relieving agents) that will be used on any donor animals from which feeder cells will be collected for this protocol, and estimate the number of animals needed for this purpose. Make sure that these animals are included in Item I of the ACORP, and that the harvesting of feeder cells is included in Item R of the ACORP.
►

5. **Expansion of Hybridoma Cell Line(s) *in vivo***. Will any animals be used to expand hybridoma cell lines so that antibody can be harvested from ascites fluid?

► ( ) No animals will be used on this protocol for *in vivo* expansion of hybridoma cell lines.
► ( ) Yes, this protocol requires use of some animals for *in vivo* expansion of hybridoma cell lines. Make sure that the animals used for this are included in Item I of the ACORP, the priming agent and the hybridoma cells are documented in Appendix 3, and the collection of ascites fluid is included in Item R of the ACORP. Complete items 5.a, 5.b, and 5.c, below.

a. Explain why alternate research methods that do not require the use of additional animals (e.g., *in vitro* cell culture systems for harvesting monoclonal antibodies) are not adequate to meet the research objectives of this project.
►

b. Complete the following table to summarize the procedures to be performed in expanding the hybridoma cell lines and collecting ascites fluid:

Hybridoma cell line designation	Number of animals to be used for ascites production	Priming agent and volume	Number and timing of priming injections	Volume of injected hybridoma cells	Number of abdominal taps before euthanasia

c. Describe the exact procedures (including administration of pain-relieving agents) that will be used for the abdominal taps to be performed on this protocol
►

d. List the criteria for euthanasia of animals prior to the last planned abdominal tap.
►

(Use Appendix 9 to document any “departures” from the standards in the *Guide* represented by these procedures. Consult the IACUC or the Attending Veterinarian for help in determining whether any “departures” are involved.)

ACORP APPENDIX 3
BIOSAFETY
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 3 Instructions, for more detailed explanations of the information requested.

1. **Summary of All Materials Administered to Animals on this Protocol.** Complete the table below for all materials to be administered to any animal on this protocol, indicating the nature of the material by marking EVERY box that applies, and indicating the BSL number for any infectious agents:

Material (Identify the specific agent, device, strain, construct, isotope, etc.)	**Source** (Identify the vendor or colleague, or specify which animals on this protocol will serve as donors)	**Nature of Material**						
		Toxic Agent (Item 4)	Infectious Agent (Item 5) -- Enter the CDC Biosafety Level (BSL 1, 2, 3, or 4)	Biological Agent (Item 6)	Radioactive Agent (Item 7)	Contains Recombinant Nucleic Acid (Item 8)	Routine Pre- or Post-Procedural Drug	Euthanasia agent
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )
		( )	( )BSL_	( )	( )	( )	( )	( )

2. **Summary of How Materials will be Administered.** Complete the table below for each of the materials shown in the table in Item 1 above:

Material* (Identify the specific agent, device, strain, construct, isotope, etc.)	**Dose** (e.g., mg/kg, CFU, PFU, number of cells, mCi) and **Volume** (ml)	**Diluent* or Vehicle***	**Route** of admin	**Frequency or duration** of admin	**Reason** for Administration and **Expected Effects**	Location of **Further Details** in this ACORP (specify "Main Body" or "App #", and identify the Item)	Administration Under **Anesthesia, sedation, or tranquilization** (Y/N)

*Each material, diluent, or vehicle that is listed as FDA approved or is labeled "USP" is pharmaceutical grade. Check on-line for formulations that are FDA approved for administration to humans (http://www.fda.gov/Drugs/InformationOnDrugs/ucm129662.htm) or animals (http://www.fda.gov/AnimalVeterinary/Products/ApprovedAnimalDrugProducts/UCM042847). Designate with a * each material and each diluent or vehicle to be used that is not pharmaceutical grade. For each of these, explain here why the use of a non-pharmaceutical grade formulation is necessary, and describe how it will be ensured that the material is suitable for use. (See ACORP App. 3 Instructions, for specifics about the level of detail required.)
►

3. **Anesthesia, Sedation, or Tranquilization.** Complete 3.a. and 3.b. below:

   a. For each material with "Y" entered in the last column of the table in Item 2 above, describe the anesthesia, sedation, or tranquilization to be used, identifying the anesthetic, sedative, or chemical tranquilizer, and detailing the dose, volume, and route of administration (Make sure that these agents are also included in Item 1 of this appendix, as materials to be administered):
   ►

   b. For each material with "N" entered in the last column of the table in Item 2 above, explain why no anesthesia, sedation, or tranquilization is necessary, or can be provided, and describe any alternate methods of restraint that will be used.

►

4. **Toxic Agents.** Complete the table below for each of the materials listed as a "toxic agent" in the table in Item 1 above, checking all of the properties that apply (see ACORP App. 3 Instructions, for details).

Name of Toxic Agent	a. Mutagen	b. Carcinogen	c. Teratogen	d. Select Agent?			e. Other – specify toxic properties
				Not a Select Agent	Select Agent Used in Sub-threshold Quantities	Select Agent that Requires Registration/Approval	
	( )	( )	( )	( )	( )	( )*	( )►
	( )	( )	( )	( )	( )	( )*	( )►
	( )	( )	( )	( )	( )	( )*	( )►

*For each "select agent" that requires registration/approval (copy the lines below for each agent):

Name of agent ►

Registered with CDC or USDA ►
Registration Number ►
Registration Date ►
Expiration Date of Registration ►

Name of official who granted approval on behalf of VACO►
Date of approval►

5. **Infectious Agents.** Complete the table below for each of the materials listed as an "infectious agent" in the table in Item 1 above (see ACORP App. 3 Instructions, for details).

Name and BSL Number of Infectious Agent	a. ABSL Number*	b. Drug Sensitivity Panel Available? (Describe)	c. Select Agent?		
			Not a Select Agent	Select Agent used in Sub-threshold quantities	Select Agent that Requires Registration/Approval
		(Yes/No)	( )	( )	( )**

		(Yes/No)	( )	( )	( )**
		(Yes/No)	( )	( )	( )**
		(Yes/No)	( )	( )	( )**

*Complete the following for each agent for which the ABSL Number given is less than the BSL Number shown (copy the lines below for each agent):

Name of agent ►
Justification for applying ABSL measures that are less protective than those recommended ►

**For each "select agent" that requires registration/approval (copy the lines below for each agent):

Name of agent ►

Registered with CDC or USDA ►
Registration Number ►
Registration Date ►
Expiration Date of Registration ►

Name of official who granted approval on behalf of VACO►
Date of approval►

6. **Biological Agents.** Complete the table below for each of the materials listed as a "biological agent" in the table in Item 1 above (see ACORP App. 3 Instructions, for details).

Name of Biological Agent	Screening for Infectious Agents

7. **Radioactive Agents.** Complete the table below for each of the agents listed as a "radioactive agent" in the table in Item 1 above (see ACORP App. 3 Instructions, for details).

Name of Radioactive Agent (specify the isotope)	Authorized Individual	Approving Committee or Official

8. **Agents Containing Recombinant Nucleic Acid.** For each of the materials checked in the table in Item 1, above, as "contains recombinant nucleic acid", indicate which of the conditions applies (see ACORP App. 3 Instructions, for details).

Name of Agent that Contains Recombinant Nucleic Acid	Subject to the *NIH Guidelines for Research Involving Recombinant DNA Molecules*	Exempt
	( )	( )
	( )	( )
	( )	( )
	( )	( )
	( )	( )
	( )	( )

9. **Potential for Pain or Distress**. Complete the table below for each of the agents listed in Item 1, above, that is expected to have potentially painful or distressing effects on the animals (see ACORP App. 3 Instructions, for details).

Name of Agent	Nature of Potential Pain/Distress	Measures to Alleviate Pain/Distress

10. **Protection of Animal Facility Staff from Hazardous Materials.** Complete Items 10.a and 10.b, below, for each of the agents listed in the table in Item 1, above, as "toxic", "infectious", "biological", "radioactive", or "contains recombinant nucleic acid" (detailed in Items 4 – 8). This item specifically addresses members of the animal facility staff; protection of the research staff from each of these agents must be addressed in Item G of the main body of the ACORP. See ACORP App.3 Instructions, for details.

    a. Complete the table below.

Name of Hazardous Agent	Approving Committee or Official	Institution (VA or affiliate)	Names of Animal Facility Staff Members at Risk*

***The current roster of Animal Facility Staff Members is kept on file in the IACUC Office and the master list of staff members may supersede those listed here.**

    b. Detail how the individuals listed in the table above (Item 10.a.) have been (or will be) informed of the possible risks of exposure, and have been (or will be) trained to avoid exposure to these agents.
    ►

11. **Signatures.** Provide the applicable signatures on the signature pages (Item Z.3) of the main body of this ACORP.

ACORP Appendix 4
ANTEMORTEM SPECIMEN COLLECTION
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 4 Instructions, for more detailed explanations of the information requested.

1. **Summary.** Complete the table below for each specimen to be collected from a live animal on this protocol (see ACORP App. 4 Instructions, for details).

Specimen Collected	Site and Method of Collection	Anesthesia (Yes/No)	Amount Collected Each Time	Volume Replacement (Yes/No/NA)	Total Number of Collections per Animal	Time Intervals Between Successive Collections

2. **Use of Anesthetics, Tranquilizers, or Analgesics**.

   a. For each specimen described in Item 1, above, as being collected WITHOUT anesthesia, tranquilizers, or analgesics, complete Items 2.a(1) and 2.a(2), below:

      (1) Explain why no measures will be taken to prevent pain (e.g., because of scientific requirements described here, or because the collection method involves no more than minor or momentary pain).
      ►

      (2) Completely describe any method of physical restraint that may be used.
      ►

   b. For each specimen described in Item 1, above, as being collected WITH anesthesia, tranquilizers, or analgesics, complete the following table:

Anesthetic, tranquilizer, or analgesic agent	Dose (mg/kg) and volume (ml)	Route of administration	Frequency of administration

3. **Volume Replacement for Fluid Collections.**

   a. For each fluid specimen described in Item 1, above, for which NO volume replacement will be provided, explain why not.
   ►

   b. For each fluid specimen described in Item 1, above, for which volume replacement WILL be provided, describe the replacement fluids that will be administered (including their composition, volume, and route of administration).

►

4. **Monitoring the animals.** Detail how the animals will be monitored after collection of specimens to ensure that they recover appropriately (see ACORP App. 4 Instructions, for details).
►

ACORP Appendix 5
SURGERY
VERSION 4 MPLS VAHCS MAY 2017

See ACORP App. 5 Instructions, for more detailed explanations of the information requested.

1. **Surgery Classification.** Complete the table below for each surgery included in this protocol, and indicate how it is classified (terminal, minor survival, major survival, one of multiple survival). See ACORP App. 5 Instructions, for details.

Surgery		Terminal	Survival		
#	Description (specify the species, if ACORP covers more than one)		Minor	Major	One of Multiple*
1		( )	( )	( )	( )*
2		( )	( )	( )	( )*
3		( )	( )	( )	( )*
4		( )	( )	( )	( )*

*If survival surgery (including major surgeries and any minor surgeries that may induce substantial post-procedural pain or impairment) will be performed as part of this protocol in addition to any other such surgery (on this or another protocol) on the same individual animal, complete items 1.a and 1.b, below:

a. Provide a complete scientific justification for performing the multiple survival surgeries on an individual animal:
►

b. Give the interval(s) between successive surgeries, and the rationale for choosing the interval(s):
►

2. **Description of Surgeries.** Describe each surgery listed in Item 1, providing enough detail to make it clear what the effects on the animal will be. (Pre-operative preparation, anesthesia, and post-operative recovery will be covered in items 5, 6, and 7, below.)

Surgery 1 ►

Surgery 2 ►

Surgery 3 ►

Surgery 4 ►

3. **Personnel.** Complete the table below for each individual who will be involved in any of the surgeries on this protocol.

Name	Surgery #(s) (see Item 1)	Role in Surgery			
		Surgeon	Assistant	Manage Anesthesia	Other (describe)
		( )	( )	( )	( )

		( )	( )	( )	( )
		( )	( )	( )	( )
		( )	( )	( )	( )
		( )	( )	( )	( )

4. **Location of surgery.** Complete the table below for each location where surgery on this protocol will be performed.

Building	Room Number	Surgery #(s) (see Item 1)	Type of Space		
			Dedicated Surgical Facility	Other Dedicated Surgical Space	Other Space not Dedicated to Surgery
			( )	( )*	( )*
			( )	(*)	( )*
			( )	( )*	( )*
			( )	( )*	( )*

*For each space that is not in a dedicated surgical facility, provide the justification for using this space for surgery on this protocol
►

5. **Pre-operative protocol.**

a. **Pre-operative procedures.** Complete the table below for each pre-operative procedure that will be performed to prepare the animal(s) for surgery.

Surgery #(s) (see Item 1)	Fast (Specify Duration)	Withhold Water (Specify Duration)	Place Intravenous Catheter(s) (Specify Site(s))	Other – Describe
1	( ) --	( ) --	( ) --	( ) --
2	( ) --	( ) --	( ) --	( ) --
3	( ) --	( ) --	( ) --	( ) --
4	( ) --	( ) --	( ) --	( ) --

b. **Pre-operative medications.** Complete the table below. Include agent(s) for induction of anesthesia, as well as any other pre-treatments that will be administered prior to preparation of the surgical site on the animal.

Agent	Surgery #(s) (see Item 1)	Dose (mg/kg) & volume (ml)	Route of administration	Frequency of administration (e.g., times/day)	Pre-operative period of treatment (e.g., immediate, or # of days)

c. **Pre-operative preparation of the surgical site.** For each surgery, identify each surgical site on the animals, and describe how it will be prepared prior to surgery.

Surgery 1 ►

Surgery 2 ►

Surgery 3 ►

Surgery 4 ►

6. **Intra-operative management.**

a. **Intra-operative medications.** Complete the table below for each agent that will be administered to the animal during surgery.

Agent	Paralytic*	Surgery #(s) (see Item 1)	Dose (mg/kg) & volume (ml)	Route of administration	Frequency of dosing
	( )*				
	( )*				
	( )*				

* For each agent shown above as a paralytic, explain why its use is necessary, and describe how the animals will be monitored to ensure that the depth of anesthesia is sufficient to prevent pain.
►

b. **Intra-operative physical support.** For each surgery, describe any physical support that will be provided for the animals during surgery (e.g., warming, cushioning, etc.).
►

c. **Intra-operative monitoring.** Describe the methods that will be used to monitor and respond to changes in the state of anesthesia and the general well-being of the animal during surgery.
►

7. **Survival surgery considerations.** For each survival surgical procedure indicated in Item 1 and described in Item 2, complete Items 7.a. – 7.g.

a. Complete the table below for each survival surgery listed in Item 1, above.

Surgery # (see Item 1)	Survival Period	Measures for Maintaining Sterility							
		Sterile Instruments	Surgical Cap	Sterile Gloves	Surgical Scrub	Sterile Drapes	Sterile Gown	Face Mask	Other*
		( )	( )	( )	( )	( )	( )	( )	( )*

		( )	( )	( )	( )	( )	( )	( )	( )*
		( )	( )	( )	( )	( )	( )	( )	( )*
		( )	( )	( )	( )	( )	( )	( )	( )*

* Describe any "other" measures to be taken to maintain sterility during surgery.
►

b. For each surgery, describe the immediate post-operative support to be provided to the animals.

Surgery 1 ►

Surgery 2 ►

Surgery 3 ►

Surgery 4 ►

c. Post-operative analgesia. Complete the table below for each survival surgery listed in item 1, above.

Surgery # (see Item 1)	Agent*	Dose (mg/kg) & Volume (ml)	Route of Administration	Frequency of Dosing (e.g., times/day)	Period of treatment (e.g. days)
1					
2					
3					
4					

*For each surgery for which NO post-operative analgesic will be provided, enter "none" in the "Agent" column, and explain here why this is justified:
►

d. Other post-operative medications. Complete the following table to describe all other medications that will be administered as part of post-operative care.

Surgery # (see Item 1)	Medication	Dose (mg/kg) & Volume (ml)	Route of Administration	Frequency of dosing (e.g. times/day)	Period of treatment (e.g. days)

e. Post-operative monitoring. <u>After-hours contact information for the personnel listed must be provided to the veterinary staff for use in case of an emergency</u>.

(1) Immediate post-operative monitoring

Surgery # (see Item 1)	Frequency of Monitoring	Duration at this Frequency	Name(s) of Responsible Individual(s)

(2) Post-operative monitoring after the immediate post-operative period

Surgery # (see Item 1)	Frequency of Monitoring	Duration at this Frequency	Name(s) of Responsible Individual(s)

f. Post-operative consequences and complications.

(1) For each surgery, describe any common or expected post-operative consequences or complications that may arise and what will be done to address them.

Surgery 1 ►

Surgery 2 ►

Surgery 3 ►

Surgery 4 ►

(2) List the criteria for euthanasia related specifically to post-operative complications:

Surgery 1 ►

Surgery 2 ►

Surgery 3 ►

Surgery 4 ►

(3) In case an emergency medical situation arises and none of the research personnel on the ACORP can be reached, identify any drugs or classes of drugs that should be avoided because of the scientific requirements of the project. (If the condition of the animal requires one of these drugs, the animal will be euthanatized instead.)
►

g. Maintenance of post-surgical medical records. Complete the table below for each surgery, specifying where the records will be held, and identifying at least one individual who will be assigned to maintain accurate, daily, written post-surgical medical records. Indicate whether the named individuals are research personnel involved in this project, or members of the veterinary staff.

Surgery # (see Item 1)	Location of Records	Name(s) of Individual(s) Responsible for Maintaining Written Records	Research Personnel	Veterinary Staff
1			( )	( )
2			( )	( )
3			( )	( )
4			( )	( )

8. **Certification.** The PI must sign the certification statement in Item Z.5 of the main body of the ACORP.

ACORP APPENDIX 6
SPECIAL HUSBANDRY AND PROCEDURES
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 6 Instructions, for more detailed explanations of the information requested.

1. **Description of Procedures.** Complete the table below for each procedure listed in Item V of the main body of the ACORP that is not detailed in a SOP or in another item or Appendix of the ACORP. For each special procedure, check all features that apply.

Special Procedure		Features							
Number	Brief Description	Husbandry	Restraint	Noxious Stimuli	Exercise	Behavioral Conditioning	Irradiation	Imaging	Other**
1		( )	( )	( )	( )	( )	( )	( )	( )
2		( )	( )	( )	( )	( )	( )	( )	( )
3		( )	( )	( )	( )	( )	( )	( )	( )
4		( )	( )	( )	( )	( )	( )	( )	( )

*Husbandry refers to all aspects of care related to the maintenance of the animals, including (but not limited to) provision of an appropriate diet, access to water, control of environmental conditions, and the selection of primary and secondary enclosures.

**Describe any "Other" features that are involved.
►

Provide a complete description of each special procedure listed above, including the duration of the procedure, how frequently it will be repeated in any one animal, and any effects it is expected to have on the animal:

Special Procedure 1 ►

Special Procedure 2 ►

Special Procedure 3 ►

Special Procedure 4 ►

a. Explain why each of these special procedures is necessary:

Special Procedure 1 ►

Special Procedure 2 ►

Special Procedure 3 ►

Special Procedure 4 ►

2. **Personnel.** Complete the table below for each special procedure listed in Item 1, above. Identify the individual(s) who will be responsible for carrying out the procedures, and those who will be responsible for monitoring the condition

of the animals during and after the procedures. After-hours contact information for the personnel listed must be provided to the veterinary staff for use in case of an emergency.

Procedure Number (see Item 1)	Responsible Individual(s)	
	Carrying Out Procedure	Monitoring the Animals
1		
2		
3		
4		

3. **Potential Pain or Distress.** Complete the table below for each special procedure identified in Item 1, above, indicating for each procedure, whether potential pain and/or distress is expected, and, if so, describing the potential pain and/or distress and indicating whether any measures are to be taken to prevent or alleviate it.

Procedure Number (see Item 1)	Expected Potential Pain and/or Distress			
	No	Yes		
		Description	To Be Relieved	Not to Be Relieved
1	( )		( )[a]	( )[b]
2	( )		( )[a]	( )[b]
3	( )		( )[a]	( )[b]
4	( )		( )[a]	( )[b]

a. For each procedure for which potential pain and/or distress is expected, but WILL be prevented or alleviated by administration of the analgesic(s) or stress-relieving agents, complete the table below:

Procedure Number (see Item 1)	Agent	Dose (mg/kg) & vol (ml)	Route of admin	Freq of admin (times/day)	Duration of admin (days post-procedure)
1					
2					
3					
4					

Describe any non-pharmacological measures to be taken to address the potential pain and/or distress:

Special Procedure 1 ►

Special Procedure 2 ►

Special Procedure 3 ►

Special Procedure 4 ►

b. For each procedure for which potential pain and/or distress is expected and will NOT be prevented or alleviated, provide the scientific justification for this:

Special Procedure 1 ►

Special Procedure 2 ►

Special Procedure 3 ►

Special Procedure 4 ►

4. **Monitoring.** Describe how the condition of the animals will be monitored during and after each of the special procedures, and list the criteria that will be used to determine when individual animals will be removed from groups undergoing these procedures, because of pain or distress (see ACORP App. 6 Instructions, for details):

Procedure Number (see Item 1)	Monitoring Methods	Endpoint Criteria
1		
2		
3		
4		

ACORP APPENDIX 7
USE OF PATIENT CARE EQUIPMENT AND/OR AREAS
FOR ANIMAL STUDIES
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 7 Instructions, for more detailed explanations of the information requested.

1. **Full Name(s) of Principal Investigator(s)** ►

2. **Equipment to be Used.**

   a. Identify the equipment ►

   b. Procedure(s) to be performed with this equipment ►

   c. Describe how contamination of the human patient care equipment will be prevented and how the equipment will be cleaned/sanitized before its subsequent use for human patients.
   ►

3. **Human Patient Care Procedural Areas to be Used.**

   a. Location(s) ►

   b. Animal species to be studied or treated ►

   c. Number of individual animals to be studied or treated ►

   d. Date(s) ►

   e. Time(s) of day ►

   f. Procedure(s) to be performed on the animals in these areas ►

   g. Protection and cleaning of patient care room surfaces ►

   h. Benefits to VA patients**.** Briefly describe how this use of the human patient care areas for research on animal subjects potentially benefits VA patients.
   ►

   i. Necessity for use of human patient care areas. Explain why this work on animal subjects cannot be performed within the animal facility or a research laboratory area.
   ►

   j. Animal transport. Describe how the animals will be transported back and forth between the animal housing area and the human patient care areas.
   ►

   k. Preventing human patients and patient care personnel from being affected by the presence of the animals. Provide detailed descriptions of the measures to be taken to address noises and odors, allergens, and zoonotic pathogens associated with the animals.
   ►

4. **Signatures.** Provide the signatures required on the signature pages (Item Z.7) of the main body of this ACORP.

ACORP APPENDIX 8
USE OF EXPLOSIVE AGENT(S) WITHIN THE VMU OR IN ANIMALS
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 8 Instructions, for more detailed explanations of the information requested.

1. **Full name(s) of Principal Investigator(s) ►**

2. **Explosive agents to be used.**

   a. Identify the explosive agents. Complete the table below.

Agent Number	Name(s) Used to Refer to the Agent in This ACORP	Name Shown for this Agent on the MSDS on File	CAS number	Location of the MSDS on File
1				
2				
3				
4				

   b. Locations where the explosive agents will be used. Complete the table below.

Agent Number	Location Where Agent Will Be Used			
	Building	Room Number	Within the VMU	Outside of VMU
1			( )	( )
2			( )	( )
3			( )	( )
4			( )	( )

   c. Procedure(s) to be performed. Briefly describe the use of each of the explosive agents on this protocol and explain why it is necessary to use these agents (why non-explosive replacements cannot be used instead).
   ►

   d. Precautions to be taken to prevent explosions. Describe the measures to be taken to store, use, and dispose of safely each explosive agent and any materials contaminated with it, and to prevent the generation of sparks in its presence. See ACORP App. 8 Instructions, for a list of commonly used precautions.
   ►

   e. Period of use.
   Beginning no earlier than (date) ►
   Ending no later than (date) ►

   f. Animals that will be administered explosive agents:
   Species ►
   Approximate weights of individual animals ►
   Approximate number of animals ►

3. **Personnel.** Complete the table below for each individual who will handle any of the explosive agents as part of this protocol.

Name of Individual	Explosive Agent(s) to be Handled	Training and Experience Pertinent to Handling Explosive Agents

4. **Signatures.** Provide the signatures required on the signature pages (Item Z.8) of the main body of this ACORP.

ACORP Appendix 9
DEPARTURES FROM "MUST" AND "SHOULD" STANDARDS IN THE *GUIDE (2011)*
VERSION 4 MPLS VAHCS NOV 2013

See ACORP App. 9 Instructions, for more detailed explanations of the information requested.

For each IACUC-approved "departure" of this protocol from a "Must" or "Should" standard in the *Guide*, provide the following information. (Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.):

Copy the lines below for each departure.

Briefly summarize the "Must" or "Should" standard, and provide the number(s) of the page(s) on which it appears in the *Guide*
►

Describe the specific alternate standard(s) that will be met on this protocol, and how they will be monitored.
►

Provide the scientific, veterinary medical, or animal welfare considerations that justify this departure
►

Administrative Summary

Principal Investigator:

Service Line

VA Appointment:

- ◯ Full-Time
- ◯ Part-Time
- ◯ WOC
- ◯ Consultant
- ◯ Contract

Status of PI in Protocol:

--none--

Type of Submission:

- ◯ New Grant
- ◯ New Protocol
- ◯ Renewal of Active / Expiring Protocol

If Renewal, enter number of active/expiring protocol

Has title changed?

◯ Yes ◯ No

Anticipated Starting Date:

Funding Source and Fund Administration:

Is this project funded?

○ Yes ○ No

Were/Are funds issued explicitly for this project? If using residual/carryover funds, answer with NO.

○ Yes ○ No

Has this specific project received scientific review by a funder?

○ Yes ○ No

If study is funded, add the source of funds AND the entity that administers these funds.

Funds from ORD must be administered by VA. Funds from NIH are administered by the (b)(6). Other funding such as industry-sponsored awards are administered by the VA Nonprofit Corporation (b)(6) (b)(6). If in doubt, contact the Research Office for assistance.

View Details	Sponsor Name	Sponsor Type	Funding Through	Contract Type:	Project Number	Award Number

No Sponsor has been added to this Study

Will this project be covered by a CRADA?

○ Yes ○ No

Will this project be conducted by the PI and listed personnel entirely on VA time and/or on VA property?

○ Yes ○ No

What percentage of this project will be conducted on VA time and/or on VA property? If PI is 100% VA-paid, s/he should AT MINIMUM claim his/her stated percent effort for the award. Please round to the nearest 10%. Please enter as numbers only, do not include the % sign.

Protocol Title:

Grant Title (if different):

Project Uses:

Human Subjects or Human Data

○ Yes ○ No

Does this project comply with one of the IRB exempt research categories?

○ Yes ○ No

Radioisotopes

○ Yes ○ No

Investigational Devices

○ Yes ○ No

Investigational Drugs

○ Yes ○ No

Animal Subjects

○ Yes ○ No

Does this project involve hazards to research personnel? *(Examples: Sharps, cryohazards, chemical hazards, physical hazards, etc.)*

○ Yes ○ No

Biohazards

○ Yes ○ No

Does the work on this project occur at the St. Cloud VA Medical Center?

○ Yes ○ No

Project Focus:

Agent Orange

○ Yes ○ No

Prisoners of War

○ Yes ○ No

Females

○ Yes ○ No

Key Words: (Minimum 3, maximum 6. Use MeSH terms only. Enter one term per line.)

*MeSH terms can be selected at **https://meshb.nlm.nih.gov/MeSHonDemand/** - enter a block of text (such as your study description/abstract) and suggested MeSH terms will be returned.*

Data Management and Access Plan (DMAP): Required for all research protocols, regardless of funding source

A DMAP can be submitted in iRIS in My Studies or via "Submit a Form" after your initial application is submitted.

☐ VA-funded study: ORD-approved DMAP is on file, or DMAP has been submitted to ORD for approval

☐ Non-VA funded or unfunded study: Non-VA DMAP form is on file or will be submitted locally

Will any of the identfiers in the list below be included in your dataset?

1. Name or initials (of patients, providers, relatives, caregivers, legal representatives)
2. All geographic subdivisions smaller than a state (street address, city, county, precinct) Note: zip code or equivalents must be removed, but can retain first 3 digits if the geographic unit to which the zip code applies contains more than 20,000 people
3. ANY elements of dates (except year) directly related to an individual (date of birth, admission date, discharge date, date of death, date of sample) and all ages over 89 and all elements of dates (including year indicative of such age, except such ages and elements may be aggregated into a single "age 90 or over" category.
4. Telephone number
5. Fax number
6. Email address
7. Social Security Number (including scrambled SSNs or last-4)
8. Medical Record Number
9. Health Plan Number
10. Account Numbers
11. Certificate or license numbers
12. Vehicle identification/serial numbers including license plate numbers
13. Device identification/serial numbers
14. Universal Resource Locators (URLs)
15. Internet Protocol addresses (IPs)
16. Biometric Identifiers (including finger and voice prints)
17. Full face photographs and comparable images
18. Any other unique identifying number, characteristic or code

Yes No

Abstract

Lay Summary

Using non-technical (lay) language that a senior high school student would understand, summarize the conceptual design of the experiment in no more than one or two paragraphs.

Format Font Size

Objective/Hypothesis

Provide a brief 1 paragraph *scientific* summary of this protocol, to include your research question.

Format Font Size

Clinical Significance to the Veteran population

Please provide the clinical significance of this project.

Description of Relevance and Harm/Benefit Analysis. Using non-technical (lay) language that a senior high school student would understand, briefly describe how this research project is intended to improve the health of people (Veterans) and/or other animals, or otherwise to serve the good of society, and explain how these benefits outweigh the pain or distress that may be caused in the animals that are to be used for this protocol. **(B)**

Please provide the clinical significance of this project.

Format | Font | Size

Methods

Provide a brief 1 paragraph overview of how your research aims are going to be accomplished.

Format | Font | Size

Animal species covered by this ACORP:

○ ○

Indicate the type(s) of animal use covered by this protocol (check all that apply):

Research

Teaching or Training

○

○

○

- [ ] Testing
- [ ] Breeding and colony management only; not for any specific research project
- [ ] Holding protocol (as specified by local requirements; not required by VA, PHS or USDA)
- [ ] Other

If "**Other**" please specify:

Triennial Review: Identify the studies described in the previously approved ACORP that have already been completed.

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Triennial Review: Indicate the numbers of animals of each breed/strain/genotype that have already been used, and adjust the numbers shown in Section 10 "Animals Requested (DHI)" accordingly.

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Triennial Review: Describe any study results that have prompted changes to the protocol, and briefly summarize those changes, to guide the reviewers to the details documented in other items in the new application.

Format | Font | Size

List any other relevant previously approved animal use protocols:

Title of other approved protocol	IACUC number of other approved protocol	Name of the VA station or other institution that approved it (if not the MVAHCS IACUC)
No records have been added		

Experimental Design (C2a)

Description of the proposed use of animals

Summarize the design of the experiment in terms of the specific groups of animals to be studied.

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(Optional) **Attach supplemental information or documents if needed:**
For complicated experimental designs, a flow chart, diagram, or table is strongly recommended to help the review committee(s) understand what is being proposed.
If you are unable to include the information in the "Experimental Design" section above then you can attach it as a separate document below.

Version	Sponsor Version	Title	Category	Expiration Date	Document Outcome	Checked Out	View Document

No Document(s) have been attached to this form.

Group Size Justification (C2b)

Justify the group sizes and the total numbers of animals requested. A power analysis is strongly encouraged.

Format | Font | Size

Procedures (C2c)

Describe each procedure to be performed on any animal on this protocol.
When "surgery" is selected, in the "procedure description" say "see App.5"
When a procedure is described in appendix 6, in the procedure description say "see App.6"
Include Euthanasia as a procedure (procedure type: other) and say "see U" or "see section 14"

TIP: When naming a procedure choose "short names".
TIP: Only procedures of the type "other" will have a significant description in the "description box" as the other procedures will be described in detail in the appropriate appendix (or attached SOP).

Procedure name	Procedure type	Procedure description
No records have been added		

Animals Requested (D, H & I)

Select the species and indicate the total number of animals requested:

Click "Add a New Species to the Study" then click "Find Species" and select your species on the far left and complete the information in the pop up box.
Once a species is entered, click 'view details' to expand the table and view the details, click 'edit' to edit the table - there will be a pop up box.

View Details	Species Name	Is Species USDA	Scientific Name	Common Name
No species have been added to this Study				

Justify the choice of species for this protocol.

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Complete the following table, listing the animals/strains on separate lines according to any specific features that are required for the study:

You will use the "or other" box in the top right of the pop up box to enter specific strain information. There are tips and help for completing this table in the "orange '?'" to the right.

View Details	Species	Strain	Stock #/ Order Code:	Special Care	Special Conditions

No Strain(s) have been added to this Study

Which of the following USDA Pain Categories does this ACORP include?

☐ Category B Procedures (procedures with no pain or distress)

List each experimental group or procedure group which will fall into the **USDA Pain Category B**

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☐ Category C Procedures (procedures involving minimal or transient pain or distress)

List each experimental group or procedure group which will fall into the **USDA Pain Category C**

Format | Font | Size

☐ Category D Procedures (procedures involving potential pain or distress that is relieved by appropriate anesthetics, sedatives, or analgesics)

List each experimental group or procedure group which will fall into the **USDA Pain Category D**

Format | Font | Size

☐ Category E Procedures (procedures in which pain or stress is NOT relieved with the use of anesthetics, analgesics, tranquilizers, or by euthanasia. Examples include studies in which animals are allowed to die without intervention (e.g. LD50, mortality as an end-point), studies that allow endpoints that are painful or stressful, addictive drug withdrawals without treatment, pain research, and noxious stimulation)

List each experimental group or procedure group which will fall into the **USDA Pain Category E**

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In the table below, for each strain, enter the total number of animals in each pain category. This total number will need to match the number of animals requested in the table in question 1 of this section.

Assign all requested animals to a USDA category of pain/distress. If you have difficulty determining the appropriate category, please contact the attending veterinarian or IACUC Chair for assistance.
The same animal cannot be assigned to more than one USDA category. If several different procedures are planned, the animal should be placed in a category based on the most painful/distressful procedure.
If you need to change the animal numbers in this table, first change the number in the table in question 1 of this section (for that table: click "edit" not "view details").

Species	Strain	B	C	D	E	Total

No Pain Classification have been added to this Study

Management of Category D procedures (J)

Indicate which statement below applies, and provide the information requested.

- ◯ This protocol does NOT include any Category D procedures.
- ◯ This protocol INCLUDES Category D procedures.

List each Category D procedure and provide the information requested. (For procedures described in Appendix 5 or 6, only identify the procedure(s) and enter "See Appendix 5 (or 6) for details".)

Procedure	Monitoring (indicate the method(s) to be used, and the frequency and duration of monitoring through post-procedure recovery)	Person(s) responsible for the monitoring (LAST names)	Method(s) by which pain or distress will be alleviated during or after the procedure (include the dose, route, and duration of effect of any agents to be administered)
No records have been added			

Justification of Category E procedures (K)

Indicate which statement below applies:

- ◯ This protocol does NOT include any Category E procedures
- ◯ This protocol INCLUDES Category E procedures.

Identify each Category E procedure included in this ACORP and justify scientifically why the pain or distress cannot be relieved.

Category E Procedure	Justify scientifically why the pain or distress cannot be relieved
No records have been added	

Endpoint Criteria (T)

Describe the criteria that will be used to determine when animals will be removed from the protocol or euthanatized to prevent suffering.

Format | Font | Size

Termination or removal from the protocol (U)

Complete each of the following that applies:

☐ Some or all animals will NOT be euthanatized on this protocol.

Describe the disposition of these animals:

Format | Font | Size

☐ Some or all animals MAY be euthanatized as part of the planned studies

Using the table below, describe the exact euthanasia method for each animal used. Include the agents used, dose (as applicable), and route of administration.
The "Group/Age/Description" section requests information about which group of animals will be euthanized in this manner. You can specify a specific experimental group/category or it may be "all/any".

View Details	Species	Euthanasia Method	Administration Route	Dose	AVMA and confirmation of death information / Misc

No Euthanasia methods have been added to this Study

For each of the methods above that is designated as **"Conditionally Acceptable"** by the AVMA, describe how the conditions for acceptability will be met:

Click here to access the text editor.

For each of the methods above that is designated as **"Unacceptable"** by the AVMA, give the scientificrea (s) that justify this deviation from the AVMA Guidelines:

Click here to access the text editor.

Identify all research personnel who will perform euthanasia on animals on this protocol, specify th specific euthanasia methods and describe their training and experience (for the species in this protocol) wit the methods of euthanasia they are to use.

Personnel performing euthanasia	Training and experience in specific method of euthanasia to be performed
No records have been added	

Instructions for the animal care staff in case an animal is found dead.

Describe the disposition of the carcass, including any special safety instructions (type over existing words). If disposition is to be handled according to a local SOP, enter "according to local SOP" and select the VMU SOP in the table in the SOP Section (26.1).

Describe how the PI's staff should be contacted:

- ◯ Please contact a member of the PI's staff immediately.
- ◯ There is no need to contact the PI's staff immediately (follow VMU SOP for routine contact)

Name	Contact Information
No records have been added	

Personnel: Current Qualifications and Training (E)

Principal Investigator:

(b)(6) **trainings dates for all personnel are documented in the individual's training records**

Species

--none--

Selecting a species will specify which 'speci should be referenced for the PI and all othe

Principal Investigator:

Animal Research Experience:

Specific procedure(s) that the PI will perform personally	Experience with each procedure in the spe ACORP
No records have been added	

Other Research Personnel

Complete the table below for other research personnel performing procedures on animals.
In the second column, list all the procedures they will perform and in the third column, describe their spe qualifications to perform them, or detail the training to be provided (training to be provided could also be Section 16: "F").
Qualifications to perform specific procedures: include an approximate number of times the procedu performed, including time frame of most recent experience (e.g., has performed >20 retro-orbital bleeds 2 years).
If refresher training is desired please contact the VMU.

Name	List all procedures to be performed by this personnel	Experience with each spe or description of training
No records have been added		

VMU animal care and veterinary support staff personnel

Complete the table for each individual member of the VMU animal care and veterinary staff who will perfo procedures other than routine husbandry on the animals on this protocol.
NOTE: VMU staff must be included on the application as KSP (key study personnel) in section 3.

VMU Staff	Specific support procedure(s) assigned to this individual	Qualifications for perform procedure described in th AALAS certification, expe completion of special trai
No records have been added		

(Optional) Training to be provided (F)

Should it be more convenient to list planned training activities as a group rather than documented individually above, please use this section to list each procedure for which more training is planned. Describe the training, give the name(s), qualification and training experience of the person(s) who will provide it.

Click here to access the text editor.

Occupational Health and Safety (G)

Specific to this study, are there any non-routine OHSP measures that would potentially benefit, or are otherwise required for, personnel participating in or supporting this protocol?

○ Yes ○ No

If "**Yes**" please describe these non-routine measures here:

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Occupational Health interactions are tracked by the IACUC Office and by MVAHCS Occupational Health and recorded in the iRIS System.

If you would like to check the Occupational Health "status" and (b)(training dates for any Study Personnel, you can click on the "orange ?" to the right for directions.

Literature Search (W): Consideration of Alternatives and Prevention of Unnecessary Duplication

List each of the potentially painful or distressing procedures included in this protocol:

Document at least 2 database searches conducted. Include each of the potentially painful or distressing procedures included in this protocol. (W1)

Investigators must consider less painful or less stressful alternatives to procedures, and provide assurance that proposed research does not unnecessarily duplicate previous work. You must perform **two** or more **different database** searches to meet these mandates. (Use the "+ Click here to add another entry" button at the top of the table to add another entry)

This link is a resource for alternatives to animal testing: **https://toxnet.nlm.nih.gov/altbib.html** (tip: right click and "open in new tab" to avoid navigating away from your open application.)

Entry 1

Name of the database

- ○ Pubmed w/AltBib
- ○ Google Scholar
- ○ Agricola
- ○ Embase
- ○ Other

If Other:

Date search was performed

Period of years covered by the search

Potentially painful or distressing procedure addressed

Key words and/or search strategy used

Which mandate addressed

- ☐ REPLACEMENT of animals (W2)
- ☐ REDUCTION in number of animals used (W3)
- ☐ REFINEMENT to minimize pain or distress (W4)
- ☐ Lack of unnecessary DUPLICATION (W5)

Replacement:

Describe the replacements that have been incorporated into this work, the replacements that have been considered but cannot be used, and the reason(s) that further replacements are no acceptable. (W2)

Format Font Size

Reduction:

Describe how the number of animals to be used has been minimized in this protocol and expla why further reduction would disproportionately compromise the value of the data. (W3)

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Refinement:
Describe the refinements that have been incorporated into this work and explain why no furth refinements are feasible. (W4)

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Unnecessary Duplication:
Describe how it was determined that the proposed work does not unnecessarily duplicate wor already documented in the literature. (W5)

Format Font Size

Veterinary Support (L)

Identify the laboratory animal veterinarian who is responsible for ensuring that the animals on this protocol receive appropriate veterinary medical care.
(There is nothing to complete, this is provided for your information and reference.)

Veterinarian: Dr. Matthew Rassette, DVM

Institutional affiliation: Minneapolis VA Health Care System

Email contact: (b)(6)

VMO Office phone: (b)(6)

Veterinary consultation during the planning of this protocol (must have occurred within one year of submission). (NOTE: this is provided to document the veterinary consultation for protocols submitted before October 2017.)

Name of the laboratory animal veterinarian consulted	Date of the veterinary consultation (meeting date, or date of written comments provided by the veterinarian to the PI)
○ Matthew Rassette DVM, DACLAM	
○ (b)(6)	

Husbandry (M)

Caging needs. Complete the table below to describe the housing that will have to be accommodated by the housing sites for this protocol:

If animals are to be housed according to a local VMU Standard Operating Procedure (SOP), select "standard (see applicable VMU SOP)", and in section 26, select the SOP title from the options for the SOP listing (Y) (the vet can assist with this).
If the required housing is not VMU standard, select "Other, see below" in the table and describe it in the area below the table.
You can enter and describe as many different housing types as needed by clicking "add a new row".

Type of housing*	Number of individuals per housing unit**	Is this housing consistent with the Guide and USDA regulations?***	Estimated maximum number of housing units needed at any one time
No records have been added			

*See ACORP Instructions, for guidance on describing the type of housing needed.

When standard housing is not described in an SOP, describe the standard housing here:

Click here to access the text editor.

** The *Guide* states that social animals should generally be housed in stable pairs or groups.

Provide a justification if any animals will be housed singly (if species is not considered "social", then so note)

Click here to access the text editor.

***Use Appendix 9 to document "departures" from the standards in the *Guide*.

Enrichment. Indicate below whether "standard" exercise and environmental enrichment will be provided to the animals on this protocol, or whether any special supplements or restrictions will be required. (Both options can be selected if appropriate.)

If enrichment will be provided according to a VMU SOP, select "Standard (see SOP)" and in the SOP Section 26 (Y), select the SOP title from the options for the VMU SOPs.

If the enrichment is not described in a VMU SOP, enter "Other (described below)", and describe the specific enrichment in the box which will appear after selection.

- ☐ Standard (see SOP)
- ☐ Other (described below)

Describe the enrichment and/or restrictions here (include frequency information):

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Customized routine husbandry. Check all of the statements below that apply to the animals on this protocol, and provide instructions to the animal husbandry staff with regard to any customized routine husbandry needed.

- ☐ This ACORP INCLUDES genetically modified animals. (NOTE: information regarding any special care should be included in the strain table in section 10: "Animals Requested")
- ☐ Devices that extend chronically through the skin WILL be implanted into some or all animals on this protocol.
- ☐ Some or all of the animals on this protocol WILL require other customized routine husbandry by the animal husbandry staff, beyond what has been described in the strain table in section 10: "Animals Requested"
- ☐ This ACORP does NOT include use of any animals that will require customized routine husbandry.

Describe any customized routine husbandry to be provided by animal husbandry staff to minimize the chances of chronic infection where the device(s) penetrate the skin.

Format | Font | Size

Describe the special husbandry needed.

Format | Font | Size

Housing Sites (N)

Identify each location on VA property where animals on this protocol will be housed, and indicate whether or not each location is inside the VMU.

List room numbers and consider including "or as assigned" if appropriate

Facility/Building number (b)(6)	Room Numbers	Inside VMU?
(b)(6)		

No records have been added

Will you be housing in Non-VA Facilities?

◯ Yes ◯ No

Housing in non-VA facilities. Identify each location not on VA property where animals on this protocol will be housed, and provide the information requested in the table.

Name of the Non-VA Facility	Is this facility accredited by AAALAC?	Building	Room Number

No records have been added

Locations of Procedures (Q)

Complete the table below, listing the location(s), inside or outside of the animal facility, for each of the procedures to be performed on animals on this protocol.

Procedure	Surgical?	Bldg/Room Number	Requires Transport through non-research areas?	If Yes Describe method of transport

No records have been added

Body Fluid, Tissue, and Device Collection (R)

List each body fluid, tissue, or device to be collected, and complete the table below to indicate the nature of the collection.

Body Fluid, Tissue or Device to be collected	Collected AFTER Euthanasia?	For collection BEFORE Euthanasia

No records have been added

Controlled Substances (X1)

Does this protocol use controlled substances?

◯ Yes ◯ No

Complete the information below for each drug that is used in animals on this protocol and is c substance by the DEA.

Controlled Substance(s) Storage: Double Locked?	Location for Use: VA Property?	Procurement: VA Pharmacy?	Personn Access (

No records have been added

Will all drugs used in animals and classified as controlled substances by the DEA be stored in a and be accessible only to authorized personnel in accordance with VA policy?

◯ Yes ◯ No

If "**No**" - for any controlled substance that will NOT be stored under double lock, with limited access, des and explain why this is necessary:

Check each statement below that applies, to confirm that all controlled substances used on th procured according to VA pharmacy policies:

☐ Some/All controlled substances will be used on VA property, and all of these will be obtained through the local VA

☐ Some controlled substances will not be obtained through the local VA pharmacy, but none of these will be used c

☐ Other

Please explain "Other":

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Appendix Determination (O,P,R,S,V and X) (appendices will attach after section 26)

Antibody Production: Will any of animals on this protocol be used for the production of antibodies? (O)

- ○ Some or all of the animals on this protocol WILL be used in the production and harvesting of antibodies. (this will attach App2)
- ○ NO animals on this protocol will be used in the production and harvesting of antibodies.

Biosafety: Will any substances (other than those used in routine husbandry or veterinary care) be administered to the animals on this protocol? (P)
***NOTE* almost every protocol includes an App3 - this item has been set to default as "yes".**

- ◉ This protocol INVOLVES administration of substances to the animals other than those used in routine husbandry and veterinary care. (this will attach App3)
- ○ This protocol does NOT involve administration of any substances to the animals other than those used in routine husbandry and veterinary care.

Antemortem Specimen Collection: Will you be collecting any body fluid, tissue or device from LIVE animals? (R)

- ○ This protocol INVOLVES collecting body fluid, tissue or a device from LIVE animals. (this will attach App4)
- ○ This protocol does NOT involve collecting body fluid, tissue or a device from LIVE animals.

Surgery: Does this protocol include any surgical procedure(s)? (S)

- ○ Surgery WILL BE PERFORMED on some or all animals on this protocol. (this will attach App5)
- ○ NO animals on this protocol will undergo surgery.

Special Procedures. If this protocol involves the use of special procedures (including special husbandry and other special procedures), where are they documented? (V)

Select all that apply

- ☐ "Lab Specific" SOP
- ☐ Appendix 6
- ☐ Procedures (section 9)
- ☐ Other
- ☐ None

If you selected "other", please specify where the special procedures are documented:

Human patient care equipment or procedural areas. Does this protocol involve use of any human patient care equipment or procedural areas? (X)

This question has been set to default as "No"

- ○ Yes. (this will attach app7)
- ◉ No

Explosive agents. Does this protocol involve use of any explosive agent? (X)

This question has been set to default as "No"

- ○ Yes. (this will attach App8)
- ◉ No

Appendix 9 (Placeholder)

- ○ Yes. (this will attach App9)
- ◉ No

Standard Operating Procedures (SOPs)

Select all standard VMU SOPs that apply.

The Attending Veterinarian or the VMU Supervisor can assist you if needed.
Current versions can be found at "R:\All_Staff\ACUP\VMU Standard Operating Procedures" (this is not a live link, you must be on a VA computer and copy this link into the windows explorer).
NOTE: all IACUC review and approval dates for SOPs are kept on file in the IACUC Office.

SOP TITLE	Section	VMU ID
☐ Receiving small laboratory animals	M1.	SOP-HUSB-100
☐ Receiving large laboratory animals	M1.	SOP-HUSB-101
☐ Receiving Nonhuman Primates	M1.	SOP-HUSB-102
☐ Daily feeding and watering of small laboratory animals	M1.	SOP-HUSB-120
☐ Daily feeding and watering of large laboratory animals	M1.	SOP-HUSB-121
☐ Daily feeding and watering of non-human primates	M1.	SOP-HUSB-122
☐ Changing and cleaning of small laboratory animal cages	M1.	SOP-HUSB-130
☐ Cleaning and sanitizing large animal caging	M1.	SOP-HUSB-131
☐ Changing and cleaning of non-human primate cages	M1.	SOP-HUSB-132
☐ Changing Nude and other immunocompromised Mouse cages	M1.	SOP-HUSB-133

- [ ] Daily health checks for large and small laboratory animals / M1. / SOP-HUSB-150
- [ ] Providing environmental enrichment for rodents and rabbits / M2. / SOP-HUSB-160
- [ ] Working with rodents under aBSL-2 conditions / M1. / SOP-HUSB-161
- [ ] Working with rodents receiving chemotherapeutic agents / M1. / SOP-HUSB-165
- [ ] Pre- thru post-operative care of rodents / App5. / SOP-202
- [ ] Handling and processing animals found dead / U. / SOP-OPR-205
- [ ] Maintenance of Guillotines / U. / SOP-EQP-410

Lab Specific Standard Operating Procedures (SOPs)

In the table below, list each of the "Lab Specific SOPs "referred to in this protocol, documenting the section of this application (by number or letter) where the SOP is referenced and the lab title of the SOP.

NOTE For all SOPs specific to your lab you MUST ensure that the IACUC office has on file the current IACUC approved version of the SOP.
If you are providing a NEW Lab Specific SOP, reference it here and attach it when requested at the end of the submission phase. If you have decided to revise a current Lab Specific SOP during the review process of this application then green highlight the revisions in the Lab Specific SOP word document and attach it when requested at the end of the submission phase.

Section	Title of Lab Specific SOP
No records have been added	

Appendix 2: Antibody Production

1. Immunization.
Provide the information requested below for any animals to be used for raising antibodies spe protocol.

1a. Describe the immunization protocol in the table below, using a separate entry for each day (including primer, antigen, and/or adjuvant) will be administered (make sure that each prime also included in Appendix 3).

Entry 1

Injection day (e.g. day 0, 7, 30, etc.)

Antigen

Total amount (mg) and volume (ml) of antigen injected

Identity adjuvant and volume (ml) injected

Total injection volume per animal (antigen plus adjuvant; ml)

Divided into how many injection sites?

Injection route and location of injection sites on body

1b. Describe how each antigen will be screened to make sure that it does not harbor infectiou other laboratory animals or people after injection.

1c. List possible adverse effects that might be observed in animals receiving the proposed pri adjuvant injections, and describe the measures that will be taken if these adverse effects occu

1d. Give the justification for using any primer or adjuvant that is expected to cause pain ordis

2. Survival Blood Collection. Will blood be collected as a survival procedure for the production and har protocol?

- ◯ No, the production and harvest of antibodies on this protocol does not involve survival collection of blood.
- ◯ Yes, this protocol requires the collection of blood in a survival procedure, before (as a "pre-bleed") and/or after i Make sure this is included in "Collection (R)", and complete items 2a, 2b, and 2c, below.

2a. Describe each survival collection of blood in the table below, including any "pre-bleeds" pr

Entry 1

Site of Blood Collection

Amount of Blood Collected at any one time, expressed as volume (ml) and as % of body weight (assume 1 ml = 1 gram)

Number of Blood Collections

Time Interval(s) Between Successive Collections

Volume Replacement? ◯ Yes ◯ No

2b. Will anesthetics, tranquilizers, or analgesics be administered for blood collection?

- ◯ No, anesthetics, tranquilizers, or analgesics will NOT be administered for blood collection.
- ◯ Yes, anesthetics, tranquilizers, or analgesics WILL be administered for blood collection.

List the name of each pain relieving agent (anesthetic and/or analgesic agents) that will be given. Details (e.g. dose (mg/kg), volume (ml), route, and frequency/duration) will be documented in the "Pain-Relievin section in Appendix 3.

Justify the omission of pain-relieving agents - either scientifically or because the collection method involve momentary pain - and completely describe the physical restraint that will be used during collection below *prolonged* restraint [greater than 15 minutes] must also be described in appendix 6).

2c. Will volume replacement be provided for blood that is collected?

- ◯ Volume will NOT be replaced for some of the blood collection listed.
- ◯ Volume WILL be replaced for some of the blood collection listed.

For each collection listed in Item 2.a for which volume WILL be replaced, describe the replacement(s) that will be pro the composition of the replacement(s), volume, and route of administration).

For each collection listed in Item 2.a for which volume will NOT be replaced, explain why not.

3. Terminal Blood Collection. Will animals be euthanatized by exsanguination, for harvest of antibodies

- ◯ No, this protocol does NOT involve terminal blood collection for harvest of antibodies.
- ◯ Yes, this protocol DOES require terminal blood collection for the harvest of antibodies. Include in "Collection (R)"

3a. Describe the method(s) to be used for euthanasia and exsanguination.

Format | Font | Size

3b. Will anesthetics, tranquilizers, or analgesics be administered for exsanguination?

- ◯ No. Anesthetics, tranquilizers, or analgesics will NOT be administered for the exsanguination(s).
- ◯ Yes. Anesthetics, tranquilizers, or analgesics WIL be administered for the exsanguination(s).

Explain why it is appropriate or necessary NOT to administer pain-relieving agents:

List the name of each pain relieving agent (anesthetic and/or analgesic agents) that will be given. Details (e.g. dose (mg/kg), volume (ml), route, and frequency/duration) will be documented in the "Pain-Relievin section in Appendix 3.

3c. Describe how you will make sure that the animals are dead after collection of the blood.

Format | Font | Size

4. Harvesting Feeder Cells. Describe the exact procedures (including administration of pain-relieving ag donor animals from which feeder cells will be collected for this protocol, and estimate the number of anima Make sure that these animals are included in Section 10 (DHI), and that the harvesting of feeder cells is in

Format Font Size

5. Expansion of Hybridoma Cell Line(s) *in vivo*.
Will any animals be used to expand hybridoma cell lines so that antibody can be harvested from ascites flui

- ◯ No animals will be used on this protocol for in vivo expansion of hybridoma cell lines.
- ◯ Yes, this protocol requires use of some animals for in vivo expansion of hybridoma cell lines.

5a. Explain why alternate research methods that do not require the use of additional animals (systems for harvesting monoclonal antibodies) are not adequate to meet the research objectiv

5b. Complete the following table to summarize the procedures to be performed in expanding t and collecting ascites fluid.

Entry 1

Hybridoma cell line designation	
Number of animals used for ascites production	
Priming agent and volume	

Number and timing of priming injections	
Volume of injected hybridoma cells	
Number of abdominal taps before euthanasia	

5c. Describe the exact procedures (including the administration of pain-relieving agents) that abdominal taps to be performed on this protocol. Details of the pain-relieving agents (doses, the "Pain Relieving Agents" section of Appendix 3.

5d. List the criteria for euthanasia of animals prior to the last planned abdominal tap.

Appendix 3: Biosafety

List all substances that will be administered to the animals in this protocol. (NOTE: Analgesia question 4)

This includes, but is not limited to, diluents, vehicles, radioisotopes, toxins, pharmacological agents, infec mutagens, euthanasia agents, biomaterials, prosthetic devices, cells, tissues and/or body fluids.

NOTE: Routine pre-, intra- or post-operative drugs described in the Surgery Appendix [app5] table, they are documented in the separate "pain relieving agents" tables in a lower section o App3).

For the purposes of the "hazard type" section of this table, "Toxin" = "Toxic".

View Details	Species	Substance	Route	Dose	Frequency	Expected Effect

No Substances have been added to this Study

Is each material, diluent, or vehicle that is listed in the table above pharmaceutical grade (lab

○ Yes ○ No

For each material, diluent or vehicle which is non-pharmaceutical grade, indicate it in the table above and For each listed item, explain why the use of a non-pharmaceutical grade formulation is necessary, and de the material is suitable for use.

Consideration should be given to the grade, purity, sterility, pH, pyrogenicity, osmolality, stability, site an tion, compatibility, and pharmacokinetics of the chemical or substance to be administered.

Format | Font | Size

Check on-line for formulations that are FDA approved for administration: (**TIP** - right click and open in a new tab to avoid navigating a
to humans: **http://www.fda.gov/Drugs/InformationOnDrugs/ucm129662.htm**
to animals: **http://www.fda.gov/AnimalVeterinary/Products/ApprovedAnimalDrugProducts/UCM042847**.

Anesthesia, Sedation, or Tranquilization for administered agents. Complete 3.a. and 3.b. belo

3a. For each material listed above which will be administered under anesthesia, sedation or tranquilization or tranquilization to be used, identifying the anesthetic, sedative, or chemical tranquilizer. The dose, volu to be detailed in the "Pain Relieving Agents" section below (question 4 App3).

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3b. For each material NOT to be administered under anesthesia, sedation or tranquilization, explain why tranquilization is necessary, or can be provided, and describe any alternate methods of restraint thatwill

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Pain Relieving Agents (Anesthetics and Analgesia):

Complete the tables below for each agent or cocktail for all anesthetics and analgesia used in this study. In the section labeled "Monitoring" in addition, to the methods used to monitor the anesthetic effect, plea the procedures performed under this agent.

View Details	Species	Anesthetic	Route	Dose	Frequency

No Anesthetic have been added to this Study

View Details	Species	Analgesia	Route	Dose	Frequency

No Analgesia have been added to this Study

Toxic Agents. Will toxic chemicals, toxic pharmacologic agents, known or suspected mutagens other similar agents be used in animals?

◯ Yes ◯ No

Toxic Agents. Complete the table below for each of the materials listed as a "toxic agent" in the table in apply.

Name of Toxic Agent	Mutagen	Carcinogen	Teratogen	Not a Select Agent	Select Agent Used in Sub-threshold Quantities	S R R

No records have been added

Do you need to document a select agent registration?

◯ Yes ◯ No

Name of agent	Registered with CDC or USDA	Registration Number	Registration Date	Expiration Date of Registration	Na wh app of

No records have been added

Infectious Agents. Will bacteria (including rickettsia), viruses, fungi, protozoa, prions, or oth the agent will have a radioactive label added or contains recombinant nucleic acid, please sele

◯ Yes ◯ No

Infectious Agents. Complete the table below for each of the materials listed as an "infectious ACORP App. 3 Instructions, for details).

Name and BSL Number of Infectious Agent	a. ABSL Number*	b. Drug Sensitivity Panel Available?	Describe (b)
		◯ Yes ◯ No	

*Complete the following for each agent for which the ABSL Number given is less than the BSL Number sh

Name of agent	Justification for applying ABSL recommended

No records have been added

Do you need to document a select agent registration?

◯ Yes ◯ No

**For each "select agent" that requires registration/approval (copy the lines below for each agent):

Name of agent	Registered with CDC or USDA	Registration Number	Registration Date	Expiration Date o Registration

No records have been added

Biological Materials. Will serum, cell lines, tissue, nucleic acid or other biological materials be

◯ Yes ◯ No

Biological Agents. Complete the table below for each of the materials listed as a "biological agent" in the

Name of Biological Agent	Screening for Infectious Agents

No records have been added

Radioactive Agents. Will radioactive compounds or agents be administered to animals?

○ Yes ○ No

Radioactive Agents. Complete the table below for each of the agents listed as a "radioactive agent" in t

Name of Radioactive Agent (specify the isotope)	Authorized Individual	Approving
No records have been added		

Agents Containing Recombinant Nucleic Acid. Will substances containing recombinant DNA/R animals?

○ Yes ○ No

Agents Containing Recombinant Nucleic Acid. For each of the materials checked in the table in Item indicate which of the conditions applies.

Name of Agent that Contains Recombinant Nucleic Acid	Exempt	Subject to Involving R
No records have been added		

Potential for Pain or Distress. Complete the table below for each of the agents listed in Item 1 painful or distressing effects on the animals.

Name of agent	Nature of Potential Pain/Distress	Measures t
No records have been added		

Protection of Animal Facility Staff from Hazardous Materials. Complete the items below, for e as "toxic", "infectious", "biological", "radioactive", or "contains recombinant nucleic acid". Thi animal facility staff; protection of the research staff from each of these agents must be addres main body of the ACORP.

Similar items (e.g. all toxins) can be listed on a single row.

Toxic or hazardous agent(s) or non-exempt agent(s) from above sections	Safety, biosafety, or radiation safety committee that has approved the use of this hazardous agent	Indicate whether VA or affiliate committee
No records have been added		

List the VMU (animal husbandry) staff that will be exposed to the hazards listed above:

NOTE: The current roster of Animal Facility Staff Members is kept on file in the IACUC Office and the master list of st here.

Detail how the individuals using these hazards have been (or will be) informed of the possible risks of exp trained to avoid exposure to these agents:

Click here to access the text editor.

Appendix 4: Antemortem Specimen Collection

1. SUMMARY Complete the table below for each specimen to be collected from a live animal on this pro t

Specimen Collected	Site and Method of Collection	Anesthesia	Amount Collected Each Time	Volume Replacement	Total Number of Collections per Animal	Time Interv Between Successive Collections
No records have been added						

2. Use of Anesthetics, Tranquilizers, or Analgesics or Physical Restraint.

Will any specimen collection described in Item 1, above, be collected WITHOUT anesthesia?

Yes No

1. Explain why no measures will be taken to prevent pain (e.g., because of scientific requirements descrit because the collection method involves no more than minor or momentary pain).

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2. Completely describe any method of physical restraint that may be used.

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Will any specimen collection described in Item 1, above, be collected WITH anesthesia?

Yes No

For each specimen collection done WITH anesthesia, list by name the anesthetic and/or analgesia agents given. Details of these agents (e.g. dose, volume, route) is documented in the "Pain-Relieving Agents" se of this ACORP.

3. Volume Replacement for Fluid Collections.

a. For each fluid specimen described in Item 1, above, for which NO volume replacement will be provided explain why not.

Click here to access the text editor.

b. For each fluid specimen described in Item 1, above, for which volume replacement WILL be provided, describe the replacement fluids that will be administered (including their composition, volume, and route administration).

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4. Monitoring the animals. Detail how the animals will be monitored after collection of specimens to e recover appropriately.

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Appendix 5: Surgery

1. Surgery Classification. Complete the table below for each surgery included in this protocol, and indicate how it is classified (terminal, minor survival, major survival, one of multiple survival).

Surgery Description	Terminal	Minor Survival	Major Survival	One of Multiple Survival

No records have been added

Did you indicate that any of the above surgeries are "minor or major survival surgery"?

○ Yes ○ No

Did you indicate "One of Multiple Survival" for any of the above surgeries?

○ Yes ○ No

a. Provide a complete scientific justification for performing the multiple survival surgeries on an individual animal:

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b. Give the interval(s) between successive surgeries, and the rationale for choosing the interval(s):

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2. Description of Surgeries. Describe each surgery listed in Item 1, providing enough detail to make it clear what the effects on the animal will be. (Pre-operative preparation, anesthesia, and post-operative recovery will be covered in items 5, 6, and 7 (if needed), below.)

If your surgery has an SOP then you must still complete this appendix for the surgery but in the "Description" section of the table below you can say "See SOP" and specify the name of the SOP. Please ensure that your SOP is documented in the "lab specific SOP" table in Section 26.2.

Surgery	Description
No records have been added	

3. Personnel. Complete the table below for each individual who will be involved in any of the surgeries or procedures in this appendix.

Note: the surgical/anesthesia experience of each person involved in surgery should be listed in the Personnel Section of the ACORP.

Name	Surgeries/Procedures Performing:	Surgical Role	Describe other surgical role (as needed)

No records have been added

4. Location of surgery. Complete the table below for each location where surgery on this protocol will be performed.

Surgery	Building	Room Number(s)	Type of Space

No records have been added

*For each space that is not in a dedicated surgical facility, provide the justification for using this space for surgery on this protocol

Click here to access the text editor.

5. Pre-operative protocol.

5a. Pre-operative procedures. Complete the table below for each pre-operative procedure that will be performed to prepare the animal(s) for surgery (indicate "n/a" where specific items are not applicable). Pre-op prep of the surgical site info will be documented in 5c below.

Surgery	Fast (Specify Duration)	Withhold Water (Specify Duration)	Place Intravenous Catheter(s) Specify Site(s)

No records have been added

5b. Pre-operative medications. List the sedatives, tranquilizers and the anesthetic agent (s) which will be used to induce anesthesia prior to the surgical site preparation. Details of these agents (e.g. dose, volume, route and frequency/duration) is detailed in the "Pain Relieving Agents" section of Appendix 3.

Surgery	Pre-operative medications (list name of medication)

No records have been added

5c. Pre-operative preparation of the surgical site. For each surgery, identify each surgical site on the animals, and describe how it will be prepared prior to surgery.

Surgery	Surgical site and how it will be prepared prior to surgery

No records have been added

6. Intra-operative management.

6a. Intra-operative medications. Complete the table below for each agent that will be administered to the animal during surgery. Details of these agents (e.g. dose, volume, route and frequency/duration) is detailed in the "Pain Relieving Agents" section of Appendix 3.

Surgery	Intra-operative medications
No records have been added	

Are you using a Paralyzing Agent?

○ Yes ○ No

View Details	Species	Paralyzing Agent	Route	Dose	Frequency	Monitoring
No Paralyzing Agents have been added to this Study						

For each agent shown above as a paralytic, explain why its use is necessary, and describe how the animals will be monitored to ensure that the depth of anesthesia is sufficient to prevent pain.

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6b. Intra-operative physical support. For each surgery, describe any physical support that will be provided for the animals during surgery (e.g., warming, cushioning, etc.).

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6c. Intra-operative monitoring. Describe the methods that will be used to monitor and respond to changes in the state of anesthesia and the general well-being of the animal during surgery.

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7. Survival surgery considerations.

7a. For each survival surgery complete the table below:

Surgery	Survival Period	Sterile Instruments	Surgical Cap	Sterile Gloves	Surgical Scrub	Sterile Drapes	Sterile Gown	Face Mask	Other

No records have been added

*Describe any "other" measures to be taken to maintain sterility during surgery:

Click here to access the text editor.

7b. For each surgery, describe the **immediate post-operative support** to be provided to the animals.

Surgery	Describe post-operative support to be provided to the animals
No records have been added	

Survival Surgery: post-op administered materials

7c. **Post-operative analgesia.** Complete the table below for each survival surgery listed in Item 1 above. Details of these agents (e.g. dose, volume, route and frequency/duration) is detailed in the "Pain relieving Agents" section of App3.

Surgery	Post-operative analgesia (list all)
No records have been added	

*For each surgery for which **NO post-operative analgesic** will be provided, enter "none" in the "Post-operative analgesia" column, and explain here why this is justified:

Click here to access the text editor.

7d. **Other post-operative medications.** Please add to and describe all other medications that will be administered as part of post-operative care. Details of these agents (e.g. dose, volume, route and frequency/duration) is detailed in App3.

Surgery	Post-operative medications (list all)
No records have been added	

Survival Surgery: post-op monitoring

7e. **Post-operative monitoring.** After-hours contact information for the personnel listed must be provided to the veterinary staff for use in case of an emergency.

(1.) Immediate post-operative monitoring

Surgery	Frequency of Monitoring	Duration at this Frequency	Names(s) of Responsible Individuals(s) (list LAST names)
No records have been added			

(2.) Post-operative monitoring after the immediate post-operative period

Surgery	Frequency of monitoring	Duration at this frequency	Name(s)s of responsible individual (s) (list LAST names)
No records have been added			

Survival Surgery: post-op considerations

7f. **Post-operative consequences and complications**

(1) For each surgery, describe any common or expected post-operative consequences or complications that may arise and what will be done to address them.

Surgery	Describe consequences or complications and how they will be addressed
No records have been added	

(2) For each surgery, list the criteria for euthanasia.

Procedure	Euthanasia
No records have been added	

(3.) In case an emergency medical situation arises and none of the research personnel on the ACORP can be reached, identify any drugs or classes of drugs that should be avoided because of the scientific requirements of the project.

Note: If the condition of the animal requires one of these drugs, the animal will be euthanatized instead.

Click here to access the text editor.

Survival Surgery: medical records

7g. **Maintenance of post-surgical medical records.** Complete the table below for each surgery, specifying where the records will be held, and identifying at least one individual who will be assigned to maintain accurate, daily, written post-surgical medical records. Indicate whether the named individuals are research personnel involved in this project, or members of the veterinary staff.

Surgery	Location of Records	Name(s) of Individual(s) Responsible for Maintaining Written Records (List LAST names)	Research Personnel	Veterinary Staff
No records have been added				

Appendix 6: Special Husbandry and Procedures

1. Description of Procedures

Complete the sections below for each procedure listed in "Procedures (Section 9/C2c)" that is indicated as "Special (App6)/see App6".
If your procedure has an SOP which is attached then you must still complete this appendix for the procedure but in the "Provide a complete description" table below, in the description column you can say "See SOP" and specify the name of the SOP. Please ensure that your SOP is documented in the "lab specific SOP" table (section 26.2).

For each special procedure, check <u>all</u> features that apply.

Procedure	Husbandry*	Restraint	Noxious Stimuli (Category D)	Exercise	Behavioral Conditioning	Irradiation	Imaging	Other

No records have been added

*Husbandry refers to all aspects of care related to the maintenance of the animals, including (but not limited to) provision of an appropriate diet, access to water, control of environmental conditions, and the selection of primary and secondary enclosures

Describe any "**Other**" features that are involved.

Click here to access the text editor.

Provide a complete description of each special procedure listed above, including the duration of the procedure, how frequently it will be repeated in any one animal, and any effects it is expected to have on the animal:

Procedure	Complete Description	Explain why this special procedure is necessary

No records have been added

2. Personnel Performing Procedures

Complete the table below for personnel who will be carrying out the procedure and who will be responsible for monitoring the animals after the procedure.
After-hours contact information for the personnel listed must be provided to the veterinary staff for use in case of an emergency.

Procedure	Responsible Individual(s): Carrying Out Procedure (list LAST names)	Responsible Individual(s): Monitoring the Animals (list LAST names)

No records have been added

3. Potential Pain or Distress.

Consider all the special procedures listed in Item 1 above.
Will any of the special procedures listed in Item 1 be expected to cause potential pain and/or distress?

○ Yes ○ No

Complete the table below for each special procedure identified in Item 1, above, which is expected to cause potential pain and/or distress. Describe the potential pain and/or distress and indicate whether any measures are to be taken to prevent or alleviate it.

Procedure	Description of pain and or distress	To be relieved (complete a)	NOT to be relieved (complete b)

No records have been added

3a. For each procedure for which potential pain and/or distress is expected, but WILL be prevented or alleviated by administration of the analgesic(s) or stress-relieving agents, complete the table below.
Details of these agents (e.g. dose, volume, route and frequency/duration) is detailed in the "Pain Relieving Agents" section of Appendix 3.

Procedure	Analgesic(s) or stress-relieving agents (list)
No records have been added	

Describe any **non-pharmacological measures** to be taken to address the potential pain and/or distress:

Procedure	Non-pharmacological measures
No records have been added	

3b. For each procedure for which potential pain and/or distress is expected, but will NOT be prevented or alleviated, provide the scientific justification for this.

Procedure	Provide scientific justification for NOT preventing or alleviating pain or distress
No records have been added	

4. Monitoring.

Describe how the condition of the animals will be monitored during and after each of the special procedures, and list the criteria that will be used to determine when individual animals will be removed from groups undergoing these procedures, because of pain or distress:

Procedure	Monitoring Methods	Endpoint Criteria
No records have been added		

Appendix 7: Use of Patient Care Equipment and/or Areas for Animal Studies

To complete Appendix 7 click on "click here to start this form".

Appendix 8: Use of Explosive Agent(s) Within the VMU or in Animals

1. Full name(s) of Principal Investigator(s)

2. Complete the tables and questions below for each explosive agent

a. Identify the explosive agent(s)

Explosive Agent	Name(s) Used to Refer to the Agent in This ACORP	CAS Number	Location of the SDS on File

No records have been added

b. Locations where the explosive agents will be used.

Agent Name	Building	Room Number	Within the VMU	Outside of VMU

No records have been added

c. Procedure(s) to be performed.

Briefly describe the use of each of the explosive agents on this protocol and explain why it is necessary to use these agents (why non-explosive replacements cannot be used instead).

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d. Precautions to be taken to prevent explosions.

Describe the measures to be taken to store, use, and dispose of safely each explosive agent and any materials contaminated with it, and to prevent the generation of sparks in its presence. See orange "?", for a list of commonly used precautions.

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e. Period of use

Beginning no earlier than (date)	Ending no later than (date)

f. Animals that will be administered explosive agents:

Species	Approximate weights of individual animals	Approximate number of animals
No records have been added		

3. Complete the table below for each individual who will handle any of the explosive agents as part of this protocol.

Name of Individual	Explosive Agent(s) to be Handled	Training and Experience Pertinent to Handling Explosive Agents
No records have been added		

Appendix 9: Departures from "Must" and "Should" Standards in the *Guide (2011)*

See ACORP App. 9 Instructions, for more detailed explanations of the information requested.

For each IACUC-approved "departure" of this protocol from a "Must" or "Should" standard in the *Guide*, provide the following information. (Consult the IACUC or the Attending Veterinarian for help in determining whether any "departures" are involved.):

Entry 1

Briefly summarize the "Must" or "Should" standard, and provide the number(s) of the page(s) on which it appears in the Guide

Click here to access the text editor.

Describe the specific alternate standard(s) that will be met on this protocol, and how they will be monitored.

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Provide the scientific, veterinary medical, or animal welfare considerations that justify this departure

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Was it previously indicated that anesthetics or analgesics would be withheld for potentially painful procedures?

○ Yes ○ No

Did your previous justifications for withholding analgesics or anesthetics for painful procedures meet the *Guide* standard?

Guide Section 1, page 5: Studies that may result in severe or chronic pain or significant alterations in the animals' ability to maintain normal physiology, or adequately respond to stressors, should include descriptions of appropriate humane endpoints or provide science-based justification for not using a particular, commonly accepted humane endpoint."

○ Yes
○ No
○ N/A

If "no", describe the specific alternate standard(s) that will be met on this protocol, and how they will be monitored

Click here to access the text editor.

If "no", provide the scientific, veterinary medical, or animal welfare considerations that justify this departure

Click here to access the text editor.

For any IACUC-approved "departure" of this protocol from a "Must" or "Should" standard in the *Guide* that was not previously identified, provide the following information for each departure (consult the IACUC or the Attending Veterinarian for help in determining whether any additional "departures" are involved):

Briefly summarize the "Must" or "Should" standard, and provide the number(s) of the page (s) on which it appears in the *Guide*

Describe the specific alternate standard(s) that will be met on this protocol, and how they will be monitored;

And/or, provide the scientific, veterinary medical, or animal welfare considerations that justify this departure.

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Completion of ACORP

The ACORP portion of the Application is now complete. The next section begins the RPSS which is associated with this Study.

MVAHCS Continuing Review

Protocol Demographics

Principal Investigator

Project Title

Project Number

Date of Initial IACUC Approval:

Date of Last IACUC Continuing Review:

Date of Initial IRB Approval:

Date of Last IRB Continuing Review:

Study Personnel

Personnel listed on project:

Have any personnel departed this study since the last continuing review?

◯ Yes ◯ No

Please list the names of the individual(s) who have departed

Study Contacts

Study Contacts listed on project (PI is always a study contact):

Do you wish to add an additional Study Contact?

◯ Yes ◯ No

Please list the name of the individual(s) you would like to add

In the past year has there been any change in the funding source or the funding administration (e.g., UMN, CVRE, VA) of this study?

○ Yes ○ No

Please explain:

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Please update the funding source

View Details	Sponsor Name	Sponsor Type	Funding Through	Contract Type:	Project Number	Award Number

No Prime Sponsor has been added to this Study

View Details	Sponsor Name	Sponsor Type	Funding Through	Contract Type:	Project Number	Award Number

No Sponsor has been added to this Study

IACUC: Continuation of work

Do you intend to continue animal work (or want the option to continue animal work) under this protocol in the upcoming year?

○ Yes ○ No

Are any live animals currently being housed?

○ Yes ○ No

Describe the dispensation of the animals, i.e. transfer to another protocol (indicate PI and #) or euthanization. Note this must happen before the close/expiration of the ACORP.

Is (b)(6) training complete for all personnel listed on the protocol?

All study personnel are required to complete IACUC and species-specific training within the (b)(6) every three years (i.e. "Working with the IACUC" and "Working with Mice in Research Settings" for a mouse user).
If training is not current for all personnel, submission of this Continuing Review can proceed but training must be completed before approval. If training is soon to expire, please also address this promptly.

◯ Yes ◯ No

IACUC: Continuing Review

Current Species and total number of animals requested (read only - for reference)

The numbers in the table below include originally requested animals AND animals added during amendment which were approved at the time this form was prepared.

View Details	Species Name	Is Species USDA	Scientific Name	Common Name

No species have been added to this Study

Pain Classification Table with USDA Pain Category information for the animals on your protocol (read only - for reference)

Species	Strain	B	C	D	E	Total

No Pain Classification have been added to this Study

Report number of animals used:

Total number used in First Year	Total number used in Second Year	Total number animals used to date

Total number used in First Year	Total number used in Second Year	Total number used in Third Year	Total number animals used to date

Click "**Save Section**" at the top of the form to update the math in the above table.

For first year reviews, the second column will be left blank.

Click "**Save Section**" at the top of the form to update the math in the above table.

If a protocol is closing before the triennial review, some columns may be left blank.

If you have any clarifying information to add to the "animals used" numbers above please provide it below:

Click here to access the text editor.

Is breeding done on this protocol?

○ Yes ○ No

Breeding Protocol Information: Provide information pertaining to which protocols (i.e. Project # and animal numbers) received transferred mice from this breeding protocol.

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Since the last review, have there been any unanticipated problems affecting the well-being of animals on this protocol?

Yes No

Describe the unanticipated problems:

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Abstract

Objective/Hypothesis

Provide a brief 1 paragraph *scientific* summary of this proposal to include your research question.

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Clinical Significance to the Veteran Population

Using non-technical (lay) language that a senior high school student would understand, briefly describe how this research project is intended to improve the health of people and/or other animals, or otherwise to serve the good of society, and explain how these benefits outweigh the pain or distress that may be caused in the animals that are to be used for this protocol.
This is the "Description of Relevance and Harm/Benefit Analysis" (B) from the application.

Please provide the clinical significance of this project

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Methods

Provide a brief 1 paragraph overview of how your research aims are going to be accomplished.

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Findings Results and Conclusions to Date

None to Date

Format Font Size

Final Findings and Results

Format | Font | Size

Exit Continuing Review/Closure Form

You have reached the end of the Continuing Review or Closure Form. Click "Save and Continue to Next Section" to route the form for PI signature and submission.

Check yes to confirm you have attached the Research Financial Conflict of Interest Statement for each Investigator on this study in Section 2.2 of this form.

○ Yes ○ No

Description of Amendment

Please provide a brief summary of your changes.
This text will appear in your approval memo (please be succinct).

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Include versions and/or dates if applicable.

What is your reason or justification for making the change?

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Adding or Removing a Funding Source

Has there been any change in the funding source or the funding administration of this study?

◯ Yes ◯ No

Identify the funding source this protocol will now be associated with.

View Details	Sponsor Name	Sponsor Type	Funding Through	Contract Type:	Project Number	Award Number

No Sponsor has been added to this Study

Summary of Requested Changes to the ACORP

Indicate the nature of the requested change(s). Check all that apply.

- ☐ Any change in the number of animals requested
- ☐ Changes to the Experimental Design
- ☐ Changes to Personnel - NOT involving NEW personnel
- ☐ Changes to Personnel - involving NEW personnel
- ☐ Adding or changes to animal procedure/housing location
- ☐ Adding or changes to App3
- ☐ Adding or changes to App 7
- ☐ Changing the protocol title
- ☐ Other
- ☐ NO changes to the ACORP

Changes in Number of Animals

Will the total number of animals be increased or decreased by this change?

- ◯ Increased
- ◯ Decreased

What is the total number of animals that will be added?

By how many will the total number of animals used in this protocol decrease?

In addition to any other ACORP changes associated with this modification, you will need to modify the number of animals in multiple places in the ACORP.

Application Update

Please update your Application to reflect the changes you have requested.

- Click below to attach the application to this submission (follow the directions which appear).
- Click "Edit/View" and make any proposed revisions directly in the Application.
- When you have completed the revisions to the application, click "Back" (in the upper right corner) to return to this Amendment Form and proceed with the amendment submission.

No Application has been associated with this submission.

Attach any documents that are revised as a result of this modification

Check out and edit your informed consent form. *Don't attach any other documents in this table.*

Version	Title	Category	Language	Expiration Date	Consent Outcome	Checked Out	View Document

No Consent(s) have been attached to this form.

Attach a revised **HIPAA Authorization** form below. (Form opens in a New Window)

Attach the updated protocol or Investigator's Brochure below.

Attach a revised **Minneapolis VAMC PHI and Sensitive Information Use Statement** below. (Form opens in a New Window)

Attach a new **Research Protocol Safety Survey** below. (Form opens in a New Window)

Attach a new **Research Protocol Safety Survey** below. (Form opens in a New Window)

Attach a new **Research Protocol Safety Survey** below and include **SRS 1**, **SRS 2**, and/or **SRS 3** as appropriate. (Forms open in a New Window)

Attach a new **Research Protocol Safety Survey** and include **SRS 4** as appropriate. (Forms open in a New Window)

Attach a new **Research Protocol Safety Survey** below and include **SRS 5**, **SRS 6**, and/or **SRS 3** as appropriate. (Forms open in a New Window)

Attach a new **Research Protocol Safety Survey** and include **SRS 7**. (Forms open in a New Window)

Version	Sponsor Version	Title	Category	Expiration Date	Document Outcome	Checked Out	View Document

No Document(s) have been attached to this form.

►Name of VA Facility: Minneapolis VA Health Care System Version 02/28/13
►Station Number ---------- : 618
►City, State------ : Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

VA SEMIANNUAL EVALUATION
of the
INSTITUTIONAL ANIMAL CARE AND USE PROGRAM AND FACILITIES
Part 1 – Checklist
Section A. Review of the Program

The Review of the Program is largely an administrative evaluation of all of the policies, plans, standard procedures, and systems under which the institution fulfills its responsibilities to ensure humane animal care and use. Some of the programmatic items may appear similar to items included in Section B (Inspection of the Facilities), but the focus here (Review of the Program) is on what is intended or expected, while Section B focuses on observed implementation.

NOTE: The checklist is designed to prompt review according to regulatory requirements, and focuses on the minimum standards that must be met. The wording in the checklist is not to be interpreted as altering the regulatory requirements in any way, but represents guidance from the office of the CVMO. For specifics about the regulatory requirements and recommended best practices, the references provided in square brackets must be consulted:

"1200.01" refers to the "VHA Handbook 1200.01, Research and Development (R&D) Committee",
"1200.07" refers to the "VHA Handbook 1200.07, Use of Animals in Research",
"PHS" refers to the "PHS Policy on Humane Care and Use of Laboratory Animals",
"9 CFR" refers to the "USDA Animal Welfare Act Regulations and Standards, Code of Federal Regulations, Title 9",
"US Govt Principle" refers to the "US Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training", and
"Guide" refers to the National Research Council's "Guide for the Care and Use of Laboratory Animals", 8th edition, 2011

Instructions:

1) Enter identifying information in the header above:
   Double click in the header area.
   Then enter text after each ":"
   (Note: Federal regulations require that a new Review of the Program be completed every 6 months *[PHS (IV.B.1); 9 CFR (2.31(c)(1))]*, and a new Inspection of the Facilities *[PHS (IV.B.2); 9 CFR (2.31(c)(2))]* be completed every 6 months. The "Date of Semiannual Evaluation" is the date on which the last of the components of the semiannual evaluation was completed.)
   Double click in the document area to return to the main body of the form.

2) Enter the information requested below. The "►" symbols indicate **required** information:

►Date(s) of the most recent previous Review of the Program:
►Date(s) on which this Review of the Program was conducted:

Names of voting IACUC members who participated in the Program Review:
(The Program Review team must include a minimum of two voting members of the IACUC [9 CFR (2.31(c)(3))]. Any non-members who also participate, at the discretion of the IACUC, may be listed in the second table.)

Name	Specific Role on IACUC (if any)	Date(s) of Participation

► Janeen Trembley	Chair	4/18/2019
► Matthew Rassette	Attending Veterinarian	4/18/2019
(b)(6)	Scientist (EOHP Director)	4/18/2019
(b)(6)	Non-Scientist, Non-Affiliated	4/18/2019
(b)(6)	Non-Scientist	4/18/2019
(b)(6)	Alternate Veterinarian	4/18/2019

Non-IACUC members who participated in the Program Review:

Name	Title	Date(s) of Participation
(b)(6)	IACUC Coordinator	4/18/2019
(b)(6)	RCO	4/18/2019

3) For each item in the checklist, type "X" in the column that applies (shaded cells should not be used):

Not Applicable
Acceptable
Approved Departure (Approved by the IACUC)
Minor Deficiency
Significant Deficiency

4) For each item marked as an Approved Departure, a Minor Deficiency, or a Significant Deficiency here (Part 1, Section A), provide details in Part 2 of this form.

5) Items that reflect changes in the 8th edition of the *Guide* are flagged as follows, and may require particular attention as the 8th edition is implemented.

‡ denotes a new "must" item
† denotes a new "should" item

I. Institutional Policies and Responsibilities

	A. Shared Responsibilities	Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
100†	A formal written MOU, contract, or agreement is in place for any arrangement in which the VA shares responsibility for animal research with any other institution. This includes the use of an external IACUC and any collaborative arrangements for support, housing, or use of animals in research. *[1200.07 (8.b(1)); Guide, p. 15]* ►Name(s) of other institution(s) and the date(s) on which current formal written understanding(s) took effect: 3/31/2017 Additionally, the IACUC has an MOU with the VA Police regarding Facility access which took effect on 3/27/2018 and was updated on 1/23/2019		X			
	B. General IACUC Function					

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
150	The official appointment of each member of the IACUC by the CEO *[PHS (IV.A.3a); 9 CFR (2.31(a))]* is documented and specifies the duration of the appointment and any specific role to which the member is appointed. *[1200.07 (8.a)]*		X			
151	The IACUC has at least five members, including at least one member qualified for and appointed to each of the required roles. *[PHS (IV.A.3); Guide (p. 24)]*		X			
152‡	The IACUC meets as necessary to fulfill responsibilities. *[Guide (p.25)]*		X			
153	The IACUC has adequate authority, administrative support, and other resources to fulfill its responsibilities. *[Guide (p. 14-15)]*		X			
154†	The IO has authority to allocate needed resources. *[Guide (p.13)]*		X			
155	The IACUC communicates regularly with the R&D Committee, by providing the R&D Committee with a set of final, signed, IACUC minutes, and all other notifications required by the R&D Committee, and through an individual who regularly attends meetings of both the IACUC and the R&D Committee. *[1200.07 (8.h (2)); 1200.01 (11.f)]*		X			
156†	Program needs are regularly communicated to the IO by the AV and/or the IACUC. *[Guide (p. 13)]*		X			
157	The IACUC communicates effectively as needed with the SRS and/or the IBC. *[1200.07 (Appendix C-.8.a)]*		X			
158	All minority opinions that are submitted are included in the final document that results from any action of the IACUC (e.g., meeting minutes, report of semiannual evaluation, and reports to oversight entities). *[PHS (IV.B.); 9 CFR (2.31(c)(3)]*		X			
159	The research office provides packets to IACUC members no later than 3 business days before the IACUC meeting. This packet must include an agenda with all business items listed, including reviewer assignments for all new protocols. *[1200.07(8.f(2)(d))]*		X			
160	A written draft of the minutes of the latest IACUC meeting is provided to all IACUC members at least 1 week before the next meeting.		X			
161	Review and approval by the IACUC is required before any work related to the use of animal subjects in VA research begins or is changed significantly. *[1200.07(8f(2));PHS (IV.B.6-7); 9CFR (2.31(c)(6-7)); Guide (p. 26)]*		X			
162	All protocol forms used comply with PHS Policy and USDA AWAR. *[PHS(IV.C);9 CFR (2.31(d)]*		X			
163	The current version of the VA ACORP (or an alternate form that has been approved by the CVMO) is used for any protocol involving work to be supported with VA funding. *[1200.07 (8.f(2)(e))]* The "Minneapolis Iris" version of the VA Ver 4 ACORP was reviewed by (b)(6) on 4/7/2018 and was determined to be "fine for JIT submissions"		X			

164‡	Consultation with a qualified laboratory animal veterinarian is required before a protocol may be submitted for review by the IACUC. Veterinarian provides consultation when pain and distress exceeds anticipated level in protocol.*[1200.07 (Appendix D - 1.k(2)); 9 CFR (2.31(d)(1)(iv)(B);, Guide (p,5)]*		X			
165‡	No IACUC member participates in the review or approval of any protocol in which that member has a real or apparent conflict of interest (financial or otherwise). *[Guide (p. 26)]*		X			
166	The IACUC does not approve any protocol that involves use of hazardous agents until the Biosafety Official and/or the Radiation Safety Official, as applicable, has signed in Item Z to confirm that the hazardous agents are properly documented in the ACORP. *[1200.07 (Appendix C-.8.c(1)); Guide (p. 21)]*		X			
167	Use of any patient care area for VA-funded animal research is prohibited unless the IACUC and appropriate local clinical and administrative officials first grant approval and the IACUC has reviewed and approved a completed ACORP Appendix 7 that justifies no reasonable alternative to the use of human clinical areas or equipment exists. *[1200.07 (7.k(1))]*		X			
168†	A system of post-approval monitoring is in place to ensure that all work with research animals is performed according to IACUC approved protocols. *[Guide (p. 33)]*		X			
169	The IACUC conducts continuing reviews of all protocols annually. *[9 CFR (2.31(d)(5)]*		X			
170	IACUC approval of each protocol expires on or before the third anniversary of its initial approval. *De novo* review and approval of a complete updated protocol by the IACUC before the date of expiration is required for work on the protocol to continue beyond three years without interruption. *[PHS (IV.C.5)]*		X			
171	Humane endpoints are established for studies in which pain and/or distress is anticipated (i.e., tumors, infectious disease, vaccine challenges, trauma, etc.) *[Guide (p.27)]*		X			
172	The IACUC has established oversight procedures for pilot and field/wildlife studies; studies involving genetically modified animals, food/fluid restriction, and the use of pharmaceutical versus non-pharmaceutical grade chemicals receive special consideration by the IACUC. *[Guide (p. 27-33)]*		X			
173	Surgical procedures are determined to be major or minor, multiple surgical procedures on a single animal are justified and the outcome evaluated, and multiple survival procedures regardless of species conform to regulated species standards. *[Guide (p.30)]*		X			
174‡	Requests for exemptions from major survival procedure restrictions are made to the USDA/APHIS through the IO. *[Guide (p. 30)]*		X			
175	Toe-clipping is approved by the IACUC only when no other individual identification method is feasible; the procedure is performed aseptically and with pain relief. *[Guide (p.75)]*	X				

176‡	The use of restraint devices is justified in the animal use protocols. IACUC approval is given when the purpose and duration of the restraint are justified. The justification addresses: the lack of feasible alternatives to physical restraint, provisions for the removal of maladaptive animals, training of animals, and appropriate observation of restrained animals. Veterinary care is provided if lesions or illness associated with restraint occur. *[Guide (p 29-30]*		X			
C. Semiannual Evaluations of the Animal Care and Use Program						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
200	Program Review -- At least every six months, the IACUC reviews the animal care and use program. For VA animals used at an affiliate institution, this is done according to the MOU in place between the VA facility and the affiliate. *[1200.07 (8.f(1)); PHS (IV.B.1); 9CFR (2.31(c)(1))]*		X			
201	Facilities Inspection -- At least every six months, the IACUC inspects all facilities in which animals in the VA animal research program are used. For VA animals used at an affiliate institution, this is done according to the MOU in place between the VA facility and the affiliate. *[1200.07 (8.f(1)); PHS (IV.B); 9CFR (2.31(c)(2))]*		X			
202	Under no circumstances is the report of any semiannual evaluation altered after it has been signed by the IACUC. *[1200.07 (8.f (1)(f))]*		X			
203	The report of each semiannual evaluation of the animal care and use program, signed by the IACUC, is discussed personally with the Director of the VA facility in a meeting with at least one representative voting member of the IACUC. *[1200.07 (8.f(1)(e)); PHS (IV.B); 9 CFR (2.31(c)(5); Guide (p. 25)]*		X			
204	Within 60 days of approval by the IACUC, the report of each semiannual evaluation, signed by the facility Director, is submitted to the CVMO (ORD), or the CVMO's office is notified of the reason for delay and the expected date of submission. *[1200.07(8.k(3))]*		X			
D. Standard Operating Procedures (SOPs)						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
250	At least annually, the IACUC oversees a review of the complete set of all local SOPs by the Attending Veterinarian with the VMU supervisor and other qualified personnel. *[1200.07 (7.c)]* ►Date of latest review: 10/18/2018 for lab specific SOPs and 10/25/2018 for the VMU SOPs		X			
E. Addressing Concerns about Animal Welfare						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**

300‡	The responsibility for animal well-being is assumed by all members of the program; therefore, procedures are in place for the IACUC to receive, review, investigate, and address internal or external concerns or allegations about animal care and use. *[PHS (IV.B); 9 CFR (2.31(c)(4)); Guide (p. 1;23-24)]*		X			
301	Procedures are in place to protect "Whistle-blowers" from discrimination or reprisal for reporting potential regulatory violations within the animal care and use program. *[9CFR (2.32(c)(4)); Guide (p. 24)]*		X			
302	Any animal activity may be suspended by the IACUC (by a majority vote of a quorum), or immediately and unilaterally by the facility Director or any other official designated by the facility Director. *[1200.07 (8.)j; 9 CFR (2.31(c)(8) and 2.31(d)(6))]*		X			
303	The IACUC notifies local administrators (facility Director, RCO, ACOS/R&D) and external oversight entities (CVMO, ORO, OLAW, and AAALAC) immediately when an investigation is undertaken. *[1200.07 (8.i)]*		X			
304	Within 5 business days of determining that a reportable deficiency has occurred, the IACUC submits an initial report to the facility Director and the IO, with copies to the ACOS/R&D and other relevant research review subcommittees. *[1058.01(8.e); PHS (IV.F.3); 9 CFR (2.31(c)(3) and 2.31(d)(7))]*		X			
305	Within 5 business days (*ORO requirement)* of receiving a report of a reportable deficiency from the IACUC, the facility Director and IO submit the report to the CVMO, ORO, OLAW, AAALAC, the Animal Care Section of USDA APHIS, and any other non-VA funding sources, as applicable, with copies to the IACUCs of any affiliate institutions with shared responsibility. *[1058.01(8.e); PHS (IV.F.3); 9 CFR (2.31(c)(3) and 2.31(d)(7))]*		X			
306	The corrective action plan, the timetable for its implementation, and interim and final reports on the correction of each reported deficiency are submitted to the facility Director and IO, and through them to the CVMO, ORO, OLAW, AAALAC, the Animal Care Section of USDA APHIS, and any other non-VA funding sources, as applicable, with copies to the IACUCs of any affiliate institutions with shared responsibility. *[1200.07 (8.i)]*		X			
F. Reporting to Oversight Entities						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
350	The USDA Annual Report of Research Facility was completed and submitted by December 1 within the past year, as required by USDA, and a copy is on file locally. *[9CFR (2.36)]* ►Date of most recent submission: 11/20/2018		X			
351	The VA facility is covered by a PHS Assurance, approved by OLAW, and revised as needed to reflect any significant changes in the animal care and use program. *[PHS (IV.A)]* ►Name of the Institution that holds the PHS Assurance: Minneapolis VA Health Care System ►Effective date of most recent approved Assurance: 6/7/2018		X			

352	The annual report to OLAW was submitted within the past year by the end of the month immediately following the end of the last reporting period, and a copy is on file locally. *[PHS (IV.F.1-2)]* ►Date of most recent submission: 1/24/2019, receipt acknowledged by OLAW on 1/28/2019		X			
353	The VA facility is fully accredited by AAALAC, and a copy of the triennial comprehensive AAALAC Program Description is on file locally. *[1200.07 (7.e)]* ►Name of the Institution that holds the accreditation: Minneapolis VA Health Care System		X			
354	The AAALAC Annual Report was submitted within the past year as required by AAALAC, and a copy is on file locally. *[1200.07 (8.l(2)(b))]* ►Date of most recent submission: 1/14/2019		X			
355	The VA Veterinary Medical Unit (VMU) annual report, which includes mice and rats, was submitted online by the specified deadline (usually January 15) within the past year. *[1200.07 (8.l(4))]*		X			
356	All other correspondence with oversight entities (USDA, OLAW, AAALAC, and ORO) relevant to the animal research program (except for routine notifications and reminders) is copied to the CVMO within 15 days of receipt or submission. *[1200.07 (9)]*		X			
357	All documents relevant to the animal care and use program are maintained on file for at least three years, or according to the latest VA requirements (current VA policy requires all records to be kept indefinitely), whichever is longer. This includes acquisition/disposition records, IACUC meeting minutes, semiannual reports, and all reports to, and correspondence with, oversight entities. *[1200.07 (Appendix E-2. c); 9CFR2.35(f); PHS (IV.E)]* Current VA records retention policy is retention for 3 years for Committee records and 6 years post closure for protocol records.		X			
358	All documents relevant to individual studies are maintained for at least the duration of the study and for three additional years after the completion of the study, or according to the latest VA requirements (current VA policy requires all records to be kept indefinitely), whichever is longer. *[1200.07 (8.f(1)(h));9CFR2.35(f); PHS (IV.E)]*		X			
G. Personnel Qualifications and Training						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
400‡	The IACUC does not approve any protocol until each individual listed on the protocol has documented completion of required VA training at the prescribed intervals. *[1200.07 (8.m(1)).; PHS (IV.A.1.g); 9 CFR (2.32); Guide (p. 15); US Government Principle VIII)]*		X			
401‡	The IACUC confirms that each individual is appropriately trained before approving that individual to perform the procedure without supervision. This includes non-surgical and surgical procedures, anesthesia monitoring, and euthanasia. *[PHS (IV.C.1.f); 9 CFR (2.31(d)(1)(viii); Guide (p. 15 & 115)]*		X			

402‡	All personnel are documented as being appropriately trained for their positions, and participating in formal and/or on-the-job continuing education at the prescribed intervals. *[1200.07 (8.m); PHS (IV.A.1.g); 9 CFR (2.32); Guide (p. 16-17)]*		X			
403†	IACUC members receive training in all aspects of humane animal care and use through the documented completion of VA training at the required intervals. *[PHS (IV.A.1.g); 9 CFR (2.32); 1200.07 (8.m); Guide (p.17)]*		X			
H. Occupational Health and Safety						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
Occupational Health and Safety Program (OHSP)						
450‡	An OHSP has been established and is maintained by the VA facility to protect personnel involved in animal research (laboratory or field setting) from associated risks including but not limited to direct animal contact, exposure to unfixed tissues or fluids, hazardous agents used in the research, etc. *[PHS (IV.A.1.f); Guide (p.17; 32); 1200.07 (10)]*		X			
451	All personnel at risk of exposure have the opportunity to participate in the OHSP. This includes personnel whose duties include work with animals (e.g., VMU staff, investigators, research technicians), regardless of whether they are paid employees, without compensation (WOC) personnel, students, or trainees, as well as , personnel that do not have contact but are exposed to animals (e.g., maintenance and engineering staff assigned to the VMU, other service personnel, etc.). *[1200.07 (10.a); Guide (p. 18)]*		X			
452	**Hazard Identification and Risk Assessment –** The IACUC, the local veterinarians, the SRS, and the Safety Officer work together effectively to identify potential hazards that exist in the animal research program, to assess the consequent risks to personnel, and to determine appropriate strategies to manage the risks. *[Guide (p. 18-19)]*		X			
453	**OHSP Training** – Training is provided to all personnel covered by the OHSP, with regard to personal hygiene practices, use of safety equipment, and SOPs appropriate to each individual's duties and risks of exposure. *[Guide (p. 20)]*		X			
The OHSP – Facilities and Procedures						
454	**Ergonomic efficiency** – Procedures and policies are in place to reduce the risks of ergonomic injuries to personnel (e.g. facility design, SOPs, and the use of equipment such as ramps, carts, and hydraulic lifts). *[Guide (p.19- 20)]*		X			
455	**Control of exposure** – Personal exposure to hazardous agents is limited through the design of the facility, establishment of SOPs (e.g. separation of animals treated with hazardous agents from untreated animals), selection/maintenance/certification of safety equipment (e.g., showers, eyewash stations, fume hoods, etc.), and careful monitoring of agents to ensure that they remain within permissible ranges. *[Guide (p. 19-20)]*		X			

456	**Policies and Procedures associated with nonhuman primates (NHPs) –** have been established and include training with regard to the risks of exposure to *Macacine herpesvirus 1* (formerly *C. herpesvirus* or Herpes B virus); tuberculosis screening for exposed personnel; training on and the handling of bites, scratches, or other injuries; medical evaluation and treatment of injuries; and provision of appropriate PPE. *[Guide (p. 23)]*		X			
The OSHP – Personal Hygiene						
457	The OHSP includes guidelines on appropriate personal hygiene practices, including hand washing and showering, use of protective clothing, and restricting consumption of food and beverages to designated break areas. *[Guide (p. 20-21)]*		X			
458	The VA facility provides uniforms, laundry service, and all other necessary personal protective equipment (e.g., gloves, ear protection, protective eyewear, steel-toed footwear, respirators, with appropriate fit testing and training, and other special equipment), as appropriate to the duties of the personnel. *[Guide (p. 20-22)]*		X			
The OHSP – Medical Evaluation and Preventive Medicine for Personnel						
459	A pre-employment medical evaluation is performed on each prospective new employee. *[1200.07(Appendix C-4(2)(a))]*		X			
460	A follow-up medical evaluation is performed at routine intervals (usually annually) on each OHSP participant. *[1200.07(Appendix C-.4(2)(b))]*		X			
461	Enrollment in OHSP is prerequisite to approval for access to the VMU and for beginning work with animals. *[1200.07(Appendix C-4(2)(c))]*		X			
462	Personnel are not permitted to decline immunizations or tests required by the VA facility that are necessary to protect the health of the animals or personnel. *[1200.07 (10.b)]*		X			
463	All vaccines (e.g., tetanus, rabies) are provided to personnel as currently recommended by CDC, free of charge. *[1200.07 (10.f(2)); Guide (p. 23)]*		X			
464	Personnel are required to report and be treated for all injuries and illnesses potentially related to working in the VMU or other animal research areas, or otherwise in connection with work with animals. *[1200.07(Appendix C-4.b; Guide (p. 23)]*		X			
465‡	The program considers confidentiality and other legal factors as required by federal, state and local regulations. *[Guide (p. 22)]*		X			
466‡	If serum samples are collected, the purpose is consistent with federal and state laws. *[Guide (p. 22)]*		X			

II. Physical Plant

A. General

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
500	The physical plant infrastructure (includes HVAC, plumbing, lighting, power, control systems, etc.) is adequate to support the needs and performance standards of the animal care and use program, and is compliant with and meets all applicable building codes. *[Guide (p. 133-136)]* On a positive note, the HVAC for (b)(6) (the VMU) is slated for overhaul in FY21 with more general improvements to (b)(6) (b) scheduled for FY22. However, as of the week of April 22, necessary chiller coils in (b)(6) are inoperable. They are scheduled to be replaced in May 2019.				X	
501	Policies and procedures are in place to ensure that facilities and equipment are properly maintained and functional. *[Guide (p. 133-136)]*		X			

III. Operations Related to Animal Environment, Housing, and Management

A. Physical Environment						
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
Temperature, Humidity, and Ventilation						
550	The response of facilities management (FM) personnel to elevations in temperature in animal rooms is tested and reported to the IACUC at least annually, and the response by FM personnel is satisfactory. *[1200.07 (7.a(2)(c))].* ►Date of latest test: 3/23/2018		X			
551	HVAC reheat units serving animal rooms are designed so as to fail in the "off" position, preventing over-heating of animals. *[1200.07 (7.a(2)(a))]*		X			
Noise						
522	Policies are in place to minimize exposure of the animals and personnel to excessive vibration, unnecessary sounds, and any sounds louder than 85dB. *[Guide (p.49-50)]*		X			
B. Husbandry						
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
General						
600‡	Oversight of daily husbandry and other animal care duties has been assigned to a single individual (usually, the VMU Supervisor) when a full-time veterinarian is not available on site. *[Guide (p. 14)]*		X			
Population Management						

601	Methods of animal identification have been established, which provide the protocol number and other pertinent information. Where applicable, genotype information is provided using accurate, consistent, and unambiguous genotype nomenclature. *[Guide (p. 75-77)]*		X			
Behavioral Management						
602	**Activity –** Each animal must have opportunities to engage in activity (motor, cognitive, and social) appropriate to its species. *[Guide (p. 60;63)]*		X			
603	**Social Environment –** Animals must be housed in appropriate compatible social groups or when single housing of social species is required (by an approved protocol or because of veterinary concerns) have contact with compatible conspecifics and/or enrichment. *[Guide (p.51, 63-65)]*		X			
604	**Environmental Enrichment** – The program to enrich the structural environment of each animal (structural additions, exercise, manipulative activities, and cognitive challenges) to accommodate the expression of species-typical postures and behavior is reviewed regularly by the IACUC, researchers, and veterinarians. *[Guide (p. 52-54)]*		X			
C. Animal Procurement and Transportation						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
650‡	Only animals that are obtained lawfully may be used in VA research. *[1200.07(7.b(1)); Guide (p.106)]*		X			
651	Animal procurement is approved and initiated only after confirmation that: (1) the source of animals is appropriate; (2) appropriate housing and care for the animals upon arrival is coordinated with animal care staff; and (3) the animals are designated for use on an IACUC approved protocol. *[Guide (p. 106-109)]*		X			
652‡	Transportation (including intra-institutional, inter-institutional, interstate, international, and from commercial or non-commercial sources) complies with federal and international regulations, as applicable, and is arranged to protect the health and safety of the animals and humans (passersby as well as personnel involved in the work with the animals), to minimize stress on the animals, and to ensure animal biosecurity. *[Guide (p. 107); 9 CFR (Part 3, Standards)]*		X			
D. Preventive Medicine						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
700	The institutional animal care and use program strives to maintain research animal populations that are as free of infectious agents as possible. *[1200.07 (7.d(1))]*		X			

701	A program of veterinary care, overseen by a VMO or VMC, is in place for the surveillance, diagnosis, treatment, and control of non-protocol diseases or conditions (especially those with zoonotic potential, such as Q-fever, LCMV, parasites, etc.), and for the management of diseases or conditions induced by experimental requirements. *[Guide (p. 112-114)]*		X			
702	Quarantine and stabilization of newly received animals, as well as, separation of animals by species, source, health status, and intended use, as appropriate, are used to prevent spread of pathogens. *[Guide (p. 109-112)]*		X			
E. Waste Disposal						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
750	Procedures are in place for sanitation of waste containers, as well as procedures for safe removal and disposal of conventional, biological, and hazardous wastes (including soiled bedding). All waste disposal procedures comply with facility, municipal and federal policies and regulations. *[Guide (p. 73-74)]*		X			
F. Pest Control						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
800	A regularly scheduled and documented program of monitoring for and controlling pests has been implemented, which includes measures to prevent vermin entry and harborage. *[Guide (p. 74)]*		X			
801	Animal and human health concerns encourage the use of non-toxic methods of pest control instead of chemical pesticides whenever possible. If chemical pesticides are to be used, the investigators whose animals may be exposed are consulted to ensure that scientific objectives are not unnecessarily compromised. *[Guide (p.74)]*		X			
G. Medical Supplies						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
850	All controlled substances needed for animal research on VA property are ordered and received by the local VA pharmacy, and dispensed to research personnel as needed. *[1200. 07 (7.m)]*		X			
851	Use of non-pharmaceutical grade compounds, expired drugs or medical supplies (e.g., sutures, antiseptics, etc.) in animals is limited to protocols in which such use has been documented not to jeopardize animal welfare or compromise the validity of the study. *[PHS (FAQ F.4); Guide (p.31)]*		X			
H. Emergency, After Hours, Weekend, and Holiday Animal Care						

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
900	Qualified personnel are assigned to provide routine care for the animals on weekends and holidays. *[Guide ((p. 74);* 9 CFR (2.33(b))*]*		X			
901	Veterinary care is available as needed after regular work hours on weekends, and on holidays; procedures are in place for timely notification of a veterinarian in case emergency care is needed. *[Guide (p, 74);* 9 CFR (2.33(b))*]*		X			
902‡	A disaster plan that addresses the needs of both personnel and animals is in place including animal euthanasia if necessary; the plan is approved by the IACUC. *[Guide (p. 35;75)]*		X			
903†	The disaster plan addresses triage procedures, emergency/life support services; preservation of irreplaceable animals, essential personnel, and disaster response training. The animal facility plan is approved by institution, is a component of the overall disaster plan, and is provided to first responders. *[Guide (p. 35; 75)]*		X			
904	Key animal facility personnel (e.g., the Attending Veterinarian and the VMU supervisor) are included among the official responders to be contacted in emergencies that involve animals. *[Guide (p.75)]*		X			

IV. Veterinary Medical Care

A. Role of the Veterinarians						
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency
950 ‡	A high quality veterinary care program consistent with ethical standards has been established. *[Guide (p. 105)]*		X			
951 ‡	Each VMO and VMC has training and/or experience in lab animal medicine and with the species used. *[Guide (p. 15); 9 CFR (2.33)]*		X			
952†	The VMOs and VMCs provide guidance to research personnel with regard to the humane care and use of the animals in the context of the scientific and regulatory requirements (including appropriate handling of animals, sedation, anesthesia, surgery and peri-operative care, analgesia, and euthanasia). *[Guide pg. 105-106, 113-114; 9 CFR (2.31(d)(1)(iv)(B) and 2.33(b)(4-5))]*		X			
953	When veterinary care services are provided by a part-time or consulting veterinarian, the veterinarian's visits are of sufficient frequency to meet programmatic needs. A written program of veterinary care for USDA regulated species is in place if a full-time attending veterinarian is not on-site. *[Guide (p. 14);USDA-APHIS Policy #3]*	X				

954 ‡	Veterinary care is available as needed and effective procedures are established for timely reporting of animal injury, illness, or disease and for veterinary assessment, treatment, or euthanasia. The veterinarian is authorized to treat, relieve pain, and/or euthanize. *[Guide ((p. 106, 113, 114, 120, and 122-123);* 9 CFR (2.33(b))*]*		X			
955 ‡	The Attending Veterinarian has the authority and resources needed, and uses them appropriately to manage all aspects of animal care and use in the animal research program. *[Guide (p. 14); 9 CFR 2.33(a)(2)]*		X			
956 ‡	Veterinary access to all animals is provided. *[Guide (p. 14)]*		X			
B. Surgery						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
1000	Aseptic technique is required for all survival surgery; is appropriate to the species; and includes preparation of the patient, surgeon, sterile materials, and supplies, as well as appropriate operative technique to reduce the risk of infection. *[9CFR (2.31(d)(1)(ix); Guide (p.118-119)]*		X			
1001	Procedures are in place to ensure that appropriate surgical anesthesia and analgesia are provided. Postoperative monitoring and care are provided by trained personnel and documented. *[Guide (p. 119-120)*		X			
1002	Major surgical procedures in non-rodents may be performed only in dedicated surgical facilities. *[9CFR (2.31(d)(1)(ix))]*		X			
1003	A system of ongoing and thorough assessment of surgical outcomes is in place to ensure that appropriate procedures are followed and appropriate corrective changes are implemented in a timely manner. *[Guide (p. 115)]*		X			
1004	Presurgical planning includes veterinary input and addresses location, supplies, anesthetic and analgesic use, peri-operative care, recordkeeping, etc. *[Guide (p.116)]*		X			
1005	For nonsurvival surgery, the surgical site is clipped, gloves are worn, and the surgical area and instruments are clean. *[Guide (p.118)]*		X			
C. Pain, Analgesia, and Anesthesia						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
1050	Guidelines for the assessment and management of pain, distress, and animal wellbeing have been established, and include monitoring for effectiveness of pain control, consideration of non-pharmacologic pain control methods, and guidance regarding the selection and use of anesthetics and analgesics. *[Guide (p. 121-122)]*		X			
1051 ‡	Procedures are in place to assure anti-nociception before surgery begins. *[Guide, p 122)]*		X			

1052	Special precautions for the use of paralytics are in place to ensure adequate anesthesia. *[Guide (p 123)]*		X			
1053 ‡	The drug storage and control program complies with federal regulations for human and veterinary drugs; procedures have been established to ensure that analgesics and anesthetics are used prior to their expiration date. *[Guide (p.115)]*		X			
1054 †	Anesthetics and analgesics are acquired, stored, and disposed of in a legal and safe manner; drug records and storage procedures are reviewed during facility inspections. *[Guide, p. 115 & 122)]*		X			
D. Euthanasia						
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**
1100	The methods of euthanasia approved by the IACUC are consistent with the AVMA recommendations for the species involved. *[Guide (p. 123); PHS (IV.C.1.g); 9 CFR (2.31(d)(1)(xi))]*		X			
1101	Personnel receive training on euthanasia methods appropriate for the species and age of the animal to minimize the potential for pain and distress. *[Guide (p. 123-124)]*		X			
1102 ‡	Procedures and training are in place to ensure that death is confirmed. *[Guide (p. 124])*		X			

V. Animal Care and Use Program Work Orders

Instructions: Enter work order data as prompted for Tables 1 and 2. All work orders related to the animal care and use program should be entered, whether or not they resulted from a semiannual evaluation. Use Table 3 to summarize the work orders in Tables 1 and 2.

Table 1: Work Orders Completed - include all work orders completed since the previous semiannual program evaluation (►Date(s) of previous evaluation: October 25, 2018).

#	Enter **M**, **S**, or **No**, for **M**inor or **S**ignificant deficiency noted in semiannual evaluation, or **No**t related to semiannual evaluation	Work order (local reference) number	Summarize work requested	Date work order was submitted	Date work order was completed	Elapsed days from submission to completion
1	No	908412	Rebuild backflow preventer	12/6/18	12/6/18	0.5
2	No	844309	Room temp adjustment	10/12/18	11/26/18	35
3	No	818518	Ceiling water leak	9/20/18	11/14/18	55
4	No	716420	Remove light box in ceiling	6/28/18	11/26/18	150
5	No	889296	Reattach door closer to wall	11/20/18	11/27/18	7
6	No	890295	Room temperature issue	11/20/18	11/21/18	1
7	No	952770	Spigot rebuild	1/16/19	1/17/19	1

8	No	942899	Check faulty checkpoint	1/9/19	1/10/19	1
9	No	952580	Crash door sticking	1/16/19	1/22/19	6
10A	No	**888315**	**HVAC slats in LA room**	**11/19/18**	**Closed 3/6/19**	**Not done**
10B	No	**1014643**	**HVAC slats in LA room-resubmitted**	**3/6/19**	**Entered table 2**	**-**
11	No	969824	Need EMS to clean water in (b)(6)	1/30/19	1/30/19	0.5
12	No	97020390	Remove cabinet for standing desk	2/1/19	2/5/19	4
13	No	888352	Install broom holder	11/19/18	11/20/18	1
14	No	888334	Water damaged ceiling, check for leak, replace tiles	11/19/18	12/17/18	28
15	No	942890	Grant checkpoint access to MR	1/9/19	1/10/19	1
16	No	98726892	Print name plate for (b)(6)	3/22/19	3/27/29	5
17	No	1036452	AED Beeping	3/24/19	3/27/19	3
18	No	1018073	Place lab signs	3/8/19	3/18/19	10
19	No	1018051	Reattach door closer	3/8/19	3/18/19	10
20	No	1042179	Adjust door closer	3/28/19	4/3/19	6
21	No	888338	Place outlet cover on s wall	11/19/19	4/5/19	137
22	No	72704119	A/C shop work-increase ACH	6/28/18	4/1/19	275
23	No	1051328	Clean pooled water	4/4/19	4/5/19	1
24	No	844309	Animal room temperatures below range (carried over from Fall SAPR)	10/12/18	11/26/18	45
25	No	888310	Replace guard piece for thermostat	11/19/18	1/3/19	45

Table 2: Work Orders Not Yet Completed - include all open work orders generated by previous semi-annual evaluations and other sources. Work orders placed as a result of the current semi-annual review are also entered below.

#	Enter **M**, **S**, or **No**, for **M**inor or **S**ignificant deficiency noted in semiannual evaluation, or **No**t related to semiannual evaluation	Work order (reference) number	Summarize work requested	Date work order was submitted	Elapsed days from submission until _____ (enter date used to calculate elapsed days)
1	No	888315, 1014643	HVAC return slats exposing sharp edges, entered and re-entered, still not completed	11/19/18	143
2	No	1005998	Electrical connection on light switch loose-animal staff tightened cover, temporarily fixing, still likely loose connection	2/27/19	43
3	No	1008044	Replace burned out light bulbs, (b)(6) (b)(6)	2/28/19	42
4	No	969857	Troubleshoot why there is no power to automatic water sequencing panel	1/30/19	71
5	No	942641	Replace burned out light in hood	1/9/19	92
6	No	105690	Spigot handle not working	4/11/19	0

Table 3: Summary

Table #	Number of work orders entered	Average days elapsed
1	24	34.5
2	6	65

Comments (provide any additional information relevant to the numbers of days required for completion of the work orders submitted):

1) Table 1, Item #24 was open at the time of the previous SAPR and has been included for this review due to completion.
2) Table 2, Item #2, nobody came from engineering to address this issue, VMU staff tightened the switch plate, which temporarily addresses this issue, but doesn't fix the electrical connection

►Name of VA Facility: Minneapolis VA Health Care System Version 02/28/13
►Station Number ---------- : 618
►City, State------ : Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

VA SEMIANNUAL EVALUATION
of the
INSTITUTIONAL ANIMAL CARE AND USE PROGRAM AND FACILITIES
Part 1 – Checklist
Section B. Inspection of the Facilities

The Inspection of the Facilities focuses on a physical and visual evaluation of buildings, equipment, and the environment in which animals are maintained and utilized. Some of the items here appear similar to items included in Section A (Review of the Program), but the focus here (Inspection of the Facilities) is on what is actually observed in the animal facilities, while Section A focuses on what is intended or designed.

NOTE: The checklist is designed to prompt review according to regulatory requirements, and focuses on the minimum standards that must be met. The wording in the checklist is not to be interpreted as altering the regulatory requirements in any way, but represents guidance from the office of the CVMO. For specifics about the regulatory requirements and recommended best practices, the references provided in square brackets must be consulted:

"1200.01" refers to the "VHA Handbook 1200.01, Research and Development (R&D) Committee",
"1200.07" refers to the "VA Handbook 1200.07, Use of Animals in Research",
"PHS" refers to the "PHS Policy on Humane Care and Use of Laboratory Animals",
"9 CFR" refers to the "USDA Animal Welfare Act Regulations and Standards, Code of Federal Regulations, Title 9",
"US Govt Principle" refers to the "US Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training", and
"Guide" refers to the National Research Council's "Guide for the Care and Use of Laboratory Animals", 8th edition, 2011

Instructions:

1) Enter identifying information in the header above:
   Double click in the header area.
   Then enter text after each ":"
   (Note: Federal regulations require that a new Review of the Program be completed every 6 months *[PHS (IV.B.1); 9 CFR (2.31(c)(1))]*, and a new Inspection of the Facilities be completed every 6 months *[PHS (IV.B.2); 9 CFR (2.31(c)(2))]*. The "Date of Semiannual Evaluation" is the date on which the last of the components of the semiannual evaluation was completed.)
   Double click in the document area to return to the main body of the form.

2) Enter the information requested below. The "►" symbols indicate required information:

►Date(s) of the most recent previous Inspection of the Facilities: 10/25/2018
►Date(s) on which this Inspection of the Facilities was conducted: 4/25/2018

Names of voting IACUC members who participated in the Facility Inspection:
(The Facility Inspection team must include a minimum of two voting members of the IACUC [9 CFR (2.31(c)(3))]. Any non-members who also participate, at the discretion of the IACUC, may be listed in the second table.)

► Name of VA Facility: Minneapolis VA Health Care System Version 02/28/13
► Station Number ---------- : 618
► City, State------ : Minneapolis, MN
► Date of Semiannual Evaluation: April 25, 2019

Name	Specific Role on IACUC (if any)	Date(s) of Participation
► Janeen Trembley	Chair	4/25/2019
► Matthew Rassette	Attending Veterinarian	4/25/2019
(b)(6)	Scientist	4/25/2019
	Scientist (EOHP Director)	4/25/2019
	Non-Scientist	4/25/2019
	Alternate Veterinarian	4/25/2019

Non-IACUC members who participated in the Facility Inspection:

Name	Title	Date(s) of Participation
(b)(6)	IACUC Coordinator	4/25/2019
	Large Animal Lead Tech	4/25/2019
	Small Animal Lead Tech	4/25/2019

3) The IACUC must inspect semiannually all units of the animal care and use program, including the following:
all areas within the VA animal facilities;
all spaces outside the VA animal facilities where animals are housed for > 12 hours;
any areas where any procedure is performed on animals.

Identify each unit subject to inspection (press Tab in bottom right cell to add rows to the table):

Location (name of site, building name and room number, etc.)	**Species**	**Type of Space** (e.g., VMU, satellite, investigator laboratory) **and the Nature of the Procedures Performed** (e.g., housing, terminal surgery, behavioral training, etc.)	**Name and Role** (e.g., VMU Supervisor, PI) **of Responsible Individual**
Animal Research Facility, (b)(6) (b)(6) (b)(6) and some of the (b)(6) (area known as VMU), including (b)(6)	Mice, rats, rabbits, pigs, non-human primates	VMU, housing, surgery and most other animal study procedures. Van for possible animal transport.	Matthew Rassette, VMO
Animal Research Facility, (b)(6) (b)(6) rooms (b)(6)	Mice, rats	Investigator laboratory, housing for calorimetry measurements, behavioral testing, survival surgery	(b)(6) PIs
Animal Research Facility, (b)(6) (b)(6) rooms (b)(6)	Non-human primates	Investigator laboratory, neural training, testing	(b)(6)

Animal Research Facility, (b)(6) (b)(6) room (b)(6)	Mice	Investigator laboratory; rodent behavioral training and testing	(b)(6) PI
(b)(6)	Mice	Investigator laboratory, terminal perfusion	(b)(6) PIs
(b)(6)	Non-human primates	Hospital imaging area, MRI imaging	(b)(6) PI and (b)(6) (b)(6)
(b)(6)	Non-human primates	Hospital radiation area, CT scans	(b)(6) PI and (b)(6) (b)(6)

4) For each item in the checklist, type "X" in the column that applies (shaded cells should not be used):

Not Applicable
Acceptable
Approved Departure (approved by the IACUC)
Minor Deficiency
Significant Deficiency
Could Not Evaluate (during this inspection)

The last line of each section of the checklist is designated "Other Observations", for documentation of relevant observations that are not directly addressed by the checklist items.

5) For each item marked as an Approved Departure, a Minor Deficiency, or a Significant Deficiency here (Part 1, Section B), provide details in Part 2 of this form.

6) Items that reflect changes in the 8th edition of the *Guide* are flagged as follows, and may require particular attention as the 8th edition is implemented.

‡ **denotes a new "must" item**

† **denotes a new "should" item**

I. Implementation of Institutional Policies

A. Performance of Work According to Protocol							
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
1150	Current versions of IACUC approved protocols are readily available to animal care staff as well as research staff.		X				
1151	Animal research procedures (observed by the IACUC inspection team includes but is not limited to conduct of surgery, behavioral testing, training, exercise, administration of anesthetics and analgesics, etc.) are being performed according to the protocols approved by the IACUC. *[PHS (IV.C.1); Guide (p. 33-34)]*		X				

1152	Individuals observed working with animals are identified on the corresponding protocols approved by the IACUC.		X				
1153	Routine husbandry tasks observed are being performed according to documented SOPs.		X				
B. Addressing Concerns about Animal Welfare							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1200	Contact information for responsible local and VA Central Office personnel are posted prominently in the animal facility for reporting of animal welfare concerns. *[1200.07 (8.k(2)); Guide (p. 24)]*		X				
C. Occupational Health and Safety							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1250	Appropriate hazard signs and relevant safety protocols are posted in plain view, and the MSDSs are readily available, where specific hazardous agents are in use. *[1200.07 (Appendix C-8.h(1)-(2))*]		X				
1251	Wherever gas anesthetics are used, waste anesthetic gas is removed via a scavenging system or by another approved method. *[Guide (p. 21; 145)]*		X				
1252	Labels on safety equipment (e.g. eye wash, emergency shower, fume hoods, etc.) indicate that maintenance and certification are current. *[Guide (p. 20)]*		X				
1253	Good safety practices are evident as indicated by proper glass and sharps disposal, gas cylinders appropriately secured, proper separation of chemicals and wastes, etc. *[Guide (p.74)]*		X				
1254	Supplies are readily available for treatment of bites, scratches, and puncture wounds according to current CDC recommendations. *[Guide (p. 23)]*		X				
1255	Adequate supplies of appropriate attire and clean protective clothing, including disposable PPE (e.g. gloves masks, shoe covers, etc.) are readily available; soiled items are disposed of, laundered, or decontaminated according to approved facility procedures. *[1200.07(Appendix E-2.e) ;Guide (p. 20-22)]*		X				
1256	The IACUC inspection team determined that with regard to the use of hazardous agents, appropriate procedures, containment equipment, and personal protective equipment are used to safeguard personnel and animal health and are consistent (where applicable) with APHIS, USDA, and CDC Select Agent Regulations and other federal, state, and local regulations including security measures. *[1200.07 (Appendix E-2(l)); Guide (p. 20-22; 148-149)]*		X				
D. Other observations							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1300							

II. Physical Plant

A. General							
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
1350	Corridors are sufficiently wide and clear of obstacles so that personnel and equipment can move easily without impediment. *[Guide (p. 136)]*		X				
1351	Floor surfaces are moisture-resistant, nonabsorbent, and impact-resistant; floors are in good condition, without cracks, evidence of delamination or deterioration, of appropriate texture, and are clean and sanitized. *[Guide (p. 137-138); 9 CFR (Part 3, Standards)]*		X				
1352	Floors slope appropriately to drains; drains are filled with liquid, and those not in use for long periods are capped/covered. *[Guide (p. 138)]*		X				
1353	Wall and ceiling surfaces are smooth, moisture-resistant, nonabsorbent, impact-resistant, washable, and free of unsealed penetrations. These surfaces were found to be clean, sanitized according schedule, free of defects and evidence of water damage. *[Guide (p. 138-139); 9 CFR (Part 3, Standards)]*		X				
1354	Doors are adequately sized, fit tightly within their frames, are sealed to prevent vermin entry, and are in good repair; preferred features include self-closing mechanism, sweeps, recessed handles, and protective hardware. *[Guide (p. 137)]* Note: With the exception of doors with viewing windows that are needed for safety and other reasons, windows in animal facilities should generally be avoided.) *[Guide (p. 137)]*		X				
Heating, Ventilation, and Air-Conditioning (HVAC) System							
1355	Maintenance of temperature, humidity, and air pressure differentials within recommended ranges throughout the facility is documented. *[Guide (p. 43-47)]* ►List the document(s) reviewed: Daily recording on 'Room log Sheets'		X				
1356	HVAC reheat units serving animal rooms fail in the "off" position, as designed, to prevent over-heating of animals. *[1200.07 (7.a(2)(a))]*		X				
1357	Effective back-up mechanisms are in place to maintain temperatures and humidity within acceptable ranges in the event of an electrical outage or failure of the HVAC system in the animal research facility. *[Guide (p. 141)]*		X				
Power & Lighting							
1358	Moisture-resistant switches and outlets, and ground-fault interrupters, have been installed in wet areas (e.g. cage processing, aquatic holding areas, etc.) *[Guide (p. 141)]*		X				

1359	Light fixtures, timers, switches, and outlets are properly sealed to prevent vermin from being harbored in them. *[Guide (p. 141)]*		X				
1360	Protective covers are in place over light bulbs and light fixtures. *[Guide (p. 141)]*		X				
1361	In the event of a power failure, alternative or emergency power supply is available to maintain critical services. *[Guide (p. 141)]*		X				
Noise Control							
1362	Noise reduction practices are utilized. *[Guide (p. 49-50; 142)]* For example: • Entry doors from corridors to animal housing areas are closed when not in use. • Carts, racks, and other equipment are equipped with casters. • Noisy animals are grouped in one section of the animal • facility. • Sound-generating equipment is selected and located to minimize disturbance to animals		X				
1363	Vibration dampening procedures are practiced where applicable. *[Guide (p. 142)]*		X				
Environmental Monitoring							
1364	Environmental conditions in animal holding spaces and other sensitive areas are monitored and verified by one or more mechanism or systems. *[Guide (p. 143)]*		X				
B. Facilities for Sanitization							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1400	A dedicated cage and equipment processing area of appropriate size and design (including safety features, traffic flow, utilities, egress, HVAC capacity, clean storage, etc.) is available and meets program needs.*[Guide (p. 143)]*		X				
1401	Appropriate safety precautions and equipment are in place and in use; including but not limited to protective clothing and equipment, posting of standard operating procedures and warning signage, eyewash/shower stations, and functioning safety devices to prevent trapping of personnel inside of walk-in equipment (e.g., cage/rack washers, bulk sterilizers). *[Guide (p. 143)]*		X				
1402	Cage wash temperatures and sterilizer effectiveness are monitored and appropriate records are maintained. *[Guide (p. 72-73)]*		X				
C. Storage Areas							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1450	Food and bedding, toxic or hazardous agents, and wastes are stored in separate designated areas. *[Guide (p. 141)]*		X				
1451	Food and bedding is stored in a vermin-free area and is protected from contamination. Temperature and humidity conditions are appropriate in food storage areas. *[Guide (p. 141)]*		X				

1452	Food stuffs/diets are obtained from reputable vendors and are managed to maintain quality *[Guide (p. 65- 67)]*: • Feed bag stocks are rotated and used prior to expiration date or discarded. • Open bags of feed are stored in sealed, vermin-proof containers. • The storage area is clean and orderly; feed bags are stored off the floor on pallets, racks, or by other methods with adequate clearance from the wall to ensure good sanitation.		X				
1453	Bedding bags are stored off the floor on pallets, racks, or by other methods with adequate clearance from the wall to ensure good sanitation. Autoclaved bedding has been allowed to dry before use or storage. *[Guide (p. 69)]*		X				
1454	Refrigerated storage for animal carcasses and tissue waste is at <7°C (44.6 °F). *[Guide (p. 142)]*		X				
D. Facilities for Aseptic Surgery							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1500	Are located and designed to minimize traffic and/or contamination; the facilities include areas for surgical support, animal preparation, surgeon scrub, operating room and postoperative recovery that separate the related non-surgical activities from the operating room. Equipment and services needed to support the use of the surgery facility are available. *[Guide (p. 144-145)]*		X				
1501	Procedures are in place and have been implemented to assure effective sanitation of the operating room, surgical instruments and equipment, appropriate management and use of stored sterile supplies, scavenging of anesthetic gases, monitoring of drug inventory, and recordkeeping for anesthesia and postoperative care. *[Guide (p. 115; 122; 144-145)]*		X				
1502	Equipment needed to support aseptic surgery (e.g., autoclaves, anesthetic vaporizers, etc.) are in good repair and certifications are current. *[Guide (p. 20]*		X				
E. Special Facilities *(include barrier, aquatics laboratory study areas, procedure areas, imaging, core service facilities ,etc.)*							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1550	Where applicable, the facility/room has appropriate drug storage/monitoring, sharps disposal, anesthetic monitoring and scavenging, safety equipment/procedures (safety signage, eyewash stations, secured gas cylinders, etc.) and carcass disposal. *[Guide (p.19-21;73-74;115;120;122;134)]*		X				
1551	Specialized facilities have procedures and equipment in place to minimize contamination risk. *[Guide (p. 147-150)]*		X				
1552‡	Appropriate sensors and ventilation are provided for areas where cryogen gases are used or stored. *[Guide (p 147)]*		X				

1553	Aquatic housing areas feature water impervious surfaces, slip resistant floors, ground-faulted electrical receptacles or circuits, and HVAC capacity to maintain appropriate temperature and humidity control. *[Guide (p 150-151)]*	X					
F. Ancillary Areas							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1600	Showers, sinks, toilets, locker rooms, and break areas are available for personnel and are separate from animal holding or support areas. [*Guide (p. 19; 136)]*		X				
1601	Space for administrative and supervisory personnel, including space for staff training and education are available and separate from animal holding or animal support areas. [*Guide (p 136)]*		X				
G. Security							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1650	Perimeter doors are closed and locked. *[1200.07 (7.i)]*		X				
1651	Security measures are in practice and mechanisms for controlling entry into the facility function appropriately. *[1200.07 (7.i); 1200.01.9.c; Guide (p. 23;151)]*		X				
H. Other Observations							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1700							

III. Animal Environment, Housing, and Management

A. Physical Environment							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
Temperature, Humidity, and Ventilation							
1750	Temperature and humidity in animal rooms are within acceptable ranges. *Guide (p. 43)]*				X		
1751	Odors, ammonia levels, and drafts are all within acceptable limits; ventilation and air quality are adequate. *[Guide (p. 45)]*		X				

1752	The supply air to animal holding is 100 % outside air treated with appropriate filtration. Note: Exhaust air recycled into HVAC systems serving multiple rooms is a cross contamination risk and generally should be avoided. Exhaust air should be treated with at least 85-95% ASHRAE efficient filters prior to recycling. *[Guide (p. 45-47; 140)]*		X				
Illumination							
1753	Lighting in animal rooms is on appropriate diurnal cycles. *[Guide (p. 47)]*		X				
1754	The intensity, quality, distribution, and rates of change of intensity of the light are appropriate to the species in each room. *[Guide (p. 47-48)]*		X				
Noise							
1755	Radios and other equipment that produce unnecessary sound audible to the animals are not in use in animal rooms, except as required by approved protocols for research or enrichment. Vibration is minimized where possible. *[Guide (p. 49-50)]*		X				
B. Husbandry							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
General							
1800	Animals are appropriately separated by species and disease status. *[Guide (p.111)]*		X				
1801	Animal handling (observed by the IACUC inspection team) is appropriate to the species.		X				
1802	Room logs confirm that daily observation of each animal, as well as cage cleaning, feeding, and watering are performed at appropriate intervals. *[1200.07(7.c)]*		X				
1803	Special procedures (e.g., diet or water scheduling/restriction, prolonged restraint, etc.) are conducted as described in the IACUC approved protocols based on IACUC inspection team observations. *[1200.07 (Appendix D-1.u); PHS (IV.C.1); Guide (p. 27-33)]*		X				
Housing – Primary Enclosures							
1804†	Primary enclosures, cages, and shelters are appropriate (in terms of size, construction, floor space, height, etc.) for the species housed. *[9 CFR (Part 3, Standards); Guide (p. 51-57 and 55-63;* the *Ag Guide]* Note: • The recommended minimum rabbit cage height is16 inches; rabbit cages that are less than 16 inches in height may be used if the IACUC has determined through performance assessments that the cage is sufficient to meet the behavioral, physical, and physiological needs of the animal. *[Guide(p.58-59)]* • The recommended minimum floor space for a female mouse + litter is 51 in^2 ; trio breeding may be appropriate in a cage providing 75-82 in^2 of floor space; the IACUC should make this determination based on the outcome of performance based standards. *[Guide (p.56-58)]*		X				

1805‡	The primary enclosure allows the animal to express natural postures, turn around, access food and water, and rest away from urine and feces. *[Guide (p.56)]*		X				
1806	The primary enclosures (cages, tanks, pens, stalls, etc.) and accessories are clean, in good condition, and are free of rust and sharp edges; the enclosure provides safe species appropriate housing. *[Guide (p. 51)]*		X				
1807‡	Outdoor housing provides protection from extreme weather, conditions, the opportunity to retreat, and is adequately ventilated. *[Guide (p. 54-55)]*	X					
1808	Procedural laboratories that house animals for more than 12 hours meet the minimum standards for housing. *[1200.07 (Appendix E-3.b)]*	X					
Population Management							
1809	Animal records (e.g., cage cards) include the following information, as appropriate *[Guide (p. 75-76); 9 CFR (2.35)]*: • Source of animals • Strain or stock (including genotype using standard nomenclature where applicable) • Name and contact information for PI • Protocol number • Pertinent dates (e.g., acquisition by facility, birth) • Number of individuals per group, when identified in groups • Age or weight • Gender • Individually identifiable features (e.g., markings, tattoos, ear • tags, neck chains, implanted microchips, etc.)		X				
1810	The IACUC inspection team determined that animal records are readily available, appropriately detailed, properly maintained, and accompany animals when transferred to another institution. *[Guide (p. 75-77)]*		X				
Behavioral Management							
1811	The IACUC inspection team determined that the environmental enrichment program is appropriate to the species, ages, and number of animals housed and is beneficial to and safe for the animals. *[Guide (p. 52-54)]*		X				
1812	Animals are housed in compatible social groups as appropriate; socially housed animals are able to escape or hide from aggressive animals, and have ready access to food and water. *[Guide (p. 51-60;63-65)]*		X				
1813	The IACUC inspection team reviewed the records of singly housed animals; *Guide* recommendations for singly housed animals are being followed. *[Guide (p. 64)]*		X				
1814	Based on the behavior observed by the IACUC inspection team, the animals are appropriately habituated to routine husbandry and experimental procedures. *[Guide (p. 64-65)]*		X				
Food							
1815	Each animal is fed uncontaminated, palatable, high quality food using a feed schedule and methods (that considers caloric management, delivery, and sanitation) appropriate to the species. *[Guide (pg. 65-67)]*		X				
Water							

1816	Each terrestrial animal has ready access to potable drinking water (quality based on periodic assessment) and the water distribution system is clean and appropriate to the species. *[Guide (p. 67-68)]*		X				
1817	For aquatic animals, the water quality is appropriate for the species. *[Guide (p. 78-79, 85)]*	X					
1818‡	In aquatic systems, chlorine, chloramines, chemical, and reactive bioproducts are removed or neutralized prior to use. *[Guide (p. 78, 86)]*	X					
1819‡	The biofilter of the aquatic life support system is of adequate size to process the bioload. *[Guide (p 80)]*	X					
Bedding							
1820	The bedding present in primary enclosures (where appropriate) is consistent with the species, facilitates good health, and meets scientific requirements. *[Guide (p. 68-69)]*		X				
Sanitation							
1821	Cleaning implements are designated for specific rooms or for areas at similar risk of contamination and are in good repair. [*Guide (p. 72)*]		X				
1822	Primary enclosures (including substrates and cage components), animal holding rooms, support spaces, etc. are cleaned and disinfected on a regular schedule consistent with the use of the area and nature of contamination. *[Guide (p 70 -72)]*		X				
1823	The effectiveness of sanitation methods/procedures are assessed and documented. [*Guide (p. 73)]*		X				
C. Animal Procurement and Transportation							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1850	Animals being transported are appropriately restrained, secured, and covered, to protect the health and safety of the animals and humans (passersby as well as personnel involved in the work with the animals), to minimize stress on the animals, and to ensure animal biosecurity. *[1200.07(Appendix E-3.a (15)); Guide (p. 107-109); 9 CFR (Part 3, Standards)]*		X				
1851	Promptly on receipt, animals are inspected by qualified personnel and moved to housing appropriate to the protocols for which they have been ordered. *[1200.07 (7.b(3)); Guide (p. 107-109)]*		X				
1852	The condition of animals on arrival indicates that transportation was consistent with USDA regulations and humane practices. *[Guide (p.107)]*		X				
D. Preventive Medicine							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
1900	Based on the observations of the facility inspection team, animals are separated by species, source, health status, intended use (as appropriate) and after receipt, the animals are allowed a stabilization period. *[Guide (p. 109-112)]*		X				
E. Waste Disposal							

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
1950	Conventional, biological, and hazardous wastes are regularly collected, stored and disposed of through the use of safe handling and processing practices. *[Guide (p. 73-74)]*		X				
1951	Waste receptacles are leak-proof, labeled, cleaned regularly, and have tight-fitting covers. *[Guide (p. 73)]*		X				
1952‡	Hazardous wastes are rendered safe before removal from facility. *[Guide (p. 73-74)]*		X				
1953	Appropriate containers for sharps disposal are readily available in locations in which sharps are used, and are no more than 2/3 to 3/4 full. *[Guide (p. 74)]*		X				
F. Pest Control							
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
2000	A humane, effective, and documented pest prevention and control program (that includes rodents and insects) is in place; there is no evidence of pests in the facility. *[Guide (p. 74)]*		X				
2001	When it is necessary to use pesticides in animal holding areas, investigators are consulted in advance of pesticide use. *[Guide (p. 74)]*	X					
G. Medical Supplies							
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
2050	Non-pharmaceutical grade compounds identified during the inspection were confirmed to be associated with an IACUC approved protocol. *[PHS (FAQ F.4); Guide (31)]*		X				
H. Emergency, After Hours, Weekend, and Holiday Care							
		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
2100	The review of log sheets confirm that animals are cared for by qualified personnel on weekends and holidays, as well as on regular weekdays. *[Guide ((p. 74); 9 CFR (2.33(b))]*		X				
2101‡	Posted contact information for veterinary staff and veterinary care entries in logs confirm that emergency veterinary care is available and provided as needed after hours, on weekends and holidays, as well as on regular weekdays. [*Guide ((p. 74;114); 9 CFR (2.33(b))]*		X				
2102	Telephone numbers of key personnel are readily accessible to police and fire agencies at all times. *[Guide (p. 74)]*		X				
I. Other Observations							

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
2150							

IV. Veterinary Medical Care

A. General

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
2200	Animals are observed at least daily for signs of illness, injury or abnormal behavior by trained personnel. *[Guide (p. 112)]*		X				
2201	Visits by part-time veterinarians are documented in a log showing the date and time of each visit. *[1200.07 (Appendix E-2.f(9))]*	X					

B. Surgery

		Not Applicable	Acceptable	Approved Departure	Minor Deficiency	Significant Deficiency	Could Not Evaluate
2250	The IACUC inspection team determined that the recommendations of the *Guide* are followed for non-survival surgery (the surgical site is clipped, the surgeon wears gloves, the instruments and the surrounding area are clean). *[Guide (p. 118)]*		X				
2251	The IACUC inspection team determined that aseptic technique is used for all survival surgical procedures, and includes appropriate preparation of the animal (shaving and disinfection of the surgical site), preparation of the surgeon (scrubbing, use of sterile glove, gowns, etc.), and use of aseptic operative techniques; the aseptic technique procedures are appropriate for the species used. *[Guide (p. 118-119)]*		X				
2252	The IACUC inspection team determined that all surgical instruments and implants used in survival surgery are sterilized by steam, gas, or approved chemicals. Note: Alcohol is not a sterilant or a high-level disinfectant. *[Guide (p. 119)]*		X				
2254	The IACUC inspection team observed that for multiple consecutive rodent surgeries, personnel using hot bead sterilizers or liquid chemical sterilants for instrument sterilization take appropriate precautions to prevent thermal or chemical burns. *[Guide (p. 119)]*						X
2255	The IACUC inspection team confirmed that the operating area is cleaned and disinfected prior to major survival surgery. *[Guide (p. 117)]*		X				
2256	The IACUC inspection team confirmed that appropriate intraoperative monitoring of anesthetic depth and physiological parameters is performed and documented by personnel. *[Guide (p. 119)]*		X				

2257	The IACUC inspection team confirmed that postoperative monitoring and care of appropriate intensity and frequency (includes anesthesia recovery, pain management, management of physiologic needs, assessment of overall well-being, wound healing, suture removal, etc.) was provided and documented by trained personnel. *[Guide (p. 119-120)]*		X				
C. Pain, Distress, Analgesia and Anesthesia							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
2300‡	Drug storage and control practices comply with federal regulations for human and veterinary drugs. *[Guide (p. 115)]*		X				
2301‡	Analgesics and anesthetics (as well as other drugs) are used within their expiration date. *[Guide (p. 122)]*				X		
2302	Procedures for acquiring, using and storing anesthetics and analgesics are compliant with legal and safety standards. *[Guide (p. 115; 122)]*		X				
2303‡	Observation and/or record review indicates that before surgery begins, personnel ensured a surgical plane of anesthesia is attained. *[Guide (p. 122)]*		X				
2304	The IACUC inspection team determined that neuromuscular blocking agents are used in a humane and appropriate manner in accordance with the IACUC approved protocol. (*[Guide (p. 122-123)]*						X
D. Euthanasia							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
2350	Personnel are competent in performing euthanasia methods that are appropriate to the animal's age and species and are consistent with AVMA Guidelines. Alternate methods of euthanasia, if used, are approved by the IACUC. *[Guide (p. 124); 9 CFR (2.31(d)(1)(xi))]*		X				
2351‡	Personnel confirm animal death after the euthanasia procedure. *[Guide (p.124)]*		X				
E. Other Observations							
		Not Applicable	**Acceptable**	**Approved Departure**	**Minor Deficiency**	**Significant Deficiency**	**Could Not Evaluate**
2400							

►Name of VA Facility: Minneapolis VA Health Care System Version 02/28/13
►Station Number : 618
►City, State: Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

VA SEMIANNUAL EVALUATION
of the
INSTITUTIONAL ANIMAL CARE AND USE PROGRAM AND FACILITIES
Part 2 -- Table of Deficiencies and Departures

This form is for documenting the details about the observations noted in the checklists (Part 1, Sections A and B). Each deficiency, minor or significant, must be entered according to Instructions 2 and 3, below. Each "approved departure", as defined by OLAW, must be entered according to Instruction 4, below. The IACUC may also document on this form, at its discretion, other observations that are not deficiencies, and details about "deviations" that are not "departures", as defined by OLAW – these may be useful in addressing concerns raised by accreditation or regulatory agencies, or for monitoring purposes.

Instructions:

1) Enter identifying information in the header above:
   Double click in the header area.
   Then enter text after each ":"
      (Note: The "Date of Last Semiannual Evaluation" is considered to be the date by which both the Review of the Program and the Inspection of the Facilities were last completed. Federal regulations require that a new evaluation be completed no later than 6 months after the last evaluation.)
   Double click in the document area to return to the main body of Form 1.

2) Enter deficiencies with corrections that were still pending on the last report. Copy onto this form each item that was reported on Form 2 of the last semiannual evaluation, for which the correction was not yet completed when the last report was signed:
   Enter the date the deficiency was first noted in a semiannual evaluation.
   If the IACUC determines that a change in the scheduled date of correction is appropriate, ~~strike out the previously approved date and~~ add the new date below it.
   Enter the actual date when the correction of the deficiency was completed. If the work is not yet complete, leave the "Actual date of completion" blank, but include in the description any relevant information about progress to date.

Note: USDA requires the IACUC to report any failure to adhere to the plan and schedule for correction that results in a significant deficiency remaining uncorrected beyond the correction date set by the IACUC. The report must be submitted in writing within 15 business days of missing the correction date set by the IACUC, through the IO, to the Animal and Plant Health Inspection Service (APHIS) and any Federal agency funding the activity involved. Therefore, for the IACUC to change the correction date of a significant deficiency, it must review the justification for the change and approve a new correction date at a convened committee meeting prior to the original correction date.

3) Enter each new deficiency noted on Form 1 (Checklist), Parts A and B, of this report:

The date the deficiency was first noted.
The Part (A or B) and Item # on Form 1 to which it applies.
When applicable, indicate the location where the deficiency was noted.
A description of the specific deficiency -- Include sufficient detail for an outside observer to recognize when it has been corrected), a description of any underlying programmatic or systemic conditions that may have led to the deficiency, and a description of the plans both for correcting the deficiency and for addressing underlying factors so as to prevent recurrence. *[PHS (IV.B.3)]* Be sure to include the name of the individual who will be responsible for overseeing progress on the corrective action, on behalf of the IACUC. (The table will expand to accommodate the text entered.)
The severity of the deficiency (Minor [M] or Significant [S]), as indicated on Form 1.
The scheduled date of correction – enter the date by which the IACUC has determined that the correction should be completed.
The actual date when the correction of the deficiency was completed (leave blank if the work is not yet complete.)

4) Enter each "departure" from PHS Policy, including the provisions of the *Guide*, that has been approved by the IACUC. *[PHS (IV.B.3)]*

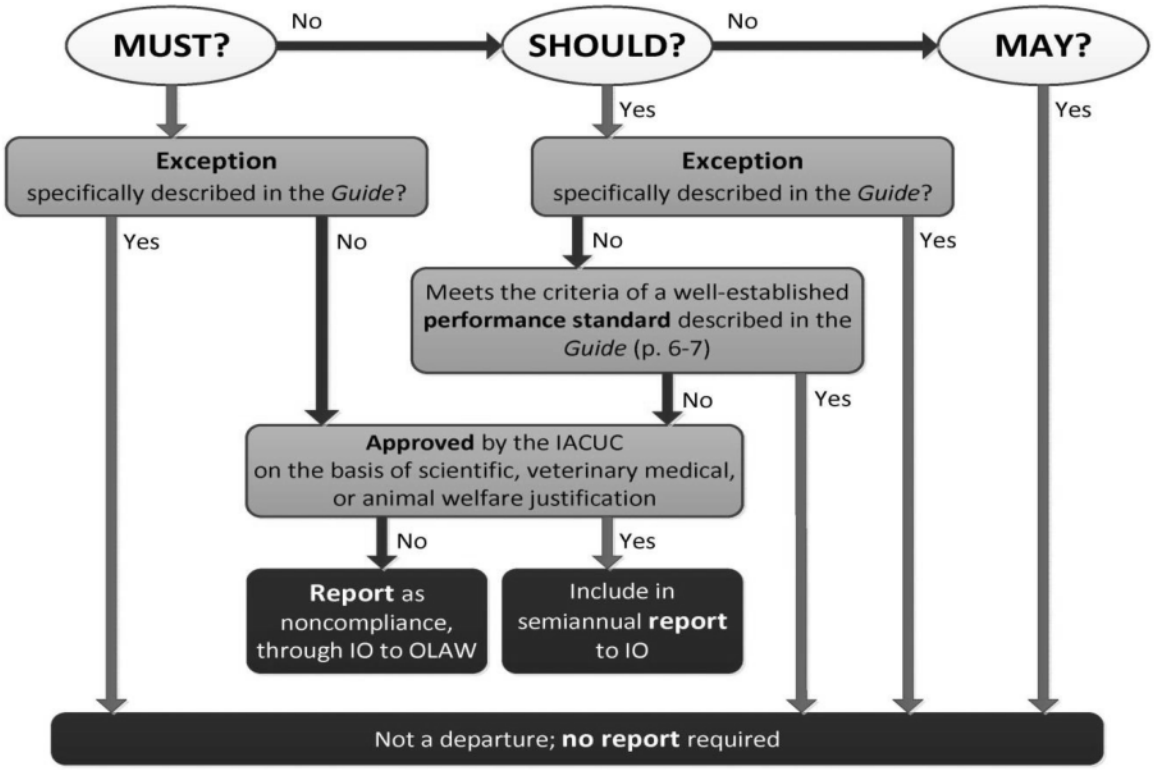
For any deviation from a general standard described in the *Guide*, the following series of test questions may be applied to determine whether the deviation is considered a "departure" by OLAW:

1. Does the Guide describe the general standard as a "May" standard? If so, this deviation from the general standard is NOT a "departure". Otherwise, for any "Should" or "Must" standard, proceed to the next question.

2. Does the Guide include an explicitly stated exception that allows for the deviation? If so, this deviation from the general standard is NOT a "departure. Otherwise, proceed to the next question.

3. Does the deviation meet a well-established performance standard for a "Should" standard, according to locally-defined and continuously monitored performance measures? If so, this deviation from the general standard is NOT a "departure". Otherwise, it IS a "departure", and may be approved by the IACUC only if justified on scientific, veterinary medical, or animal welfare grounds.

The test questions above are summarized in the following flow chart:



►Name of VA Facility: Minneapolis VA Health Care System Version 02/28/13
►Station Number : 618
►City, State: Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

For approved departures that are documented in Appendix 9 of an IACUC-approved ACORP, simply attach a copy of Appendix 9. (The Official Date of Approval in the header must be included, but be sure to redact the name of the PI and the protocol number assigned by the IACUC.) Enter below the table here the total number of Appendix 9 pages attached.

For approved departures that are not documented in an Appendix 9, enter the information into this form as follows:

For "Original Date Noted", enter the date of the IACUC meeting at which the departure was reviewed and approved..
[1200.07 (8,f(1)(d)2-3); PHS (IV.B.3) 9 CFR (2.31 (c)(3)); and Guide (p. 9]

If the departure relates to a specific item on Form 1, enter the Part (A or B) and Item # to which it applies.
If applicable, indicate the location to which the departure applies.
A description of the departure – include a summary of the grounds for granting approval for the departure.
Mark the "D" category, to indicate that the item details a departure.
Enter "N/A" in the columns for the "Scheduled Date of Correction" and the "Actual Date of Correction".

5) Press "Tab" in bottom right cell to add rows to the table.

Original Date Noted	Form 1		Location	Descriptive Details	Category			Scheduled Date of Correction	Actual Date Of Correction
	Part	Item #			M	S	D		
4/25/2019	1B	1750	(b)(6)	Animal room over temperature on 4/21/2019 ►Person responsible for overseeing correction: Dr. Matt Rassette	X			7/25/19	5/1/19 for (b)(6) 5/2/19 for (b)(6)
4/25/2019	1B	2301	(b)(6)	Two expired vials of sterile water ►Person responsible for overseeing correction: corrected at time of inspection	X			4/25/2019	4/25/2019
4/18/2019	1A	500	(b)(6)	Air handler chiller coils inoperable ►Person responsible for overseeing correction: Matt Rassette / AC shop and Engineering Department	X			10/18/19	

►Total number of Appendix 9 pages attached: 0

►Name of Medical Center: Minneapolis VAHCS Version 02/28/13
►Station Number: 618
►City, State: Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

VA SEMIANNUAL EVALUATION
of the
INSTITUTIONAL ANIMAL CARE AND USE
PROGRAM AND FACILITIES

Part 3 – Post-Review Documentation

Instructions (The "►" symbols indicate required information):

1) Enter identifying information in the header above:
   Double click in the header area.
   Then enter text after each ":"
      (Note: The "Date of Semiannual Evaluation" is considered to be the date by which both the Review of the Program and the Inspection of the Facilities are completed.)
   Double click in the document area to return to the main body of Form 1.

2) ►Enter the date of the most recent previous Semiannual Evaluation: October 25, 2018

3) Enter the names of all voting members of the IACUC, and identify the member who fills each required role on the committee, in the table in Section D, below. If any alternate members have been appointed, enter the name of each alternate member in the square brackets (e.g., "[Alt: John Smith]") below the name of each primary member for whom the alternate may serve. Only one member, the primary or the designated alternate, should sign in any one row of the table. (Press "Tab" in bottom right cell to add rows to the table.)

4) Complete Sections A-F, below.

A. SUMMARY OF SEMIANNUAL EVALUATION. Summarize the results of this semiannual evaluation, including an analysis of the implications of the results for the animal research program as a whole. The summary should:

- Note the total number of "departures" from PHS policy, including the provisions of the *Guide*, that have been approved by the IACUC.

- Provide summary overviews of the programmatic and facility deficiencies
  - If there were no deficiencies, include a statement to this effect in the report.
  - If deficiencies were identified, evaluate the overall number and severity of the deficiencies, and what the number and severity indicate about the quality of the program and facilities (refer to the complete list provided in Part 2 – Table of Deficiencies and Departures).

- Comment on any patterns or trends suggested by the observations during this semiannual evaluation and also in the light of previous semiannual reports.

- Acknowledge any laudable aspects of the overall animal care and use program (i.e., related to the program, facility, or personnel).

- Provide a concluding paragraph that: (1) assesses the institution's overall compliance with applicable PHS Policy, the *Guide*, the AWA, and VA Policy; (2) provides recommendations to the IO; and (3) highlights any other pertinent information the IO should be made aware of.

The Minneapolis VA Health Care System Institutional Animal Care and Use Committee (MVAHCS IACUC) met on April 18, 2019 and on April 25, 2019 to perform the semiannual program review the inspection of the facilities for the animal care and use program (ACUP).

The program review found no departures and 3 deficiencies.

Minor: Expired sterile water which was discarded at the time of discovery.
Minor: Room that was over temperature.
Minor: Air handler chillers inoperable

There were also multiple comments and questions that did not rise to the level of a deficiency. These included: water-damaged ceiling tiles; questions about cleaning schedule for NHP training area; insects (bees/wasps) noted in lab window; and unkempt activity monitors and procedure space with no animals present. These are being resolved independently of the semi-annual process.

The general pattern or trend from this semi-annual review is similar to those of recent past: a well-run program supporting research involving animals that is aimed at improving Veteran's lives. While absolute protocol numbers have declined, animal numbers have remained relatively stable over the past three years and the program is lean, with a projected net surplus for the completion of FY19.

The program has an aging infrastructure that, through the extensive effort and hard work of facilities and VMU staffs, is capable of supporting such research. *The MVAHCS IACUC continues to recommend significant infrastructure investment in* (b)(6) Beyond the obvious direct improvements that would benefit the ACUP and bench-top studies, such investment could also pay large dividends to the main hospital, as it could allow for shifting preclinical research from (b)(6) (b) to make room for human clinical research areas. In turn, this would free up clinical resources / spaces currently being utilized for human clinical research.

The VMU is also proud that the past six months saw a member of the VMU staff earn certification as an Assistant Laboratory Animal Technician (ALAT) from the American Association for Laboratory Animal Science.

The IACUC continues to pursue an additional member, with a special emphasis on recruiting another non-affiliated / non-scientific member.

The Minneapolis VAHCS remains in compliance with PHS, the Guide, the AWA and VA Policy.

►Name of Medical Center: Minneapolis VAHCS Version 02/28/13
►Station Number: 618
►City, State: Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

B. DOCUMENTATION of MINORITY OPINION(S). *Any participant in the semiannual evaluation who wishes to provide a minority opinion MUST be allowed to do so [1200.07 (8,f(1)(d)4); PHS (IV.E.1.d); 9 CFR (2.31(c)(3))].* Did any participant submit a minority opinion?

_____ Yes _____X_ No If "yes", fill out section E below.

C. Statement of AAALAC Accreditation *[PHS (IV.B.3)].* Are all VA animals housed or used only in facilities that are part of an AAALAC accredited program?

_X___Yes. If yes, describe the accreditation as indicated below.

Identify the AAALAC accredited program: Minneapolis VA Health Care System

Give the date of the most recent achievement of Full Accreditation: March 30, 2017

____ No. If no, describe the components that are not Fully Accredited, as indicated below.

If VA animals are housed or used at an affiliate institution that is not AAALAC accredited,

Identify the affiliate:

Give the date on which the CVMO approved this arrangement:

If VA animals are housed or used at an institution where the AAALAC accreditation status is other than Full Accreditation,

Identify the institution:

Give the current accreditation status:

Describe briefly the current status of the institution in the process of regaining full accreditation:

D. DOCUMENTATION of REVIEW and APPROVAL by IACUC MEMBERS. *A majority of all voting members (not merely a majority of a quorum) must approve and sign the report [1200.07 (8,f(1)(e)); 9 CFR (2.31(c)(3))]. The report must be completed within one month of the date of the semiannual evaluation to facilitate timely progress on any corrective actions required.*

►Name of Medical Center: Minneapolis VAHCS Version 02/28/13
►Station Number: 618
►City, State: Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

The undersigned verify that we
1) have reviewed and approved Forms 1 (Checklist, Parts A and B) and 2 (Table of Deficiencies and Departures),
2) have read any minority opinions appearing in item E of this report, and
3) hereby authorize IACUC representatives to review this report with the Medical Center Director:

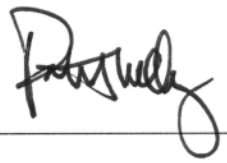
TYPED NAME	ROLE ON IACUC	SIGNATURE	DATE
►Janeen Trembley [Alt:]	Chairperson	►	►5/16/19
►Matthew Rassette [Alt:](b)(6) (b)(6)	Attending Veterinarian	►	►16 May 19
►(b)(6) [Alt:]	Scientist with Animal Research Experience	►(b)(6)	► 5-16-19
►(b)(6) [Alt:]	Non-affiliated (community) and non-scientific (lay) Member	►(b)(6)	►5-16-19
►(b)(6) [Alt:]	Non-scientific (lay) Member	►(b)(6)	►16May19
(b)(6)	Scientist with Animal Research Experience	►(b)(6)	►5-30-19
(b)(6)	Scientist, Occupational Health Physician	►(b)(6)	►5-30-2019
(b)(6)	Scientist with Animal Research Experience	►(b)(6)	► 5/31/2019

E. MINORITY OPINION(S). If part B is checked "yes", provide the typed minority opinion(s) here:

F. COMMUNICATION WITH DIRECTOR OF THE FACILITY. After a majority of all voting IACUC members approve the report and indicate their approval (in Section D, above) by signatures next to their typed names and roles on the committee, *the report must be discussed personally with the facility Director by at least one voting member of the IACUC, representing the committee. It is recommended that the Attending Veterinarian and the IACUC Chair meet with the Director (any voting member of the IACUC who wishes to participate must be allowed to do so). It is a best practice for the ACOS for R&D and/or the AO for R&D to attend as well. After the meeting, the Director must sign the reporting indicating that he/she has reviewed it. [1200.7(8.f(1)(e))].* **Note: the Director's signature only indicates awareness of the contents of the report, and does not imply agreement with the report or satisfaction with the corrective measures proposed. The report may not be altered after it has been signed by a majority of the voting IACUC membership, but any disputed items may be discussed in a cover memo.**

►Name of Medical Center: Minneapolis VAHCS Version 02/28/13
►Station Number: 618
►City, State: Minneapolis, MN
►Date of Semiannual Evaluation: April 25, 2019

Certification: By my signature, I acknowledge receipt of this report, and verify that I have personally discussed its contents with the representatives of the IACUC.

Typed Name of Director	Signature	Date
►Patrick Kelly, FACHE, Medical Center Director, Institutional Official	► 	► 7/3/2019

G. FINAL PROCESSING

A signed copy of the complete report (including Parts 1, 2, and 3) must be sent through the ACOS/R&D and Medical Center Director to the CVMO within 60 days of the date of approval and signature by a majority of the voting IACUC members. The R&D Committee should review the approved report as an item of business, but R&D approval is not required before submission of the final document to the CVMO. Send a copy including all signatures as a hard copy to (b)(6) (b)(6), Research Service-151V, (b)(6) (b)(6), or as an email attachment to (b)(6) and (b)(6). The original must be retained for at least three years.

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Summarize the heating, ventilation and air conditioning (HVAC) systems for each animal facility, ***including all satellite facilities***. Include ***all animal holding rooms*** (including satellite holding rooms), surgical facilities, procedure rooms, and support spaces integral to animal facilities (e.g., cage wash, cage and feed storage areas, necropsy, treatment).

Location/Building/Facility:	(b)(6)

In the text box below, provide a general description of the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as:

- the source(s) of air and air recirculation rates if other than 100% fresh air
- treatment of air (filters, absorbers, *etc.*)
- design features such as centralized chilled water, re-heat coils (steam or hot water), individual room vs. zonal temperature and relative humidity control, the use of variable air volume (VAV) systems and other key features of HVAC systems affecting performance
- features that minimize the potential for adverse consequences to animal well-being (such as re-heat coils that fail closed or that are equipped with high-temperature cut-off systems), and
- how room temperature, ventilation, and critical air pressures are monitored and maintained in the event of a system or component failure, including notifying appropriate personnel in the event of a significant failure that occurs outside of regular working hours and/or other management systems used to respond to alerts or failures.

The HVAC system provides 100% fresh air to all areas, typically between 10-15 air changes per hour. Exhaust air is filtered. There is no re-circulation of air within the animal facility. A constant-volume system manages the air pressure differentials, room to room.

The newer HVAC system servicing the first floor and basement is controlled by a VAVB box using a hot and cold deck system which shuts itself off if the cold deck temperature system sensors go above 80F. This HVAC system is electronically based. When the “smart control” sensor located in the thermostat mounted on the wall in each animal room detects a temperature out of range, the “smart control” computer will adjust the HVAC system to bring the temperature back within range. No coil reheating system is involved for the basement and first level HVAC system.

The older HVAC system serving the second floor does have a coil reheating system, which involves the flow of water through pipes and a blower system to dispense heat or cold. If a coil sensor goes above 80F, the blower system shuts down. While there is still water circulating throughout the pipes, air would not be blown into the rooms.

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

The animal research technicians document the current, high and low temperature for each animal housing room daily using digital temperature/humidity hygrometers. The VMO(s) is/are notified of any significant deviations. The VMU staff monitors affected areas should repair be necessary. The VMU has portable fans available to aid in air movement, should they be needed.

If there is a system failure, VA Engineering and the (b)(6) receive a signal via their computer systems that are monitoring temperatures in the VMU continuously (including after-hours, weekends, and holidays). In the event of an alarm, the (b)(6) (b)(6) confirms that VA Engineering is aware of the situation, that their computer is receiving the same alarm and that the HVAC Shop is investigating the situation. Additionally, a text message is sent automatically to select VA Engineering staff, VMU veterinarians, and the lead small animal care technician. Further, a temperature alarm panel is located in the animal facility near the administrative area. The panel has high and low indicator lights for each animal room.

In the event of an alarm outside of normal working hours, the (b)(6) and the veterinarian(s) establish contact with each other to confirm that the text alarm message has been received and that an action plan has been initiated, as necessary. A utility system technician is always available (including after hours, weekends, and holidays) for repairs or to assess the incident. Additionally, on-call VA Engineering staff will come in if needed. The HVAC shop has additional fans to supplement those that the VMU keeps on hand, if needed.

While the VMU has had multiple challenges with its HVAC system, the Engineering/HVAC shop has always provided outstanding service and been very responsive. We anticipate an upgrade to our HVAC system in the coming years.

In the Table below, provide room-specific information requested. For each room within this location, indicate use, including the species for animal housing rooms. *Measurement of air exchange rates and verification of relative pressure within animal housing rooms (excluding rooms housing aquatic species only) and cage washing facilities must be completed* ***within the 12 months preceding completion of this Program Description.*** Air exchange rates may be important to maintain air quality in other areas; *however, measurements may be left at the discretion of the institution*. Information may be provided in another format, providing all requested data is included. **[*Note*: Please remove the examples provided in the Table below.]**

Room No.	**Specific Use**	**Temperature Set-Point** (define units)	**Electronic / Emergency Monitoring of Temperatures** (Y/N)	**Alert/Alarm Temperature Ranges** (if applicable; define units)	**Humidity Control** (Y/N)	**Relative Pressure**	**Air Exchange Rate** (per hour)	**Date Verified / Measured**
		(settings to be verified)					**(values to be measured)**	
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F	Y	Negative	15	7-25-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
				Alarm if outside range: 68-79˚F				
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	10	7-25-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	12	7-25-2019
(b)(6)	Surgical Prep Room	72˚F	Y	NA	Y	N/A	N/A	N/A
(b)(6)	Treat Prep Room	67˚F	Y	Alert if >69; Alarm if >72	Y	Negative	N/A	N/A
(b)(6)	X-Ray	69˚F	Y	NA	Y	Negative	12	7-25-2019
(b)(6)	Post-Op Ward	70˚F	Y	NA	Y	Negative	10	7-25-2019
(b)(6)	Operating Room	68˚F	Y	NA	Y	Positive	18	7-25-2019
(b)(6)	Operating Room	68˚F	Y	NA	Y	Positive	10	7-25-2019
(b)(6)	Operating Room	72˚F	Y	NA	Y	Positive	18	7-25-2019
(b)(6)	Animal Ward (rabbits)	68˚F	Y	Alert if outside range:	Y	Negative	15	7-25-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
				64-70˚F Alarm if outside range: 61-72˚F				
(b)(6)	Animal Ward (large animal)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 64-84˚F	Y	Negative	6	7-25-2019
(b)(6)	Animal Ward (large animal)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 64-84˚F	Y	Negative	12	7-25-2019
(b)(6)	Animal Ward (large animal)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 64-84˚F	Y	Negative	15	7-25-2019
(b)(6)	Animal Ward (large animal)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 64-84˚F	Y	Negative	15	7-25-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
(b)(6)	Animal Ward (large animal)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 64-84˚F	Y	Negative	15	7-25-2019
(b)(6)	Animal Ward (large animal)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 64-84˚F	Y	Negative	12	7-25-2019
(b)(6)	Feed storage	68˚F	Y	Alert if >69; Alarm if >72	Y	Positive	N/A	N/A
(b)(6)	Necropsy Room	69˚F	Y	NA	Y	Negative	16	7-25-2019
(b)(6)	Diet kitchen	67˚F	Y	Alert if >69; Alarm if >72	Y	Positive	N/A	N/A
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	2-25-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range:	Y	Negative	10	2-25-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
				68-79˚F				
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	7-25-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	7-25-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	2-25-2019
(b)(6)	Animal Ward (rodent) Biohazard	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	14	2025-2019
(b)(6)	Procedure Room	71˚F	Y	NA	Y	Positive	27	7-26-2019
(b)(6)	Procedure Room	71˚F	Y	NA	Y	Positive	29	7-26-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	16	7-26-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	7-26-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	7-26-2019
(b)(6)	Animal Ward (rodent) Biohazard	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	17	7-26-2019
(b)(6)	Clean Cage Wash	72˚F	Y	NA	Y	Positive	121	8-1-2019
(b)(6)	Soiled Cage Wash	72˚F	Y	NA	Y	Negative	137	8-1-2019
(b)(6)	Procedure Room	71˚F	Y	NA	Y	Positive	N/A	N/A

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	14	7-26-2019
(b)(6)	Procedure Room (rodent)	70˚F	Y	NA	Y	Positive	45	7-26-2016
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	4	7-29-2019
(b)(6)	Procedure Room (rodent)	72˚F	Y	NA	Y	Positive	24	7-26-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	14	7-26-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	10	7-26-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	7-26-2019
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	5	7-29-2016
(b)(6)	Animal Ward (rodent)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	15	7-26-2019
(b)(6)	Animal Ward (rodent) Quarantine	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	5	7-29-2019
(b)(6)	Animal Ward (rodent) Quarantine	72˚F	Y	Alert if outside range: 69-76˚F	Y	Negative	12	7-26-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
				Alarm if outside range: 68-79˚F				
(b)(6)	Storage	67˚F	Y	Alert if >69; Alarm if >72	Y	N/A	N/A	N/A
(b)(6)	Procedure Room (rodent)	72˚F	Y	NA	Y	Positive	N/A	N/A
(b)(6)	Procedure Room (rodent)	72˚F	Y	NA	Y	Positive	N/A	N/A
(b)(6)	Laboratory / Procedure Room (NHP)	72˚F	Y	NA	Y	Positive	N/A	N/A
(b)(6)	Laboratory / Procedure Room (NHP)	72˚F	Y	NA	Y	Negative	N/A	N/A
(b)(6)	Animal Ward (rodent procedure/housing room)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	42	7-26-2019
(b)(6)	Animal Ward (rodent procedure/housing room)	72˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	38	7-26-2019
(b)(6)	Animal Ward (rodent procedure/housing room)	72˚F	Y	Alert if outside range: 69-76˚F	Y	Negative	18	7-26-2019

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
				Alarm if outside range: 68-79˚F				
(b)(6)	Procedure room (rodent)	70˚F	Y	Alert if outside range: 69-76˚F Alarm if outside range: 68-79˚F	Y	Negative	23	7-26-2019

Appendix 12: Aquatic Systems Summary

Not applicable to our program.

Appendix 13: Primary Enclosures and Animal Space Provisions

Please complete the Table below considering performance criteria and guiding documents (e.g., Guide, Ag Guide, ETS 123 and/or other applicable standards) used by the IACUC/OB to establish adequacy of space provided for all research animals including traditional laboratory species, agricultural animals, aquatic species, and wildlife when reviewing biomedical, field, and agricultural research studies.

Species	Dimensions of Enclosure (cage, pen, tank*, corral, paddock, etc.)	Maximum Number Animals / Enclosure	Guiding Document Used to determine the Institution's Space Standards (Guide, Ag Guide, ETS 123, Other)	Enclosure Composition & Description**
Mouse	Internal Cage Space at Floor: 6.75"x10.75"x4.75"h	Up to 4 adult mice, or 2 adult mice with one	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	Standard polycarbonate box, with or without static microisolator top
Mouse	Internal Cage Space at Floor: 9"x17"x4.75"h	Up to 8 adult mice, or two females with litters	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	Large polycarbonate box with or without static microisolator top
Mouse	Internal Cage Space at Floor: 7"x11"x4.75"h	Up to 4 adult males or 5 adult females, or 2	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	IVCS
Mouse	Internal Cage Space at Floor: 17"x17"x12.5"h	1 adult mouse	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	SPA, polycarbonate
Mouse	Internal Cage Space Floor: 8"x14"x5.5"h	1 adult mouse	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	(b)(6) polysulfone
Rat	Internal Cage Space at Floor: 9"x17.5"x8"h	1-2 adult rats	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	Standard Shoe Box, open-top

Appendix 13: Primary Enclosures and Animal Space Provisions

Species	Dimensions of Enclosure (cage, pen, tank*, corral, paddock, etc.)	Maximum Number Animals / Enclosure	Guiding Document Used to determine the Institution's Space Standards (Guide, Ag Guide, ETS 123, Other)	Enclosure Composition & Description**
Rat	Internal Cage Space at Floor: 9.5"x15.5"x7"h	1 adult rat	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	Large Wire-Bottom Cage, stainless steel walls with wire grate flooring
Rat	Internal Cage Space Floor: 17"x17"x12.5"h	1 adult rat	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	SPA, polycarbonate
Rat	Internal Cage Space Floor: 9"x17.5"x8"h	1 adult rat	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	(b)(6) polysulfone
Rat	Internal Cage Space Floor: 9"x17.5"x8" plus	1 adult rat	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 57. Table 3.2	Running wheel cage, wire
Rabbit	Internal Cage Space at Floor: 30"x24"x16"h	1 adult rabbit	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 59. Table 3.3	Stainless steel cages with grated flooring, lixits and pc hut
Primate	Cage- 6'W x 2.5'D x 6'H	1-2 primates per cage	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 61. Table 3.5	Rack is made out of stainless steel. It has 4 quadrants each with perch, lixits, squeeze mechanism and lift up doors.
Porcine	Pen- 5.5'W x 5.5'D x 6.5'H	1-2 pigs per pen	Guide For The Care and Use of Laboratory Animals. Eighth Edition. Page 62. Table 3.6	Pig runs consist of 3 connecting pens. Walls are stainless steel. Floors are plastic coated grates. Each pen is equipped with lixit.

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually-ventilated cage systems (IVCS).

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Please describe the cleaning and disinfection methods in the Table below. Note the washing/sanitizing frequency and method for each of the following:

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
Micro-environment				
Solid-bottom cages (static)	Mechanical washer	Weekly	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Solid-bottom cages (IVC)	Mechanical washer	Weekly	Alkaline detergent: sodium hydroxide, potassium hydroxide	Autoclaved
Suspended wire-bottom or slotted floor cages-*rabbit racks*	Mechanical washer	Weekly, or more PRN	Acid detergent: phosphoric acid, polyalkoxylate	
Cage lids	Mechanical washer	Every other week or weekly, PRN	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Filter tops	Mechanical washer	Every other week or weekly, PRN	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Cage racks and shelves	Mechanical washer	Monthly, or more PRN	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Cage pans under suspended cages-NHP	Hand-washed-normal sprayer	Daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
	Mechanical washer	Weekly	Acid detergent: phosphoric acid, polyalkoxylate **and** Alkaline detergent: sodium hydroxide, potassium hydroxide	
Pens, floor pens, stalls, etc.	Hand-washed-normal sprayer	Daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	
Pens, floor pens, stalls, etc.	Hand-washed-normal sprayer, with disinfection	Weekly	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	
Play pens, floor pens, stalls, etc.	High-pressure sprayers	Monthly, or as needed	Acid cleaner: phosphoric acid, polyalkoxylate	As room availability allows for this, as no animals shall be present during such cleaning procedures
NHP Zoos	Hand-washed-normal sprayer	Weekly	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	Spot-cleaned daily or more, as needed to remove fecal material
	Hand-washed-normal sprayer, with disinfection	Every other week, or more PRN	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
NHP transfer tunnel	Hand-washed-normal sprayer	Weekly	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	Spot-cleaned daily or more, as needed to remove fecal material
NHP transfer tunnel	Hand-washed-normal sprayer, with disinfection	Every other week, or more PRN	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	
Feeders-Swine	Hand-washed-normal sprayer	Daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	
	Mechanical washer	Weekly	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Watering devices-Swine	Hand-washed-normal sprayer	Daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	
	Mechanical washer	Weekly	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Watering Devices-bottles and stoppers	Mechanical washer	Weekly	Alkaline detergent: sodium hydroxide, potassium hydroxide	

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
Watering Devices-lixits	Hand-washing-normal sprayer	daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	
Watering Devices-lixits	Handwashing-normal sprayer, with disinfection	Weekly	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	
Automatic Watering System	Flushing with bleach solution	Annually	Sodium hypochlorite	Flushed with pure drinking water, twice daily
Exercise devices and manipulanda used in environmental enrichment programs, etc.-**Large Animal**	Hand-washed-normal sprayer	Daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	
	Mechanical washer	Weekly	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Exercise devices and manipulanda used in environmental enrichment programs, etc.-**Small Animal**	Mechanical Washer	Every Other Week	Alkaline detergent: sodium hydroxide, potassium hydroxide	Washed more frequently, if visibly soiled
Transport cages-large animal	Hand-washed-normal sprayer	Each use	Neutral disinfectant: dodecyl dimethyl ammonium chloride,	

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
			dimethylbenzyl ammonium chloride	
Operant conditioning & recording chambers, mechanical restraint devices (chairs, slings, etc.)	Mechanical and hand-washing, varies by equipment for SPA and calorimetry, running wheels, body comp, etc.	Weekly or sooner, always between animals	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides, dimethyl benzyl ammonium chlorides; Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar Alkaline detergent: sodium hydroxide, potassium hydroxide	
Primate Chairs	Mechanical Washer	Weekly, or sooner as needed	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Primate Phone Booth	Hand-wiped, Hand-washing with germicidal solution	Wiped daily, as needed, sanitized weekly or more as needed	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides, dimethyl benzyl ammonium chlorides; Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Per laboratory procedures

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
Euthanasia chambers-box	Mechanical Washer	Each use	Alkaline detergent: sodium hydroxide, potassium hydroxide	
Lid and tubing	Hand-wiped	Each use	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides, dimethyl benzyl ammonium chlorides	
Macro-Environment				
Animal Housing Rooms:				
Floors-small animal	Mopped	daily	Sodium hypochlorite	Empty rooms mopped weekly.
Floors-large animal	Hand-washed normal sprayer	daily	Bio-based cleaner: surfactants, water softening agents derived from palm oil, corn and sugar	
	Hand-washed normal sprayer, With disinfection	weekly	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Empty rooms hosed monthly.

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
Walls-large animal	Hand-washed normal sprayer	weekly	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Performed when room is empty, and in areas where pens are empty
Walls-small animal	Hand-washed normal sprayer	Monthly, as needed between animals, studies and species	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Performed when rooms can be emptied; in between study groups, after room is emptied and animals are shifted
Ceilings-large animal	Hand-washed normal sprayer	weekly	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Performed when room is empty, and in areas where pens are empty
Ceilings-small animal	Hand-washed normal sprayer	Monthly, as needed between animals, studies and species	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Performed when rooms can be emptied; in between study groups, after room is emptied and animals are shifted
Ducts/Pipes	Hand-washed normal sprayer	Monthly, as needed between animals, studies and species	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Performed when rooms can be emptied; in between study groups, after room is emptied and animals are shifted
Fixtures	Hand-washed normal sprayer	Monthly, as needed between	Neutral disinfectant: dodecyl dimethyl	Performed when rooms can be emptied; in between study

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
		animals, studies and species	ammonium chloride, dimethylbenzyl ammonium chloride	groups, after room is emptied and animals are shifted
Fixtures which cannot be sprayed or splashed	Hand-wiped	Monthly or sooner, as needed	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides, dimethyl benzyl ammonium chlorides	
Corridors:				
Floors	mopped	Weekly, or sooner as needed	Sodium hypochlorite	
Walls	Hand-washed normal sprayer	Monthly, or sooner, as needed	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	
Ceilings	Hand-washed normal sprayer	Monthly, or sooner, as needed	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	
Ducts/Pipes	Hand-washed normal sprayer	Monthly, or sooner, as needed	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
Fixtures	Hand-wiped	Monthly, or sooner, as needed	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides, dimethyl benzyl ammonium chlorides	
Support Areas (e.g., surgery, procedure rooms, etc.); complete for each area:				
Floors	mopped	Weekly, or sooner as needed	Sodium hypochlorite	
Walls	Hand-washed normal sprayer	Monthly, or sooner, as needed	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	In certain circumstances, based on occupancy or sensitive equipment, hand-wiping with germicidal wipes may be substituted.
Ceilings	Hand-washed normal sprayer	Monthly, or sooner, as needed	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	In certain circumstances, based on occupancy or sensitive equipment, hand-wiping with germicidal wipes may be substituted.
Ducts/Pipes	Hand-washed normal sprayer	Monthly, or sooner, as needed	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	In certain circumstances, based on occupancy or sensitive equipment, hand-wiping with germicidal wipes may be substituted.
Fixtures	Hand-wiped	Weekly, or sooner as needed	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides,	

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used*	Other Comments (e.g., autoclaved)
			dimethyl benzyl ammonium chlorides	
Implements (note whether or not shared):				
Mop handles, brooms, hand brooms and mop buckets	Mechanical Washer	Monthly, or sooner, and between animal groups	Alkaline detergent: sodium hydroxide, potassium hydroxide	Separate brooms for each room.
Other				
Other:				
Vehicle(s) Research Van	Hand-wiped	After each use	Germicidal wipes: Dimethyl ethylbenzyl ammonium chlorides, dimethyl benzyl ammonium chlorides	The VA owns a van for research to use, which in an emergency situation could be used for animals but has not to this date been used for the transport of animals. It is climate controlled and has sanitizeable cargo space.
(b)(6) transport van	Handwashing normal sprayer	After each use	Neutral disinfectant: dodecyl dimethyl ammonium chloride, dimethylbenzyl ammonium chloride	Animals are transported between the VA and the (b)(6) (b)(using the (b)(6 transport vehicle, which is climate controlled. The van is sanitized following each use, per (b)(6) SOPs as posted online.

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment

*Please provide chemical, not trade name.

Appendix 15: Facilities and Equipment for Sanitizing Materials

In the Tables below, summarize the facilities and equipment used to sanitize animal related equipment (tunnel washer, bottle washer, rack washer, bulk autoclave, hand-washing area, bedding dispensing unit, *etc.*). Note that some descriptions may be combined if all share identical features (e.g., all rack washers).

[*Note*: Please remove the examples provided in the Table below.]

Building	Room No.	Equipment Type	Safety Feature(s)	Methods of Monitoring Effectiveness
(b)(6)	(b)(6)	Rack washer	Emergency "off" button; labeled exit door, de-energizing cord on both sides, instructional signage, lock-out key	Guarantee 180-degree hot water rinse, digitally recorded and dated for each run; temperature-sensitive tape (Temp-Tape 180 degree) used weekly; ATP bacterial detection used monthly to assess cages, bottles, sipper tubes, feeders, toys.
(b)(6)	(b)(6)	Autoclave bulk	Emergency "off" button; instructional signage	Temperature-sensitive tape used on each load; Biological indicator system used monthly.
(b)(6)	(b)(6)	Autoclave	Emergency "off" button; instructional signage	Temperature-sensitive tape used on each load; Biological indicator system used monthly.

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Appendix 16: Lighting Summary

Using the Table below, summarize the lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity (range), construction features (e.g., water resistance), photoperiod (light:dark) and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms (including alarms, if applicable).

Location: (b)(6)

[*Note*: Please remove the examples provided in the Table below.]

Room Type[a]	**Light Intensity Range**	**Lighting Fixture Construction Features**[b]	**Photo-period** (hrs)[c]	**Photoperiod and Lighting Control**	**Override Mechanisms** (if applicable)
Rodent Holding Rooms	130-325 lux at 1m from floor; 40-90 lux cageside at minimal intensity	Surface mounted, water resistant, variable intensity	12:12	Automatic via wall-mounted timer box	Mechanical on/off switch
Swine Holding Rooms	300-400 lux at 1m from floor	Surface mounted, water resistant, variable intensity	12:12	Automatic via wall-mounted timer box	Mechanical on/off switch
NHP Holding Rooms	300-400 lux at 1m from floor	Surface mounted, water resistant, variable intensity	12:12	Automatic via wall-mounted timer box	Mechanical on/off switch
Surgery	500-800 lux at level of operating table without arm mounted illumination; this meets IES illuminance recommendations	Recessed, water resistant; arm-mounted, water resistant	NA	N/A	N/A
Necropsy	400-600 lux	Recessed, water resistant	NA	N/A	N/A
Cage-Washing Room	500-700 lux	Recessed, water resistant	NA	N/A	N/A

[Create additional rows by pressing TAB in the bottom-right box.]

Appendix 17: Satellite Housing Facilities

Not applicable to our program.