

**Program Description
Animal Care and Use Program**

**Office of the
Vice Chancellor for Research
and Graduate Education
(VCRGE)**

AAALAC File No. 000567

University of Wisconsin - Madison

Research Animal Resources Center

For

AAALAC International

July 14, 2017

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Program Description

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.

The program unit is the Office of the Vice Chancellor for Research and Graduate Education (VCRGE) and its parent organization is the University of Wisconsin-Madison (UW-Madison). There are 8 facilities included in the program unit:

- [REDACTED] (hereafter [REDACTED])
- [REDACTED] (hereafter [REDACTED])
- Research Animal Resources Center (hereafter RARC)
- [REDACTED] (hereafter [REDACTED])

The Wisconsin National Primate Research Center (hereafter WNPRC) manages [REDACTED] of the [REDACTED] facilities:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

RARC does not have a vivarium. It has a [REDACTED] and a [REDACTED] located in [REDACTED] building, and the [REDACTED] (hereafter [REDACTED]) located in leased space in [REDACTED] with animal care managed by RARC. In addition, RARC provides veterinary care, IACUC/OB administration, post approval monitoring, training and related functions campus-wide. This includes four programs with discrete AAALAC accreditations:

UW-Madison School of Medicine and Public Health (SMPH),	AAALAC File No. 000305
UW-Madison VCRGE	AAALAC File No. 000567
UW-Madison School of Veterinary Medicine (SVM)	AAALAC File No. 000620
UW-Madison College of Agricultural & Life Sciences (CALS)	AAALAC File No. 001190

and one unaccredited program, the UW-Madison College of Letters & Science.

- 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.

Founded in 1848, the University of Wisconsin–Madison is the flagship campus of the University of Wisconsin System. It was designated a land grant institution in 1866 with the mandate to serve society through focus on agriculture, science and engineering. The main campus covers 936 acres in the City of Madison. An experimental farm system and other permanent field research stations are located throughout the state.

The University's mission is education, research and service of relevance at state, national and international levels. Educational offerings include 130 bachelors, 144 masters and 109 doctoral degree programs, and 14 professional degree programs. The total enrollment for the fall of 2016 was 43,338. Research is vibrant and varied with

continuing emphasis on interdisciplinary collaboration. In fiscal year 2015 total research expenditures were slightly under \$1.1 billion, which ranked 6th among U.S. universities. This was down \$40 million from the previous year according to the National Science Foundation's annual Higher Education Research and Development expenditures survey. Aside from the public service responsibilities of a land grant institution, the University has a deep tradition of service to various aspects of society. Today this philosophy is manifested in educational outreach, partnering with industry and research collaborations around the world.

VCRGE has two major responsibilities within the University: fostering research and facilitating academic study at the graduate student level. Regarding research, VCRGE is responsible for developing and coordinating campus-wide research policy. It is the administrative home for the Office of Research and Sponsored Programs, which helps researchers apply for and manage externally sponsored funding for research, training and public service projects; and the Office of Industrial Partnerships. Concerning graduate education, VCRGE has the responsibility for graduate student academic affairs and graduate program review and development.

VCRGE receives approximately \$160 million in annual extramural grants, contracts and gifts, which accounts for roughly 20% of such funding received by UW-Madison. Research and teaching within VCRGE involving animals is currently covered by 142 approved animal use protocols.

An excellent animal care and use program is requisite to all parts of the University's mission, and particularly important to research and graduate education. Approximately 455 principal investigators used 320,000 animals at the University in 2016. This is down from 420,000 animals used in 2013, a 24% decrease. This continues a longer trend resulting in a 56% decrease since 2010. About 891 protocols for animal projects, including teaching and research, are on-going. The large majority of these projects take place at University-managed animal care facilities including on campus, in University-owned and leased facilities in the greater Madison area, and at experimental farms and research stations located throughout the state.

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

UW-Madison has formally adopted the following as standards for the animal care and use program: (1) *Guide for the Care and Use of Laboratory Animals (Guide)*, NRC, 2011; (2) *Guide for the Care and Use of Agricultural Animals in Research and Teaching*

(Ag Guide), FASS 2010; (3) the U.S. Department of Agriculture (USDA) Animal Welfare Act and Animal Welfare Regulations; and (4) the Public Health Service Policy on the Humane Care and Use of Laboratory Animals. The Guide and PHS Policy are applied to all live vertebrate species except for agricultural animals used in food and fiber studies or agricultural animal teaching activities. Under these circumstances, the Ag Guide is followed. All four standards also apply to facility planning and management, oversight of animal environments, animal user training programs, IACUC/OB functions, and veterinary care. For purposes of assessing appropriate species-specific euthanasia plans the animal program adheres to the American Veterinary Medical Association Guidelines for the Euthanasia of Animals (2013).

- D.** Describe the organization and include an organizational chart or charts (as an Appendix/Appendices) 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, 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.

The lines of authority and responsibility for administering the program and ensuring compliance with vertebrate animal welfare regulations are as follows: The ultimate responsibility for the program of research animal care and use lies with the Chancellor of the University of Wisconsin-Madison (CEO, per PHS policy). Rebecca M. Blank, PhD has served as Chancellor since 2013. The responsibility and authority of the Institutional Official (IO) for appointing IACUC/OB members have been delegated to [REDACTED], PhD, IO and [REDACTED]. Dr. [REDACTED] has further delegated the responsibility and authority for IACUC/OB appointments to individual associate deans or equivalent positions in each School or College.

UW-Madison has four IACUC/OBs serving the schools and colleges that use animals. The College of Agricultural and Life Sciences (CALS), School of Medicine and Public Health (SMPH) and the School of Veterinary Medicine (SVM) each have dedicated IACUC/OBs. VCRGE and the College of Letters and Science have one combined IACUC/OB that serves both entities. It is known as the LSVI IACUC/OB. Please note that L&S is not AAALAC accredited, while all four of the other schools/colleges are accredited.

The All Campus Animal Planning and Advisory Committee (ACAPAC) is advisory to the IO. The ACAPAC consists of the Chairs of all four of the above IACUC/OBs (vice chairs are alternates), principal investigators representing the campus, the Chief Campus Veterinarian ([REDACTED], DVM, MPH, PhD), and ex officio, non-voting members.

The CEO, IO and the IACUC/OBs are advised by the [REDACTED], [REDACTED], and the Chief Campus Veterinarian, Dr. [REDACTED]. Dr. [REDACTED].

██████ reports directly to Dr. ██████ and is supervised by Dr. ██████ for personnel supervisory purposes only.

RARC is a service unit that provides support to responsible care and use of animals throughout the University. Administratively it is part of the VCRGE and part of this program description. It has three primary functions:

1. Provide veterinary and laboratory services in support of quality animal care.
2. Provide formal training and on-request support in the proper care and handling of research and teaching animals.
3. Provide administrative functions for the IACUC/OBs, post-approval evaluation and assure compliance with the laws, regulations and guidelines governing the care and use of laboratory animals.

The WNPRC is an Office of Research Infrastructure Programs (ORIP) funded entity. It became an administrative unit of the VCRGE in 1990. Due to certain ORIP requirements for the national primate centers it funds, the WNPRC cannot be totally integrated into the above described structure. The ██████, PhD, reports directly to the ██████, PhD, who is the PI of the WNPRC's P51 base grant. In matters of programmatic concern Dr. ██████ has the option to report to the IO. The WNPRC must also maintain its own attending veterinarian. ██████, DVM, DACLAM has filled this role since 2005. He reports directly to Dr. ██████.

WNPRC veterinarians report to Dr. ██████. All other University Research Animal Veterinarians report to Dr. ██████.

The day-to-day management of animal husbandry is under the direct supervision of the VCRGE Units:

- ██████ (██████, PhD, Director; ██████, PhD, Acting Director until approximately November 2017)
- ██████ (██████, PhD, Professor)
- ██████ (██████, BS, Research Program Manager I)
- ██████ (██████, VMD, PhD, Director)
- WNPRC (██████, PhD, Director).

These units are overseen by the LSVC IACUC/OB that oversees both the College of Letters & Science and the VCRGE programs. The units are included in this program description.

Organizational detail is provided in Appendix 1.

- 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.

University of Wisconsin – Madison, Oversight

Rebecca Blank, PhD

Chancellor, **CEO per PHS policy**

[REDACTED], PhD	[REDACTED]
[REDACTED], PhD	[REDACTED] Professor of Surgery, Institutional Official
[REDACTED], PhD	[REDACTED] Associate Professor of Psychology
[REDACTED], PhD	Chair (even years) of LSVIC IACUC/OB, Professor of Psychology
[REDACTED], PhD	Chair (odd years) of LSVIC IACUC/OB, Assistant Professor
[REDACTED], DVM, MPH, PhD, DACLAM	UW-Madison Chief Campus Veterinarian Research Animal Resources Center

University of Wisconsin – Madison, University Health Services (UHS)

[REDACTED], MD, MPT	[REDACTED]
[REDACTED], MS, CIH	[REDACTED]

University of Wisconsin – Madison, Environment, Health & Safety (EH&S)

[REDACTED], PhD	[REDACTED]
[REDACTED], PhD	[REDACTED], Assistant Director of EH&S
[REDACTED], PhD	[REDACTED], Assistant Director of EH&S
[REDACTED], MPH	[REDACTED], Assistant Director of EH&S
[REDACTED], BS, MBA	[REDACTED], Senior Risk Management Specialist EH&S Representative to the IACUC/OBs
[REDACTED]	Senior Risk Management Specialist EH&S Representative to the IACUC/OBs
[REDACTED], BS	Risk Management Specialist EH&S Representative to the IACUC/OBs

VCRGE, Research Animal Resources Center (RARC)

[REDACTED], PhD	[REDACTED] [REDACTED] [REDACTED] Institutional Official
[REDACTED], DVM, MPH, PhD, DACLAM	UW-Madison Chief Campus Veterinarian, RARC
[REDACTED], PhD	[REDACTED] Animal Program Assessment Specialist
[REDACTED], DVM, MS	Associate Research Animal Veterinarian
[REDACTED], DVM, PhD, DACVP	[REDACTED], RARC
[REDACTED], BS, CVT, RLATG	[REDACTED], Senior Administrative Program Specialist
[REDACTED], BA, MA, CPIA	[REDACTED], Senior Administrative Program Specialist
[REDACTED], PhD, CPIA	[REDACTED] Associate Administrative Program Specialist
[REDACTED], BS, MS	Animal Program Assessment Specialist, Senior Administrative Program Specialist
[REDACTED], BS	Animal Program Assessment Specialist Administrative Program Specialist
[REDACTED], BS, MS	[REDACTED], Administrative Program Specialist
[REDACTED], BS, CVT, RALAT	[REDACTED], Research Program Manager I

VCRGE, [REDACTED]

[REDACTED], PhD	[REDACTED], Professor of Comparative Biosciences in SVM On leave to ~November 2017
[REDACTED], PhD	[REDACTED] to ~November 2017 Professor of Pathobiological Sciences in SVM [REDACTED]
[REDACTED], BS	[REDACTED] Associate Administrative Program Specialist

VCRGE, [REDACTED]

[REDACTED], PhD	Program Principal Investigator, Professor of Zoology
[REDACTED], BS	Research Associate, Graduate Student
<u>VCRGE, [REDACTED]</u>	
[REDACTED], VMD, PhD	[REDACTED], Professor of Comparative Biosciences in SVM
[REDACTED], BS, ALAT	Research Program Manager II
<u>VCRGE, Wisconsin National Primate Research Center (WNPRC)</u>	
[REDACTED], PhD	[REDACTED], Professor of Physiology in SMPH
[REDACTED], DVM, DACLAM	Attending Veterinarian, [REDACTED]
[REDACTED], PhD	[REDACTED]
[REDACTED], MBA	[REDACTED]
[REDACTED], PhD	[REDACTED]
[REDACTED], DVM	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED], BS, LATG	[REDACTED]
[REDACTED], BA, MS, LAT	[REDACTED]
[REDACTED], BS, LAT	[REDACTED]
[REDACTED], DVM, DACLAM	[REDACTED]
[REDACTED], BS	[REDACTED]
[REDACTED], PhD	[REDACTED]
[REDACTED], DVM, DACVP	[REDACTED]

- 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 one of

the animal use forms included with this outline or provide the information requested in a similar format as an appendix.

At the time of this writing (May 1, 2017) there are 143 protocols in IACUC/OB-approved active status. The types of vertebrate animal research carried out in VCRGE program primarily involve nonhuman primates (rhesus and cynomolgus macaques, and common marmosets) and rodents (*Mus*, *Rattus*) in biomedical studies. Many studies focus on SIV function and potential therapies, factors effecting maturation and aging, brain disease and function, and the biological bases of behavior. Infectious disease studies account for 27% of all VCRGE protocols (n=39). The UW-Madison campus basic animal user teaching protocol (G005281) is reviewed and approved by the LSVC IACUC/OB. Basic hands-on techniques courses, including animal anesthesia and euthanasia, are taught by core staff members under this protocol. One other teaching protocol (G005309) covers an elective course offered to fourth year veterinary students in nonhuman primate restraint, anesthesia, and physical examination.

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

Sources of funding for vertebrate animal research include federal agencies such as the National Institutes of Health (NIH), National Science Foundation (NSF), and the Department of Defense; private foundations such as the Wisconsin Alumni Research Foundation, and the Susan G. Komen Cancer Foundation; pharmaceutical companies such as Takeda Pharmaceuticals, and internal University and departmental funding.

- H.** List other units (divisions, institutes, areas, departments, colleges, etc.) of your organization that house and 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.

In addition to VCRGE, four other programs at UW-Madison use animals in teaching and research: 1) College of Agricultural and Life Sciences (CALS), 2) School of Veterinary Medicine (SVM), 3) School of Medicine and Public Health (SMPH), and 4) College of Letters and Science (L&S).

L&S is the only program that is not AAALAC accredited. Therefore, animals used by the accredited programs are not housed in L&S facilities.

CALS, SVM and SMPH each maintain their own AAALAC accreditation and, thus, are not included in this program description.

Each program's facilities are operationally distinct, and each is overseen by a program-specific IACUC/OB, except for VCRGE and L&S which are overseen by a single IACUC/OB.

Facility use is allowed among the AAALAC accredited programs. Generally, when animals are housed and used in facilities that cross the jurisdictions of more than one IACUC/OB, primary oversight (including protocol review and approval, semiannual inspections, and veterinary care) is performed by the IACUC/OB that oversees the facility where most of the animals are housed for a given study. Complementary protocol review consultation is sought from the campus research veterinary staff and

other campus IACUC/OBs on an ad hoc basis when a design requires the use of facilities overseen by an IACUC/OB other than the IACUC/OB with primary oversight. Policy 2003-024-io describes the method and circumstances under which multiple IACUC/OBs exercise shared protocol review and approval (<https://www.rarc.wisc.edu/policies.html> > Policies by Number).

The VCRGE has no current protocols for agricultural animals. One protocol involving sheep is considered a biomedical protocol.

CALS has non-agricultural facilities, SVM has , and SMPH has .

The UW-Madison research program includes some use of invertebrates. This use is overseen by the non-IACUC/OB Invertebrate Research Review Committee (IRRC). IRRC is a voluntary oversight committee that meets on an as-needed basis and is charged with reviewing research projects utilizing higher invertebrates. The primary responsibility of the committee is to ensure that invertebrates used in research or teaching are used appropriately, and cared for humanely according to species needs. IRRC was established at the request of UW-Madison investigators who required oversight in order to meet international publication standards. Veterinary and regulatory expertise is represented on the IRRC.

- 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.

No contract facilities are used.

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

None.

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 p. 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 UW-Madison Chief Campus Veterinarian has direct line reporting to Dr. [REDACTED] (IO), who is also serving as the [REDACTED], and freely communicates program needs. The WNPRC Attending Veterinarian communicates with the IO directly, through the [REDACTED], or through the Chief Campus Veterinarian.

The IACUC/OB sends reports of its semiannual inspections and program reviews to the IO. The IO attends at least one regular IACUC/OB meeting per year, at which all committee members have an opportunity to interact with the IO. The Chair of the IACUC/OB is also in regular contact with the IO. The IO attends most of the All Campus Animal Planning and Advisory Committee (ACAPAC) meetings. At these meetings, the IO has direct contact with the school and college IACUC/OB chairs who are members of the ACAPAC.

As the [REDACTED], the IO [REDACTED] attends regular meetings with the management of RARC and monthly all staff meetings.

b. The Attending Veterinarian [Guide, p. 14]

- i. Describe the institutional arrangement for providing adequate veterinary care. For each veterinarian associated with the program (including private practitioners), provide the veterinarian's name(s), list responsibilities, and how the veterinarian is involved in monitoring the care and use of laboratory animals. If employed full-time by the institution, note the percentage of time devoted to supporting the animal care and use program of the institution. If employed part-time or as a consultant, note the frequency and duration of visits.

Outside the WNPRC, veterinary programmatic staffing needs are determined by the IO and [REDACTED] (Dr. [REDACTED]), the UW-Madison Chief Campus Veterinarian (Dr. [REDACTED]), the members of the All-Campus Animal Planning and Advisory Committee (ACAPAC), and the IACUC/OB of each school and college.

WNPRC veterinary staffing needs are determined by Dr. [REDACTED], the WNPRC's Attending Veterinarian, and are based on the size of the NHP population and the amount of experimental procedures that are performed.

Veterinarians, RARC (serving VCRGE)

██████████, UW-Madison Chief Campus Veterinarian 100%
DVM, MPH, PhD, DACLAM

Supervises UW-Madison veterinary care and all veterinarians outside WNPRC. Reports programmatic concerns to the IO and to the ██████████. Is a voting member of the LSVC IACUC/OB and a member of the ACAPAC.

██████████, Associate Research Animal Veterinarian 100%
DVM, MS Senior Program Veterinarian for non-primates

Provides direct veterinary care to small and non-NHP species in the VCRGE facilities (~40%) and CALS facilities (~60%). Serves as the Senior Program Veterinarian for VCRGE and CALS small animals. Reports to Dr. ██████████.

██████████, Research Animal Veterinarian 80%
DVM, PhD, DACVP ██████████

Directs the ██████████ which provides necropsy, histology, disease surveillance and research support services to the UW-Madison animal research and teaching community.

Veterinarians, WNPRC

██████████, WNPRC Attending Veterinarian 100%
DVM, DACLAM

Dr. ██████████ directs the WNPRC Animal Services Division, supervises the clinical veterinarians of the Center, serves on the LSVC IACUC/OB, provides clinical care for animals housed at WNPRC facilities, and provides research support for investigators utilizing these animals.

██████████, Research Animal Veterinarian, 100%
DVM ██████████

Along with providing clinical support for the nonhuman primate colonies, Dr. ██████████ is the ██████████ and performs highly specialized research related procedures (e.g., caesarian sections, fetectomies, vascular cannulations, bronchoalveolar lavages, laparoscopic oocyte collections, ultrasound-guided liver and kidney biopsies, etc.). He pre-reviews protocols for investigators performing research at the WNPRC, and co-supervises 8 research technicians from the ██████████ unit. Dr. ██████████ is also Dr. ██████████'s alternate on the LSVC IACUC/OB.

██████████, Assoc. Research Animal Veterinarian 100%
DVM, DACLAM

Dr. ██████████ provides clinical care for all the animals housed at the WNPRC's nonhuman primate vivarium at ██████████ and provides research support for WNPRC investigators. Dr. ██████████ also supervises the WNPRC trainers.

██████████, DVM	Assist. Research Animal Veterinarian	100%
Dr. ██████████ provides clinical care for the WNPRC nonhuman primate colonies and WNPRC investigator research support. Dr. ██████████ joined WNPRC in April 2017 and has not been assigned a clinical area.		
██████████, DVM	Assist. Research Animal Veterinarian	100%
Dr. ██████████ provides clinical care for the WNPRC nonhuman primate colonies and WNPRC investigator research support. Dr. ██████████ joined WNPRC in April 2017 and has not been assigned a clinical area.		
██████████, DVM	Research Animal Veterinarian	100%
Dr. ██████████ provides clinical care to the WNPRC's SPF rhesus macaque breeding colony. Dr. ██████████ also supervises the WNPRC clinical veterinary technicians.		
██████████, DVM	Asst. Research Animal Veterinarian	100%
Dr. ██████████ provides clinical care for the WNPRC marmosets and macaques housed on the ██████████ of ██████████. Dr. ██████████ also provides research support for WNPRC investigators.		
██████████, DVM	Assoc. Research Animal Veterinarian	100%
Dr. ██████████ provides clinical care and research support for macaques housed in ██████████, supervises the surgical veterinary technicians, and holds the title of ██████████. Her position entails setting policies for the clinical care of the WNPRC nonhuman primates in collaboration with Dr. ██████████.		
██████████, DVM, DACLAM	Asst. Research Animal Veterinarian	100%
Dr. ██████████ provides clinical pathology and necropsy services for the WNPRC marmosets and macaques in addition to providing research support for WNPRC investigators.		
██████████, DVM, DACVP	Assoc. Research Animal Veterinarian	100%
Dr. ██████████ supervises the clinical pathology staff in providing clinical pathology and necropsy services for the WNPRC marmosets and macaques. Dr. ██████████ also provides research support for WNPRC investigators.		

- 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. An organizational chart depicting the reporting relationship between these individuals and the Attending Veterinarian should be included as an appendix.

Veterinary care is provided by the RARC veterinary staff, and the WNPRC veterinary staff, and is their primary responsibility. Other personnel, such as PIs, animal care staff, and technical staff, may participate in providing treatments only, under the oversight of RARC or WNPRC personnel. Physical examinations, diagnosis, and determination of specific treatments are not delegated to personnel other than RARC or WNPRC veterinary staff.

c. Collaborations [Guide, p. 15]

Describe processes for assigning animal care and use responsibility, animal ownership and IACUC/OB oversight responsibilities at off-site locations (i.e., collaborations).

The VCRGE animal care program includes [REDACTED] that are managed by UW-Madison. All are part of the described animal program and included in UW-Madison's PHS Assurance A3368-01.

The LSVC IACUC/OB does not oversee studies conducted with live vertebrate animals at locations that are not part of the described UW-Madison PHS Assurance, except as noted in item 2 below. Policy 2003-015-io on collaborative research projects, subgrants, and subcontracts taking place at non-UW-Madison facilities (<https://www.rarc.wisc.edu/policies.html> > Policies by Number) states:

“(1) Any UW-Madison investigator conducting collaborative research that involves the conduct of work with live vertebrate animals at a facility not owned or controlled by UW-Madison must ensure that an agreement between UW-Madison and the facility is in place prior to initiation of the research. For the purposes of this policy, “collaborative research” includes research conducted at another institution that is supported by funds administered by UW-Madison and/or conducted by a UW-Madison employee or agent under a UW-Madison appointment or affiliation. The agreement must document which entity is responsible for fulfilling compliance obligations such as animal care and handling and performance of IACUC functions. UW-Madison may require the collaborating institution to provide documentation of IACUC/[OB] approval or other relevant materials.

(2) While federal regulatory agencies do not require duplicative review by both institutions, UW-Madison will not relinquish its right to review any animal use protocol. Determination of the need for duplicative review shall be made by the individual College/School [IACUC/OB] using established UW-Madison protocol review processes.

(3) If the research, teaching, or outreach involves animals covered under the Animal Welfare Act (USDA), the non-UW-Madison facility must provide evidence that it is registered as a “Research Facility” with the USDA. If PHS funding supports the activity, the non-UW-Madison facility must provide evidence to the UW-Madison Investigator of current PHS Assurance. Research, teaching, or outreach using live vertebrate animals at non-USDA registered or non-PHS assured institutions will adhere to OLAW's guidance and will be reviewed by UW-Madison institutional representatives on a case-by-case basis.”

Studies involving noncontact observation of wild animals in their natural habitat that does not materially affect the animals must be described in writing in a waiver request and submitted to the Chief Campus Veterinarian or designee per Policy 1997-006-io. The Chief Campus Veterinarian or designee will decide if the animal aspect of the study requires IACUC/OB oversight as required by the Animal Welfare Act Regulations and PHS Policy. A copy of the “wildlife waiver” is available for download and viewing at: <https://www.rarc.wisc.edu/documents/wildlifewaiver.doc>.

2. Personnel Management

a. Training and Education

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

The IACUC/OB provides oversight and evaluation of training program effectiveness during protocol reviews, semiannual program reviews and semiannual inspections, at monthly IACUC/OB meetings, and on an ad hoc basis as needed.

When protocols are submitted for IACUC/OB review, administrative staff verify that all individuals listed on each protocol have completed, are enrolled to complete, or have been notified to complete, basic animal user and safety training as detailed in Policy 1999-006-io. Discrepancies are highlighted for the IACUC/OB's review, and the committees have the discretion to require additional training or retraining on a case-by-case basis, with the completion of such directed training as a contingency of protocol approval. IACUC/OBs commonly direct veterinary staff, trainers from RARC, or specialists (for example, anesthesiologists from the School of Veterinary Medicine) to be present with research staff for initial procedures and surgeries to observe and evaluate techniques, and to report back their assessment to the IACUC/OB.

The basic animal user training required by campus policy consists of: (1) an online orientation that covers federal rules and regulations and campus policies regarding the use of animals in research, (2) an occupational safety class focused on hazards associated with direct contact with animals, plus safety when using sharps, personal protective equipment, reporting significant exposures, first-aid tips, medical concerns, and respirator use, and (3) species-specific handling, restraint, and applicable research techniques. A fourth required class, Lab Animal Surgery, is required of individuals performing animal surgery for the first time, or for the first time on a species new to them. Courses 1, 3 and 4 above are documented in a central training database maintained by RARC. Course 2 is documented by the campus' occupational safety training staff.

Laboratory training notebooks, in which lab-specific training is documented (e.g., that which is provided by Principal Investigators or appropriate lab staff) are present in many labs and are checked by IACUC/OB members during semiannual inspections and discussed with the lab members who are present during the inspections. The Worksheet that serves as the basis for the IACUC/OB's semiannual program reviews [Lab. Animal 2007 Oct; 36 (9) 35-40] contains a section focused on training in the animal program, including a specific discussion item focused on training program effectiveness (from the Worksheet: "There are methods to evaluate the effectiveness of the initial and continuing training of individuals working with animals.").

WNPRC: All training related to the care and use of animals has historically been documented on WNPRC Training Verification Forms. The forms are maintained in each staff member's personnel file. Since January 2010, training information has been documented in the WNPRC's Electronic Health Record system (EHR) which was created with the assistance of [REDACTED], a custom, open-source, web-based platform designed to manage many different types of data. WNPRC training staff members have transcribed all information from the training verification forms into EHR so all training documentation for all personnel is easily accessible via the system. EHR training entries and reports are available for IACUC/OB members to assess during semiannual inspections and for all

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

University of Wisconsin – Madison, Oversight

, PhD,

, PhD,

PhD,

[REDACTED]

[REDACTED], PhD, [REDACTED]

[REDACTED], PhD, [REDACTED]

[REDACTED], DVM, MPH, PhD, DACLAM, [REDACTED]

University of Wisconsin – Madison,
University Health Services (UHS)

[REDACTED], MD, MPT, [REDACTED]

[REDACTED], MS, CIH, [REDACTED]

University of Wisconsin – Madison,
Environment, Health & Safety (EH&S)

[REDACTED], PhD, [REDACTED]

[REDACTED], PhD, [REDACTED], Assistant Director
Environment, Health & Safety: [REDACTED]

[REDACTED], PhD, [REDACTED], Assistant Director
Environment, Health & Safety: [REDACTED]

██████████, BS, MBA, ██████████, Environment, Health & Safety: ██████████

[REDACTED]
[REDACTED], Risk Management Specialist Senior, Environment, Health & Safety:

[REDACTED]
[REDACTED], BS, Risk Management Specialist, Environment, Health & Safety:

VCRGE, Research Animal Resources Center (RARC)

[REDACTED], PhD, [REDACTED]
[REDACTED] See description above.

[REDACTED], DVM, MS, Associate Research Animal Veterinarian, RARC:

[REDACTED], BS, MS, Animal Program Assessment Specialist, RARC:

[REDACTED], DVM, PhD, DACVP, [REDACTED]

[REDACTED]

[REDACTED], BS, MS, [REDACTED], RARC: [REDACTED]
[REDACTED]

[REDACTED], PhD, CPIA, [REDACTED], Animal
Program Assessment Specialist, RARC: [REDACTED]
[REDACTED]

[REDACTED], BS, Animal Program Assessment Specialist, RARC: [REDACTED]
[REDACTED]

, RARC:

, RARC:

, BS, CVT, RALAT, Research Program Manager for

, BS, CVT, RLATG,

VCRGE, [REDACTED]

[REDACTED], BS, PhD, [REDACTED] and Professor of
Comparative Biosciences in SVM: [REDACTED]

UC/OB

[REDACTED], PhD, [REDACTED], Professor of
Pathobiological Sciences and Responsible Official: [REDACTED]

[REDACTED], BS, CPIA, Associate Administrative Program Specialist,
[REDACTED]

VCRGE, [REDACTED]

[REDACTED], PhD, [REDACTED]

, VMD, PhD, [REDACTED], and Professor of Comparative Biosciences in SVM:

VCRGE, Wisconsin National Primate Research Center (WNPRC)

, BA, MS, LAT,

, DVM, WNPRC, Research Animal Veterinarian,

, MBA,

[REDACTED]

[REDACTED] DVM, DACLAM, [REDACTED]

[REDACTED], DVM, DACLAM, WNPRC Associate Research Animal
Veterinarian and [REDACTED]

[REDACTED], DVM, WNPRC Assistant Research Animal Veterinarian:

[REDACTED], DVM, WNPRC Assistant Research Animal Veterinarian:

[REDACTED]

[REDACTED], DVM, WNPRC Assistant Research Animal Veterinarian: [REDACTED]
[REDACTED]

[REDACTED], BS, LATG, [REDACTED]
[REDACTED]

[REDACTED], BS, LAT, [REDACTED]
[REDACTED]

[REDACTED], DVM, WNPRC Research Animal Veterinarian: [REDACTED]
[REDACTED]

[REDACTED], BS, [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED], DVM, WNPRC Associate Research Animal Veterinarian:
[REDACTED]

[REDACTED], PhD, [REDACTED] and Professor of Physiology in SMPH:
[REDACTED]

[REDACTED], DVM, DACLAM, [REDACTED], Assistant
Research Animal Veterinarian:
[REDACTED]

[illegible]

Indicate the number of animal care personnel.

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

██████████ (n=1.25)			
Name	<u>Position</u>	<u>Cert.</u>	<u>Experience</u>
██████████ student help	Animal Research Tech 20-25 hours/week	ALAT	>15 years

The initial training for Animal Research Technicians (ART) and student help includes the RARC Animal User Orientation (every 5-years), Safety for Personnel with Animal Contact, Hazard Communication with GHS update (every 3-years), and Cage Wash/Autoclave training. Husbandry training involves hands-on training by the [REDACTED] in conjunction with review of written SOPs. ARTs have the option to take any of the courses that RARC offers. In addition, RARC veterinary care staff provide annual Sick Animal Reporting training.

[REDACTED] has, in addition, completed Primate Orientation, Microisolator, Biomethodology of the Laboratory Rat, Biomethodology of the Laboratory Mouse, and Controlled Substances training through RARC. Ms. [REDACTED] meets regularly with the RARC veterinarian and veterinary technicians assigned to [REDACTED] for ongoing education and training.

Ms. [REDACTED] works with [REDACTED] to review the procedure requirements and research needs of Principal Investigators and their lab managers, and ensure before the start of each study that these can be met. [REDACTED] communicates the information to student help and provides any hands-on training to students.

[REDACTED] (n=5)

Name	Position	Cert.	Experience
[REDACTED], PhD	Director, Professor		>28 years
[REDACTED], PhD	Postdoctoral Fellow		< 1 year
[REDACTED]	Graduate Student		[REDACTED]
[REDACTED]	Graduate Student		[REDACTED]
[REDACTED]	Graduate Student		[REDACTED]

All five individuals have completed the campus-required training courses for working with frogs, including the Animal User Orientation and Working with *Xenopus*. All personnel are initially trained by the lab's research program principal investigator Dr. [REDACTED] in general *Xenopus* husbandry, oocyte surgeries, hormone injection, and egg acquisition. They must demonstrate competency before they are permitted to perform animal care independently. All personnel are encouraged to consult with University veterinary staff, pursue additional training and/or develop new techniques as needed.

[REDACTED] (n=8)

Name	Position	Cert.	Experience
[REDACTED], BS	Research Prog Manager	ALAT	>12 years
[REDACTED]	Research Specialist		>8 years
[REDACTED]	Research Specialist		>3 years
[REDACTED]	Animal Research Tech	ALAT	>8 years
[REDACTED]	Animal Research Tech		>5 years
[REDACTED]	Animal Research Tech	ALAT	>4 years
[REDACTED]	Animal Research Tech	ALAT	>3 years
Vacant	Animal Research Tech		
Student Help	30-40 hrs/week		

All staff, including students, working with animals have at minimum completed all campus-required training for animal care personnel working with mice and/or rats. This includes the Animal User Orientation course, the Biomethodology of the Rat course, and the Biomethodology of the Mouse course, all through RARC. Also, they complete Safety Training for Animal Users course through UW-Madison EH&S. In addition, all staff receive on-going on-the-job-training from the [REDACTED] manager or lead animal research technician concerning facility-specific animal husbandry

practices and policies. RARC's training staff is called upon for refresher training on seldom used techniques or for more advanced techniques. All members of the animal care staff are encouraged to participate in the AALAS Technician Certification Program and are given a raise when they pass the ALAT exam.

(n=4)

<u>Name</u>	<u>Position</u>	<u>Cert.</u>	<u>Experience</u>
[REDACTED], BS	Research Prog Manager	ALAT	>13 years mice & rats
[REDACTED]	Animal Research Tech	ALAT	>13 years mice & rats
[REDACTED]	Animal Research Tech	ALAT	>9 years mice & rats
[REDACTED], MS	Animal Research Tech	ALAT	>7 years mice & rats

All four individuals responsible for animal care have, at minimum, completed all campus-required training for animal care personnel working with mice and rats. This includes the Animal User Orientation course, the Biomethodology of the Rat course, and the Biomethodology of the Mouse course, all through RARC. Also, the Safety Training for Animal Users course through UW-Madison EH&S. In addition, all animal care personnel receive on-going, on-the-job-training from the [REDACTED] management concerning facility-specific animal husbandry practices and policies. RARC's training staff is called upon for refresher training on seldom used techniques or for more advanced, new husbandry practices and techniques. The facility also provides AALAS memberships for all four individuals and will reimburse exam fees when individuals become AALAS certified. One [REDACTED] member attends the AALAS National Meeting each year. The facility also has subscriptions to "Lab Animal" and "ALN" that are used as shared resources among staff.

WNPRC (n=6 supervisors and 42 animal research technicians)

Animal care personnel are required to attend a New Employee Safety Training where the [REDACTED] provides general occupational health and safety training, as well as training on the requirements of the WNPRC Emergency Response Plan. The [REDACTED] and her staff ensure that all animal care personnel complete a comprehensive orientation and training program prior to being allowed to work with NHPs. They meet with the [REDACTED] to review all training requirements. Before they begin any hands-on training, they are required to review at least 50 standard operating procedures (SOPs). Personnel are required to complete a Herpes B Safety Training module and take a Herpes B virus quiz. They are also required to complete the UW-Madison Safety for Personnel with Animal Contact training module and complete the baseline Animal Contact Risk Questionnaire (Appendix 5), the RARC Animal User Orientation, and the two species-specific NHP courses listed below. In addition, they participate in an intensive 4-week training program focusing on all aspects of basic animal husbandry, including animal identification, transporting animals, animal observations, physical restraint methods, chemical restraint methods, injection techniques, and blood sampling. Ongoing and advanced training is provided as needed. All members of the animal care staff are encouraged to participate in the AALAS Technician Certification Program and are given a raise when they pass either the ALAT, LAT, or LATG exam. Currently, there are 25 WNPRC staff that are AALAS certified. Of those, 16 are members of the animal care (Colony Management) unit. The WNPRC provides funding for several laboratory animal technicians to attend the AALAS national conference each year.

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.

When protocols are submitted for IACUC/OB review, administrative staff verify that all people listed on each protocol have completed, or are enrolled to complete, or have been notified to complete, basic animal user and safety training as detailed in policy 1999-006-io. This policy addresses training requirements for principal investigators, research staff, postdoctoral fellows, students and visiting scientists. Training includes completion of the online UW-Madison Animal User Orientation and occupational safety training, followed by species-specific training based on the species they will work with, and surgical training if applicable. Every animal user's individual training is recorded in a training databases.

- a) Briefly describe the content of any required training.

UW-Madison Animal User Orientation is an online course that covers the rules and regulations regarding the use of animals in research. Specifically, topics include IACUC function, ethics of animal use, the Three R's, methods for reporting concerns about animal use, occupational health and safety issues, animal handling and other related topics. Must be renewed every 5 years.

Safety for Personnel with Animal Contact is an online training course provided by EH&S that offers an introduction to the UW Madison EH&S Department and an overview of occupational health and safety topics including animal contact safety, zoonosis, allergies & asthma, ergonomics, medical concerns, immunizations, injury and exposure protocols, syringe use guidelines, and personal protective equipment. Must be renewed every 5 years.

Risk Communication in Animal Facilities is an online course designed for individuals using chemical, biological or radioactive materials in an animal facility and how to properly notify the animal care and veterinary staff.

Animal Contact Risk Questionnaire (ACRQ) provided by UHS is an onboarding and annual requirement that addresses the health risk assessment for employees working with animals. A blank copy of the baseline questionnaire and annual follow-up form are provided in Appendix 5: Medical Evaluation Form.

Species Specific Training is required of all personnel listed on an approved animal use protocol, as well as animal care staff. Training includes online courses and hands-on instruction pertaining to the species the individual will be working with.

Nonhuman Primate Species Specific Training includes two separate courses: 1) Primate Orientation and 2) Primate Health Procedures. The first is a lecture and the second is a hands-on class. Both are presented by

WNPRC personnel. All UW-Madison employees who will be working with nonhuman primates at the WNPRC and who are listed on an approved animal care and use protocol are required to take both courses.

Medical Records Training Module is an online training module that describes the regulatory oversight and necessity of maintaining medical records. The module explains the role of the veterinarian, veterinary staff, principal investigator, laboratory staff, and animal care staff in maintaining current and accurate medical records. This training is a prerequisite for the Laboratory Animal Surgery Class. It may be required of individuals if deemed necessary by their department or IACUC/OB.

Laboratory Animal Surgery Class is required of all personnel performing survival surgery and prolonged nonsurvival surgery. This course covers anesthesia, analgesia, aseptic technique, instrument handling, basic suturing and wound closure and culminates in a hands-on surgical procedure.

Anesthesia Training Requirements for Nonsurvival Surgery is an online module that covers anesthesia and monitoring, and is required in lieu of the Laboratory Animal Surgery Class for individuals performing nonsurvival surgery less than 5 minutes in duration from the time of incision. This training is a prerequisite for the Laboratory Animal Surgery Class.

Aseptic Technique Training Module is an introduction to the basic terminology associated with aseptic technique. It covers why aseptic technique is used, common sterilization methods, the difference between disinfecting and sterilizing, and the steps that need to be taken in preparation for animal surgeries. This training is a prerequisite for the Laboratory Animal Surgery Class.

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

Per policy 1999-006-io, all UW-Madison animal users are required to complete the UW-Madison Animal User Orientation prior to being named on a protocol or when they are in training as care staff.

Once an individual is placed on an IACUC/OB-approved protocol, species-specific training (administered by RARC) for the species with which the individual will work is to be completed within 30 days.

Once an individual is placed on an IACUC/OB-approved protocol, Safety for Personnel with Animal Contact is to be completed and renewed every 5-years. There is no opt out. Safety staff follow up with individuals until the training is completed.

Individuals named on IACUC/OB-approved protocols as part of the surgical staff are required to complete the Lab Animal Surgery Class or Anesthesia Training Requirements for Nonsurvival Surgery, within 30 days of being placed on the protocol.

If individuals need to work with or care for animals before completing the required training, they must work under the direct supervision of a supervisor who has completed the required training described in policy 1999-006-io. For all but safety training, deadline extensions may be granted through RARC. The Chief Campus Veterinarian may grant waivers for non-safety training. Requests for such waivers are infrequent.

Visiting scientists who spend less than 30 days on campus must work under the direct supervision of the host principal investigator or designee who has completed required training. Visiting scientists who spend greater than 30 days working with animals on campus must complete the appropriate required training as detailed in policy 1999-006-io.

c) Describe continuing education opportunities offered.

Online training modules for continuing education opportunities are available. These modules include:

- AALAS Learning Library
- Anesthesia Machine User Guide
- Anesthesia Training Requirements for Nonsurvival Surgery
- Controlled Substances
- Lab Animal Surgery Anesthesia
- Lab Animal Surgery Aseptic Technique
- Medical Records
- Microisolator Technique

Additional education opportunities are also offered:

- AALAS ALAT certification – classroom and self-study
- AALAS LAT and LATG – self-study
- Necropsy
- Perfusion
- Stereotaxic surgery

The WNPRC [REDACTED] and other WNPRC personnel offer the following additional hands-on continuing education opportunities when requested:

- Tattooing
- Care of nursery animals
- Pole-and-collar training
- Specialized techniques for research procedures

2) Describe the process(es) to ensure surgical and related procedures are performed by qualified and trained personnel. Who determines that personnel are qualified and trained for surgical procedures? What role does the Attending Veterinarian and IACUC/OB have in this determination? [Guide, pp. 115-116]

Every individual named on IACUC-approved protocol as part of the surgery staff, including anesthetists, must complete the Laboratory Animal Surgery Class or Anesthesia Training Requirements for Nonsurvival Surgery. Courses are taught by the RARC Trainers.

If the Training Staff or a veterinarian deems an individual incapable of competently performing surgery, that individual's PI is notified. The individual is then either removed from the surgical portion of the protocol or additional training is arranged.

Once an individual satisfactorily completes the surgery course, the PI resumes oversight to ensure the surgical procedure, as described in their laboratory's animal care and use protocol, is properly completed.

The online protocol management system ARROW verifies that every individual listed on an IACUC-approved protocol has successfully completed the mandatory species-specific and/or surgical training as outlined in policy 1999-006-io. The RARC training staff tracks each person's progress and records the training once it is complete in the central training database operated by RARC. If an individual does not complete the required training in the time permitted, that individual and the PI is sent a notice of revocation. Revocations are tracked until resolved.

RARC Veterinarians are informed of proposed surgical procedures through protocol pre-review and review. Questions that research animal veterinarians or the IACUC/OB may have about qualifications of personnel or the nature of the surgical technique are addressed through protocol review. The veterinary staff is made aware of any surgical procedures planned in VCRGE surgery suites through surgical-suite scheduling procedures. Veterinary staff regularly observes procedures, schedules walk-throughs, and/or performs facility inspections to observe animals. Any concerns are reported to the Senior Program Veterinarian and/or the Chief Campus Veterinarian.

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

If anesthesia will be used, it must be stated in the approved animal care and use protocol. Every protocol is reviewed for proper anesthesia usage by the IACUC/OB and an assigned veterinarian.

Individuals listed on IACUC/OB-approved protocols must complete species-specific training for the species with which they will be working within 30 days of being listed on a protocol. Individualized anesthesia training is offered during the species-specific training courses.

Individuals named on IACUC/OB-approved protocols as part of the surgery staff, including anesthetists, must complete the Lab Animal Surgery course or Anesthesia Training Requirements for Nonsurvival Surgery. Both courses include training in analgesia and anesthesia.

Once an individual has received the required training (species-specific and/or surgery), it is recorded in the central training database operated by RARC. Until an individual has received the required training, they must work under the direct supervision of a supervisor who has completed the required training.

Additional supportive material is available through RARC. Species-specific Sedation/Analgesia/Anesthesia/Euthanasia forms list approved drugs and dosages. An online Medical Records Training Module discusses anesthesia

record content, anesthesia monitoring and offers examples of anesthesia records. Guidelines for Anesthesia Record and Monitoring Requirements for Vertebrate Animals can also be found under the Animal Health, Medical Records section of the RARC website.

WNPRC: Primate Center veterinarians, veterinary technicians, and/or SPI research associates are present for a majority of the procedures where WNPRC NHPs are anesthetized. In addition to completing the NHP-specific training that is provided by the WNPRC in collaboration with the RARC, all of these individuals undergo intensive individual training regarding appropriate anesthesia administration and monitoring techniques. Investigators (and their staff) must also demonstrate proficiency at anesthesia administration and monitoring before they are allowed to perform anesthesia without WNPRC personnel present.

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

If euthanasia is to be performed, the method must be stated in the approved animal care and use protocol. Every protocol is reviewed for the most appropriate method of euthanasia for the study by the IACUC/OB and an assigned veterinarian. Methods of euthanasia are consistent with the AVMA Guidelines on Euthanasia (2013) and pertinent NIH guidelines.

Physical methods of euthanasia (cervical dislocation, decapitation) without prior anesthesia must be justified in the animal use protocol and be approved by the IACUC/OB. The protocol must contain a description of the training of personnel who will perform the euthanasia.

Individuals listed on IACUC/OB-approved protocols must complete species-specific training for the species with which they will be working within 30 days of being listed on a protocol. Individualized euthanasia training is offered during the species-specific training courses.

Old World monkeys housed at the WNPRC are euthanized only by veterinary pathologists, clinical veterinarians, and pathology technicians. The [REDACTED] of the WNPRC ensures the proficiency of all pathology technicians prior to allowing them to euthanize Old World monkeys. New World monkeys (Common marmosets) housed at the WNPRC are euthanized by veterinary pathologists, clinical veterinarians, pathology technicians, and certain approved animal care technicians. A WNPRC veterinary pathologist or clinical veterinarian ensures the proficiency of all pathology and animal care technicians prior to allowing them to euthanize New World monkeys. Animal care technicians euthanize only neonatal marmosets that have been rejected by their parents to reduce the amount of time these animals are in distress post-rejection.

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

Describe the institutional entities that are involved in the planning, oversight, and operation of the institutional occupational health and safety program.

UW-Madison has six institutional entities responsible for the institutional occupational health and safety program:

1. University Health Service (UHS)
2. UW Environment, Health and Safety (EH&S)
3. Institutional Safety Committees
4. Stem Cell Research Oversight Committee (SCRO)
5. Animal Care and Use Committees (IACUC/OBs)
6. Office of Risk Management

1. University Health Services (UHS): UHS was founded as the University's health center for students. The role of UHS has expanded and now also includes an Occupational Medicine Department and the Environmental and Occupational Health Unit, previously part of the Division of Environment, Health and Safety (see below).

The UW-Madison Occupational Health Program is a component of the UHS. The [REDACTED], is a Certified Industrial Hygienist who manages the UW Occupational Health Program. Mr. [REDACTED] reports to the [REDACTED] and is responsible for defining essential elements of the Occupational Health Program and for coordinating review of the program with the UW Occupational Health Committee.

A) Environmental and Occupational Health is directed by Mr. [REDACTED]. Mr. [REDACTED] is the [REDACTED] and serves under Mr. [REDACTED]. Environmental and Occupational Health provides a variety of services campus wide: industrial hygiene investigation and consultations, food safety, noise evaluation surveys and hearing conservation, indoor air quality, assists departments with respiratory protection plans, ergonomics, reproductive hazards, non-research blood borne pathogen programs, and coordinates the measurement and fitting of prescription safety glasses.

B) Occupational Medicine staff under UHS [REDACTED], MD, reviews the Animal Contact Risk Questionnaire (ACRQ) baseline form (Appendix 5a) to enroll personnel with animal contact into the occupational health program. Thereafter, an annual form is used (Appendix 5b). Medical staff perform tetanus vaccinations, rabies and Hepatitis B vaccinations, pre-exposure consultations and vaccinations for personnel working with certain infectious diseases and work related allergy consultation and management. Other responsibilities include respirator clearance and fit testing, TB testing for non-human primate handlers, follow-up evaluations for positive responders, and treatment of exposures during regular working hours. After-hours treatment for exposures is performed by UW Hospital & Clinics Emergency Room Services. In addition, UHS coordinates any serum collection needed for pre-employment or pre-exposure services for some labs depending on the hazardous agent involved.

Further information about UHS can be found on their website:
<https://www.uhs.wisc.edu/eoh/>

2. UW Environment, Health and Safety Department (EH&S): EH&S is organized into five offices involved in the oversight of animal program safety: (A-E below):

A) Office of Biological Safety (OBS) is directed by [REDACTED], PhD, the [REDACTED]. OBS assists all faculty and staff in observing safe biomedical laboratory practices as prescribed by the Centers for Disease Control and Prevention

(CDC) and the National Institutes of Health (NIH) and the University of Wisconsin-Madison Institutional Biosafety Committee (IBC). OBS oversees the Biological Safety protocol review process and performs regular laboratory visits for post approval monitoring. The office assures that research is done in secure facilities in compliance with all local, state, and federal regulations. OBS also encompasses the **Animal Research Safety** group and the **Select Agent Safety** group

- **Animal Research Safety (ARS):** ARS advises IACUC/OBs on animal protocol hazards, participates in monthly IACUC/OB meetings and semiannual inspections, and coordinates bi-monthly animal safety working group meetings to discuss occupational safety and health concerns within the UW-Madison animal research community. Three ARS specialists review sections of Biological Safety protocols related to animal research, and attend IBC meetings as needed when Biological Safety protocols that include animal research are submitted for review as part of consistency checks. ARS staff also advise personnel with animal contact on safety issues, and coordinate research-related blood-borne pathogen programs.

- **Select Agent (SA) Program:** The UW-Madison SA program assists faculty and staff to ensure compliance with the Federal Select Agent program. The Federal Select Agent Program is jointly comprised of the CDC Division of Select Agents and Toxins and the APHIS Select Agent Services. The Federal Select Agent Program oversees the possession, use and transfer of biological select agents and toxins (SABT), which have the potential to pose a severe threat to public, animal or plant health, or to animal or plant products. The UW-Select Agent Program assists in implementing and enforcing the Select Agent Regulations, maintains an up to date inventory of all SABT on campus, conducts laboratory inspections, ensures that all individuals who work with these agents undergo a security risk assessment performed by the FBI, and investigates any incidences in which non-compliance may have occurred. The current list of select agents and biological toxins that fall under the SA regulations are posted on the Federal Select Agent Program website: www.selectagents.gov/SelectAgentsandToxinsList.html

B) Office of Engineering and Technical Services (ETS) is directed by [REDACTED] BSME, Senior Administrative Program Specialist and [REDACTED] (also, Alternate Responsible Official (ARO)). ETS provides facility and biomedical containment consultation throughout the University and within EH&S. ETS provides consultation concerning the purchase of biological safety cabinets (BSC).

C) Office of Chemical Safety is directed by Dr. [REDACTED] who is [REDACTED]. Chemical Safety assists the University and research community by providing guidance on chemical safety and compliance with regulations dealing with the use and storage of hazardous chemicals and drugs. It provides general laboratory safety training and performs laboratory visits to provide direct feedback on safety and compliance concerns. Chemical Safety also consults with investigators on safety and compliance issues upon request. The Office assists with chemical disposal and serves as an advisor for spill cleanup. Each laboratory is required to have a chemical hygiene plan while non-chemical laboratories are required to have a Hazard Communication Plan. The Chemical Safety Committee, overseen by the Office of Chemical Safety, uses the OSHA Laboratory Standard to identify Particularly Hazardous Substances requiring additional special precautions. A Particularly Hazardous Substance Approval Form is completed for each area using these chemicals. After approval, this form is reviewed by all personnel working with that material, and is attached to their chemical hygiene plan. All rooms used for storing hazardous materials must have a "Laboratory Emergency Information" form posted near the door and a copy of the completed form must be provided to each facility manager. The signs are updated

annually. Chemical safety specialists provide consultations for the safe use of hazardous chemicals and hazardous drugs administered into animals.

D) Office of Radiation Safety (ORS) is directed by Mr. [REDACTED], MPH, the [REDACTED]. ORS assures proper use of radioactive materials and radiation producing devices. It provides training and consultation to researchers and staff, as well as frequent audits of radiation labs to ensure all radiation safety requirements are in place. ORS staff visit each lab to discuss safe handling and storing, posting and labeling, contamination checks, waste disposal, record keeping and other requirements as needed. To use radioactive materials in vertebrate animals, the authorized user must submit a form 99A to ORS. An animal use protocol approved by the IACUC/OB is also required prior to approval of the 99A request. ORS works with the authorized user to assure that proper radiation training has occurred, that animals are not moved to unauthorized facilities, that proper labeling is placed in animal rooms and on cages, that animal waste, food and bedding is properly disposed of, that the animals are permanently marked or tagged as having been given radioactive materials, that animals are disposed of by ORS when euthanized, and that other requirements as stated on form 99A are followed. ORS controls the purchase of all radioactive materials for the campus. Unless all required practices are followed, the user will not be allowed to obtain radioactive materials for a project.

E) Office of General & Building Safety assists all UW-Madison departments, programs, faculty, students and staff in observing safe work practices as prescribed by the Wisconsin Administrative Code. The department promotes the development of safe facilities and advocates for proactive maintenance programs to insure the safety of persons using campus facilities for work, learning or recreation. The office's areas of responsibilities include building safety (includes asbestos and lead management), confined space entry, accident prevention, sharps and hazardous glass disposal, advice on Lockout/Tag-out for hazardous equipment, fire safety (which includes fire extinguisher maintenance, training and annual testing), evaluation of safety showers and eye wash stations, fire prevention via inspections and improvements for code compliance, evacuation drills and fire alarm testing.

3. Institutional Safety Committees: There are five faculty committees that function at the institutional level. They receive administrative support from EH&S:

A) Institutional Biosafety Committee (IBC): The IBC reviews research activities involving biologically hazardous materials and/or recombinant DNA molecules/organisms. Investigators using biologically hazardous materials and/or recombinant DNA must submit a Biological Safety protocol to the Committee. The Committee reviews and approves protocols, and establishes appropriate safety precautions. The Committee is constituted as mandated by section IV-B-2 of NIH Guidelines.

B) Biosecurity Task Force: The Task Force is the home of the institutional select agent program. Significant administrative support is provided by EH&S's Office of Biological Safety. Professor [REDACTED], PhD serves as UW-Madison's Responsible Official (RO). The [REDACTED], is one of three Alternate Responsible Officials (AROs) who are all EH&S employees (Appendix 1, chart 2).

C) Chemical Safety Committee: The Chemical Safety Committee establishes policies and procedures for the safe acquisition, use, storage and disposal of chemicals on

campus. The Committee provides guidance to the Office of Chemical Safety in carrying out these policies and procedures. The Committee advises EH&S and campus chemical users on programs to comply with federal, state and local chemical and environmental safety laws.

D) Radiation Safety Committees: In 2016, UW-Madison and UW Health (governed by UW Hospitals and Clinics Authority) finalized a partnership agreement to merge, reorganize, and jointly manage their radiation safety programs. Overall oversight of the program is charged to an Executive Radiation Safety Committee, and six full, standing radiation safety committees that focus on more specific aspects of radiation safety (i.e., Radioactive Drug Research Committee; UW Nuclear Reactor Safety Committee; Campus Radiation Safety Committee; Human Radiation Use Committee; X-ray Safety Committee; and Laser Safety Committee). The Campus Radiation Safety Committee oversees animal research involving radioactive materials.

Membership of the Executive Committee and related committees is drawn from personnel from UW-Madison and UW Health, and they are appointed annually by the Chancellor of UW-Madison and Chief Administrative Officer of UW Health or their designees. The committees are charged to advise University administration, set policy to ensure compliance with local, state, and federal regulations, approve requests from faculty and staff to use radioactive materials, radiation producing machines and non-ionizing radiation, and evaluate protocols for their use. The Office of Radiation Safety (ORS) in FPM/EH&S is the administrative office for these committees.

E) Occupational Health Committee: This committee is appointed by the Chancellor to develop and recommend policies and procedures on all aspects of occupational health. The committee advises University administration, and sets policy to ensure compliance with local, state, and federal regulations and accreditation requirements governing occupational health and safety. The committee reviews workplace health and safety issues brought to their attention and makes recommendations for resolutions. The committee also reviews safety services provided to the campus, and evaluates University safety performance consistent with their charter.

4. Stem Cell Research Oversight Committee (SCRO): The SCRO is an institutional committee based in the VCRGE and does not receive administrative support from EH&S as do the above institutional safety committees. The SCRO provides oversight for all research on campus that involves 1) the use of human embryonic stem cells (hESC) or their derivatives; 2) the introduction of human pluripotent stem cells (hPSC), or their derivatives, obtained from a non-embryonic source, into non-human animals at any embryonic, fetal, or postnatal stage, if an expected effect is that the human cells will be integrated into the central nervous system, testes, or ovaries of the animal; 3) all research that (a) involves pre-implantation stages of human development, human embryos, or embryo-derived cells or (b) entails the production of human gametes in vitro when such gametes are tested by fertilization or used for the creation of embryos; or 4) the storage or disposition of human embryos or gametes obtained for the purposes of stem cell research. SCRO policies and guidance are based on federal and international guidelines from the NIH, NAS, and ISSCR. The committee ensures that all appropriate oversight approvals are in place.

5. Animal Care and Use Committees (IACUC/OBs): Exposure intensity, frequency, hazards posed by animal species, and the research materials used in or with

animals are evaluated by the IACUC/OBs and other specialized review committees described above. Specialists from the EH&S Office of Biological Safety's Animal Research Safety Group (ARS) review animal protocols as voting members of the IACUC/OBs. Ms. [REDACTED] is the voting member assigned to all four IACUC/OBs, and Mr. [REDACTED] and Ms. [REDACTED] are her voting alternates. The specialists participate in IACUC/OB semiannual facility inspections, and attend convened IACUC/OB meetings to provide expert opinion and guidance. The specialists also review animal-related parts of Biological Safety protocols and attend the IBC meetings as needed. Biological Safety protocols are submitted for review as part of consistency checks.

The IACUC/OB specifically reviews the occupational safety program as it relates to the animal program at every semiannual program review and provides feedback in its reports to the Institutional Official.

6. UW Division of Business Services, Office of Risk Management: The Office is responsible for processing State of Wisconsin Worker's Compensation reports and evaluating risk data. Among other occupational risk mitigation services, the Office provides the following:

- Driver Authorization
- Student Risk Management Information
- Risks of Off Campus Classes
- Liability Program
- International Health Insurance

Other entities that provide important services, but are not directly involved in program planning or oversight include the following:

A) UW Hospital and Clinics (Emergency Department and Infectious Disease Physicians). The UW Hospital and Clinics emergency department serves as a back-up to UHS for the treatment of bites and exposures as well as other research hazards. The Infectious Disease Physicians serve as a resource for exposure to and treatment for biological hazards and zoonotic diseases.

B) Employee Health Providers serve as the main diagnostic entity for the treatment of non-traumatic injuries sustained by University employees with health insurance. Students would generally be treated by UHS or the UW Hospital & Clinics emergency department.

i. Hazard Identification and Risk Assessment [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]

- 1) Describe the process used to identify, evaluate and control experimental and other potential hazards (such as ionizing and non-ionizing radiation, chemical cleaning agents, animal bites, allergens, zoonoses, and venomous species) inherent or intrinsic to the use of animals by the institution. Describe how risks of these hazards are assessed and how procedures are developed to manage the risks.

Research Hazards Identification & Evaluation Processes:

Processes to identify evaluate, manage and control hazards are overseen by the Offices of Biological Safety, Radiation Safety, and Chemical Safety, and by the IACUC/OB.

Office of Biological Safety (OBS): PIs must submit a Biological Safety protocol to OBS. OBS routes these protocols to the IBC. Review of biosafety protocols forms the basis for the conduct of a thorough risk assessment, the results of which are communicated to the principal investigator via the protocol registration form. Process:

- 1) OBS performs a risk assessment based on the type of hazard, how it is used, and quantity administered. An Animal Research Safety staff person is assigned to review any relevant animal sections and ensure congruence with applicable animal protocols.
- 2) The PI is notified if any changes are needed and, if necessary, the finalized OBS protocol is submitted to the IBC for review.
- 3) The Institutional Biosafety Committee (IBC) reviews research activities involving biologically hazardous materials and/or recombinant or synthetic DNA molecules/organisms.
- 4) The IBC will either approve the protocol, approve the protocol pending changes, or table the protocol. When necessary, OBS assists the PI with modifications until the protocol is approved.
- 5) Staff from Animal Research Safety participate in semi-annual site inspections of animal facilities and research laboratories performed by the IACUC committee members.

Office of Radiation Safety (ORS): PIs using radioactive materials in vertebrate animals must submit a Radiation Safety form 99A to ORS. An animal use protocol approved by the appropriate IACUC/OB is also required prior to final approval of the 99A request. ORS works with the authorized user to assure that:

- proper radiation training has occurred, including laser use
- animals are not moved to unauthorized facilities
- proper labeling is placed in animal rooms and cages
- animal waste food and bedding is properly disposed of
- animals are permanently marked or tagged as having been given radioactive materials
- animals are disposed of by ORS when euthanized
- other requirements as stated on form 99A are followed.

The PI must indicate on the animal use protocol they have an approved or pending 99A. ORS controls the purchase of all radioactive materials for the campus. Unless all required practices are followed, the user will not be allowed to obtain radioactive materials for the project.

Office of Chemical Safety: When use of hazardous chemicals is identified, Chemical Safety staff assist laboratories with the safe use of chemicals and prevention of hazardous exposures. They also assist with chemical disposal and guidance for spill cleanup and provide a manual titled, "Laboratory Safety Guide." Each laboratory is required to have a Chemical Hygiene Plan (CHP) while laboratories not utilizing hazardous chemicals are required to have a Hazard Communication Plan. The Chemical Safety Committee uses the OSHA Laboratory Standard to identify Particularly Hazardous Substances requiring

additional special precautions. A Particularly Hazardous Substance Approval Form is completed for each area using these chemicals. After approval, this form is reviewed by all personnel working with that material, and is attached to their chemical hygiene plan.

All rooms used for storing hazardous materials must have a "Laboratory Emergency Information" form posted near the entrance of the lab. The Laboratory Emergency Information card is reviewed and updated annually.

IACUC/OB Protocol Review: PIs amend, renew or generate a new animal care and use protocol that includes identification of hazards, initial risk assessment of hazards, establishment of precautions, and confirmation of an applicable Biological Safety protocol and/or Radiation Safety Form 99A. The protocol is submitted to the RARC IACUC Office. RARC schedules review of the protocol by the full IACUC/OB at the monthly meeting or via Designated Member Review (DMR). The protocol is reviewed by:

1) An Animal Research Safety staff member who:

- a) Assesses the risk presented by the species used and ensures appropriate procedures are outlined to manage or control the risks, including appropriate personal protective equipment (PPE), and caging to handle allergens and zoonotic agents.
- b) Assesses the risk presented by biological or radioactive agents administered to the animals. Compares the protocol to the Biological Safety protocol and 99A form for consistency, and, if necessary, emails the PI if a Biological Safety or 99A is needed, if they need to be modified or amended, if they need to be renewed, or if safety precautions contained within the other protocols are inconsistent with the information presented in the animal use protocol.
- c) Assesses the risk presented by chemicals or drugs administered to the animals. Performs research to obtain the following information regarding the compound if available and needed: pharmacokinetic data, safety and toxicity data, Safety Data Sheets or product inserts. When new compounds are added or dosages of current compounds change, the Office of Chemical safety performs a risk assessment.

2) One or more IACUC/OB member(s) specifically assigned to the protocol who:

- a) Generates questions and or modifications needed regarding biosafety or any other component of the protocol and provides these to RARC for the Committee meeting or to be submitted to the PI in the case of DMR.

3) A research animal veterinarian (also an IACUC member) specifically assigned to the protocol who uses their expertise to do as the above committee member(s) while applying a veterinary perspective.

The IACUC/OB has authority to place a hold on granting animal protocol approval if a corresponding amendment is needed to the Biological Safety protocol. If a PI is adding a new biological agent that is either subject to the NIH Guidelines for Research Involving Recombinant or Synthetic DNA Molecules, or is a pathogen or agent in risk group 2 or higher, the agent must also be added to their Biological Safety protocol. The ARS staff person will advise the IACUC when the PI has submitted the corresponding Biological Safety amendment and recommend approval of the animal protocol when congruence between both the animal and Biological Safety protocol has been achieved.

Once the animal use protocol is approved, RARC sends electronic notification to the PI. The notification includes instruction that animal facility staff must be contacted prior to initiating work with any hazard. Animal facility supervisors are included on emails so they are aware of any safety precautions needed for the protocol. Potential precautions include posting hazard door signs, placing hazard labels on animal cage cards, appropriate disposal of waste, and appropriate PPE. If respirators are required for animal handling the appropriate models are provided. Facility personnel are medically evaluated and fit tested by UHS to wear the respirators. If other medical services such as vaccinations are needed personnel are referred to UHS prior to initiation of the work.

Post-Approval Monitoring:

1) The IACUC/OB conducts semi-annual inspections of all animal facilities and non-centralized facilities such as PI labs where live animals go. It may also conduct ad hoc inspections using committee members and/or consultants. A member of the Animal Research Safety group participates in the semi-annual site inspections of animal facilities and research laboratories performed by the IACUC/OB. They also participate in Biosafety lab visits as well as Biosafety Level 3 inspections with the OBS staff.

2) Personnel from the EH&S Offices of Biological Safety, Chemical Safety and Radiation Safety may perform site visits to ensure that facilities, labs, animal rooms, and safety equipment are appropriate for the hazardous agents present. Monitoring and support in the event of an accident or exposure or in response to reported concerns are available from these offices and UHS.

3) Animal care staff are trained to be vigilant and to bring questions and concerns to the attention of their supervisors, research staff, IACUC chair, Chief Campus Veterinarian, RARC Director and/or as appropriate EH&S. Whistleblower postings located in the animal facilities provide contacts and guidance should concerns fail to be addressed via the previous avenues.

Injury Reports:

The University uses two processes for reporting injuries, exposures or potential exposure events. The First report of Biological Exposure or Release form is electronically completed within 24 hours of the event. Once submitted University Health Services (UHS) Occupational Medicine responds as needed to assure medical care. OBS responds to assure follow-up.

UW-Madison Risk Management requires completion of an injury report form not only when an employee is injured on the job, but also when near misses occur so potential injuries can be identified and future injuries prevented. Employees complete an Employee's Work Injury or Illness Report (OSLP-1). The supervisor completes the Supervisor and Safety Coordinator Investigation Report for Injury or Illness Report (WKC-SUP). The unit also assures completion of the Employer's First Report of Injury or Disease (WKC-12-12-E) form. These forms are evaluated by Risk Management. Periodically University Health Services Occupational Health will review these reports for trends or events.

Hazard Monitoring:

Testing and monitoring of potential environmental and occupational hazards is performed as needed by UHS's Environmental & Occupational Health staff. Examples include noise, isoflurane, animal allergen and material handling.

Hazard Posting:

Research personnel indicate the hazards and safety precautions needed in Animal Care and Use protocol questions 16b and 16c of the paper form, or on specified pages in the ARROW on-line protocol form. Husbandry, research, veterinary and compliance staff have access to this information. Research personnel initiate the appropriate hazard communication at the start of their experiment by informing the facility supervisor who then posts a hazard door sign. Research personnel then fill out and affix a contact/precautions card, and hazard cage labels. The hazard door sign indicates the appropriate PPE required to enter the animal room and to handle the animals. The contact/precautions card lists research personnel to contact, and precautions for the animal waste and any other additional safety precautions that need to be followed. Research personnel perform special training for animal handlers, or request EH&S/UHS safety staff trainers to perform training as needed. The hazard communication stays posted until the hazard is no longer present.

Husbandry/Handling Procedures (vivaria and labs):

Rodents are housed in filter-top cages or similar containment type caging after they have been administered hazardous agents; these cages, soiled bedding and the animals themselves are handled in biological safety cabinets, animal transfer stations or chemical fume hoods as appropriate for the hazard type when possible or additional PPE is employed when activities must be done outside of containment. Large animals administered hazardous agents are housed in non-containment caging employing the room exhaust for containment while personnel use appropriate PPE. Disposable PPE (lab coats, sleeves, gloves, shoe covers and surgical masks or respirators) are donned for work with hazardous agents. The PPE is then disposed of in infectious waste containers prior to leaving the animal room or facility. All ABSL-2, 3 & select agent biological waste is autoclaved prior to disposal, or disposed of via MERI. Most animal carcasses are frozen for later incineration; if dictated by the relevant Biological Safety protocol they are also autoclaved prior to placing in the freezer. Carcasses >40lbs may be sectioned by PI staff for incinerator disposal or can be frozen whole for digester disposal at the [REDACTED]. Sharps containers are disposed of via [REDACTED] waste management system; sharps containers from BSL-3 areas are autoclaved prior to disposal by [REDACTED].

First aid kits are available in all facilities and are supplied to handle general first aid concerns and exposures. The kits in the animal vivaria contain supplies needed for general first aid and exposures to BSL-2 agents and animal bites. The kits in the animal transport vehicles have the general supplies, eye wash bottles, instructions needed for exposures (including NHP exposure cards and paperwork), PPE supplies and animal capture equipment in the event of an emergency, and vehicle emergency paperwork.

Research Staff Responsibility:

It is the responsibility of research personnel to convey the hazard information communicated to them through the above processes to animal facility staff, veterinary staff, laboratory staff and visitors using hazard door signs, contact precautions cards, cage labels, and special hazard signs and verbal instructions when needed.

- 2) Describe procedures for reporting and evaluating exposure to hazards, work place injuries, etc.

The UW-Madison IBC requires that Principal Investigators or supervisors report all potential exposures or releases of organisms or biological toxins within 24 hours of the event. Potential exposures include needle sticks, animal bites, aerosol exposures, and other incidents potentially resulting in disease. Potential releases include spills outside of primary containment as well as potential releases to the environment. Unauthorized releases of transgenic animals or plants should also be reported.

Access to an on-line report form is prominently featured on the EH&S emergency contact website homepage (<http://ehs.wisc.edu/emergency.htm>). When submitted, this report provides the OBS, the Office of Occupational Health, and the Institutional Biosafety Committee with information to ensure that proper actions have been taken, including appropriate medical care. It also assists the University in meeting NIH reporting requirements. OBS performs a root cause analysis to determine if any mitigation steps can be taken to avoid the incident from reoccurring in the future.

Once threats to personal safety and property have been mitigated, the employee documents the event. The employee completes the Employee's Work Injury or Illness Report. This procedure is the same as for any work-related illness or injury and is described below in this section.

UW-Madison maintains an ALARA ("as low as reasonably achievable") policy based on personal dosimeter and area surveillance. The Radiation Safety Office has Reporting Event Schedule based on the exposure received.

The Chemical Safety Office, as part of EH&S, performs inspections of laboratories as part of its Laboratory Visitation Program. During the visits hazard assessments are performed to ensure that exposures to hazardous materials are minimized and general safety practices are followed. After inspections, the Principal Investigators are issued reports outlining deficiencies along with recommended corrective actions. The Chemical Safety Office also requires reporting (on the same emergency contact page above) and investigates incidents on campus involving hazardous chemicals to determine root cause and corrective actions and will communicate to the rest of campus (when appropriate) lessons that have been learned from these incidents.

Work-related injury and illness must be reported per Wisconsin statute. After any necessary urgent treatment is obtained and threats to personal safety mitigated, the employee must report the event promptly. University of Wisconsin System employees complete the Employee's Work Injury or Illness Report (OSLP-1) and submit the form to their supervisor. The supervisor completes a Supervisor's Accident Analysis and Prevention Report (WKC-SUP) and submits

it to the unit's HR office and/or safety staff. The supervisor forms should be completed within 24 hours of being notified by the employee of an accident. The unit's human resources and/or safety staff then complete the Employer's First Report of Injury or Illness (WKC-12) form. These 3 forms are then promptly forwarded to UW-Madison's Division of Business Services Office of Risk Management. The supervisor and/or unit safety staff meet with the employee to ensure that necessary modifications to work practices, equipment and/or the work environment are implemented to minimize future risk.

WNPRC: The [REDACTED] is responsible for following up on all injuries and potential Herpes B virus exposures, ensuring all samples are submitted (both human and monkey), clinic appointments are kept with UHS, and any necessary retraining conducted. A post-injury/exposure interview is scheduled after every incident to provide an opportunity for one-on-one discussion and clarity. A database is maintained to track all injuries and potential exposures, noting the type of incident (e.g., eye splash, contact with contaminated equipment, needle stick, animal bite/scratch, slip/fall, etc.), the task being performed at the time of injury (e.g., feeding, restraining an animal, surgery, etc.), the employing unit of the person, and the length of service at the time of exposure or injury. These data are reviewed regularly by the Compliance and Training Unit to identify specific problem areas to determine if SOPs should be modified and/or training should be increased or altered to reduce potential incidents. These data are forwarded semiannually to the [REDACTED] in UHS for evaluation. The [REDACTED] receives feedback from the [REDACTED] about any action or re-training recommended and then ensures the recommendations are followed. In addition, she makes semiannual reports to WNPRC staff so all are aware of injury and exposure statistics.

ii. Facilities, Equipment and Monitoring [Guide, pp. 19-20]

- 1) Describe how hazardous agents are contained within the study environment and in the animal housing area.

[REDACTED]: Hazardous agents are not used by animal care staff. Research investigators use hazardous agents in chemical safety hoods or biosafety cabinets in compliance with an approved Biological Safety protocol. If hazardous agents are used, affected rodents are housed in Innovive or microisolator cages with appropriate labels. The housing and procedure areas are identified on the door and stickers on cages.

[REDACTED]: No hazardous agents are stored in the [REDACTED]. Hazardous agents (human chorionic gonadotropin (HCG) and tricaine) administered to *Xenopus* are transported to the facility in labeled, leak-proof containers immediately prior to use. Personnel are trained in the proper HCG injection technique to avoid needle sticks. Pregnant personnel are prohibited from handling HCG and performing injections. Used syringes and needles are disposed of in a sharps box next to the bench where injections are performed. Any unused material is returned to the main research lab and properly stored until future use.

[REDACTED]: Staff use hazardous agents in chemical fume hood or biosafety cabinets in compliance with an approved Biosafety protocol (OBS). If hazardous

agents are used, affected rodents are housed in Innovive cages with appropriate labels. The housing and procedure areas are identified on the door.

██████████: Hazardous agents are not used by ██████████ care staff. Research investigators use hazardous agents in chemical safety hoods or biosafety cabinets in compliance with an approved biosafety protocol (OBS). If hazardous agents are used, affected rodents are housed in microisolator cages with appropriate labels and the cages are only opened inside animal changing stations. The housing and procedure areas are identified by door and/or cage signs.

WNPRC: Hazardous agents are contained within the study environment by performing the experiments in ABSL-2 animal facilities and by following corresponding safety practices. The Office of Biological Safety determines the level of safety practices required. Infectious disease research is restricted to BSL-2 suites along with using Class I/II biological safety hoods. Chemical and radiation hazards are contained at the cage level or in a certified chemical fume hood. Appropriate respirators and other protective equipment are worn on those occasions when procedures must be performed outside a safety cabinet or hood. Warning signs are posted on the room door when this occurs. Hazardous chemical and drug waste is collected from cages, bagged, labeled with appropriate warning symbols and picked up by EH&S for incineration. Contaminated cages and animal transport units are cleaned and/or decontaminated prior to being transported to the cage wash, if needed.

Any hazardous agents that are used in animals are transported to the room where they will be used just prior to use. The materials are transported in labeled, sealed, primary containers within sealed, leak-proof, unbreakable secondary containers with adequate absorbent material placed within the secondary containers to absorb all the solution in the event of a spill. Any remaining materials are removed from the animal barrier in the same manner.

If the hazardous agents pose a risk to personnel after administration to animals, the animals are placed in quarantine or infectious disease housing areas. The rooms are clearly labeled with the hazardous agents present, the PPE requirements for entering, and contact information for personnel knowledgeable about the hazardous agents and any special husbandry requirements. Personnel working with the affected animals receive specific training on any specialized husbandry and care practices required to ensure that any hazardous agents are safely contained, personnel and unaffected animals are protected, and the environment is protected.

- 2) Describe facilities that use hazardous agents. Note square feet/meters, number of animal rooms, and support spaces. In addition, describe design features, construction features, and special equipment, especially as they relate to hazard containment. Note if, and how, exhaust air is treated. If special facilities are not available and animals exposed to hazardous agents are housed within conventional animal rooms, so note.

██████████: Hazardous agents are used by ██████████ staff in the cage wash area (room ██████████; 272 ft²). Hazards include cleaning chemicals and tunnel washer chemicals. All staff use appropriate PPE including splash shields, rubber gloves and aprons and lab coats when using cleaning chemicals. Barrels containing

tunnel washer chemicals are elevated from the floor on a spill-containment platform, and smaller containers are enclosed in secondary containers. All chemicals are stored below eye level.

Hazardous agents may be used by research staff in [REDACTED] procedure rooms and housing areas per approved IACUC/OB and Biosafety protocols. When used, hazardous agents such as BRDU and tamoxifen are administered or used in an approved biosafety cabinet or fume hood in dedicated procedure spaces outside the housing area. Biosafety cabinets are in place in procedure rooms [REDACTED] (257 ft²), [REDACTED] (176 ft²), [REDACTED] (910 ft²) lab/approved procedure room, and [REDACTED] (102 ft²) lab/approved procedure area. Chemical fume hoods are in place in procedure rooms [REDACTED] (142 ft²), [REDACTED] (176 ft²).

All mice exposed to hazardous agents are housed in Innovive ventilated rack housing. Rats that may be exposed to hazardous agents are conventionally housed with microisolator lids. Controlled environment housing rooms for animals exposed to hazardous agents have HVAC units that are independent and isolated from other rooms ([REDACTED], 408 ft² total; [REDACTED], 408 ft² total). Air is HEPA filtered on exhaust or recycle. One animal housing area has one-pass air flow through an independent HVAC system without HEPA filtration ([REDACTED], 447 ft²). All housing areas are separated from main hallways by a procedure room. Housing and procedure rooms are maintained at negative pressure to the hallways.

[REDACTED]: Hazardous agents are administered to *Xenopus* frogs on a lab bench in the [REDACTED]. The single-room facility measures 189 ft². Frogs injected with HCG are separated from the general population in an isolation tank for ~24 hrs. before undergoing surgery. Frogs anesthetized with tricaine are temporarily separated in recovery tanks and monitored until revival is observed. Frogs are then returned to the normal housing tanks.

[REDACTED]: Hazardous agents may be used by core staff in [REDACTED] procedure rooms and housing areas per approved IACUC/OB and Biosafety protocols. When used, hazardous agents such as tamoxifen are administered or used in an approved biosafety cabinet. A biosafety cabinet is in animal room [REDACTED]. A chemical fume hood is in room [REDACTED] (263 ft²).

[REDACTED]: Hazardous agents are mainly used in the tunnel washer area (1239 ft²). Tunnel washer chemicals (acid and detergent) are stored on separate spill containment platforms. All staff use appropriate PPE which may include eye protection (splash shields or safety glasses), gloves and lab coats when necessary. A dust collector (attached to automated bedding dispenser) is used to minimize dust that may be inhaled by employees. In addition, a fume hood in room [REDACTED] is available for general use.

WNPRC: All SIV/SHIV infected animals are housed in animal holding room suites on the [REDACTED] or in one of the four quarantine suites at the [REDACTED]. Most suites are equipped with adjacent dedicated anterooms. These suites are constructed of the same materials as the conventional animal housing rooms but provide higher containment because of the separation the anteroom provides from the main corridors. The WNPRC currently has 12 animal holding rooms dedicated for SIV/infectious disease animal holding measuring 4,004 ft², and 802 ft² of support space, which includes a procedure room containing a biosafety cabinet. All the SIV/infectious disease

animal holding and support space is maintained at negative pressure in relation to corridors. This is similar to all other animal holding space in WNPRC facilities.

In [REDACTED] room [REDACTED] is used as a quarantine room to temporarily house animals after certain types of hazardous agents (e.g., MPTP, and lentivirus) have been administered. Animals are only housed in the room until they have cleared the infectious agent. The room has a dedicated anteroom. The room is constructed of the same materials as the conventional animal housing rooms but provides higher containment because of the separation the anteroom provides from the main corridor. The room measures 118 ft², and has 111 ft² of support space. The quarantine room and support space is also maintained at negative pressure in relation to the corridor.

The WNPRC maintains a quarantine and holding facility in [REDACTED] that contains four 534 ft² quarantine rooms that are used to house newly acquired animals and can be used to house animals infected with BSL-2 agents such as SIV, SHIV, Dengue, Zika, etc.

All NHPs exposed to hazardous agents are housed in squeeze cages to facilitate restraint and administration of anesthetics and experimental/clinical treatments. Conscious NHP housed at the WNPRC are restrained in standard tabletop devices and standard primate chairs by well-trained personnel only after the monkeys complete a rigorous acclimation and training period.

In all WNPRC facilities, animal room exhaust air is filtered. In the [REDACTED], the exhaust air from the quarantine rooms is HEPA filtered. In [REDACTED], exhaust air is filtered through a reclaim unit.

- 3) Describe the oversight process and husbandry practices in place to ensure personnel safety, including any personal protective equipment provided when work assignment involves hazardous agents.

The IACUC/OB, an RARC assigned veterinarian, and a UW-Madison Animal Research Safety Unit (ARS) professional, review all protocols to ensure hazards are identified in the occupational health & safety sections and that appropriate safety practices are detailed. The ARS professional compares the hazards specified in each animal protocol with the hazards registered with UW-Madison EH&S via the Biological Safety protocol or form 99A with Radiation Safety. Principal investigators are notified when inconsistencies are found and informed what needs to be done; personnel from the EH&S Office of Biological Safety are also notified. The research personnel are responsible for posting and/or performing all required hazard communication when using hazardous agents or materials. Bi-annual site inspections are performed by the IACUC/OB accompanied by a representative of the ARS Unit. Safety issues found during the site visits are communicated to the area supervisor.

[REDACTED]: When hazardous agents are used in or for animals, research staff are responsible for all husbandry. [REDACTED] animal care staff review the Occupational Health and Safety portion of the IACUC/OB protocol to ensure understanding and compliance with practices. [REDACTED] animal care staff are required to take the applicable animal user training from RARC, Hazard Communication with Globally Harmonized System (GHS) Update, and Safety for Personnel with

Animal Contact. EH&S personnel provide hazard communication methods (e.g., hazard stickers for rodent cage cards, standardized door signs.)

██████ staff working in the cage wash area are provided with PPE needed including chemical gloves face splash shields, aprons, lab coats, safety glasses or goggles, hearing protection and work boots. Barrels containing tunnel washer chemicals are elevated from the floor on a spill-containment platform, and smaller containers are enclosed in secondary containers. All chemicals are stored below eye level.

██████: All personnel have completed the RARC course titled “Working with *Xenopus*,” and are trained in general frog husbandry and handling by the Principal Investigator, ██████. Personnel use rubber gloves, safety glasses, and lab coats when placing/removing frogs from tricaine and when performing HCG injections.

██████: A Research Specialist or the ██████ review the Occupational Health and Safety portion of the IACUC/OB protocol to ensure understanding and compliance with practices. They train animal care staff on any required precautions. Staff take the applicable animal user training from RARC, Hazard Communication, and Safety for Personnel with Animal Contact. A Research Specialist or the ██████ provide hazard communication methods (e.g., hazard stickers for rodent cage cards, standardized door signs.)

██████: Husbandry procedures for animals that have been exposed to hazardous agents are tailored to the needs of the experiment, requirements for handling the agent(s) in question, and the potential risk to the individuals working with the animals. Responsibility for design and implementation of appropriate procedures is shared between the investigator, EH&S, standing safety committees, the Attending Veterinarian, ██████, and ██████.

Facility SOPs serve as guides for minimum requirements for working with BSL-2 risk level agents and material. All personnel who work within the ██████ use the SOPs. They indicate precautions for room entry, handling animals, PPE, safety equipment, equipment clean-up and disposal of waste. Special handling precautions are established for animals administered hazardous agents for the length of time those animals are actively eliminating the agent. During the time of risk rodents are housed in appropriately labeled disposable (Innovive) microisolator caging. After the active period research investigators move animals back to regular polycarbonate microisolator caging and update cage card information. This is an indication to the animal care staff that the active period is over. Warning door signs are posted listing additional PPE required to handle the animals, contact information, and specialized hazards to personnel.

Safety goggles and chemical gloves are worn when barrels containing tunnel washer chemicals are changed.

WNPRC: The ██████ pre-reviews all protocols that involve housing at WNPRC facilities. During the pre-review process, she reviews the Occupational Health and Safety section of the protocol to determine what hazards are being used and what additional special precautions are necessary for animal caretakers, veterinary staff, and laboratory personnel. She works with

the OBS staff to ensure all proposed practices are appropriate and well defined. The [REDACTED] ensures that all necessary safety training is scheduled and completed, and all signage is in place, before the research is initiated.

Husbandry procedures for animals that have been exposed to hazardous agents are tailored to the needs of the experiment, requirements for handling the agent(s) in question, and the potential risk to the individuals working with the animals. Responsibility for design and implementation of appropriate procedures is shared between the investigator, EH&S, standing safety committees, the Attending Veterinarian, [REDACTED], [REDACTED], [REDACTED] and [REDACTED].

The WNPRC uses SOPs as guides for minimum requirements for working with BSL-2 risk level agents and material. All personnel that work within the NHP barrier use the SOPs. They indicate precautions for entry into rooms, handling animals, personal protective equipment, safety equipment, and equipment clean-up and disposal of waste. Special precautions are established for handling animals administered hazardous agents for the length of time there is active elimination of the agent from the animals. During the time of risk, warning door signs are posted listing additional PPE required to enter the room or handle the animals, contact information, and specialized hazards to personnel. The minimum PPE required when in an NHP barrier is scrubs or coveralls, head cover, two pairs of gloves, facility boots or facility shoes with shoe covers, surgical mask, and a disposable face shield. As described below, additional PPE is required under certain circumstances.

Animals that have been treated with radioactive compounds are housed in an appropriately labeled area. After protection controls have been removed and the animals are returned to animal holding areas, the cages and rooms are clearly identified with the well-known radioactive symbol, the radioisotope used, and the quantity of the radioisotope that has been used until proper cleaning/decontaminating has been performed. Research personnel trained in radiation safety procedures provide care for the animals, and are the only ones handling the animals and their waste until the radiation has dropped to background levels.

All SIV/SHIV infected animals at the WNPRC are treated using ABSL-2 safety practices. All personnel entering rooms with SIV infected animals must wear a water-resistant jumpsuit in addition to all the PPE required for working with non-SIV infected non-human primates. This garment must be changed when it becomes soiled and must be discarded upon exiting the SIV area. Personnel are only allowed to work directly with SIV infected animals while they are anesthetized. During the infection procedures, all personnel present are required to wear an N-95 respirator in addition to all other required PPE.

All influenza infected, Dengue virus infected, and Zika virus infected animals at the WNPRC are treated using ABSL-2 safety practices. All personnel entering rooms with infected animals must wear a water-resistant jumpsuit in addition to all the PPE required for working with non-infected non-human primates. This garment must be changed when it becomes soiled and must be discarded upon exiting the room. Personnel entering rooms with influenza-infected animals must also wear an N-95 respirator.

Animals given MPTP to induce Parkinson's disease symptoms are quarantined for 3 days post administration. The fecal pans under the cages in the quarantine room are lined with an absorbent material and no hosing occurs during the quarantine period. All personnel entering rooms with quarantined animals must wear a water-resistant jumpsuit and an N95 respirator or PAPR (powered air purifying respirator) in addition to all the PPE required for working with non-infected non-human primates. The jumpsuit must be changed when it becomes soiled and must be discarded upon exiting the quarantine room. After the quarantine period is completed, the animals no longer excrete MPTP so they are treated using standard ABSL-2 practices. Only personnel specifically trained to work with MPTP care for the animals during the quarantine period.

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

[REDACTED] and [REDACTED]: Not applicable.

[REDACTED]

[REDACTED]

[REDACTED]

- 5) 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.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- 6) If motorized vehicles are used for animal transport, describe how the driver is protected from exposure to hazards such as allergens or zoonoses.

Transport via motor vehicle is in accordance with policy 2011-43-v, Campus Transportation of Laboratory Animals. This policy requires that all animal transport be in accordance with Animal Welfare Act Regulations and the Guide, and covers both vehicular and pedestrian transport of animals. The policy requires that caging must limit exposure to allergens, waste products and odors, is sanitizable or disposable, and prevents escape in the event of an accident.

[REDACTED]: The [REDACTED] van is used to transport rodents on campus. Animals in cages are placed in large clean Rubbermaid containers that are covered and placed in the transport van. Transport containers are sanitized after each use and the transport van is professionally cleaned as needed. Transport is carried out by professional animal care staff.

[REDACTED]: Not applicable.

[REDACTED]: The [REDACTED] van is used to transport rodents on campus. Mice in sealed cages are placed in large Rubbermaid containers that are covered and placed in the transport van. Transport containers are sanitized after each use and the transport van is professionally cleaned as needed. Transport is carried out by professional animal care staff.

[REDACTED]: Animals are always transported in opaque vendor shipping containers with filtered vents or microisolator cages covered with a towel. Disposable waxed containers with a tight-fitting lid may be used, however these do not protect against potential allergens or zoonoses.

WNPRC: All motorized vehicles used by the WNPRC to transport NHPs have dedicated animal holding compartments that are physically separated from the

passenger compartment. Additionally, all NHPs are transported in primary metal containers placed inside secondary, rigid, leak-proof containers that are secured into place in the rear of the vehicle. The secondary container reduces the possibility of leakage of any bodily fluid from the animal during transport. Whenever animals are transported in a van, personnel are required to take a traveling exposure kit with them. Primary transport containers are sanitized after each use and the transport van is disinfected at least every two weeks.

iii. Personnel Training [Guide, p. 20]

- 1) Describe educational program(s) to inform personnel about zoonoses, personal hygiene, allergies, and other considerations regarding occupational health and safety.

All campus personnel with identified animal contact are required to complete an online Animal User Orientation created by the RARC's Training Staff, and an online safety training program created by EH&S titled Safety for Personnel with Animal Contact. Both of these initial trainings are renewed every 5 years. Personnel with possible non-human primate contact also receive annual herpes B training.

EH&S's Animal Research Safety (ARS) offers Safety for Personnel with Animal Contact. This training is available in Learn@UW to all animal handlers as part of the animal handler certification required training; ARS staff also performs in-person trainings by request. Everyone handling animals must re-take these trainings every 5 years.

EH&S's Office of Biological Safety (OBS):

OBS offers the Required Biosafety Training course for anyone working with biological agents. The course is split into 6 modules:

- Introduction to Biosafety Risk Assessment & Mitigation
- NIH Guidelines & Research Oversight at UW-Madison
- Biosafety Protocol Process
- Procedural Risks & Mitigation
- Exposure Response & Reportable Events
- Disinfection, Decontamination, & Biohazard Disposal.

EH&S's Office of Radiation Safety:

Any personnel involved with handling radioactive materials and/or radiation producing devices are required to take specific trainings to be approved to use and handle radioactive materials. Training modules (<http://ehs.wisc.edu/radiationsafetytraining.htm>):

- Radiation Safety 101: Radiation Safety for Radiation Workers – Part I
- Radiation Safety 101: Radiation Safety for Radiation Workers – Part II
- Radiation Safety 102: Radiation Safety Refresher Training
- Radiation Safety 105: Radiation Safety for Irradiator Users and Animal Caregivers
- Radiation Safety 106: X-Ray Diffraction
- Laser Safety Training

EH&S's Office of Chemical Safety:

The Office is responsible for overseeing campus chemical safety and compliance through its Hazard Communication Program and Chemical Hygiene Program. Depending on a staff member's role the individual will generally fall under one of these two programs. Both programs require that staff working with hazardous chemicals know the chemicals they are handling, understand the hazards associated with the chemicals, and know what steps they need to take to minimize exposure. Additionally, staff must be trained in how to identify and respond to emergency situations, such as a spill or release of a hazardous chemical. Chemical Safety offers a variety of trainings (<http://ehs.wisc.edu/chemsafetytraining.htm>): (Chemical Safety: Chemical Safety Training (ILT))

- Chemical Safety: 201 Fume Hood Training
- Chemical Safety: 202 Cryogen Safety Training
- Chemical Safety: Hazard Communication with Global Harmonized System (GHS)

PIs are responsible for any agent-specific training needed.

WNPRC: Additional occupational health and safety education for all new WNPRC Animal Research Technicians, Principal Investigators, and other research support personnel is provided by the WNPRC Compliance and Training Unit. This additional training focuses heavily on the potential for injury and zoonotic transmission inherent to working with NHP, especially herpes B virus. The importance of employing universal precautions at all times is emphasized. Additionally, injury prevention techniques and post-exposure protocols are explained and demonstrated thoroughly. Finally, general biohazard procedures such as the correct disposal of biohazardous waste are also explained and demonstrated. Mandatory "Herpes B Safety Training" occurs annually. This training focuses on all the potential risks of working in a laboratory facility with NHPs but focuses primarily on injury (animal and otherwise), and disease (with particular emphasis on herpes B virus) and is required for all personnel who have contact with NHPs or their tissues.

As a general introduction to using NHPs in biomedical research and to enhance the Occupational Health Program, the [REDACTED] teaches a campus-wide Primate Orientation course that is required for all UW-Madison employees who will have contact with NHPs. Content includes a brief overview of taxonomy and common species used in research, an explanation of the risks involved in working with these animals, how to work safely to prevent injury and disease transmission, and what to do when an adverse event occurs.

To document the above orientation, personnel are required to complete a comprehensive New Employee Packet before any unsupervised entrance to the animal barrier is allowed. The packet consists of a list and description of all employment requirements, information about safety, biohazards, emergency procedures, and a list of required readings (including SOPs and university policies). To augment this portion of orientation, new employees meet with Compliance and Training Unit staff who verify packet completion, review safety information, and assure that any additional requested training is scheduled. A Visitor's Packet must be completed by all non-WNPRC personnel who request access to the animal holding areas. For physical plant staff and vendors that require access to the holding area (i.e., equipment maintenance personnel, pest control service personnel, and laundry service personnel), a safety orientation lecture is provided in addition to a Visitor's Packet. All UW Physical Plant

supervisors have also received Occupational Health and Safety training covering the risks associated with working in nonhuman primate housing areas, and the precautions needed to remain safe.

All new staff and students are required to attend New Employee Safety Training. Topics covered in New Employee Safety Training include: WNPRC Occupant Emergency Plan, Security at WNPRC, and OSHA Hazard Communication topics. Job Hazard Safety Analysis reviews are performed for new Animal Services staff in conjunction with their New Employee Safety Training.

- 2) Describe special qualifications and training of staff involved with the use of hazardous agents in animals.

All personnel working under a biological safety protocol are required to take and pass the required biosafety training modules offered by the Office of Biological Safety. This requirement is fulfilled by completing courses Biosafety 101, Biosafety 104 and Biosafety 201 or the new combined training "Required Biosafety Training." These trainings need to be renewed every 5 years. Completion of these modules is required before beginning research activities. These modules address working with biohazardous agents in animals. Training topics include regulations, risk assessment, risk mitigation, exposure response and reportable events, and disinfection and disposal.

WNPRC: When new, potentially hazardous materials are approved in animal care and use protocols, the need for additional occupational health and safety training is evaluated by the [REDACTED], the [REDACTED], the Attending Veterinarian, the [REDACTED], and a UW Animal Research Safety Coordinator. If additional training is deemed necessary, the [REDACTED] schedules the training sessions, determines who must attend, and monitors participation. Participation in these specialized training sessions is documented.

iv. Personal Hygiene [Guide, p. 20; Ag Guide pp. 4-5]

- 1) List routine personal protective equipment and work clothing provided for animal care personnel, technical staff, farm employees, etc. Describe arrangements for laundering work clothing.

Aprons – rubber and disposable
 Arm Protectors – Tyvek and chemical resistant
 Boots, rubber
 Caps, surgical and bouffant
 Chemical Splash Goggles – regular & prescription
 Coveralls – Water-resistant disposable and non-disposable
 Face Shields – disposable and non-disposable
 Gloves – rubber/latex/vinyl/nitrile/chemical resistant
 Gloves – metal mesh, leather & Kevlar
 Gowns, Wrap-Around – disposable and non-disposable
 Hair Nets and Caps – disposable
 Hearing Protection – muffs & plugs
 Lab Coats – non-disposable and water resistant disposable
 Respirators – N95, N100, PAPRs

Safety Glasses – regular & prescription
Scrubs
Shoe & Boot Covers – disposable
Sleeves – disposable
Surgical Face Mask – disposable
Toe Safety Guards

Laundering Arrangements

██████████, a private contractor with facilities in ██████████, provides laundry service to ██████████ and WNPRC's facilities. Uniforms, lab coats, scrubs and bath towels used by facility staff, researchers and visitors are laundered by ██████████. Clean scrubs and lab coats arrive on hangers. Clean towels are delivered in plastic bags. Arrangements specific to each facility are described below:

██████████: Soiled laundry is collected daily in soiled laundry bags in the locker rooms. ██████████ picks up soiled laundry and drops off clean laundry weekly. In addition, disposable PPE (lab coat, sleeves, shoe covers, gloves) is provided for research staff and facility visitors.

██████████: Lab coats are picked up and laundered by ██████████ as needed. Aramark's ██████████ drop-off site is located in the ██████████.

██████████: Staff use all disposable PPE, including lab coat, Tyvek sleeves and gloves. N95 respirators and eye protection are worn by staff who have allergies or who request to use them.

██████████: Laboratory clothing used by RARC trainers, RARC large animal veterinary staff, class attendees, and pathology laboratory staff is laundered by ██████████, a private contractor. Soiled lab coats, lab jackets, and scrubs are collected in dedicated plastic laundry bags (provided by ██████████) located near the ██████████ and ██████████. Soiled linen is placed for pick-up in ██████████-specific linen carts. Clean lab coats are delivered once per week (or as needed) to the ██████████ linen carts on hangers with plastic covering. Other clean linen is returned folded and plastic wrapped.

██████████: Soiled clothing and towels are collected in ██████████ laundry bags located in strategic locations in common areas. The bags of soiled laundry are picked up once per week. Full soiled laundry bags are stored for pick-up in room ██████████ (laundry/storage). Clean scrubs, lab coats, and towels are delivered once per week. Scrubs and lab coats are distributed by ██████████ to designated locations throughout the common area. Towels arrive folded and are placed in locker rooms.

WNPRC: Coveralls, scrubs, lab coats, socks, and towels are laundered by ██████████. Once each week, all dirty laundry is collected by the service, and clean items delivered. All laundry service personnel have received the occupational health and safety training described above, in addition to the occupational health and safety training provided by their company. Additionally, the WNPRC provides a variety of personal protective equipment for our

employees including gloves (latex, nitrile, chemical resistant leather, and cut-proof), masks (common surgical and N-95), rubber boots, boot and shoe covers, hair covers (bouffant and surgeon caps), eye protection (face shields, safety glasses, and goggles), Tyvek sleeves, and Tyvek-like smocks and coveralls. The WNPRC also provides PAPRs as respiratory protection for personnel working in NHP quarantine, necropsy, and where infectious agents may be aerosolized.

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

██████████: Hand washing areas and gender-specific showers are provided for everyone using the facility. Hands should be washed when exiting animal housing rooms. ██████████ provides work clothing (i.e., scrubs, lab coats, shoe covers, etc.) for its staff. Disposable PPE (lab coat, sleeves, shoe covers, disposable gloves) is provided in addition for research staff and visitors. ██████████ staff are not allowed to wear work clothing outside of the facility unless transporting animals. Staff changes into clean work clothes daily. Animal housing clothes worn are to be laundered daily at the end of the shift.

██████████: Hand washing areas and showers are provided for everyone using the facility. All personnel are required to shower and change clothes if they have been in another animal facility prior to entering the ██████████ animal facility or they must wait until the next day to enter. Disposable PPE (lab coat, Tyvek sleeves and disposable gloves) are provided.

██████████: The ██████████ contains a hand-washing area. No personal shower facilities are present, although a safety shower is in the hallway ██████████. The ██████████ provides work clothing (i.e., scrubs, lab coats, shoe covers, etc.) for its staff.

██████████: Animal Research Technicians are not allowed to wear work clothing off of the ██████████ of the ██████████. When ART's are in common areas on the ██████████, however, they are required to wear a lab coat over their scrubs. All personnel are required to shower and change clothes if they have been in another animal facility prior to entering the ██████████ animal facility or they must wait until the next day to enter the ██████████ animal facility.

WNPRC: The WNPRC maintains full locker room facilities in each building and in a majority of cases there is a locker room adjacent to each animal holding floor. All personnel who work in animal areas on a daily basis have their own lockers for storage of "street clothes" and personal toiletries. An ample number of sinks are present in the animal areas but personnel are trained to leave their gloves on at all times in these areas unless they sustain a wound that requires immediate cleansing. All personnel are trained to wash their hands whenever they leave an animal area. Personnel only wear work clothes out of an animal area ██████████ or when driving an animal transport vehicle to ██████████ or the ██████████. A clean gown must be worn over work clothes and clean boot/shoe covers must be worn over work footwear when these items are worn outside of an animal facility. All personnel are encouraged to shower at the end of the workday before leaving an animal facility.

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

Per Wisconsin Statute 101.123(2)(a)(5t) it is illegal to smoke in state institutions. The UW-Madison Smoke-Free Policy further prohibits smoking within 25 feet of building entrances and exits, and in University owned, operated or leased vehicles.

██████ and ██████: Eating and drinking are strictly prohibited in the animal facility. Break rooms are provided that may be used for eating and drinking.

██████: Eating and drinking are strictly prohibited in the ██████. Dedicated break rooms are provided on all ██████ that may be used for eating and drinking.

██████: Eating and drinking are strictly prohibited in the animal facility. There are dedicated break rooms in the common area of the ██████ and throughout the ██████ that may be used for eating and drinking.

WNPRC: Eating or drinking is strictly prohibited in all animal areas. Break rooms are provided for staff at all facilities.

v. **Animal Experimentation Involving Hazards** [Guide, pp. 20-22]

- 1) Describe briefly institutional policies governing experimentation with hazardous biological, chemical, and physical agents, including the oversight process for the use of hazardous agents. Note: Written policies and standard operating procedures (SOPs) governing experimentation with hazardous biological, chemical, and physical agents should be available during the AAALAC site visit. If such policies and procedures are not available, please explain.

Policy 2004-025-io: Occupational Health Program Enrollment. This policy details the requirement for all personnel to complete an Animal Contact Risk Questionnaire (ACRQ). The ACRQ is reviewed in a HIPAA-compliant manner by University Health Services (UHS) medical staff. The UHS medical staff determine the level of occupational health and safety practices required based on the individual's health information and the hazards and risks imposed by the environment, the animal species involved, and the degree of animal contact. Completion of the ACRQ baseline form and evaluation of the questionnaire by UHS staff is required before individuals can have contact with research animals.

Policy 1999-006-io: Animal Care and Use Authorization and Mandatory Training. This policy defines minimum training requirements for individuals who use or care for animals in teaching, research and outreach at the University of Wisconsin-Madison.

Policy 2013-052-v: Cage Labeling Requirements. This policy instructs investigators on cage/pen labeling activity secondary to the use of biohazards, toxic substances, or radioactivity in animals.

Oversight of policies, biosafety protocols and/or standard operating procedures is provided by the Institutional Biosafety Committee, the Animal Research Safety

group, the Office of Radiation Safety, the Office of Chemical Safety, UHS, the IACUC/OB, and RARC personnel.

- 2) Describe aspects of the health and safety program specifically for personnel potentially exposed to hazardous agents.

Exposures to biological agents are handled as described in section 2-I-A-2-b-2: Hazard Identification and Risk Assessment (above).

When an employee is exposed or potentially exposed, they must complete an employee injury report and seek medical attention, if needed. Each report is reviewed by their supervisor and EH&S representatives. They also complete a "First Report of Biological Exposure or Release Event" form for biological exposures or report it to Chemical Safety if chemicals are involved. First aid/exposure kits are available for injuries.

- 3) Describe safety procedures for using volatile anesthetics and how waste anesthetic gases are scavenged.

Volatile anesthetic use is most commonly isoflurane. UHS's "Guidance for the Control and Monitoring of Waste Anesthetic Gases in Animal Research" is followed when working with volatile anesthetic.

These are the preferred controls for volatile anesthetics:

1. An externally ventilated hood such as a fume hood or Class II B2 biological safety cabinet should be used whenever available.
2. A commercial anesthesia machine with a charcoal scavenging unit should be used whenever available. Charcoal canisters must be weighed every time the machine is used and discarded when it is above the effective weight.
3. When an induction box is used, it should remain in the hood whenever possible, and at a minimum be opened within the hood after isoflurane has been used.
4. When a nose cone is used, a commercially available model with a diaphragm that provides a tight seal around the animal's nose should be used.

Volatile anesthetic gases are used in gas anesthesia machines that use a waste gas-absorbing canister recovery system, a certified fume hood connected to building exhaust, a building vacuum system, or a hard ducted BSC. Bench top scavenging units exhausted to outside (commonly called "snorkels") are used for exhausting small volumes of anesthetic gases when used in nose cones during procedures. If isoflurane is to be used on the bench top, without a machine with a scavenging device or hood or other improvised scavenging method (i.e. laboratory vacuum line), monitoring should be done to evaluate the exposure level. UHS may monitor isoflurane levels in procedure rooms and provides recommendations to personnel if needed. Anesthesia machines are calibrated annually and certified by a commercial company, [REDACTED]. The IACUC/OB checks maintenance of the anesthesia machines during semi-annual inspections.

Individuals named on IACUC/OB-approved protocols as part of the surgery staff, including anesthetists, must complete Lab Animal Surgery, an introductory course in analgesia, anesthesia, basic wound closure, suturing, aseptic

technique, and surgery (administered by RARC). RARC also has an on-line training module for anesthesia machines, which covers the appropriate use of the machine.

WNPRC: The hoses and rebreathing bags on all anesthetic machines are checked for cracks and tears before and after each usage. The CO₂ absorbent material (e.g., soda lime) is also checked on a frequent basis to ensure that it has not lost its absorptive capacity. All volatile anesthetic gas vaporizers undergo an annual maintenance check and recalibration. Anesthetic gases are scavenged in activated charcoal canisters in all WNPRC facilities and the canisters are weighed after each use. WNPRC SOP 3.02 (Inhalant Anesthesia Induction, Maintenance, & Recovery) outlines all volatile anesthetic safety practices employed at the WNPRC.

- 4) 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: This information may be provided as an Appendix.

- a) Biological agents, noting hazard level (CDC Biohazard Level, Directive 93/88 EEC, CDC or USDA/DHHS Select Agent, etc.).

Sixty-one (61) protocols involve use of biological agents rated as BSL 2 or higher. See Appendix 14.

- b) Chemical agents, noting general category of hazard (toxicant, toxin, irritant, carcinogen, etc.).

Twenty-five (25) protocols involve use of chemical agents that remain hazardous or potentially hazardous for several hours after administration to an animal. See Appendix 15.

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

Thirty-six (36) protocols involve the use of physical agents. See Appendix 16.

- 5) Describe the program for housing and caring for animals exposed experimentally to the hazardous agents noted above, with emphasis on management and safety practices for containment of each class of agent. Indicate how levels of personnel exposure are assessed.

██████: Animals may be exposed to biological, chemical, or physical agents under approved protocols. ██████ supports BSL-1 projects and small scale, short term BSL-2 projects. Husbandry and handling of animals exposed to hazards is the responsibility of the research staff who follow their approved IACUC/OB and Biosafety protocols. ██████ staff review the safety precautions from the IACUC/OB protocol to ensure understanding of the procedures to be

employed by the research staff; any concerns are brought to the attention of the [REDACTED] and [REDACTED].

For investigators and their lab staff, the IACUC/OB and the OBS in concert with the IBC and EH&S Chemical Safety Office assess whether a researcher and staff are qualified to work with hazardous agents. The IACUC/OB, OBS, and IBC will require additional training of personnel, as needed. Numerous mandatory and voluntary training opportunities related to safety are available through EH&S and RARC, and are described in appropriate sections of this document.

Lab staff working with animals that have been administered infectious agents, hazardous chemicals or drugs are given special instructions on the handling of feed, bedding, and animals by their supervisor, principal investigator, occupational health and safety personnel, and/or the veterinary staff. The specific information and instruction vary widely with the agent and conditions in which the agent is used with an animal. Signage that includes the symbol for biohazards and precaution information is affixed beside the door of rooms where these materials are in use.

Biological Safety Cabinets (BSC) and chemical fume hoods are provided in animal procedure areas to support safe use of hazards.

Cages with animals exposed to hazards are marked with special notices to alert animal-care staff to the presence of a hazard, and the research staff assume responsibility for handling and husbandry, which is documented on a door check off sheet.

Since lab staff maintains the animals once exposed or infected, they are also responsible for disposing of materials from these studies. Soiled BSL-2 caging is autoclaved prior to disposal. Chemical agents are disposed of according to the IACUC/OB approved protocol. [REDACTED] staff provides biohazardous waste containers and any receptacles needed for collecting exposed items from the animal studies. The [REDACTED] and Lead ART work with the lab staff and educate about where to dispose of the waste from their studies.

[REDACTED]: *Xenopus* frogs injected with HCG are separated from the general population in an isolation tank for ~24 hrs. before undergoing surgery. Frogs anesthetized with tricaine are temporarily separated in recovery tanks and monitored until revival is observed. Frogs are then returned to the normal housing tanks.

[REDACTED]: The facility has minimal dealings with animals exposed to experimentally hazardous agents. There are occasions when tamoxifen is used. Cage card stickers and signage is placed on the outside of the animal room door indicating animals/cages are present. In addition to normal husbandry practices, safety glasses are required when working with these animals/cages. Bedding is double bagged and disposed in normal trash.

[REDACTED]: The facility has minimal dealings with animals exposed to experimentally hazardous agents. There are labs, however, that have a small number of animals/cages designated as Bio Safety Level 2 (BSL-2). Each BSL-2 cage is designated as such with a BSL-2 cage card and signage is placed on

the outside of the animal room door indicating BSL-2 animals/cages are present. In addition to normal husbandry practices, extra personal protective equipment is required when working with BSL-2 animals/cages. Animal care staff is required to wear safety glasses and an N95 respirator when handling BSL-2 animals and cages. In addition, all soiled BSL-2 caging is autoclaved prior to washing.

WNPRC: For many of the hazardous agents noted in Appendices 14, 15 and 16, no special husbandry practices or additional PPE are required beyond that required for working with non-infected animals. Exceptions are noted below.

Biologicals - All SIV/SHIV, Hepatitis-C, and GBV-C infected animals at the WNPRC are cared for using ABSL-2 safety practices. All personnel entering rooms with infected animals must wear a water-resistant coverall in addition to all the PPE required for working with non-infected non-human primates. This garment must be changed when it becomes soiled and must be discarded upon exiting the area. Personnel are only allowed to work directly with infected animals while they are anesthetized.

All influenza-infected animals at the WNPRC are cared for using ABSL-2 safety practices. All personnel entering rooms with infected animals must wear an N-95 respirator and a water-resistant coverall in addition to all the PPE required for working with non-infected non-human primates. This garment must be changed when it becomes soiled and must be discarded upon exiting the room. Personnel caring for the animals are required to be vaccinated before working with the animals.

All dengue virus, Zika virus, listeria, and lentivirus-infected animals at the WNPRC are cared for using ABSL-2 safety practices. All personnel entering rooms with infected animals must wear a water-resistant coverall in addition to all the PPE required for working with non-infected non-human primates. This garment must be changed when it becomes soiled and must be discarded upon exiting the room.

All vaccinia-vaccinated animals at the WNPRC are cared for using ABSL-2 safety practices. All personnel entering rooms with infected animals must wear a PAPR (powered air purifying respirators) and a water-resistant coverall in addition to all the PPE required for working with non-infected non-human primates. The water-resistant coverall must be changed when it becomes soiled and must be discarded upon exiting the room. Personnel caring for the vaccinia exposed animals are encouraged to be vaccinated before working with the animals.

Hazardous Chemicals and Drugs - Animals given MPTP to induce Parkinson's Disease symptoms are quarantined for 3-days post administration. The fecal pans under the cages in the MPTP quarantine room are lined with an absorbent material and no hosing occurs during the quarantine period. All personnel entering rooms with quarantined animals must wear a water-resistant coverall and PAPR or N-95 respirator in addition to all the PPE required for working with non-infected non-human primates. The coverall must be changed when it becomes soiled and must be discarded upon exiting the quarantine room. After the quarantine period is completed, the animals no longer excrete MPTP so they are cared for using standard ABSL-2 practices. Only personnel specifically trained to work with MPTP care for the animals during the quarantine period.

The immunosuppressive agents tacrolimus, mycophenolate mofetil, and anti-thymocyte globulin are commonly used for rhesus kidney transplant protocols. Personnel handling immunosuppressive medications must wear PPE consisting of nitrile gloves, long-sleeved scrubs or a disposable lab coat and eye protection.

Physical Hazards - Animals that have been treated with radioactive compounds are housed in an appropriately labeled room. After protection controls have been removed and the animals are returned to animal holding areas, the cages and rooms are clearly identified with the well-known radioactive symbol, the radioisotope used, and the quantity of the radioisotope that has been used until proper cleaning/decontaminating has been performed. Research personnel trained in radiation safety procedures provide care for the animals, and are the only ones handling the animals and their waste until the radiation has dropped to background levels. Personnel wear dosimeters to keep track of their levels of exposure and employ survey meters to detect, collect, and contain radioactive materials for cleanup of the animal room and disposal via UW Radiation Safety department. The Radiation Safety Department also manages the pregnant radiation worker surveillance program.

vi. Personal Protection [Guide, pp. 21-22]

- 1) Describe training, 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).

██████████: All care staff is required to attend the safety training mandated by RARC and by EH&S. Staff are encouraged to attend other safety training classes or workshops that are relevant to their job duties.

The cage wash area is the only potential source of high noise exposure in the animal facility, and based on noise level testing and duration of use, levels are below occupational exposure limits. Safety features on equipment are routinely tested to ensure good working order. Facilities are inspected semiannually with a representative from the EH&S Animal Research Safety group to ensure the animal care operation is safe. If safety deficiencies are recorded during the inspection, the ██████████ promptly follows up to rectify issues.

Appropriate PPE is required and is provided for staff as dedicated or disposable items. The protective clothing is changed daily or as often as necessary for persons to present a clean, neat appearance. All scrubs are laundered by a contract vendor.

██████████: All personnel are required to attend the safety training required by RARC and by UW-Madison EH&S. Staff is encouraged to attend other safety training classes or workshops that are relevant to their experimental pursuits. Relevant PPE is provided for personnel and must be worn. Eye wash stations and chemical showers are located throughout the facility.

██████████: All care staff is required to attend the safety training mandated by RARC and by EH&S. Staff are encouraged to attend other safety training classes or workshops that are relevant to their job duties. Appropriate PPE is required and is provided for staff. The protective clothing is changed daily.

See ██████████ above for noise exposure and safety inspections.

██████████: All ██████████ staff has attended safety training required by RARC and UW-Madison EH&S. In addition, staff has been trained on equipment and procedures specific to the animal facility. This includes equipment safety features. The cage wash area has been tested for excessive noise, and based on noise level testing and duration of use, is below occupational noise exposure limits. While hearing protection is not mandatory, it is available for employees who wish to use it. Tunnel washer access panels and doors are all equipped with magnetic switches that must be activated for the tunnel washer to run. In addition, there are emergency shut offs on the dirty and clean end of the tunnel washer. The ██████████ water pouch machine also has an emergency shut off. A dust collector is attached to the automatic bedding dispenser to minimize dust inhalation. Eye wash stations and chemical showers are located throughout the facility. Use of the Garbel bedding dump station, automatic bedding dispenser, and height-adjustable animal changing stations reduce work related injuries and make the facility ergonomically efficient. Furthermore, the ██████████ watering system provides a safe and ergonomic alternative to use of water bottles.

WNPRC: As part of their orientation, all personnel that have contact with nonhuman primates are required to attend the NHP courses described above. They are required to complete the “Working Safely with Nonhuman Primates” training module and read SOPs devoted to the safe handling of nonhuman primates annually.

All personnel with access to the nonhuman primate barrier must be tested for tuberculosis twice each year. Personnel are not provided with access to an NHP housing facility, or access is terminated unless they comply.

As described above, the ██████████ is responsible for following up on all injuries and potential Herpes B virus exposures. A post-injury/exposure interview is scheduled after every incident to provide an opportunity for one-on-one discussion to determine if changes to equipment, SOPs, or handling procedures need to be made.

Personnel routinely use squeeze-back cages and tabletop restraint devices to safely work with nonhuman primates. Personnel are not permitted to manually restrain animals over 2 kg. There are many WNPRC SOPs in place that describe the requirements for safely working with nonhuman primates. All will be available for review by the site visitors. In addition, staff has been trained on equipment and procedures specific to the animal facility. This includes the safety features of equipment. Eye wash stations and emergency showers are located throughout the facility.

The facility has been evaluated for excessive noise. Testing has been conducted for animal research technicians and cage washing, and levels are below occupational noise exposure limits. While hearing protection is not mandatory, it is available for employees who wish to use it. Hearing protection training is provided every other year.

All WNPRC personnel are required to attend a New Employee Training class that covers hazard identification, labeling, Safety Data Sheets, chemical inventories, PPE, emergency procedures, and the written compliance plans. This training ensures that all personnel are aware of the chemicals that can be found in their work area, what to do in the event of an exposure or spill, OSHA requirements, etc.

The UW Ergonomics Specialist has performed several ergonomics assessments for the WNPRC, and provided training and guidance to animal research technicians. In addition, she held a mini-lecture for colony management staff, covering a wide array of ergonomics topics.

- 2) Describe the procedures for the maintenance of protective equipment and how its function is periodically validated.

██████████ and ██████████: PPE is routinely inspected and discarded if there is any question of functionality. Most PPE is disposable after one use. UW-Safety is consulted if any discrepancies arise. Eye wash and chemical showers are tested regularly for functionality. BSL-2 or 3 projects are not housed in these facilities, nor are select agents that require use of more extensive PPE.

██████████: See ██████████ and ██████████ above. ██████████ personnel are trained to inspect all PPE each time it is donned, and are directed to immediately dispose of any PPE that is defective.

██████████: Safety features of the tunnel washer, bedding dispenser, and dust collector are maintained as part of a preventative maintenance contract with Washer Solutions. These features are checked for functionality at least four times per year. The ██████████ water pouch machine and its safety features are checked for functionality at least two times per year as part of a preventative maintenance plan with ██████████. Eye wash stations and chemical showers are checked and flushed routinely (eye wash stations weekly, showers monthly) by animal facility and/or building management.

WNPRC: Personnel are trained to inspect all personal protective equipment each time it is donned, and are directed to immediately dispose of any PPE that is defective. Personnel that are required to wear either N-95 respirators or PAPRs (powered air purifying respirators) receive annual formal training in the proper use and maintenance of the respirator they have been fit tested for. Personnel that wear PAPRs are required to perform airflow checks before each use. In addition, assigned PAPR supervisors inspect each PAPR unit monthly.

Eye wash stations and emergency showers in the animal areas are checked and flushed weekly by ARTs.

- 3) Describe situations where respiratory protective equipment is available or required, such as cage washing facilities, feedmills, etc. Describe how such equipment is selected and how respirator fit testing and training in the proper use and maintenance of the respirator is provided.

When engineering controls are not sufficient or work tasks determine that respiratory protection is required, respirators are provided and personnel are required to participate in the UHS Respiratory Protection Program. Voluntary use of N-95s is allowed.

Respirators are selected by the work unit based on work tasks and ability to fit. UHS manages the medical approval to wear a respirator with electronic submission of a medical questionnaire and, if indicated, an appointment with a medical professional. UHS also conducts initial and annual quantitative fit testing as specified in Appendix A of OSHA 1910.134 for tight fitting respirators. Training at the time of the fit test includes the use and limitations of the respirator, inspection, donning, seal checks and disposal of N95s.

██████████: N-95 respirators are available to all staff that request to use one during cage changing. All personnel who are required to wear an N-95 are fit tested annually.

██████████: All personnel who are required to wear an N-95 are fit tested annually. During their fit testing appointment, they are assisted by UHS staff in choosing from a variety of N-95 masks to determine which one fits most comfortably and provides appropriate respiratory protection. The ██████████ provides formal classroom training on respiratory protection to all personnel that may need to wear an N-95.

WNPRC: Personnel are required to wear a surgical mask at all times when in the NHP barrier. Several options are available (i.e., ear-loop, molded, tie-on) so personnel can select the one most comfortable for them.

N-95 respirators are also available to staff who desire a higher level of protection. An N-95 respirator or PAPR must be worn while working in the following situations:

- With newly-acquired animals under quarantine
- With influenza infected animals
- With MPTP exposed animals (for the first 72 hours)

All personnel present must also wear N-95s or PAPRs during SIV, Dengue virus, and Zika virus infection procedures, during vaccinia vaccination procedures, and when performing dental procedures and necropsies.

All personnel who are required to wear an N-95 are fit tested annually. During their fit testing appointment, they choose from a variety of N-95 masks to determine which one fits most comfortably and provides appropriate respiratory protection. The Occupational Health and Safety Coordinator provides annual formal classroom training on respiratory protection to all personnel that may need to wear an N-95 or PAPR.

- 4) Describe program policies to ensure personnel safety when working with rack/cage washers, other sanitation/sterilization equipment, and other heavy equipment such as scrapers, tractors, and farm machinery. Describe the training program that supports these policies.

██████: New employees are trained by the supervisor or Lead ART in the operation and safe use of equipment including the cage washer & autoclave. New employees are required to take the online course, Biosafety 106: Autoclave Use: Safety and Efficacy. Refresher training is conducted as needed and at regularly scheduled staff meetings.

██████: Not applicable. *Xenopus* frog tanks are washed with a brine solution by hand and autoclaved if necessary.

██████: New employees are trained by the supervisor or the lead animal care technician on proper safety and use of the autoclave. All caging is disposable.

██████: The staff has been trained on the usage and safety features of all cage washing equipment. Daily oversight by management ensures personnel safety. Refresher training is conducted as needed and at weekly staff meetings.

WNPRC:

Automatic cage washers - Personnel who work with the automatic cage washers must undergo training before being authorized to use them. The training includes safety information in addition to operating instructions. WNPRC SOP 2.02 includes a description of the safety information provided to personnel.

Autoclaves - Personnel who work with the autoclaves must undergo training before being authorized to use them. The training includes safety information in addition to operating instructions. WNPRC SOP 2.10 includes a description of the safety information provided to personnel.

Ethylene oxide (ETO) gas sterilization units - Personnel who work with the ETO gas sterilization units must undergo training before being authorized to use them. The training includes safety information in addition to operating instructions. WNPRC SOP 2.11 includes a description of the safety information provided to personnel.

Forklift – Personnel who need to drive the forklift must undergo extensive training before being authorized to use it. The training includes extensive safety information in addition to operating instructions. Personnel authorized to drive the forklift have participated in a 4-hour training course at a facility certified to provide OSHA required forklift training.

vii. Medical Evaluation and Preventive Medicine for Personnel [Guide, pp. 22-23]

- 1) Identify the individual(s) and/or office responsible for developing and monitoring the medical evaluation and preventive medicine program.

The UW University Health Services (UHS) Occupational Medicine Office develops and monitors the Medical Evaluation and Preventive Medicine Program for the UW-Madison campus.

- 2) Describe the categories of personnel (research staff, visiting scientists, animal care staff, students, support staff, etc.) included in the program.

Policy 2004-025-io, Occupational Health Enrollment Program, identifies four target groups of employees, students and visitors, and outlines when enrollment in the Occupational Health Program is required. The four target groups are:

1. Anyone who through their employment, training or service at UW-Madison has regular contact with animals: a) faculty, staff and students named in an animal-use protocol, b) research animal veterinarians, c) animal care staff, d) IACUC/OB members, e) veterinary medical students, and f) Veterinary Medicine Teaching Hospital staff.
2. Students
3. Visitors
4. UW-Madison Employee Service Personnel

- 3) Describe general features of the medical evaluation and preventive medicine programs, including pre-employment/pre-assignment health evaluation, periodic medical evaluations, immunization programs, and procedures for communicating health related issues.

UHS is a fully accredited ambulatory care clinic located on campus that provides primary medical care to students and occupational medicine to faculty, staff and students. UHS provides pre-exposure services such as routine testing, examinations, consultation, immunizations and other services which are required before encountering a specific occupational risk.

The Animal Contact Risk Questionnaire (ACRQ) is evaluated by medical professionals at UHS to assess potential risks for each individual who may have contact with research animals or who may work in animal facilities. Shortly after hire, the baseline form is completed. Thereafter, the annual update form is used (Appendix 5). Individual risk and prevention recommendations are communicated via UHS electronic health record. The information obtained in the ACRQ (including review of previous annual submissions) is used to determine required immunizations, use of personal protective equipment, hygiene practices, medical surveillance, and training.

If respirator use is indicated, medical evaluation is performed by UHS occupational medicine staff. Fit testing for tight fitting respirators is conducted on an annual basis by Occupational Medicine/Occupational Health staff.

Routine immunization services provided by UHS include: Tetanus boosters which are required at 10-year intervals for individuals with animal contact; Hepatitis B vaccine is offered to personnel with a reasonable expectation of exposure to human blood or other potentially infectious human material; Rabies vaccine is recommended for personnel who may come into contact with animals from unknown sources or wild-caught animals; annual flu shots are offered to faculty, employees, and students.

- 4) Describe special precautions or procedures for personnel exposed to potentially hazardous species (nonhuman primates, sheep, etc.) or agents (infectious agents, human origin tissues, chemicals/toxins, etc.).

Environment Health & Safety (EH&S) offers safety courses in biological safety, animal research safety, chemical safety and radiation safety that explain the potential risks and hazards that personnel may be exposed to working with hazardous animals and agents.

There is detailed information on the EH&S website (<http://www.ehs.wisc.edu/index.htm>) concerning the potentially hazardous species and agents that an individual may encounter while working in research on campus.

EH&S recommends standard exposures procedures in the event of a spill or exposure. Spill and exposure reporting information is located the EH&S website: <http://www.ehs.wisc.edu/spillinfo.htm> and <http://www.ehs.wisc.edu/biosafety.htm>

Post-exposure services are provided by University Health Services (UHS). UHS provides medical care for workers exposed to animals or to hazardous chemicals or biologic agents within the research and academic setting including screening, case management, outpatient evaluation and management, outpatient laboratory testing, plain film radiology, and telephone call line support for employees with exposures. When referral to outside or after hours care is required, UHS assists with arranging follow-up and care coordination.

The UW-Madison coordinates with UW Health Infectious Disease Physicians when needed. They provide inpatient, outpatient and emergency consultative services for the diagnosis and management of complex infectious diseases and unexplained febrile illnesses, especially those that may become life-threatening.

UHS has prepared several electronically available Exposure Medical Response Guidance documents to inform laboratory staff and health professionals about risks and treatment in the event of a specific exposure.

WNPRC: There are many precautions taken to ensure that personnel working with nonhuman primates and their tissues are as safe as possible. There are many SOPs in place that explain the extra precautions, such as the strict PPE requirements, disinfection requirements, animal restraint requirements, etc. Each animal room door is labeled with the potential hazards within, additional PPE requirements, and contact information for responsible personnel. As discussed above, there are many initial and ongoing training requirements in place for all personnel working with NHPs and their tissues. Hazardous agents are contained within the study environment by performing the experiments in

ABSL-2 animal facilities and by following corresponding safety practices. The Office of Biological Safety and the Institutional Biosafety Committee determine the level of safety practices required.

c. Investigating and Reporting Animal Welfare Concerns [Guide, pp. 23-24]

Describe institutional methods for reporting and investigating animal welfare concerns.

Policy 2003-017-io, Whistle Blower Policy and Posting, (<https://www.rarc.wisc.edu/policies.html> > Policies by Number) states that any individual who has concerns related to the use of animals in teaching, research or outreach at UW-Madison may express those concerns without fear of reprisal. Anonymous reporting may be made to a tip line staffed by the Office of the Vice Chancellor for Research and Graduate Education, or to the IACUC/OB Chair, any member of the veterinary staff, or the Assistant Director of RARC. Signage about this policy with contact information is posted where it is easily seen in open staff areas in every animal facility, and in every laboratory space in which animal procedures are approved to be performed. The IACUC/OB verifies the presence of the whistleblower posting on every semiannual facility inspection. The signage includes instruction for obtaining protection from retaliation under Wisconsin's Whistle Blower Law (Wis. Stats. §230.80-85). A phone number for reporting concerns, and a link to the reporting policy, appear on the RARC home page.

Reports are often investigated by the Chief Campus Veterinarian or a designee at the request of the IACUC/OB. Investigations are done in cooperation with animal facility managers and directors, department chairs, research staff, the UW-Madison Office of Administrative Legal Affairs, human resources staff, and other University staff as needed. The reported concern may be brought to the attention of the IACUC/OB, the IO, OLAW, USDA, AAALAC or other entities depending on the nature of the report and the ultimate finding of the investigation.

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 an appendix.

i. Describe Committee membership appointment procedures.

UW-Madison Chancellor, Rebecca Blank, has delegated the responsibility and authority for IACUC/OB appointments to IO Dr. [REDACTED]. [REDACTED], [REDACTED]. Responsibility has been further delegated to Dr. [REDACTED], [REDACTED]. [REDACTED].

The LSVI IACUC/OB oversees both the VCRGE program and the non-AAALAC accredited L&S program. To ensure committee membership appropriately reflects the two programs, appointments to the LSVI IACUC/OB are based on nominations from the [REDACTED] and the [REDACTED]. These L&S and VCRGE administrators who make the nominations must agree with each other to ensure appropriate expertise

and representation on the LSVC IACUC/OB. The procedures are described in a memo dated October 1, 2015, and a letter to Dr. [REDACTED] dated October 18, 2016.

Upon agreement concerning LSVC IACUC/OB appointments, Dr. [REDACTED]'s office issues an appointment memo detailing the name of the IACUC/OB appointee, their voting status, and their term of service. Alternate voting members are named for the regular voting members as appropriate. Non-voting and ex-officio members generally include compliance staff from entities such as RARC and WNPRC.

The LSVC IACUC/OB roster is presented in Appendix 6.

ii. Describe frequency of Committee meetings.

The LSVC IACUC/OB holds a regularly scheduled meeting each month, except in occasional months when the nature and volume of business does not warrant a meeting. Separate, focused meetings are held twice a year to perform the semiannual program reviews. Additional special meetings may be convened for other reasons at the discretion of the chair.

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

Newly appointed IACUC/OB members attend an orientation session with the committee chairperson and the IACUC/OB Administrators. The information provided includes the federally mandated charge of the committee, obligations of committee members, how protocols are reviewed, the role and method of semi-annual inspections, and the role and method of the semi-annual program reviews. Newly appointed IACUC/OB members are provided with a reference binder that includes copies of the most recent editions of the Guide and Ag Guide (as applicable), AWAR section 2.31, the PHS Policy, links to the 2013 AVMA Guidelines for the Euthanasia of Animals, guidance on reviewing protocols, and related materials. An introduction to the online system for managing IACUC/OB meetings and protocols is provided at the orientation; a second, more in-depth training is provided 2-3 months following a member's appointment when they begin receiving formal protocol review assignments. All new members have access to all approved and in-review protocols beginning the date of their appointment.

Committee training is a standing agenda item for each monthly IACUC/OB meeting. Topics range broadly with emphasis on regulations and regulatory updates. Examples include the regulatory definition of an animal, recent changes to USDA Animal Care policies and the Guide, strategies for deciding on designated vs. full committee review of protocols, and environmental enrichment. Training topics are selected by the IACUC/OB Administrators based on current national and/or campus regulatory issues, ideas from IACUC/OB members and RARC staff, and topics raised in professional venues (e.g. IACUC-ADMIN listserv). In addition, the IACUC/OB Administrators offer opportunities for distance learning (e.g. NABR and OLAW webinars, virtual PRIM&R meetings) to IACUC/OB members as they become available.

b. Protocol Review [Guide, pp. 25-26]

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

- i. Describe the process for reviewing and approving animal study protocols, including research and teaching proposals. Include a description of how animal study protocols that do not involve a formal grant proposal are reviewed and approved (i.e., pilot studies or internally funded studies). Include a description of how the IACUC/OB weighs the potential adverse effects of the study against the potential benefits that may result from the research. Describe how protocols that have the potential to cause pain or distress to animals are reviewed, alternative methodologies reviewed, veterinary input solicited, and studies controlled or overseen. Specify how animals and experimental group sizes are justified.

NOTE: In April 2014 UW-Madison began the process of converting to an on-line IACUC/OB protocol submission system called ARROW (Application Review for Research Oversight at Wisconsin). By the fall of 2017 most protocols overseen by the IACUC/OBs will exist in ARROW, with a small percentage remaining in the old, paper format. There are 5 versions of the ARROW protocol: Agricultural, Biomedical, Educational Display, Wildlife and Other. VCRGE currently (April 12, 2017) uses the Biomedical, Other and Wildlife versions. Blank copies of these 3 types and the paper IACUC/OB protocol form are provided in Appendix 7. A demonstration of the ARROW system can be provided to the site visitors upon request.

All work involving the use of live vertebrate animals at UW-Madison requires approval by at least one of the college or school IACUC/OBs prior to work beginning. This is true regardless of the source of funding or the intended use of the animals (i.e., teaching, research or testing, outreach).

Animal use protocols are completed by the principal investigators in ARROW. Through ARROW, new protocols and three-year renewals are first submitted to one of the research animal veterinarians for veterinary pre-review and consultation. The veterinarians review the entire protocol and make suggestions for improvement. If necessary, the veterinarians meet with the PI to discuss required modifications. Once the veterinarian is satisfied that the protocol is acceptable for review by the IACUC/OB, s/he notifies the PI that the protocol may be submitted for IACUC/OB review. These steps are also completed within ARROW. While there is no policy requiring veterinary pre-review of amendments, PIs have learned the value of the veterinary pre-review and often solicit veterinary input in the preparation of amendments.

Protocols submitted for IACUC/OB review are managed by staff in the IACUC office at RARC. They are distributed to the appropriate IACUC/OB for review by one of two methods: full committee review at a convened IACUC/OB meeting or Designated Review (DR).

For full committee review, two voting members of the IACUC/OB (one veterinarian and one non-veterinarian) are responsible for leading the IACUC/OB's discussion of the specific protocols assigned to them. Although these "primary reviewers" are named, all voting IACUC/OB members have access to the protocols scheduled for

review as part of their meeting materials. All members are encouraged and expected to read all of the protocols they receive and to raise concerns or questions for IACUC/OB discussion. Prior to the convened monthly meeting, IACUC/OB members may submit review questions or discussion notes for each protocol via the ARROW system. These are discussed at the convened meeting. After discussion, the IACUC/OB acts to approve, require modifications to secure approval, or deny ("disapprove," per PHS assurance) each protocol. If the IACUC/OB action is to require modifications to secure approval, the investigator must submit a rewrite of the protocol addressing all of the IACUC/OB's review concerns. Such rewrites are reviewed via DR by the veterinary reviewer and/or other voting committee members described below.

DR is used to review protocols under any of the following three circumstances (see Policy 2002-020-c).

(1) DR can be used as an alternative to reviewing a protocol at a legally convened meeting. First, each voting committee member is provided with a copy of the protocol. All voting members then have the opportunity to respond before a reasonable deadline (usually 3 working days) as to whether the protocol is eligible for DR. If any member indicates "not eligible for DR," the protocol is scheduled for full committee review at the next convened IACUC/OB meeting. If approved for DR, then designated reviewers from the IACUC/OB (one veterinarian and one non-veterinarian) are appointed by the Chair. Identical versions of the protocol are provided to the designated reviewers. They may approve, require modifications to secure approval, or call for full committee review at a convened meeting. Approval must be unanimous by the designated reviewers.

(2) DR can be used following full IACUC/OB approval of a motion to require modifications to secure committee approval. The solicited changes are reviewed by at least one veterinarian who has voting privileges on the IACUC/OB, with other voting committee members participating in the review upon request or as determined by the chair.

(3) DR can be used when an amendment simply addresses one or more of the following "minor" criteria:

- Addition of locations where procedures are conducted on animals, or where other animal activities of a duration less than 12 hours occur
- Addition of an IACUC/OB-approved housing location within the reviewing IACUC/OB's oversight
- Qualifications and training of instructors invited by the university to teach specific procedures, generally for continuing education courses, is submitted in lieu of completing standard on-line animal user orientation for UW-Madison.
- Addition of language to allow the transfer of animals between IACUC/OB-approved protocols with RARC veterinary approval.
- Changing from one approved commercial source of animals to another.
- Changing brand names of materials or substances (e.g., "Kleenex" instead of "Puffs").

- Changing from a specific brand name to a generic term (e.g., from “Kleenex” to “tissue”).
- Decreasing the frequency or volume of previously-approved blood draws.
- Removal of procedures and/or procedure locations

Amendments that fall into this third category are reviewed by the IACUC/OB chair and the school/college senior program veterinarian, either of whom may call for the amendment to be reviewed by the full IACUC/OB at a convened meeting.

Following review and approval, the investigator is notified of the status of the protocol via ARROW (or via email for non-ARROW approvals). The logistics of all protocol processing and PI notifications regarding protocol maintenance (e.g. impending expirations) are managed by the IACUC office.

Regardless of the review method used, the IACUC/OB applies the same standards to their reviews to balance potential benefits against potential harms, as well as potential pain and distress that the procedures in the study may cause animals and any alternatives that were considered. The IACUC/OB’s review of specific questions in the standardized protocol form ensures that PIs have explained the goals of the study and its potential benefits and harms. If this information is not clear the IACUC/OB requires modifications to the PI’s responses until the IACUC/OB is satisfied. Regarding potential pain or distress, the IACUC/OB comprehensively evaluates the proposed work, the animal monitoring plans, and the PIs’ literature searches. A research guide for PIs developed by RARC in consultation with UW-Madison Libraries staff to provide guidance to investigators on the regulatory basis for this requirement, developing search strategies, and presenting search results in the context of the protocol is available. This can be viewed at <http://researchguides.library.wisc.edu/animalalternatives>

Practical evaluation of appropriate numbers of animals for studies described in protocols is a perennial topic of discussion by the IACUC/OBs. Policy 2013-051-c, Justification of Number of Animals in Protocols (<https://www.rarc.wisc.edu/policies.html> > Policies by Number), provides guidance and expectations for PIs on this important aspect of the animal protocol application. The policy instructs PIs to include statistical justifications in their explanations of requested animal numbers when possible, and where statistical justification is not possible to provide a rationale for the proposed animal numbers, such as citations of previous research. PIs are also advised to consider including a very small percentage of overage to provide them with flexibility in the event animals must be removed from studies for non-experimental reasons if that is clearly explained in the numbers justification narrative. The IACUC/OBs will accept as part of the explanation the PI’s previous experience with the particular experimental model, or in the case of teaching protocols the students’ learning experience needs. PIs are often instructed to include tables or charts that show the exact number of experimental groups and animals needed for the study. If the PI’s explanation of the animal numbers request is unclear to the IACUC/OB, the Committee requires modification of the response until it meets the IACUC/OBs’ satisfaction before approval of the protocol is granted.

- ii. Describe process for reviewing and approving amendments, modifications, and revised protocols. If applicable, include a description of “major” vs. “minor” amendments.

After initial IACUC/OB approval of an animal use protocol, it may be amended by the PI as study requirements change (e.g., an existing study is refined or a new component is added), or at the direction of the IACUC/OB (e.g., following an adverse event). Amended protocols are reviewed and approved by the IACUC/OB following the same procedures as described above in (b)(i) via review at a convened IACUC/OB meeting or via Designated Review.

In accordance with OLAW NOT-OD-14-126 in February 2016 the IACUC/OB approved a policy to allow veterinary verification of changes to protocols. Policy 2016-058-c, Veterinary Verification and Consultation –(VVC), describes specific changes that can and cannot be made via this method. At least quarterly the IACUC/OB reviews a log of changes to protocols made via VVC, and at that time has the opportunity to request details from the veterinarian or request that an amendment to the protocol be submitted by the PI. The full policy text is available at (<https://www.rarc.wisc.edu/policies.html> > Policies by Number).

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

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

Describe how criteria for determining alternatives to experimental (humane) endpoints are developed, approved, and applied. Include a description of monitoring systems in place for studies for which information on alternative endpoints are not available.

Alternatives to humane experimental endpoints are embedded within the IACUC/OB protocol review and approval functions. As the Committee reviews each protocol the endpoints are evaluated against veterinary standards and scientific compatibility by the collective knowledge among the Committee members. Consulting specialists are used when applicable knowledge is not represented among the Committee membership. Plans for animal monitoring in cases where alternative endpoints are not available are tailored on a study-by-study basis by the IACUC/OB with veterinary input. These often include a scheduled report back to the Committee regarding endpoint outcomes.

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

Describe how unexpected outcomes of experimental procedures (e.g., unanticipated phenotypes in Genetically Modified Animals) are identified, interpreted, and reported to the IACUC/OB.

The IACUC/OB can become aware of unexpected outcomes in several ways. Staff is required to report adverse events when they occur as described in Policy 2012-050-v, “Adverse Event Reporting.” All animals are observed every day by care staff, veterinary staff, or investigational staff. There are systems in place for care staff and investigational staff to report abnormal observations, and those personnel have been trained in those systems. The attending veterinarian report is an agenda item for each IACUC/OB meeting, and unexpected outcomes are reported then. Animals

with unexpected morbidity or mortality are necropsied at the discretion of the program veterinarians.

WNPRC: To ensure that any adverse outcomes associated with experimental procedures are identified in a timely fashion, animal care, research, and veterinary staff observe each animal multiple times per day. Additionally, any animal undergoing a surgical procedure for experimental (or clinical) purposes undergoes five days of documented monitoring for evidence of adverse reaction (e.g., infection, dehiscence, etc.). All personnel are directed to immediately report any unexpected or adverse outcomes to the WNPRC Attending Veterinarian who is responsible for ensuring that the situation is adequately investigated and documented. The Attending Veterinarian reports any issues discovered to the Chair of the LSVC IACUC/OB, to the Chief Campus Veterinarian and during the Attending Veterinarian Report portion of the LSVC IACUC/OB meeting.

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.

There is a campus-wide policy on the physical restraint of animals (Policy 1997-004-v, Physical Restraint of Animals). The policy describes the requirements for protocol approval; animal selection and acclimation; personnel training; animal monitoring; special requirements for restraint >12 hours; provision of food, water, and enrichment; and requirement for reporting complications.

- 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.

██████: Rodent restrainer for short procedures (<10 minutes). For some behavioral tests animals are restrained for up to 30 minutes.

██████: Not applicable.

██████: Rodent restrainers are used for tail vein injections. Mice are restrained for <5 minutes.

██████:
Acoustic Startle Test and Prepulse Inhibition Test Chamber - Mice are placed in the ventilated chamber (6 x 7 x 5 cm) for 15 - 30 minutes for behavioral testing. Mice are monitored initially for signs of distress and again at the completion of the test.

Rotometer Chamber - Mice are equipped with a lightweight restraining tether as they move inside a clear, circular chamber (30 cm diameter) for up to 30 minutes for behavioral testing. Mice are continuously monitored.

Acoustic Chamber testing - Mice may be placed in a small plastic holder (8 x 8 x 10 cm) or a metal mesh container (9 cm in diameter x 8 cm high) for 2 - 10 minutes. Mice are monitored initially for signs of distress and again at the completion of the test.

Tail Suspension - Each mouse is suspended by its tail from a bar approximately 30-50 cm from the ground. The tail is taped to the bar approximately 1-2 cm from the distal end of the tail. The mouse is observed and time spent immobile is quantified. Mice will be observed during the test and carefully examined following the test to ensure there was no damage to their tails.

While movement is restricted, the above procedures have been well tolerated and mice are not acclimated prior to use. While adverse clinical consequences are not anticipated during any of the above procedures, any adverse clinical consequences would be reported to veterinary staff. In the event of a severe adverse clinical event, the mouse would be humanely euthanized.

WNPRC:

Tabletop restraint devices – these devices are used regularly to briefly restrain conscious macaques for procedures such as injections, experimental agent administration, blood collection, palpations, ultrasounds, and brief physical exams. WNPRC SOP 1.06 details how to use the devices. All animals born at the WNPRC are acclimated to this device from the time they are infants. Animals acquired by the WNPRC become acclimated to the device over time, starting with their quarantine period. The animals spend no more than a few minutes being restrained for any one procedure. The animal is transported from its home cage in a transport cage, and allowed to enter the device. The “squeeze” component of the apparatus is adjusted so that the animal is firmly held, but not in discomfort. As soon as the procedure is completed, the squeeze is released and the animal is allowed to re-enter the transport cage. Utilization of this device eliminates the need to anesthetize the animals. Each animal receives a positive reward each time it enters the device.

Tube restraint devices – these devices are used regularly to briefly restrain conscious marmosets and infant macaques for procedures such as injections, blood collection, palpations, ultrasounds, and brief physical exams. The device consists of a 9 cm length x 7 cm diameter PVC tube attached to a bar. Animals are placed in the tube and Velcro straps are placed across the abdomen and thighs, which allows free movement of the head and arms. WNPRC SOP 1.06 details how to use the device. Marmosets adapt very readily to this restraint method. Each animal receives a positive reward each time it enters the device.

Primate restraint chairs – these devices are used for semen collection, experimental treatment administration, as well as for research data collection (see Appendix 17). Three protocols are approved for chair restraint for up to 12 hours, one is approved for up to 10 hours, and one for up to 8 hours. All nonhuman primates that undergo chair restraint are slowly acclimated to their restraint devices by highly trained WNPRC employees. All acclimation procedures are performed using positive reward paradigms. Animals restrained in standard nonhuman primate chairs are monitored continuously. Animals that do not adapt or acclimate to restraint are dropped from the research protocol. Veterinarians are always available in the event of an adverse clinical consequence associated with the use of a restraint chair.

Polycarbonate restraint boards – these devices are padded with towels and used to restrain conscious animals for long-term (1-6 hours) fluid administration for clinical purposes. These devices are commonly used in captive NHP medicine and allow safe, comfortable restraint of conscious animals. Animals are monitored constantly while restrained.

See Appendix 17 for a summary of protocols approved for restraint (n=18).

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 institutional policy(ies) regarding multiple survival surgery (major or minor) on a single animal.

In compliance with the AWA, Policy 14 of the USDA, and the *Guide*, the LSVC IACUC/OB approves multiple major or minor survival surgeries on a single animal only if presented with adequate scientific rationale for the performance of these procedures. No animal is subjected to major survival surgery between two protocols.

- 2) Describe the procedure for approving multiple survival surgery (major or minor) and the criteria used to determine the potential impact on the animals' well-being.

All investigators who wish to perform multiple survival surgical procedures on a single animal within one protocol must provide adequate scientific justification to the LSVC IACUC/OB. In addition, veterinary record review and approval is required to transfer animals between protocols thus assuring that no animal is used for survival surgeries between protocols

- 3) Summarize the protocols currently approved that involve multiple major survival surgical procedures and the time allowed between procedures on the same animal. Describe the method of institutional monitoring.

See Appendix 18 for a summary of protocols approved for multiple major survival surgery (n=29).

At WNPRC, all animals are monitored very closely after their first major survival surgical procedure and a WNPRC veterinarian must perform a physical exam and evaluate the health of an animal before it is allowed to undergo another major survival surgical procedure.

For rodents, animals are monitored daily by care staff and investigational staff, who report any problems, surgical or otherwise, to veterinary staff, as described in approved animal use protocols. Veterinary staff also view all animals regularly.

v. Food and Fluid Regulation [Guide, pp. 30-31]

- 1) Describe experimental situations that require food and/or fluid regulation. Note: This does not include pre-surgical fast. List title* of the experiment(s), justification, species involved, and length and type of food/fluid regulation.

Fifteen (15) protocols are approved for food and/or fluid regulation. See Appendix 19.

- 2) Describe animal health monitoring procedures and frequency (e.g., body weight, blood urea nitrogen, urine/fecal output, food/fluid consumed).

██████████ and ██████████: Answers provided for each IACUC/OB number in the answer to question 1) immediately above.

██████████: Not applicable.

WNPRC: Individual answers for each IACUC/OB protocol are provided in the answer to question 1) immediately above. The animal care and veterinary staff of the WNPRC and research personnel closely monitor all animals assigned to studies that use fluid regulation. The water and food intake of these animals is recorded daily. The weight and food intake of each animal on fluid regulation or scheduling is also obtained and recorded each time it is removed from its cage for husbandry, clinical, or experimental reasons. The veterinary staff uses the following parameters to monitor the hydration status, renal function, and overall health of all animals involved in fluid regulation studies:

- Gross evaluation of hydration status (e.g., skin tent, eye position in orbit)
- stool quality
- appetite
- activity level
- hematological indices – hematocrit, hemoglobin, BUN, creatinine, serum osmolality, total protein, electrolyte values
- urinalysis – osmolality, specific gravity
- body weight

- 3) Describe methods of ensuring adequate nutrition and hydration during the regulated period.

██████████ and ██████████: Answers provided for each IACUC/OB number in the answer to question 1) above.

██████████ and ██████████: Not applicable.

WNPRC: Individual answers for each IACUC/OB protocol are provided in the answer to question 1) above. As stated in the answer to the previous question, WNPRC and research personnel monitor the food intake, weight, and hydration status of all animals on fluid regulation very closely. When necessary, the diets of animals on fluid regulation are augmented with liquid nutrition products such as Ensure or Boost to provide calories and to stimulate appetite. Oral, subcutaneous, or intravenous rehydration therapy is instituted if an animal is determined to be dehydrated.

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

Describe the rationale and consideration given by the IACUC/OB for use of non-pharmaceutical grade drugs or other substances, if applicable.

As described in policy 2010-037-io, the use of non-pharmaceutical-grade compounds must be described in a protocol approved by the school/college IACUC/OB, and be scientifically justified.

vii. Field Investigations [Guide, p. 32]

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

At present, there are no protocols in the VCRGE program that involve field investigations of non-domesticated species.

When such studies are undertaken, the unique considerations are embedded within the IACUC/OB protocol review and approval functions. They include a protocol form specific to these studies. This protocol includes questions that require specific responses when wild animals are the species of interest. The questions address details of the natural habitat, capture methods, frequency of checking nets and traps, disposition of non-target species, and release procedures. They also include quarantine and biosecurity concerns, including the inadvertent transmission of pathogens between individual animals and collection sites. Occupational safety concerns are reviewed by UW-Madison EH&S staff. Field biologists who are not on the IACUC/OB may be asked to consult on specific aspects of field study protocols.

As per USDA and OLAW regulations, vertebrate animal studies that involve observation-only studies (no hands-on or invasive procedures) of wild animals in their natural habitat are exempt from IACUC/OB oversight and review. PIs are instructed instead to complete a wildlife waiver to describe the non-invasive work. The waiver application explicitly directs PIs to complete the Animal Care and Use Protocol Review if wild animals are to be captured, sampled, or materially affected. Upon submission to the IACUC/OB Administrator the waiver is reviewed by the Chief Campus Veterinarian, Dr. [REDACTED], or her designee, who consults with each PI about study plans. After that evaluation the PI is either directed to complete the Animal Care and Use Protocol, or the waiver is signed by Dr. [REDACTED] and the PI and kept on file at RARC for reference. A signed copy is furnished to the PI and copied to the EH&S staff, who may initiate a safety consultation at their discretion. Annually the IACUC Administrator or designee contacts each PI to inquire about the status of each project and whether there have been changes in scope that would require an Animal Care and Use Protocol.

viii. Agricultural Animals [Guide, pp. 32-33]

Describe considerations given and guiding documents used by the IACUC/OB when reviewing “biomedical” and “agricultural” research projects involving agricultural species as study animals, if applicable.

VCRGE has one protocol using agricultural species (sheep). During routine housing before and after the study, the sheep are housed according to the Ag Guide in an AAALAC accredited facility managed by the UW-Madison School of Veterinary

Medicine (AAALAC #000620) that is not included in VCRGE's program description. During the active portion of the research, animals are managed using the Guide.

ix. Animal Reuse [Guide, p. 5]

Describe institutional policies and/or oversight of animal reuse (i.e., on multiple teaching or research protocols). Summarize the protocols currently approved that involve the reuse of individual animals.

There is a veterinary policy describing the circumstances under which animals may be transferred or reassigned. Before such a reassignment is authorized, the program veterinarian reviews the animal's medical records and determines if reassignment will compromise the animal's health and well-being. No animals that undergo major surgical procedures on one protocol can be used on another protocol involving a major surgical procedure unless the procedure is non-survival. Investigators are encouraged at the time of protocol development/review to include the possibility of reassigning animals to another protocol if appropriate.

WNPRC: To reduce the number of NHPs that must be produced or purchased by the WNPRC, all Center investigators are encouraged to use animals on more than one project. Prior to being reassigned, the physical condition and experimental history of an animal are closely evaluated by multiple WNPRC staff members, including a WNPRC veterinarian. If an animal is deemed to be clinically and psychologically healthy then it can be reused.

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

- a.** Describe mechanisms for IACUC/OB review of ongoing studies and periodic reviews (e.g., annual review, 3-year renewals if PHS funded, etc.).

Up to two reminders are sent to each PI by the ARROW system or email attachment by IACUC office staff prior to the annual re-approval date of each protocol. A required form must be completed and submitted by each investigator for each protocol. The PI must specifically request continuance of the protocol for one year. At each convened meeting, the IACUC/OB reviews the submitted forms. The IACUC/OB may request any needed changes or clarifications, and approves the annual re-approvals by motion and majority vote. IACUC office staff communicates the IACUC/OB's requests, (if any) to the PIs, tracks the responses, and reports the results to the IACUC/OB. If a PI fails to return the required form, the IACUC/OB may act to suspend the protocol for failure to request annual re-approval or enact other consequences.

Triennial renewals are required for every protocol regardless of funding source. Up to three reminders are sent to each PI by RARC prior to the expiration date of each protocol. Protocols must be submitted to the IACUC/OB every three years for complete de novo review and approval. If the PI fails to respond, the protocol is terminated upon the expiration date. A notice of protocol termination is sent by the protocol office via email to the PI, department chairperson, Senior Program Veterinarian of the relevant IACUC/OB, and the manager(s) of the animal facility(-ies) listed on the protocol. When the protocol is submitted, it is reviewed as described above in section B.1.b.i.

As needed, the IACUC/OB will re-review any active protocol called for review by a voting member at a convened meeting to re-evaluate specific procedures, monitoring criteria, endpoints, or other aspects of the animal work. Based on that evaluation the IACUC/OB

may require retraining of research staff, the presence of the PI or others at the IACUC/OB meeting, or other remedial action. Policy 2016-059-io, "Post-approval Monitoring (PAM)," describes routine and directed PAM activities including laboratory and protocol assessments. Three specialists in RARC are primarily responsible for PAM activities.

WNPRC: Over the last several years, the [REDACTED] has formalized a post-approval monitoring (PAM) program and conducts protocol audits and animal health record reviews. To execute the program, the [REDACTED] visits laboratories, conducts audits on randomly chosen LSVIC IACUC/OB approved protocols, reviews animal and laboratory records, prepares audit reports, recommends corrective actions, and monitors the timeliness of corrective actions. Follow-up reviews are conducted as necessary to ensure compliance. The [REDACTED] has developed objective criteria for selecting protocols to be audited; developed a comprehensive worksheet used to summarize protocols and audit research records and animal records, and compare the records to approved protocols; and developed an audit report form used to report findings to the investigators, the [REDACTED], and the IACUC/OB, if necessary.

- b. Describe the process and frequency with which the Committee reviews the animal care and use program and conducts facility and laboratory inspections. Detail any criteria used for exempting or varying the frequency of reviewing satellite holding facilities and 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 an appendix.

One full-time position in the IACUC office is dedicated to supporting the IACUC/OB semiannual inspections, and receives support from other staff. The [REDACTED] reports to the [REDACTED] and is responsible for scheduling inspections, note-taking, database management, follow-up on deficiency correction, and reporting to the IACUC/OBs. The [REDACTED] and [REDACTED] back-up the [REDACTED]'s functions to provide coverage for UW-Madison's multiple animal facilities and labs.

At least once every six months each animal care facility, investigator laboratory and animal transport vehicle that falls within the IACUC/OB's oversight is inspected by a subcommittee of the IACUC/OB. The subcommittee is comprised of at least two voting members. Facilities and laboratory spaces where only non-USDA-covered species are used may be inspected by a single committee member.

Any committee member is welcome to participate in any facility inspection. A Safety representative member of the committee is generally present for each inspection. The inspection subcommittees identify minor and significant deficiencies and assign correction dates for deficiencies. Alternatively, subcommittees may refer potential deficiencies and corrective action to the full IACUC/OB for discussion at a convened meeting.

Occasionally non-voting IACUC/OB member consultants inspect facilities. For example, RARC compliance staff may inspect facilities or labs where only non-USDA-covered species are used. These consultants may recommend deficiencies and correction dates, but must also refer them to a convened IACUC/OB for action.

A member of the IACUC office staff accompanies all inspection teams and records the results in a customized database via iPad. The findings of each inspection are compiled, presented and discussed at the next convened IACUC/OB meeting, and recorded in the official meeting minutes. Inspections performed by consultants are specifically approved by committee vote.

Corrective actions are monitored and logged by IACUC office staff. Reports of overdue actions or requests for extensions are provided to the IACUC/OB as needed. Real-time inspection data concerning deficiencies and the status of corrective action may be viewed by the I.O., the IACUC/OB chair, and selected IACUC staff via a secure website.

During semi-annual program review, the results of the facility inspections performed during the previous six months are reviewed for trends and problem areas. In preparation for the meeting the Inspection Specialist and/or IACUC Administrators prepare a summary of findings and trends to present at the semi-annual program review. Repeat deficiencies are highlighted in the program review report.

The semi-annual animal care program reviews are conducted by the full IACUC/OB, or by a subcommittee of less than a voting quorum. When a subcommittee conducts the review the results are presented to the full IACUC/OB for discussion and sign-off. To guide the review the IACUC/OB uses the Guide for the Care and Use of Laboratory Animals, and, as applicable, 9 CFR Chapter I, 2.31. A worksheet (Lab Animal 2007 Oct; 36(9): 36- 40) based on the program definition (Lab Animal 2005 Nov; 34(10):41-4) is used to guide discussion and as the program evaluation tool. Results of the review are then transmitted in a timely manner to the Institutional Official.

- c. Describe institutional responses to deficiencies noted on regulatory inspection reports (e.g., government, regulatory agencies). Note: Copies of all such inspection reports for the past three years (if available) should be available for review by the site visitors.

Regulatory inspection reports are shared with research animal veterinarians, the Institutional Official, and members of the IACUC/OB. These individuals work together to correct existing problems, and develop a method to ensure that those problems are not repeated. Corrective actions can range from development of new institutional policies to discussion with those involved, formal retraining, and/or loss of animal use privileges. If facility deficiencies are identified, the relevant animal care unit is directed to make necessary corrections and report this to the IACUC/OB and RARC. Actions taken are reported to relevant regulatory agencies by the IACUC/OB Chair, IO, and/or Chief Campus Veterinarian.

- d. Describe other monitoring mechanisms or procedures used to facilitate ongoing protocol assessment and regulatory compliance.

There are several ways that protocol and regulatory compliance are monitored:

1) Animal care staff observe animals daily and alert veterinary staff to unexpected events, which triggers veterinary staff to check the approved protocol. In addition, veterinary staff perform routine walk-throughs of all animal holding facilities. Vets and vet techs will often consult approved protocols to determine if conditions they observe are congruent with the approved protocol.

2) The Senior Program Veterinarian Report is a standing agenda item at all IACUC/OB meetings and is used to report any non-compliance or other concerns to the IACUC/OB.

3) RARC's Animal Program Assessment Specialists review approved protocols on a routine basis and when directed by the IACUC/OB. Policy 2016-059-io specifies that all active animal research protocols are eligible for formal post-approval monitoring laboratory assessment. These assessments can include protocol and medical records reviews, procedural observations, meetings with lab staff, and animal facility visits. The Assessment Specialists also have a standing item the IACUC/OB agenda to report any non-compliance or other concerns.

4) In accordance with PHS Policy and the NIH Grants Policy Statement (Part II, Terms and Conditions, 4.1.1.2) a congruency check is performed for each NIH and NSF-funded grant that contains research with live vertebrate animals for which UW-Madison is an awardee (prime or sub). Grants can be associated with more than one protocol, and protocols can have many grants listed. Grant-protocol congruence is assessed at the time of award, and upon award of competitive renewal. The congruency checks are performed by the post-approval monitoring staff at RARC.

WNPRC: Over the last several years, the [REDACTED] has formalized a post-approval monitoring (PAM) program and conducts protocol audits and animal health record reviews. To execute the program, the [REDACTED] visits laboratories, conducts audits on randomly chosen LSVIC IACUC/OB approved protocols, reviews animal and laboratory records, prepares audit reports, recommends corrective actions, and monitors the timeliness of corrective actions. Follow-up reviews are conducted as necessary to ensure compliance. The [REDACTED] has developed objective criteria for selecting protocols to be audited; developed a comprehensive worksheet used to summarize protocols and audit research records and animal records, and compare the records to approved protocols; and developed an audit report form used to report findings to the investigators, the [REDACTED], and the IACUC/OB, if necessary.

II. Animal Environment, Housing and Management

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

A. Animal Environment

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

- a. Describe briefly the heating and air conditioning system performance. Provide method and frequency for assessing, monitoring, and documenting animal room or housing area temperature and humidity that is appropriate for each species. Note current (measured within the last 12 months), detailed (by room) performance data are to be provided as indicated on the enclosed Heating, Ventilation, and Air Conditioning (HVAC) System Summary appendix. If outdoor housing areas are used, so note.

Current (measured within the last 11 months) HVAC data by room are provided in Appendix 10.

[REDACTED] and [REDACTED]: Temperature and humidity are centrally measured at 1-minute intervals via digital sensors and monitored using Metasys® software (Johnson Controls, Inc.). Deviations from set points cause an automatic alarm. Alarms are monitored continuously by [REDACTED], and the [REDACTED] system sends an alarm alert to pager phones and email accounts. [REDACTED] on-call staff carry a pager at all times after hours, and on weekends and holidays, to respond to any

deviations from preset environmental conditions. In addition, small digital temperature and humidity sensors are in each animal housing room for in-room confirmation of parameters. These observations are recorded daily on animal-room logs. Data from [REDACTED] are archived indefinitely.

For typical mouse and rat rooms, setpoints are 22°C and 40% relative humidity. Rooms are programmed to maintain temperatures $\pm 2^{\circ}\text{C}$ (temperature) and $\pm 10\%$ (relative humidity) of setpoints. Temperature alarm points are 20°C (low alarm) and 26°C (high alarm). Humidity alarm points are 20% relative humidity (low) and 90% relative humidity (high).

[REDACTED]: The thermostat is set at 19°C. Air temperature and humidity are monitored and logged daily by [REDACTED] Lab personnel. Frog tank water temperature is maintained at 18°C and logged [REDACTED].

[REDACTED]: The animal facility is equipped with the [REDACTED], an automated room control and data monitoring system designed specifically for animal facilities. [REDACTED] monitors temperature, humidity and lighting. [REDACTED] provides automated recording and environmental data archiving. It logs 24 (more, if desired) readings per day for temperature and humidity in each animal room. [REDACTED] sends detailed alarms to specific personnel when readings are outside the set parameters. Historical information is readily available through user-friendly reporting. The Facility Manager and Laboratory Technician Supervisor are trained to use the [REDACTED], as well as the [REDACTED] used to update parameters, monitor levels and respond to alarms. The [REDACTED], Facility Manager and Laboratory Technician Supervisor receive alarms if temperature, humidity or room lighting is outside of the parameters.

WNPRC: The temperature and humidity level of each animal holding room in [REDACTED], and [REDACTED] is controlled and monitored continuously by a [REDACTED]. Temperature and humidity levels are recorded every 30 minutes by these systems. The systems are programmed to [REDACTED] when the temperature is $\pm 5^{\circ}$ from the set point. When the temperature reaches $\pm 10^{\circ}$ from set point, [REDACTED]. The outside call center will contact a list of WNPRC personnel (i.e., [REDACTED]) to ensure that the message about the temperature variance is received. Animal care personnel are also trained to immediately report any perceived changes in temperature and humidity.

In [REDACTED], and the macaque areas of [REDACTED] the temperature set point is 70°F. For the marmoset areas in [REDACTED] the temperature set point is 80°F. In all areas, the humidity set point is 40%.

[REDACTED]

- b. If temperature set points and/or environmental conditions are outside the thermoneutral zone for the species, describe the process for ensuring behavioral thermoregulation (e.g., nesting material, shelter, etc.) and/or IACUC/OB approved exception.

Animal housing facilities use room temperatures according to the Guide's parameters for individual species. To avoid heat stress in rodent species, these parameters are typically

set below the Lower Critical Temperature (LCT) of 26 °C for rodents. For housing below the LCT, rodents are provided with adequate resources to avoid cold stress, which include nesting material, appropriate bedding material, and presence of cage mates.

██████████: Hibernating ground squirrels spend the winter at ██████████ in an animal housing room with a temperature set point of 4°C. Alarm points are 2°C (low alarm) and 8°C (high alarm). This is an exception approved by the IACUC/OB in the animal use protocols.

There were short term studies in 2017 involving mice housed in controlled environment rooms at specified temperatures that are outside their thermoneutral zone. The first study required short term housing at 20°C. The second study took place for 4 weeks at 30°C. These studies were covered by IACUC/OB-approved protocols.

[REDACTED] and [REDACTED]: Not applicable.

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

- a.** Briefly describe the performance aspects of the ventilation system. Provide method and frequency for assessing, monitoring, and documenting the animal room ventilation rates and pressure gradients (with adjacent areas). Note: current (measured within the last 12 months) detailed (by room) information is to be provided as indicated on the enclosed Heating, Ventilation, and Air Conditioning (HVAC) System Summary appendix.

Current (measured within the last 11 months) HVAC data by room are provided in Appendix 10.

██████████ and ██████████: Airflows and air balance are measured in each room at least once every three years. These parameters are also measured as needed for biological safety reasons or in cases of mechanical failure. Each controlled-environment housing room has a dedicated air-handling unit, and HVAC for each housing room is isolated from all others. Rooms can be adjusted to be positively or negatively pressurized to adjacent areas as needed. Temperature and humidity are controlled for each room. Air changes per hour meet standards in *The Guide*.

In addition to monitoring temperature and humidity, the [REDACTED] system monitors air discharge temperature, heating and cooling valve positions, pre-filter differential pressure, and supply and exhaust flow rates (liters per second). These room performance data ensure that the [REDACTED] is very sensitive to changes in HVAC performance.

Rooms [REDACTED] and [REDACTED] have one-pass air handling systems with 100% exhaust. Other controlled-environment rooms use re-circulated air with 10% exhaust and 10% fresh make up air. All return air in recycled-air environments is HEPA filtered. In addition, supply air for all rooms is filtered with 35% pre-filters and 95% bag filters. Charcoal filters for odor are used as needed.

██████████: The facility uses a forced air and exhaust air system, through a central constant velocity air handler in combination with central exhaust fans for air exchange.

██████████: Four air handling units, located on the ██████████, supply the ██████████ and ██████████. Each animal housing room is controlled individually.

Documentation is maintained with computerized recording and/or manual recording/graphing.

Corridors	6 air changes/hr. (minimum)
Animal Housing	15 air changes/hr.
Procedure Rooms	15 per hr. or minimum required for make up air
Quarantine (rm.)	15 air changes/hr.
(rm.)	15 air changes/hr.

The pressure in each room is visually verified daily by the location of the colored ball inside the airflow gauge that is installed above every room in the facility. Rooms that are negative will have a pink ball that stays inside the room, thus giving visual evidence that the room is negative to the corridor. Rooms that are positive have a green ball that stays outside of the room and in the corridor, giving visual evidence that the room is positive to the corridor. Staff is trained to closely monitor these visual cues and to immediately report any deviations to the facility management.

WNPRC: , and - The vivaria HVAC systems supply 100% outside air with no recirculation of exhaust air and have the capability to supply 10-15 air changes per hour to each animal holding room. All animal holding rooms and necropsy suites are maintained at negative pressure in relation to the corridors while the surgery suites are maintained at positive pressure in relation to the corridor.

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

: ventilated caging is used in the room and . The primary enclosures function at 25% positive pressure and are provided with 60 changes per hour of HEPA filtered air.

: Not Applicable.

: ventilated caging is used in rooms and . The racks are set at 60 air changes per hour of HEPA filtered air.

: The mouse quarantine room () has a single IVC rack with a total of 28 cages. The cage and rack are a closed-system. It uses filtered venting by convection and HVAC-assisted direct exhaust venting to provide adequate air changes per hour without drafts or metabolic contaminant buildup, and without the need of mechanical ventilation. Cage ventilation uses thermodynamics of low air inlet and high air exhaust.

WNPRC: Two metabolism cages located in Room are equipped with pumps that pull room air into the enclosures and force the air back into the room where it is then evacuated by the room's exhaust system.

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.

: Controlled-environment housing rooms use re-circulated air with 10% exhaust and 10% fresh make up air. All return air in recycled-air environments is HEPA filtered.

In addition, supply air for all rooms is filtered with 35% pre-filters and 95% bag filters. Air quality (NH₃, CO₂) is assessed weekly to ensure background levels of gases.

██████████ and WNPRC: Not applicable.

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

Provide a general description of institutional requirements for enclosures using water as the primary environmental medium for a species (e.g., aquatics). Describe overall system design, housing densities, and water treatment, maintenance, and quality assurance that are used to ensure species appropriateness. Please note that facility-specific tank design and parameter monitoring frequencies should be summarized in the Aquatic Systems Summary appendix.

██████████, WNPRC: Not applicable.

██████████: *Xenopus* frogs are housed in tanks consistent with recommendations in the Guide. Females are housed in a commercial system consisting of linked 30L tanks with continuous recirculation. Water quality is assured by pre-filter (changed monthly) or municipal-source water to remove particulates and chlorine. Waste water to be recirculated is treated by particulate filter (changed daily), then a nitrifying bacteria substrate, then a mechanical filter and carbon (changed monthly), followed by UV treatment (lamp changed every 6 months). The system replaces 40% of water/day. Frogs are stocked at a density of not less than 3L per frog. The housing system automatically monitors temperature, pH and conductivity. Ammonia, nitrite and nitrate levels are monitored weekly, and carbonate hardness monthly by laboratory staff. Veterinary staff monitor chlorine and dissolved oxygen levels monthly. Males are housed in Rubbermaid containers filled with treated water from the above described system. Water is changed twice weekly. Males are not housed long-term and are therefore not mixed with the existing colony of females.

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.

██████████: No special design features are used to minimize noise. Work practices are in place to minimize loud sounds whenever possible. All animal housing areas are within acceptable limits.

██████████: No special design features are used to minimize noise. The facility is located in the ██████████ which functions to minimize excessive noise and vibration.

██████████: The ██████████ building pager system is turned off in ██████████ animal rooms. All staff have been trained to minimize noise when possible.

██████████: Fire alarms throughout the animal facility have been reduced to minimum code to reduce any effects on the animals. In addition, changing stations automatically turn on or off in conjunction with each room's light timer. All staff have been trained to minimize noise when possible.

WNPRC: The walls of the WNPRC animal holding rooms are constructed of concrete masonry units covered by ceramic tile or block filler and epoxy paint that attenuates sounds created by the animals. In addition, in several areas the concrete masonry units are filled with sand to further attenuate noise.

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

1. Primary Enclosures

Provide a description of primary enclosures used (e.g., cages (conventional, individually-ventilated cage systems (IVCS), etc.), pens, stalls, pastures, aviaries, tanks) in appendix.

- 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.

Guiding documents used by VCRGE include the "Guide for the Care and Use of Laboratory Animals" and the Animal Welfare Act and its associated Regulations. Performance criteria are used to determine that space is adequate. The IACUC/OB must review and approve deviations from the space recommendations in these two documents. For instance, some transgenic mice raise their litters better when there is another dam in the cage, which may then be considered "overcrowded." These variations must be specifically approved by the IACUC/OB in an animal use protocol. Ground squirrels are housed in rat cages; we have many years' experience in housing this species. *Xenopus* frogs are housed in commercially available enclosures, in accordance with recommendations of the American Society of Ichthyologists and Herpetologists.

- 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]

██████: *Mice* - An IACUC/OB approved performance-based standard was developed to allow two adult mice and a litter per one static cage with ~58.5 in² of floor space. This exception covered the period during which the facility transitioned to an individually ventilated caging system. To ensure that animal welfare was not adversely affected, cage ammonia levels were monitored.

██████: Not applicable.

██████: For some mouse strains, the IACUC/OB approves housing litters and dams at densities higher than recommended in the Guide. This is done on a case-by-case basis, generally for strains which are difficult to breed and benefit from co-mothering.

██████: For some mouse strains, the IACUC/OB approves housing litters and dams at densities higher than recommended in the Guide. This is done on a case-by-case basis, generally for strains which are difficult to breed and benefit from co-mothering.

WNPRC:

Marmosets - Although the floor space of the marmoset enclosures do not conform to AWA regulations, we have obtained an exemption from the USDA because they agree that the additional vertical dimension of the cages provides the marmosets with the

opportunity to express species-typical climbing behavior. The LSVC IACUC/OB reviews this exception annually.

Breeding animals - There are IACUC/OB approved protocols for breeding rhesus macaques that are exempted from the AWA and the Guide cage size requirement when a breeding pair is housed in a single 6.0 ft² cage for up to 14 days.

Macaque infants – There is an IACUC/OB approved cage size exception for the incubators that house 1-28 day old macaque infants. These enclosures meet the AWA requirements but not the 2011 Guide requirements. The LSVC IACUC/OB reviews this exception annually.

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

a. 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, etc.).

Environmental enrichment requirements are stated in the Animal Social Housing and Enrichment Requirements (ASHER) document (Policy 2011-042-v; Appendix 20).

██████ and ██████: PVC tubing is provided for rats. Mice are provided with nesting materials, and may be provided with other structural elements (e.g., igloos).

██████: All *Xenopus*, except post-surgical animals, are provided with environmental enrichment such as plastic plants, PVC pipe with rounded edges or floating Styrofoam plates.

██████: All mice are provided with nesting material. Igloos are provided to all breeding cages and singly housed mice as well as some groups of males.

WNPRC: A variety of items such as perches, logs, hammocks, and privacy panels are used to enrich the structural environment for Old World monkeys housed at the WNPRC. The group pens in ██████ and the Britz pens in ██████ and ██████ are equipped with multiple levels of platforms, tunnels, Ferris wheels, ladders, swings, hammocks, etc. In addition to rope ladders, dowel swings, and hammocks, the marmoset colony of the WNPRC is housed in cages with more vertical space than horizontal space to mimic the arboreal environment of these animals. Each marmoset enclosure is equipped with a stainless steel nest box that's primary purpose is to provide a protected sleeping space, but also provides additional perching space and a way to easily capture the animals when handling is necessary.

- 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).

Environmental enrichment requirements are stated in the Animal Social Housing and Enrichment Requirements (ASHER) document (Policy 2011-042-v; Appendix 20).

██████: The following applies unless exceptions are approved by the IACUC/OB. PVC tubing is provided for rats as well as nesting material. They also may be provided with dietary forms of enrichment to help promote species-specific behaviors. Mice and hibernating ground squirrels are provided with nesting materials.

██████: All *Xenopus*, except post-surgical, are provided with environmental enrichment such as plastic plants, PVC pipe with rounded edges or floating Styrofoam plates.

██████: Mice are provided with nesting materials (e.g., enviro-dri). Irradiated sunflower seeds are given to breeding cages unless the mice are obese or if the seeds will have an adverse impact on research.

██████: All rodents are provided with nesting materials (e.g., enviro-dri, nestlets). Other forms of enrichment (e.g., certified and irradiated sunflower seeds, other dietary enrichment, structural elements) may be used for special circumstances (e.g., improvement of breeding).

WNPRC: Toys, or play objects, give animals a sense of control over their environment through transfer aggression, display and/or play. To allow for such manipulation, every animal in the colony is provided, at all times, with at least one toy in its cage. A second toy is placed in each cage one week after cage sanitization. A variety of toys such as Kongs, dental balls, Nyla rings, and plastic barbells are rotated to help avoid habituation. New and different toys are routinely introduced to stimulate animals and to aid in the replacement of old toys, as they are rendered unusable by wear. In addition to being used as structural enrichment, wood is often given to animals as another type of manipulanda. Depending on the animal, the wood is stripped, gnawed, or eaten, and can also serve as a place to sit. Small stainless steel mirrors are also used and are hung on every cage. Animals manipulate the mirrors to view neighbors, staff, activity in the hall, and/or themselves.

In many ways, the structural elements of a marmoset cage double as manipulanda. The wooden perches and swings are chewed on and played with by the animals on a daily basis. In larger enclosures and when space allows, the group is also provided with brightly colored metal or plastic toys. These are usually hung from the ceiling or walls and offer the animal an additional type of manipulable object. Fleece hammocks are used when space permits to encourage grooming of the fleece material by the animal and to provide additional resting and/or hiding places.

The WNPRC currently uses several different types of foraging devices and destructible foraging material for the Old World monkeys. Many of the food items normally incorporated into an animal's diet can be and are used with these foraging devices/materials. Some examples of devices currently in use include puzzle feeders, paint rollers, foraging boards, corncob holders, and more. Fresh fruits and vegetables, nuts, and other treats are placed into or on the devices and destructible foraging materials are placed either on the outside or inside of the cage. In group-housed or paired animals, each individual within the group or pair has access to his/her own apparatus. Freezing the contents within the device can considerably increase the amount of time an animal is engaged in foraging activity. Access to any

particular foraging device/material is limited to less than 24 hours to prevent overuse of the foraging item as well as for sanitary reasons. Foraging devices are rotated to avoid habituation to any one device and to aid in replacement costs. At a minimum, each animal is provided with an opportunity to forage at least twice a week. The marmoset colony is also provided opportunities to forage. Similar to the macaques, devices are prepared with a variety of produce and/or nuts but are always hung inside the cage.

The WNPRC has 22 pens for macaques and 3 group enclosures for marmosets. The pens are inhabited by a mixture of young and adult macaques and the group enclosures are populated by extended family groups of marmosets. The pens and group enclosures provide ample opportunity for exercise and are inhabited by stable groups for long periods of time. Animals housed in stationary or mobile caging are given access to their partner's cage or a run of connected cages when possible to provide exercise opportunities. Some macaque cages are also equipped with "C-Tunnels" or "cage extensions" that allow animals to move from the top to the bottom of a standard four-bank to interact with more conspecifics and to exercise or to move forward from the main compartment of the enclosure.

Food enrichment and foraging strategies are covered in WNPRC SOP 7.02 and the details of the different methods used to enrich the physical environment of the NHPs are covered in WNPRC SOP 7.03.

b. Social Environment [Guide, p. 64]

i. Describe institutional policy or strategy for social housing of social species.

Social housing requirements are stated in the RARC Animal Social Housing and Enrichment Requirements document (Appendix 20). Unless otherwise necessitated by clinical or approved research requirements, social species are housed in a way that promotes safe and appropriate interaction with conspecifics. The animal protocol application contains questions soliciting explanation and scientific justification for requests to singly-house social species. The LSVC IACUC/OB reviews requests to singly-house animals in the context of protocol review and will not approve protocols until a satisfactory response is provided by the PI. The IACUC/OB requires PIs to submit protocols to veterinary staff prior to formal IACUC/OB review, and during these consultations the veterinary staff discuss housing options that are compatible with the study.

WNPRC: The most important component of our Environmental Enhancement Program is a successful social pairing strategy. As in humans, social interactions are necessary to promote the psychological well-being of most NHPs. An appropriate social environment enables NHPs to perform many species-appropriate activities such as grooming, playing, huddling, and engaging in sexual behavior. Social companionship also provides a constant state of enrichment. Approximately 70% of Old World monkeys at the WNPRC, excluding animals exempt from pairing due to research constraints (e.g., infectious disease, calorie restriction, immunosuppression, etc.), are housed in social pairs or groups. The Behavioral Services staff continually works to decrease the number of singly housed animals by creating as many new pairs or groups as possible.

New social pairs and groups are created with diligent and careful planning with consideration given to viral status, medical condition, personality of the animals, and use in research. New pairs are established by one of two methods:

1. Gradual Introduction: The Gradual Method of introductions is a full contact method where the duration of test sessions gradually increases over a series of sessions. These sessions are made in a novel environment under continuous observation. Animals are considered compatible when they show a defined dominance pattern, display affiliative behaviors, and can attain equal access to food and water resources
2. Protected Contact Introductions: This method consists of placing potential partners next to each other in a neutral room separated by a clear partition. Animals are allowed to acclimate to their new surroundings. The clear partition is then replaced with a panel consisting of vertical slots. Animals are allowed to interact and establish dominance without risk of severe injury to each other. Once a clear dominance hierarchy is established, the panel is removed and animals are housed together.

Common marmosets are housed socially unless extenuating circumstances exist or experimental protocols require single housing. These circumstances may include infection with contagious pathogens, behavioral incompatibility, research needs, or promotion of recovery from certain medical conditions. When animals need to be singly housed, it is for as short of a duration as possible. Both singly- and group-housed marmosets have extensive visual, auditory, and olfactory contact with adjacently housed animals. Social housing for marmosets generally consists of family groups but can also consist of breeding pairs or, more rarely, same-sex pairs. Juveniles are maintained within their family groups for a minimum of one generation, but often for several generations, to assist in infant rearing prior to being placed into new social groups. This increases the likelihood of future reproductive success in these animals.

New groups of marmosets are established in coordination with the [REDACTED] based on both behavioral and genetic compatibility. Potential pairs are placed into a novel cage and observed closely for any evidence of aggression. Limited-contact, gradual introductions are usually not necessary in this species as overt aggression is rare. Newly introduced animals are monitored for any evidence of incompatibility such as maintaining physical distance or unwillingness to share food or resources.

All pairing strategies are covered thoroughly in WNPRC SOP 7.01 which will be made available at the site visit or sooner if requested by the reviewers.

- ii. If social animals are not socially housed, provide justification, as approved by the IACUC/OB.

If a researcher wants to house social animals singly, it must be scientifically justified and specifically approved in the animal use protocol. Examples of scientific justification for single housing include infectious disease research, the need for precise food and fluid regulation, and behavioral studies. Animals are routinely singly housed during their initial quarantine period, but they may also be housed singly because of potentially dangerous interactions with conspecifics, (e.g., mature male macaques, male mice), or because they have a health condition that may worsen because of social housing, or is contagious.

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

██████████ and ██████████: Singly housed rodents are provided nesting material and/or igloos as enrichment, unless withholding enrichment is scientifically justified in an approved protocol.

██████████: All *Xenopus*, except post-surgical animals, are provided with environmental enrichment such as plastic plants, PVC pipe with rounded edges or floating Styrofoam plates.

WNPRC: Environmental enrichment for singly housed NHPs consists of all the routine components of the enrichment program (e.g., structural enrichment, manipulanda, food enrichment, nonhuman-to-human-interaction, and additional sensory stimulation) in addition to increased daily tactile (foraging) opportunities.

c. **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.

██████████ and ██████████: There are no specific training or habituation methods in use with rodents or *Xenopus*. As always, calm, gentle handling is the expectation.

WNPRC: All Old World monkeys born at the WNPRC are acclimated to a tabletop restraint device (described in WNPRC SOP 1.06) and a standard transport box (described in WNPRC SOP 1.02) from the time they are infants. Animals acquired by the WNPRC become acclimated to the devices over time, starting with their quarantine period. The tabletop restraint device allows conscious animals to be restrained for procedures such as venipuncture, clinical or research treatment administration, and rectal/vaginal swabbing. The animals spend no more than a few minutes being restrained for any one procedure. The animal is transported from its home cage in a transport cage, and allowed to enter the device. The gate is adjusted so that the animal is firmly held, but not in discomfort. As soon as the procedure is completed, the gate is released and the animal is allowed to re-enter the transport cage. Utilization of this device eliminates the need to anesthetize the animals. Each animal always receives a positive reward (e.g., fruit, vegetable, fig cookie, etc.) for entering the device.

Animals on projects where traditional pole-and-collar and chair-restraint is employed are slowly taught to accept pole and chair restraint through positive reinforcement.

Marmosets are acclimated to a marmoset restraint device described in WNPRC SOP 1.06 and a standard marmoset nest box described in SOP 1.02. The marmosets are placed in the restraint device (9 cm length x 7 cm diameter PVC tube) with Velcro straps across the abdomen and thighs, which allows free movement of the head and arms. Marmosets adapt very readily to this restraint method. Utilization of this device eliminates the need to anesthetize the animals. Each animal always receives a positive reward (e.g., Ensure, mini-marshmallow etc.) for entering the device.

d. 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.

_____ and _____: There are formal enrichment programs for rodents and *Xenopus* in VCRGE. These are designed and managed by RARC veterinary staff with facility management staff and presented at least yearly to the LSVIC IACUC/OB. Exceptions to the programs are evaluated on a case-by-case basis by the IACUC/OB.

WNPRC: The LSVIC IACUC/OB has mandated that the WNPRC _____ must present an overview of the entire NHP enrichment program to the committee once per year. This review allows the coordinator to clearly present the strengths and weaknesses of the program and informs the IACUC/OB about new components of the program. The program is also reviewed and evaluated on a perpetual basis by the _____, the Attending Veterinarian, and our _____ to ensure that it uses contemporary procedures.

All animals that have non-permanent, non-research based social housing exemptions are reviewed on a monthly basis by the Attending Veterinarian and personnel from the Behavioral Services Unit to ensure that the exemptions are relevant and that proper steps are being taken to place as many animals as possible in safe and stable pair or group situations.

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).

VCRGE uses one traditional agricultural species (sheep) for biomedical research. When those animals are not in use, they are housed at UW-Madison's School of Veterinary Medicine (SVM) in an AAALAC accredited facility (_____) where specifications in the Guide are followed for their care. SVM is not part of the VCRGE's program description. SVM's AAALAC accreditation is #000620. A concurrent site visit in the fall of 2017 is anticipated.

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

See above regarding sheep used for biomedical research.

- 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.

See above regarding sheep used for biomedical research.

f. Naturalistic Environments [Guide, p. 55]

- i. Describe types of naturalistic environments (forests, islands) and how animals are monitored for animal well-being.

Not applicable.

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

Not applicable.

- iii. Describe how animals are captured.

Not applicable.

C. Animal Facility Management

1. Husbandry

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

- i. List type and source of food stuffs.

[REDACTED] supplies Purina chows. Teklad diets are supplied by

[REDACTED]
[REDACTED]: 5015 Laboratory Rodent Diet
[REDACTED]: 5008 Laboratory Rodent Diet
[REDACTED]: 2019 Teklad Rodent Diet
[REDACTED]: 2920 Teklad Rodent Breeding Diet
[REDACTED]: Irradiated Sunflower Seeds

[REDACTED]
Teklad: 2919 Teklad Irradiated Rodent Diet
Teklad: 7912 Teklad Irradiated Rodent Diet
Teklad: Uniprim Medicated Rodent Diet*
*(prophylactic treatment for immunocompromised rodents)

██████████: Nasco Frog Brittle (Large Nuggets)

██████████:

Teklad: 2919 Teklad Irradiated Breeder Rodent Diet

Teklad: 2920x Teklad Irradiated Rodent Diet

Irradiated Sunflower Seeds

WNPRC: The general Old World monkey population housed in WNPRC facilities is fed twice daily with Teklad 2050 Global 20% Protein Primate Diet. Some of the macaques with GI issues are fed with Teklad High Fiber 7195. All commercially prepared Old World monkey diet is manufactured and supplied by ██████████.

The WNPRC also uses two other Teklad diets for special studies: #TD 85387 and #TD 93131.

The marmoset colony of the WNPRC is fed twice daily with Mazuri Callitrichid High Fiber Diet 5M16 supplemented with vitamin D3 (500 IU/25 gram feeding) or with Teklad New World Primate Diet (8794). Some of the marmosets with GI issues are fed with Callitrichid Gel Diet #5B32 (Gluten Sensitive). ██████████ distributes the Mazuri marmoset diet.

Fruits and vegetables are also fed as a separate “meal” in order to increase frequency of food intake and reduce inactivity. Dry food items such as raisins, peanuts, cereal, marshmallows, and a variety of nuts are provided daily as positive reinforcement for performing tasks (e.g., proper presentation for menses check, pole-and-collar transfer to a restraint chair, entry into a transfer box) and are given at times such as daily health observations to promote positive interaction and build trust between animal care technicians and the NHPs. The following companies provide fruits, vegetables, and other edible enrichment objects: ██████████.

- ii. Describe storage facilities of vendors, noting temperature and vermin control measures. If more than one source, describe each.

██████████ and ██████████: ██████████ is an authorized dealer for Purina research diets. Teklad diets are delivered directly from ██████████ manufacturing facilities. Additional information for both ██████████ and ██████████ is provided below in the WNPRC section. At ██████████, special diets are purchased by the investigator. These special diets are stored at specified temperatures provided by the vendor.

██████████: Frog Brittle is manufactured by ██████████ exclusively for ██████████. Bulk food is shipped to ██████████ in waterproof, triple-line bags inside airtight plastic bins and stored on elevated metal shelving in ██████████. The warehouse is made of poured concrete and maintained at a temperature between 60-80° F. Due to frequent rotation of inventory, ██████████ rarely, if ever, experiences vermin damage on the food.

WNPRC: ██████████ is an authorized dealer for Purina research diets and supplies the Mazuri Callitrichid High Fiber diet for the marmosets housed at the WNPRC. They maintain a cinder block building with adequate ventilation. Floors are poured concrete. All are painted with epoxy coating. Ceilings

are approximately 12 feet high and of steel construction. Temperature in the storage area ranges from 50° F in the winter to 65-70° F during hottest days of summer. [REDACTED] provides vermin control on a monthly basis. No insecticidal sprays are applied. Rodent control is accomplished by use of automatic live trapping and use of bait stations with WeatherBlok XT rodenticide ("Broadifacoum"). All feeds are stored on pallets. Their vehicles are well maintained and always neat and clean. [REDACTED] maintains exemplary sanitary conditions. Service to the UW-Madison has always been excellent.

The WNPRC's macaque chow is supplied by [REDACTED] Teklad. Warehouse sanitation is the primary operational concern in the [REDACTED] Teklad storage facilities. Every crack and seam is carefully sealed to keep vermin out and to eliminate harborage sites. All floors are sealed and an 18-inch wide white sanitation stripe is painted around the entire interior perimeter of the warehouse. The stripe facilitates visual inspection of the cleanliness of the facility and ensures that no product is stored any closer than 18 inches from the facility walls. The warehouse is inspected and cleaned on a daily basis. All spills are cleaned immediately. Additionally, their delivery vehicles are cleaned after every use using a chlorine dioxide based disinfectant (Clidox-S).

The entire storage facility is fully climate-controlled. Temperature never exceeds 70°F, and humidity never exceeds 55%. Temperature and humidity readings are recorded on a daily basis and records are available upon request.

No chemical means of insect or vermin control are used within the [REDACTED] Teklad storage facility. The foundation of the vermin control program is excellent sanitation combined with temperature and humidity control, proper stock rotation, and frequent observation for evidence of infestation. Glue boards are placed around the interior perimeter of the facility and pheromone traps are used to identify any vermin activity. [REDACTED] provides pest control for the facility. This company inspects the warehouse facility once per month and manages any problems that are identified.

- iii. Describe bulk food storage facilities, if applicable, noting temperature and vermin control measures. Note food storage areas within the specific animal facilities are described below in Section IV.B.4.a. Physical Plant.

The VCRGE facilities do not store food in bulk.

- iv. Describe food storage in animal rooms.

[REDACTED]: Feed is stored on pallets or carts. Once dispensed into barrels, the barrel is labeled with the mill date, name of the feed and next date to clean the barrel. With special-order diets, the lab labels individual feed bins including name of feed, mill date or date received, and any expiration date. These special diets are kept refrigerated or frozen based on manufacturer guidelines. Feed rooms have door sweeps.

[REDACTED]: Food is stored in a sealed plastic bag in a sealed plastic container off the floor.

██████████: Feed in animal rooms is stored in large containers with microisolator lids labeled with the room number, investigator, type of feed and mill date. Food containers are only opened inside animal transfer stations.

██████████: Feed bags are stored on pallets or carts. Feed in animal rooms is stored in large containers with microisolator lids labeled with the type of feed and mill date. Food containers are only opened inside animal transfer stations.

WNPRC: The only animal room at the WNPRC where food is routinely stored is the infant macaque nursery (██████████). Dry infant formula is stored in this room in the container provided by the manufacturer. Small amounts of dry Teklad macaque diet are also stored in the nursery for older infants. This dry chow is stored in a sealed container marked with the mill date of the product. In the event of an infectious disease quarantine, we store dry chow in a sealed container marked with the mill date of the product in the animal room to eliminate any chance of cross contamination.

v. Describe food preparation areas.

██████████ and ██████████: Not applicable – food is not prepared onsite.

WNPRC: All fruits, vegetable, edible enrichment objects, and other diet components are prepared in dedicated kitchens at the WNPRC.

██████████ has two kitchens. One kitchen is located ██████████ and is equipped with a walk-in cooler (██████████), 2 dishwashers, a sink with a garbage disposal, and ample casework for storage. The kitchen (██████████) is equipped with a dishwasher, a sink with a disposal, and 2 refrigerator/freezers.

██████████ has three kitchens. One kitchen (██████████) is dedicated to the Specific Pathogen Free macaque colony and is equipped with a walk-in cooler (██████████), 4 upright freezers, a standard refrigerator/freezer, a dishwasher, 3 sinks, a garbage disposal, and ample casework for storage. The kitchen (██████████) is equipped with 2 upright freezers, a standard refrigerator/freezer, 2 sinks, a garbage disposal, and ample casework for storage. The kitchen (██████████) is equipped with a walk-in cooler (██████████), 3 upright freezers, a dishwasher, 2 sinks, and a garbage disposal.

The WIMR NHP vivarium has one kitchen (██████████). The kitchen is equipped with an upright freezer, a triple-wide upright refrigerator, a dishwasher, 2 sinks, and a garbage disposal.

The ██████████ has one large kitchen (██████████). The kitchen is equipped with an upright freezer, 2 upright refrigerators, a sink, and a large stainless steel table.

All WNPRC kitchens are also equipped with stainless steel countertops that can easily be sanitized before and after food preparation, and with ample casework for storage.

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

██████: Rodents are fed *ad libitum* through wire feeders or hoppers.

██████: *Xenopus* frogs are fed twice weekly, five pellets per frog per feeding. Pellets are placed directly in the tanks.

██████: Mice are fed *ad libitum* through Innovive disposable feeders.

██████: Rodents are fed *ad libitum* through wire feeders.

WNPRC: Old World Monkeys housed at WNPRC facilities generally receive a fixed amount of commercial dry chow in the morning and in the afternoon, and fruits and vegetables in between chow rations. Food is placed in metal hoppers or on foraging boards attached to the inside or outside of each animal enclosure.

Marmosets housed at the WNPRC facilities generally receive a fixed amount of Mazuri or Teklad diet in the morning and afternoon. Fruits and vegetables are provided at the same time as the Mazuri or Teklad diet. Marmosets receive their food in stainless steel or plastic bowls or on disposable trays on the shelves within the animal enclosures.

Feeding strategies for the monkeys housed at the WNPRC facilities are also individually tailored to the age (e.g., neonate, juvenile, adult, geriatric) and physical condition (e.g., cachexia due to disease, colitis/malabsorption, obesity, pregnancy) of each member of the colony.

- vii. Describe special food quality control procedures including procedures for rotating stock, monitoring milling dates, nutritional quality, bio-load, chemical contaminants, etc.

██████: The food quality control program consists of 1) observing milling dates, 2) using a first-in, first-out feeding plan, and 3) carefully observing the feedstuff. No microbiological monitoring is done. All feed is discarded six months after the milling date. Feed for immunocompromised rodents in the ██████ is irradiated by the vendor.

██████: The frog food is ordered in sufficiently small quantities to insure that the stock is consumed every 6 months. All personnel are trained to carefully monitor the food quality and replace if necessary.

██████: All animals are fed irradiated diet. The food quality control program is the same as described above for ██████.

██████: All animals are fed irradiated diet. The food quality control program consists of 1) observing milling dates, 2) using a first in, first out feeding plan, and 3) carefully observing the bags and the feed itself. No microbiological monitoring is done. All food is discarded six months after the milling date.

WNPRC: All dry chow used for nonhuman primates at WNPRC facilities is stacked on pallets positioned 6-inches from the exterior walls of the storage room with the

milling date clearly visible. All nonhuman primate chow is used within 3 months of the milling date to ensure that the ascorbic acid content remains stable. All chow stock is rotated so that the bags with the oldest milling date are used before bags with a newer milling date. All bags of feed are inspected for rips, tears, and watermarks at the time of delivery and damaged bags are not accepted from the supplier.

Mazuri Callitrichid diet is purchased in powder form. The dry powder is delivered in 25 kg, plastic bag-lined boxes and has a shelf life of 9-months. All boxes of marmoset diet are inspected for rips, tears, and watermarks at the time of delivery and damaged boxes are not accepted from the supplier. The boxes are emptied into a large, covered plastic barrel and labeled with the manufacture date and lot number. The dry powder is reconstituted in 4 kg tubs and frozen until use. These tubs are labeled with date made, expiration date, and lot number.

All fruits and vegetables are inspected upon delivery and rotting or pest infested food is not accepted from the supplier. Shipments of fruits and vegetables are delivered often, used rapidly, and monitored constantly for evidence of spoilage. All fruits and vegetables are stored in climate-controlled coolers or refrigerators.

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, etc.).

██████████: Water is provided by the City of Madison Water Utility. Reverse osmosis (RO) water is available if needed. RO water is provided for conventionally housed rodents by using water bottles with sipper tubes attached to the rodent cages. Mice housed in Innovive caging receive acidified water via pre-packaged bottles from Innovive.

██████████: *Xenopus* frogs are housed in dechlorinated City of Madison water supplemented with Instant Ocean sea salts to a concentration of 3g/L. A Tecniplast XenopLus recirculating system ensures that tank water is replaced every day.

██████████: All mice receive prefilled acidified water purchased from Innovive.

██████████: Water is provided by the City of Madison Water Utility. The ██████████ facility uses the Hydropac watering system that provides water pouches to each animal. All of the water is filtered via the pouch making process. The Hydropac watering system allows the facility to offer investigators the ability to place additives to the pouches such as chlorine, acid, and medications. Approximately 5% of cages receive traditional water bottles with sipper tubes. Water bottles are filled with the filtered water from the Hydropac watering system.

WNPRC: The City of Madison and the ██████████ Water Utility supply potable water to the animal facilities. Water is delivered to cages via an automatic watering system or through water bottles attached directly to each animal's cage. Proper delivery of water to each nonhuman primate by the automatic watering system is verified twice daily and water is offered in bottles in the event of a malfunction. Pressure-reducing stations ensure that the water reaching each litix is

delivered at the appropriate pressure. The pre-filter in each pressure reducing station is changed on a monthly basis or more often if found to be excessively soiled.

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

The City of Madison and [REDACTED] Water Utilities are both in compliance with the Federal Safe Water Drinking Act. Both Water Utilities monitor the water supply regularly for organic and inorganic contaminants, bacteria, parasites, pesticides, and radionuclides.

[REDACTED]: RARC staff check RO water for bacteria using paddle tester (dip slides) on a quarterly basis. In addition, water is tested quarterly in conjunction with RARC's Water Quality Monitoring program.

[REDACTED]: The Frog Facility's [REDACTED] recirculating System provides constant monitoring of conductivity, pH, and temperature (18-19° C). Lab personnel monitor nitrate, nitrite, and ammonia levels weekly and carbonate hardness monthly. Veterinary staff monitor dissolved oxygen and chlorine levels monthly.

[REDACTED]: All water bottles are replaced at minimum every 2 weeks. Any damaged bottles are discarded.

[REDACTED]: Water is tested quarterly in conjunction with RARC's Water Quality Monitoring program. This consists of using Charm® ATP hygiene swabs to test for the presence of biologicals and AquaChek® Strips to monitor total hardness, total alkalinity, pH, total chlorine, and free chlorine.

WNPRC: Water analysis for coliform bacteria is done on approximately 15 cages in 15 rooms every quarter. See WNPRC SOP 6.05 (Water Analysis) for additional information.

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

[REDACTED] and [REDACTED]: Not applicable – automatic water delivery systems are not used.

[REDACTED]: The [REDACTED] recirculating system is maintained by the vendor/manufacture.

WNPRC: The automatic watering systems are maintained as described in SOP 6.02 (Automatic Watering System Maintenance and Drinker Lixit Replacement). Drinker lixits are sanitized every two weeks during normal cage sanitization (see SOP 2.13 [Sanitization of Animal Housing Areas] for cage sanitization details).

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

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

[REDACTED]:		
<u>Type</u>	<u>Species</u>	<u>How used</u>
Bed-o-Cob - 1/8 inch	mice & rats	Contact

Aspen chips & Enviro-Dry Krinkle Paper	Ground Squirrel	Contact
Enviro-Dry Diamond Dry bedding	mice	Contact

██████████: Not applicable.

██████████: Mice receive 1/8 inch ██████████ corn cob. ALPHA-Dri (cellulose bedding) is offered in certain circumstances or if requested for research purposes.

██████████: Mice receive 1/8 inch ██████████. Rats receive ¼ inch ██████████. (cellulose bedding) is offered in certain circumstances or if requested for research purposes.

WNPRC: The WNPRC uses Teklad 7089 Diamond Soft cellulose bedding manufactured by ██████████ Harlan Laboratories (██████████) to bed the three marmoset group pens. Each pen is bedded with a one to two-inch layer of shavings.

- ii. Describe bulk bedding storage facilities, if applicable, including vermin control measures. Note bedding storage areas within the specific animal facilities are described below in Section IV.B.4.a.

██████████: Bedding is stored in room ██████████ off the floor on pallets. The ██████████ Associate Director, ██████████, and Senior Program Veterinarian review monthly pest control reports. The storage area is under Metasys temperature monitoring, and has a bait station that is checked daily.

██████████: Not applicable.

██████████: Bedding is stored on floor pallets outside of ██████████ room ██████████. Bait stations are setup throughout the building and checked daily.

██████████: Bedding is stored in bags in room ██████████ which is maintained at a temperature of 65-70° F. The bedding is stored off the ground and away from the walls on washable, non-porous plastic pallets. ██████████ monitors this room as part of the facility's IPM program.

WNPRC: The cellulose bedding used in the marmoset pens is stored in original packages on pallets in a storage room (Room ██████████) within the animal barrier in ██████████. The bedding is packaged in a polylined inner cap sac inside a three-ply protective paper bag to ensure purity and integrity. Open bags of bedding are stored in a barrel with a tight-fitting lid. The WNPRC's pest control company monitors the bedding storage area on a weekly basis.

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

██████████ and ██████████: Bedding is purchased in packages from laboratory animal supply vendors to reduce potential contamination. Bedding for immuno-compromised rodents is autoclaved within shoebox/microisolator cages prior to cage change. Some cages in ██████████ are purchased with pre-filled irradiated bedding.

██████████: Not applicable.

██████████: Bedding is purchased in packages from laboratory animal supply vendors to reduce potential contamination. All bedding is autoclaved within shoebox/micro-isolator cages prior to cage change. Some cages are purchased with pre-filled irradiated bedding.

WNPRC: All bags of bedding are inspected for rips, tears, and watermarks at the time of delivery and damaged bags are not accepted from the supplier. Open bags of bedding are stored in sealed plastic containers to avoid contamination.

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.

██████████ and ██████████: A Dodge minivan is leased from UW-Madison Fleet Services. The minivan is equipped with heating and air conditioning. It is used only for small animal transport. Animals in Innovive cages are transported in larger, clean Rubbermaid containers and secured for transport. Containers are sanitized after each use.

██████████: Not applicable.

██████████: ██████████ as a whole owns a minivan that is available for use by the ██████████ animal facility. The van is equipped with heating and air conditioning. The ██████████ animal facility Research Program Manager is trained and approved by RARC in the transport of animals in personal vehicles. Animals may be transported using either the ██████████ minivan, or heated and air conditioned personal vehicles. Animals are either placed in opaque transportation containers or disposable, isolator cages placed in secondary enclosures during transport.

WNPRC: The WNPRC owns two vans that are used to transport animals. One van is a ██████████ that has a cargo area that measures 10'6" long x 5'3" wide and has the capacity to carry up to 14 animals at one time. The second van is a ██████████ that has a cargo area measuring 7'2" long x 5'3" wide and has the capacity to carry up to 10 animals at a time. The cargo area in each van is equipped with a dedicated heating and air conditioning unit that maintains the temperature within AWA regulations at all times during transport. The animal holding area in each van is equipped with stainless steel shelves that hold the secondary containers in place that are used to carry the animal transport cages. The surface of the animal holding compartment in each van is covered with easily sanitizable material that helps prevent the accumulation of debris. The animal holding compartment of each van is swept of visible debris after each use and disinfected on a bi-weekly basis.

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

██████████: The facility has power washers, floor scrubbers and vacuum cleaners.

██████████: Not applicable.

██████████: Several HEPA-filtered hand-held vacuums are used for general cleaning.

██████████: The facility uses a power washer to clean large equipment such as racks and carts. The ██████████ watering system includes the pouch machine and a pouch wringer, which is used to remove water from used pouches prior to disposal.

WNPRC: Specialized equipment used for enrichment at the WNPRC is listed in the section of the program description dedicated to enrichment.

All mobile nonhuman primate banks that do not fit in the cage washer are sanitized using a portable power washer that produces a water jet with a pressure of 800 PSI. This pressure washer was manufactured by ██████████. Stationary cages and Old World monkey pens are sanitized using stationary power washers (manufactured by ██████████ and ██████████) that produce a water jet with a pressure of approximately 800 PSI. Mobile cages used in ██████████ are sanitized in an automatic cage washer manufactured by ██████████. Mobile cages used in the ██████████ facility are sanitized in an automatic cage washer manufactured by ██████████. Mobile cages used at ██████████ are sanitized in an automatic cage washer manufactured by ██████████.

Several HEPA filtered shop-vacs and hand-held vacuums are used for general cleaning.

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.

██████████: Conventional microisolator rat cages are changed at least weekly. Any cage found excessively wet or dirty between scheduled changes is changed at that time. ██████████ IVC high density caging is changed at least once every two weeks.

██████████: The ██████████ recirculating system provides daily water exchange for each frog housing tank.

██████████: ██████████ IVC high density caging is changed at least once every two weeks. Spot cleaning is done in between for any cage that is found to be excessively dirty or wet.

██████████: Mouse cages are changed at least weekly and rat cages are changed at least two times per week. IVC mouse and rat cages are changed every 14 days. Any cage found wet or extra dirty between scheduled changes is changed at that time.

WNPRC: The bedding in the marmoset enclosures is spot cleaned daily and changed completely every two weeks during pen sanitization.

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

██████████: Cages for ground squirrels are not cleaned on a weekly basis while the squirrels are hibernating. This has been approved by the LSVC IACUC/OB.

and WNPRC: Not applicable.

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

██████████: Soiled bedding from microisolator cages is dumped into a Garbel disposal unit on the dirty side of the cage washroom. Clean bedding is added to cages on the clean side of the cage washroom. In room ██████████, Innovive cages are only changed in the ATS, and soiled bedding is bagged and disposed of. For cage changes, a BSC is available in room ██████████ and an ATS is available in room ██████████.

: Not applicable.

██████████: ██████████ cages are only changed in the ATS, and soiled bedding is bagged for disposal in the animal room. Cages are filled in the ATS.

██████████: Soiled bedding for small animal cages is dumped into a Garbel disposal unit on the dirty side of the cage washroom. Clean bedding is placed into cages on the clean side of the cage washroom using an automatic bedding dispenser (1/8 inch cob) or by hand (1/4 inch cob, ALPHA-Dri).

WNPRC: Bedding is only used in the marmoset pens. Soiled bedding is collected from each pen and placed directly into a biohazard bag and stored in a waste bin until it is removed by [REDACTED]. Clean bedding is spread on the floor of each pen after sanitization.

ii. Cleaning and Disinfection of the Micro- and Macro-Environments

Describe the washing/sanitizing frequency, and methods used in the Appendix, “Cleaning and Disinfection of the Micro- and Macro-Environment.”

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

██████████: Cages for ground squirrels are not cleaned on a regular basis while the squirrels are hibernating. This has been approved by the LSVC IACUC/OB.

and [REDACTED]: Not applicable.

WNPRC: The IACUC/OB does allow WNPRC animal care personnel to sanitize cages one day early (13 days after the prior sanitization) to accommodate holidays, which causes the cages to be one day late for sanitization (15 days after the prior sanitization) on the next cycle.

The LSVIC IACUC/OB has approved the following three exceptions:

- Animals injected with radioactive labeled ^{64}Cu DPC-siRNA will be housed separately while they are considered radioactive. Cages will be dry bedded or lined with absorbent paper and rooms will not be hosed until the animals, cages and rooms have returned to background levels of radioactivity. It will be possible to change cages for sanitary reasons if necessary but dirty cages will be required to be surveyed for radioactivity and decontaminated and/or held for 5 days (or 10 half-lives) after the ^{64}Cu administration prior to undergoing disinfecting cage washing.
- Following MPTP administration, the animals will be isolated and singly housed for approximately 72 hours without cage cleaning (there are two approved protocols with this exception).
- Following some PET scans, animals will be quarantined until injected radioactivity has decayed to background levels, up to 5 days. Cages will not be washed during quarantine.

2) Assessing the Effectiveness of Sanitation and Mechanical Washer Function

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

██████████ and ██████████: Environmental sanitation monitoring is accomplished through use of the ██████████ with ██████████ environmental monitoring system. Monitoring is conducted at least quarterly in conjunction with RARC's Environmental Monitoring program. Twenty-five swabs are used to assay items, preferably in groups of five. Items suggested to assay are animal cages, rack systems, environmental enrichment items, feeders, and the water itself in water pouches. Items are to be swabbed as soon after the wash cycle as possible but after items have cooled to room temperature and are dry. The swabs need to be read within 6 hours of exposure to surfaces. Reports are available to facility managers within the same week that testing is accomplished.

██████████: *Xenopus* frog tanks are washed with a brine solution by hand and visually inspected. They can be autoclaved if necessary. Sterilization would be monitored by applying a small piece autoclave tape to each tank; temp-sensitive ink on the tape reveals "Autoclaved" after 10 minutes at 121° C.

WNPRC: A temperature-sensitive tape is attached to one Old World monkey cage per day to ensure that the final rinse temperature of each cage washer is reaching 180 degrees. This is done by putting the tape on the outside of the cage wall before loading the cage into the cage washer and removing the tape when the cycle is complete. The tape is then put into the Cage Washer Temperature Log Book and dated for that day. See WNPRC SOP 2.02 for additional details. ██████████ ATP test swabs and a ██████████ luminometer are used to ensure that bi-weekly sanitation of stationary cages is efficacious. Testing is done quarterly for the automatic cage washers and monthly for stationary cages and pens. See WNPRC SOP 2.03 for additional details.

b) Describe preventive maintenance programs for mechanical washers.

██████: ██████ has mechanical staff that repair and provide preventative maintenance for the tunnel washer. Maintenance staff consistently monitor rinse temperatures when the machine is used. ART staff clean the machine weekly. The machine is run for 3 weeks on CANI Disinfectant, then 1 week on CANI III Disinfectant/Acid soap.

██████ and ██████: Not applicable.

██████: All mechanical washing equipment is under a preventative maintenance program through ██████ which includes quarterly equipment inspections with preventative maintenance service and emergency service with a guaranteed response time of 24 hours.

WNPRC: The Center has a service contract with ██████ to maintain the cage washers at ██████ and ██████. A technician from ██████ evaluates each washer on a quarterly basis and makes service calls whenever necessary to address malfunctions. Additionally, the rinse temperature of one cycle is evaluated on a daily basis for each washer to ensure that they are functioning properly.

f. **Waste Disposal** [Guide, p. 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 from microisolator caging is dumped into the Garbel unit, ground up and flushed down the sanitary sewer system. Any waste from Innovive caging is bagged and put in dumpsters.

██████: Not applicable.

██████: Waste from ██████ caging is bagged and put in dumpsters.

██████: Soiled bedding dumped into the Garbel unit is ground up and flushed down the sanitary sewer system.

WNPRC: Soiled bedding and refuse from the animal barrier is treated as biohazardous waste and is placed in a biohazard bag and removed by ██████ or autoclaved and disposed of in a conventional dumpster.

ii. Animal carcasses

████████████████████ and ██████: Small animal carcasses are double-bagged and frozen, then picked up by the UW-Madison Safety Department and incinerated.

WNPRC: NHP carcasses from WNPRC facilities are double-bagged in biohazard bags and stored at -4°C until they can be picked up by the UW-Madison Safety Department for incineration.

iii. Hazardous wastes - infectious, toxic, radioactive, sharps and glass

██████:

Infectious:

BSL-1 wastes and bedding: Trashed or flushed down the sanitary sewer.

BSL-1 & 2 carcasses and tissue: Bagged, frozen then incinerated.

BSL-2 wastes and bedding: Autoclaved then trashed, or sewerred.

BSL-3 wastes and bedding: Autoclaved then trashed.

BSL-3 carcasses and tissue: Autoclaved bagged, frozen, then incinerated.

Toxic wastes and bedding are disposed per consultation with UW-Madison EH&S.

Toxic carcasses and tissues are bagged, frozen, and then incinerated.

Sharps are disposed into designated sharps containers. When these containers are full, they are closed and taped shut for autoclaving. Final disposal is through ██████. ██████ is a fully licensed and insured medical waste removal and disposal company servicing Wisconsin area hospitals, clinics, and skilled nursing homes.

Glass is disposed in a glass disposal box. When full the box is taped shut and placed in a trash dumpster.

██████ and ██████: Hazardous wastes are bagged, boxed, and frozen by investigators' staff for pickup and disposal by the UW-Madison EH&S. ██████ staff does not handle them. Ultimate disposal is by incinerator or contractor as appropriate.

Sharps are placed in red Biohazard Sharps Containers. Full containers are placed in a large secondary container for pickup and disposal by ██████.

██████: Sharps are discarded in a Biohazard Sharps Container located on the bench top table in ██████. Full containers are picked up and disposed of by ██████.

MS222 is not disposed of in ██████. It is washed down the lab drains in ██████ Room ██████ using copious amounts of tap water.

██████: Toxic wastes and bedding are disposed per consultation with UW-Madison EH&S. Toxic carcasses and tissues are bagged, frozen, and then incinerated.

Sharps are placed in red Biohazard Sharps Containers. Full containers are placed in a large secondary container for pickup and disposal by ██████.

WNPRC: All hazardous waste is stored in leak-proof, puncture resistant containers on the docks of each WNPRC animal facility until it is picked up by ██████.

g. Pest Control [Guide, p. 74]

- i. Describe the program for controlling pests (insects, rodents, predators, etc.) noting the control agent(s) used, where applied, and who oversees the program and applies the agent(s). Include a description of natural predators (e.g., barn cats) or guard animals (e.g., dogs, donkeys) used for pest and predator control, if applicable.

██████████: ██████████, a contract vermin control company, is used to control rodents outside the facility. Bait stations are located on the exterior of the building.

Live traps are used for rodent control on the inside of the building. The traps in the facility are checked daily and the results noted on the daily check-off sheets in the animal rooms. Traps elsewhere in the facility are checked daily and the results recorded.

Insect control includes AgrEvo (deltamethrin), Maxforce FC bait stations, Dupont Advion bait stations, and Boric acid aerosol. AgrEvo and Boric acid are applied as crack and crevice treatment in service areas, but not in animal rooms. There is periodic treatment to control immigration of American roaches through sewer traps. All floor drains are equipped with TrapGuard protection.

██████████: Not applicable.

██████████: ██████████ manages pest control in general areas. Live traps are present in all ██████████ animal rooms. Core staff checks traps daily.

██████████ and WNPRC: ██████████ manages the Integrated Pest Management Program (IPM) for the animal facilities and provides service within 24-hours. ██████████ uses a variety of methods, such as routine inspection of facility, bi-monthly monitoring of pest traps placed throughout the facility, and insect/rodent proofing the building. At ██████████, all visits and actions by ██████████ technicians are documented in a pest control log.

WNPRC Only: If necessary, ██████████ applies pesticides for other insects to areas not accessible to NHPs (e.g., support hallways, baseboards, walls, and light fixtures) and uses live traps for rodents. All pest sightings are documented in a logbook that the ██████████ and ██████████ personnel routinely review.

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

██████████ and ██████████: No pesticides are used in animal housing rooms.

██████████: Not applicable.

██████████ and WNPRC: Investigators are aware of the IPM Program maintained by ██████████ and are in agreement with these practices.

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

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

and what procedures are performed. Indicate qualifications of weekend/holiday staff if not regular staff.

██████████: Holiday care is provided by the full time Animal Research Technician (ART). Weekend care is provided by student help or the full time ART. Supervision of weekend staff is provided by the ██████████ Director and/or the ██████████. The veterinarian on-call staff are informed of any health care concerns or physical plant problems so appropriate reports can be made.

██████████: Lab personnel provide daily care on weekends and holidays. Personnel perform frog feedings, health checks, and monitor the recirculating system for proper function.

██████████: Holiday and weekend care is provided by the full time Animal Research Technicians and students. Supervision of weekend staff is provided by the ██████████ Manager. The veterinary on-call staff are informed of any health care concerns or physical plant problems so appropriate reports can be made.

██████████: One caretaker is on duty for weekends and holidays. The caretakers perform health checks and feed/water checks on all animals in the facility. The Animal Care Supervisor and Research Program Manager are on call and reachable via cell phone throughout the entire weekend or holiday to answer questions and provide additional manpower in the event that an employee calls in sick or is absent from work for any other reason.

WNPRC: The WNPRC uses a reduced staff of regular workers, part-time staff and students to cover weekends and holidays. An animal care supervisor is on call and reachable via work-issued cell phone throughout the entire weekend and holiday to answer questions and provide additional manpower in the event that an employee calls in sick or is absent from work for any other reason.

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

██ and ██████████: RARC has a veterinarian on call, 24 hours per day, 365 days per year. The dedicated paging number (managed by the UW-Hospital and Clinics Paging Center) is posted throughout all facilities and near all appropriate telephones. Telephone numbers for investigators are posted in corridors and on individual animal room doors or cages.

WNPRC: All veterinarians, colony managers, and animal care supervisors at the WNPRC are equipped with work-issued cell phones and can be contacted 24 hours per day, 7 days per week in the event of an emergency. Emergency contact information is posted throughout the animal areas and near all appropriate telephones. The WNPRC veterinarians participate in a rotating on-call schedule to ensure that a veterinarian is on call 24 hours per day, 7 days per week for WNPRC animals.

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, etc.).

██████████: Information on the cage card includes investigator, protocol number, species, description, and pertinent dates (at times this may be posted on the animal room door or in the clinical record). In addition to cage cards, animals may be ear-notched or ear-tagged.

██████████: All female *Xenopus* used for oocyte acquisition or ovulated for egg acquisition, are tattooed with a unique number.

██████████: Ear notching is most prevalent with a few having tags. Each mouse has a unique ID that is printed on the cage card along with the investigator, protocol, strain, color, parents and genotype.

██████████: Each investigator has different methods of identifying each species. Ear notching and tags are most prevalent. Each cage has a cage card that provides the name of the investigator, protocol number, animal description, and pertinent research related information.

WNPRC: All Old World primates born at the WNPRC have their identification number tattooed on their ear pinnae at approximately two weeks of age. Additionally, all Old World monkeys are tattooed across the medial skin of their right or left thigh and their chest at the time of their first tuberculin skin test or when they are released from quarantine. They are re-tattooed if their tattoos fade. Marmosets are identified via a 11 mm long glass-encapsulated microchip implanted subcutaneously between the shoulder blades when they reach three months of age. The microchips are manufactured by ██████████ and transmit an alphanumeric code that is read by a portable hand-held reader. Once the marmosets reach six months of age, they are fitted with an identification necklace that is color coded for sex (red = female, blue = male) and is imprinted with the animal's identification number.

b. Record Keeping

Describe procedure(s) for maintaining individual records on animals. Identify the species for which individual records are maintained, individuals (titles, not necessarily names) responsible for maintaining the records, and where they are maintained and how veterinary and IACUC/OB access is assured.

██████████ and ██████████: Investigators are responsible for record-keeping for experimental uses. RARC veterinary staff are responsible for maintaining health records. Individual health records are not required for rodents or *Xenopus* frogs unless there is an adverse event (e.g., illness) that requires a record. At ██████████, health records are maintained in procedure rooms adjacent to animal housing rooms where they are easily accessible. Additionally, the ██████████ housed at ██████████ uses a web-based database (██████████) to maintain health records. RARC veterinary staff can access the database remotely, and direct access is available through computers located in the breeding service procedure and housing rooms. At ██████████, health records are maintained in the animal room where they are easily accessible. At ██████████, health records are maintained near the entry to the facility where they are easily accessible. Records monitoring is done by the LSCV IACUC/OB and RARC.

WNPRC: The Electronic Health Record (EHR) system currently contains over 5.5 million historical records on >7,000 animals that have been housed at the WNPRC since 1982. Every animal that is a member of the WNPRC colony has an electronic record. The database contains the following information:

- Demographic data (e.g., species, birth date, country or facility of origin, dam, and sire, etc.)
- Housing and transfer history
- Experimental assignment history
- Physical examination results (e.g., body condition, weight, alopecia, etc.)
- Diagnostic test results (e.g., tuberculin skin tests, serum chemistry, hematology, bacteriology, parasitology, virology, urinalyses, immunology)
- Experimental and clinical procedure history (e.g., blood draws, drug administration, virus inoculation)
- Surgical procedure history
- Clinical and behavioral comments and treatments
- Genetic data including MHC typing
- PDFs of all active IACUC/OB protocols

Veterinarians, veterinary technicians, animal caretakers, research technicians, behavioral services staff, investigators (and their staff), and colony records personnel all have the ability to enter data into an animal's record. Only colony records staff have the ability to edit data in the EHR. The EHR is accessible via the Internet from any computer in the world with a log-in name and password and thus the IACUC/OB can access data at any time.

c. Breeding, Genetics and Nomenclature

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

██████████ and ████████: Selection of animals for research projects is the responsibility of the principal investigator. RARC operates as a resource center providing information regarding all aspects of selection and use of appropriate animal models. Consultation is on a one-on-one basis either due to a specific request or as a result of questions raised during protocol review.

WNPRC: The WNPRC currently has productive SPF macaque, and marmoset breeding programs that provide animals for on-going research projects and replenish the individual breeding colonies. The genetic background of all the breeding macaques and marmosets is well characterized and a kinmean program is used to determine coefficient of relatedness between potential breeding pairs. No macaques or marmosets with a coefficient of relatedness greater than 0.0015 are allowed to mate.

- 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.

██████████ and ██████████: While not required, RARC recommends PIs follow a standard nomenclature such as that listed on the Mouse Genome Informatics database.

██████████: Not applicable.

WNPRC: Not applicable.

- iii. For newly generated genotypes, describe how new phenotypes that negatively impact well-being will be monitored, managed and reported to the IACUC/OB in a manner to ensure the animals' health and well-being.

██████████ and ██████████: Animal care staff views all animals, including those with modified genotypes, daily. Colonies with any morbidity or mortality are reported promptly to veterinary and investigational staff for further evaluation, and institution of ameliorating procedures. In addition, RARC offers phenotype evaluation by the pathology laboratory to assist researchers in describing unexpected phenotypes. New phenotypes that negatively impact well-being are reported to the IACUC/OB by the veterinarians or the investigators.

██████████: Not applicable.

WNPRC: Not applicable.

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; 51-57]

1. Animal Procurement

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

██████████ and ██████████: All UW-Madison VCRGE animal purchases are from approved vendors. "Approved Vendor" status typically is granted to sources that are AAALAC accredited, USDA registered, or have demonstrated through appropriate quality assurance measures and past performance that their animals are free of disease. These are usually commercial vendors. Non-commercial vendors (e.g., other universities) are evaluated on a case-by-case basis by a laboratory animal veterinarian. Vendor health surveillance quality control reports, vendor past performance, animal health certificates, physical examinations, daily observation, and laboratory tests (e.g., serology, hematology, parasitology, etc.) are all used to evaluate the quality and health status of incoming laboratory animals.

WNPRC: Investigators who need rhesus macaques of Indian ancestry or common marmosets generally use animals produced by the Center's breeding colonies. When an investigator requires cynomolgus macaques, unique species (e.g., African green monkeys), or an Indian rhesus with distinctive genetic make-up that is not available from the WNPRC colonies, animals are acquired from USDA licensed dealers (e.g., ██████████, etc.) or directly from other

research facilities (e.g., National Primate Research Centers, pharmaceutical companies, universities, etc.). To protect the health of WNPRC and the NHP colonies, Macacine herpesvirus-1 (MHV-1 or Herpes B) and simian T-lymphotropic virus (STLV) negative animals are purchased whenever possible and type D simian retrovirus positive animals are never purchased. All available health and husbandry records are thoroughly reviewed and deemed acceptable before an animal is acquired from outside suppliers.

Rats (which will be immediately euthanized upon arrival) are purchased from commercial vendors.

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).

Policy 2011-043-v, Campus Transportation of Laboratory Animals (<https://www.rarc.wisc.edu/policies.html> > Policies by Number), outlines the considerations for ensuring appropriate transport between UW-Madison facilities. The policy addresses the following:

- 1) Caging that limits human exposure to allergens allows for normal animal respiration, prevents escape, is sanitizable or disposable and limits stress.
- 2) Limiting the time that live animals are outside a facility to 12 hours.
- 3) Feeding and watering animals following transport.
- 4) Considerations for pedestrian transport of small animals between buildings.
- 5) Prohibition of transport via public transportation.
- 6) Protection from public view.
- 7) Pre-heating and pre-cooling vehicles to ambient temperatures between 45-85 degrees F (7-30 degrees C)
- 8) All University owned and personal vehicles transporting covered species must be inspected by the IACUC/OB.
- 9) Exceptions must be approved by the IACUC/OB

In addition, facility specific transport SOPs also exist for the WNPRC, School of Medicine and Public Health, College of Agricultural and Life Sciences, RARC and [REDACTED].

[REDACTED] and [REDACTED]: Animals are delivered to the UW-Madison by vendor trucks, air express or contract couriers. Transportation of animals between UW-Madison campus facilities is usually by dedicated VCRGE or other UW-Madison animal care vehicles. Occasionally investigators transport small numbers of experimental animals in their personal vehicles per the above cited policy.

WNPRC: All entities that supply NHP to the WNPRC are expected to comply with all Animal Welfare Regulations relating to animal transportation. Currently, all animals are transported via environmentally controlled trucks to the WNPRC by USDA licensed shippers. All NHPs are housed individually during shipping in sturdy wooden crates that prevent animals from escaping, contacting one another, or injuring human handlers. The transport crates also provide easy visual access to the animals and allow easy delivery of water and food. The logistics of all animal deliveries are scheduled well in advance of arrival and WNPRC personnel remain in contact with the truck drivers throughout the duration of the transport. All NHP shipments are scheduled to arrive during work hours to ensure that a full contingent of animal caretakers and veterinary staff are available to meet the animals. Similarly, no

deliveries are scheduled for Fridays or weekends to ensure that animals with health issues discovered upon delivery can be treated immediately. Animal deliveries are met immediately upon arrival to ensure that transport trucks do not have to sit in an area where they will be exposed to hazardous environmental conditions or security concerns. NHPs are unloaded at a secure dock and are taken directly from the truck to the animal holding room in their shipping crates to avoid animal escapes or injury to personnel.

NHPs are transported between the WNPRC facilities and other buildings at UW-Madison via dedicated climate-controlled vans. NHPs are contained in standard, portable, stainless steel transport boxes placed inside a secondary sanitizable plastic container while being transported in vans. [REDACTED]

[REDACTED] Primates are transported between rooms of the WNPRC using standard, portable, stainless steel transport boxes.

Extreme attention is paid to the pathogen status of all animals that are transported to ensure that no animals are exposed to pathogens, which may affect their health (e.g., Macacine herpesvirus 1, Type D Simian Retrovirus, Simian T-Lymphotropic virus, Shigella sp., etc.).

Rats (which will be immediately euthanized upon arrival) are purchased from commercial vendors.

B. Preventive Medicine

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

a. Describe methods used to monitor for known or unknown infectious agents.

[REDACTED] and [REDACTED]: In addition to daily observation, there is a program of testing both dirty-bedding sentinel animals and colony animals via serology, PCR (when indicated), and necropsy with direct examination of tissues for endo- and ectoparasites.

[REDACTED]: Newly arrived female *Xenopus* frogs are quarantined for a minimum of 3 weeks. They are screened for ectoparasites upon arrival and observed daily. Necropsies are performed in cases of suspected infectious disease in colony frogs.

WNPRC: Each member of the Specific Pathogen Free (SPF) rhesus macaque breeding colony is checked once per year for Macacine herpesvirus 1 (Herpes B), Type D Simian Retrovirus (SRV), and Simian T-Lymphotropic virus (STLV), Rhesus Rhadinovirus (RRV), and Adeno-Associated Virus (AAV) via serology. PCR is also used to ensure that SPF animals are free of SRV and STLV.

All macaques housed at the WNPRC are tested for *Mycobacterium tuberculosis/bovis* (M.tb/bovis) on a semi-annual basis. All marmosets housed at the WNPRC are tested for M.tb/bovis on an annual basis. Using the traditional method, mammalian tuberculin ([REDACTED]) is injected intradermally into the palpebrum and is checked at 24, 48, and 72 hours for evidence of a delayed hypersensitivity reaction. Skin test positive animals undergo thoracic radiography, gastric aspirate culture, BAL fluid culture, lymphocyte proliferation assays, PRIMAGAM testing, and ELISPOT assays for interferon gamma synthesis to determine if they are truly mycobacterium positive. Details can be found in WNPRC SOP 3.01 – Tuberculosis Testing.

All animals exhibiting diarrhea for more than three days have a stool sample evaluated for ova and parasites and a rectal swab submitted for culture. Animals are treated with appropriate antibiotics and/or anthelmintics based on laboratory results.

The WNPRC water system is also evaluated on a routine basis for evidence of coliform bacteria.

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

██████████ and ██████████: A rodent facility designation system is used to prevent movement of personnel between vivaria of different health statuses. In addition, personnel access to animal facilities is controlled. If an infectious agent is identified, or suspected to be present, the room(s) in question is/are put under quarantine to contain spread of the agent. This includes, but is not necessarily limited to, change in entry order procedures and disallowing transfers in or out. Methods to control or eliminate infectious agents are pathogen dependent, and could include specific treatment, burn-out (including cessation of breeding), rederivation, quarantine, or culling of the affected population. Lab animal veterinarians, in consultation with the affected researchers and facility managers, make the final determination of the methods used.

██████████: *Xenopus* frogs from outside sources are isolated in separate tanks upon arrival. Female *Xenopus* are prophylactically treated, examined by veterinary staff, and tested for external parasites before being moved from quarantine into standard housing. Male *Xenopus* are kept for only a short period of time and are not moved into standard housing. If an infectious agent was detected or suspected in the colony, specific methods of control or elimination would depend on the pathogen, and could include specific treatment, quarantine, or culling of the affected population. Personnel access to animal facilities is controlled. Lab animal veterinarians, in consultation with the affected researcher, make the final determination of the methods used.

WNPRC: When animals test positive for infectious agents that are endemic to the colony (e.g., *Campylobacter* sp.), they are treated accordingly. When more pathogenic agents, such as *Shigella* sp., are identified then the room(s) where the animal(s) are housed are placed under quarantine. All personnel must don additional protective clothing when entering a quarantined room and no animals are allowed into or out of the room until the pathogen has been eliminated. See SOP 3.17 – Quarantine of NHP Due to Suspected or Confirmed Infectious Disease for additional information.

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

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

██████████ and ██████████: Animal care personnel receiving the shipment take the shipping container(s) to the room where the animals are to be housed, place the animals in the appropriate cage(s), and report any observed abnormal behavior or signs of disease to the veterinary staff.

██████████: *Xenopus* frogs are examined upon arrival by laboratory staff for signs of illness, injury, or disease. Abnormal or unexpected conditions are immediately reported to veterinary staff. New female frogs are quarantined for a minimum of 3 weeks.

██████████: The animal care supervisor inspects all shipping containers for damage prior to bringing them to the animal facility ██████████. Any cartons that are damaged or otherwise compromised are rejected and remain under the care of the courier to be sent back to the vendor. All animals are received into the facility via a pass-through biosafety cabinet. Shipping containers are opened inside the biosafety cabinet in the “dirty intake” room (Rm. ██████████). The opened container is slid into the pass-through area, which connects the dirty side of the BSC to the clean side. Caretakers in the “clean intake” room transfer animals from shipping carton into clean caging inside the BSC. Cages are then transported to animal housing rooms. During the transfer, caretakers observe each animal for abnormal behavior or signs of disease. Abnormal behaviors and signs of disease are reported to veterinary staff.

WNPRC: Upon arrival, a veterinarian ensures that all NHPs are in satisfactory health for acceptance and that all the correct animals have been shipped. The animals are moved quickly from transport cages to their home quarantine cages and emergency care is provided (e.g., fluid therapy, wound management, etc.) if necessary. A few pieces of fruit are given to each animal to stimulate appetite.

Rats are used immediately upon arrival and do not require housing.

b. Describe quarantine procedures for each species that are purpose bred.

██████████: Rodents from approved commercial vendors (including the UW-Madison ██████████ and ██████████) are exempted from quarantine upon arrival. Under special circumstances, and with the approval of the senior program veterinarian, animals may be obtained from sources other than those on the approved list. In order for such animals to be exempt from quarantine the source institution must provide the veterinarian with appropriate documentation certifying the health status of the animals. Documented health surveillance from the source must precede deliveries from non-approved sources. The health certificate must include serology (+/- PCR) and parasitology screens extending back at least one year. There is a quarantine facility in SMPH animal space, managed by RARC veterinary staff, that is available to all investigators who need animals from unapproved vendors.

██████████: *Xenopus* frogs from outside sources are isolated in separate tanks upon arrival. Female *Xenopus* are prophylactically treated, examined by veterinary staff, and tested for external parasites before being moved from quarantine (minimum three week duration) into standard housing. Male *Xenopus* are kept for only a short period of time and are not moved into standard housing.

██████████: Not applicable.

██████████: Rodents from approved commercial vendors (including the UW-Madison ██████████ and ██████████) are exempted from quarantine upon arrival. Rodents procured from unapproved vendors (including from elsewhere on campus) must be assured clean by embryo rederivation before entrance into the main vivarium. Animals from unapproved vendors may be housed in quarantine for short-term projects. A health certificate from the source must precede deliveries from non-approved sources. The health certificate must include serology (+/- PCR), and parasitology screens extending back at least one year. There is no quarantine requirement for the ██████████, but quarantine and additional diagnostic testing may be required on a case-by-case basis at the discretion of the senior program veterinarian.

WNPRC: Nonhuman primates obtained from domestic sources are held in quarantine for a minimum period of 30 days and foreign source animals that have been housed in the U.S. for less than one year are held for at least 90 days.

All animals acquired by the WNPRC are quarantined at the [REDACTED]. As soon as the animals arrive they are transported in their shipping crates to a designated suite of rooms. Each animal is removed from its crate and placed into its assigned cage. All animals are observed for abnormal behavior or signs of disease, and any irregular observations are reported to the veterinary staff. All animals are allowed a period of acclimation (2-3 days) and are then subjected to a rigorous battery of physiological testing to determine their health status. This battery consists of a thorough physical examination accompanied by sample collection (e.g., blood for CBC and chemistry panel, urine for urinalysis, and fecal/rectal culture for determination of parasite load/pathogenic bacteria), and Tb testing. Laboratory results are used to determine proper treatment (e.g., iron dextran for anemia, antibiotics for bacterial pathogens, anthelmintics for parasitic infestation).

Intradermal skin testing is performed per published procedures every two weeks for the duration of quarantine and thoracic radiography is performed immediately before release from quarantine to screen animals for M.tb./bovis infection. In vitro interferon-gamma (PRIMAGAM) testing is used on all quarantined animals with suspect skin tests or radiographs as it has proven to be effective in identifying M.tb. infections especially in outbreak situations. Gastric aspirate culture, bronchoalveolar lavage (BAL) fluid culture, lymphocyte proliferation assays, PRIMAGAM testing, and ELISPOT assays for interferon-gamma synthesis are performed on animals that appear positive on any of the screening tests as this battery of assays has also proven to be effective at identifying M.tb. infections. All M.tb./bovis positive animals are euthanized and then necropsied at the Center's necropsy suite using ABSL-3 practices. If a positive screening test is documented in a group of quarantined animals or when an animal is determined to be truly mycobacterium positive, the entire quarantine group housed with the positive animal(s) begins a new 90-day quarantine period and are immediately subjected to thoracic radiography, gastric aspirate culture, BAL fluid culture, lymphocyte proliferation assays, PRIMAGAM testing, and ELISPOT assays for interferon gamma synthesis to determine if they are truly mycobacterium positive. No animals are released from quarantine until it has been documented that they are free of mycobacterial infection.

See SOP 3.06 – Quarantine of Newly Arrived NHPs for additional information.

- c. Describe the quarantine facilities. In your description explain any special measures used for quarantine/conditioning of each random source (not bred and raised specifically for research) species used.

[REDACTED]: Ground squirrels at [REDACTED] are housed in SVM facilities before transport to [REDACTED]. There are no specific quarantine facilities at [REDACTED], however ground squirrels are isolated from other rodent colonies with their own dedicated housing and procedure spaces. Room order is maintained appropriate for their health status.

[REDACTED]: *Xenopus* frogs entering the facility from an outside source are isolated in a separate tank(s) within the housing room. No random source animals are used.

[REDACTED]: Not applicable.

██████████: Room ██████████ has a ventilated rack that is used to quarantine rodents. Depending on the origin, rodents in ██████████ may be quarantined for up to several weeks depending on their health status and completion of testing of either colony animals or sentinels. There are no random source rodents at ██████████.

WNPRC: The WNPRC uses the ██████████, a 10-year old, 20,000 ft² facility, as a NHP quarantine and holding facility. This facility consists of four, 40-animal quarantine rooms equipped with anterooms, individual showers, mobile caging, and a procedure room between quarantine rooms 1 and 2; 4 NHP holding rooms equipped with mobile caging and large enough to hold approximately 100 animals each; 2 additional clinical procedure rooms; 2 laboratories; a cage wash suite; a freezer/refrigerator room for sample storage; an animal food prep and storage area, 2 offices, and a large equipment and mechanical area. The building is also equipped with ample mobile NHP housing and contemporary diagnostic, clinical, and surgical veterinary equipment.

There are no random source nonhuman primates at the WNPRC.

- d. Describe the required/recommended stabilization period for each species.

██████████ and ██████████: The veterinary staff recommends at least one week of acclimation after arrival before using the animals for any surgical procedure. At least 48 hours is recommended for other uses. Sometimes, animals are used the same day they arrive.

WNPRC: All newly acquired animals are given a 2-3 day acclimation period before they are anesthetized for their initial quarantine physical examination. Animals are not used on experimental projects until their quarantine period is over although investigators are allowed to collect blood for screening assays during the quarantine period.

- e. 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.

██████████ and ██████████: The animal population is routinely segregated by species, microbial status, and occasionally by breeding status (e.g., breeding colonies may be maintained separately from non-breeding groups). Occasionally, separation criteria may be modified or waived to facilitate the needs of the research project. For instance, if there is a hazardous agent being used in several species, it may be more important to limit the hazard than to separate species. In addition, all animal housing facilities are identified by a numbering system that designates the health status of the facility. Facilities may also identify rooms using a letter designation system. This provides guidance to all staff on facility and room entry order.

██████████: Only *Xenopus* frogs are housed in the animal room. There are no other species housed in the building at this time. The quarantine procedures described above are used to ensure animals are of the same health status when they are moved to standard housing.

WNPRC: The SPF rhesus macaque breeding colony is physically separated from the rest of the macaque colony (rhesus and cynomolgus) of the WNPRC. Furthermore,

personnel entering the SPF area must don clean uniforms (e.g., coveralls or scrubs) and use area-dedicated equipment when working in SPF.

The WNPRC's marmoset colony is housed in dedicated rooms. Old World species and New World species never come in contact with one another.

Retrovirus (e.g., STLV-1, SRV) infected animals housed at the WNPRC are separated from the remainder of the colony when possible and are not permitted to breed or come in contact with non-retrovirus infected animals.

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

- a. Describe isolation procedures and related facilities for animals.

██████████ and ██████████: Sick rodents are typically housed in their home cages for treatment.

██████████: In cases of suspected infectious disease, *Xenopus* are individually housed in separate tanks for treatment.

WNPRC: When animals test positive for infectious agents that are endemic to the colony (e.g., *Campylobacter* sp.), they are treated accordingly. When more pathogenic agents, such as *Shigella* sp., are identified then the room(s) where the animal(s) are housed are placed under quarantine. All personnel must don additional protective clothing when entering a quarantined room and no animals are allowed into or out of the room until the pathogen has been eliminated. As stated above, all WNPRC quarantine for newly acquired animals is performed at the ██████████. See SOP 3.17 – Quarantine of NHP Due to Suspected or Confirmed Infectious Disease for additional information.

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

██████████ and ██████████: Not applicable.

WNPRC: Cynomolgus and rhesus macaques are frequently housed in the same room when they are SIV infected. In a few rooms, rhesus and cynomolgus are housed in the same room as they await assignment to an experimental project. We have noted no adverse effects associated with this mixed housing. In rare situations, cynomolgus and rhesus are paired if they are proven to be compatible and no other pair mates are available.

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

- a. Describe 1) the procedure(s) for daily observation of animals for illness or abnormal behavior, 2) the observer's training for this responsibility, and 3) method for reporting observations (written or verbal). Include a description of the method for ensuring that reported cases are appropriately managed in a timely manner.

██████████ and ██████████: Animals are observed daily by either dedicated care staff or investigational personnel. All observers have received training on

recognition of a sick animal, either by on-the-job training provided by supervisors and PIs and/or by attendance at a formal RARC-sponsored seminar in sick animal recognition. Training includes recognition of emergencies. Sick animal reporting is accomplished via multiple modalities. Names and phone numbers of veterinarians and veterinary technicians are posted in animal care areas near a telephone, and on the doors of individual animal rooms to enable prompt verbal reporting of emergent situations. In addition, there is a shared email list, [REDACTED]@wisc.edu, that is monitored by all veterinarians and veterinary technicians assigned to VCRGE facilities. This is used for non-emergency sick animal reporting. In addition, RARC has a veterinarian on call, 24 hours per day, 365 days per year. The paging number is posted throughout all animal facilities. Veterinary staff perform regular walk-throughs in these facilities.

WNPRC: To ensure the health of the nonhuman primate colony and to discover any signs of infectious disease, each animal in the colony is evaluated at least twice daily by an animal care or veterinary technician for evidence of disease or injury (e.g., inappetence, dehydration, diarrhea, depression, trauma, etc.). The technician generates a daily report by recording each observation on an iPad that automatically and immediately transfers the data via a wireless system into the Electronic Health Records system. The veterinary staff can then access the daily health report from any computer at the Center or elsewhere. All WNPRC animal care technicians and veterinary technicians are given intensive nonhuman primate behavior training and are taught to identify the common diseases of captive nonhuman primates to assist in the daily evaluation of the colony. If a problem is minor, (e.g., soft stool, alopecia, mild inappetence) the observer records the information via iPad and a member of the veterinary staff observes the report via computer and looks at the animal in question on their daily rounds. If a technician discovers a health problem that needs urgent attention, they report their findings verbally to a veterinarian or a veterinary technician and the problem is immediately addressed. See WNPRC SOP 1.04 – Daily Animal Observations for additional information.

- b. Describe the methods of communication between the animal care staff/veterinarians and the researcher(s).

[REDACTED] and [REDACTED]: Caretakers or investigational staff are responsible for daily animal room and health checks. Any cage (rodent) with a health concern is marked with a “Notice Vet Staff” card and a Sick Animal Report is completed. A summary of each room’s findings is recorded on the room log. The Animal Care Supervisor or a lab member notifies lab and vet staff in the event of a health concern. Notification is verbal in emergent situations, and written for less urgent concerns. Treatment of ill animals is often shared between veterinary staff and investigational staff.

WNPRC: The animal care/veterinary staff of the WNPRC communicate with the investigators in a variety of ways. Firstly, since many of the investigators’ offices or laboratories are located adjacent to the animal areas they often have daily face-to-face contact with the animal care/veterinary staff. WNPRC also interact daily via e-mail, texts, and telephone. As described above, all WNPRC animal care supervisors and the lead ARTs and veterinary staff carry cell phones.

- c. Describe the procedure for providing veterinary medical care to ill animals and note who is contacted and the method of communicating (written or verbal) information to the veterinarian regarding sick animals.

██████████ and ██████████: As described above, veterinary staff can be contacted in person, via phone, or email. The veterinarian on-call may be reached at any time through a paging service operated by the University of Wisconsin Hospital and Clinics. Veterinary staff communicates back to care staff or researchers routinely via email, or verbally (by phone or in person) in emergent situations. Contact information for veterinary staff is available in all animal housing areas. Researcher contact information is present on animal cage cards.

WNPRC: As described above, to discover any signs of infectious disease, each animal in the colony is evaluated at least twice daily by an animal care or veterinary technician for evidence of disease or injury (e.g., inappetence, dehydration, diarrhea, depression, trauma, etc.). The technician generates a daily report by recording each observation on an iPad that automatically and immediately transfers the data via a wireless system into the Electronic Health Records system. The veterinary staff can then access the daily health report from any computer at the Center or elsewhere. All WNPRC animal care technicians and veterinary technicians are given intensive nonhuman primate behavior training and are taught to identify the common diseases of captive nonhuman primates to assist in the daily evaluation of the colony. If a problem is minor, (e.g., soft stool, alopecia, mild inappetence) the observer records the information via iPad and a member of the veterinary staff observes the report via computer and looks at the animal in question on their daily rounds. If a technician discovers a health problem that needs urgent attention, they report their findings verbally to a veterinarian or a veterinary technician and the problem is immediately addressed.

- d. 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, etc.) for each species.

██████████ and ██████████: Members of the animal care staff or investigators observe all animals daily. Sick, injured, or dead animals are reported in accordance with established procedures. Veterinary medical intervention is implemented as needed under the direction of the senior program veterinarian. Mouse and rat rooms are screened at least quarterly for common murine pathogens and parasites. Sentinel and/or colony animals are used for the quarterly mouse and rat serology and parasitology screening. Ground squirrels are treated with a parasiticide at the time of capture. Colony *Xenopus* frogs are submitted for necropsy.

WNPRC: The WNPRC's preventative medicine program (PMP) consists of a rigorous pre-screening, acquisition, and quarantine process for new animals and a battery of clinical evaluations including daily health observations, routine weight checks and physical examinations, and semi-annual tuberculin skin testing for all colony members.

NHP Supply and Acquisition: WNPRC investigators who need rhesus macaques of Indian ancestry or common marmosets use animals produced by the Center's breeding colonies. When an investigator requires cynomolgus macaques, unique species (e.g., African green monkeys), or an Indian rhesus with distinctive genetic make-up that is not available from the WNPRC colonies, animals are acquired from USDA licensed dealers (e.g., ██████████ etc.) or directly from other research facilities (e.g., National Primate Research Centers, pharmaceutical companies, universities, etc.). To protect the health of WNPRC and the NHP colonies, Macacine herpesvirus-1 (MHV-1 or Herpes B) and simian T-lymphotropic virus (STLV) negative animals are purchased whenever possible and type D simian retrovirus positive animals are never purchased. All available health and husbandry

records are thoroughly reviewed and deemed acceptable before an animal is acquired from outside suppliers.

NHP Quarantine: Nonhuman primates obtained from domestic sources are held in quarantine for a minimum period of 30 days and foreign source animals that have been housed in the U.S. for less than one year are held for at least 90 days. Upon entry into quarantine, all animals are allowed a period of acclimation (2-3 days) before being subjected to a rigorous battery of physiological testing (i.e., CBC, serum chemistry, urinalysis, rectal culture, and fecal exam) to determine their health status. Laboratory results are used to determine proper treatment (e.g., iron dextran for anemia, antibiotics for bacterial pathogens, anthelmintics for parasitic infestation). Intradermal skin testing is performed per published procedures every two weeks for the duration of quarantine and thoracic radiography is performed immediately before release from quarantine to screen animals for M.tb./bovis infection.

Daily Health Observations: To detect signs of morbidity, every animal in the colony is evaluated at least twice daily by an animal research technician (ART) or veterinary technician for the evidence of disease, injury, or psychological abnormalities (e.g., inappetence, dehydration, diarrhea, depression, inactivity, trauma, self-injurious or stereotypical behavior, etc.). Using an iPad, the technician generates a daily report of animals that need attention from a veterinarian or a member of the Behavioral Services Unit and the appropriate person then evaluates each animal and treats them accordingly. Daily health observations enable the veterinary staff to identify clinical problems with individual and/or groups of animals before they become too serious or before they affect the health of additional animals.

Routine Weight Checks: In an effort to increase the speed with which animals with clinical problems are identified, each animal in the colony is weighed a minimum of once every 60 days. Animals assigned to experimental protocols or those with clinical problems are weighed more frequently. Animals enrolled in infectious disease projects are weighed a minimum of once per month and geriatric animals on calorie restriction studies are weighed weekly. Each time an animal is weighed, the weight is recorded in the EHR database. The veterinary staff uses serial weights to construct growth charts for the infant and adolescent members of the colony to verify that they are within appropriate levels for their age. Serial weights are also used to evaluate the health of SIV/SHIV infected animals as weight loss is frequently an indicator of the onset of SAIDS.

Routine Physical Examinations: Routine physical examinations continue to be a critical component of our PMP. All colony animals undergo a thorough physical examination a minimum of twice per year at the time of semi-annual tuberculin skin testing. Additionally, animals receive exams prior to assignment to an experimental study, prior to undergoing invasive experimental procedures, whenever an animal is involved in a potential Herpes B exposure, or whenever they exhibit evidence of morbidity. Routine physical examinations act to prevent the assignment of unhealthy animals to experimental protocols and allow for the timely diagnosis of spontaneous or research induced disease. All abnormalities discovered upon physical examination are documented and appropriate diagnostics (e.g., complete blood count, chemistry panel, urinalysis, radiography, ultrasonography, endoscopy, biopsy, exploratory laparotomy, etc.) are performed immediately or scheduled at a later date for further categorization of disease or injury. Treatment plans are established based on physical exam findings and follow-up exams are performed as needed.

Routine Dental Evaluations: Thorough dental evaluations continue to be an important component of the WNPRC's PMP. During semi-annual and all other physical

exams, a veterinarian or technician performs a comprehensive evaluation of the oral cavity of each NHP. All dental problems (e.g., excessive tartar build-up, gingivitis, gingival recession, root exposure, dental fractures, etc.) are documented and each animal is assigned a dental priority score. At least twice per week from February through June and August through December, veterinary staff attempt to perform dental procedures (few dental procedures are performed in January or July, as these are the months when the semiannual Tb testing is performed for the Old World monkey colony). These procedures range from standard prophylactic cleaning and simple extractions of retained deciduous teeth to minor or major oral surgery to remove fractured or nonviable teeth (especially canine teeth). Priority is always given to those animals with the most serious dental condition. The WNPRC veterinary technicians perform a majority of the routine dental procedures under the supervision of a clinical veterinarian, while a WNPRC veterinarian or a veterinary dentist from the UW Veterinary Hospital performs the major procedures (e.g., canine extractions, gingival flaps, root canals, etc.). All procedures are performed with contemporary veterinary or human dental equipment.

Semi-Annual Tuberculin Skin Testing: All macaques housed at the WNPRC are tested for M.tb/bovis on a semi-annual basis. All marmosets housed at the WNPRC are tested for M.tb/bovis on an annual basis. Using the traditional method, mammalian tuberculin () is injected intradermally into the palpebrum and is checked at 24, 48, and 72 hours for evidence of a delayed hypersensitivity reaction. Skin test positive animals undergo thoracic radiography, gastric aspirate culture, BAL fluid culture, lymphocyte proliferation assays, PRIMAGAM testing, and ELISPOT assays for interferon gamma synthesis to determine if they are truly mycobacterium positive. Animals that are truly M.tb./bovis positive would be euthanized and then necropsied in the WNPRC's pathology suite utilizing ABSL-3 practices. All animals exposed to a M.tb./bovis positive animal would undergo a 90-day quarantine period to determine if they are also Mycobacterium positive. All veterinary, animal care, research personnel, and maintenance personnel of the WNPRC who have direct contact with the nonhuman primate colony must receive an intradermal PPD tuberculin skin test every six months. Personnel who are PPD positive due to previous exposure to M.tb. or due to BCG vaccination must undergo semi-annual health screening to establish that they are free of active signs of tuberculosis before they are allowed access to the animal facilities.

C. Clinical Care and Management [Guide, pp. 113-115]

1. Emergency Care [Guide, p. 114]

- a. Describe the procedures to ensure that emergency care is continuously available for animals during and outside of regular work hours.

and : The RARC veterinarian on-call may be reached at any time through a paging service operated by the University of Wisconsin Hospital and Clinics. It features one centralized number for personnel to call if they need veterinary assistance. The number is posted in all animal facilities.

WNPRC: All veterinarians, colony managers, and animal care supervisors at the WNPRC are equipped with cell phones and can be contacted 24 hours per day, 7 days per week in the event of an emergency. Emergency contact information is posted throughout the animal areas and near all appropriate telephones. The WNPRC veterinarians participate in a rotating on-call schedule to ensure that a veterinarian is on call 24 hours per day, 7 days per week for WNPRC animals. Each Friday, the on-call

schedule is posted and e-mailed to all WNPRC personnel including veterinarians, caretakers, research technicians, and investigators.

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

██████████ and ██████████: In emergency situations, an attempt will be made to contact the researcher to explain the situation and the treatment options, if feasible. The Chief Campus Veterinarian and her designees have full authority to treat any animal as deemed necessary, or to euthanize animals, depending on circumstances.

WNPRC: In the event of an animal emergency, Dr. ██████████ and the other members of the veterinary staff make every effort to contact investigators to inform them of an animal's condition. However, the veterinarians are empowered to make clinical decisions and even euthanize an animal without the permission of an investigator to ensure the humane and timely care of experimental subjects.

2. Clinical Record keeping [Guide, p. 115]

Describe the procedure for maintaining medical records and documenting treatment of ill animals including: clinical laboratory findings, diagnoses, treatments, medical progress records, etc. Identify individual(s) (titles, not necessarily names) responsible for maintaining such records and identify where the records are maintained and who has access to the records. Describe the role of the Attending Veterinarian in record keeping.

██████████ and ██████████: The responsibility for maintaining medical and treatment records is shared between veterinarians, veterinary technicians, animal care staff, and investigational staff. For rodents, treatment records are maintained on cage cards and are therefore accessible to all personnel involved. Other portions of the medical record, such as physical exams, ongoing assessments, and diagnoses, are maintained in a notebook that is kept in the facility and is accessible to all veterinary staff. The cage cards documenting treatment are also maintained there after treatment is finished, or if the animal is euthanized or dies. For *Xenopus* frogs, medical records are kept in a notebook that is kept in the facility and is accessible to all veterinary and investigational staff. For ground squirrels, records are maintained in the investigator's database. The Chief Campus Veterinarian may review any records at any time and has also approved this method of recordkeeping.

WNPRC: The medical records of all NHPs at the WNPRC are maintained in perpetuity in the Electronic Health Records System (EHR). The EHR has the capability to maintain clinical laboratory findings, diagnoses, treatments, medical progress records, surgical histories and a variety of demographic information in an easily retrievable, searchable, and viewable format. Colony Records staff, veterinarians and veterinary technicians maintain the medical records in the EHR and all animal care and research personnel have access to the EHR through a secure, password protected website. Dr. ██████████ routinely reviews the records entered by the veterinary and animal care staff to evaluate their thoroughness and compliance for all animal laws, recommendations, and guidelines.

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

- a. In-house diagnostic laboratory capabilities.

UW-Madison has two in-house laboratories supporting clinical care and research on the Madison campus: the [REDACTED] located in the [REDACTED], and the WNPRC's lab. Both are overseen by the LSVIC IACUC/OB.

[REDACTED]: The [REDACTED] provides necropsy, histopathology, cytology, urinalysis, microbiology and parasitology services for all species for diagnostic and research purposes. It is the primary provider of diagnostic necropsy and pathology support to the campus for all species, however primates are also done by the WNPRC. The [REDACTED] oversees the epidemiology of disease problems (in particular, rodent) on the UW-Madison campus. The lab has a PhD, board certified pathologist, two clinical lab technicians, a histotechnologist and 2 to 3 trained undergraduate assistants. The [REDACTED] lab also uses the bacteriology, hematology, and virology services of the [REDACTED], the [REDACTED], and the [REDACTED]. The [REDACTED] oversees the campus rodent surveillance program, directly handling many of the rodent surveillance and testing submissions for the campus and receiving results from SMPH and the [REDACTED] which carry out their own testing. Environmental quality control (autoclave testing, cage washer and caging and water bottle testing) is managed through the [REDACTED] as well with the use of the 3-M LumGiene® Pocket Swabs and autoclave ampules. [REDACTED]'s environmental and serology technician conducts sampling at the various labs to ensure standardization of the testing procedures. In 2016 [REDACTED]'s histology lab moved to a new 533 ft² space. In June 2017 necropsy also moved to a new, larger space (530 ft²).

WNPRC: The WNPRC has a 457 ft² clinical pathology laboratory that performs the following tests: complete blood counts with cellular morphology evaluations, packed cell volumes, total plasma proteins, urinalysis with microscopic examinations, cytology evaluations, parasitology (EIA, ova and parasite concentration, ova and parasite wet mounts), fecal occult blood, QBC (quantitative buffy coat) malaria screening, and thick and thin smear malaria screening. Timely diagnostic testing is performed by two laboratory technicians supported by two part-time student workers. Three pathologists (one ACLAM, one ACVP, and one ASCVP) provide additional support and oversight for all clinical pathology services.

The [REDACTED] complements the above diagnostic labs. The [REDACTED] is part of SMPH. It primarily provides histology services in support of research studies of [REDACTED] investigators, but is available to researchers both within and outside the University for fee. Specialized resources, such as frozen sections and particular histologic or immunohistochemical stains, augment the diagnostic capabilities of the [REDACTED] and WNPRC.

b. Commercially provided diagnostic laboratory services.

[REDACTED]: Commercial labs used by the [REDACTED] and the WNPRC include:

1. [REDACTED]
2. [REDACTED]
3. [REDACTED]
4. [REDACTED]
5. [REDACTED]
6. [REDACTED]

7. [REDACTED]
8. [REDACTED] and [REDACTED]
9. [REDACTED]
10. [REDACTED]

WNPRC: Tests not performed at the WNPRC are submitted to laboratories with validated protocols for nonhuman primates and include: routine serum chemistry evaluation, hemoglobin A1c, bacterial cultures (anaerobic, aerobic, and mycobacterial), fungal cultures, cerebral spinal fluid evaluation, protein electrophoresis, viral isolation, serology for simian retroviruses, thyroid panels, and other tests as appropriate for colony and research needs.

c. Necropsy facilities and histopathology capabilities.

[REDACTED]: Lab facilities consist of necropsy and histology suites, and a clinical lab. The current clinical lab occupies 372 ft². Digital photography equipment is available. There is a new fume hood for handling chemicals and two "powered air purifying respirator systems" (HEPA PAPR) are also available for further protection when performing necropsies of NHPs, animals with human tissue implants, or those infected with BSL-2 organisms. PAPR units for paraformaldehyde use are available from the WNPRC. Complete gross necropsies with histology are usually performed on all USDA species whether the death is related to clinical or investigational causes.

The new necropsy room is designed with a square downdraft necropsy table for larger dog, primate and lamb-sized animals, a variable height, down and back draft grossing station for cutting in tissues and necropsying rodents and other small animals, and a biosafety cabinet.

Large animals are necropsied at the [REDACTED] located on campus which has a large necropsy floor with hydraulic tables and additional necropsy rooms with enhanced biosecurity. This facility also has a tissue digester for disposal of carcasses of sheep, deer, and cattle >30 months.

Histology is done by a certified histotechnologist. The histology lab has a floor model Tissue-Tek VIP Vacuum Infiltration tissue processor, a Tissue Tek TEC 5 Embedding System, Tissue Tek DRS 2000 Automatic Slide Stainer, a new Leica manual rotary microtome, a histology coverslipping hood, and microwave and appropriate safety storage cabinets. Occasionally tissues may be processed by the [REDACTED] or the [REDACTED] if the [REDACTED] histotech is unavailable.

WNPRC: The WNPRC maintains two fully equipped necropsy suites for the post-mortem examination of nonhuman primates, one in [REDACTED] (Room [REDACTED]) and one at [REDACTED] (Room [REDACTED]). Both necropsy suites are equipped with a modified Mopec OA900 elevating down-draft necropsy table, biological safety cabinet, digital cameras, computers for real-time entry of data into the WNPRC Electronic Health Record system and refrigerators and freezers. The suites typically operate using ABSL-2 precautions but the routine use of HEPA PAPRs and appropriate PPE would allow for ABSL-3 certification with minimal procedural changes. Histology is performed at [REDACTED] and [REDACTED] allowing for 24-48 hour turn-around times for biopsy and critical histology evaluation. Complete gross necropsies with histology are performed on all cases whether the death is related to clinical or investigational causes.

d. Radiology and other imaging capabilities.

[REDACTED]: SVM's radiology resources are available when needed. These include radiology, MRI, ultrasound, Faxitron, and CAT scans. The WNPRC resources described below are also available. A shared equipment grant for a new Faxitron was recently received. It will be housed in SMPH facilities.

WNPRC: The WNPRC owns an Envision portable digital radiography system, a Universal Uni-Matic 325 X-Ray Unit, a Progeny intra-oral digital radiography unit model JB 70 unit, and an AgFa CP1000 automatic processor. The Envision unit is used to perform quarantine screen-out thoracic radiographs on NHPs to determine the presence or absence of pulmonary lesions consistent with Mycobacterium tuberculosis/bovis and to perform routine diagnostic radiographs. The dental unit is used to facilitate the diagnosis of clinical and occult dental disease (e.g., tooth root abscesses, dental caries, osteomyelitis, and maxilla/mandibular fractures).

The WNPRC owns four portable ultrasound units: a GE logiq 7 system, a GE logiq e system, and two SonoScape S8s. These ultrasound units are used for NHP cardiac evaluations, abdominal organ evaluations, abdominal organ biopsies, reproductive organ evaluations, fetal viability evaluations, fetal measurements, amniocentesis, chorionic villus sampling, and percutaneous umbilical blood sampling.

MRI, CT, and PET scan units are also available at various sites on the UW-Madison campus if more sophisticated imaging modalities are necessary.

4. Drug Storage and Control

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

[REDACTED] and [REDACTED]: Individual investigators are required to obtain their own state and federal controlled substances permits. There is guidance on the RARC website and in the Laboratory Training notebook regarding permit application, lockbox requirements, and disposal of expired controlled substances. Common non-controlled drugs are available for sale through the RARC pharmacy service, located in the [REDACTED]. Non-controlled drugs are stored in cabinets in investigator laboratories. RARC veterinarians holding DEA licenses also purchase controlled drugs for veterinary care use. [REDACTED]

[REDACTED]: Not applicable.

WNPRC: [REDACTED]
[REDACTED]
[REDACTED] Non-controlled substances are stored in each surgery area and each clinical treatment room in WNPRC facilities.
[REDACTED]

b. Describe record keeping procedures for controlled substances.

██████████ and ██████████: Guidance is provided to investigators in the Laboratory Training Notebook and the recommended documentation form is available in the notebook and on the RARC website. Required information includes drug name, date drug is received, vial/record number, vial/bottle size, concentration, volume, etc. ██████████

██████████ and ██████████: Not applicable.

WNPRC:

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

1. Pre-Surgical Planning [Guide, p. 124]

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 postoperative care.

and WNPRC:

Identifying and training personnel: Personnel performing surgery are required to be listed by the Principal Investigator on the animal-use protocol, indicating their experience and training. The animal-use protocol is reviewed by the IACUC/OB, and work is allowed only after approval. All newly hired UW-Madison investigators and research staff members performing surgery are required to attend the RARC Laboratory Animal Surgery Course. This surgery course is an all-day course, which consists of lectures, demonstrations and hands-on opportunities in anesthesia/analgesia, suturing and wound closure, aseptic technique and performing a splenectomy on a rat. There is a process by which very experienced surgeons can request a waiver from this training. It requires approval by the IACUC/OB and the Chief Campus Veterinarian or her designee.

When a researcher is identified through protocol review as performing surgery on a USDA-covered species on which they have never operated, they are required to be observed/assisted by a research animal veterinarian the first time they perform surgery on the new species, regardless of experience with other species.

Locating equipment and supplies: Investigators are given instruction on how to locate equipment and supplies through the Laboratory Animal Surgery Course, facilities orientations, and/or consultation with the veterinary staff.

Veterinary involvement for selecting analgesic and anesthetic agents and facilities:
Veterinarians are involved in analgesic and anesthetic planning primarily through animal-use protocol pre-review and/or review. Veterinarians also meet directly with investigators to review and refine analgesia or anesthesia, at the request of the PI, the veterinarians, or the

IACUC/OB. In some cases, the IACUC/OB requires consultation with a board-certified veterinary anesthesiologist.

Pre-surgical Planning: Pre-surgical planning is the primary responsibility of the surgeon and the research animal veterinarian. Surgical plans (including patient preparation, surgical techniques, anesthetic administration and monitoring, and use of analgesics) written by the researcher, must be in an Animal-Use Protocol, and this is reviewed and approved by a veterinarian, as part of a protocol pre-review process and/or as part of the IACUC/OB review process. If questions about a surgical plan cannot be resolved by normal protocol review processes, a meeting between the investigator and a research animal veterinarian is mandated, either by the IACUC/OB or the Chief Campus Veterinarian. The amended protocol is returned to the IACUC/OB for review and approval. Staff veterinarians initially advise the respective investigator regarding proper selection of anesthetics, surgical technique, perioperative analgesia, etc. during the protocol review process and as needed during the course of the study.

Pre-operative Care: A period of 1 week is recommended before newly arrived animals are used in a surgery.

Post-operative Care: Specific post-operative care is performed in accordance with approved Animal-Use Protocols. For rodents, cage card tags indicating that animals are in post-op recovery are distributed, to be placed on the cages by laboratories. Animal care and veterinary staffs are therefore knowledgeable about post-op condition of the animal and can monitor accordingly.

WNPRC Only: Prior to the initiation of an experimental protocol that involves major survival surgery, the WNPRC veterinary staff meet with the respective principal investigator to discuss the impending surgery. At this meeting, the veterinary staff and the PI determine the characteristics of the animals to be used, plan the details of the surgery, determine how many personnel should be involved, decide who will act as primary surgeon (investigator or veterinary staff), and decide what specialized surgical instruments will be needed. The pre-operative and post-operative anesthesia, antibiotic, and analgesic regimens to be employed are also determined at this meeting.

2. Surgical Facilities [Guide, p. 116]

- a. List building name(s) and room number(s) or other locations (coded, if confidential) where surgical procedures are performed. Include areas where surgical procedures are conducted in agricultural species. Indicate the type of species, nature of procedure (major/minor/emergency; survival and non-survival, etc.). Indicate for each surgical area if the use is heavy (daily), moderate (weekly), or light.

██████:

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
██████	Mice	Non-survival	Light
	Rat	Survival & non	Light
	Rat	Non-survival	Light
	Mice	Survival & non	Moderate
	Mice	Survival & non	Light
	Mice/Rat	Survival	Light

██████:

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
██████	<i>Xenopus</i>	Survival & non	Moderate

██████:

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
██████	Mouse/Rat	Non	Light
	Mouse/Rat	Non	Light
	Rat	Survival	Light
	Mouse/Rat	Non	Light
	Rat	Survival	Light
	Mice	Survival	Moderate
	Mice	Survival	Light
	Mice	Survival	Moderate
	Mice	Survival	Moderate

WNPRC: The WNPRC maintains surgical suites in ██████████, ██████████ and in the ████████ NHP Vivarium (██████████). Minor surgical procedures such as digit amputations, primary closure of skin lacerations, and peripheral lymph node biopsies are performed in WNPRC procedure/treatment rooms. As recommended in the Guide, each of the WNPRC surgical suites consists of an animal prep area, a surgeon's scrub, one to two operating rooms, a post-operative recovery area, and a surgical support area. The table below indicates each of these components in the individual buildings:

WNPRC, ██████████

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
██████	NHP	Minor	Moderate
	NHP	Major	Moderate
	NHP	Minor	Light
	NHP	Minor	Moderate
	NHP	Minor	Moderate

WNPRC, [REDACTED]:

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Light
[REDACTED]	NHP	Minor	Light
[REDACTED]	NHP	Minor	Light
[REDACTED]	NHP	Minor	Light
[REDACTED]	NHP	Major/Minor/Emergency	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Major/Minor/Emergency	Heavy
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate

WNPRC, [REDACTED]:

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
[REDACTED]	NHP	Major/Minor/Emergency	Heavy
[REDACTED]	NHP	Major/Minor/Emergency	Heavy
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Heavy
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Empty
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Moderate
[REDACTED]	NHP	Minor	Empty

WNPRC, [REDACTED]:

<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
[REDACTED]	NHP	Minor	Light
[REDACTED]	NHP	Minor	Light

Locations Outside Vivaria: The following locations outside vivaria are inspected by the LSVC IACUC/OB for use as surgical facilities.

[REDACTED]:			
(Protocol G005281 – RARC Training Protocol)			
<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
[REDACTED]	Various Small Spp.	Major/Minor	Heavy
(Protocol G005267)			
[REDACTED]	multiple	Euthanasia	Moderate
[REDACTED] (protocol G005334 only):			
<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
[REDACTED]	Rat	Non-Survival Surgery	Light
[REDACTED] (protocols G005150 & G005545 only):			
<u>Room</u>	<u>Species</u>	<u>Procedure</u>	<u>Usage</u>
[REDACTED]	Mice	Minor	Moderate

- b. List the major surgical support equipment available at each location where survival or nonsurvival surgery is performed (e.g., gas anesthesia machines, respirators, etc.).

[REDACTED] and [REDACTED]: The facility supplies surgical space only. Procurement of equipment is the responsibility of individual laboratories that use the space.

WNPRC: Each WNPRC surgery suite is equipped with state of the art monitoring devices used to monitor the heart rate, respiratory rate, oxygen saturation, and body temperature of all surgical patients. Each suite is also equipped with heated surgical tables, water circulating heating pads and/or a “bair hugger” to maintain an animal’s temperature throughout a surgical procedure. Each suite is also equipped with at least one anesthetic machine with an isoflurane vaporizer to deliver inhalant anesthesia and a variety of syringe and IV pumps to deliver continuous fluid and constant rate infusions of anesthetics. The smaller surgical suite in [REDACTED] is equipped with a laparoscopic tower that enables the WNPRC veterinarians to perform minimally invasive surgery such as laparoscopic oocyte collections or laparoscopic biopsies. Each suite is also equipped with a wide array of general to specialized surgical equipment for minor or major procedures.

- c. Describe any specialized considerations for designation of surgical areas (e.g., rodents, aquatics, farm animals, etc.).

[REDACTED] and **WNPRC:** All areas designated for use for surgery must be listed in an approved IACUC/OB protocol, and inspected by the IACUC/OB before initial use.

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, etc.).

Survival Surgery is defined as those procedures after which the animal recovers from anesthesia (i.e., regains consciousness).

Minor Surgery is defined as those procedures that do not penetrate and expose a major body cavity and do not result in a substantial physiologic or functional impairment to the animal.

Major Surgery is defined as those procedures that enter and expose 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 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.

- b. How is non-survival surgery defined?

Non-survival surgery is defined as surgery from which the animal never regains consciousness from anesthesia after the surgery.

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

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

██████████ and ██████████: Aseptic technique is assured through training of personnel in proper aseptic surgical technique; use of sterile instruments and sterile surgical supplies; preparation and draping of surgical site; use of either sterile gloves, and/or techniques that keep anything that comes in contact with the surgical site sterile. RARC veterinary staff have prepared guidance, available on the RARC website, for laboratories to aid in preparation of surgical spaces that are not dedicated surgery rooms. In addition, there is an online training module for additional training in aseptic technique.

WNPRC: Patient preparation at the WNPRC is provided by a surgical technician or veterinarian and consists of an initial patient preparation (clipping hair and initial scrub) in the patient prep area, followed by a final sterile scrub performed in the surgery room. The surgery technician is also responsible for preparing and sterilizing all surgical instruments and supplies. Surgeon preparation occurs in-room in a dedicated surgical scrub area equipped with scrub sinks large enough to accommodate two surgeons at one time. The surgeon(s) wears a mask, face shield, hair cover, sterile gown, shoe covers and sterile gloves and the animal is draped with sterile drapes and a sterile field is maintained throughout the procedure.

- b. Describe methods used to sterilize instruments and protective clothing. Indicate how effectiveness of sterilization is monitored and, if applicable, any approved alternate methods for instrument re-sterilization between serial surgeries. If used, include a

description of approved [liquid sterilants](#) and instrument exposure time(s) required for each.

██████████ and ██████████: Instruments and supplies can be sterilized by ethylene oxide gas or steam autoclave. Glass bead sterilizers are used for re-sterilization between serial surgeries. Other surgical supplies, including surgical gloves are either autoclaved or purchased pre-sterilized. Effectiveness of autoclaving is monitored with the use of autoclave tape and with monthly autoclave efficacy testing through RARC. Liquid sterilants are not used to sterilize surgical equipment.

██████████: Surgical equipment is wrapped in metal foil and steam autoclaved for >30 min. Sterilization is monitored by applying a small piece of autoclave tape to each foil wrap; temperature-sensitive ink on the tape reveals “Autoclaved” after 10 min @ 121° C.

██████████: Instruments and supplies can be sterilized in a steam autoclave. Glass bead sterilizers are used for re-sterilization between serial surgeries. Other surgical supplies, including surgical gloves are either autoclaved or purchased pre-sterilized. Autoclaves are tested monthly per the RARC Environmental Monitoring program using ampoules. Autoclave indicator strips are used with each cycle to get immediate confirmation of function.

WNPRC: Instruments are sterilized using a steam autoclave or an ethylene oxide unit. Disposable instrumentation (e.g., scalpel blades, skin biopsy punches) is also purchased in a sterile state from manufacturers and disposed of after one usage. Protective clothing is steam sterilized. Disposable clothing is also purchased in a sterile state from manufacturers and disposed of after one usage.

The efficacy of autoclave sterilization is verified once per month using *Bacillus stearothermophilus* vials. ETO sterilization efficacy is checked monthly using *Bacillus subtilis* vials. See WNPRC SOPs 2.11 and 2.12 for additional information.

Instrument re-sterilization between serial surgeries is accomplished using the “flash” cycle on the steam autoclave.

- c. Describe surgical support functions provided by the program to investigators.

_____ and _____: Equipment such as gas anesthetic machines, circulating hot water blanket, glass bead sterilizer, and pulse oximeter is available from RARC at no charge. RARC trainers, assisted by veterinary staff, regularly teach a day-long rat surgery class. This class is available at no charge. Veterinarians and veterinary technicians are available for procedural assistance (surgical or anesthetic) at the request of the principle investigator. RARC also maintains an Anesthesia Service Core comprised of veterinarians and veterinary technicians to help train and/or provide all necessary anesthesia services for interested researchers.

WNPRC: The veterinary staff of the WNPRC offers a wide variety of support functions to investigators performing NHP research. Prior to the initiation of an experiment, veterinary personnel meet with an investigator and their staff to discuss the planned surgical procedure in detail. The team determines what equipment is needed for the surgical procedure, what instruments may need to be purchased, what training must be provided for the investigators and their staff, and what drug regimen will be used pre-, intra-, and post-operatively. The WNPRC veterinary staff can provide surgical training for

investigators, can perform procedures beyond the skill level of research personnel, or can simply provide anesthesia support for minor or major procedures. The WNPRC veterinary staff also performs all pre-operative evaluation and preparation and post-operative care for all surgical procedures. Surgical support is tailored to the needs of the investigator.

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.

██████████ and ██████████: Intraoperative monitoring includes routine evaluation of anesthetic depth and physiologic parameters. Anesthetic monitoring must be recorded at least every 15 minutes intraprocedurally through anesthetic recovery. For rodents and amphibians, group medical records may be kept for animals that receive the same treatment as a group. Any rodent or amphibian that receives unique treatment must have an individual record. Records are maintained by the investigator but are accessible to veterinary personnel. Monitoring and documentation of anesthesia during nonsurvival procedures is identical to survival surgeries. RARC veterinary and training staff have developed templates for intraoperative recordkeeping for all animals, available on the RARC website.

WNPRC: All NHP undergoing major surgery or minimally invasive surgery have their heart rate, respiratory rate, oxygen saturation and body temperature monitored from the intra-operative period through post-operative recovery. All vitals are recorded at least every 15 minutes. Blood pressure is monitored for major survival surgeries or procedures of long duration. The amounts of all anesthetic, analgesic, clinical and experimental agents administered from the pre-operative through the post-operative period are recorded as well as time of administration during all surgical procedures. Monitoring for non-survival procedures is no different than for survival procedures. Animals are also monitored post-surgically until they are completely recovered and the speed and character of their recovery is also documented. All surgical monitoring forms are saved indefinitely. All drugs and other agents administered during a surgical procedure are entered in the EHR under the surgical section. A full surgery report is completed by the primary surgeon and is also entered into the EHR.

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.

██████████ and ██████████: The primary responsibility for postsurgical care lies with the investigator, with assistance from veterinary staff. Investigative staff maintain all postoperative records.

WNPRC: Following major surgery at the WNPRC, the animals are taken to a post-operative recovery room (i.e., ██████████ Room ██████████, ██████████ Room ██████████, ██████████ Room ██████████) where they are placed in a single cage with a heat lamp (an incubator is often used for marmosets) to aid in maintaining body temperature. The animals are observed until they fully recover from anesthesia. Post-procedural analgesia is routinely provided using butorphanol, acetaminophen, buprenorphine, oxymorphone, and/or NSAIDs as prescribed by the clinical veterinarians or specified in approved protocols. Depending on the surgical procedure, the animals are kept in the recovery area and monitored throughout the day for 24 to 96 hours before being returned to their home cages. WNPRC surgical technicians are responsible for overseeing post-surgical care. Post-surgical recovery notes are recorded on a form that stays

with the animal and requires entries at 15-minute intervals until the animal is fully recovered from anesthesia. A second post-surgical form follows the animal for 5 days and requires at least daily observation during the immediate post-procedure period. All surgery records are entered into the EHR system.

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

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

The LSVC IACUC/OB evaluates potential level of pain or distress when it reviews protocols, with significant input from RARC and Primate Center veterinarians and the PI.

Examples of procedures that cause either minimal, transient, or no pain or distress when performed by well-trained individuals using proper techniques include: administration of anesthetics, analgesics, tranquilizers, fluid or electrolyte therapy, immunizations, and oral medications; urethral catheterization or cystocentesis; percutaneous vascular catheterization; blood collection (except for intracardiac or retro-orbital); gastric gavage; routine veterinary medical procedures (e.g., injections, palpations, skin scrapings, radiography, routine manual restraint, etc.); and euthanasia.

Examples of procedures that are considered to cause more than momentary or transient pain or distress in the absence of appropriate anesthetics, analgesics, and/or tranquilizers include: all major and minor surgical procedures, including biopsies and gonadectomy; electrical shock, to include shock reinforcement; injection of any agent that induces excessive inflammation or necrosis (e.g., bradykinin, pristane, certain infectious agents, etc.); LD50 determinations; neurophysiological preparations and cannulations; intracerebral inoculations (other than neonatal mice); chair or stock restraint of nonacclimated animals, or any restraint for more than 12 hours; drug or radiation toxicity testing; intracardiac or retro-orbital blood collection.

In the course of experiments, animals are viewed daily by care staff who are trained to recognize behaviors that might indicate pain or distress. In addition, veterinary staff views all animals regularly.

2. Describe how the IACUC/OB ensures that unnecessary pain and distress are avoided (e.g., pilot studies, monitoring by veterinary staff, animal use protocols, humane endpoints, other refinements, etc.).

The LSVC IACUC/OB routinely requires PIs to submit protocols to veterinary staff for general pre-review prior to submission for formal IACUC/OB review. As needed, the IACUC/OB may also require additional veterinary review of specific aspects before granting approval.

The IACUC/OB reviews each protocol for potential animal pain and distress. Prior to approval the IACUC/OB requires PIs to provide scientific justification for subjecting animals to more than momentary pain or distress. This would include evidence that the PI searched for alternatives to those procedures and that the proposed work is not unnecessarily duplicative. The IACUC/OB has included contingencies with approval of certain protocols such as requiring a research animal veterinarian to be present for the first set of procedures (e.g., for the first two survival surgeries), requiring enhanced monitoring of post-procedure animals, and requiring reports be presented back to the IACUC/OB about animal outcomes.

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

1. List the agents used for each species. Dosages, routes of administration and drug combination should be included in guidelines and available at the time of the site visit. Describe also any non-pharmacologic means used to diminish pain and distress.

_____ and _____ :

Mouse

Isoflurane
Ketamine/xylazine
Ketamine/xylazine/acepromazine
Ketamine
Pentobarbital
Ketamine/dexmedetomidine
Ketamine/midazolam
Metomidate/fentanyl
Tribromoethanol
Buprenorphine
Meloxicam
Carprofen
Ketoprofen
Lidocaine hydrochloride
Bupivacaine

Rat

Buprenorphine
Butorphanol
Isoflurane
Pentobarbital
Ketamine/xylazine
Ketamine/dexmedetomidine
Tiletamine/zolazepam
Propofol
Urethane
Medetomidate/fentanyl
Carprofen
Meloxicam
Ketoprofen
Morphine

Ground Squirrel

Isoflurane
Buprenorphine

_____ :

Xenopus

Tricaine mesylate (MS222)
Benzocaine hydrochloride

WNPRC:Analgesics

Buprenorphine
Fentanyl
Meloxicam
Flunixin meglumine
Ketoprofen
Tramadol
Lidocaine
Bupivacaine
Acetaminophen

Anesthetics

Ketamine
Dexmedetomidine
Xylazine
Isoflurane
Propofol
Sodium pentobarbital
Diazepam
Midazolam
Fentanyl

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

████████████████████ and ██████████: A research animal veterinarian pre-reviews every animal care and use protocol prior to official submission, and provides input on the use of anesthetics, analgesics or other pain moderating methods at that time. In addition, a veterinarian is always involved in IACUC/OB review of every protocol. Furthermore, in day-to-day interaction and observation, the use of drugs and their efficacy are assessed and changes recommended by the veterinarian as needed.

An experimental surgery class, which has a component on anesthesiology, is required for new graduate students, scientists, or other research associated personnel. Senior program veterinarians are available to advise and assist those persons who are uncertain as to the choice of an anesthetic or analgesic. Protocol forms require each investigator to describe how animals are anesthetized, and what agents they are using. If they choose agents other than those recommended, their experience with the agent and its efficacy is considered by the IACUC/OB, and if necessary, veterinary counsel is provided.

WNPRC: The veterinary staff of the WNPRC uses a variety of anesthetics and analgesics that have been proven to have great efficacy in NHPs. Prior to the initiation of an experimental study, the veterinary staff meets with an investigator to determine what anesthetic and analgesic agents should be used in their protocol. Throughout the duration of a study, the veterinarians communicate with the investigators and prescribe appropriate anesthetics and analgesics based on the condition of the experimental subjects. The veterinary staff encourages investigators to use minimally invasive surgical procedures (e.g., laparoscopy, ultrasound guided biopsy) whenever possible to moderate and reduce pain and distress associated with experimental procedures.

3. Describe the monitoring of the effectiveness of anesthetics and analgesics, including who does the monitoring.

████████████████████ and ██████████: The ultimate responsibility for monitoring the use of anesthetics and analgesics lies with the senior program veterinarians and the PIs. This responsibility is discharged through training personnel in the use of agents and education in the need for such agents. In addition, RARC veterinary staff view postsurgical animals regularly.

WNPRC: Veterinarians and veterinary technicians monitor the efficacy of all anesthetics administered to NHPs. No potentially painful procedures are initiated until it is determined

that an animal is at an appropriate plane of anesthesia. Heart rate, respiratory rate, palpebral reflex, and response to a toe pinch are some of the parameters that are monitored to determine if an animal has reached an adequate plane of anesthesia to initiate a procedure. Post-procedure, an animal's appetite, attitude, and activity level are monitored closely to ensure that they are receiving the proper amount and type of analgesic.

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.

██████████ and ██████████: The use of neuromuscular blocking agents must be described and scientifically justified in an approved animal care and use protocol. If deemed scientifically necessary, the IACUC/OB requires the PI to use a physiological method of monitoring depth of anesthesia (e.g., measuring heart rate in response to a deep pain stimulus).

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

██████████ and ██████████: Inhalant anesthetic vaporizers are serviced yearly. The IACUC/OB verifies this during semiannual inspections.

██████████: Not applicable.

WNPRC: The hoses and rebreathing bags on all anesthetic machines are checked for cracks and tears before and after each usage. The CO₂ absorbent (e.g., soda lime) is also checked on a frequent basis to ensure that it has not lost its absorptive capacity. All volatile anesthetic gas vaporizers undergo an annual maintenance check and recalibration. The IACUC/OB verifies this during semiannual inspections.

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

1. Describe approved methods of euthanasia, including humane slaughter. Include consideration of species, age, condition (e.g., gestational period, or neonatal) and location(s) for the conduct of the procedure.

██████████ and ██████████: Methods used are all in accordance with the AVMA Guidelines on Euthanasia. Methods used for rodents are typically CO₂ asphyxiation, overdose of inhaled isoflurane, barbiturate overdose, exsanguination while under a surgical plane of anesthesia, cervical dislocation, and decapitation. Physical methods of euthanasia without prior anesthesia must be justified in an animal-use protocol and approved by the IACUC/OB. Euthanasia methods used for USDA covered species (ground squirrels) are barbiturate overdose, exsanguination under deep anesthesia, CO₂ inhalation, cervical dislocation, isoflurane, and decapitation (under approved described conditions).

Euthanasia of Fetuses and Neonates: For mouse and rat fetuses up to 15 days (i.e., E14 or less), euthanasia of the mother or removal of the fetus are appropriate methods for fetal euthanasia (any loss of blood supply would ensure rapid death of fetuses). For mouse and rat fetuses E15 days to birth, a physical method of euthanasia (decapitation or cervical dislocation) is required in addition to euthanasia of mother or removal of fetus; careful injection of anesthetic agents may be used (e.g., IP injection of pentobarbital >120 mg/kg) prior to decapitation or cervical dislocation. For mice and rat neonates up to and including 10

days of age, decapitation, cervical dislocation or injection with a chemical anesthetic (e.g., pentobarbital >120 mg/kg IP) are acceptable means of euthanasia. Neonates 10 days of age or less are resistant to hypoxia; if CO₂ is used, prolonged exposure time is needed to cause loss of consciousness or death. A secondary physical means of euthanasia (decapitation or cervical dislocation following loss of consciousness) is required when CO₂ is used.

Rooms: CO₂--Rooms [REDACTED], and [REDACTED].

Room: CO₂--Rooms [REDACTED] and [REDACTED].

Euthanasia of research animals is also performed in laboratories on campus outside of vivarium space. These rooms must be listed on an IACUC/OB-approved Animal-Use Protocol, and are inspected semi-annually by the IACUC/OB.

[REDACTED]: The frogs are exposed to 0.02% Benzocaine in water for 30 minutes. A toe pinch is performed to detect the effectiveness of the anesthetic until a surgical plane is reached. An incision is made through the pericardium and the aorta is severed, removing the heart. The frogs are euthanized in [REDACTED] room [REDACTED] and then transported to the freezers located in room [REDACTED].

WNPRC: The administration of an overdose of sodium pentobarbital is the most common method of euthanasia used at the WNPRC. Briefly, the animal is pre-medicated with ketamine (at least 15 mg/kg, im) followed by administration of sodium pentobarbital (≥50 mg/kg, iv to effect), which results in cardiac and respiratory failure and death. While the saphenous vein is usually used for the intravenous administration of pentobarbital, intra-cardiac injection directly into the heart is used for marmosets and infant rhesus due to their small size. It is possible that a final maximal blood draw, performed following ketamine anesthesia but prior to the IV pentobarbital overdose, may result in death by exsanguination.

Terminal Perfusion Procedure - Many animals are euthanized via this procedure when the investigator wants to perfuse an organ of interest. After being sedated with ketamine (at least 15 mg/kg, im) and deeply anesthetized with sodium pentobarbital (at least 35 mg/kg, iv) the sternum of the animal is removed or reflected cranially using sharp dissection and rib cutters. The aorta is isolated and occluded by clamping with 1-2 pairs of hemostats to enhance perfusion of the preferred organ. The animal is perfused via the left ventricle first with several liters of physiological saline to remove red blood cells from the tissues, followed by perfusion with 2 liters of phosphate-buffered saline containing 2% paraformaldehyde or other appropriate fixative.

The majority of euthanasia procedures are performed in the main WNPRC necropsy suite in [REDACTED] though some are performed in the necropsy suite in [REDACTED]. Infant marmosets rejected by their parents are often euthanized via intra-cardiac injection with this procedure being performed in the anterooms of the marmoset holding rooms.

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

[REDACTED] and [REDACTED]: CO₂ regulators are immediately replaced if there is any indication of improper function. Isoflurane vaporizers are serviced yearly and service dates checked by the IACUC/OB during semiannual inspections.

[REDACTED]: Not applicable.

WNPRC: Euthanasia is generally performed by the administration of pharmacologic agents at the WNPRC. The veterinary staff monitors the expiration date of all agents used in the euthanasia process to ensure that they remain efficacious.

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

██████████ and ██████████: All personnel who euthanize research animals must at the very least verify cardiac and respiratory arrest; instruction on this to all personnel who use animals is provided during required RARC training classes. In many instances of rodent euthanasia (typically stated in Animal Use Protocols) a secondary physical means of euthanasia such as bilateral pneumothorax, cervical dislocation or decapitation is employed.

██████████: *Xenopus* are frozen to -20° C.

WNPRC: Death is confirmed by a qualified and experienced person using a stethoscope to monitor heart sounds from the chest area, as well as monitoring all other vital signs (e.g., pulse, respirations) that can be monitored by observation.

IV. Physical Plant [Guide, pp. 133-151]: [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

Animal facilities are located on the [REDACTED]. All areas are managed by [REDACTED], the [REDACTED] and overseen by the [REDACTED]. Both Ms. [REDACTED] and the [REDACTED] report to [REDACTED]. In her role as [REDACTED] reports to [REDACTED]. Dr. [REDACTED] serves as Acting Director until approximately November 2017.

This facility is under the oversight of the LSVC IACUC/OB.

Veterinary care is managed by RARC under the direction of Dr. [REDACTED], Chief Campus Veterinarian. Dr. [REDACTED] is RARC's Senior Program Veterinarian for small animals in [REDACTED] and other VCRGE and CALS facilities.

[REDACTED]: Breeding core rooms are located on the [REDACTED]. All areas are managed by [REDACTED]. [REDACTED] reports to Chief Campus Veterinarian [REDACTED].

This research program is under the oversight of the LSVC IACUC/OB. Veterinary care is as described for [REDACTED].

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

There is one research laboratory (room [REDACTED]) used for terminal mouse procedures that is managed by the School of Veterinary Medicine and one surgical suite (suite [REDACTED]) that is managed by a research group.

Procedure work rooms are present in each controlled environment suite or animal housing area. Additionally, 2 surgical procedure areas (rooms [REDACTED] and [REDACTED]) and terminal procedure area (room [REDACTED]) are provided for the use of all investigators using mice.

[REDACTED]: PIs who use [REDACTED] services are not allowed access to the facilities.

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

Conventional. Mice are housed in IVC ([REDACTED]) racks in the [REDACTED] suite, [REDACTED] suite & [REDACTED]. Rats may be housed in conventional microisolator caging in the [REDACTED] suite. Ground squirrels

may be housed in conventional caging in [REDACTED]. No animals are maintained in laboratory settings.

[REDACTED]: The [REDACTED] maintains SPF status. Mice are housed in IVC ([REDACTED]) racks in rooms [REDACTED] and [REDACTED]. All feed and supplies out autoclaved or irradiated. Animals are only handled in ATS or BSCs.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

All surfaces except suspended ceilings are easily sanitizable.

Corridors: All corridors are 7 feet wide by 8 feet high; first and second floor corridors are vinyl tile, second floor controlled environment rooms are epoxy floor paint over concrete.

Animal room doors: Controlled-environment doors (height = 76 inches; width = 36 inches) are polyester-reinforced fiberglass and have a small window with a hinged cover. "Regular" housing room doors (height = 76 inches; width = 36 inches) are painted steel doors or plated with stainless-steel panels.

Exterior windows: None in animal-use or housing areas.

Floors: Some floors are epoxy coating over cement. Others are fiberglass with polyester reinforcement, gel-coat surface (floors with non-skid additive). All joints are caulked with silicone.

Drainage and Plumbing: All rooms have floor drains. Hot and cold water are supplied for cleaning purposes. A sink is present in the adjacent workroom with hot and cold water supplied for cleaning and hand washing.

Walls: Painted concrete block or fiberglass with polyester reinforcement (floors with non-skid additive). All joints are caulked with silicone.

Ceilings: Suspended ceiling tiles with aluminum frames or fiberglass with polyester reinforcement. All joints are caulked with silicone. Suspended ceilings in first and second floor hallways and some work rooms are polyester covered fiberglass that are difficult to clean. These are lightly brushed as needed.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

No exterior windows are present in animal-use or housing areas.

B. Functional Areas and Operations

1. Heating, Ventilation, and Air-Conditioning (HVAC) [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

Each controlled-environment housing room has a dedicated air-handling unit, and HVAC for each housing room is isolated from all others. Rooms can be adjusted to be positively or negatively pressurized to adjacent areas as needed. Temperature and humidity are controlled for each room. Air changes per hour meet standards in *The Guide*. Humidity is provided by humidifier pots or bars fed by clean steam generators. Humidity is controlled by pneumatic valves to $\pm 10\%$ RH from relative humidity setpoint.

In addition to monitoring temperature and humidity, the [REDACTED] system monitors air discharge temperature, heating and cooling valve positions, pre-filter differential pressure, and supply and exhaust flow rates (liters per sec). These room performance data ensure that [REDACTED] is very sensitive to changes in HVAC performance.

Rooms [REDACTED] and [REDACTED] have one-pass air handling systems with 100% exhaust. Other controlled-environment rooms use re-circulated air with 10% exhaust and 10% fresh make up air. All return air in recycled-air environments is HEPA filtered. In addition, supply air for all rooms is filtered with 35% pre-filters and 95% bag filters. Charcoal filters for odor are used as needed.

- b. Describe construction 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.

All heating, cooling and relative humidity valves fail in a closed position. Failure redundancy is provided by additional shutdown computers that monitor room conditions and systematically turn off HVAC and lighting systems if a failure is detected.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

Environmental control computers that monitor room conditions, run room schedules, log environmental data and call out to the on-call pager staff are on a back-up power supply.

Replacement components for vulnerable units (e.g. pumps, humidifiers, and controllers) are stocked onsite for rapid repair or replacement in the event of a component failure.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

Temperature and humidity are centrally measured at 1-minute intervals via digital sensors and monitored using [REDACTED] software ([REDACTED]). Deviations from set points cause an automatic alarm. [REDACTED]

[REDACTED] carry a pager at all times after hours, and on weekends and holidays, to respond to any deviations from preset environmental conditions.

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

[REDACTED]

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

During a typical year, an average of 1-2 power outages occur, usually lasting less than 30 minutes. Moderate thermal flow (convection) occurs through the exhaust system or ventilation from animal housing rooms through adjacent workrooms. Temperatures have not exceeded 28°C.

Since our last AAALAC site visit, there have been 2 planned outages and no unplanned outages. The planned outages on May 2 and June 6, 2015 involved minimal shutdown of room lights. Procedure rooms for [REDACTED] and [REDACTED] were dark for ~30 minutes. Outlets remained powered so ATS and BSCs were lit and functional.

During outages (planned or unplanned), temperatures in animal rooms are monitored every 15 minutes by trained observers, and backup generators are available to operate water-cooled portable units and ventilated racks in the event of an extensive outage

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

All animal room lighting is controlled and scheduled through the [REDACTED]. If lighting does not turn on or off [REDACTED]. The [REDACTED] can override lighting schedules. Lighting is standard T8 fluorescent lighting in sealed waterproof fixtures. Most animal rooms are on 12-hour light/dark cycles. The light intensity is measured at the start of each project to ensure acceptable intensity.

- 3. 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 \(Section 2.f\)](#)

There have been no animal losses or known health problems associated with power outages or mechanical failure.

4. Storage Areas [Guide, pp. 141-142]

- a.** Describe storage areas for feed and bedding, including temperature and vermin control.

Stock feed is stored in rooms [REDACTED] on pallets off the floor. A freezer and refrigerator/cooler are available for special diets as needed. Temperatures of facility storage areas including any walk-in coolers or freezers are recorded daily and performance problems are addressed promptly by in-house mechanics. The building has a vermin-control program that includes restricting food storage and use (including human food), setting and monitoring live traps, employing door sweeps, and sealing penetrations.

[REDACTED]: Stock feed is stored in rooms [REDACTED] on pallets off the floor. The storage area temperature and vermin-control program is described immediately above.

- b.** Describe storage areas for cages, equipment, supplies, etc.

Clean cages in current use are stored in room [REDACTED].

Cleaning equipment reserved for animal rooms is primarily stored in a janitor closet adjacent to room [REDACTED] and [REDACTED]. Other equipment is stored in janitor or other equipment spaces in the building.

Supplies are primarily stored in room [REDACTED]. Individual investigators use cabinets in procedure workrooms for storage of research-related equipment and supplies.

[REDACTED]: Supplies are stored in room [REDACTED]. Some supplies are stored in individual animal rooms on carts or in cabinets.

- c.** Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Flammable or hazardous material is stored in ventilated, fire-protected storage cabinets in room [REDACTED].

5. Facilities for Sanitizing Materials [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

All mice are maintained in disposable caging with Innovive® ventilated rack systems. For conventional caging systems and other washable materials, the small animal cage washroom

on the [REDACTED] in the [REDACTED] of the building (room [REDACTED]) is used. A spray booth (room [REDACTED]) is used for larger materials (e.g. garbage bins, racks) that do not fit in the tunnel washer. Large items are sprayed with low pressure soap wash and high pressure rinse is used.

[REDACTED] does not have designated clean/dirty hallways. Traffic flow in the facility hallways is clockwise with soiled caging traffic pushed north, clockwise to the dirty side of the tunnel wash (room [REDACTED]) and clean caging pushed south out of the clean side of the tunnel washer (room [REDACTED]). The tunnel washer room is a pass through system with soiled caging passing through the tunnel washer from dirty (room [REDACTED]) to clean (room [REDACTED]). The traffic flow pattern in the spray booth room is soiled into room [REDACTED] through the east door and clean out of room [REDACTED] through the south door.

The tunnel washer is a [REDACTED] with integrated Garbel waste bedding disposal dump station. It has three stages: 1) pre-wash for loose soil removal, 2) wash with detergent or acid, and 3) rinse with a sanitizing temperature of 180 degrees and a 220-degree dryer

C. Special Facilities [Guide, pp. 144-146, 150]

1. Specialized Types of Animal Housing

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

Hyperbaric pressure chambers (room [REDACTED]) for protocol G005236 (sheep) are not specifically housing, however the protocol states animals are approved for procedures lasting up to 25 hours in the chamber. No studies have occurred on this protocol as of May 2017.

2. Surgery [Guide, pp. 144-145]

- a. Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

The surgery facilities are conventional with minimal fixed equipment. The facilities are equipped and maintained by the [REDACTED] ([REDACTED] & [REDACTED]) or by the research group ([REDACTED] suite).

[REDACTED]: The surgery facilities are conventional with minimal fixed equipment. The facilities are equipped and maintained by [REDACTED] staff.

- b. Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

Walls:	Epoxy finish on concrete block.
Floors:	Quarry tile or epoxy coating over cement.
Ceilings:	Reinforced concrete, moisture resistant dry wall painted or suspended ceiling.
Ventilation Rate:	Approximately 22 changes/hour.
Lighting:	Standard fluorescent lights either recessed or hung.

Room [REDACTED] is equipped with biosafety cabinets, stainless steel tables, cabinets, sinks, hot, cold and RO water. Room [REDACTED] has a chemical fume hood.

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

No other specialized animal areas are in use.

4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

No other animal support facilities are provided.

D. Security and Access Control [Guide, p. 151]

Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.



IV. Physical Plant [Guide, pp. 133-151]: [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

The [REDACTED] is located in [REDACTED] (room [REDACTED]) of [REDACTED]. Daily upkeep of the Facility is managed by [REDACTED] (PI) and current members of his lab. Mechanical oversight is provided by the [REDACTED] building manager.

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

The frogs never leave the [REDACTED] – all husbandry and surgeries are performed in [REDACTED].

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

Conventional.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

Floors: The concrete floor is covered with fresh coat of epoxy paint.

Walls: The concrete block walls are covered with epoxy paint.

Door: The steel door is covered with epoxy paint.

Ceiling: The steel/concrete ceiling is covered with epoxy paint.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

Not applicable.

B. Functional Areas and Operations

1. **Heating, Ventilation, and Air-Conditioning (HVAC)** [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

The [REDACTED] has a forced-air, constant-velocity ventilation system. Temperature is controlled by a wall-mounted thermostat.

- b. Describe construction 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.

The [REDACTED] is housed in [REDACTED], thus lessening the risk of extreme temperature fluctuations.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

[REDACTED] facility air quality is monitored by lab personnel during their daily visits for husbandry/maintenance. Personnel are trained to report abnormal temperature/air flow conditions to the [REDACTED] building manager.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

None.

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

A [REDACTED] 4 cycle natural gas fed generator provides emergency power to egress lighting.

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

No power failures have occurred in the five years the [REDACTED] has been functional.

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

Lighting is standard T8 fluorescent lighting. The 12-hour light/dark cycle is controlled by a wall-mounted electronic programmable timer with a manual override.

3. **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 \(Section 2.f\)](#)

There have been no animal losses or known health problems associated with power outages or mechanical failure.

4. **Storage Areas** [Guide, pp. 141-142]

- a. Describe storage areas for feed and bedding, including temperature and vermin control.

Food is stored in a sealed plastic bag in a sealed plastic container off the floor. The [REDACTED] is maintained at 19°C.

- b. Describe storage areas for cages, equipment, supplies, etc.

All cleaning equipment and supplies are stored in an open shelving unit in [REDACTED].

- c. Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Not applicable.

5. **Facilities for Sanitizing Materials** [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

Tanks are cleaned by hand in a large single-bowl fiberglass utility tub in [REDACTED]. An accessory hose connected to the filtered water supply is used to prepare both the brine cleaning solution and subsequent rinsing.

C. **Special Facilities** [Guide, pp. 144-146, 150]

1. **Specialized Types of Animal Housing**

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

All housing is designed specifically for *Xenopus* frogs. A [REDACTED] recirculating system ensures that tank water is replaced every day.

2. Surgery [Guide, pp. 144-145]

- a. Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

Frog surgeries are performed on a stationary benchtop table in [REDACTED].

- b. Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

Floors: The concrete floor is covered with epoxy paint.

Walls: The concrete block walls are covered with epoxy paint.

Door: The steel door is covered with epoxy paint.

Ceiling: The steel/concrete ceiling is covered with epoxy paint.

Lighting: Standard fluorescent lights either recessed or hung.

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

Not applicable.

4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

Not applicable.

D. Security and Access Control [Guide, p. 151]

Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.

[REDACTED]

IV. Physical Plant [Guide, pp. 133-151]: [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

Animal facilities are located on [REDACTED]. Facility management consists of Director, Facility Manager and Facility Supervisor. The RARC Senior Program Veterinarian for VCRGE small animals provides program oversight.

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

The majority of the research labs are located on [REDACTED]. There are three labs ([REDACTED] and [REDACTED]) located in [REDACTED].

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

Conventional.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

Corridors: All corridors are 7 feet wide by 8 feet high. Corridors have suspended mineral fiber lay-in panels with a washable white factory finish. Floors are finished with vinyl sheet resilient flooring.

Animal Room Doors: Height is 84 inches; width is 40 inches. All rooms have painted steel doors with peepholes for viewing into the room.

Animal Room Floors: All animal room and procedure rooms are epoxy coating over cement.

Animal Room Walls: Painted concrete block. All joints are caulked with silicone.

Animal Room Ceilings: Plaster covered with epoxy paint. All joints are caulked with silicone.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

There are exterior windows in the following rooms:

Laundry/Storage	room
Clean Intake	room
Dirty Intake	room
Procedure	room

All windows have been sealed with caulk and painted. The windows pose an extremely minimal security risk due to [REDACTED].

B. Functional Areas and Operations

1. Heating, Ventilation, and Air-Conditioning (HVAC) [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

Four (4) air handling units, located on the [REDACTED], supply the [REDACTED]. Each animal housing room is controlled individually. Centralized monitoring is done by computer. Documentation is maintained with computerized recording and/or manual recording/graphing.

Area	Air changes/hour
Corridors	6 (at minimum)
Animal Housing	15
Procedure Rooms	15 or minimum required for make up air
Quarantine (rm [REDACTED])	15
[REDACTED]	15

- b. Describe construction 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.

[REDACTED] is equipped with backup generators in the event of power loss. A Cummins diesel generator with a [REDACTED] capacity provides [REDACTED] to egress lighting in the animal corridors plus one lamp in each animal holding room. It serves the [REDACTED]. The emergency HVAC system capacity is limited to air handling and exhaust components required to maintain the animal holding rooms within conditions.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

In 2014, the animal facility was upgraded to the [REDACTED], an automated room control and data monitoring system designed specifically for animal facilities. [REDACTED] controls animal room lighting in addition to monitoring temperature, humidity and lighting. [REDACTED] is a powerful animal facility management tool that

incorporates the important functions of automated recording and environmental data archiving to support research studies. [REDACTED] logs 24 (more, if desired) readings per day for temperature and humidity in each animal room. [REDACTED]

[REDACTED] Historical information is readily available through user-friendly reporting. [REDACTED]

[REDACTED] . The [REDACTED] receive alarms if temperature, humidity or room lighting are outside of the parameters.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

The [REDACTED] . Staff is trained to closely monitor airflow gauges and to immediately report any deviations to facility management during regular work hours, and on weekends and holidays.

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

Room temperature is [REDACTED] . Moderate thermal flow (convection) through exhaust system. Up to [REDACTED] of backup power for the HVAC, automated monitoring, and alarm systems is provided by the diesel generator described above.

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

The [REDACTED] animal facility has never experienced a power failure since reopening in May 2008 after a major remodeling.

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

Light fixtures are sealed fluorescent. All animal room lights are on individual timers that automatically provide light cycles that meet the investigators' research needs, with the most common being a 12-hour light/dark cycle. Light cycles can be changed, customized or [REDACTED] .

3. **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 \(Section 2.f\)](#)

None.

4. Storage Areas [Guide, pp. 141-142]

- a. Describe storage areas for feed and bedding, including temperature and vermin control.

Rodent feed is stored off the floor in Room [REDACTED] that is maintained at a temperature of 65-70° F. Room [REDACTED] is included in the IPM program maintained by [REDACTED].

- b. Describe storage areas for cages, equipment, supplies, etc.

- Clean cages and cage components in current use are stored in room [REDACTED].
- Clean equipment (other than cages and cage components) are stored in [REDACTED] and [REDACTED].
- Supplies are stored in rooms [REDACTED] and [REDACTED]. Individual investigators use workroom cabinets.

- c. Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Flammable or hazardous agents and materials are stored in [REDACTED].

5. Facilities for Sanitizing Materials [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

Location: Soiled Cage Wash is in room [REDACTED]. This also includes a spray booth [REDACTED]. Clean Cage Wash is in room [REDACTED].

Construction Features:

Walls are epoxy finish on concrete block.

Floors are epoxy coating over cement.

Ceilings are humidity resistant acoustic panels made out of high density, moisture resistant, non-perforated gypsum. All edges and faces are sealed and washable. The tiles are hung with aluminum grid. Each tile is clipped down and is individually sealed to the frame with a gasket.

Ventilation: Air changes in cage wash areas are equal to hood capture air quantity.

Equipment Flow Pattern: Dirty equipment is placed in room [REDACTED]. Equipment is either washed and sanitized using the tunnel washer or spray booth. Equipment is sent to clean cage wash (room [REDACTED]) automatically by the tunnel washer or physically passed through via the spray booth.

Personnel Traffic Flow: Personnel always work in a "clean to dirty" pattern.

C. Special Facilities [Guide, pp. 144-146, 150]

1. Specialized Types of Animal Housing

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

Not applicable.

2. Surgery [Guide, pp. 144-145]

- a. Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

facility has rooms dedicated to surgery and related activities (listed above). Investigators are required to perform survival surgery using modified aseptic technique. Policy 2008-035-v describes standards for survival surgery (<https://www.rarc.wisc.edu/policies.html> > Policies by Number).

- b. Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

All rooms are constructed identically to the animal housing rooms (description above). In addition, biosafety cabinets are used in surgery rooms inside the animal facility (rooms and).

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

A separate 13-room is available for use. Nine of the rooms have the requisite ventilation systems needed for housing and have light timers. Room usage details are:

and : Behavior suite dedicated mouse housing w/ventilated Innovive racks
 thru : Mouse behavior testing procedure room
 : Janitor closet
 : Supply/equipment storage
 : Behavior suite dedicated rat housing and occasional rat behavior procedure room.
 : Mouse procedure room
 : Rat behavior testing procedure room
 : Rat procedure room

The [REDACTED] is on the [REDACTED]. Staff put on clean PPE before entering the secure perimeter of the [REDACTED]. There is a sticky mat at the entrance. All staff are trained that following entry into the [REDACTED], they are not permitted to return to the general housing facility without showering and changing clothes. We forbid papers, notebooks, and other personal items from entering the [REDACTED]. Each room in the [REDACTED] has a networked computer. Documents, protocols, experimental notes, data, etc. are composed or collected electronically. We are attempting to create a paperless [REDACTED] to limit possible sources of contamination. Prior to opening the [REDACTED], all the equipment was moved into the suite and subjected to hydrogen peroxide decontamination (safe for electronics). New equipment and items are decontaminated by the dedicated animal care staff according to the relevant SOPs. Dirty polycarbonate caging from the [REDACTED] is autoclaved before being cleaned and washed. Disposable Innovive caging is sent to a plastics recycling service. Rats are restricted to rooms [REDACTED] and [REDACTED] and only mice are allowed into the [REDACTED] suite. Animals are not allowed to return to the main vivarium.

4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

One animal housing room ([REDACTED]) is used for husbandry preparation. Extra housing cages are assembled, medicated water pouches are prepared for investigators, and clean equipment is stored in this room.

D. Security and Access Control [Guide, p. 151]

Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.



IV. Physical Plant [Guide, pp. 133-151]: [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

In April of 2012, the WNPRC leased a 19,000 ft² vivarium located in [REDACTED] to perform NHP quarantine and holding. The 10-year old [REDACTED] facility was constructed, renovated, and used by [REDACTED] to quarantine and perform biomedical contract research on macaques and marmosets. [REDACTED]. [REDACTED] provides the daily supervision of the animal holding areas of this building and reports directly to the [REDACTED]. [REDACTED] acts as the on-site [REDACTED] building manager.

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

There are no research laboratories currently located at [REDACTED].

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

The [REDACTED] facility consists of four adjacent 40-animal quarantine suites separated from two large animal holding rooms (hold 100 animals each) separated by a dirty corridor. The facility also contains three additional large holding rooms (one housing marmosets in group caging, one housing macaques in group caging, and one used as a storage room) separated from the two holding rooms listed above by a clean/dirty corridor.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

All the flooring in the animal holding rooms in the [REDACTED] vivarium were recently resurfaced with a cementitious epoxy product. The walls of the animal rooms are constructed of concrete masonry units (CMUs) covered with two coats of block filler and epoxy paint. The walls in all the animal rooms are also protected from caging by 2-inch diameter stainless steel piping. The ceilings of the animal rooms are constructed of epoxy-painted, waterproof gypsum board. Each animal room door is metal covered with enamel paint and equipped with a stainless steel protective plate. Each animal room doorway is 84 inches high and 36 inches wide.

The flooring in the remainder of the vivarium was also resurfaced with a cementitious epoxy product. The walls of the remainder of the vivarium are CMUs covered with two layers of block filler covered by epoxy paint. The ceilings of all procedure rooms where animals are used are constructed of epoxy-painted, waterproof gypsum board and equipped with recessed and gasketed fluorescent lighting.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

No exterior windows are present in the [REDACTED] animal holding or procedure areas.

B. Functional Areas and Operations

1. Heating, Ventilation, and Air-Conditioning (HVAC) [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

[REDACTED] is heated by [REDACTED]
[REDACTED]
[REDACTED] - the air is filtered in three stages: before heat recovery system, before the heat & cooling with bag filters, and by 99.9+% HEPA's before discharge. All the animal rooms are maintained at negative pressure relative to the hallways and are supplied with 16-23 air changes per hour. The building is also equipped with redundant air compressors. The temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED]. Temperature and humidity levels are recorded every 30 minutes by the building automation network. [REDACTED]
[REDACTED]

- b. Describe construction 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.

As stated previously, the temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED]. Temperature and humidity levels are recorded every 30 minutes by the building automation network. [REDACTED]
[REDACTED] Physical Plant personnel are on-call 24 hours per day, seven days a week to address any environmental emergencies that occur at a WNPRC vivarium.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

As previously described, the [REDACTED] Building Manager and WNPRC Facilities Manager monitor all pressure, ventilation, and temperature set points.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

As stated previously, the temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED]. Temperature and humidity levels are recorded every 30 minutes by the building automation network. [REDACTED] Physical Plant personnel are on-call 24 hours per day, seven days a week to address any environmental emergencies that occur at a WNPRC vivarium.

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

The [REDACTED] facility is equipped with a [REDACTED].

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

The building has experienced only 1 significant power outage since it was inhabited by the WNPRC in 2012. The emergency power generator was used for three hours until the main building power could be restored.

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

Each housing room is equipped with recessed and gasketed fluorescent lighting. Room lights are on individual timers that automatically provide a 12-hour light/dark cycle and can be adjusted to provide specialized cycles when needed. Each room has a manual override mechanism so lights can be turned on after hours in emergency situations.

3. 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 \(Section 2.f\)](#)

There have been no animal losses or known health problems associated with any power outages at the [REDACTED] facility.

4. Storage Areas [Guide, pp. 141-142]

- a. Describe storage areas for feed and bedding, including temperature and vermin control.

Feed is stored off the floor in a room on the [REDACTED] receiving dock. This room has temperature and humidity control similar to the remainder of the vivarium. [REDACTED] uses a variety of methods, such as routine inspection of facility, bi-monthly monitoring of pest traps placed in the feed and bedding room, and insect/rodent proofing to ensure that this room remains pest free. The diet prep room (Room [REDACTED]) is equipped with upright refrigerators and freezers for the storage of fresh fruit and vegetable and edible enrichment objects.

- b. Describe storage areas for cages, equipment, supplies, etc.

Clean cages can be stored in Rooms [REDACTED], and [REDACTED]. The [REDACTED] dock provides ample room for storing equipment. A variety of supplies are stored in Room [REDACTED].

- c. Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Chemicals for the automatic cage washer are stored in room [REDACTED]. Boiler chemicals are stored in Room [REDACTED]. Smaller bottles of disinfectant or other hazardous agents are stored in secondary containers in under-sink cabinets.

5. Facilities for Sanitizing Materials [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

[REDACTED] has a 1050 ft² cage wash suite that is equipped with a [REDACTED] cage washer that can accommodate three nonhuman primate four-bank cages at one time. The cage wash suite is located north of the quarantine and holding rooms.

C. Special Facilities [Guide, pp. 144-146, 150]

1. Specialized Types of Animal Housing

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

Not applicable.

2. Surgery [Guide, pp. 144-145]

- a. Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

[REDACTED] is not equipped with facilities to support major surgical procedures. All animals housed at [REDACTED] that require major surgery are transported to WNPRC [REDACTED] or the [REDACTED] facility. Minor surgical procedures (e.g., digit amputations, primary closure of wounds) are performed in Rooms [REDACTED] or [REDACTED].

- b. Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

The [REDACTED] facility does not contain any operating rooms.

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

Not applicable.

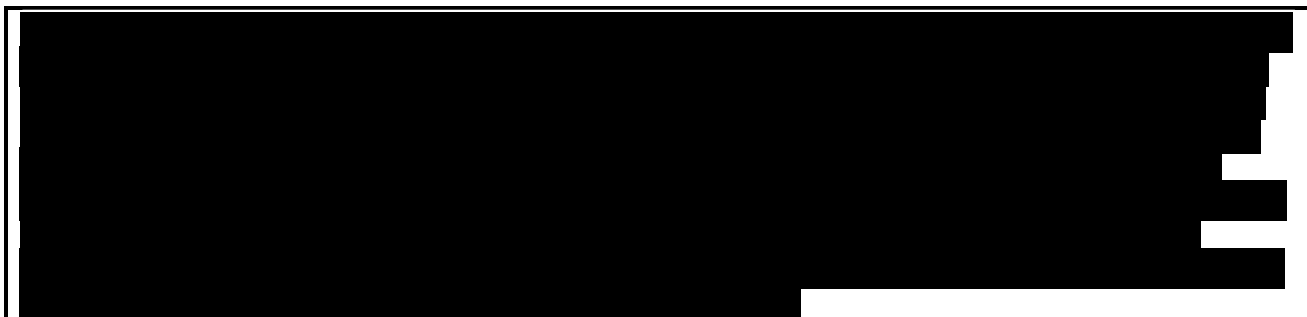
4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

Not applicable.

D. Security and Access Control [Guide, p. 151]

Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.



IV. Physical Plant [Guide, pp. 133-151]: [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

[REDACTED] of the WNPRC is located at [REDACTED] on the UW-Madison Campus. The animal rooms and experimental spaces in this building are located in [REDACTED]. [REDACTED] currently provides the daily supervision of the animal holding areas of this building and reports directly to the [REDACTED].

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

Several neuroscientists have animals housed in [REDACTED] directly adjacent to their experimental spaces. NHP are infrequently taken out of the animal facility to research laboratories at the [REDACTED]. The animals are never housed at the [REDACTED], remaining there only for up to 2½ hours for experimental procedures.

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

Each floor of the animal facility in [REDACTED] consists of nonhuman primate holding rooms or group pens and animal care support/experimental spaces located directly off a central hallway, thus there is no clean/dirty corridor. The [REDACTED] is dedicated to "viral free" rhesus and cynomolgus macaques and the [REDACTED] are dedicated to SPF rhesus and cynomolgus macaques. Some animals living in this building are moved to specialized recording chambers/rooms for neuroscience experiments that last up to 11 hours. No animals are ever in a laboratory.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

All animal rooms and pens in [REDACTED] are composed of quarry tile floors with epoxy grout, ceramic tile walls, and either masonry ceilings, sealed with epoxy paint or RFP panels. All the animal holding room doors in [REDACTED] slide horizontally, are constructed of steel painted with enamel paint. Some doors to support spaces are wood, sealed with a waterproof agent that is sanitizable, and are equipped with stainless steel kick plates. The surgical suite has a tiled floor, and epoxy painted cinder block walls.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

The animal holding rooms and procedure areas in [REDACTED] have no exterior windows.

B. Functional Areas and Operations

1. Heating, Ventilation, and Air-Conditioning (HVAC) [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

The air-handling units located [REDACTED] supply 100% outside air with no recirculation of exhaust air and have the capability to supply 10-15 air changes per hour to each animal holding room. The temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED] system. Temperature and humidity levels are recorded every 30 minutes by the [REDACTED] system. The systems are programmed to send [REDACTED] when the temperature is $\pm 5^\circ$ from the set point. When the temperature reaches $\pm 10^\circ$ from set point, an [REDACTED].

- b. Describe construction 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.

As stated previously, the [REDACTED] monitoring system is programmed to send an automated text and e-mail to the [REDACTED] in response to an alarm of high or low environmental conditions. Physical plant personnel are on-call 24 hours per day, seven days a week to address any environmental emergencies that occur at a WNPRC vivarium.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

The previously described METASYS system monitors all pressure, ventilation, and temperature set points.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

As described above, the system is programmed to send an automated text to the facility manager in response to a power failure or an alarm of high or low environmental conditions (temperatures of $< 65^\circ\text{F}$ or $> 75^\circ\text{F}$). The temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED]

system. Temperature and humidity levels are recorded every 30 minutes by the [REDACTED] system. The systems are programmed to send an automated text to the [REDACTED] when the temperature is $\pm 5^\circ$ from the set point. When the temperature reaches $\pm 10^\circ$ from set point, [REDACTED].

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

To supply the electrical needs of the campus an extensive electrical grid system, consisting of 13,800 and 4,160 volt transmission and feeder circuits crisscross the campus in various duct banks and tunnels. This energy is brought in at five physical locations (substations) bordering campus on three sides. These substations provide circuit switching flexibility to allow for maintenance and emergency situations.

Each individual building is fed from a “loop” configuration on this medium voltage system to insure backup power in the event of a single grid entity failure. This voltage is converted to usable building voltage at single or multiple transformer rooms within the facility.

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

The building has experienced very infrequent power outages since the last AAALAC site visit but none of them have lasted long enough to affect the comfort or well-being of the NHP colonies.

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

Light fixtures are sealed fluorescent, and electrical outlets are both waterproof and protected by ground fault circuit interrupters. All animal room lights are on individual timers that automatically provide a 12-hour light/dark cycle and can be adjusted to provide specialized cycles when needed. Each room has a manual override mechanism so lights can be turned on after hours in emergency situations.

3. **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 \(Section 2.f\)](#)

There have been no animal losses or known health problems associated with power, HVAC, or other life support system outages since our last AAALAC site visit.

4. **Storage Areas** [Guide, pp. 141-142]

- a. Describe storage areas for feed and bedding, including temperature and vermin control.

Dry chow is stored on pallets in Room [REDACTED]. Fruits, vegetables, and enrichment items are stored in kitchens in [REDACTED] (Room [REDACTED]), on [REDACTED] (Room [REDACTED]) and on [REDACTED] (Room [REDACTED]). [REDACTED] monitors all storage room for signs of pests and treats the areas accordingly.

- b. Describe storage areas for cages, equipment, supplies, etc.

Mobile cages used to house animals while their primary enclosures are being sanitized are stored in washrooms in [REDACTED] (Room [REDACTED]), on [REDACTED] (Room [REDACTED]) and on [REDACTED] (Room [REDACTED]). A majority of supplies for the building are stored in a large storage room located in [REDACTED] (Room [REDACTED]).

- c. Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Disinfectants are generally stored in the washrooms in [REDACTED] (Room [REDACTED]), on [REDACTED] (Room [REDACTED]) and on [REDACTED] (Room [REDACTED]) but may also be stored on the building's dock. Smaller bottles of disinfectant or other hazardous agents are stored in secondary containers in under-sink cabinets.

5. **Facilities for Sanitizing Materials** [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

All stationary and mobile caging in [REDACTED] is stationary and thus is sanitized in place using disinfectant and high pressure hoses. During the sanitization procedure, animals are placed in portable "four-bank" cages. These portable cages are sanitized between uses in the wash bays (Rooms [REDACTED], and [REDACTED]).

C. **Special Facilities** [Guide, pp. 144-146, 150]

1. **Specialized Types of Animal Housing**

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing

certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

Not applicable.

2. Surgery [Guide, pp. 144-145]

- a.** Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

██████████ has a surgical suite located on ██████████. This suite consists of a surgical prep area (Room ██████████, 111 ft²), a surgeon's scrub/instrument and supply prep area (Room ██████████, 138 ft²), operating room (Room ██████████, 197 ft²), and a recovery area (Room ██████████, 118 ft²).

- b.** Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

The operating room has a quarry-tiled floor, epoxy painted cement block walls, explosion-proof outlets, and a scavenger system for waste anesthetic gases. The operating room is maintained at positive pressure in relation to the adjacent surgeon's scrub and instrument prep area and is supplied with 100% fresh air. The operating room is equipped with two [REDACTED] heated surgery tables, pulse oximeters, anesthesia machines with isoflurane vaporizers, a [REDACTED] patient warming system, and [REDACTED] Surgical lights.

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

Rooms [REDACTED] and [REDACTED] are used to house chair restrained animals undergoing neuroscience procedures. Room [REDACTED] is equipped with multiple cameras used to perform activity monitoring in hemi-Parkinsonian animals. There is a Faraday cage in room [REDACTED] that is used for electrophysiological recording.

4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

Not applicable.

D. Security and Access Control [Guide, p. 151]

Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.



IV. Physical Plant [Guide, pp. 133-151]: [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

This building and its addition, which are located [REDACTED], contains laboratories, staff offices, animal housing, and support areas totaling 68,472 ft². The [REDACTED] is devoted to animal care facilities including [REDACTED] and animal care supervisor offices, SPF animal housing, experimental/clinical procedure space, and animal husbandry support areas (e.g., cage washing suite, food preparation and storage).

The [REDACTED] consists of laboratory space, staff offices, a general stockroom, marmoset housing, a large surgery suite, experimental/clinical procedure space, a necropsy suite, histopathology and clinical pathology laboratories, and animal husbandry support areas.

The [REDACTED] consists of staff and administrative offices, conference rooms, conventional animal housing, experimental/clinical procedure space, and animal husbandry support areas.

[REDACTED] and [REDACTED] provide the daily supervision of the animal holding areas of this building and report directly to the [REDACTED].

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

NHPs are infrequently taken out of the animal facility and taken to research laboratories at the [REDACTED]. The animals are never housed at the [REDACTED], remaining there only for up to 2½ hours for experimental procedures.

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

Each animal floor in [REDACTED] is rectangular in shape with two or three corridors transecting the space creating two or three banks of conventional animal holding rooms.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

Each of the animal holding rooms in [REDACTED] has troweled-on epoxy aggregate flooring, ceramic tile walls, and FRP ceilings. Doors to animal rooms in [REDACTED] are fiberglass.

All animal rooms in [REDACTED] have troweled-on epoxy aggregate floors, cement block epoxy painted walls, and gypsum board epoxy painted ceilings. The doors to the animal rooms in [REDACTED] are epoxy painted metal and are equipped with stainless steel kick plates.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

The animal holding rooms and procedures in [REDACTED] have no exterior windows.

B. Functional Areas and Operations

1. Heating, Ventilation, and Air-Conditioning (HVAC) [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

Air-handling units are located [REDACTED] and supply 100% outside air with no recirculation of exhaust air, and have the capability to supply 10-15 air changes per hour to each animal holding room. All animal holding rooms and the necropsy suite are maintained at negative pressure in relation to the hallways. Holding rooms are monitored for pressure differentiation and will alarm should a room become positively pressurized in relation to the corridor. The temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED] system. Temperature and humidity levels are recorded every 30 minutes by the [REDACTED] system. The systems are programmed to send an automated text to the [REDACTED] when the temperature is $\pm 5^\circ$ from the set point. When the temperature reaches $\pm 10^\circ$ from set point, [REDACTED].

- b. Describe construction 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.

As stated previously, the [REDACTED] monitoring system is programmed to send an automated text to the [REDACTED] in response to an alarm of high or low environmental conditions. Physical plant personnel are on-call 24 hours per day, seven days a week to address any environmental emergencies that occur at a WNPRC vivarium.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

The previously described METASYS system monitors all pressure, ventilation, and temperature set points.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

As described above, the system is programmed to send an automated text to the [REDACTED] in response to a power failure or an alarm of high or low environmental conditions (temperatures of < 65°F for rhesus, < 75°F for marmosets or > 75°F for rhesus and 85°F for marmosets). The temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED] system. Temperature and humidity levels are recorded every 30 minutes by the [REDACTED] system. The systems are programmed to send an automated text to the WNPRO [REDACTED] when the temperature is $\pm 5^\circ$ from the set point. When the temperature reaches $\pm 10^\circ$ from set point, [REDACTED]. [REDACTED]

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

A [REDACTED] generator, housed in room [REDACTED], provides emergency power for all essential functions for [REDACTED].

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

The Building has experienced very infrequent power outages since the last AAALAC site visit but none of them have lasted long enough to affect the comfort or well-being of the NHP colonies.

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

Light fixtures are sealed fluorescent, and electrical outlets are both waterproof and protected by ground fault circuit interrupters. All animal room lights are on individual timers that automatically provide a 12-hour light/dark cycle and can be adjusted to provide specialized cycles when needed. Each room has a manual override mechanism so lights can be turned on after hours in emergency situations.

3. **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 \(Section 2.f\)](#)

There have been no animal losses or known health problems associated with any power outages.

4. Storage Areas [Guide, pp. 141-142]

- a. Describe storage areas for feed and bedding, including temperature and vermin control.

Dry chow is stored off the floor on pallets in Room [REDACTED]. Fruits, vegetables, and enrichment items are stored in [REDACTED] (Room [REDACTED]), on [REDACTED] (Room [REDACTED]) and on [REDACTED] (Room [REDACTED]). Marmoset diet is stored in refrigerators and freezers in Room [REDACTED]. Plunkett's Pest Control monitors all storage room for signs of pests and treats the areas accordingly. Bedding for the marmoset group enclosures is stored in Room [REDACTED].

- b. Describe storage areas for cages, equipment, supplies, etc.

A majority of the clean mobile caging used in [REDACTED] is stored on the clean side of the cage washer in Room [REDACTED]. The building is also equipped with multiple storage rooms and closets [REDACTED].

- c. Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Disinfectants used in the cage washer are stored in Room [REDACTED]. The building is also equipped with multiple storage closets [REDACTED]. Smaller bottles of disinfectant or other hazardous agents are stored in secondary containers in under-sink cabinets.

5. Facilities for Sanitizing Materials [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

Some animal caging on [REDACTED] is stationary and thus is sanitized in place using disinfectant and high pressure hoses. During the sanitization procedure, animals are placed in clean, mobile "four-bank" cages located in [REDACTED] of their room. These portable cages are sanitized between uses in the cage wash bay ([REDACTED]). The stationary caging will soon be replaced with portable caging and novel pen enclosures that can be sanitized in the cage washer.

[REDACTED] is equipped with a [REDACTED] cage washer. The cage wash suite is also equipped with a portable high pressure sprayer. All animal caging on [REDACTED] and some on [REDACTED] is mobile caging and thus is transported to the dirty side of the cage washer ([REDACTED]), cleaned of gross debris using a power sprayer, and then sanitized in the cage washer ([REDACTED]).

The mobile 8.0 cages used on [REDACTED] are too large to fit in the cage washer so they are washed with a portable power sprayer in the wash bay on the dirty side of the cage sanitation suite.

The cage sanitization suite in [REDACTED] consists of three areas: an area for the decontamination of soiled cages ([REDACTED]), a cage washer ([REDACTED]), and an area to store clean cages ([REDACTED]).

C. Special Facilities [Guide, pp. 144-146, 150]

1. Specialized Types of Animal Housing

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

Not applicable.

2. Surgery [Guide, pp. 144-145]

- a. Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

[REDACTED] has a surgical suite located on [REDACTED]. This suite consists of a surgical prep/exam area (Room [REDACTED], 504 ft²), surgeon's scrub (Room [REDACTED], 94 ft²), 2 operating rooms ([REDACTED], 276 ft² and [REDACTED], 234 ft²), support areas for instrument sterilization, pack preparation and scrub/drape laundering (Room [REDACTED], 351 ft² and Room [REDACTED], 206 ft²), and a macaque recovery room (Room [REDACTED], 335 ft²).

- b. Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

All rooms of the surgery suite consist of epoxy aggregate floors, cement block epoxy painted walls, gypsum board epoxy painted ceilings, and recessed lighting. Light fixtures are sealed fluorescent, and electrical outlets are both waterproof and protected by ground fault circuit interrupters. Both operating rooms are equipped with an intercom, stainless steel cabinetry, and sinks. The rooms are also equipped with a retractable gas column, containing air, oxygen, and gas evacuation. These columns alleviate the need to have gas cylinders in the surgery suite as the gases are piped from a central storage area instead. Specialized equipment for the two operating rooms include [REDACTED] heated surgery tables, anesthesia machines with an isoflurane vaporizers, multiple infusion pumps, a [REDACTED] patient warming system, and [REDACTED] surgical lighting. All the electrical systems in the surgery area are linked to the emergency power generator located in the basement of the addition. Each operating room is maintained at positive pressure in relation to the adjacent support rooms.

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

Room [REDACTED] on [REDACTED] is used as a dental suite. It is equipped with an examination table with a tub sink, a digital radiography unit, and a variety of dental equipment used to clean and/or extract teeth. Room [REDACTED] on [REDACTED] is a radiographic suite that houses a standard radiographic unit with a table.

4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

Not applicable.

D. Security and Access Control [Guide, p. 151]

Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.



IV. Physical Plant [Guide, pp. 133-151]: **WNPRC**, [REDACTED]

Repeat this section for each animal housing area, including agricultural settings, temporary holding areas for field studies, aquatic environments, and each IACUC/OB approved satellite housing facility. Include as an appendix the floor plans of each (if applicable) on 8.5" x 11" or A4 paper.

A. Location and Construction Guidelines

1. Note the location (building, floor, wing, etc.) of the animal facility(ies). Describe the management structure and program oversight for each of the areas listed in this section.

The [REDACTED] NHP vivarium, which was completed in April of 2009, is a 30,000 ft², [REDACTED] facility located on [REDACTED] of the UW-Madison campus. The facility consists of staff offices, animal housing rooms, animal husbandry support space, and ample clinical, surgical, and experimental procedure space.

[REDACTED] provides the daily supervision of the animal holding areas of this building and reports directly to the [REDACTED].

2. Describe the physical relationship of the animal facilities to the research laboratories where animals may be used.

[REDACTED] is a unique NHP vivarium as the facility contains holding rooms that are adjacent to laboratories where animal procedures occur thus increasing efficiency for the investigators and improving communication between the animal care/veterinary staff and research personnel.

3. Describe the general arrangement of the animal facilities (e.g., conventional, clean/dirty corridor, etc.). For animals that are maintained in a laboratory in order to satisfy the scientific aims of a protocol, describe the housing and care provided and the maximum period of stay required.

The [REDACTED] vivarium consists of a central corridor from which four corridors extend. Two of the corridors that extend off the central corridor are for animal holding (one of the corridors is dedicated to Specific Pathogen Free macaques and one is dedicated to conventional macaques), the third corridor is for animal holding and lab space and the fourth corridor leads to the [REDACTED] NHP surgical suites.

4. Describe finishes throughout the animal facility(ies) for floors, walls, ceilings, doors, alleyways, and gates. Note any areas that are not easily sanitized and describe how these areas are maintained.

All the animal holding rooms in the [REDACTED] vivarium have epoxy flooring with a broadcast aggregate finish. The walls of the animal rooms are constructed of concrete masonry units (CMUs) covered with two coats of block filler. To provide extra protection, the walls of the animal rooms are covered with a fiberglass reinforced epoxy material. This material extends to at least 54 inches above the floor, thus covering the entire wall area that may be exposed to waste material from the NHP cages. The remainder of the walls are covered with epoxy paint. The walls in all the animal rooms are also protected from caging by 2-inch diameter stainless steel piping. The ceilings of the animal rooms are constructed of epoxy-painted,

waterproof gypsum board. Each animal room door is metal covered with epoxy paint and equipped with a stainless steel kick plate. Each animal room doorway is 96 inches high and 48 inches wide.

The flooring in the remainder of the vivarium also consists of epoxy with a broadcast aggregate finish. The walls of the remainder of the vivarium are CMUs covered with two layers of block filler covered by epoxy paint. The ceilings of all procedure rooms where animals are used are constructed of epoxy-painted, waterproof gypsum board and equipped with recessed and gasketed fluorescent lighting. The ceilings of the corridors are equipped with suspended, 2 ft. x 2 ft. clean room grade tiles with security clips to prevent the tiles from moving in the event that an animal would escape into a corridor.

5. If [exterior windows](#) are present within the animal housing or procedure areas, describe IACUC/OB consideration regarding temperature and photoperiod control, as well as potential security risks.

No exterior windows are presenting the [REDACTED] animal holding or procedure areas.

B. Functional Areas and Operations

1. Heating, Ventilation, and Air-Conditioning (HVAC) [Guide, pp. 139-140, 143]

- a. Describe the mechanical systems used to provide temperature, humidity and air pressure control. Include details such as the use of variable air volume (VAV) systems, and additional key features of HVAC systems affecting performance.

The HVAC system of the [REDACTED] vivarium supplies 100% outside air with no recirculation of exhaust air and has the capability to supply 10-15 air changes per hour to each animal holding room. All animal holding rooms and the necropsy suite are maintained at negative pressure in relation to the hallways. Holding rooms are monitored for pressure differentiation and the pressures can be monitored continuously on the Building Automation Network. The surgery suites are maintained at positive pressure in relation to the corridor. The temperature and humidity level of each animal holding room are controlled and monitored continuously by a [REDACTED] system. Temperature and humidity levels are recorded every 30 minutes by the [REDACTED] system. The systems are programmed to send an automated text and e-mail to the [REDACTED] when the temperature is $\pm 5^{\circ}$ from the set point. When the temperature reaches $\pm 10^{\circ}$ from set point, an [REDACTED]. [REDACTED]

- b. Describe construction 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.

As stated previously, the [REDACTED] monitoring system is programmed to send an automated text and e-mail to the [REDACTED] in response to an alarm of high or low environmental conditions. Physical plant personnel are on-call 24 hours per day, seven days a week to address any environmental emergencies that occur at a WNPRC vivarium. [REDACTED]

████████████████████. The air handling unit at ██████ will never exceed 77 °F discharge air.

- c. Describe how critical air pressures, ventilation, and temperature are monitored and maintained in the event of a system or component failure.

The previously described ██████ system monitors all pressure, ventilation, and temperature set points.

- d. Describe procedures for monitoring animal facility mechanical systems and notifying appropriate personnel in the event of a significant failure that occurs outside regular work hours.

As stated previously, the ██████ monitoring system is programmed to send an automated text and e-mail to the ██████ in response to a mechanical systems failure. Physical plant personnel are on-call 24 hours per day, seven days a week to address any environmental emergencies that occur at a WNPRC vivarium.

2. Power and Lighting [Guide, p. 141]

- a. Note if emergency power is provided for the animal facility and if so, what electrical services and equipment are maintained in the event the primary power source fails.

██████████ generators will provide emergency power for all essential functions in the ██████ vivarium.

- b. Give history of power failures for the animal facility. Note frequency and duration. If emergency power was not available during a power failure, describe steps taken to ensure the comfort and well-being of the animals and the temperature extremes reached in the animal rooms during the failure.

The building has experienced intermittent power outages since it opened in 2009 but none of them have lasted long enough to affect the comfort or well-being of the NHP colonies.

- c. Describe lighting system(s) for the animal housing facility(ies). For each species or holding room type, list light intensity, photoperiod (Light:Dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems automatically controlling photoperiod, describe override mechanisms.

Each housing room is equipped with recessed and gasketed fluorescent lighting. Room lights are on individual timers that automatically provide a 12-hour light/dark cycle and can be adjusted to provide specialized cycles when needed. Each room has a manual override mechanism so lights can be turned on after hours in emergency situations.

3. **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 \(Section 2.f\)](#)

There have been no animal losses or known health problems associated with any power outages at the [REDACTED] facility.

4. Storage Areas [Guide, pp. 141-142]

- a. Describe storage areas for feed and bedding, including temperature and vermin control.

Feed and bedding is stored off the floor in a room on the [REDACTED] dock (Room [REDACTED]). This room has temperature and humidity control similar to the remainder of the vivarium. [REDACTED] uses a variety of methods, such as routine inspection of facility, bi-monthly monitoring of pest traps placed in the feed and bedding room, and insect/rodent proofing to ensure that this room remains pest free. The diet prep room (Room [REDACTED]) is equipped with upright refrigerators and freezers for the storage of fresh fruits and vegetables and edible enrichment objects.

- b. Describe storage areas for cages, equipment, supplies, etc.

The [REDACTED] vivarium is equipped with a large area for the storage of clean caging (Room [REDACTED]). The [REDACTED] dock consists of several support rooms including an expendables storage room (Room [REDACTED]), an empty and full gas cylinder storage area (Room [REDACTED]), a cage washer detergent/acid storage area (Room [REDACTED]), and a carcass and biohazardous waste storage area.

- c. Describe storage areas for flammable or hazardous agents and materials (e.g., disinfectants, pesticides, fuel).

Large containers of disinfectant are stored on the dock in an area that is graded markedly towards the wall so that any spillage can be contained. Smaller bottles of disinfectant or other hazardous agents are stored in secondary containers in under-sink cabinets.

5. Facilities for Sanitizing Materials [Guide, pp. 153]

Describe for each cage sanitation area its location, the traffic flow pattern (soiled to clean, or in and out) within the facility, and kinds of equipment (tunnel washer, bottle washer, rack washer, etc. and other related equipment such as bedding dispensing units).

The cage wash suite of the [REDACTED] vivarium is located directly north of the surgical suite and consists of a staging area for soiled cages (Room [REDACTED]), a wash down area equipped with a power sprayer ([REDACTED]), a [REDACTED] cage washer, and a large area for the storage of clean caging (Room [REDACTED]). The [REDACTED] cage wash unit has the capacity to hold two 4-bank NHP cages at one time.

C. Special Facilities [Guide, pp. 144-146, 150]**1. Specialized Types of Animal Housing**

Note specialized types of available animal housing spaces such as barrier, hazard containment (infectious, radioactive, chemical), "animal cubicles" (also known as "Illinois Cubicles", "Horsfal Cubicles," and "animal modules"), or facilities designed specifically for housing certain species such as aquatic or agricultural animals (e.g., barns, feedlots). [Guide, pp. 160-161]

Not applicable.

2. Surgery [Guide, pp. 144-145]

- a. Describe facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery.

The [redacted] vivarium is outfitted with a six-room surgery suite consisting of an animal prep room (Room [redacted]), 2 two-table operating rooms (Rooms [redacted] and [redacted]), an intensive care unit (Room [redacted]), an instrument prep and cleaning room (Room [redacted]) and a clinical treatment room (Room [redacted]). Room [redacted] is used to prepare animals for surgery and is equipped with ample casework to store all equipment necessary for this task. Each operating room is equipped with two heated surgical tables, retractable gas columns, and dual headed, surgery lights. The western-most wall of each operating room consists of large glass-fronted pass-through cabinets that are used for the storage of sterile surgical packs, suture material, and all the other myriad equipment necessary to perform minor and major surgical procedures. The ICU (Room [redacted]) is large enough to hold four mobile four-bank caging units that are used for animals recovering from surgery and for animals needing extended post-surgical monitoring. The room is also equipped with wall-mounted heat lamps to provide supplemental temperature support for recovering or compromised animals. Room [redacted] is used for the disinfection, sterilization, packaging, and storage of surgical instruments. The room is equipped with ample casework and a large autoclave that is used for the sterilization of equipment. Room [redacted] is used for the treatment of post-surgical animals needing specialized care such as fluid therapy. This room is also used for non-surgical but compromised animals requiring intensive care. The room is equipped with ample casework and an examination table. A large surgeons' scrub sink is located in an alcove between the two operating rooms.

- b. Describe construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and enhance contamination control.

All rooms of the surgery suite consist of epoxy aggregate floors, cement block epoxy painted walls, gypsum board epoxy painted ceilings, and recessed lighting. Light fixtures are sealed fluorescent, and electrical outlets are both waterproof and protected by ground fault circuit interrupters. Both operating rooms are equipped with an intercom, stainless steel cabinetry, and sinks. The rooms are also equipped with a retractable gas column, containing air, and oxygen supply. These columns alleviate the need to have gas cylinders in the surgery suite as the gases are piped from a central storage area instead. All the electrical systems in the surgery area are linked to the emergency power generator for the facility. Each operating room is maintained at positive pressure in relation to the adjacent support rooms.

3. Other Specialized Animal Use Facilities [Guide, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

Room [REDACTED] and Rooms [REDACTED], and [REDACTED] contain specially designed chambers to house an individual animal undergoing behavioral testing or electrophysiological testing on IACUC/OB approved neuroscience protocols. Rooms [REDACTED] and [REDACTED] are specially equipped rooms designed for ophthalmology research. Room [REDACTED] contains a decommissioned MRI unit used to train animals involved in neuroscience experiments.

4. Other Animal Support Facilities

Describe other facilities providing animal care and use support, such as food preparation areas, feedmills, abattoirs, etc.

Not applicable.

D. Security and Access Control [Guide, p. 151]

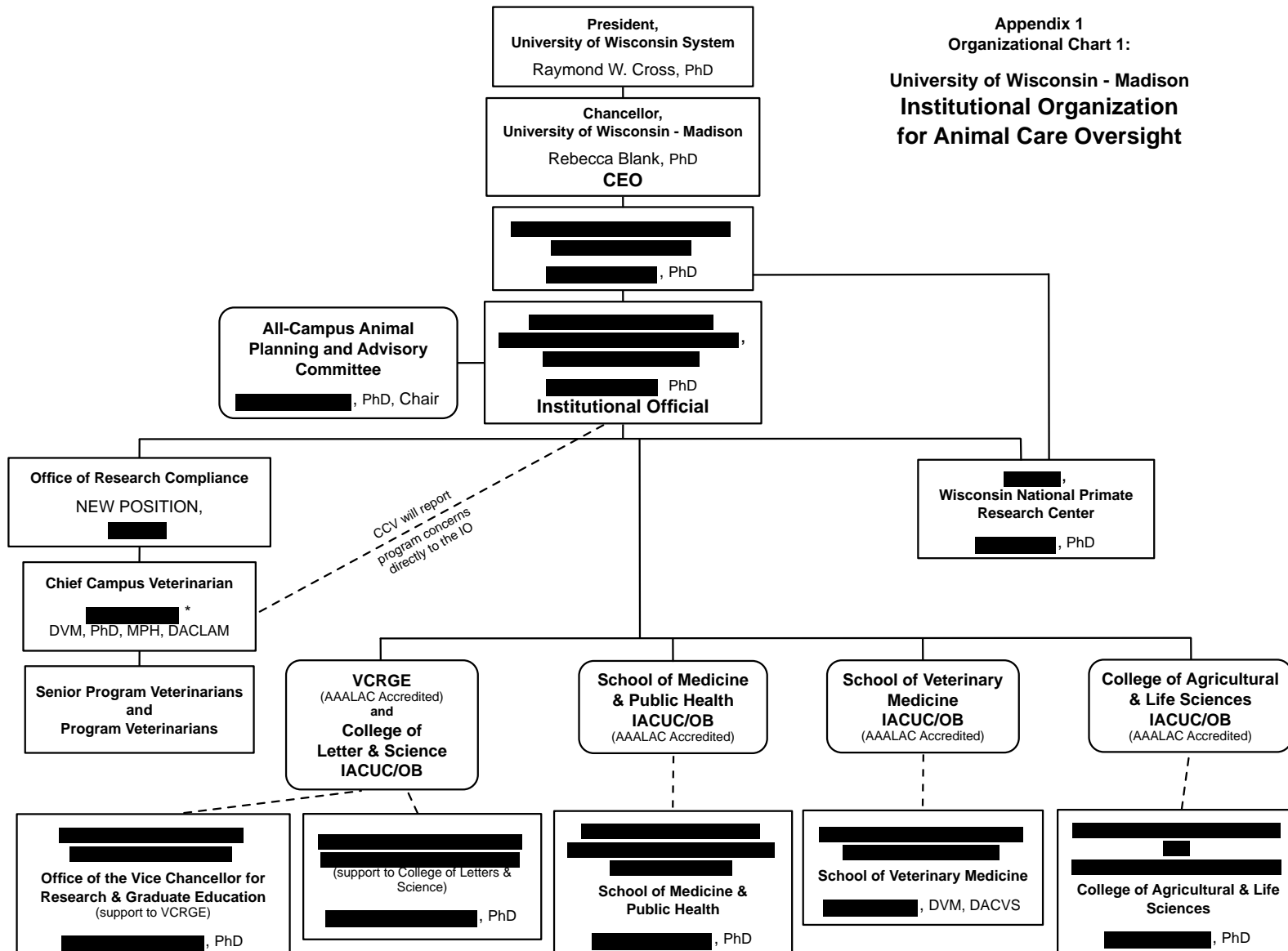
Describe such features as control of entry, perimeter fences, gates, entryways, cameras, guards.

[REDACTED]

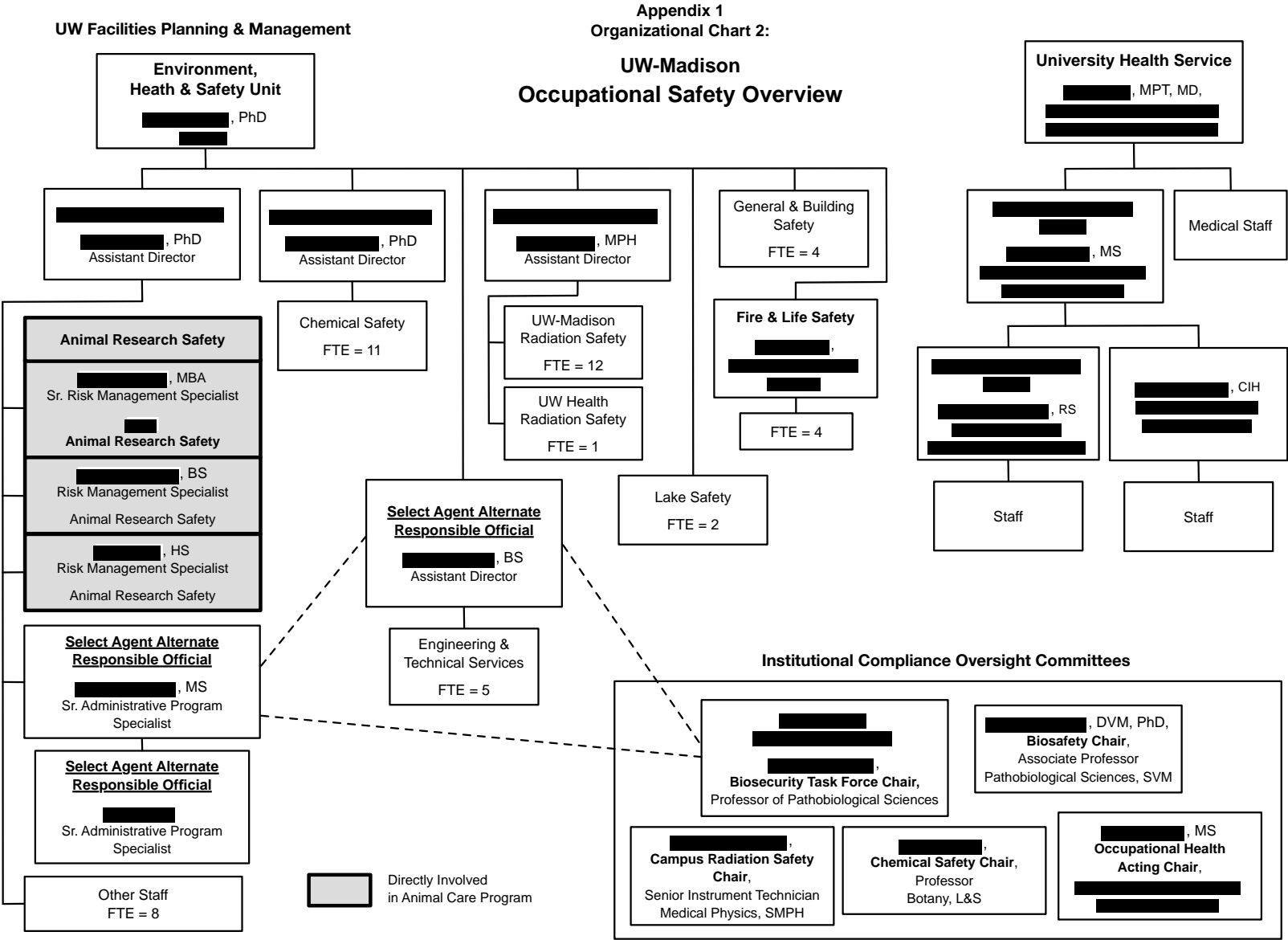
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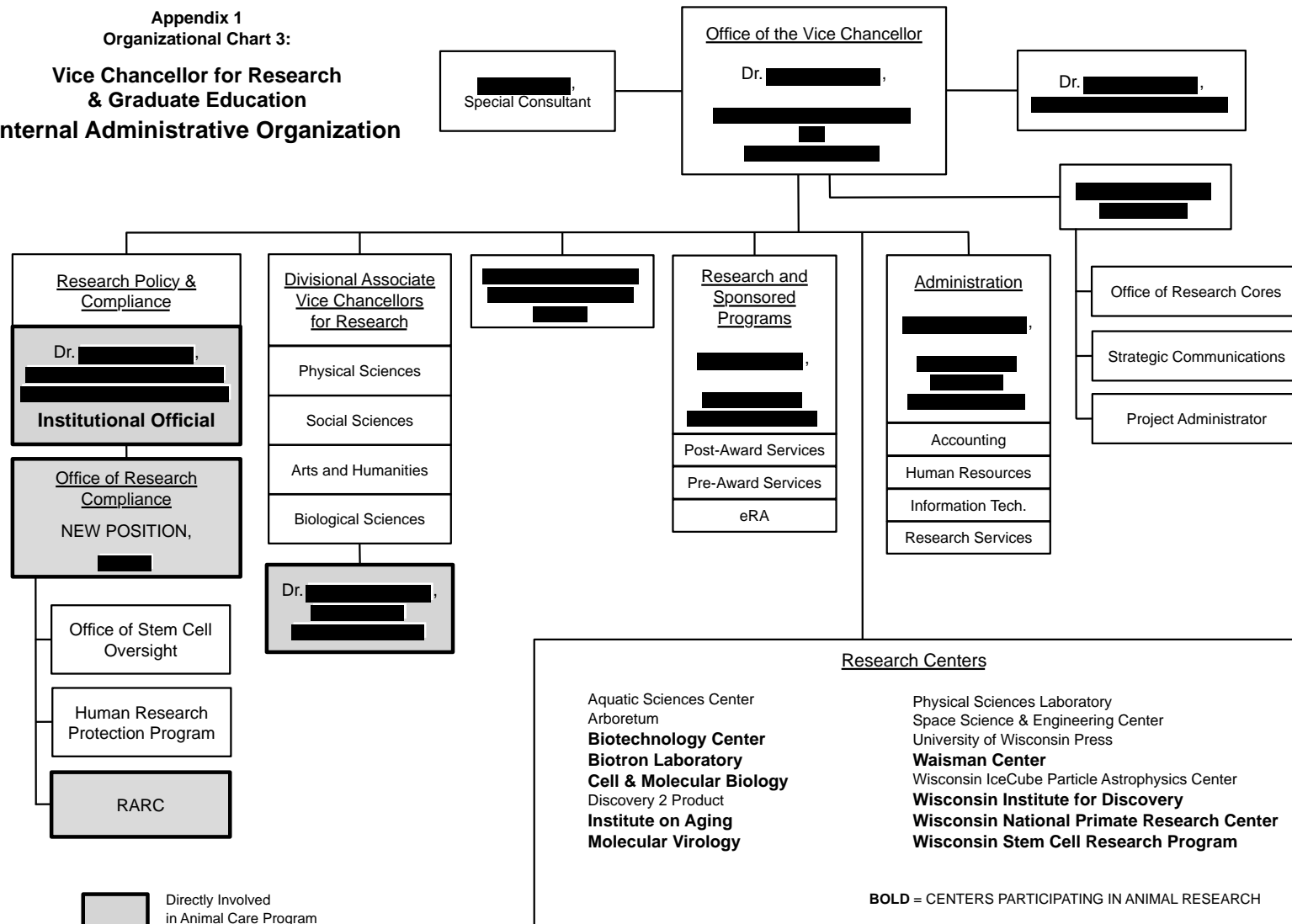
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* Dr. (Name redacted) reports to Dr. (Name redacted) for personnel supervisory purposes only



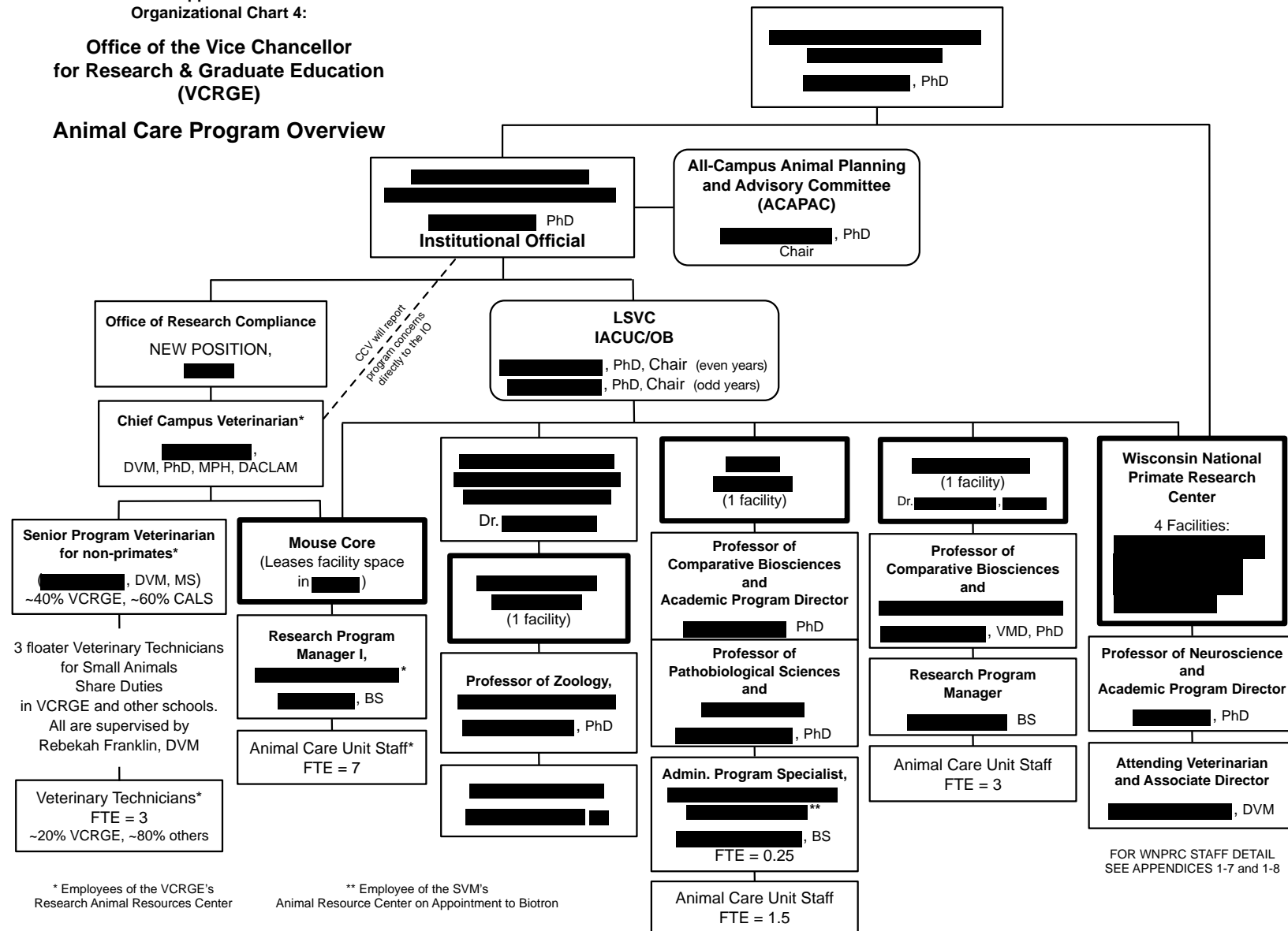
Appendix 1
Organizational Chart 3:
Vice Chancellor for Research
& Graduate Education
Internal Administrative Organization



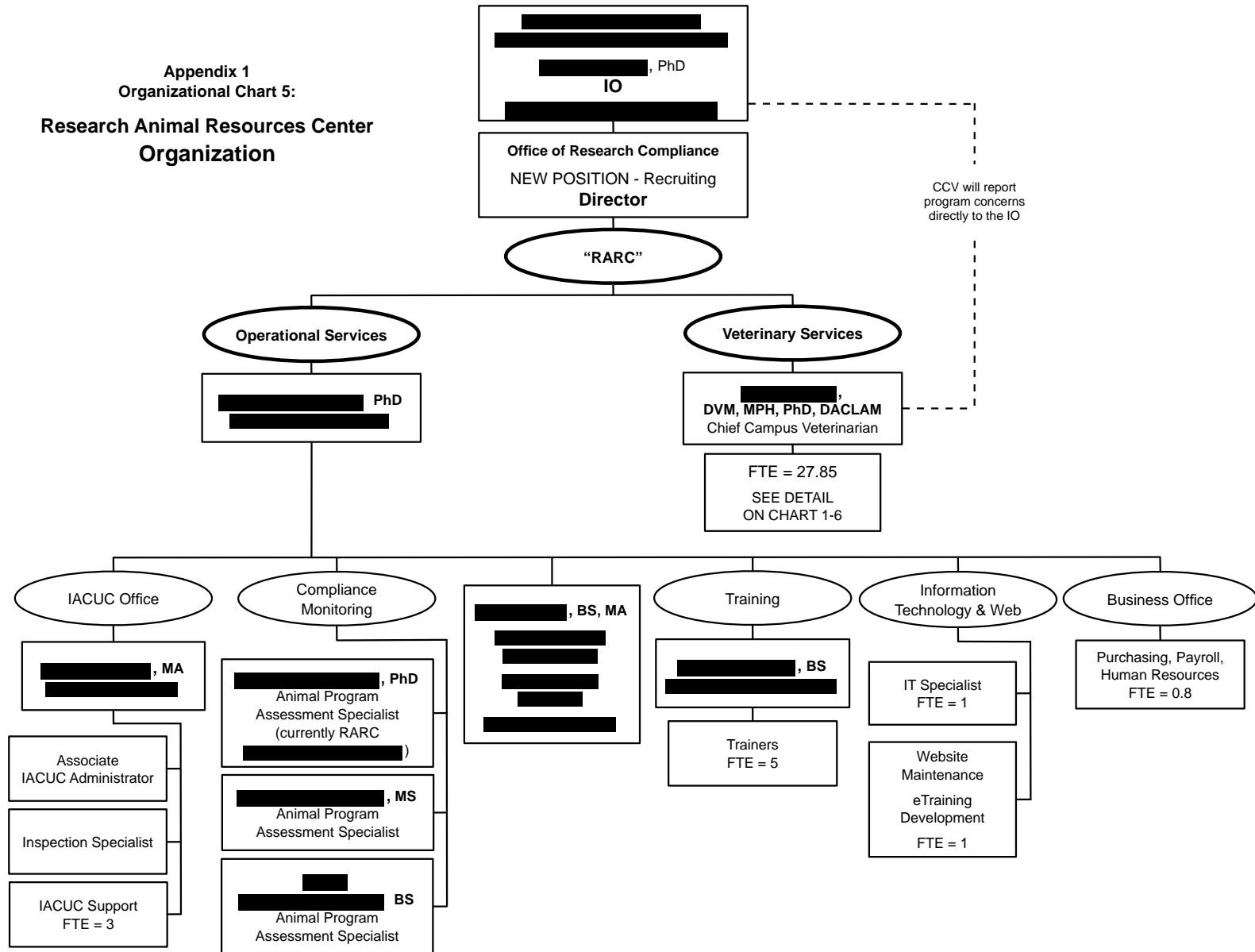
Appendix 1
Organizational Chart 4:

**Office of the Vice Chancellor
for Research & Graduate Education
(VCRGE)**

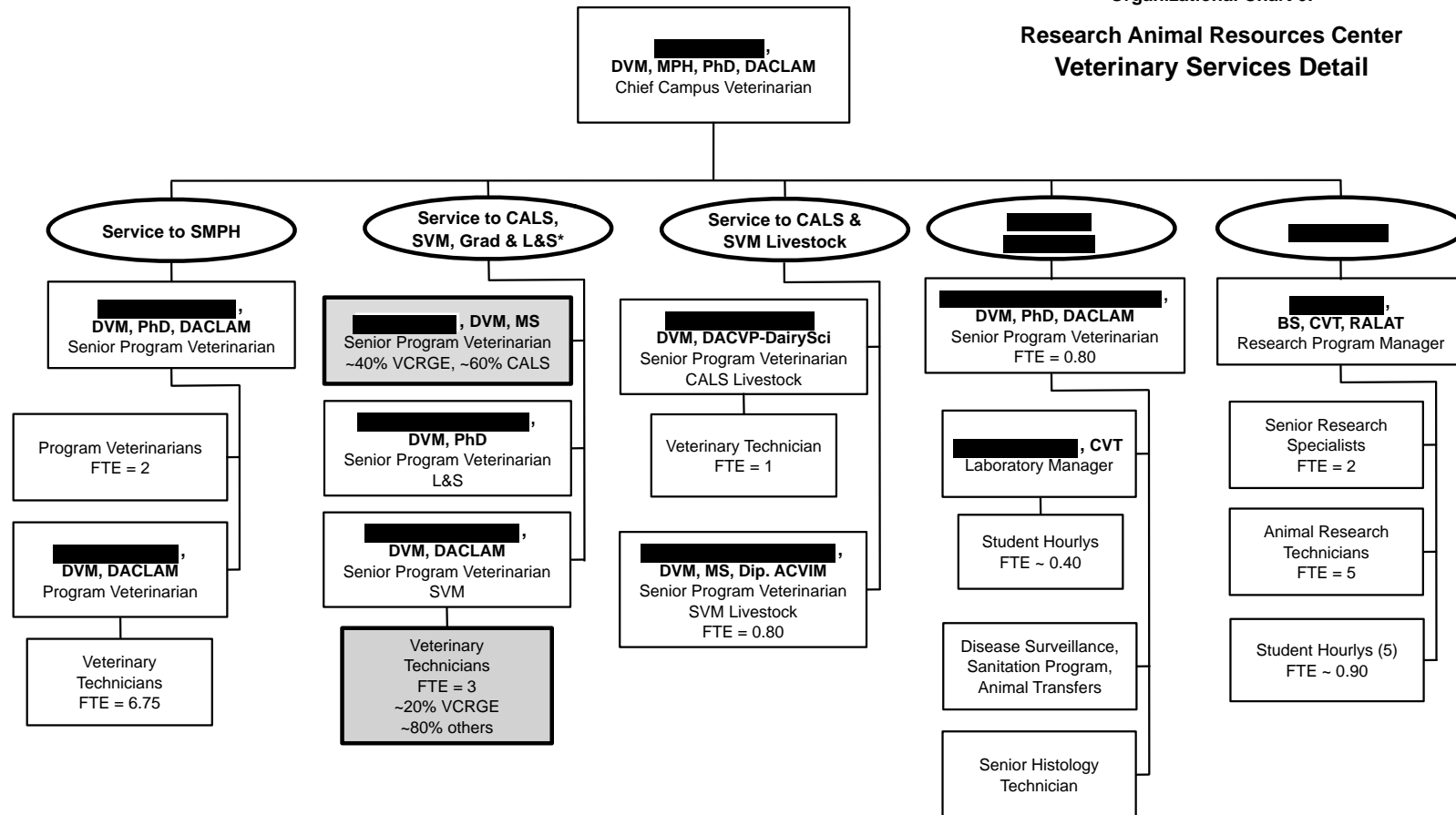
Animal Care Program Overview




**Appendix 1
Organizational Chart 5:
Research Animal Resources Center
Organization**



Appendix 1
Organizational Chart 6:
**Research Animal Resources Center
Veterinary Services Detail**

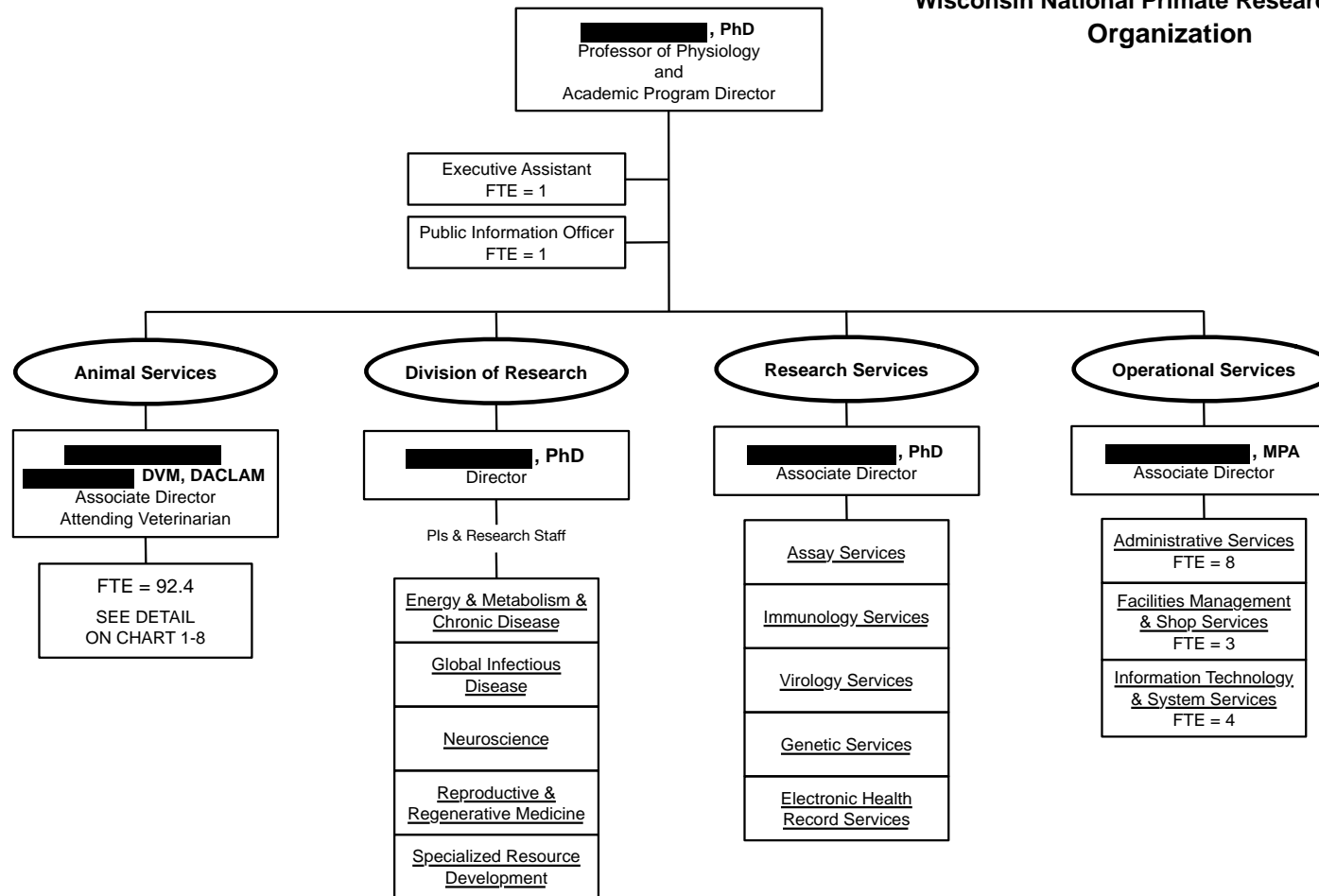


* Small Animals

 VCRGE
Direct Veterinary Care Providers
(does not include WNPRC)

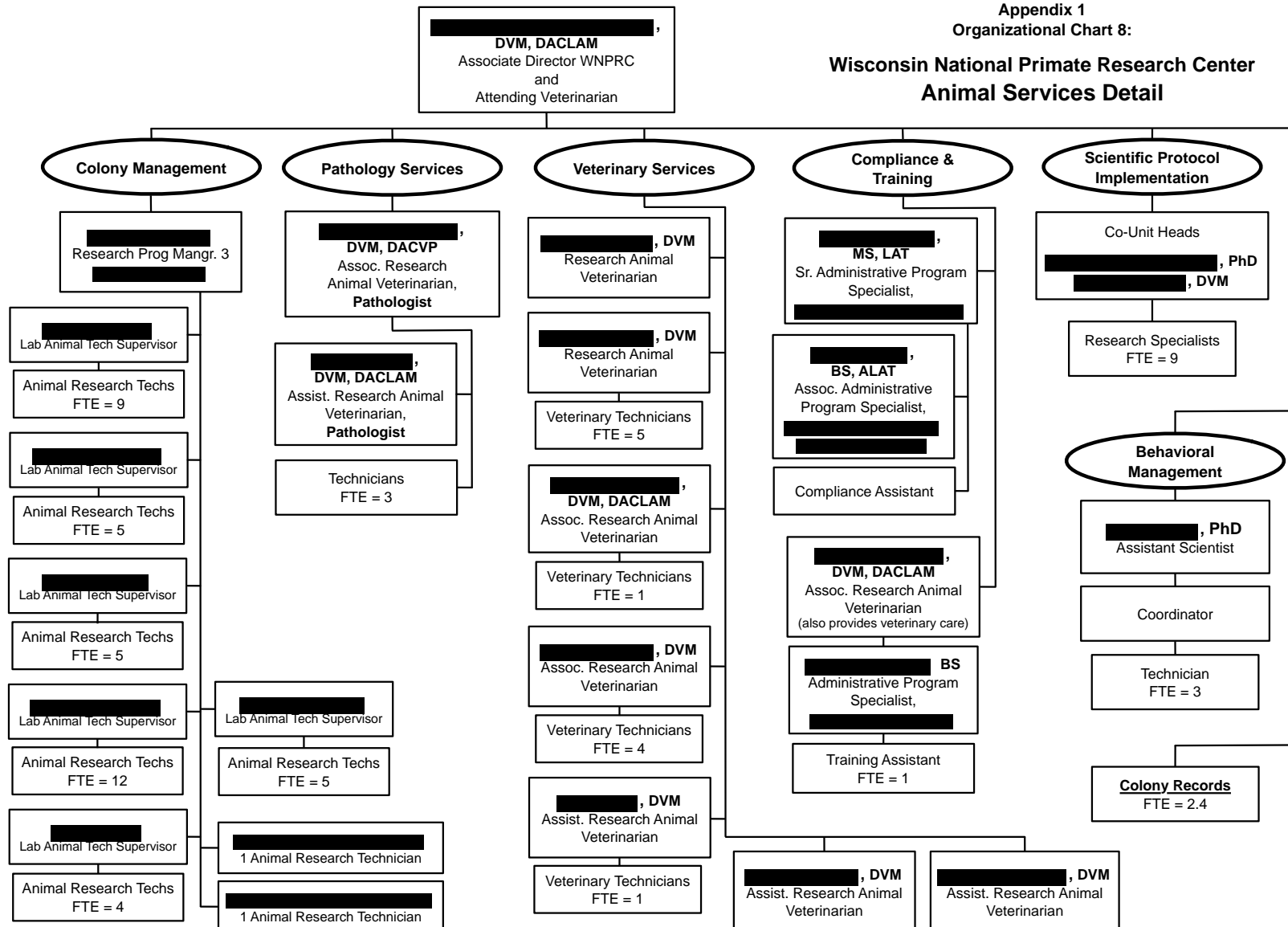
Appendix 1
Organizational Chart 7:

Wisconsin National Primate Research Center
Organization



Appendix 1
Organizational Chart 8:

Wisconsin National Primate Research Center
Animal Services Detail



Appendix 2: Animal Usage

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.

Continued next page

Appendix 2: Animal Usage (page 1 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
SIV Challenge of Alloimmunized Cynomolgus Macaques	G005021	[REDACTED]	Cyno. macaque: 38	D					Bio	
Use of Herpesviruses as Vaccine Vectors for AIDS	G005022	[REDACTED]	Rhesus macaque: 45	D					Bio	
Immunogenicity Study with HIV env Vaccination	G005024	[REDACTED]	Rhesus macaque: 10	D					Bio	
Metabolic Engineering of Bacteria for Cancer Immunotherapy by Gamma Delta T Cells	G005028	[REDACTED]	Rhesus macaque: 10	D					Bio	
Hypothermia to Prevent Neurotoxic side Effects of Pediatric Drugs	G005030	[REDACTED]	Rhesus macaque: 115	D	X				Phys	[REDACTED]
Studies of Diabetes Development in a Genetic Mouse Model	G005035	[REDACTED]	mus: 540	C						
Marmoset Assisted Reproductive Technologies	G005044	[REDACTED]	marmoset: 237	D	X	X				
Therapeutic use of an Enhanced form of CD4-Ig	G005045	[REDACTED]	Rhesus macaque: 218	D					Bio	
Studies of Myelination	G005050	[REDACTED]	mus: 2100 rattus: 376	D	X		X		Chem	[REDACTED]
Neuroinflammatory Pathways in Primary Astrocyte Disease	G005052	[REDACTED]	mus: 1440	D						[REDACTED]
Liver and Pancreatic Growth and Neoplasia	G005054	[REDACTED]	mus: 1152	D					Chem	

SS = Survival Surgery
MSS = Multiple Major Survival Surgery
FFR = Food and/or Fluid Regulation

PR = Prolonged Restraint
HAU = Hazardous Agent Use
NCF = Non-Central Facility

Appendix 2: Animal Usage (page 2 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
A Nonhuman Primate Model of Infection-Induced Pregnancy Loss	G005061	[REDACTED]	Cyno. macaque: 73 Rhesus macaque: 109	D	X	X		X	Bio	
A Radiometabolism Study of Hair Hormones in the Rhesus Macaque	G005066	[REDACTED]	Rhesus macaque: 19	C						
Primate Model of Traumatic Spinal Cord Injury	G005067	[REDACTED]	Cyno. macaque: 6	D	X					
Does Infectious HIV-1 Trapped on Follicular Dendritic Cells Represent a Long-term Reservoir?	G005080	[REDACTED]	Rhesus macaque: 5	D					Bio	
Isolation of SIV Neutralizing Antibodies from Non-human Primates after Immunization.	G005088	[REDACTED]	Rhesus macaque: 8	D					Bio	
Preliminary Screening of Animals for Research Projects Conducted under the Supervision of SPI (Scientific Protocol Implementation), WNPRC	G005091	[REDACTED]	Rhesus macaque: 805 Cyno. macaque: 625 marmoset: 325	D				X		
Priming Protective CD8 T-Cell Memory in the Lung	G005094	[REDACTED]	Rhesus macaque: 37	D					Bio	
Adverse Pregnancy Outcomes in a Nonhuman Primate Model	G005097	[REDACTED]	macaque: 36	D	X			X	Bio	
Glaucoma Studies in Non-human Primates	G005101	[REDACTED]	macaque: 432	D	X				Bio Phys	

SS = Survival Surgery
MSS = Multiple Major Survival Surgery
FFR = Food and/or Fluid Regulation

PR = Prolonged Restraint
HAU = Hazardous Agent Use
NCF = Non-Central Facility

Appendix 2: Animal Usage (page 3 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Dopaminergic IPS Transplants to MPTP-treated Monkeys	G005108	[REDACTED]	Rhesus macaque: 48	D	X	X	X		Bio Chem Phys	[REDACTED]
The Role of ADCC (Antibody Dependent Cell Cytotoxicity) in Antibody Protection against Mucosal SHIV Challenge.	G005109	[REDACTED]	Rhesus macaque: 43	D					Bio	
Evaluation of In Vivo Correlates of Protection to Human Immunodeficiency Virus (HIV) in Simian Immunodeficiency Virus (SIV) Infected Macaques.	G005113	[REDACTED]	Rhesus macaque: 10 Cyno. macaque: 303	D					Bio	
Muscarinic Signaling in Gliopathic Disorders	G005126	[REDACTED]	mus: 460	D						[REDACTED]
Inducible Gene Expression in Transgenic Mice	G005136	[REDACTED]	mus: 3130	D					Chem	[REDACTED]
Fcγ Receptor-mediated Suppression of Immunodeficiency Virus Replication	G005141	[REDACTED]	Rhesus macaque: 82	D					Bio	
Yellow Fever, rDNA, rRRV, rVSV and rVV as Vectors for AIDS Vaccine Development	G005145	[REDACTED]	Rhesus macaque: 194	D					Bio	
Magnetic Resonance Imaging of Transient Cerebral Ischemia	G005150	[REDACTED]	mus: 2364	D	X				Chem Phys	[REDACTED]

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Appendix 2: Animal Usage (page 4 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
WNPRC Terminal Tissue and Biological Sample Collection	G005151	[REDACTED]	macaque: 1000 marmoset: 350	D						
Chemogenetic Modulation of the Subthalamic Region to Rescue Motor Deficits in Hemiparkinsonian Rhesus Macaques	G005153	[REDACTED]	Rhesus macaque: 3	D	X	X			Bio Chem Phys	[REDACTED]
Control of GnRH Neurons and Puberty	G005154	[REDACTED]	Rhesus macaque: 116	D	X	X		X	Bio Phys	[REDACTED]
Presbyopia Studies in Non-human Primates	G005158	[REDACTED]	macaque: 99	D	X				Phys	
Transplantation of Human Induced Pluripotent Stem to Study Developmental Disorders	G005169	[REDACTED]	mus: 1078	D	X	X			Bio Chem	
Nonhuman Primate Embryology and Development: CCR5 Genomic Editing	G005172	[REDACTED]	macaque: 81	D	X	X		X	Bio	
The Role of G Alpha z Signaling on Beta-Cell Function and Mass	G005181	[REDACTED]	mus: 13725	C			X			
GFAP Knockdown in Mouse Models of Alexander Disease	G005187	[REDACTED]	mus: 960	E						[REDACTED]
Identification of the Mechanisms of Obesity-associated Breast Cancer	G005188	[REDACTED]	mus: 1500	D	X		X		Bio Chem	[REDACTED]

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Appendix 2: Animal Usage (page 5 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Quantitative Ultrasound: A Novel Approach to Assessing the Pregnant Cervix	G005192	[REDACTED]	Rhesus macaque: 103	C						
Mammary Prolactin Production and Breast Cancer	G005201	[REDACTED]	mus: 23816	D	X				Chem	
Neurobehavioral Development and Assessment of Normal and Transgenic Common Marmosets	G005208	[REDACTED]	marmoset: 96	C					Phys	[REDACTED]
Function of TFG in Neuronal Maintenance	G005211	[REDACTED]	rattus: 2160	D						
Neural Processing of Orientation and Position in Rhesus Macaques	G005229	[REDACTED]	Rhesus macaque: 10	D	X	X	X	X	Phys	[REDACTED]
Brain Injury Recovery	G005230	[REDACTED]	rattus: 1163	D	X	X	X		Bio Phys	
Determining Specificity of Estrogen Action in Female Marmosets	G005234	[REDACTED]	marmoset: 152	D	X	X			Bio Phys	[REDACTED]
Development of Oxygen Pre-breathe Schedules for Submarine Escape and Rescue.	G005236	[REDACTED]	sheep: 48	E			X	X	Phys	
Intrinsic Vascular Smooth Muscle Stiffness	G005240	[REDACTED]	Rhesus macaque: 24	D	X	X		X		
WNPRC Macaque Breeding Colony	G005246	[REDACTED]	Rhesus macaque: 960	D	X	X		X		

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Appendix 2: Animal Usage (page 6 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Vaccination of Mamu-B*17 Allele Positive Animals to Enhance Frequency of Elite Control	G005248	[REDACTED]	Rhesus macaque: 37	D					Bio	
Host Immune Responses to SIV in Rhesus Macaques	G005261	[REDACTED]	Rhesus macaque: 10	D					Bio	
Imaging the Maternal-Fetal Interface in Adverse Pregnancy Outcomes	G005263	[REDACTED]	macaque: 113	D	X			X	Bio Phys	[REDACTED]
Pathologic Evaluation of Laboratory Animals and Phenotypic Evaluation	G005267	[REDACTED]	all UW-Madison spp.	C						
Evaluation of Dengue Vaccination and Challenge viruses in Nonhuman Primates	G005269	[REDACTED]	macaque: 101	D					Bio	
Primate Center Colony Resource	G005273	[REDACTED]	macaque: 3000 marmoset: 800	D	X					[REDACTED]
Laboratory Animal Training and Teaching Protocol	G005281	[REDACTED]	all UW-Madison spp.	C						
The Role of Outer Retinal Injury in Glaucoma	G005291	[REDACTED]	macaque: 30	D					Chem Phys	
Evidence-based Behavioral Evaluation of Enrichment Strategies	G005296	[REDACTED]	marmoset: 450 macaque: 3250	C						

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Appendix 2: Animal Usage (page 7 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Stem Cell Development and Function in the Animal Brain	G005300	[REDACTED]	mus: 1024	D					Bio Chem	
Mouse Colony Maintenance and Primary Tissue Generation	G005306	[REDACTED]	mus: 3205	D						
Therapeutic Vaccination Targeting SIV Viral Reservoirs	G005307	[REDACTED]	Rhesus macaque: 31	D					Bio Chem	
Restraint, Anesthesia and Physical Examination of Non-human Primates	G005309	[REDACTED]	Rhesus macaque: 21	D						
Tetherin Supplement Protocol	G005312	[REDACTED]	Rhesus macaque: 10	D					Bio	
Epigenetic Regulation of Brain Functions	G005315	[REDACTED]	mus: 24752	D	X				Bio Chem	[REDACTED]
Metabolic Effects of AdipoRon, An Adiponectin Receptor Agonist	G005325	[REDACTED]	Rhesus macaque: 26	D					Phys	
Delivery of Small Interfering RNA to Primates	G005330	[REDACTED]	Cyno. macaque: 32	D					Phys	[REDACTED]
Impact of Exercise on Sarcopenia	G005334	[REDACTED]	rattus: 320	E						[REDACTED]
Stem Cell Transplantation in Animal Models of Spinal Cord Diseases	G005339	[REDACTED]	mus: 288	D	X				Bio Chem	
Stem Cell Transplantation in Animal Models of Neurodegenerative Diseases	G005341	[REDACTED]	mus: 850	D	X	X	X		Bio Chem	

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Appendix 2: Animal Usage (page 8 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Circulation of Pre-eclampsia Therapeutics in Primate Placenta	G005346	[REDACTED]	Rhesus macaque: 10	D	X					
Neurobiology of GFAP Mutant Rats	G005354	[REDACTED]	rattus: 4740	D						[REDACTED]
Tomotherapy and Hematopoietic Stem Cells for Tolerance to Kidney Transplants	G005362	[REDACTED]	Rhesus macaque: 87	D	X	X			Phys	[REDACTED]
Primate Ocular Disease	G005366	[REDACTED]	Rhesus macaque: 120	D	X	X		X		
Analysis of Normal Murine Ocular Gene Expression	G005370	[REDACTED]	mus: 115	C						
Rodent Models Core Behavior Testing	G005373	[REDACTED]	mus: 6000 rattus: 1000	C			X			
Impact of External Stimuli on Neuronal Development	G005379	[REDACTED]	mus: 607	D	X				Bio Chem	
Transient Cytoskeletal Arrays	G005386	[REDACTED]	African clawed frog: 605	D	X	X			Phys	[REDACTED]
Gene-Environment Interactions in Craniofacial Birth Defects	G005396	[REDACTED]	mus: 3592	D					Chem	[REDACTED]
Defining South American Zika Virus Susceptibility and Pathogenicity in Adult and Neonatal Nonhuman Primates	G005401	[REDACTED]	macaque: 369	D	X			X	Bio Phys	[REDACTED]
Mouse Models to Study Neurodevelopmental Disorders	G005422	[REDACTED]	mus: 864	C						

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Appendix 2: Animal Usage (page 9 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Hematopoietic Stem Cell Treatment of SHIV Infected Mauritian Cynomolgus Macaques	G005424	[REDACTED]	Cyno. macaque: 29	D					Bio Phys	[REDACTED]
Diet Switch Experiment to Track Inflection Points of Amino Acid Enrichment Dynamics using 15N:	G005427	[REDACTED]	mus: 138	C						
Stem Cell Research for Neurodegenerative and Neuromuscular Diseases	G005430	[REDACTED]	rattus: 2448 mus: 153	D	X	X			Bio Phys	[REDACTED]
Marmoset Health and Nutrition	G005431	[REDACTED]	marmoset: 439	D					Phys	
Titration of SIV in Vivo	G005435	[REDACTED]	macaque: 240	D					Bio	
Investigating Mechanisms of GB virus C Protection from AIDS in Macaques.	G005443	[REDACTED]	macaque: 61	D	X				Bio	
The Study of the Neuroendocrine Hypothalamus	G005446	[REDACTED]	Rhesus macaque: 102 rattus: 12	C	X	X		X		
Refine Cell Therapy Outcomes by Remote Regulation of Neural Circuitry in Non-Human Primates	G005449	[REDACTED]	Rhesus macaque: 6	D	X	X			Bio Chem Phys	[REDACTED]
Nonhuman Primates as Blood Sample Donors for in Vitro Research Projects.	G005462	[REDACTED]	macaque: 150	C						

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Appendix 2: Animal Usage (page 10 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Antibody-Microbicide Mucosal Retention Kinetics.	G005466	[REDACTED]	Rhesus macaque: 6	C						
Transgenic and Gene-Targeted Mouse Production	G005468	[REDACTED]	mus: 14255	C						
Dietary Fat Ratio's Influence on Adolescent Depression	G005469	[REDACTED]	marmoset: 331	D					Phys	[REDACTED]
Evaluation of Pathogen Specific Cytotoxic T-Lymphocytes (CTL) in Macaques	G005475	[REDACTED]	macaque: 2000	D					Bio	
Interventional Strategies to Counter the Effects of Brain-death on Organ Quality and Function in Non-human Primates.	G005493	[REDACTED]	macaque: 28	D						
KIR and MHC Class I Immunogenetics in SIV infection	G005496	[REDACTED]	Rhesus macaque: 8	C						
Host Immune Responses that Contribute to Control of Attenuated SIV in Macaques	G005507	[REDACTED]	Cyno. macaque: 49 Rhesus macaque: 10	D					Bio	
Lentiviral Resistance to Tetherin	G005513	[REDACTED]	Rhesus macaque: 50	C						
CTL Exclusion from Lymphoid Follicles as a Mechanism of Lentivirus Immune Evasion	G005529	[REDACTED]	Rhesus macaque: 23	D					Bio	
Breeding Colony Management in Marmosets	G005533	[REDACTED]	marmoset: 396	D	X	X				

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Appendix 2: Animal Usage (page 11 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Evaluation of IPX750 Antiparkinsonian Properties	G005536	[REDACTED]	marmoset: 4	D					Chem	
Influences of Dietary Properties on Chewing Patterns in Primates	G005539	[REDACTED]	marmoset: 20 macaque: 40	C						
Role of Estrogen Receptor Alpha (ER) in Neonatal Mice after Hypoxia Ischemia	G005545	[REDACTED]	mus: 4559	D	X				Phys	[REDACTED]
Assessment of the Pharmacokinetic Characteristics of Human C1 Inhibitor	G005548	[REDACTED]	macaque: 27	D						
Control of ZIKV Viremia with Neutralizing Antibody.	G005549	[REDACTED]	Rhesus macaque: 40	D					Bio	
Impact of SIV Infection on the Function of Mucosal Associated Invariant T (MAIT) cells	G005553	[REDACTED]	Rhesus macaque: 2 Cyno. macaque: 5	D					Bio	
Regulation of Gonad Development	G005560	[REDACTED]	mus: 24835	D	X	X			Chem	[REDACTED]
Ipilimumab as an Adjuvant for HIV Vaccines	G005563	[REDACTED]	Rhesus macaque: 36	D					Bio	
Enhanced Lymphocyte Infusions to Engineer Viral Eradication	G005565	[REDACTED]	Rhesus macaque: 44	D					Bio	
Transgenic Neurobiology of the Mouse	G005568	[REDACTED]	mus: 7110	D						[REDACTED]
Macaque Assisted Reproductive Technologies.	G005592	[REDACTED]	macaque: 45	D		X		X		

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Appendix 2: Animal Usage (page 12 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Induction of Microbial Translocation in Macaques	G005604	[REDACTED]	macaque: 56	D	X				Bio	
GFAP Knockdown in Rat Models of Alexander Disease	G005608	[REDACTED]	rattus: 1416	E						[REDACTED]
Evaluation of CD4 Mimetic Compounds in Rhesus Macaques	G005609	[REDACTED]	Rhesus macaque: 6	D						
Generation of MHC-binding Antibodies in Macaques	G005623	[REDACTED]	macaque: 20	D						
Efficacy of a Therapeutic on Zika Virus Infection	G005635	[REDACTED]	Rhesus macaque: 50	D					Bio	
Role of Sex Steroids and Kisspeptin in the Regulation of GnRH Release	G005640	[REDACTED]	mus: 9978	D	X	X	X			[REDACTED]
Preliminary Drug Testing for Bioavailability and Safety in Nonhuman Primates Conducted under the Supervision of SPI (Scientific Protocol Implementation), WNPRC	G005649	[REDACTED]	Macaque: 2 marmoset: 0	C						
Vascular Abnormalities after Experimental Spinal Cord Injury	G005651	[REDACTED]	Cyno. macaque: 6	D					Phys	[REDACTED]
Neuroinflammation in Pediatric Brain Injury	G005652	[REDACTED]	rattus: 1071	D	X				Chem Phys	[REDACTED]
Can CD8+ T Cells Prevent Systemic SIV Infection?	G005654	[REDACTED]	Rhesus macaque: 74	D					Bio	

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Appendix 2: Animal Usage (page 13 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Use of Recombinant Adeno-associated Virus Vector to Deliver Antibodies and Antibody-like Molecules for the Prevention or Treatment of SIV or SHIV Infection in Monkeys	G005656	[REDACTED]	Rhesus macaque: 162	D					Bio	
Nonhuman Primate Models for Pandemic Influenza Vaccines	G005666	[REDACTED]	Cyno. macaque: 362 Rhesus macaque: 362	D					Bio	
Macaque Aging Colony	G005662	[REDACTED]	macaque: 70	D					Phys	
[REDACTED] - Transgenic and Reproductive Services	G005689	[REDACTED]	mus: 3050 rattus: 300	D						
Nonhuman Primate Bone Marrow Transplantation Model	G005698	[REDACTED]	Cyno. macaque: 68	D					Bio Chem Phys	[REDACTED]
Intraocular Transplantation of Differentiated Human Pluripotent Stem Cells to Treat Retinal Degenerative Disease	G005721	[REDACTED]	mus: 1188 rattus: 2484	D	X				Bio	
Effects of Aging on Lower Urinary Tract Function	G005722	[REDACTED]	Rhesus macaque: 12	C						
Caloric Restriction and Aging	G005726	[REDACTED]	Rhesus macaque: 40	B			X		Phys	
Colony Management of Research Mice	G005751	[REDACTED]	mus: 308000	D					Chem	

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Appendix 2: Animal Usage (page 14 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Treatment Strategies to Improve Organ Quality and Function in the Post-Transplant Period	G00638 (G005744)	[REDACTED]	Cyno. macaque: 24 Rhesus macaque: 148	D	X	X			Bio Chem	
Molecular Regulation of Neurogenesis: Experimental Protocol	G00653	[REDACTED]	mus: 7173	D		X	X			
Pilot Project for Neural Infusion of iral Vector into Marmosets	G00659	[REDACTED]	marmoset: 10	D					Bio Phys	[REDACTED]
Risk of Sulfonamide Hypersensitivity in SIV-infected Rhesus Macaques	G00661	[REDACTED]	Rhesus macaque: 44	D	X				Bio	
Estrogen and progesterone receptor involvement in polycystic ovary syndrome pathogenesis	G00733 (G005736)	[REDACTED]	Rhesus macaque: 538	D	X	X		X	Bio Phys	[REDACTED]
Electrophysiology and neuroimaging of cognition in macaques	G00736 (G005777)	[REDACTED]	Rhesus macaque: 12	D	X	X	X	X	Phys	[REDACTED]
Cardio/Vascular transplant models in Mauritian Cynomolgus Macaques	G00740	[REDACTED]	Cyno. macaque: 73	D	X				Phys	[REDACTED]
Effect of Senescent Cell Clearance on Aging and Metabolic Phenotypes in Monkeys	G00744	[REDACTED]	Rhesus macaque: 64	D	X					

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Appendix 2: Animal Usage (page 15 of 15)

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Preclinical Evaluation of Pandemic Influenza Vaccines	G00747	[REDACTED]	Cyno. macaque: 139 Rhesus macaque: 139	D					Bio	
Preclinical Development of HIV-1 Vif Antagonists	G00748	[REDACTED]	Rhesus macaque: 58	D					Bio	
Sensorimotor integration in the behaving primate	G00749	[REDACTED]	Rhesus macaque: 10	D	X	X	X	X	Phys	[REDACTED]
Suppressing the Latent Reservoir with a Tat Inhibitor	G00751	[REDACTED]	Rhesus macaque: 30	C					Bio	
Neural mechanisms of visual perception and visually guided eye movements	G00752	[REDACTED]	Rhesus macaque: 10	D	X	X	X	X	Chem Phys	

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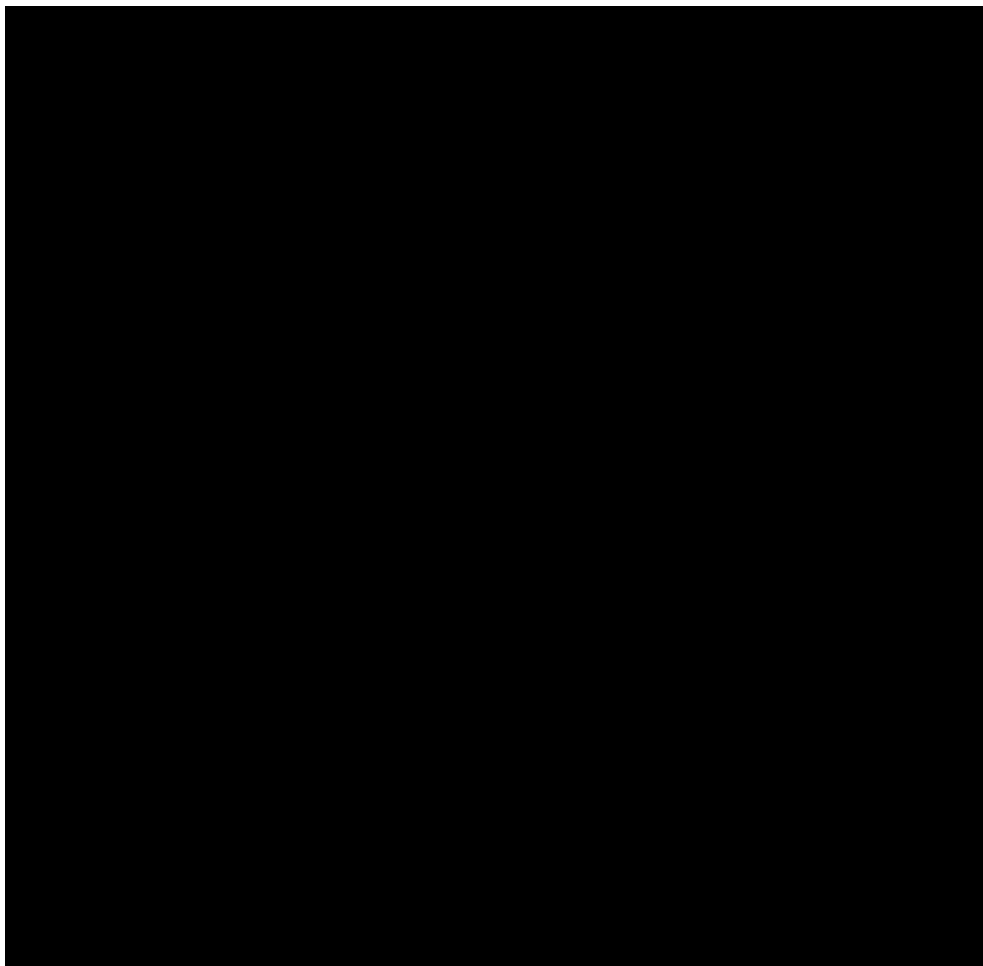
Appendix 3: Summary of Animal Housing and Support Sites

Briefly summarize in the following table the animal facility or facilities, noting the number of areas in which animals are housed (buildings, floors, farms, etc.), the total square footage/meters (or acreage) for animal care and use, and the total square footage/meters (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, HVAC, service corridors, etc. and additional areas to be considered are enumerated in the [Guide](#)). If more than one facility/site, note the approximate distance (yards/miles or meters/kilometers) each facility is from a reference point such as from the largest animal facility. A campus/site map (with a distance scale) may be included as an Appendix to provide this information. Provide floor plans of each area as an Appendix. In Section II.B., describe the general types of animal housing facilities available (e.g., conventional, hazard containment, gnotobiotic, barrier, barns, etc.) and other details of the facilities. See [Instructions, Appendix 1 - 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*)	Distance from main facility – RARC in Enzyme Institute Bldg. (miles/kilometers)	Approx. sq.ft./m or acreage of animal housing (sq. ft./sq. meter)	Approx. sq.ft./m or acreage of support/procedure space	Species housed	Approx. Daily Census by species	Person in charge of site
██████████ (includes ██████████ ██████████)	██████████	10,562 ft ² / 981 m ²	6,599 ft ² / 613 m ²	Ground Squirrels Lab Mice Lab Rats	12 8,700 80	██████████
██████████	██████████	27 ft ² / 3 m ²	228 ft ² / 21 m ²	Frogs (Xenopus)	125	██████████
██████████	██████████	N/A	2,729 ft ² / 254 m ²		0	██████████ (interim)
██████████	██████████	4,569 ft ² / 425 m ²	3,180 ft ² / 295 m ²	Lab Mice Lab Rats	5,550 330	██████████
██████████	██████████	14,000 ft ² / 1,301 m ²	5,000 ft ² / 465 m ²	Macaques Marmosets	155 73	██████████
██████████	██████████	12,352 ft ² / 1,148 m ²	8,235 ft ² / 765 m ²	Macaques	284	██████████
██████████	██████████	18,967 ft ² / 1,762 m ²	20,239 ft ² / 1,880 m ²	Macaques Marmosets	665 189	██████████
██████████	██████████	10,379 ft ² / 964 m ²	12,971 ft ² / 1,205 m ²	Macaques	198	██████████
Totals:		70,856 ft ² / 6,583 m ²	59,181 ft ² / 5,498 m ²			
Total animal housing and support space:		130,037 ft ² / 12,081 m ²				

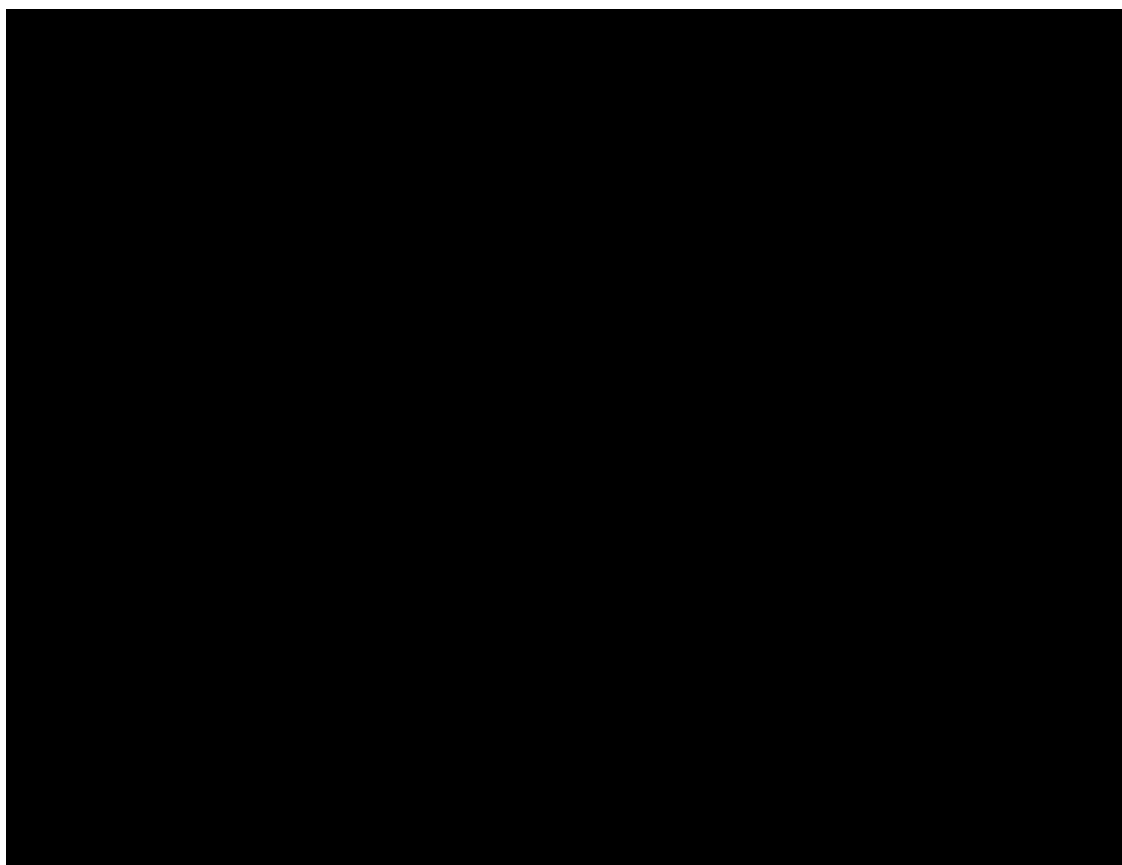
*Please state name and acronyms used for building names, if not coded for confidentiality.

Appendix 4: Line Drawings



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Graduate School

Appendix 4: Line Drawings

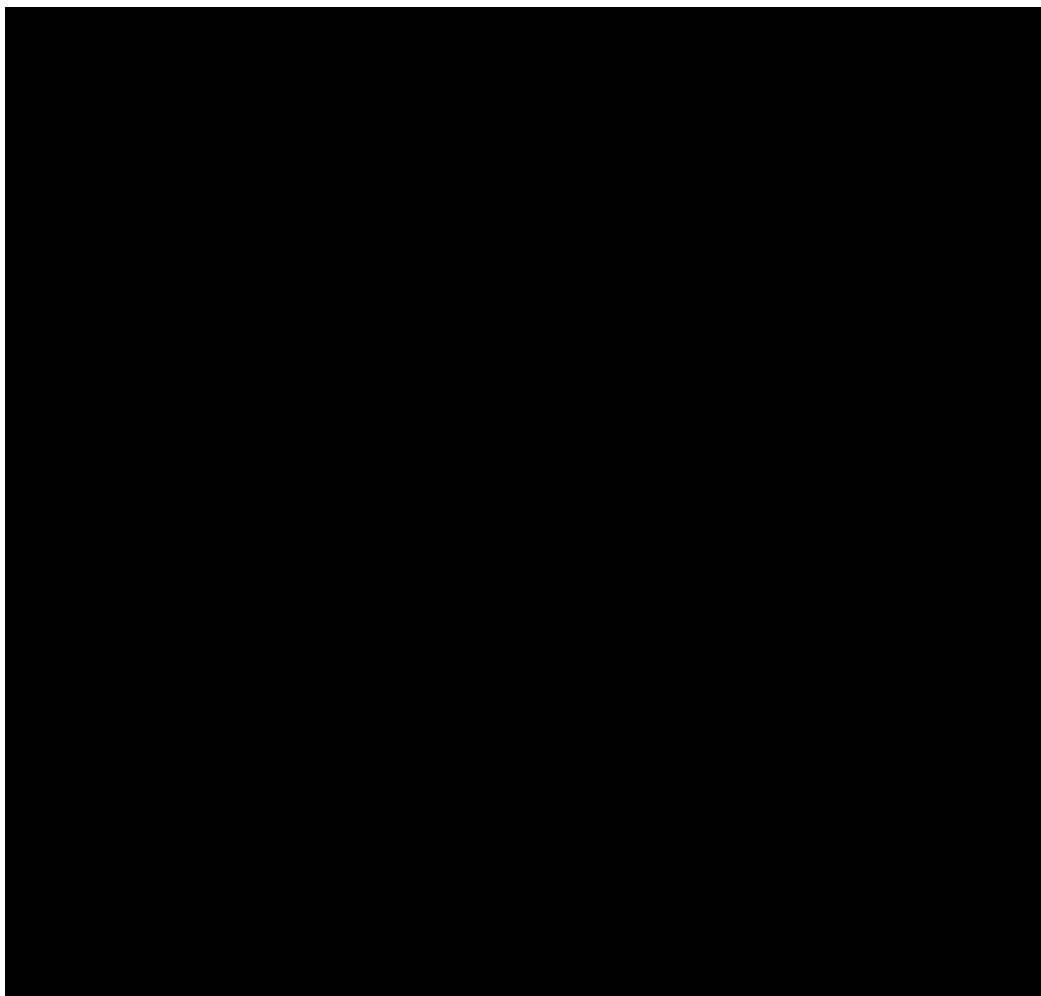


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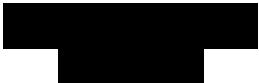
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Appendix 4: Line Drawings



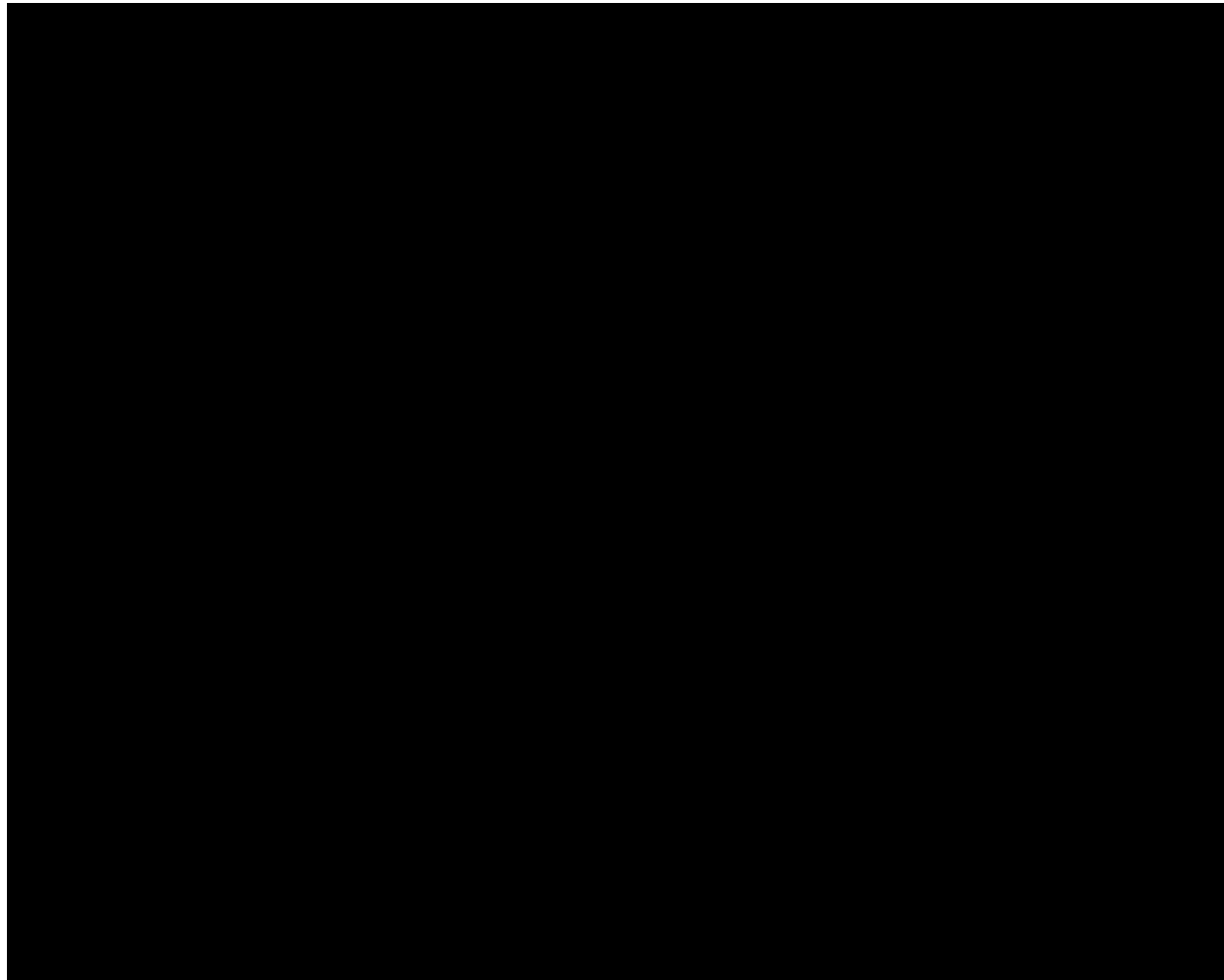
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Appendix 4: Line Drawings



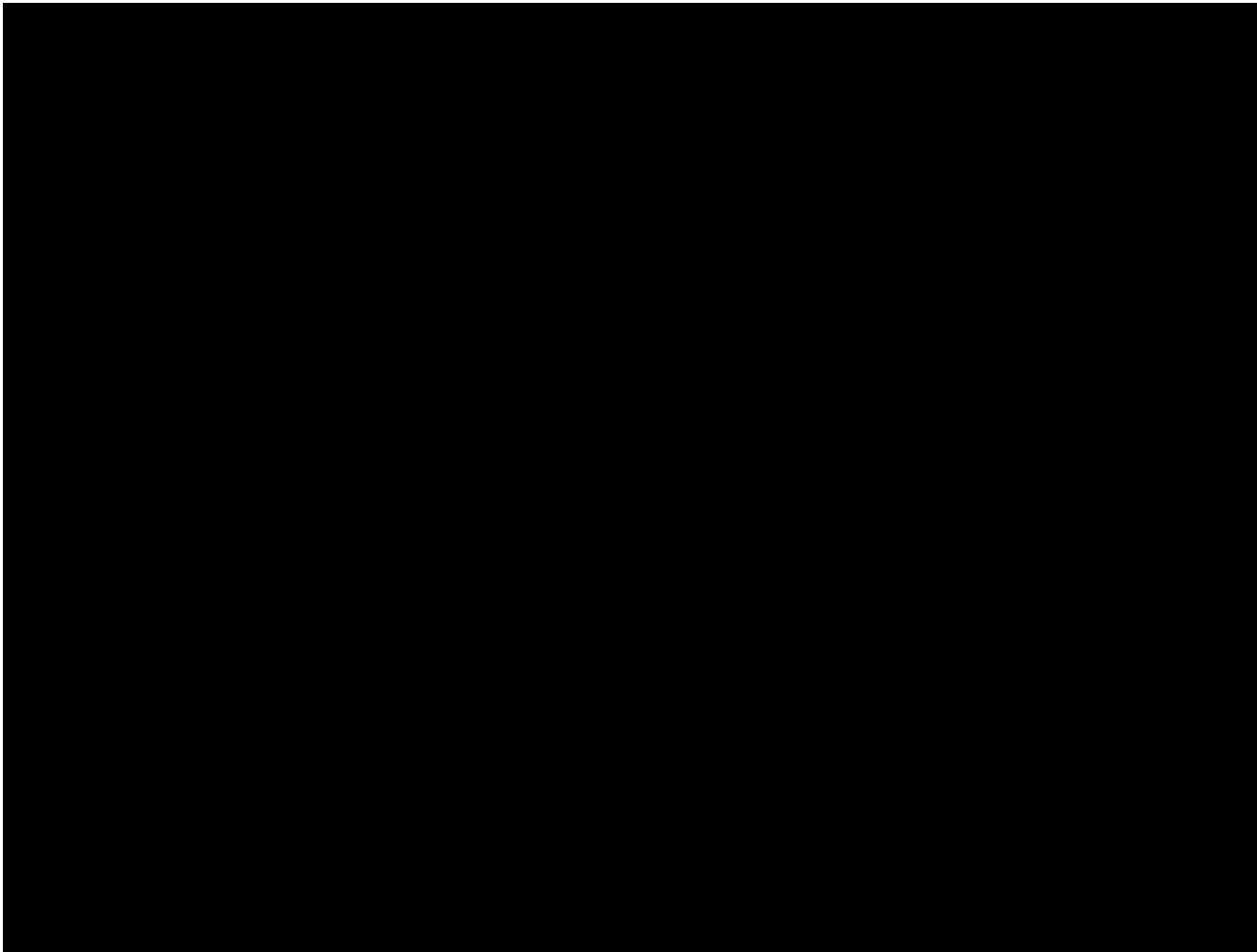
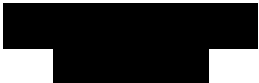
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Appendix 4: Line Drawings



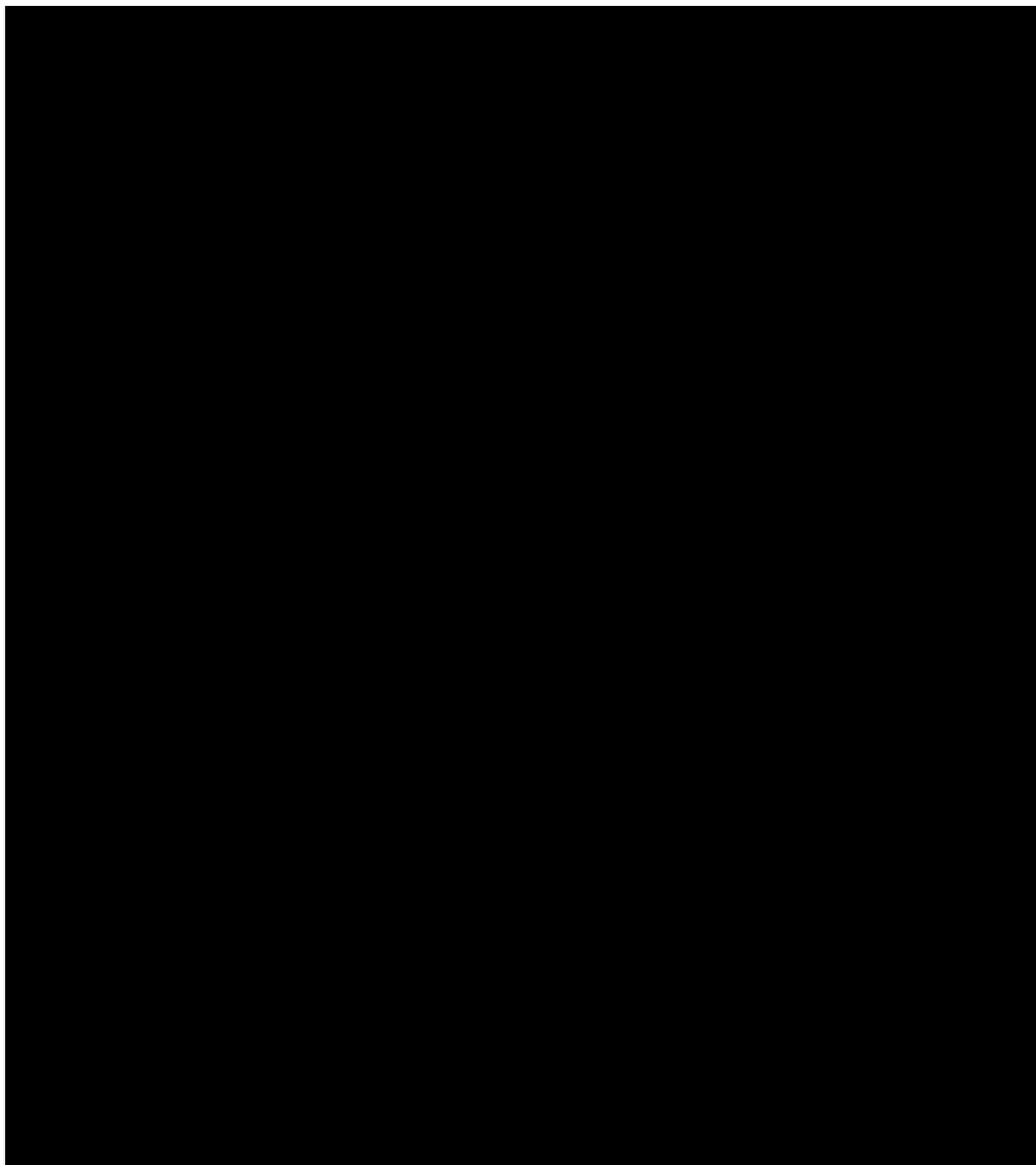
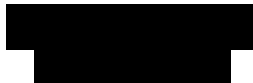
VCRGE

Appendix 4: Line Drawings

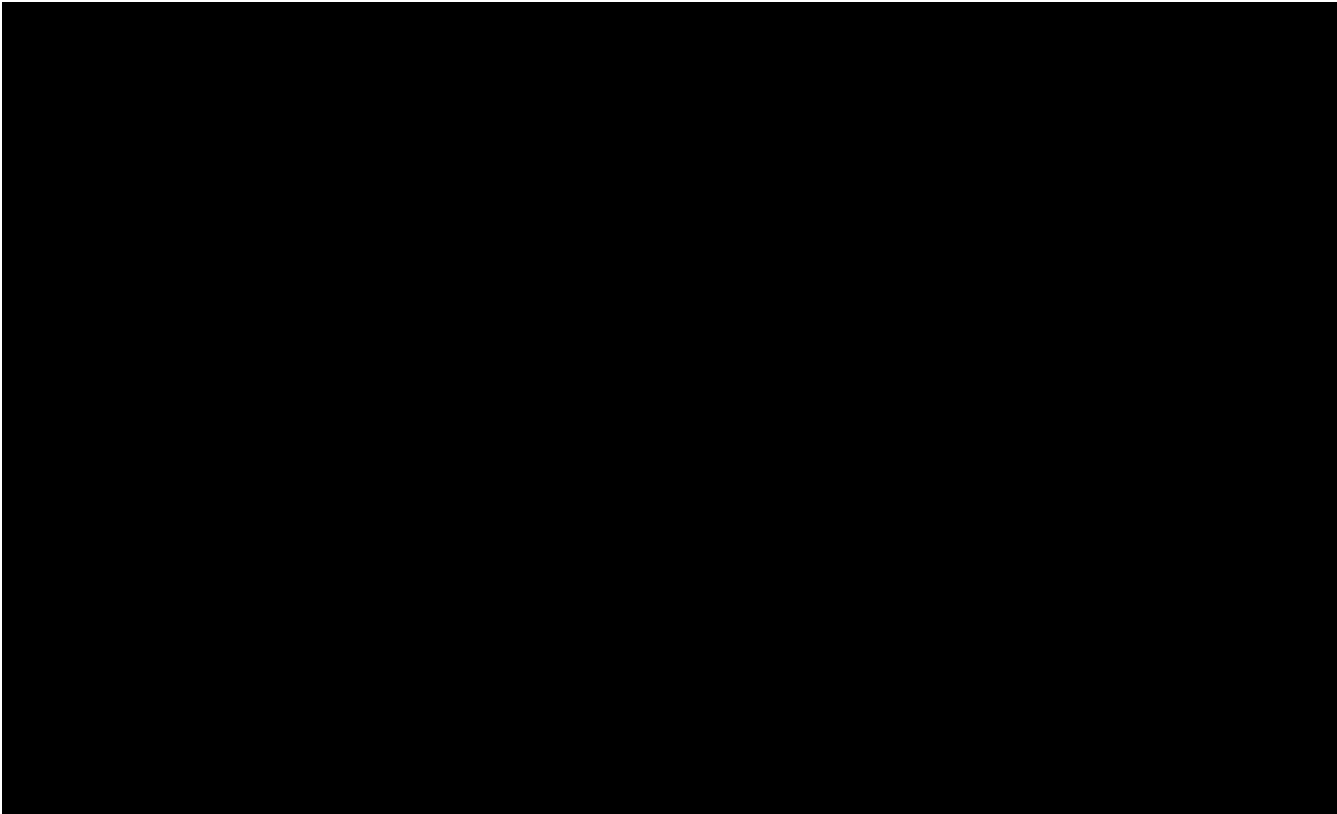


VCRGE

Appendix 4: Line Drawings

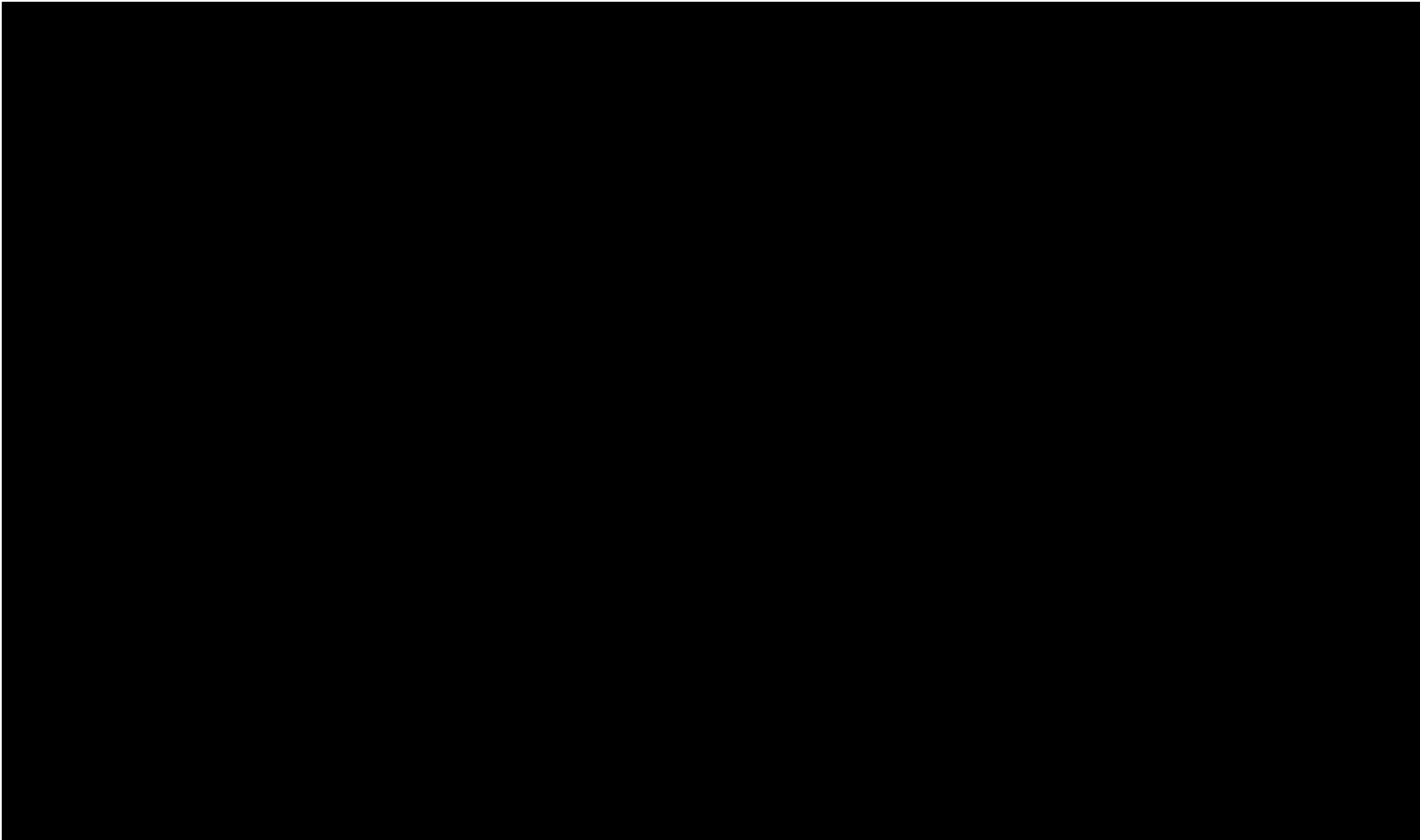


Appendix 4: Line Drawings

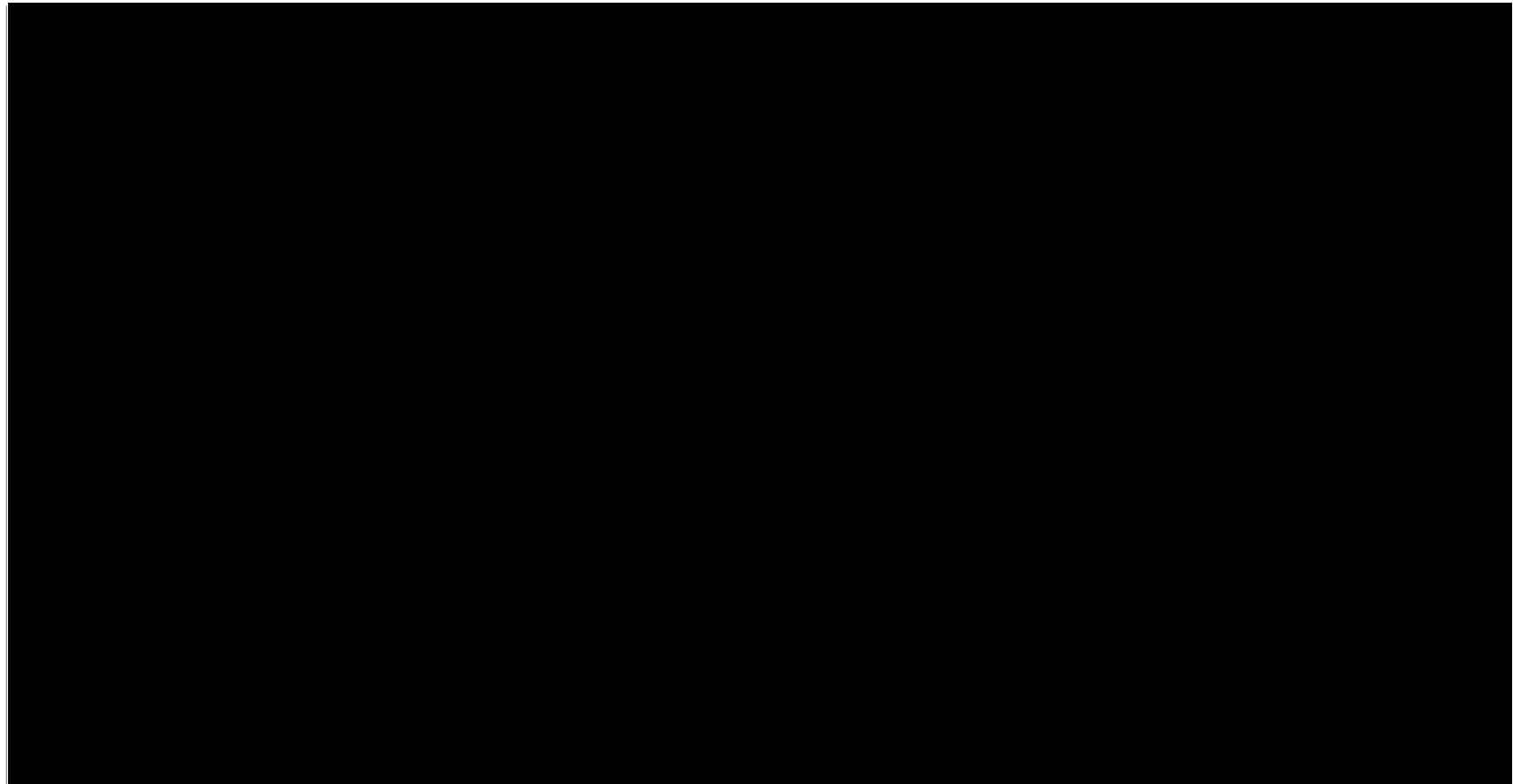


Graduate School

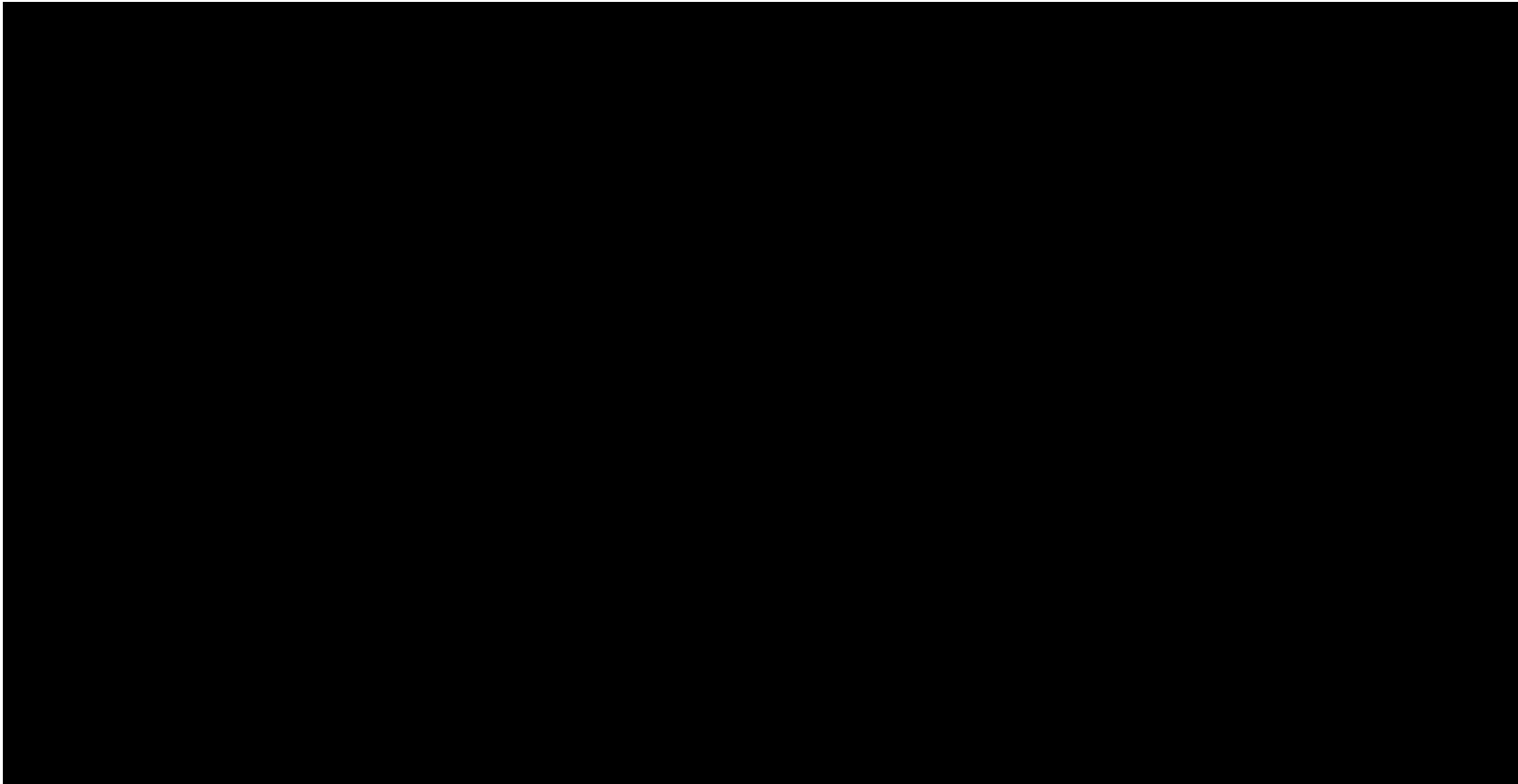
Appendix 4: Line Drawings



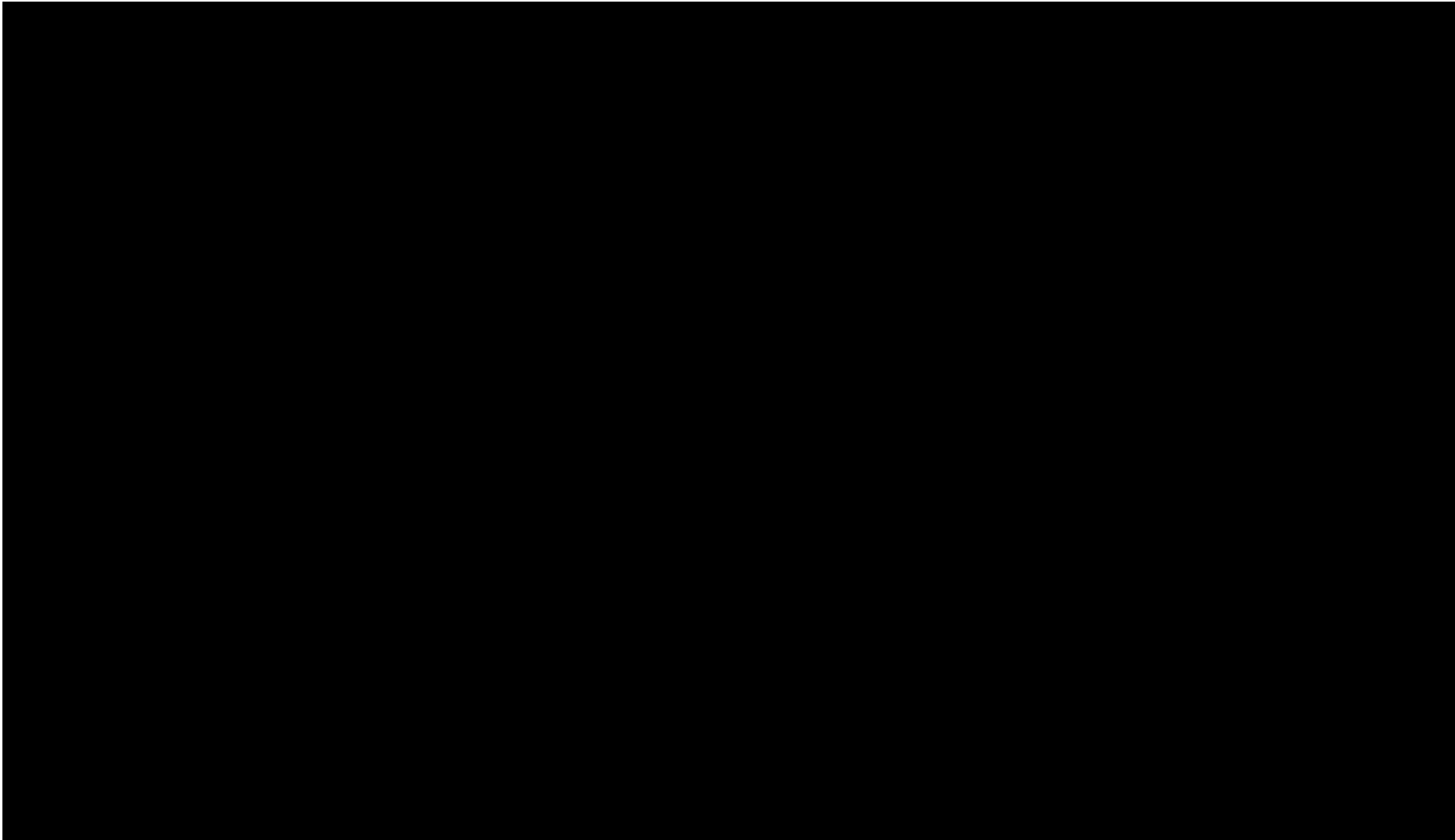
Appendix 4: Line Drawings



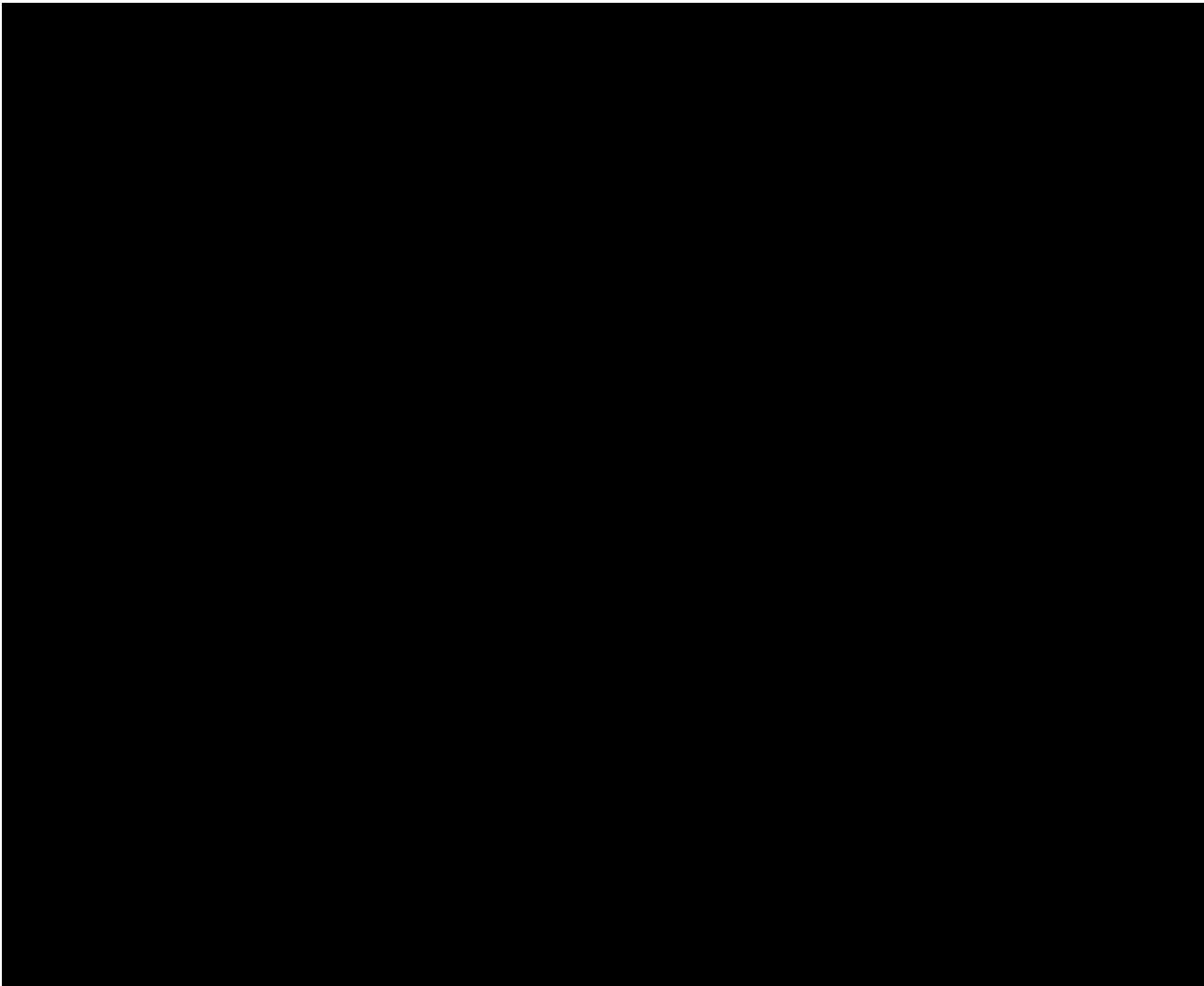
Appendix 4: Line Drawings



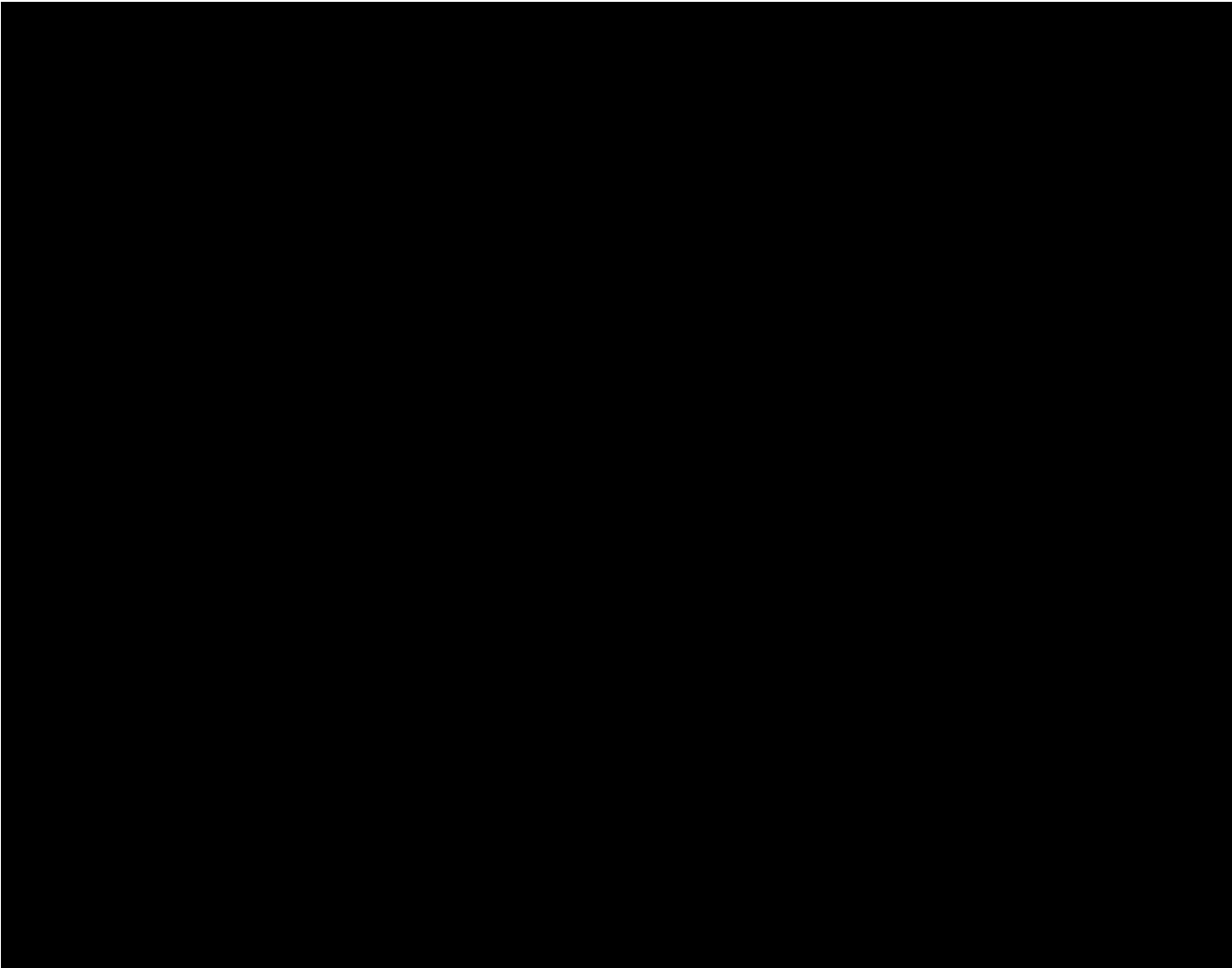
Appendix 4: Line Drawings



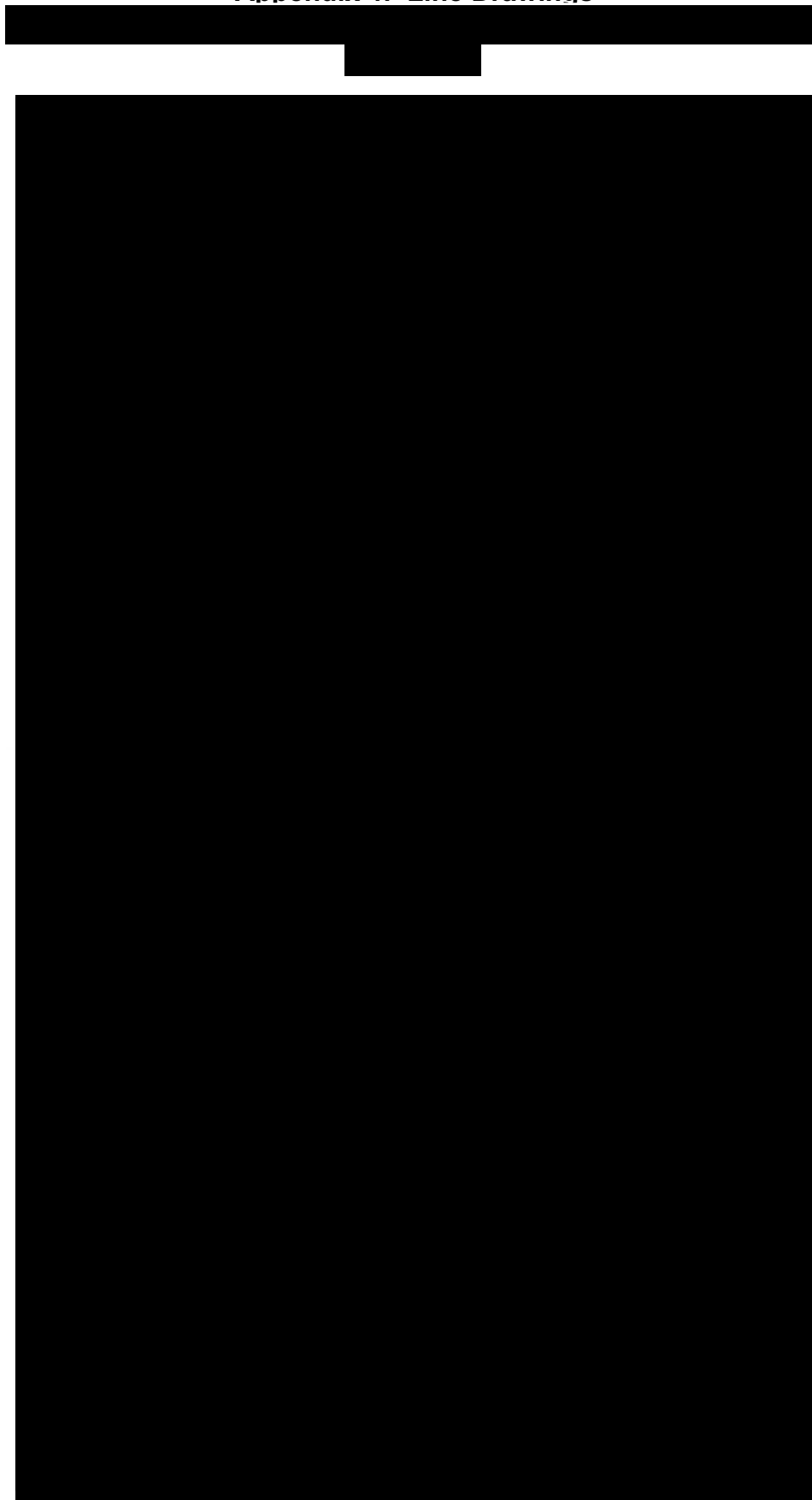
Appendix 4: Line Drawings



Appendix 4: Line Drawings



Appendix 4: Line Drawings



Appendix 5a: Medical Evaluation Form, Baseline (page 1 of 11)

University Health Services at UW-Madison



Compose New Secure Message

Welcome, Harry Spyder | Logout

Recipient: HIM OM

Message Type: OM ACRQ-Baseline

Subject: OM ACRQ-Baseline

Items marked with ** are required.

Reviewed 6-2012

ANIMAL CONTACT RISK QUESTIONNAIRE

This questionnaire is designed to collect information to assist with assessing possible health impacts of working with animals. This questionnaire is an important part of the University's ability to monitor health status associated with work activities and to comply with requirements of regulatory, accreditation and funding agencies. Information in this form will be reviewed by licensed medical providers. You will be contacted if there is any further evaluation or intervention needed for you to be medically safe in your work environment.

It is important that all questions be answered completely. If you do not have all of the information to complete the questionnaire you can save it and edit it at a later time. If you experience changes to your medical status, you should contact University Health Services Occupational Health 608-265-5610.

IMPORTANT NOTE: MyUHS has a time out feature that after 20 minutes of inactivity data may be lost or submission of forms incomplete. It is recommended that you complete all required steps in a continuous session.

*****BEFORE PROCEEDING YOU MUST COMPLETE THIS SECTION*****

UHS WILL NOT NOTIFY YOUR SUPERVISOR UNTIL THE TWO ADMINISTRATIVE FORMS LISTED BELOW HAVE BEEN COMPLETED.

- ☐ I certify that I have completed and submitted the Notice of Privacy and Consent to Treat form.**
- ☐ I certify that I have completed and submitted the Release of Information form**

To confirm completion of these forms click the back button on your web browser which will take you to the MyUHS list of forms.

If you start completing this form without checking these boxes first you may potentially lose the data you entered.

SUPERVISOR CONTACT INFORMATION

** Name of primary supervisor, sponsoring PI for visitors or course instructor for students.

Phone number of primary supervisor

e-mail address of primary supervisor

Name of additional supervisor or secondary contact.

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Appendix 5a: Medical Evaluation Form, Baseline (page 2 of 11)

Phone number of additional supervisor (if applicable)

e-mail address of additional supervisor (if applicable)

Address and Phone Number

Work Address

Phone Number

Part A: OCCUPATIONAL AND ENVIRONMENTAL RISK FACTORS**1. Animal Contact Setting**

Check all that apply

☐ I have no contact with animals or animal tissues through my employment or studies at UW-Madison☐ I have contact with animals or animal tissues through a university offered course or courses
List course name(s) or number(s) ☐ I have contact with university owned animals or animal tissues through my employment as an Animal Research Technician, Laboratory Veterinary Technician, Laboratory Animal Veterinarian, or similar animal care-taker position (e.g. Farm Animal Workers)☐ I have no direct contact with animals or animal tissues, but I currently work or may work in areas where animals are used or housed (this includes administrative, facility, maintenance, and safety personnel who provide service support to animal care facilities, including equipment and devices housed there)☐ I am the PI for an animal use protocol or have contact with animals in teaching or research through an approved animal care and use protocolList protocol number(s) if known ☐ I am a veterinary medical student☐ I have contact with client-owned animals in the Veterinary Medical Teaching Hospital (VMTH) (This includes: faculty with clinical duties, staff veterinarians, and residents; veterinary technicians and barn personnel; reception, medical records, and other VMTH office staff; pharmacists, pharmacy staff, and central supply staff; VMTH employed facility and maintenance personnel)☐ I am a member of an animal care and use committee (this includes lay or community members)

Additional Comments Regarding Animal Contact Setting

2. Species of Animal and Type of Contact

Read the key and indicate the type of contact for each animal species

Type of Contact Key

1. No contact of any kind with the species
2. No direct contact (typically an inspector, administrative staff or physical plant employees)
3. Animal husbandry or animal care
4. Contact with unfixed tissues or body fluid only

Appendix 5a: Medical Evaluation Form, Baseline (page 3 of 11)

5. Handle, restrain, administer substances to animals, etc. in teaching or research
6. Collect tissues or body fluid specimens, perform surgery or other invasive procedures, provide veterinary care or necropsy

****Wild Rodents**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Rat**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Any/all species of client owned animal(s)**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Hamsters, gerbils, or guinea pigs**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Mice**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Reptiles**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Frogs and/or other amphibians**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Fish**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Birds, Poultry**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Dogs**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Cats**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Rabbits**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Ferrets**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Pigs**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Goats**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

****Sheep**

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Appendix 5a: Medical Evaluation Form, Baseline (page 4 of 11)**** Horses**☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6**** Cattle**☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6**** Old World Monkey (e.g.: Macaque)**☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6**** Other Non-Human Primate**☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6**** Other Wild Mammal**☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6Specify Other Type of Wild Animal **Other Type of Animal**☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6Specify Other Type of Animal

Additional Comments Regarding Animal Exposure

3. Hazards Associated With Animal Contact

Complete the following section for each agent you are exposed to in conjunction with animal studies. You **MUST** place a response in each row. For any yes response please specify the specific agent(s) in the text box provided (if known).

**** Infectious agent(s)**☐ Yes ☐ No ☐ Unsure**** Human cells or tissues**☐ Yes ☐ No ☐ Unsure**** Recombinant DNA**☐ Yes ☐ No ☐ Unsure**** Genetically altered material(s)**☐ Yes ☐ No ☐ Unsure**** Radioactive material**☐ Yes ☐ No ☐ Unsure**** Toxic chemicals**☐ Yes ☐ No ☐ Unsure

Appendix 5a: Medical Evaluation Form, Baseline (page 5 of 11)**** Anesthetic gases**☐ Yes ☐ No ☐ Unsure**** Carcinogen, mutagen or teratogen**☐ Yes ☐ No ☐ Unsure**Other agent**☐ Yes ☐ No ☐ Unsure**Additional Comments Regarding Hazards****4. Personal Protection Equipment**

For each type of Protective Equipment check "Yes" for the items you currently use or will be using (if known) when doing your work and "No" for items you do not use.

**** Disposable gloves**☐ Yes ☐ No**Type of gloves**☐ Nitrile ☐ Vinyl ☐ Latex ☐ Not sure what type**** Heavy leather gloves**☐ Yes ☐ No**** Laundered gown or lab coat**☐ Yes ☐ No**** Disposable gown or lab coat**☐ Yes ☐ No**** Tyvek Sleeves**☐ Yes ☐ No**** Head Cover**☐ Yes ☐ No**** Face Shield**☐ Yes ☐ No**** Safety Glasses**☐ Yes ☐ No**** Safety Goggles**☐ Yes ☐ No

Appendix 5a: Medical Evaluation Form, Baseline (page 6 of 11)**** Disposable Coveralls**☐ Yes ☐ No**** Laundered Coveralls**☐ Yes ☐ No**** Boots**☐ Yes ☐ No**** Shoe Covers**☐ Yes ☐ No**** Dedicated Footwear**☐ Yes ☐ No**** Hearing Protection**☐ Yes ☐ No**** Surgical Mask**☐ Yes ☐ No**** Respirator/Mask**☐ Yes ☐ No

If yes, answer a. - d.

a. Type of Respirator/Mask☐ N-95 ☐ N-100 ☐ Half-Face ☐ Full-Face ☐ PAPR ☐ Unsure**b. Date (approximate) of last medical clearance to wear a respirator****c. Period of approval** --select one-- **d. Date (approximate) of last mask fit test****** Other personal protective equipment/item**☐ Yes ☐ No**Additional Comments Regarding Protective Equipment****PART B: PERSONAL HEALTH HISTORY****Immunization Status and History****** 1. Have you been immunized against tetanus?**☐ Yes ☐ No ☐ Don't Know

Year of last tetanus immunization:

Tetanus immunization should be updated every ten years

**** 2. Have you been immunized against hepatitis B?**☐ Yes ☐ No ☐ Don't Know

Year of last hepatitis B immunization:

Appendix 5a: Medical Evaluation Form, Baseline (page 7 of 11)

For personnel with a reasonable possibility of exposure to human blood or other potentially infectious human material, hepatitis B vaccine is available at no charge. Contact UHS at 608-265-5610 for further information.

**** 3. Have you been immunized against rabies?**

☐ Yes ☐ No ☐ Don't Know

Year of initial rabies immunization:

If your rabies vaccination was more than two years ago, have you had your titre checked within the past two years?

☐ Yes ☐ No ☐ Don't know

Year of last rabies titre check:

If you are a veterinarian, vet tech or vet student or have contact with wild caught animal(s) a rabies vaccination or titer should be completed within the last two years.

Tuberculin Surveillance and History

Tuberculin testing must be completed every 6 months for those working in primate facilities.

Alternatively, those with a history of positive reaction to the TB skin test will need to arrange a medical evaluation annually and secure a written fitness for duty statement from University Health Services or their personal medical provider.

**** 1. Date of last tuberculosis skin test (Purified Protein Derivative)**

Results of last TB skin test

☐ Negative ☐ Positive ☐ Unsure

Facility where test was administered:

**** 2. Have you received the tuberculosis vaccine Bacillus Calmette Guérin (BCG)?**

☐ Yes ☐ No ☐ Unsure

Year of last BCG vaccination:

**** 3. If you have tested positive to the tuberculosis skin test in the past, have you ever received medical clearance indicating that you are free of active tuberculosis?**

☐ Yes ☐ No ☐ Don't know ☐ Not applicable (never had positive test)

If yes, date of last medical clearance:

Have you ever received a Quantiferon gold or T-spot test?

☐ Yes ☐ No ☐ Unsure

If yes, indicate date and result:

4. Please check any of the following symptoms you have experienced since your last TB skin test.

- ☐ Persistent cough (>3 weeks duration)
- ☐ Hemoptysis (coughing up blood)
- ☐ Weight loss (unplanned)
- ☐ Lethargy/weakness/easy fatigability
- ☐ Night sweats
- ☐ Fever
- ☐ Chills
- ☐ Loss of appetite
- ☐ None

Additional Comments on TB Surveillance and History

Appendix 5a: Medical Evaluation Form, Baseline (page 8 of 11)**Environmental Allergies, Asthma, Skin Problems, and General Health Status**

The Occupational Health Program is able to assist personnel with allergy or asthma symptoms. Personnel protective equipment, respirator use, and area ventilation support is available upon request. An assessment by a board certified occupational health physician that specializes in work related allergies and asthma can be provided at no charge. Contact the Occupational Health Program at 608-265-5610 for more information and assistance.

**** 1. Are you allergic to any animals?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 2

List the animals:

Have you been seen by a healthcare provider for animal allergies?

☐ Yes ☐ No ☐ Don't know

**** 2. Have you developed any symptoms or illness as a result of your exposure to animals?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 3

Describe the symptoms you experience when exposed to specific animal(s):

**** 3. Do you have any other known allergies?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 4

List the causes of the allergies:

List the symptoms that occur when you are suffering from your allergies:

List the treatments that relieve your allergies:

**** 4. Do you have asthma?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 5

List the cause(s)/trigger(s) of the asthma if known:

**** 5. Do you have asthma (or any difficulty breathing) related to the animals that you currently work with?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 6

Have you been seen by a healthcare provider for this? ☐ Yes ☐ No

**** 6. Do you experience shortness of breath?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 7

Explain:

**** 7. Do you have any skin rashes related to your work (e.g. reactions to latex, dry or cracked skin, other rashes)?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 8

Explain:

Appendix 5a: Medical Evaluation Form, Baseline (page 9 of 11)

**** 8. Do you have any chronic medical illnesses?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 9

Explain:

**** 9. Are you currently under the care of a healthcare provider for acute or chronic medical conditions (high blood pressure, diabetes, arthritis, heart conditions, headaches, lung, kidney, cancer or immunosuppression)?**

☐ Yes ☐ No ☐ Don't know

If no, skip to 10

Explain:

**** 10. Do you take any medications (prescription drugs or over the counter) on a regular basis? You do not need to list medications for sexual functioning or for mental health diagnoses unless they cause drowsiness or confusion.**

☐ Yes ☐ No ☐ Don't know

If no, skip to 11

If you take medications and do not want to list them on the form, then you must

Check the box below that says "will schedule an appointment"

After completing and submitting the form, call 265-5610 to make your appointment for ACRQ review of medications

NOTE: Your ACRQ clearance will not be completed until after your appointment.

☐ Will schedule an appointment

List medications:

**** 11. Do you have house pets that could be responsible for allergic symptoms or represent a disease transmission hazard?**

☐ Yes ☐ No ☐ Don't know

If no, skip to next section

Explain:

Additional Comments on General Health

Individuals Working with Sheep

You may skip to the next section if you do not work with sheep

Work with sheep has been associated with exposure to *Coxiella burnetii*, an organism known to cause a disease called Q-Fever. This illness can be severe in individuals with pre-existing health conditions or who may be pregnant.

1. Do you have a history of known heart valvular disease (heart murmurs) or congenital heart disease?

☐ Yes ☐ No ☐ Don't know ☐ Not applicable (do not work with sheep)

2. Do you now have or have you ever had Q-fever (*Coxiella burnetii* infection)?

☐ Yes ☐ No ☐ Don't know ☐ Not applicable (do not work with sheep)

Additional Comments on Working With Sheep

Appendix 5a: Medical Evaluation Form, Baseline (page 10 of 11)**Individuals Working with Non-Human Primates**

Skip to the next section if you do not work with non-human primates

1. Have you had naturally acquired measles (rubeola)?

☐ Yes ☐ No ☐ Don't know ☐ Not applicable (do not work with NHP)

If no, skip to 2

Year of measles illness:

2. Have you had measles immunization?

☐ Yes ☐ No ☐ Don't know ☐ Not applicable (do not work with NHP)

If no, skip to next section.

Year of measles immunization:

Additional Comments Regarding Working With Non-Human Primates

PART C: HEALTH CONCERNS

**** 1.** Do you have any health or workplace concerns not covered by the questionnaire that you feel may affect your occupational health and that you would like to confidentially discuss with the Occupational Health Provider?

☐ Yes ☐ No

If Yes, explain in text box below

For certain types of animal work, individuals who are immune-compromised, pregnant, considering getting pregnant, breast-feeding or who have certain medical conditions may have additional concerns other than allergies. These individuals are encouraged to consult with their personal healthcare providers regarding such matters. They are also welcome to speak with the occupational medicine provider to discuss any health or workplace concerns not covered by this questionnaire. The Occupational Health Program has additional specialized medical resources available for your assistance.

If you have any disability for which you believe you will require an accommodation in order to perform your job, it is your responsibility to inform your supervisor and request a workplace accommodation.

PART D: CERTIFICATION SIGNATURE

**** Acknowledgement of form completion:**

☐ I have read the information provided on this form.

☐ I have completed this form to the best of my recollection.

☐ I am aware that deliberate misrepresentation may jeopardize my health.

Appendix 5a: Medical Evaluation Form, Baseline (page 11 of 11)

** Name

** Date:

REMINDER: MyUHS has a time out feature that after 20 minutes of inactivity data may be lost or submission of forms incomplete. It is recommended that you complete all required steps in a continuous session. You must click "Send" below to submit your questionnaire.

Appendix 5b: Medical Evaluation Form, Annual Update (page 1 of 7)

University Health Services at UW-Madison

**UHS**
UNIVERSITY
HEALTH SERVICES

Compose New Secure Message

Welcome, Harry Spyder | Logout

Recipient: HIM OM

Message Type: OM ACRQ-Annual

Subject: OM ACRQ-Annual

Items marked with ** are required.

ANIMAL CONTACT RISK QUESTIONNAIRE - ANNUAL

To assure occupational health annual risk assessment for those identified by UW Madison ACAPAC policy (and compliance with AAALAC and Federal agencies such as NIH), an Animal Contact Risk Questionnaires **MUST** be completed annually.

Prior to contact with animals the Baseline ACRQ is completed. If you have **NEVER** completed an ACRQ please exit this form and complete the ACRQ Baseline.

If you are unsure which form to complete, contact UHS Occupational Medicine at 608-265-5610.

IMPORTANT NOTE: MyUHS has a time out feature. It is recommended that you complete all required steps in a continuous session.

Supervisor Contact Information

This information will be used to determine who your compliance reports will be sent to

** NAME OF PRIMARY SUPERVISOR, SPONSORING PI FOR VISITORS OR COURSE

INSTRUCTOR FOR STUDENTS:

PHONE NUMBER OF PRIMARY SUPERVISOR, PI OR INSTRUCTOR:

** E-MAIL ADDRESS OF PRIMARY SUPERVISOR, PI OR INSTRUCTOR:

NAME OF ADDITIONAL SUPERVISOR or SECONDARY CONTACT:

PHONE NUMBER OF ADDITIONAL SUPERVISOR OR SECONDARY CONTACT (if applicable):

E-MAIL ADDRESS OF ADDITIONAL SUPERVISOR (if applicable):

Your Contact Information

** WORK ADDRESS:

** PHONE NUMBER:

PART A: OCCUPATIONAL AND ENVIRONMENTAL RISK FACTORS**Animal Contact Setting**

Enter any information that applies to your employment or academic status

JOB TITLE(S):

DEPARTMENT(S):

WORK LOCATION/UNIT(S):

PROTOCOL NUMBER(S):

ACADEMIC MAJOR:

COURSE NAME/NUMBER:

Appendix 5b: Medical Evaluation Form, Annual Update (page 2 of 7)

Check all that apply. Some individuals may be in more than one UW status

** UW STATUS:

- ☐ UW Employee
☐ Undergraduate Student
☐ Contract worker (working at UW but employed/paid by another entity)
☐ IACUC member
☐ Graduate student
☐ Affiliate/Other (e.g. guest, visiting scientist/scholar)

Affiliates must provide specific information regarding work and role in the text box below

PLEASE DESCRIBE YOUR ROLE AND THE TYPE OF WORK OR ACADEMIC EXPOSURE YOU HAVE TO ANIMALS, ANIMAL TISSUE OR BODILY FLUID. If you have multiple roles or are both a student and UW employee describe each role (e.g. ART at LAR, undergrad student/Zoology major, 2nd year vet student, Vet tech at SVM, PI, IACUC member)

Working Conditions

** HAVE YOUR WORK ACTIVITIES OR WORKING CONDITIONS CHANGED SIGNIFICANTLY SINCE YOUR LAST ACCRQ REVIEW?

☐ Yes ☐ No

PLEASE EXPLAIN ANY CHANGES OR ANY CONCERNS YOU HAVE REGARDING YOUR WORKING CONDITIONS:

Animal Species

** HAS THE TYPE OF CONTACT OR ANIMAL SPECIES YOU WORK WITH CHANGED?

☐ Yes ☐ No

If YES, indicate all animal contact you currently have below.

If NO: skip to the next section "Hazards associated with animal contact"

Read the key and indicate the type of contact for each animal species below. Species you do not have contact with may be left blank.

Type of Contact Key

1. No contact of any kind with the species
2. No direct contact (typically an inspector, administrative staff or physical plant employees)
3. Animal husbandry or animal care
4. Contact with unfixed tissues or body fluid only
5. Handle, restrain, administer substances to animals, etc. in teaching or research
6. Collect tissues or body fluid specimens, perform surgery or other invasive procedures, provide veterinary care or necropsy

RATS

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

MICE

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

HAMSTERS, GERBILS OR GUINEA PIGS

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

RABBITS

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

HORSES

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Appendix 5b: Medical Evaluation Form, Annual Update (page 3 of 7)

PIGS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

GOATS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

SHEEP
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

CATTLE
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

DOGS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

CATS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

FERRETS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

OLD WORLD MONKEY (eg: Macaque)
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

OTHER NON-HUMAN PRIMATES
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

BIRDS, POULTRY
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

REPTILES
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

FROGS AND/OR OTHER AMPHIBIANS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

FISH
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

ANY/ALL SPECIES OF CLIENT OWNED ANIMAL(S)
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

WILD RODENTS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

OTHER TYPE OF WILD MAMMALS
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

Specify Other Type of Wild Mammal

OTHER TYPE OF ANIMAL
☐1 ☐2 ☐3 ☐4 ☐5 ☐6

Specify Other Type of Animal

Hazards Associated With Animal Contact

**HAVE ANY OF THE HAZARDS YOU WORK WITH CHANGED?

☐ Yes ☐ No ☐ Unsure

If YES, check any type of hazard you currently encounter or have possible exposure to in your work or academic activities

If NO: skip to the next section "Personal Protection Equipment"

☐ INFECTIOUS AGENT(S)

List agent(s)

☐ HUMAN CELLS OR TISSUES

List agent(s)

☐ RECOMBINANT DNA

List agent(s)

☐ GENETICALLY ALTERED MATERIAL(S)

List agent(s)

☐ RADIOACTIVE MATERIAL(S)

List agent(s)

☐ TOXIC CHEMICALS(S)

List agent(s)

Appendix 5b: Medical Evaluation Form, Annual Update (page 4 of 7)☐ ANESTHETIC GAS(ES)List agent(s) ☐ CARCINOGEN(S), MUTAGEN(S), TERATOGEN(S)List agent(s) ☐ OTHERList agent(s) **Personal Protection Equipment****** IS YOUR PERSONAL PROTECTIVE EQUIPMENT DIFFERENT THAN REPORTED IN PRIOR ACRQ?**☐ Yes ☐ No ☐ Unsure*Please list any changes since last ACRQ***** DO YOU WEAR A RESPIRATOR?** *Surgical masks do not qualify as respirators*☐ Yes ☐ No ☐ Unsure*If yes, what type(S)?*☐ N-95 ☐ N-100 ☐ Half-Face ☐ Full-Face ☐ PAPR ☐ Unsure what type*If yes, have you been fit tested for this respirator in the past year?*☐ Yes ☐ No ☐ Don't know**PART B: PERSONAL HEALTH HISTORY****Environmental Allergies, Asthma, Skin Problems****** 1. HAVE YOU DEVELOPED ANY NEW ALLERGIES IN THE PAST YEAR?**☐ Yes ☐ No ☐ Unsure*If yes, explain:***** 2. ARE YOU ALLERGIC OR POSSIBLY ALLERGIC TO ANY ANIMAL(S) THAT YOU CURRENTLY WORK WITH?**☐ Yes ☐ No ☐ Unsure*If yes, list the animal(s) and symptoms you experience:***** 3. ARE YOU ALLERGIC TO PETS OR ANY OTHER ANIMALS OUTSIDE YOUR WORK ENVIRONMENT?**☐ Yes ☐ No ☐ Unsure*If yes, list the animals and symptoms you experience:***** 4. DO YOU HAVE OTHER KNOWN ALLERGIES?**☐ Yes ☐ No ☐ Unsure*If yes, list the allergies and symptoms you experience?*

Appendix 5b: Medical Evaluation Form, Annual Update (page 5 of 7)

**** 5. LIST ANY MEDICATIONS OR OTHER TREATMENTS THAT RELIEVE YOUR SYMPTOMS**
(enter none if applicable):

**** 6a. DO YOU HAVE ASTHMA OR BREATHING PROBLEMS?**

☐ Yes ☐ No ☐ Unsure

**** 6b. DO YOU HAVE ASTHMA OR BREATHING PROBLEMS RELATED TO THE ANIMALS YOU CURRENTLY WORK WITH?**

☐ Yes ☐ No ☐ Unsure

If yes to question 6a or 6b, list the cause(s) or trigger(s) of the asthma including animals or other agents in your workplace. If you do not know write "unknown"

If yes to question 6a or 6b, have you been seen by a healthcare provider for this?

☐ Yes ☐ No

**** 7. DO YOU HAVE ANY SKIN PROBLEMS RELATED TO YOUR WORK (e.g. reactions to latex, dry or cracked skin, other rashes)?**

☐ Yes ☐ No ☐ Unsure

If yes, describe:

General Health Status

**** 1. HAVE YOU BEEN DIAGNOSED WITH ANY NEW MEDICAL PROBLEMS SINCE YOU LAST ACRQ?**

☐ Yes ☐ No ☐ Unsure

If yes, describe:

**** 2. DO YOU HAVE A HISTORY OF HEART DISEASE OR ANY CHRONIC MEDICAL CONDITIONS e.g. high blood pressure, diabetes, arthritis, headaches, lung, kidney, cancer, immunosuppression?**

☐ Yes ☐ No ☐ Unsure

If yes, describe:

**** 3. DO YOU TAKE ANY MEDICATIONS (PRESCRIPTION DRUGS OR OVER THE COUNTER) ON A REGULAR BASIS? YOU DO NOT NEED TO LIST MEDICATIONS FOR SEXUAL FUNCTIONING OR FOR MENTAL HEALTH DIAGNOSES UNLESS THEY CAUSE DROWSINESS OR CONFUSION.** ☐ Yes ☐ No ☐ Unsure

If no, skip to the next section

*If you take medications and do not want to list them on the form, then you must Check the box below that says "will schedule an appointment"
After completing and submitting the form, call 265-5610 to make your appointment for ACRQ review of medications*

NOTE: Your ACRQ clearance will not be completed until after your appointment.

☐ Will schedule an appointment

List medications:

Appendix 5b: Medical Evaluation Form, Annual Update (page 6 of 7)**PART C: HEALTH CONCERNS**

**DO YOU HAVE ANY HEALTH OR WORKPLACE CONCERNS NOT COVERED BY THE QUESTIONNAIRE THAT YOU FEEL MAY AFFECT YOUR HEALTH AND THAT YOU WOULD LIKE TO DISCUSS CONFIDENTIALLY WITH AN OCCUPATIONAL HEALTH PROVIDER?

☐ Yes ☐ No

If Yes, explain:

PART D: ADDITIONAL INFORMATION

The Occupational Health Program is able to assist personnel with allergy or asthma symptoms. Personnel protective equipment, respirator use, and area ventilation support is available upon request. An assessment by a board certified occupational health physician that specializes in work related allergies and asthma can be provided at no charge. Contact the Occupational Health Program at 608-265-5610 for more information and assistance.

For certain types of animal work, individuals who are immune-compromised, pregnant, considering getting pregnant, breast-feeding or who have certain medical conditions may have additional concerns other than allergies. These individuals are encouraged to consult with their personal healthcare providers regarding such matters. They are also welcome to speak with the occupational medicine provider to discuss any health or workplace concerns not covered by this questionnaire. The Occupational Health Program has additional specialized medical resources available for your assistance.

If you have any disability for which you believe you will require an accommodation in order to perform your job, it is your responsibility to inform your supervisor and request a workplace accommodation.

It is important that all questions have been answered completely. If you experience changes to your medical status, you should contact University Health Services Occupational Medicine 608-265-5610.

PART D: CERTIFICATION SIGNATURE

**ACKNOWLEDGEMENT OF FORM COMPLETION

☐ I have read the information provided on this form.

**

☐ I have completed this form to the best of my recollection.

**

☐ I am aware that deliberate misrepresentation may jeopardize my health.

**NAME

**DATE

REMINDER: MyUHS has a time out feature. It is recommended that you complete all required steps in a continuous session. You must click "Send" below to submit your questionnaire.

6-25-15

Appendix 5b: Medical Evaluation Form, Annual Update (page 7 of 7)

Send

Cancel



Appendix 6: IACUC/OB Membership Roster

INSTITUTION NAME: **College of Letters & Sciences and VCRGE Centers (LSVC) Animal Care Committee-University of Wisconsin-Madison**
 MEMBERSHIP OF INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE ASSURANCE NUMBER: A3368-01 DATE: 28 March 2017

MEMBER NAME	DEGREE & CREDENTIALS	POSITION TITLE	AFFILIATION WITH INSTITUTION	ADDRESS & PHONE OF CHAIR
Voting				
[REDACTED]	PhD	Assistant Professor	Cell and Regenerative Biology	1223 Capitol Court Madison, WI 53715 Phone: 608/263-3544 Email: rcolman@primate.wisc.edu
[REDACTED]	PhD	Associate Professor	Psychology	
[REDACTED]	PhD	Professor	Psychology	Vice-chair
[REDACTED]	DVM, DACLAM	Attending Veterinarian (WNPRC)	WNPRC (Wisconsin National Primate Research Center)	
[REDACTED]	DVM	Attending Veterinarian (lab animals)	RARC	
[REDACTED]	BS, MBA	[REDACTED]	Environmental Health and Safety	
[REDACTED]	PhD	Associate Professor	Pediatrics	
[REDACTED]	PhD	Associate Professor	Zoology	
[REDACTED]	DVM, PhD, Dipl. ACLAM	Research Animal Veterinarian	RARC	
[REDACTED]	MS	Senior Scientist	Waisman Center	
[REDACTED]	MS	[REDACTED]	L&S Administration	
[REDACTED] ***	BA	[REDACTED]	Nonaffiliated	
[REDACTED]	DVM, MPH, PhD, Dipl. ACLAM	Attending Veterinarian (UW-Madison)	RARC	
[REDACTED] **	MA	Accountant	OVCRGE	
Voting Alternates				
[REDACTED]	DVM	Alternate for [REDACTED]	WNPRC	
[REDACTED]	BS	Alternate for [REDACTED]	Environmental Health and Safety	
[REDACTED]	DVM	Alternate for [REDACTED]	RARC	
[REDACTED]	PhD, DVM, DACLAM	Alternate for [REDACTED]	RARC	
Ex officio - Voting				
none				
Ex officio - Non-voting				
[REDACTED]	BS	Animal Research Coordinator	Animal Research Safety	
[REDACTED]	MS	Compliance Specialist	WNPRC	
[REDACTED]	MS	Animal Program Assessment Specialist	RARC	
[REDACTED]	MS	[REDACTED]	RARC	
[REDACTED]	PhD	Animal Program Assessment Specialist	RARC	
[REDACTED]	BS	Animal Program Assessment Specialist	RARC	
[REDACTED]	MA	[REDACTED]	RARC	
[REDACTED]	PhD	[REDACTED]	RARC	
[REDACTED]	PhD	[REDACTED]	WNPRC	

*indicates Chairperson

**indicates nonscientific member

***indicates nonaffiliated member

n=14, quorum=8

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 1 of 9)

Revision 02/2011

RARC Use Only: _____

UNIVERSITY OF WISCONSIN - MADISON ANIMAL CARE AND USE PROTOCOL REVIEW FORM

Forms should be typed or in computer-printed format. PLEASE MINIMIZE formatting changes when preparing on computer.

PC & Macintosh word processing forms can be downloaded via the RARC homepage: <http://rarc.wisc.edu/>

Return completed forms to RARC (396 Enzyme Institute, 1710 University Ave., Madison, WI 53726).

Preferred method of delivery: attachment to e-mail (call 5-2696 or 2-7109 for e-mail address).

Hard copy not required except for the page with PI signature, which must be sent or faxed (265-9040).

INVESTIGATORS: Animal protocols are assigned for review to the Animal Care and Use Committee(s) that provides oversight of the facility or facilities where the animals assigned to this protocol will be housed.

Questions? _____ or _____ at RARC, or consult the "Guide to Completing the Animal Use Protocol" on the RARC website.

Submission Deadlines by College or School:

•School of Medicine & Public Health:

4:00 pm the 15th of the month

•School of Veterinary Medicine: rolling deadline

•Graduate School: rolling deadline

•College of Agricultural and Life Sciences:

4:00 pm 1st of the month

•College of Letters and Science:

4:00 pm on the 1st of the month**RARC Office Use Only:**

<input type="checkbox"/> Survival Surgery	<input type="checkbox"/> Restraint	Amendment Stamp/Approval
<input type="checkbox"/> Nonsurvival Surgery	<input type="checkbox"/> Paralytic Agents	
<input type="checkbox"/> Rodent Surgery	<input type="checkbox"/> Fluid/Food Restrictions	
<input type="checkbox"/> Nonrodent Surgery	<input type="checkbox"/> Nonstandard Housing	
<input type="checkbox"/> Multiple Major Survival Surgery	<input type="checkbox"/> Nonstandard Husbandry	
<input type="checkbox"/> Critical Veterinary Care	<input type="checkbox"/> Occupational Health & Safety	
<input type="checkbox"/> Class B Dog/Cat	<input type="checkbox"/> Biohazards	
<input type="checkbox"/> Exercise Exemption	<input type="checkbox"/> Radiation	
<input type="checkbox"/> Enrichment Exemption		

NOTE: ALL PROTOCOLS ARE VALID FOR THREE (3) YEARS FROM DATE OF APPROVAL.**1. Principal Investigator/Project Director:**

Telephone Numbers: Office:

Lab:

Animal Emergency:

Home:

Fax:

E-mail Address:

Alternate for animal emergency or study-related action/communication with Authority to act in the Investigator's absence:

Name of Alternate for animal emergency/study-related action:

Alternate Office Phone:

Alternate Phone:

Alternate Email:

Alternate contact for clerical purposes only for this protocol:

Name of Clerical Alternate:

Clerical Alternate Office Phone:

Clerical Alternate Phone/Email:

2. University Department (of PI):

Office Address:

Unit & Division Number (UDDS):

3. Type of submission (underline appropriate category): NEW RENEWAL AMENDMENT

If Renewal or Amendment, please give current protocol code (e.g. G00180): Code:

4. This protocol is for: TEACHING or RESEARCH (Underline all that apply) BIOMEDICAL; BEHAVIORAL; OBSERVATIONAL; AGRICULTURAL; FIELD; OTHER (SPECIFY)**5. Title of this animal protocol:****6. Classification of animal use** (will be completed by RARC administrative staff): 1 2 3 4 5

1

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 2 of 9)

- 7.
- Underline
- the appropriate response to each question below:

a) Will ANY surgery be performed on any animals? **YES** **NO** If yes, fill out questions 24-30.
 b) Will you be working with wild-caught animals? **YES** **NO** If yes, fill out questions 31-34.
 c) Will you be using nonhuman primates? **YES** **NO** If yes, fill out question 35.

- 8.
- Procedure locations:**
- Will any procedures on live animals (e.g., blood collection, injections, euthanasia, scans, etc.) be conducted in labs or other facilities outside of housing area?
- Underline one:
- YES**
- NO**
-
- If
- YES**
- , enter information on the table below, using additional lines as necessary. "Precautions" refers to steps taken to prevent potential disease transfer upon return to normal housing.

NOTE: Any location where animals are kept for more than 12 hours is considered HOUSING and should be included in Question 10.

(hit "tab" in bottom right cell to add additional row)

Procedure	Building/Room #	Length of stay (hrs)	Method of transport & precautions, if any
example: blood collection, euthanasia		<6	opaque cage in animal transport van

- 9.
- Species, Numbers, and Sources of Animals**

NOTE: TOTAL NUMBERS ARE FOR THE ENTIRE THREE-YEAR LIFE OF THIS PROTOCOL.

- a. Numbers of animals needed for experiments for 3 years:

(hit "tab" in bottom right cell to add additional row)

Species of animal	Total for 3 years	Source of animals (e.g. commercial vendor, another UW-Madison protocol)

- b. Will any dogs or cats be obtained from Class B dealers? (Underline one)
- YES**
- NO**

NOTE: Use of animals from Class B dealers requires permission from the Animal Care and Use Committee.

- c.
- To ensure the health of laboratory animals, the Investigator must consider the previous use of animals on other projects.**
- The investigator must take into consideration how previous nutritional manipulations, blood draws, drugs and materials administered, and other manipulations may have compromised the animals' fitness for the proposed study in this protocol, or how the proposed study may adversely impact animals given their health history and assignment to earlier projects.
- Animals that have undergone a major operative procedure, permanent physiologic alteration, or substantial impairment on a previous protocol are not eligible for major operative procedures on subsequent protocols.**

Have any of the animals listed in Question 9(a) been part of any other protocols (include breeding animals obtained from other investigators)? Underline one: **YES** **NO**If **YES**, briefly explain how you have determined that the previous use of these animals will not compromise the animal's health and the research proposed in this protocol.

- 10.
- Housing:**
- Building(s)/facilities—including procedure room(s)—where the animals will be housed for more than 12 hours.

- 11.
- Explanation of Goals, Animal Use, and Choice of Species**

- a. In straight-forward, nonmedical, nontechnical language that would be understandable to a layperson (aim for a high school-senior reading level), outline the specific scientific goal(s) and significance of this research. Be convincing as to why this work is important for advancement of knowledge, improving human or animal health, or for the good of society. Spell out all acronyms at first occurrence.
- If this is a Renewal submission**
- please provide a brief (2-3 sentences) description of your progress and productivity in the past three years to help the Committee evaluate animal usage. This description can be a citation(s) to a publication generated from this research or new directions that will be pursued in the next three years. If a published manuscript is not yet available, a brief description of any other progress can be provided, such as abstracts, oral presentations, or presentations at meetings.

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 3 of 9)

- b. Specifically justify the use of animals for this research. Explain why it is imperative to use animals and why **non-animal alternatives** such as computer simulation or in vitro systems are not possible
- c. Specifically justify why you chose the species cited in 9(a) for your work, such as the appropriateness of the species for your proposed work. Cost considerations are not justifications.
12. **Explain how the number of animals required was determined and justify that need.** Include all control animals and breeding colony animals in this discussion. A table may help clarify different experimental groups or studies and the specific numbers needed for each. Include any statistical analysis used (e.g. power calculations) in determining the animal numbers.
13. **Current or pending funding** for this project (add more entries as needed):
- Title of Grant (1):
Funding Source (1): Grant Number (1):
- Title of Grant (2):
Funding Source (2): Grant Number (2):
14. Identify the person(s) or animal care unit responsible for *daily* animal care:
15. Research/teaching staff expected to work with the animals in this study (*please delete examples*)

INVESTIGATORS: Everyone listed below must take the "Responsible Use and Care of Laboratory Animals" certification course before starting work with research animals. Protocols cannot be approved until PI and all listed personnel are certified. RARC also offers several species-specific animal handling courses and procedures training (e.g. blood draw techniques, surgery). For information, call RARC 265-2694.

(hit "tab" in bottom right cell to add additional row)

Name / Degree / Phone number	Will work with the following species within this protocol	List the year each individual began working with the specie(s) and performing the procedures they will work with/perform in this protocol. NOTE: For personnel who have worked with the named species less than 1 year, indicate who will train and supervise them.
Joe UW Scientist/PhD, DVM 222-3333	Dog, rat	Dog: blood draws, vein grafts, tissue harvest since 1996; Rat: blood draws, splenectomies since 2003
Jane UW Student/BA/222-4444	rat	no experience, will be trained in blood draws by Dr. Scientist; will only perform blood draws

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 4 of 9)**16a. Search for Unnecessary Duplication and Alternatives to Potentially Painful / Distressful Procedures****16a 1. UNNECESSARY DUPLICATION**

The Animal Welfare Act and USDA Animal Care Policy #12 require PIs to assure the Committee that you have considered whether or not your proposed work unnecessarily duplicates existing knowledge. **The USDA believes that database searches remain the most effective and efficient method for demonstrating compliance with the requirement to consider unnecessary duplication of research.** To satisfy this requirement provide the following information:

(hit "tab" in bottom right cell to add additional row)

Electronic databases searched	Years covered by search	Date (MM/DD/YY) of most recent search performed	Frequency with which searches are performed (e.g. monthly)	Keywords used for this search

Please provide a short narrative below of findings from your search. If your research will duplicate existing knowledge please state why this duplication is imperative to the attainment of scientific goals of the protocol.

Narrative 1:

16a 2. Alternatives to procedures that may cause MORE THAN MOMENTARY OR SLIGHT PAIN OR DISTRESS

There may be alternatives to procedures that cause more than momentary pain or distress and that will not interfere with your research. Procedures that cause only momentary pain or distress are quick and minimally invasive, such as simple injections or blood collections, and typically do **not** include procedures performed under anesthesia. Do any procedures you have proposed cause more than momentary or slight pain or distress?

- ☐ No
☐ Yes

If YES, USDA Animal Care Policy #12 requires PIs to assure the Committee that alternatives to procedures that cause more than momentary or slight pain or distress have been considered. To satisfy this requirement, **the USDA believes that database searches remain the most effective and efficient method for demonstrating compliance with the requirement to consider alternatives to more than momentary painful / distressful procedures.** Note that alternatives that do not allow the attainment of scientific goals of the research are not considered to be viable alternatives.

Use the keywords 'refinement' and 'alternative' in conjunction with each procedure that causes more than momentary or slight pain or distress and species. Note that pain management for each of these procedures should be addressed in Questions 18 and/or 27a and/or 29.

(hit "tab" in bottom right cell to add additional row)

Electronic databases searched	Years covered by search	Date (MM/DD/YY) of most recent search performed	Frequency with which searches are performed (e.g. monthly)	Keywords used for this search (e.g. "procedure + species + refinement+ alternative")

Please provide a short narrative below of findings from your search. If an alternative or refined method was found, but cannot be used in your research, explain why this is the case.

Narrative 2:

For further guidance on conducting searches visit:

http://awic.nal.usda.gov/nal_display/index.php?info_center=3&tax_level=1&tax_subject=184

<http://researchguides.library.wisc.edu/animalalternatives>

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 5 of 9)**16b. Occupational Health and Safety Considerations**

Radiation or biohazard material usage in animals: In the table below, mark YES or NO for each category as it applies to this protocol. If YES, indicate the specific materials in the right-hand column and show the status (approved or pending) of Biological Safety (OBS-2) and/or Radiation Safety (99A) protocols.

Category	Used in project? (Yes/No)	If YES, list specific materials used
Recombinant DNA		
Genetically altered materials		
Infectious agents:		
Bacteria		
Virus		
Prion		
Other		
Carcinogen or mutagen		
Toxic agent		
Human-derived materials		
Teratogens		
Other		
Radioactive material		

Status of OBS-2 *needed for this project*: (Underline below OR check here): ☐ Not applicable to this project.
 PENDING APPROVED Provide OBS-2 number if approved:

Status of 99-A *needed for this project*: (Underline below OR check here): ☐ Not applicable to this project.
 PENDING APPROVED Provide 99-A number if approved:

- c. **Special Precautions for Personnel:** If you are using any agent that could be hazardous to humans or animals, please provide any special precautions that should be followed by your lab personnel, animal caretakers, veterinarians, maintenance and/or sanitation personnel, or anyone else entering the areas where experiments are conducted or animals are housed. Include any special practices required for handling of any animal or experimental waste, animal carcasses, and cages and caging materials. Consider such requirements as masks or respirators, eye protection, lab coats, gloves, and disposal methods. Also consider posting signage for special requirements on animal room doors and/or cages.

You must address Question 17 separately for each species.

17. Description of Proposed Experimental Design/Studies

- a. In this section describe the animals' roles in your experiments—that is, the treatments and procedures the animals will receive outside of normal husbandry, from the first experimental manipulation to the final outcome. This response should provide the Animal Care and Use Committee with a clear understanding of what specifically happens sequentially to each animal or group of animals, and over what time period the procedures occur, including but not limited to:
- definitions of all materials given to animals, including dosage range, routes, and frequency of administration;
 - blood draw methods, sites, and % volume
 - breeding procedures/methods, if this protocol is to cover an animal colony or herd;
 - the expected sequence, frequency, and duration of procedures;
 - brief description of any devices/implants animals will receive, surgical and nonsurgical;
 - the timing of any surgery within the experiment (do not repeat the surgical description you will provide in Question 28a);
 - method, frequency, volumes, and numbers of biological samples taken;
 - experimental diets;
 - use of toxic agents, biohazardous materials, or radioactive materials (list in Question 16b);
 - social or environmental manipulation;
 - methods of antibody production.

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 6 of 9)

- b. Do any animals undergo any type of restraint beyond normal housing methods? (examples of non-normal housing include metabolic crates and restraint chairs). Underline one: YES NO
If YES, describe the method, length of restraint, and justification for such restraint. If the design of the study requires continuous restraint for longer than 12 hours without the opportunity for exercise, be sure the justification addresses need for such an extended period and include the maximum length of time the animals will be restrained. Include any plans for providing additional enrichment and any steps taken to avoid physical discomfort during the restraint. If you are unsure whether or not your proposed methods are considered restraint, contact your Attending Veterinarian.
- c. Are any animals subjected to fluid or food restriction or regulation? Underline one: YES NO
If YES, discuss type and length of restriction, the expected consequences of restriction on the animals' health and well-being, and justification for such restrictions.
- d. Will any animals require nonstandard husbandry or housing exemption (e.g. exercise exemption, modified light cycle, extended cage cleaning periods, nonstandard cage type or size, etc.)? Underline one: YES NO
If YES, indicate the type of nonstandard husbandry required and scientific justification for these practices.
18. Will animals be subjected to **more than momentary or slight pain or discomfort** as a **result** of the experimental or other study-related procedures? Underline one: YES NO
If YES describe the analgesics you will provide. Include drug names (generic preferred), dosages, route of administration, nursing care, mechanical devices, etc.

NOTE: If all experimental or other study-related procedures are **terminal** and therefore performed only on anesthetized animals, type an X between the brackets: [X]

19. Describe how frequently animals will be monitored to ensure they are not experiencing pain or discomfort from your procedures **or** any unanticipated illness or injury not necessarily directly related to your research. Describe the criteria or clinical signs (e.g. ruffled fur, hunched posture) that you will use to determine when euthanasia will be performed in these cases.
20. Describe the **specific criteria** for termination of animals **if experiments could induce chronic disease, tumors or radiation sickness**. These criteria should be described in terms of tumor size, specific animal characteristics or behaviors, weight loss changes, observed clinical signs, etc.

NOTE: If experiments are not expected to induce these conditions, please type an X between the brackets:
[X] **Chronic disease, tumors or radiation sickness are not anticipated.**

21. Describe the methods of euthanasia used, including drugs, dosage, and any sedation. Consult the 2007 *Report of the American Veterinary Medical Association (AVMA) Guidelines on Euthanasia* (www.avma.org/resources/euthanasia.pdf) or your school's Attending Veterinarian for appropriate euthanasia methods. **Even if euthanasia of animals is not part of this project, complete this Question for cases of unanticipated illness or injury.**

NOTE: In general, physical methods (cervical dislocation, decapitation) are recommended for use only after other acceptable means have been excluded, in sedated or unconscious animals when practical, when scientifically or clinically justified, and with

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 7 of 9)

*Animal Care and Use Committee approval. Physical methods **without** pre-anesthesia **require** scientific justification and description of the training of personnel who will perform it.*

22. If the animals are not euthanized at the end of the study, what will happen to them? Include descriptions of transfer of animals to other approved animal care and use protocols, or return of animals to managed colonies or herds.

23. Could any animals or animal products involved in these studies possibly be consumed by humans? Underline one:
YES NO

If YES, list any drugs to be given to the animals and the recommended withdrawal times before safe consumption:

INVESTIGATOR SIGNATURE:

To the best of my knowledge, I certify that the information provided in this Animal Care and Use Protocol is complete and accurate. I understand that approval must be renewed annually, that every third year the ACUC must perform a new review of my protocol, and that I might be required to complete a newer version of the Animal Care and Use Protocol and provide additional information at the time of the triennial review.

I also understand that ACUC approval must be obtained by an amendment to this protocol before I:

- Use additional animal species, increase the number of animals used, or increase the number of procedures performed on individual animals;
- Change procedures in any way that might be considered a significant departure from the written protocol;
- Perform additional procedures not described in this Animal Care and Use Protocol;
- Allow other investigators to use these animals on other protocols, or use these animals on another of my ACUC-approved protocols.

I further certify that:

- No personnel will perform any animal procedures until they have been approved by the ACUC, via RARC. When new or additional personnel become involved in these studies, I will submit their qualifications, training, and experience to the ACUC and seek ACUC approval before they are involved in animal studies;
- I will ensure that all personnel are enrolled in an institutional Occupational Health and Safety Program prior to their contact with animals, or have declined in writing to participate, if allowed by local policy;
- I will provide my after-hours telephone numbers to the animal care staff in case of emergency.

I plan to follow the provisions for the care, use and treatment of animals found in the NIH "Guide for the Care and Use of Laboratory Animals," or the "Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching". I assure that these procedures do not unnecessarily duplicate previous experiments.

Signature of PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR: _____

(A signature is required for submission. Either print, sign, and fax this page to 265-9040 with a cover sheet that identifies you/your protocol clearly, or paste an image of your handwritten signature here.)

Questions for Projects Involving Surgical Procedures

24. Give the names of all research staff who will perform hands-on surgery on the animals in this study. For each person listed, describe their type and length of surgical training and experience, emphasizing **specific** experience with surgeries to be performed as a part of this study. For personnel listed below who have less than 1 year of experience with the surgeries they will be involved with, indicate who will train and supervise them. *Please delete the examples are provided in the table below for you.*

(hit "tab" in bottom right cell to add additional row)

Name/Phone Number	Brief description of SURGICAL training/experience.
Jane UW Scientist / 222-3333	DVM 1995; have performed rat splenectomies since 1996
Joe UW Student / 222-4444	No surgery experience, will be trained in surgical techniques by Dr. Scientist

7

Appendix 7a: Blank IACUC/OB Protocol Form, Paper (page 8 of 9)

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25. Where will surgery be performed? Room number(s): Building:

26. How many animals listed in Question 9(a) will undergo surgery?

27. **Anesthetics and Paralytic Agents**

a. Describe anesthetic method used, including all drugs, dosages, routes of administration and supplementation regimen. Include how anesthesia level is monitored, e.g., list the physiologic parameters that will be monitored to ensure adequate anesthesia depth for both general and local anesthesia. *Documentation of the anesthesia used and the monitoring of anesthetic depth is **required** for all surgical procedures.*

b. Are any paralytic agents being used? Underline one: YES NO
If YES, indicate agent, justification for use, and any special monitoring techniques used to assess animal condition while under paralysis.

28. **Surgical Procedures**

a. Describe the surgical procedure(s), including narrative description(s) for the following: reason for the surgery, incision site(s), tissue isolation methods, wound closure, and an estimate of time required to complete the surgery.

NOTE: Aseptic procedures must be used for all survival surgery.

b. Describe which of the following procedures will be used to maintain a sterile field during surgery (place an X between the brackets of all that apply):
☐ sterile instruments: specify method: ☐ bead sterilizer ☐ autoclave ☐ describe other:
☐ sterile gown/garb ☐ sterile gloves ☐ sterile drapes ☐ face mask/eye protection
☐ surgeon scrub ☐ other (please describe):

29. Will the animals be allowed to recover from surgery? (Underline one) YES NO
If YES, describe the post-anesthetic and post-surgical monitoring and care procedures, including:

- all drugs and dosages
- how body temperature will be maintained during recovery
- the plan for suture or staple removal
- who will perform the monitoring, frequency/duration of monitoring
- the parameters that will be evaluated
- method of maintaining written records of these examinations
- measures designed to alleviate post-operative discomfort

NOTE: Documentation of the post-operative monitoring of post-surgical animals is required!

30. Will any animal(s) be allowed to recover from more than one major operative procedure?
Underline one: YES NO

NOTE: A major operative procedure is defined as any surgical intervention that penetrates and exposes a body cavity or any procedure that produces permanent impairment of physical or physiological functions.

a. If YES, provide scientific justification for performing these procedures and list the species and number of animals:

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- b. What is minimum length of time between the operative procedures?

Questions for Projects Using Wild-Caught Animals

(It is the responsibility of the PI to obtain all necessary state and federal permits for work with wild animals.)

31. Do you capture wild animals or do experimental manipulations (or procedures) on animals in the wild? Underline one: **YES NO**, Observation only
32. If you capture wild animals, describe how they will be trapped, what types of traps will be used, and how often traps will be checked.
33. **Quarantine and Release Information**
- a. Describe quarantine procedures and precautions to prevent exposure of humans and other animals to zoonotic diseases.

NOTE: If animals will not be housed, please state this.
- b. If animals will be released back to the wild, explain how the released animals will not present a disease exposure to wild populations and explain why this release will not expose the animal to greater risk of predation as a direct result of procedures performed or materials administered.

NOTE: If animals will not be released back into the wild, please state this.
34. If wild animals will be anesthetized and released to the wild, describe anesthetic doses, method of administering and procedures for assuring that animals are sufficiently recovered from anesthetic to be released. Consider that prey species may have to be monitored until fully recovered to avoid predation.

NOTE: If animals will not be anesthetized, please state this.

Questions for Projects Using Nonhuman Primates

35. **Nonhuman Primate Enrichment**
- a. If nonhuman primates used in your study must be housed individually due to scientific consideration, provide that scientific rationale.
- b. Provide scientific rationale for any restrictions to environmental enrichment. Include the specific restriction(s) such as: puzzle feeders, cage perch, wooden chew sticks, food treats (bananas, carrots, oranges, other fruit or vegetables), etc.

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PROTOCOL BASICS**1. Protocol title**

Give your protocol a title.

*

2. PI name

Click Change to choose a different name. If you can't find the name you want, email arrow_help@rarc.wisc.edu.

*

3. PI Status

Is the named PI (select one):

*

☐ Faculty☐ Emeritus appointment☒ Other**4. PI department**

Enter the PI's department name.

* RARC

5. Protocol renewal

Is this application a renewal of a previously approved paper protocol?

* ☐ Yes ☒ No**Previous protocol**

If yes, please provide the current protocol number (e.g., M01234 or V00789).

6. Protocol writers

Other than the PI, who can write and modify this protocol? Add up to two names by typing the last name in the search box and selecting from the drop down or clicking on the "Add" button to locate the person. If you can't find a name you want, please email arrow_help@rarc.wisc.edu

Person

There are no items to display

7. Email contacts

Select up to two (2) email contacts by typing the last name in the search box and selecting from the drop down or clicking on the "Add" button to locate the person. If you can't find the name you want, please email arrow_help@rarc.wisc.edu.

Person

There are no items to display

8. Emergency contacts

Select up to two emergency contacts (at least one contact is required) who are authorized to act in an animal emergency if the Principal Investigator is not available. These must be individuals who understand the research and can answer questions in a PI's absence. Type the contact's last name in the search box and select from the drop down or click the "Add" button to locate the person

*

Person

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FUNDING

Identify all funding sources that support your protocol.

If you have questions about grant-protocol congruence, email or submit the Congruence Review Request Form to congruence@rarc.wisc.edu.**1. Research and Sponsored Program (RSP) – managed funding**

Do you have a grant or contract funding this project (federal or non-federal)?

PI Name	Award Number (MSN #)	Project Title	Sponsor Reference Number	Project ID	Sponsor (Source)
There are no items to display					

2. Other funding

Add other funding.

Project Title	PI Name	Award Number (MSN #) / Project ID (PRJXXX)	Start Date	End Date	Grant Status	Sponsor (Source)
There are no items to display						

3. Public Health Service (PHS) fundingAre any of the funding sources above directly from or subawards from NIH, NSF, or other Public Health Service (PHS) agencies? See [https://en.wikipedia.org/wiki/United_States_Public_Health_Service] for a list of PHS agencies.* ☐ Yes ☒ **No****PROTOCOL TYPE****1. Select agents**Does this protocol involve the administration of biological select agents/toxins or is your proposed work conducted in a Registered Space? See the [CDC's Select Agents and Toxins List](#) for guidance.**Note!** Controlled substances such as Ketamine and Pentobarbital are NOT select agents. If you are working with controlled substances, select "No."

If you are unsure about the status of your agent or if you'll work in Registered Space, contact [REDACTED]

* ☐ Yes ☒ **No****2. Infectious disease**

Does this protocol include work with infectious disease?

* ☐ Yes ☒ **No****3. Protocol type**

What type of protocol are you submitting? Select one.

* Biomedical Research and Basic Biology and/or Teaching and/or Colony Management

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VA ACORP**1. VA ACORP**

Is your work also described in an approved Veterans Administration Animal Component of Research Protocol (ACORP)?

* ☐ Yes ☒ No

VA researchers must complete this entire UW protocol application to provide answers about procedures and/or housing at UW facilities.

ACORP files

If yes, add the current approved ACORP(s).

There are no items to display

SIGNIFICANCE and JUSTIFICATION**1. Significance of work**

Using nontechnical (lay) language that a high-school student would understand, briefly describe the goals of your study including an explanation of how your work will advance knowledge, improve human or animal health, or benefit society. Do NOT use technical language that would be used in a grant application.

At the end of your response, describe briefly and in nonscientific language how you plan to interpret the collected data to meet the goals of the study.

*

2. Justify use of animals

Explain why you must use live vertebrate animals instead of nonanimal alternatives such as computer simulation or in vitro systems.

*

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EXPERIMENTAL NARRATIVE**1. Experimental narrative**

In language that scientific colleagues outside your discipline would understand, please provide a global, chronological summary of your experiments that focuses on the experience of the animals from initial assignment to final disposition. Your answer should allow IACUC members to understand the experience of all animals assigned to this protocol. Briefly outline all proposed surgeries, non-surgical procedures, and other manipulations, but do not include experimental details here. You will provide specific protocol details such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc., later in this protocol.

You do not need to describe animal housing arrangements or other standard husbandry practices here unless those practices will differ from the practices supported by the normal operations of the vivarium staff. If you are unsure if your study-specific husbandry practices are different from the standards provided by the vivarium staff, consult with an RARC research animal veterinarian, WNPRC veterinarian, or the supervisor of the animal facility.

*

2. Supporting publications / manuscripts (optional)

List the title/name of manuscripts, abstracts, or other references supporting your research that the IACUC may find helpful in evaluating this protocol. Do not list standard husbandry references.

3. Summary files

Attach file(s) with timelines, illustrations, figures, or other supplemental information that provides an overview of the protocol. Do not attach copies of grant applications.

There are no items to display

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DUPLICATION SEARCH

Describe the search terms and strategy you used to determine that your experiments will not be unnecessarily redundant.

1. Duplication databases

List two or more databases searched (e.g., AltWeb, Biological Abstracts, NORINA, PubMed, etc.):

* .

2. Duplication years covered

Indicate the timeframe covered by search (yyyy-yyyy):

* .

3. Duplication recent search

Indicate the date of the most recent search (mm/dd/yyyy):

* 4/10/2017

4. Duplication keywords

List the keywords used for search:

* .

5. Duplication other

List any other methods you used to determine that you did not unnecessarily duplicate other research and/or involve animals in teaching. This should be secondary to the database search. Examples of other sources are conference attendance, professional expertise, specific journal articles, training, etc.

6. Duplication narrative

Provide a brief narrative description of how the search results were evaluated to avoid unnecessary duplication. Please state if the research proposed in this protocol was determined to be novel. **If not**, describe why it is necessary to repeat previously published findings as part of this research endeavor.

* .

SELECTED SPECIES



You must click on the Species Details button next to each species' name below to answer a series of questions about it.

When you are finished answering questions for all species, click Continue or save and exit.

You can exit before answering all questions and return later to finish.

To REMOVE a species, click the trash can icon on the applicable row below. You must have more than one species to remove one.

To add additional species not shown below, check the box: No

Species Details	Species	Max. Number	Surgery?	MSS?	Breeding?	GM?	USDA Code	Print	Complete?
Species Details	Laboratory mouse	0	yes	yes	yes	yes	B		

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SELECT STUDY TEAM**1. Study team**

Add all research personnel, including the PI, who will work with animals under this protocol. Do NOT include animal facility supervisors, professional animal care staff, or research animal veterinary staff. DO add protocol writers and email contacts if they will work with animals. If a study team member or a lab member won't be handling animals for over 30 days, or you can't find a name in the drop down, email arrow_help@rarc.wisc.edu.

*

	Name	Office phone	Lab phone	Cell phone	Email
View	[REDACTED]	[REDACTED]			[REDACTED]@rarc.wisc.edu

2. Study team groups

List GROUPS that will work with animals on this protocol (e.g., 4th year veterinary students, SPI). Do NOT name individuals. Do NOT include assignments.

.

3. PI oversight

If the PI (him or herself) will not be handling or working with a live species, explain how the PI will provide the oversight necessary for compliance with animal program regulations and requirements.

4. Supervisor/trainer for staff with < 1 yr experience

For any individuals added to the study team who may not have at least one year of experience, please state who will train and supervise.

*

5. Confirm Training

Please confirm that all study team members have completed the Animal Contact Risk Questionnaire and are medically cleared to handle animals. For assistance, contact [REDACTED] at University Health Services, [REDACTED]

*

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ASSIGNMENTS AND QUALIFICATIONS

Click ADD to associate members with species and painful procedures.

To see an individual's education and experience, click the icon next to their name on the ADD pop-up (go to Help for how profiles are managed).

To remove a member, return to the Select Study Team page.

NOTE: ALL study team members MUST be assigned to at least one species.

ALL painful/distressful procedures and surgeries must be associated with at least one staff member.

1. Study team member assignments

View	Name	[REDACTED]
	Species	Laboratory Mouse
	Painful nonsurgical procedures	..
	Surgeries	. (Minor survival)
	RARC classes	Animal User Orientation - 2017-02-27 UW Animal Program Emergency Orientation - 2016-10-24 Guidelines for Working with Wildlife - 2014-12-30 Animal User Orientation -... read more...
	Education	No Value Entered
	Experience	I know how to use guinea pigs. And cats. And abominable snowmen. [REDACTED] provided hands-on training for using Sasquatch. Boop boop.

2. Protocol-specific experience/training not included above for any study team member may be included here.

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OCCUPATIONAL HEALTH AND SAFETY OF PERSONNEL

Use of hazardous materials requires separate review and approval by EH&S. The Principal Investigator is responsible for obtaining all relevant approval(s) prior to initiating work with hazardous materials.

1. Occupational hazards

Are any of the following used in the research involving live animals under this application? Check all that apply:

(If you have any questions regarding this section, please contact biosafety@fpm.wisc.edu.)

*

- ☒ Biological hazards (zoonotic agents, human or animal pathogens, human cells, prions, etc.)
- ☒ Chemical hazards (carcinogens, flammables, highly reactive, corrosives, etc.)
- ☒ Physical hazards (UV light, magnetic fields, noise, electric shock, temperature, etc.)
- ☒ Radiation and/or radioactive materials (irradiation, administration of radionuclides, etc.)
- ☒ Recombinant materials (Transgenic animals and/or recombinant materials [viral vectors, microbes, cells, etc.] administered to animals)
- ☒ Wildlife hazards
- ☒ Other. If checked, you must describe in box below.
- ☐ NONE. None of the hazards listed above apply to research performed on living animals under this application.

Other hazards

If the type of hazard is not listed above, please briefly describe.

.

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BIOLOGICAL HAZARDS

Biological hazards or biohazards includes all microorganism and toxins produced by microorganisms that are human pathogens regardless of their transmissibility, invasiveness, virulence or lethality. Include human or primate-derived cells, tissues or other materials, as well as prions, and pathogenic fungi. Also include zoonotic pathogens (i.e., pathogens transmissible from animals to humans).

Note that most uses of biological hazards also require an approved UW-Madison Biosafety Protocol from the Office of Biological Safety (OBS). Contact OBS if assistance is needed to complete this section.

1. Biohazard OBS

Is this work with biological hazards covered by an approved Biosafety Protocol?

* Yes

BH-OBS number

If yes, please provide the OBS protocol number(s)

2. Biohazard table

The table below lists biohazards that have been added.

*

Biohazard details

View	Biohazard name	.
	Species	Laboratory mouse
	Biosafety level	ABSL 1
	Biohazard Risk	.
	Containment animals	No special containment needed
	PPE needed	Exam gloves - Nitrile
	Waste	No special precautions needed for waste/dirty bedding
	Carcasses	No special precautions needed for disposal use facility standard method

Upload files

Please upload files (optional).

There are no items to display

3. Biohazard safety signage

Upload any biohazard safety signage associated with this protocol.

There are no items to display

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CHEMICAL HAZARDS

Chemical hazards include chemicals that present a health hazard or physical risk. Chemicals that present a health hazard include carcinogens, drugs, mutagens, and teratogens. They also include chemicals that are irritants or toxins to the skin, eyes, lungs, neurologic system, or any other body part or system. Physically hazardous chemicals include flammables, combustibles, oxidizers, strong reactives, and compressed gas.

Note that the use of chemical hazards must be addressed in the Laboratory Chemical Hygiene Plan (CHP). Read additional information through the help icon above or contact the Chemical Safety Department (265-5000 or chemsafety@fpm.wisc.edu).

1. Chemical Hygiene Plan

INFORMATIONAL: To ensure accurate and timely safety precautions for you and your lab staff, and to meet the Occupational Safety and Health Administration (OSHA) Laboratory Standard, every laboratory must have a Laboratory Chemical Hygiene Plan (CHP). If your laboratory does not have a CHP, contact the Chemical Safety Office to request the template form (265-5000 or chemsafety@fpm.wisc.edu). The Chemical Safety Office staff are also available to review existing CHP for completeness and accuracy.

CHP files

You may attach your current Chemical Hygiene Plan (CHP) here for reference. The ACUC will not review the CHP.

There are no items to display

2. Chemical detail table

The table below lists chemical hazards that have been added.

*

Chemical hazard details

View	Regimen/Substance	.
	Drugs and Compounds	.
	Containment Preparation	No special containment needed
	Species	Laboratory mouse
	Containment Animals	No special containment needed
	PPE needed	Exam gloves - Nitrile
	Waste	No special precautions needed for waste/dirty bedding
	Carcasses	No special precautions needed for disposal use facility standard method
	Chemical Risk	.
	Chemical SDS	Yes

3. Chemical safety signage

Upload any chemical safety signage associated with this protocol.

There are no items to display

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PHYSICAL HAZARDS

Physical hazards include ultraviolet and visible light, cold heat, noise, and vibration. It also includes non-ionizing radiation (electric fields, infrared, microwave, magnetic fields, static electricity, radio frequency, etc.). These become hazards when they are of sufficient intensity and/or duration to cause potential physical harm.

Contact Animal Research Safety for help completing this section.

1. Physical hazards table

The table below lists physical hazards that have been added.

Physical hazards list

View	Physical hazard name .
	Physical hazard risk .
	Physical hazard handling .

2. Physical safety signage

Upload any physical safety signage associated with this protocol.

There are no items to display

RADIOACTIVE HAZARDS

Radioactive hazards includes sources of ionizing radiation (X-rays, alpha, beta, etc.). Include radio labeled tracers and other administered radionuclides.

Note that use of radioactive materials also requires an approved Form 99A from the UW-Madison Office of Radiation Safety (ORS). Contact ORS for help completing this section.

1. Rad 99A

Is this work with radioactive material covered by an approved Form 99A from Radiation Safety?

* Yes

If yes, please provide date of approval.

.

2. Rad housing return

Will any animals containing radioactive material be returned to housing in an animal-care facility or laboratory?

* Yes, returned to animal-care facility housing

If yes, please explain.

.

Upload files

Please upload files (optional).

There are no items to display

3. Radiation safety signage

Upload any radiation safety signage associated with this protocol.

There are no items to display

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RECOMBINANT MATERIALS

Recombinant materials include any animal that carries fragments of one or more other species' genome by means of recombinant DNA technology. The donor organism(s) may be single or multi-celled. The offspring of such recombinant animals should also be included here.

Note that use of recombinant material also requires an approved UW-Madison Biosafety Protocol from the Office of Biological Safety (OBS). Contact OBS if assistance is needed to complete this section.

1. Recomb OBS

Is this work with recombinant material covered by an approved Biosafety Protocol?

* Yes

OBS number

If yes, please provide the OBS protocol number(s).

2. Recombinant materials table

The following recombinant materials were added.

*

Recombinant material details

View	Recomb material	.
	Biosafety level	ABSL 1
	Recombinant hazard animal	Laboratory mouse
	Containment animals	No special containment needed
	PPE needed	Exam gloves - Nitrile
	Waste	No special precautions needed for waste/dirty bedding
	Carcasses	No special precautions needed for disposal use facility standard method

3. Recombinant material safety signage

Upload any recombinant material safety signage associated with this protocol.

There are no items to display

FINISH PROTOCOL

Note: To complete and submit the protocol, please choose from the steps below:

1. Select 'Hide/Show Errors' to check for any errors or omissions.
2. Select 'Exit' and you will be redirected to the protocol workspace.
3. If you are ready to submit, click "Ready to Submit", and then follow the instructions on the pop up window.

PLEASE NOTE: ONLY THE PI MAY SUBMIT THE INITIAL NEW OR RENEWED PROTOCOL.

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Laboratory mouse: JUSTIFY SPECIES CHOICE**1. Justify species choice**

Why is this species the most appropriate for your protocol?

* .

Laboratory mouse: NUMBER OF ANIMALS**1. Maximum 3-year total**

During the entire three-year period of your protocol, what's the total maximum number of animals of this species that you'll use? Include control and replacement animals, breeding colony animals, all preweaned animals used for tissue samples, and euthanized animals.

* 0

2. Animal number justification

Why does your protocol need this maximum number? For each group, provide a statistical justification or cite your past experience. See ACAPAC policy 2013-051 for guidance and its Companion SOP for examples of acceptable justifications.

* .

3. Number files

Attach file(s) that support your determination of animal numbers. If possible, use tables to organize your information.

There are no items to display

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Laboratory mouse: BIO SPECIES SOURCE**1. Bio species source**

Check all sources that apply for this species.

*

- ☒ Investigator at UW-Madison / including another protocol held by PI (please check for maximum flexibility in animal transfers)
- ☐ Approved vendor (e.g. Jackson labs, RARC breeding service, etc.)
- ☐ Bred under this protocol
- ☐ Investigator at non-UW Madison institution (Covance, other university)
- ☐ Unapproved vendor
- ☐ Capture or collection from wild (free-living) population
- ☐ Herd, flock, etc
- ☐ Client/privately owned animals
- ☐ Other

Bio unapproved or other source

If source is unapproved vendor or other, describe.

Laboratory mouse: PRIOR USE**1. Prior use**

Were any of these animals used in another protocol?

* ☐ Yes ☒ No**Prior describe**

If yes, describe the prior use and explain how you have determined that the previous use of these animals will not compromise the research proposed in this protocol or the animals' health.

Consider previous nutritional manipulations, blood draws, drugs and materials administered, and other manipulations that might have compromised the animals' fitness for this protocol, or how the proposed study may adversely impact animals given their health history and assignment to earlier projects.

Animals that have undergone a major surgical procedure, permanent physiologic alteration, or substantial impairment on a previous protocol are not eligible for major surgical procedures on subsequent protocols.

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Laboratory mouse: BREEDING AND GENETICALLY MODIFIED Y/N**1. Breeding**

Does your protocol design include breeding of this species?

* ☒ Yes ☐ No**2. Genetically modified**

Will any of this species be genetically modified either through a breeding scheme on this protocol or through purchase of already genetically modified animals?

* ☒ Yes ☐ No**Laboratory mouse: BREEDING****1. Breeding scheme**

Describe your breeding scheme. Include number of females per male, continuous or interrupted mating, age range at weaning or separation (if appropriate), and criteria for culling old breeders.

* .

2. Breeding excess outcome

What will you do with animals that are bred in excess or that do not meet phenotype or genotype requirements?

* .

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Laboratory mouse: GENETICALLY MODIFIED OR TRANSGENIC ANIMALS**1. GM title**

Provide the type, name, or brief descriptor of the genetically modified or transgenic (see help text for definition of transgenic) animals.

* .

2. GM genetic modifications

Do the parental transgenic animals contain a transgene that is under the control of a gammaretroviral long terminal repeat (LTR) or more than one-half the genome of an exogenous eukaryotic virus?

☐ Yes ☒ No

3. GM complications

Do you expect complications with the phenotype of genetically modified or transgenic animals?

*

☒ Yes

☐ Unknown (new phenotype)

☐ No

GM manage

If "Yes" is selected for "GM complications", describe the complications and how you will manage them.

.

GM unknown

If "Unknown (new phenotype)" is selected for "GM complications", how will you monitor animals with unknown potential complications?

4. GM pain/distress

Will the phenotype be associated with any pain or distress to the genetically modified or transgenic animals?

*

☒ Yes ☐ No

GM monitor

If "Yes" is selected for "GM pain/distress", describe how you will monitor and treat pain or distress.

.

Laboratory mouse: SUBSTANCE ADMINISTRATION CHECKLIST**1. Substance administration checklist**

If you will administer substances, check all purposes that apply. Include delivery of materials to animals via injection, infusion, inhalation, implantation, ingestion of food/water, and other means. Include administration of radionuclides. Include nonstandard diets under all other substances.

*

☒ analgesics/anesthetics/sedatives to relieve pain or distress caused by nonsurgical and/or surgical procedures

☒ euthanasia substance(s)

☒ all other substances

☐ I will not administer any substances.

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**Laboratory mouse: SUBSTANCE ADMIN:
ANALGESIC/ANESTHETIC/SEDATION**

Used to relieve pain or distress an animal may experience as a result of the procedures and manipulations described in this species/group. For guidance on organizing information, click on the help icon above.

1. Analgesic/anesthetic/sedation table

*

Regimens

View	Regimen	.
	Drugs and Compounds	.
	Description	.
	Monitoring Plan	No Value Entered

Laboratory mouse: SUBSTANCE ADMIN: EUTHANASIA

If a substance is used to euthanize this species, it should be entered here. Include CO₂.

1. Euthanasia substance table

*

Regimens

View	regimen	.
	Drugs and Compounds	.
	description	.

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Laboratory mouse: SUBSTANCE ADMIN: ALL OTHER SUBSTANCES

For each substance or regimen, click "Add" to answer questions about its administration.

Describe the materials delivered to animals via injection, infusion, inhalation, implantation, ingestion in food or water, nonstandard diets, and by other means. Include administration of radionuclides via injection or in food.

Do not include substances used for **clinical relief** of pain or distress (anesthesia/analgesia) or for euthanasia of this species. See help for additional guidance.

1. All Other substances table

*

View	Substance name	.
	Drugs and Compounds	.
	category	.
	Dosing details	.
	purpose of use / monitoring	.
	painful?	Yes
	anesthesia/analgesia regimen	.

Laboratory mouse: SPECIAL SUBSTANCES**1. Special substances**

*

- ☒ cells, cell lines, tissues, or tissue products (animal and/or human)
- ☒ complete Freund's adjuvant (CFA)
- ☒ controlled substances (requiring DEA registration)
- ☒ nonpharmaceutical-grade compounds
- ☒ paralytic agents
- ☐ none of the above

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Laboratory mouse: CELL ADMINISTRATION**1. Cell selection**

Select the substances that are cells, cell lines, or tissue products.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Cell evaluation

Describe the testing and precautions for possible animal pathogens in these cells, cell lines, tissues, or tissue products. Please see Policy 2007-033 for further details.

*

3. Cell files

Attach file(s) if any outside testing was performed on cells, cell lines, tissues, or tissue products.

There are no items to display

Laboratory mouse: Complete Freund's Adjuvant**1. Complete Freund's Selection**

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Complete Freund's Adjuvant justify

Use of CFA must be scientifically justified and a comprehensive search for alternatives considered. Please justify use of Complete Freund's Adjuvant (CFA) versus alternative adjuvant systems.

*

Laboratory mouse: Controlled Substances

Controlled substances are drugs regulated by the Drug Enforcement Administration.

1. CS selection

Check all regimens that contain controlled substances.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. DEA registrant

Name the DEA registrants for the controlled substances.

*

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Laboratory mouse: Nonpharmaceutical-Grade Administration

A pharmaceutical-grade chemical compound is defined by the NIH-OLAW and USDA-APHIS as any active or inactive drug, biologic, reagent, etc., that is approved by the FDA or for which a chemical purity standard has been written or established by any recognized pharmacopeia, such as the US Pharmacopeia [USP], the National Formulary [NF], the British Pharmacopoeia [BP], or the Pharmacopoeia of the Council of Europe [EP]. This includes compounds intended for use as investigational agents, for clinical purposes, and in terminal studies.

1. Nonpharmaceutical-grade selection

Check the substances that are nonpharmaceutical-grade compounds. Those not checked, with rare exceptions, must be pharmaceutical grade.

*	Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	.	Laboratory mouse
<input type="checkbox"/>	.	.	Laboratory mouse
<input type="checkbox"/>	.	.	Laboratory mouse

2. Nonpharmaceutical-grade use justification

Justify your use of each nonpharmaceutical-grade substance you'll administer.

* .

3. Nonpharmaceutical-grade preparation

If appropriate, describe the preparation method for each compound selected.

.

4. Nonpharmaceutical-grade files

Attach files with standard operating procedures or other supplementary information for the preparation or compounding of non-pharmaceutical-grade substances.

There are no items to display

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Laboratory mouse: Paralytic Administration

Without exception, you can only use paralytics on a fully anesthetized animal. In addition, you must provide adequate ventilation during the time that an animal cannot breathe on its own.

1. Paralytic selection

Select the substances that are paralytic agents.

*	Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	.	Laboratory mouse
<input type="checkbox"/>	.	.	Laboratory mouse
<input type="checkbox"/>	.	.	Laboratory mouse

2. Paralytic use justification

Provide the scientific justification for each paralytic agent you will use.

*,

3. Paralytic number and monitoring plan

For each paralytic agent you'll use, indicate the number of this species to which it will be administered and describe how you will monitor during administration and recovery.

*,

4. Paralytic analgesia/anesthesia/sedation

Regimen/Substance	Drugs and Compounds	Species
<input type="checkbox"/>	.	Laboratory mouse

Laboratory mouse: AGENTS**1. Agents**

*

<input checked="" type="checkbox"/>	rDNA
<input checked="" type="checkbox"/>	bacteria
<input checked="" type="checkbox"/>	virus
<input checked="" type="checkbox"/>	prion
<input checked="" type="checkbox"/>	human-derived
<input checked="" type="checkbox"/>	genetically altered
<input checked="" type="checkbox"/>	toxin
<input checked="" type="checkbox"/>	carcinogen
<input checked="" type="checkbox"/>	mutagen
<input checked="" type="checkbox"/>	teratogen
<input checked="" type="checkbox"/>	radioactive
<input type="checkbox"/>	none of the above

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Laboratory mouse: rDNA AGENTS ADMINISTRATION**1. rDNA selection**

Select the substances that are rDNA agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. rDNA files

Attach file(s).

File

There are no items to display

Laboratory mouse: Bacteria Agents Administration**1. Bacteria selection**

Select the substances that are bacteria agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Bacteria files

Attach file(s).

File

There are no items to display

Laboratory mouse: Virus Agents Administration**1. Virus selection**

Select the substances that are virus agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Virus files

Attach file(s).

File

There are no items to display

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Laboratory mouse: Prion Agents Administration**1. Prion selection**

Select the substances that are prion agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Prion files

Attach file(s).

File

There are no items to display

Laboratory mouse: Human Derived Agents Administration**1. Human derived selection**

Select the substances that are human derived agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Human derived files

Attach file(s).

File

There are no items to display

Laboratory mouse: Genetically Altered Agents Administration**1. Genetically altered selection**

Select the substances that are genetically altered agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Genetically altered files

Attach file(s).

File

There are no items to display

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Laboratory mouse: Toxin Agents Administration**1. Toxin selection**

Select the substances that are toxin agents.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Toxin files

Attach file(s).

File

There are no items to display

Laboratory mouse: Carcinogen Agents Administration**1. Carcinogen selection**

Select the substances that are carcinogen agents.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Carcinogen files

Attach file(s).

File

There are no items to display

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Laboratory mouse: Mutagen Agents Administration**1. Mutagen selection**

Select the substances that are mutagen agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Mutagen files

Attach file(s).

File

There are no items to display

Laboratory mouse: Teratogen Agents Administration**1. Teratogen selection**

Select the substances that are teratogen agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Teratogen files

Attach file(s).

File

There are no items to display

Laboratory mouse: Radioactive Agents Administration**1. Radioactive selection**

Select the substances that are radioactive agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse
<input type="checkbox"/> .	.	Laboratory mouse

2. Radioactive files

Attach file(s).

File

There are no items to display

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Laboratory mouse: SELECT NONSURGICAL PROCEDURES (NSP)**1. Nonsurgical selection**

Check all types of nonsurgical procedures that will be performed.

*

☒ **Blood collection**

sampling by nonsurgical procedures

☒ **Food and/or fluid regulation**

Applies to scheduled or restricted access to food or fluids for experimental purposes.

Do NOT check this box for fasting before sedation or use of anesthesia or for standard presurgical fasting or fluid regulation. Presurgical fasting will be described in Surgery Summary.☒ **Experimental exercise**

Treadmill running, rotarod performance testing, swimming, and more.

☒ **Genotyping/identification****Imaging**☒ CT scans, MRIs, ultrasound examinations, X-rays, and other imaging procedures, including those that expose the animal to small amounts of radiation for the purpose of producing a visual image of bodies or processes.

If a dye is used for imaging, add details about the dye in Substance Administration.

Irradiation☒ Exposure to gamma irradiation and other ionizing radiation for the purpose of affecting animal tissue or physiology.

Administration of radionuclides via injection or in food should be described in Substance Administration.

Physical restraint☒ Applies to the use of manual or mechanical means to limit some or all of an animal's movement.Does not apply to brief procedures that are part of normal handling or husbandry.Does not apply to normal wildlife-capturing techniques.☒ **Other nonsurgical procedures**

Applies to a wide range of other experimental manipulations of animals such as behavioral assays, gastric lavage, maze trials, oocyte collection, preference tests, and more.

☐ **I will not perform any nonsurgical procedures.**

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Laboratory mouse: NSP: BLOOD COLLECTION

For each blood collection regimen, provide details of the procedure.

1. Blood collection table

The table below lists regimens of blood collection that have been added.

*

Blood Collection List

View	Regimen	.
	Blood collection monitoring	.
	Collect site	.
	Max. single draw vol. (ml)	.
	Max. percent blood volume withdrawn	.
	# samples	0
	Interval	.
	Blood terminal?	No
	Painful?	No
	Analgesic/Anesthetic regimen	.

2. Blood collection exceed limits

For any survival blood collection regimens that approach or exceed the maximum collection limits as outlined in the RARC guidelines, describe monitoring and supportive care procedures.

.

3. Blood collection justify

Provide justification for any survival blood collection regimens that approach or exceed the maximum collection limits as outlined.

.

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Laboratory mouse: NSP: FOOD AND/OR FLUID REGULATION

Food and/or fluid regulation (FFR) includes:

- scheduled access to food or fluid in which the animal has unlimited access to food or fluid for a specific time daily;
- restricted access, in which the total amount of food or fluid is strictly monitored or controlled. Calorie restriction for experimental purposes should be described here.

FFR does NOT apply to calorie restriction as directed by a veterinarian for purposes of weight control.

FFR does NOT apply to fasting before sedation or use of anesthesia, or to standard presurgical fasting or withholding of fluids. Presurgical fasting will be described in Surgical Procedures.

1. FFR name

Give your FFR regimen a brief name. **Note: You will eventually match the name you assign here with a location. Be sure to assign a unique name to this procedure so that you can identify it later in your application.

* .

2. FFR describe

Describe the FFR. Include the duration and schedule of regulation.

* .

3. FFR justify

Provide the scientific justification for the FFR.

* .

4. FFR monitor

How will you monitor animals for adverse events related to FFR, including potential nutritional deficiencies?

* .

5. FFR record

How will you record food and/or fluid administration or intake? Include how you will label affected animals' enclosures for identification by animal care and veterinary staff.

* .

6. FFR pain/distress

Will any animals be subjected to more than momentary or slight pain/discomfort/distress as a result of this procedure?

* ☐ Yes ☒ No**7. Analgesic/anesthetic/sedative regimen**

If you will use an analgesia/anesthesia regimen with this procedure, select the one(s) that you will use. Your choices are generated from what you entered on the Anesthesia/Analgesia page.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>		Laboratory mouse

8. FFR files

Add file(s) with standard operating procedures or other supplementary information for food and/or fluid regulation.

There are no items to display

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Laboratory mouse: NSP: EXPERIMENTAL EXERCISE**1. Experimental exercise table**

For each experimental exercise regimen, click "Add" to answer questions about it.

*

View	Title	.
	Describe	.
	Forced	No
	Monitor	.
	Justify	.
	Analgesic/Anesthetic regimen	.

Laboratory mouse: NSP: GENOTYPING AND IDENTIFICATION**1. Genotyping and identification table**

For each genotyping or identification regimen, click "Add" to answer questions about it.

*

View	Title	.
	Site	.
	Description	.
	Age of animals	.
	Is Painful	No
	Analgesic/Anesthetic regimen	.

2. Genotyping and identification files

Attach file(s) with standard operating procedures or other supplementary information for genotyping or identification.

File

There are no items to display

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Laboratory mouse: NSP: IMAGING

For each imaging regimen, click "Add" to answer questions about it. Imaging includes X-rays, PET scans, CAT scans, MRIs, etc.

1. Imaging table

*

title	.
modality	.
max. no. of animals	No Value Entered
contrast	.
duration	.
freq./animal	.
description	.
painful?	No
View imaging	
analgesia/anesthesia	.

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Laboratory mouse: NSP: IRRADIATION EXTERNAL SOURCE

For each irradiation regimen, click "Add" to answer questions about it.

Do not include administration of radioactive substances (i.e., radionuclides) or radiation exposure that is part of an imaging procedure. You will address those in the Substance Administration and Imaging sections respectively.

1. Irradiation table

*

View	title	.
	type	.
	max. no. of animals	No Value Entered
	max. duration	.
	max. single dose/animal	.
	max. total dose/animal	.
	freq./animal	.
	description	.
	painful?	No
	Analgesic/Anesthetic regimen	.

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Laboratory mouse: NSP: PHYSICAL RESTRAINT

For each physical-restraint regimen, click "Add" to answer questions about it.

Do **not** include brief (< 15 min) physical restraint that is part of normal animal-handling practices or procedures.

Do **not** include normal wildlife-capturing techniques.

1. Restraint table

*

type of restraint	.
max. duration	.
acclimatization	.
monitoring	.
scientific justification	.
painful?	No
Analgesic/Anesthetic regimen	.

View

2. Restraint files

Attach file(s) with standard operating procedures or other supplementary information for physical restraint.

There are no items to display

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Laboratory mouse: NSP: OTHER NONSURGICAL PROCEDURES

Click "Add" to answer questions about nonsurgical procedures you haven't already described.

1. Other nonsurgical table

*

View	title	.
	max. no. of animals	No Value Entered
	pre and post care and/or treatment	No Value Entered
	description	.
	frequency	No Value Entered
	painful?	No
	Files	
	Analgesic/Anesthetic regimen	.

Laboratory mouse: NSP: NONSURGICAL MONITORING**1. Nonsurgical monitoring**

Review your list of nonsurgical procedures that include pain/discomfort/distress.

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen	Monitoring
.	Euthanasia Methods	.	.
.	Substance Administration	.	.
.	Genetically Modified	.	.

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Laboratory mouse: SURGERY Y/N

Minor survival surgery: Body cavities are not exposed. Animals typically do not show significant signs of postoperative pain, have minimal complications, and quickly return to normal function.

Examples: wound suturing, peripheral vessel cannulation, percutaneous biopsy, and most procedures routinely done on an outpatient basis in veterinary clinical practice.

Major survival surgery: Body cavities are exposed, and tissues are extensively dissected or transected. Animals may show substantial impairment of physical or physiologic functions.

Examples: laparotomy, thoracotomy, joint replacement, craniotomy, and limb amputation.

Nonsurvival surgery: Procedures are terminal, and animals do not regain consciousness prior to death. Do NOT enter nonsurvival surgeries in Euthanasia.

Examples:

All perfusion or Nonsurvival (≤ 5 min): all perfusions or anesthesia duration ≤ 5 min (e.g. thoracotomy for terminal blood collection).

Nonsurvival: anesthesia duration greater than 5 minutes but less than or equal to 12 hours.

Extended nonsurvival: anesthesia duration > 12 hours.

Surgical procedures that are initiated on a live animal prior to confirmation of death, such as thoracotomy for terminal perfusion, are considered nonsurvival surgeries and should be described here.

NOT surgery: Fine-needle biopsies, intravitreal or subcutaneous injections, simple catheter insertions. These should be described in Other Nonsurgical Procedures.

1. **Surgery y/n**

Will surgery be performed on any of this species?

* ☒ Yes ☐ No

Laboratory mouse: SURGERY AND POSTSURGERY SUMMARY

For each surgical procedure for this species or group, click "Add" to provide details.

1. **Surgery table**

*

View	title	.
	survival type	Minor survival
	max. no. of animals	No Value Entered
	Analgesic/Anesthesia regimen	.
	Euthanasia regimen	.
	Physical Euthanasia	Yes - .
	presurgery fasting	No Value Entered
	duration	.
	description	.

2. **Pre and post operative care and/or treatment**

Please describe any pre and post care and/or treatment (e.g., antibiotics).

3. **Patient preparation**

Describe how patient(s) will be prepared to create an appropriate surgical field for the proposed surgery (e.g., clipping hair, scrubbing with chlorhexidine solution and sterile water).

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*

4. Sterile field

Select which of the following will be used to maintain a sterile field during surgery. If a sterile field does not apply, please check "none."

*

☒ Sterile instruments (autoclave, gas sterilization)

☐ Bead sterilizer

☐ Sterile gown/garb

☐ Sterile gloves

☐ Sterile drapes

☐ Surgical mask

☐ Surgeon scrub

☐ Other

☐ None
Other sterile field

If you choose other, provide the description here:

5. Surgery monitor

How will you monitor animals during surgery and anesthesia, from induction through recovery from anesthesia (immediate postsurgery period)? Document this in your written animal records, too.

*

6. Postsurgery analgesia regimens

Select all regimens for the treatment of pain and distress after surgery.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>		Laboratory mouse

7. Postsurgery pain and monitoring

How will you monitor and treat the pain and distress associated with postsurgical conditions?

8. Surgery files

Add file(s) with illustrations, figures, standard operating procedures, or other supplementary information about this surgical procedure.

There are no items to display

Laboratory mouse: CONCURRENT SURGICAL PROCEDURES**1. Concurrent surgeries y/n**

Will you perform two or more surgical procedures under a single anesthetic event?

* ☒ Yes ☐ No

2. Concurrent surgeries table

If yes, click ADD to provide details about your concurrent surgeries.

View	title	.
	surgery selection	.
	max. no. of animals	No Value Entered
	description	.
	justification	.

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Laboratory mouse: MULTIPLE SURVIVAL SURGERIES**1. Multiple survival surgeries**

Will any single animal or group of animals of this species survive two or more surgical procedures in separate anesthetic events?

* ☒ **Yes** ☐ No

MSS table

Click "Add" to provide details about each unique regimen of separate, sequential, survival surgeries.

View	title	.
	surgery selection	.
	max. no. of animals	No Value Entered
	description	.
	justification	.

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Laboratory mouse: ALTERNATIVES SEARCH

Review the following procedures and genetic modifications (if applicable) you described that cause more than momentary pain or distress. Then answer the questions that follow to explain how you determined that there weren't less painful or distressful alternatives to the procedures.

Painful all table• **Genetically Modified with pain**

Yes

• **Non Surgical Procedures with pain**

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen
	Substance Administration	
	Euthanasia Methods	

• **Surgical Procedures**

Surgery title	Survival Procedures	Anesthesia/analgesia regimens
	Minor survival	

List one or two databases you searched (e.g., AltWeb, Biological Abstracts, NORINA, PubMed, etc.) to look for alternatives.

1. **Alternative databases**

* .

2. **Alternatives years covered**

What years did your search cover? (yyyy-yyyy)

* .

3. **Alternatives recent search**

What was the date of your most recent search?

* 4/10/2017

4. **Alternatives other**

List other methods you used to determine that there weren't less painful or distressful alternatives to the procedures listed above. These should be secondary to the literature search, and may be useful to support or rebuke potential alternatives found in the database search. Examples of other sources are conference attendance, professional expertise, specific journal articles, training, etc.

5. **Alternatives search strategy**

Describe your search strategy, including the scientifically relevant keywords you used.

* .

6. **Alternatives narrative**

How did you evaluate the information you gathered? If you found an alternative or refined method but it couldn't be used in this research, explain why.

* .

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Laboratory mouse: COMPLICATIONS**1. Complications**

In previous sections, you identified the pain and discomfort animals might experience from each procedure. Now consider your procedures from a broader perspective:

What are the potential complications animals may experience from any of your procedures or combination of procedures (e.g., internal bleeding after liver biopsy, Graft Versus Host Disease (GVHD) with transplant) or from any chronic condition resulting from the procedures (e.g., lameness, disease)?

*

2. Unrelieved pain or distress

Will treatment for pain or distress be withheld from any animals of this species?

☒ Yes ☐ No

Unrelieved justify

If yes, provide scientific justification for why pain or distress will not be relieved.

*

Laboratory mouse: USDA DESIGNATION

The United States Department of Agriculture (USDA) established the following B-E categories based on levels of pain, discomfort, and distress associated with procedures.

- B** - animals bred or held for use in teaching, testing, experiments, research, or surgery but not used for such purposes
- C** - teaching, research, experiments or tests conducted that involve no pain or distress that require use of analgesics
- D** - experiments, teaching, research, surgery or tests conducted that involve accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic or tranquilizing drugs or palliative measures are used (including surgery or procedures under anesthesia that without the anesthesia would be painful)
- E** - teaching, experiments, research, surgery or tests conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic or tranquilizing drugs are not used because they would adversely affect the procedures, results or interpretation of the teaching, research, experiments, surgery or tests

1. USDA designation

Based on these definitions, choose the highest category of pain/distress that this species will experience as part of this protocol.

*

☒ B

☐ C

☐ D

☐ E

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Laboratory mouse: EUTHANASIA

The RARC veterinary staff has recommendations for euthanizing the most commonly used species on campus. Your euthanasia plans must follow these recommendations unless your alternative method is scientifically justified and approved by your IACUC. Click on the blue question mark icon to view these recommendations and the AVMA Guidelines for the Euthanasia of Animals.

1. Criteria for anticipated euthanasia

What are your study endpoints?

* .

2. Criteria for unanticipated euthanasia

For unanticipated events or nonstudy-related health issues, what criteria or clinical signs will you use to determine an unanticipated endpoint for an animal?

* .

3. Plan for anticipated euthanasia

Select all applicable euthanasia methods for planned study procedures.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Laboratory mouse

4. Plan for unanticipated euthanasia

Select all applicable euthanasia methods for unanticipated events or nonstudy-related health issues.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Laboratory mouse

5. Plans for physical methods of euthanasia (i.e. exsanguination, captive bolt)

Method Name	Method Description
View .	.

6. Other euthanasia methods

Other planned and unplanned euthanasia methods not included above. Include a statement here if euthanasia will be performed by the RARC Veterinary Staff.

7. Nonstandard euthanasia justify

For methods of euthanasia described above that are not listed in RARC Veterinary Standards for this species, justify the use of this method.

8. Ensure death

Describe the methods you'll use to ensure death following euthanasia procedures.

* .

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Laboratory mouse: DISPOSITION

Indicate the final arrangements for animals assigned to this protocol.

1. Disposition

At the end of their assignment in this protocol, animals will be:

*

☒ Made available to other investigators.☐ Returned to a UW colony, herd or flock for other use.☐ Returned to their client-owners.☐ Maintained at a privately owned herd or flock.☐ Made available for adoption. Adoption must be preapproved by a laboratory animal veterinarian.☐ Sold at market.☐ Euthanized.☐ Other.**Other disposition**

Describe other disposition arrangements and justify below.

2. Consumption

Is there a possibility that animals or humans will consume your animals or their byproducts at the end of your study?

*

☒ Yes ☐ No**Consumption describe**

If yes, provide the drugs you administered to the animals and the drug withdrawal times. For clinical treatments and extra-label drug use (ELDU), indicate that all ELDU will be documented per state and federal guidelines and withdrawal times will be monitored by the veterinarians and animal caretakers.

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Laboratory mouse: NONSTANDARD HUSBANDRY

Don't include medically justified, standard pre- or post-anesthetic/surgical exceptions, such as short term withholding of food and water. Describe these in SURGICAL PROCEDURES.

Don't include longer-term food or fluid regulation. Describe these in nonsurgical procedures.

1. Nonstandard husbandry

Check all non-standard conditions that apply to this species.

- ☒ **Housing animals outside dedicated animal facility**
Animals will be kept for greater than 12 hours in any location that is not a dedicated animal facility.
- ☒ **Lab staff provide husbandry in facility**
Laboratory or research staff, rather than professional facility animal-care staff, will provide animal husbandry for a subset of animals housed in facilities.
- ☒ **Single housing of social species**
Social species are singly housed for periods longer than 12 hours. This does not include short-term solitary housing for animals recovering from anesthesia or surgery.
- ☒ **Enrichment withholding**
Animals are not provided with the minimum required enrichment as outlined in the facility SOP.
- ☒ **Exercise withholding for dogs**
Dogs are not provided with the minimum exercise as required by the facility SOP.
- ☒ **Ambient Noise**
Animals will be exposed to white noise that is not part of the standard environmental enrichment for the species.
- ☒ **Nonstandard lighting**
Animals will be exposed to lighting paradigm of non-standard wavelength, intensity, or altered light/dark.
- ☒ **Vibration**
Animals will be exposed to vibrations of an amplitude and or frequency known to cause clinical effect.
- ☒ **Cleaning/sanitation schedule different than facility standard**
- ☒ **Enclosure smaller or denser than standard for species**
Animals will be housed in an enclosure that is smaller than the facility standard or at a density higher than the standard for the cage size.
- ☒ **High velocity air**
Animals will be directly exposed to high velocity air that is not a normal part of their husbandry.
- ☒ **Bare floor (no bedding) with no structure for resting or sleeping**
- ☒ **Wire bottom cage (NOT Avian)**
- ☒ **Temperature outside recommended range**
Animals will be exposed to temperatures outside of the normal reference ranges for the species.
- ☒ **Other nonstandard housing or husbandry**
Animals are subject to other non-standard housing or husbandry conditions.
- ☐ **Not applicable**
There will be no non-standard husbandry for this study.

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 42 of 49)

PRINTED ON: 4/10/2017

Laboratory mouse: LAB HUSBANDRY IN LAB HOUSING

Laboratory or research staff, rather than professional facility animal-care staff, will provide animal husbandry in lab housing areas.

1. Lab housing justify

Justify why you will house animals in a laboratory rather than in a facility.

* .

2. Lab husbandry

Briefly outline the husbandry lab staff will provide. Describe any departures from the relevant facility SOP.

* .

3. Lab husbandry time

Outline the duration of housing and provide the schedule of husbandry that lab staff will provide.

* .

4. Lab husbandry files

Attach file(s) with standard operating procedures or other supplementary information for lab husbandry in lab housing.

There are no items to display

Laboratory mouse: LAB HUSBANDRY IN FACILITY

Laboratory or research staff, rather than professional facility animal-care staff, will provide animal husbandry for a subset of animals housed in facilities.

1. Research staff facility husbandry

Briefly outline how the staff will provide husbandry within the facility. Describe any departures from the relevant facility SOP.

* .

2. Research staff facility husbandry duration.

Outline the husbandry duration and schedule the research staff will provide within the facility.

* .

3. Facility husbandry justify

Describe why the research staff, rather than facility animal-care staff, will provide husbandry for facility-housed animals.

* .

4. Facility husbandry files

Attach file(s) with standard operating procedures or other supplementary information for lab husbandry in facilities.

There are no items to display

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 43 of 49)

PRINTED ON: 4/10/2017

Laboratory mouse: SINGLE HOUSING

Answer these questions when individuals of a social species are housed alone for longer than 12 hours.

NOTE: This does **not** include short-term solitary housing for animals recovering from anesthesia or surgery.

1. Single housing duration

How long will individuals of this social species be housed singly?

* .

2. Single-housing enrichment

What enrichment will you provide for singly housed animals?

* .

3. Single housing monitor

How will you monitor singly housed animals?

* .

4. Single housing justify

What is your justification for single-housing a social species?

* .

Laboratory mouse: ENRICHMENT WITHHOLDING

Animals are not provided with minimum required enrichment as outlined in the facility SOP.

1. Enrich withhold duration

Outline the duration and schedule of withholding of enrichment.

* .

2. Enrich withhold monitor

How will you monitor animals under enrichment withholding?

* .

3. Enrich withhold justify

What is your justification for withholding of enrichment? Why can't alternate enrichment be used?

* .

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 44 of 49)

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Laboratory mouse: EXERCISE WITHHOLDING for dogs

Dogs are not provided with the minimum exercise as required by the facility SOP.

1. Exercise-withhold duration

Outline the duration and schedule of withholding of exercise

* .

2. Exercise-withhold enrichment

What enrichment will you provide for dogs under exercise withholding?

* .

3. Exercise-withhold monitor

How will you monitor dogs under exercise withholding?

* .

4. Exercise-withhold justify

What is your justification for withholding exercise?

* .

Laboratory mouse: AMBIENT NOISE**1. Ambient noise describe**

Describe what devices you will use to create ambient noise in the animals' environment, the number of animals you anticipate using for this portion of the study, and the duration/regimen of the noise.

* .

2. Ambient noise additional monitoring

What additional monitoring will you provide for animals exposed to animal noise?

* .

3. Ambient noise justify

What is your justification for exposing animals to ambient noise?

* .

Laboratory mouse: NONSTANDARD LIGHTING**1. Nonstandard lighting describe**

Describe the lighting paradigm animals will be exposed to as part of your protocol. Include duration/regimen of lighting and the number of animals you anticipate using.

* .

2. Nonstandard lighting additional monitoring

What additional monitoring will you provide for animals exposed to nonstandard lighting?

* .

3. Nonstandard lighting justify

What's your justification for exposing animals to nonstandard lighting?

* .

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 45 of 49)

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Laboratory mouse: VIBRATION**1. Vibration describe**

Describe how you will produce vibration, the number of animals you anticipate using, and the vibration duration/ regimen for animals.

* .

2. Vibration additional monitoring

Describe the additional monitoring you will provide for animals exposed to vibration.

* .

3. Vibration justify

What is your justification for exposing animals to vibration?

* .

**Laboratory mouse: CLEANING /SANITATION SCHEDULE
DIFFERENT THAN FACILITY STANDARD****1. Different cleaning/sanitation schedule describe**

Describe how your cleaning/sanitation schedule will be different than the facility standard, including the approximate duration of the different standard, and the number of animals you anticipate using.

* .

2. Different cleaning/sanitation schedule additional monitoring

Describe the additional monitoring you will provide for animals exposed to different cleaning/sanitation schedule.

* .

3. Different cleaning/sanitation schedule justify

What is your justification for utilizing a different cleaning/sanitation schedule than the facility standard?

* .

**Laboratory mouse: ENCLOSURE SMALLER THAN FACILITY
STANDARD****1. Smaller enclosure describe**

Describe the measurements of the enclosure, the number of animals you anticipate using, and the small-enclosure duration/regimen.

* .

2. Smaller enclosure additional enrichment

Describe any other enrichment you will provide to animals housed in an enclosure smaller than the facility standard.

* .

3. Smaller enclosure additional monitoring

Describe additional monitoring provided for animals contained in an enclosure smaller than the facility standard.

* .

4. Smaller enclosure justify

What is your justification for exposing animals to enclosure smaller than facility standard?

* .

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 46 of 49)

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Laboratory mouse: HIGH VELOCITY AIR**1. High velocity air describe**

Describe how high velocity air will be produced, the number of animals you anticipate using, and high-velocity air schedule/ regimen for animals in your study.

* .

2. High velocity air additional monitoring

Describe the additional monitoring you will provide for animals exposed to high-velocity air.

* .

3. High velocity air justify

What is your justification for exposing animals to high velocity air?

* .

Laboratory mouse: BARE FLOOR (NO BEDDING) WITH NO STRUCTURE FOR RESTING OR SLEEPING**1. Bare floor describe**

Provide the measurements of the enclosure, the number of the animals you anticipate using, and the duration/regimen for the animals.

* .

2. Bare floor additional enrichment

Describe any additional enrichment you will provide to animals housed on a bare floor (no bedding) with no structure for resting or sleeping.

* .

3. Bare floor additional monitoring

What additional monitoring will you provide for animals housed on a bare floor (no bedding) with no structure for resting or sleeping.

* .

4. Bare floor justify

What is your justification for housing animals on a bare floor (no bedding) with no structure for resting or sleeping?

* .

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 47 of 49)

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Laboratory mouse: WIRE BOTTOM CAGE**1. Wire bottom cage describe**

Provide the measurements of the enclosure, the number of the animals you anticipate using, and the duration/regimen.

* .

2. Wire bottom cage additional enrichment

Describe any additional enrichment you will provide to rodents housed in a wire bottom cage. Indicate if resting will be provided. If no resting platform will be provided, provide justification.

* .

3. Wire bottom cage additional monitoring

What additional monitoring will you provide for rodents housed in a wire bottom cage with no resting platform?

* .

4. Wire bottom cage justify

What is your justification for housing rodents in a wire bottom cage with no resting platform?

* .

**Laboratory mouse: TEMPERATURE OUTSIDE
RECOMMENDED RANGE****1. Temperature describe**

Describe the temperature ranges animals will be exposed to and the exposure duration/ regimen. Also provide the number of animals you anticipate using.

* .

2. Temperature additional monitoring

Describe the additional monitoring you will provide for animals exposed to temperature outside of the recommended range for the species.

* .

3. Temperature justify

What is your justification for exposing animals to temperature outside of the recommended range for the species?

* .

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 48 of 49)

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Laboratory mouse: OTHER NON-STANDARD HUSBANDRY (ONHS)

Indicate other non-standard housing or husbandry conditions, e.g. modified light cycle, nonstandard cage size or type, rodent wire-bottom cages, extended cage-cleaning interval, specialized husbandry needs.

1. ONSH husbandry describe

Describe the type of non-standard husbandry:

* .

2. ONSH duration

Outline the duration and schedule of the non-standard husbandry condition.

* .

3. ONSH monitor

How will you monitor animals under non-standard husbandry conditions?

* .

4. ONSH justify

What is your justification for non-standard husbandry conditions?

* .

Appendix 7b: Blank IACUC/OB Protocol Form, ARROW Biomedical Type (page 49 of 49)

PRINTED ON: 4/10/2017

Laboratory mouse: SELECT LOCATIONS

Select all locations where housing and procedures for this species will occur. On the next page you will associate housing and procedures with specific locations.

Plan to house animals and perform procedures all within an established animal facility? In Question 1 type "vivarium" in the box below and select the location from the drop-down to select the location for both your housing and any procedures performed within the vivarium. Do not select individual rooms within a vivarium - this will limit your flexibility to work within the facility and may lead to inadvertent protocol violations.

Plan to use [REDACTED] space? Enter "[REDACTED]" in Question 1 and then select the usage area or areas within [REDACTED] you want to use. Do not choose specific room numbers for [REDACTED] in Question 1. Do not type in specific rooms for [REDACTED] in Question 2.

Plan to use a non-vivarium, PI laboratory for holding animals for more than 12 hours, and/or to perform nonsurgical, surgical, and euthanasia procedures on animals? In Question 1 type the room number in the box below (e.g. 1234) and select the location from the drop-down. For the [REDACTED] include the building module (e.g. [REDACTED]). Add each room individually - it is not possible to add ranges of rooms.

If the location you want to use does not display in Question 1, it is possible that it's not ACUC-approved for animal use. Enter the location in Question 2 and contact your RARC protocol manager for assistance.

1. Current ACUC approved locations

Location Common Name	Room Name	Location Type	Committee	Housing Allowed	Procedure Allowed	Surgery Level
There are no items to display						

2. Locations not found in Q1 -- Request ACUC approval

Building Name	Building Address	Room Name

3. Locations not controlled by UW-Madison or its affiliates

Location	Location Address

Laboratory mouse: SELECT PURPOSE OF LOCATIONS**1. Locations table**

REQUIRED: Click on the name of each selected location. On the pop-up, indicate which of the following procedures and housing will occur at that location. Check all that apply for each location.

Location name	Facility housing	Laboratory housing	Nonsurgical Procedures	Surgical Procedures	Euthanasia
			No value entered	No value entered	
	yes	no	yes	yes	yes

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 1 of 7)

PRINTED ON: 4/10/2017

PROTOCOL BASICS**1. Protocol title**

Give your protocol a title.

*
/**2. PI name**

Click Change to choose a different name. If you can't find the name you want, email arrow_help@rarc.wisc.edu.

*
[REDACTED]**3. PI Status**

Is the named PI (select one):

*

☐ Faculty☐ Emeritus appointment☒ Other**4. PI department**

Enter the PI's department name.

* RARC

5. Protocol renewal

Is this application a renewal of a previously approved paper protocol?

* ☐ Yes ☒ No**Previous protocol**

If yes, please provide the current protocol number (e.g., M01234 or V00789).

6. Protocol writers

Other than the PI, who can write and modify this protocol? Add up to two names by typing the last name in the search box and selecting from the drop down or clicking on the "Add" button to locate the person. If you can't find a name you want, please email arrow_help@rarc.wisc.edu

Person

There are no items to display

7. Email contacts

Select up to two (2) email contacts by typing the last name in the search box and selecting from the drop down or clicking on the "Add" button to locate the person. If you can't find the name you want, please email arrow_help@rarc.wisc.edu.

Person

There are no items to display

8. Emergency contacts

Select up to two emergency contacts (at least one contact is required) who are authorized to act in an animal emergency if the Principal Investigator is not available. These must be individuals who understand the research and can answer questions in a PI's absence. Type the contact's last name in the search box and select from the drop down or click the "Add" button to locate the person

*

Person
[REDACTED]

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 2 of 7)

PRINTED ON: 4/10/2017

FUNDING

Identify all funding sources that support your protocol.

If you have questions about grant-protocol congruence, email or submit the Congruence Review Request Form to congruence@rarc.wisc.edu.**1. Research and Sponsored Program (RSP) – managed funding**

Do you have a grant or contract funding this project (federal or non-federal)?

PI Name	Award Number (MSN #)	Project Title	Sponsor Reference Number	Project ID	Sponsor (Source)
There are no items to display					

2. Other funding

Add other funding.

Project Title	PI Name	Award Number (MSN #) / Project ID (PRJXXX)	Start Date	End Date	Grant Status	Sponsor (Source)
There are no items to display						

3. Public Health Service (PHS) fundingAre any of the funding sources above directly from or subawards from NIH, NSF, or other Public Health Service (PHS) agencies? See [https://en.wikipedia.org/wiki/United_States_Public_Health_Service] for a list of PHS agencies.* ☐ Yes ☒ No**PROTOCOL TYPE****1. Select agents**Does this protocol involve the administration of biological select agents/toxins or is your proposed work conducted in a Registered Space? See the [CDC's Select Agents and Toxins List](#) for guidance.**Note!** Controlled substances such as Ketamine and Pentobarbital are NOT select agents. If you are working with controlled substances, select "No."

If you are unsure about the status of your agent or if you'll work in Registered Space, contact [REDACTED]

* ☐ Yes ☒ No**2. Infectious disease**

Does this protocol include work with infectious disease?

* ☐ Yes ☒ No**3. Protocol type**

What type of protocol are you submitting? Select one.

* Other

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 3 of 7)

PRINTED ON: 4/10/2017

VA ACORP**1. VA ACORP**

Is your work also described in an approved Veterans Administration Animal Component of Research Protocol (ACORP)?

* ☐ Yes ☒ No

VA researchers must complete this entire UW protocol application to provide answers about procedures and/or housing at UW facilities.

ACORP files

If yes, add the current approved ACORP(s).

There are no items to display

SIGNIFICANCE and JUSTIFICATION**1. Significance of work**

Using nontechnical (lay) language that a high-school student would understand, briefly describe the goals of your study including an explanation of how your work will advance knowledge, improve human or animal health, or benefit society. Do NOT use technical language that would be used in a grant application.

At the end of your response, describe briefly and in nonscientific language how you plan to interpret the collected data to meet the goals of the study.

*

2. Justify use of animals

Explain why you must use live vertebrate animals instead of nonanimal alternatives such as computer simulation or in vitro systems.

*

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 4 of 7)

PRINTED ON: 4/10/2017

EXPERIMENTAL NARRATIVE**1. Experimental narrative**

In language that scientific colleagues outside your discipline would understand, please provide a global, chronological summary of your experiments that focuses on the experience of the animals from initial assignment to final disposition. Your answer should allow IACUC members to understand the experience of all animals assigned to this protocol. Briefly outline all proposed surgeries, non-surgical procedures, and other manipulations, but do not include experimental details here. You will provide specific protocol details such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc., later in this protocol.

You do not need to describe animal housing arrangements or other standard husbandry practices here unless those practices will differ from the practices supported by the normal operations of the vivarium staff. If you are unsure if your study-specific husbandry practices are different from the standards provided by the vivarium staff, consult with an RARC research animal veterinarian, WNPRC veterinarian, or the supervisor of the animal facility.

*

2. Supporting publications/manuscripts (optional)

List the title/name of manuscripts, abstracts, or other references supporting your research that the IACUC may find helpful in evaluating this protocol. Do not list standard husbandry references.

3. Summary files

Attach file(s) with timelines, illustrations, figures, or other supplemental information that provides an overview of the protocol. Do not attach copies of grant applications.

There are no items to display

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 5 of 7)

PRINTED ON: 4/10/2017

DUPLICATION SEARCH

Describe the search terms and strategy you used to determine that your experiments will not be unnecessarily redundant.

1. Duplication databases

List two or more databases searched (e.g., AltWeb, Biological Abstracts, NORINA, PubMed, etc.):

* .

2. Duplication years covered

Indicate the timeframe covered by search (yyyy-yyyy):

* .

3. Duplication recent search

Indicate the date of the most recent search (mm/dd/yyyy):

* 4/10/2017

4. Duplication keywords

List the keywords used for search:

* .

5. Duplication other

List any other methods you used to determine that you did not unnecessarily duplicate other research and/or involve animals in teaching. This should be secondary to the database search. Examples of other sources are conference attendance, professional expertise, specific journal articles, training, etc.

6. Duplication narrative

Provide a brief narrative description of how the search results were evaluated to avoid unnecessary duplication. Please state if the research proposed in this protocol was determined to be novel. **If not**, describe why it is necessary to repeat previously published findings as part of this research endeavor.

* .

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 6 of 7)

PRINTED ON: 4/10/2017

SELECT STUDY TEAM**1. Study team**

Add all research personnel, including the PI, who will work with animals under this protocol. Do NOT include animal facility supervisors, professional animal care staff, or research animal veterinary staff. DO add protocol writers and email contacts if they will work with animals. If a study team member or a lab member won't be handling animals for over 30 days, or you can't find a name in the drop down, email arrow_help@rarc.wisc.edu.

*

	Name	Office phone	Lab phone	Cell phone	Email
View	[REDACTED]	[REDACTED]			[REDACTED]@rarc.wisc.edu

2. Study team groups

List GROUPS that will work with animals on this protocol (e.g., 4th year veterinary students, SPI). Do NOT name individuals. Do NOT include assignments.

3. PI oversight

If the PI (him or herself) will not be handling or working with a live species, explain how the PI will provide the oversight necessary for compliance with animal program regulations and requirements.

4. Supervisor/trainer for staff with < 1 yr experience

For any individuals added to the study team who may not have at least one year of experience, please state who will train and supervise.

*

5. Confirm Training

Please confirm that all study team members have completed the Animal Contact Risk Questionnaire and are medically cleared to handle animals. For assistance, contact [REDACTED] at University Health Services, [REDACTED]

*

Appendix 7c: Blank IACUC/OB Protocol Form, ARROW Other Type (page 7 of 7)

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ASSIGNMENTS AND QUALIFICATIONS

Click ADD to associate members with species and painful procedures.
 To see an individual's education and experience, click the icon next to their name on the ADD pop-up (go to Help for how profiles are managed).
 To remove a member, return to the Select Study Team page.

NOTE: ALL study team members MUST be assigned to at least one species.

ALL painful/distressful procedures and surgeries must be associated with at least one staff member.

1. Study team member assignments

View	Name	[REDACTED]
	Species	No Value Entered
	Painful nonsurgical procedures	No value entered
	Surgeries	No value entered
	RARC classes	Animal User Orientation - 2017-02-27 UW Animal Program Emergency Orientation - 2016-10-24 Guidelines for Working with Wildlife - 2014-12-30 Animal User Orientation -... read more...
	Education	No Value Entered
	Experience	I know how to use guinea pigs. And cats. And abominable snowmen. [REDACTED] provided hands-on training for using Sasquatch. Boop boop.

2. Protocol-specific experience/training not included above for any study team member may be included here.**FINISH PROTOCOL**

Note: To complete and submit the protocol, please choose from the steps below:

1. Select 'Hide/Show Errors' to check for any errors or omissions.
2. Select 'Exit' and you will be redirected to the protocol workspace.
3. If you are ready to submit, click "Ready to Submit", and then follow the instructions on the pop up window.

PLEASE NOTE: ONLY THE PI MAY SUBMIT THE INITIAL NEW OR RENEWED PROTOCOL.

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 1 of 33)

PRINTED ON: 4/10/2017

PROTOCOL BASICS**1. Protocol title**

Give your protocol a title.

*

2. PI name

Click Change to choose a different name. If you can't find the name you want, email arrow_help@rarc.wisc.edu.

*

3. PI Status

Is the named PI (select one):

*

☐ Faculty☐ Emeritus appointment☒ Other**4. PI department**

Enter the PI's department name.

* RARC

5. Protocol renewal

Is this application a renewal of a previously approved paper protocol?

* ☐ Yes ☒ No**Previous protocol**

If yes, please provide the current protocol number (e.g., M01234 or V00789).

6. Protocol writers

Other than the PI, who can write and modify this protocol? Add up to two names by typing the last name in the search box and selecting from the drop down or clicking on the "Add" button to locate the person. If you can't find a name you want, please email arrow_help@rarc.wisc.edu

Person

There are no items to display

7. Email contacts

Select up to two (2) email contacts by typing the last name in the search box and selecting from the drop down or clicking on the "Add" button to locate the person. If you can't find the name you want, please email arrow_help@rarc.wisc.edu.

Person

There are no items to display

8. Emergency contacts

Select up to two emergency contacts (at least one contact is required) who are authorized to act in an animal emergency if the Principal Investigator is not available. These must be individuals who understand the research and can answer questions in a PI's absence. Type the contact's last name in the search box and select from the drop down or click the "Add" button to locate the person

*

Person

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 2 of 33)

PRINTED ON: 4/10/2017

FUNDING

Identify all funding sources that support your protocol.

If you have questions about grant-protocol congruence, email or submit the Congruence Review Request Form to congruence@rarc.wisc.edu.**1. Research and Sponsored Program (RSP) – managed funding**

Do you have a grant or contract funding this project (federal or non-federal)?

PI Name	Award Number (MSN #)	Project Title	Sponsor Reference Number	Project ID	Sponsor (Source)
There are no items to display					

2. Other funding

Add other funding.

Project Title	PI Name	Award Number (MSN #) / Project ID (PRJXXX)	Start Date	End Date	Grant Status	Sponsor (Source)
There are no items to display						

3. Public Health Service (PHS) fundingAre any of the funding sources above directly from or subawards from NIH, NSF, or other Public Health Service (PHS) agencies? See [https://en.wikipedia.org/wiki/United_States_Public_Health_Service] for a list of PHS agencies.* ☐ Yes ☒ No**PROTOCOL TYPE****1. Select agents**Does this protocol involve the administration of biological select agents/toxins or is your proposed work conducted in a Registered Space? See the [CDC's Select Agents and Toxins List](#) for guidance.**Note!** Controlled substances such as Ketamine and Pentobarbital are NOT select agents. If you are working with controlled substances, select "No."

If you are unsure about the status of your agent or if you'll work in Registered Space, contact

* ☐ Yes ☒ No**2. Infectious disease**

Does this protocol include work with infectious disease?

* ☐ Yes ☒ No**3. Protocol type**

What type of protocol are you submitting? Select one.

* Wildlife Observation, Field Study

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 3 of 33)

PRINTED ON: 4/10/2017

VA ACORP**1. VA ACORP**

Is your work also described in an approved Veterans Administration Animal Component of Research Protocol (ACORP)?

* ☐ Yes ☒ No

VA researchers must complete this entire UW protocol application to provide answers about procedures and/or housing at UW facilities.

ACORP files

If yes, add the current approved ACORP(s).

There are no items to display

SIGNIFICANCE and JUSTIFICATION**1. Significance of work**

Using nontechnical (lay) language that a high-school student would understand, briefly describe the goals of your study including an explanation of how your work will advance knowledge, improve human or animal health, or benefit society. Do NOT use technical language that would be used in a grant application.

At the end of your response, describe briefly and in nonscientific language how you plan to interpret the collected data to meet the goals of the study.

*

2. For educational display only

Will animals on this protocol be used for educational display only?

* ☐ Yes ☒ No

3. Justify use of animals

Explain why you must use live vertebrate animals instead of nonanimal alternatives such as computer simulation or in vitro systems.

*

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 4 of 33)

PRINTED ON: 4/10/2017

EXPERIMENTAL NARRATIVE**1. Experimental narrative**

In language that scientific colleagues outside your discipline would understand, please provide a global, chronological summary of your experiments that focuses on the experience of the animals from initial assignment to final disposition. Your answer should allow IACUC members to understand the experience of all animals assigned to this protocol. Briefly outline all proposed surgeries, non-surgical procedures, and other manipulations, but do not include experimental details here. You will provide specific protocol details such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc., later in this protocol.

You do not need to describe animal housing arrangements or other standard husbandry practices here unless those practices will differ from the practices supported by the normal operations of the vivarium staff. If you are unsure if your study-specific husbandry practices are different from the standards provided by the vivarium staff, consult with an RARC research animal veterinarian, WNPRC veterinarian, or the supervisor of the animal facility.

*

2. Supporting publications/manuscripts (optional)

List the title/name of manuscripts, abstracts, or other references supporting your research that the IACUC may find helpful in evaluating this protocol. Do not list standard husbandry references.

3. Summary files

Attach file(s) with timelines, illustrations, figures, or other supplemental information that provides an overview of the protocol. Do not attach copies of grant applications.

There are no items to display

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 5 of 33)

PRINTED ON: 4/10/2017

DUPLICATION SEARCH

Describe the search terms and strategy you used to determine that your experiments will not be unnecessarily redundant.

1. Duplication databases

List two or more databases searched (e.g., AltWeb, Biological Abstracts, NORINA, PubMed, etc.):

* .

2. Duplication years covered

Indicate the timeframe covered by search (yyyy-yyyy):

* .

3. Duplication recent search

Indicate the date of the most recent search (mm/dd/yyyy):

* 4/10/2017

4. Duplication keywords

List the keywords used for search:

* .

5. Duplication other

List any other methods you used to determine that you did not unnecessarily duplicate other research and/or involve animals in teaching. This should be secondary to the database search. Examples of other sources are conference attendance, professional expertise, specific journal articles, training, etc.

6. Duplication narrative

Provide a brief narrative description of how the search results were evaluated to avoid unnecessary duplication. Please state if the research proposed in this protocol was determined to be novel. **If not**, describe why it is necessary to repeat previously published findings as part of this research endeavor.

* .

ADDED WILDLIFE


Click the Wildlife Details button below to answer a series of questions about the wildlife on this protocol. You will answer these questions only one time in this protocol type, so your answers should address all of the animals.

When you are finished answering questions, click Continue, or you can save and exit.

You can exit before answering all questions and return later to finish.

To edit names, check the box below. To change numbers, surgery, or USDA code, you must click Wildlife Details and go to the applicable page.

To add or edit an entry, check the box ☐

Wildlife details	Wildlife common or group name	Max. number	Surgery?	USDA code	Print	Complete?
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Species Details </div>	_____	_____	yes	B	<div style="border: 1px solid black; padding: 2px; display: inline-block;">  </div>	

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 6 of 33)

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SELECT STUDY TEAM**1. Study team**

Add all research personnel, including the PI, who will work with animals under this protocol. Do NOT include animal facility supervisors, professional animal care staff, or research animal veterinary staff. DO add protocol writers and email contacts if they will work with animals. If a study team member or a lab member won't be handling animals for over 30 days, or you can't find a name in the drop down, email arrow_help@rarc.wisc.edu.

*

	Name	Office phone	Lab phone	Cell phone	Email
View	[REDACTED]	[REDACTED]			[REDACTED]@rarc.wisc.edu

2. Study team groups

List GROUPS that will work with animals on this protocol (e.g., 4th year veterinary students, SPI). Do NOT name individuals. Do NOT include assignments.

3. PI oversight

If the PI (him or herself) will not be handling or working with a live species, explain how the PI will provide the oversight necessary for compliance with animal program regulations and requirements.

4. Supervisor/trainer for staff with < 1 yr experience

For any individuals added to the study team who may not have at least one year of experience, please state who will train and supervise.

*

5. Confirm Training

Please confirm that all study team members have completed the Animal Contact Risk Questionnaire and are medically cleared to handle animals. For assistance, contact [REDACTED] at University Health Services, [REDACTED]

*

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ASSIGNMENTS AND QUALIFICATIONS

Click ADD to associate members with species and painful procedures.

To see an individual's education and experience, click the icon next to their name on the ADD pop-up (go to Help for how profiles are managed).

To remove a member, return to the Select Study Team page.

NOTE: ALL study team members MUST be assigned to at least one species.

ALL painful/distressful procedures and surgeries must be associated with at least one staff member.

1. Study team member assignments

View	Name	██████████
	Species	.
	Painful nonsurgical procedures	.
	Surgeries	. (Minor survival)
	RARC classes	Animal User Orientation - 2017-02-27 UW Animal Program Emergency Orientation - 2016-10-24 Guidelines for Working with Wildlife - 2014-12-30 Animal User Orientation -... read more...
	Education	No Value Entered
	Experience	I know how to use guinea pigs. And cats. And abominable snowmen. ██████████ provided hands-on training for using Sasquatch. Boop boop.

2. Protocol-specific experience/training not included above for any study team member may be included here.**WILDLIFE HAZARDS****1. Protective clothing**

Provide the protective clothing that will be worn while handling wildlife (please check all that apply)

*

Nitrile/Latex Gloves

Other

2. Available safety items for the staff

Provide what items are available to help keep your staff safe while working in the field (please check all that apply)

*

First aid kit

Other

3. Decontamination procedure

Describe decontamination procedures and frequency for equipment that will be used to capture, transport, and contain animals.

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FINISH PROTOCOL

Note: To complete and submit the protocol, please choose from the steps below:

1. Select 'Hide/Show Errors' to check for any errors or omissions.
2. Select 'Exit' and you will be redirected to the protocol workspace.
3. If you are ready to submit, click "Ready to Submit", and then follow the instructions on the pop up window.

PLEASE NOTE: ONLY THE PI MAY SUBMIT THE INITIAL NEW OR RENEWED PROTOCOL.

DRAFT

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Wildlife: JUSTIFY SPECIES CHOICE**1. Justify species/group choice**

Why are these particular species or groups the most appropriate for your protocol?

*

Wildlife: NUMBER OF ANIMALS**1. Maximum 3-year**

During the entire three-year period of your protocol, what's the maximum number of animals of each species or group that you'll use?

Click each name and enter the number in the pop-up.

*

Wildlife common or group name

Maximum 3 Year

2. Number justify

Why does your protocol need this maximum number? For each species or group, provide a statistical justification or cite your past experience. See ACAPAC policy 2013-051 for guidance and its Companion SOP for examples of acceptable justifications.

*

3. Number files

Attach file(s) that support your determination of animal numbers. If possible, use tables to organize your information.

There are no items to display

Wildlife: SOURCE**1. Wildlife source**

Check one or both sources.

*

☒ Capture or collection from wild (free-living) population☐ Other**Wildlife other source**

If other, please describe.

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Wildlife: WILDLIFE CAPTURE**1. Capture type**

List and briefly describe each type of trap or capture method.

* .

2. Capture check

For each type of trap or capture method, describe how often traps will be checked. Please include any food or fluid restriction that may occur for trapped animals.

* .

3. Nontarget capture

Provide a best estimate of the numbers and types of nontarget wildlife that may be caught.

4. Nontarget management

Describe how you will treat/manage nontarget species that may be trapped or captured.

* .

5. Capture complications

Please provide information regarding the potential complications that may occur from the trapping method.

6. Wildlife release

Will any wild-caught animals be released back into the wild?

* ☐ Yes ☒ No**Wildlife: PRIOR USE****1. Prior use**

Were any of these animals used in another protocol?

* ☐ Yes ☒ No**Prior describe**

If yes, describe the prior use and explain how you have determined that the previous use of these animals will not compromise the research proposed in this protocol or the animals' health.

Consider previous nutritional manipulations, blood draws, drugs and materials administered, and other manipulations that might have compromised the animals' fitness for this protocol, or how the proposed study may adversely impact animals given their health history and assignment to earlier projects.

Animals that have undergone a major surgical procedure, permanent physiologic alteration, or substantial impairment on a previous protocol are not eligible for major surgical procedures on subsequent protocols.

Wildlife: SUBSTANCE ADMINISTRATION CHECKLIST**1. Substance administration checklist**

If you will administer substances, check all purposes that apply. Include delivery of materials to animals via injection, infusion, inhalation, implantation, ingestion of food/water, and other means. Include administration of radionuclides. Include nonstandard diets under all other substances.

*

☒ analgesics/anesthetics/sedatives to relieve pain or distress caused by nonsurgical and/or surgical procedures☒ euthanasia substance(s)☒ all other substances☐ I will not administer any substances.

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**Wildlife: SUBSTANCE ADMIN:
ANALGESIC/ANESTHETIC/SEDATION**

Used to relieve pain or distress an animal may experience as a result of the procedures and manipulations described in this species/group. For guidance on organizing information, click on the help icon above.

1. Analgesic/anesthetic/sedation table

*

Regimens	
View	Regimen .
	Drugs and Compounds .
	Description .
	Monitoring Plan .

Wildlife: SUBSTANCE ADMIN: EUTHANASIA

If a substance is used to euthanize this species, it should be entered here. Include CO₂.

1. Euthanasia substance table

*

Regimens	
View	regimen .
	Drugs and Compounds .
	description .

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Wildlife: SUBSTANCE ADMIN: ALL OTHER SUBSTANCES

For each substance or regimen, click "Add" to answer questions about its administration.

Describe the materials delivered to animals via injection, infusion, inhalation, implantation, ingestion in food or water, nonstandard diets, and by other means. Include administration of radionuclides via injection or in food.

Do not include substances used for **clinical relief** of pain or distress (anesthesia/analgesia) or for euthanasia of this species. See help for additional guidance.

1. All Other substances table

*

View	Substance name	.
	Drugs and Compounds	No Value Entered
	category	No Value Entered
	Dosing details	.
	purpose of use / monitoring	.
	painful?	No
	anesthesia/analgesia regimen	.

Wildlife: SPECIAL SUBSTANCES**1. Special substances**

*

<input checked="" type="checkbox"/>	cells, cell lines, tissues, or tissue products (animal and/or human)
<input checked="" type="checkbox"/>	complete Freund's adjuvant (CFA)
<input checked="" type="checkbox"/>	controlled substances (requiring DEA registration)
<input checked="" type="checkbox"/>	nonpharmaceutical-grade compounds
<input checked="" type="checkbox"/>	paralytic agents
<input type="checkbox"/>	none of the above

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Wildlife: CELL ADMINISTRATION**1. Cell selection**

Select the substances that are cells, cell lines, or tissue products.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Wildlife
<input type="checkbox"/>	.	Wildlife
<input type="checkbox"/>	.	Wildlife

2. Cell evaluation

Describe the testing and precautions for possible animal pathogens in these cells, cell lines, tissues, or tissue products. Please see Policy 2007-033 for further details.

* .

3. Cell files

Attach file(s) if any outside testing was performed on cells, cell lines, tissues, or tissue products.

There are no items to display

Wildlife: Complete Freund's Adjuvant**1. Complete Freund's Selection**

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Wildlife
<input type="checkbox"/>	.	Wildlife
<input type="checkbox"/>	.	Wildlife

2. Complete Freund's Adjuvant justify

Use of CFA must be scientifically justified and a comprehensive search for alternatives considered. Please justify use of Complete Freund's Adjuvant (CFA) versus alternative adjuvant systems.

* .

Wildlife: Controlled Substances

Controlled substances are drugs regulated by the Drug Enforcement Administration.

1. CS selection

Check all regimens that contain controlled substances.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Wildlife
<input type="checkbox"/>	.	Wildlife
<input type="checkbox"/>	.	Wildlife

2. DEA registrant

Name the DEA registrants for the controlled substances.

* .

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Wildlife: Nonpharmaceutical-Grade Administration

A pharmaceutical-grade chemical compound is defined by the NIH-OLAW and USDA-APHIS as any active or inactive drug, biologic, reagent, etc., that is approved by the FDA or for which a chemical purity standard has been written or established by any recognized pharmacopeia, such as the US Pharmacopeia [USP], the National Formulary [NF], the British Pharmacopoeia [BP], or the Pharmacopoeia of the Council of Europe [EP]. This includes compounds intended for use as investigational agents, for clinical purposes, and in terminal studies.

1. Nonpharmaceutical-grade selection

Check the substances that are nonpharmaceutical-grade compounds. Those not checked, with rare exceptions, must be pharmaceutical grade.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Nonpharmaceutical-grade use justification

Justify your use of each nonpharmaceutical-grade substance you'll administer.

* .

3. Nonpharmaceutical-grade preparation

If appropriate, describe the preparation method for each compound selected.

4. Nonpharmaceutical-grade files

Attach files with standard operating procedures or other supplementary information for the preparation or compounding of non-pharmaceutical-grade substances.

There are no items to display

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Wildlife: Paralytic Administration

Without exception, you can only use paralytics on a fully anesthetized animal. In addition, you must provide adequate ventilation during the time that an animal cannot breathe on its own.

1. Paralytic selection

Select the substances that are paralytic agents.

* Regimen/Substance		Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	.	Wildlife
<input type="checkbox"/>	.	.	Wildlife
<input type="checkbox"/>	.	.	Wildlife

2. Paralytic use justification

Provide the scientific justification for each paralytic agent you will use.

* .

3. Paralytic number and monitoring plan

For each paralytic agent you'll use, indicate the number of this species to which it will be administered and describe how you will monitor during administration and recovery.

* .

4. Paralytic analgesia/anesthesia/sedation

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Wildlife

Wildlife: AGENTS**1. Agents**

*

<input checked="" type="checkbox"/>	rDNA
<input checked="" type="checkbox"/>	bacteria
<input checked="" type="checkbox"/>	virus
<input checked="" type="checkbox"/>	prion
<input checked="" type="checkbox"/>	human-derived
<input checked="" type="checkbox"/>	genetically altered
<input checked="" type="checkbox"/>	toxin
<input checked="" type="checkbox"/>	carcinogen
<input checked="" type="checkbox"/>	mutagen
<input checked="" type="checkbox"/>	teratogen
<input checked="" type="checkbox"/>	radioactive
<input type="checkbox"/>	none of the above

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Wildlife: rDNA AGENTS ADMINISTRATION**1. rDNA selection**

Select the substances that are rDNA agents.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. rDNA files

Attach file(s).

File

There are no items to display

Wildlife: Bacteria Agents Administration**1. Bacteria selection**

Select the substances that are bacteria agents.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Bacteria files

Attach file(s).

File

There are no items to display

Wildlife: Virus Agents Administration**1. Virus selection**

Select the substances that are virus agents.

*

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Virus files

Attach file(s).

File

There are no items to display

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Wildlife: Prion Agents Administration**1. Prion selection**

Select the substances that are prion agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Prion files

Attach file(s).

File

There are no items to display

Wildlife: Human Derived Agents Administration**1. Human derived selection**

Select the substances that are human derived agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Human derived files

Attach file(s).

File

There are no items to display

Wildlife: Genetically Altered Agents Administration**1. Genetically altered selection**

Select the substances that are genetically altered agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Genetically altered files

Attach file(s).

File

There are no items to display

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Wildlife: Toxin Agents Administration**1. Toxin selection**

Select the substances that are toxin agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Toxin files

Attach file(s).

File

There are no items to display

Wildlife: Carcinogen Agents Administration**1. Carcinogen selection**

Select the substances that are carcinogen agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Carcinogen files

Attach file(s).

File

There are no items to display

Wildlife: Mutagen Agents Administration**1. Mutagen selection**

Select the substances that are mutagen agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Mutagen files

Attach file(s).

File

There are no items to display

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Wildlife: Teratogen Agents Administration**1. Teratogen selection**

Select the substances that are teratogen agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Teratogen files

Attach file(s).

File

There are no items to display

Wildlife: Radioactive Agents Administration**1. Radioactive selection**

Select the substances that are radioactive agents.

*		
Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife
<input type="checkbox"/> .	.	Wildlife

2. Radioactive files

Attach file(s).

File

There are no items to display

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Wildlife: SELECT NONSURGICAL PROCEDURES (NSP)**1. Nonsurgical selection**

Check all types of nonsurgical procedures that will be performed.

*

- | | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Blood collection
sampling by nonsurgical procedures |
| <input checked="" type="checkbox"/> | Experimental exercise
Treadmill running, rotarod performance testing, swimming, and more. |
| <input checked="" type="checkbox"/> | Genotyping/identification |
| <input checked="" type="checkbox"/> | Imaging
CT scans, MRIs, ultrasound examinations, X-rays, and other imaging procedures, including those that expose the animal to small amounts of radiation for the purpose of producing a visual image of bodies or processes.
If a dye is used for imaging, add details about the dye in Substance Administration. |
| <input checked="" type="checkbox"/> | Irradiation
Exposure to gamma irradiation and other ionizing radiation for the purpose of affecting animal tissue or physiology.
Administration of radionuclides via injection or in food should be described in Substance Administration. |
| <input checked="" type="checkbox"/> | Physical restraint
Applies to the use of manual or mechanical means to limit some or all of an animal's movement.
Does <u>not</u> apply to brief procedures that are part of normal handling or husbandry.
Does <u>not</u> apply to normal wildlife-capturing techniques. |
| <input checked="" type="checkbox"/> | Other nonsurgical procedures
Applies to a wide range of other experimental manipulations of animals such as behavioral assays, gastric lavage, maze trials, oocyte collection, preference tests, and more. |
| <input type="checkbox"/> | I will not perform any nonsurgical procedures. |

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Wildlife: NSP: BLOOD COLLECTION

For each blood collection regimen, provide details of the procedure.

1. Blood collection table

The table below lists regimens of blood collection that have been added.

*

Blood Collection List

View	Regimen	.
	Blood collection monitoring	No Value Entered
	Collect site	.
	Max. single draw vol. (ml)	.
	Max. percent blood volume withdrawn	.
	# samples	.
	Interval	.
	Blood terminal?	No
	Painful?	No
	Analgesic/Anesthetic regimen	.

2. Blood collection exceed limits

For any survival blood collection regimens that approach or exceed the maximum collection limits as outlined in the RARC guidelines, describe monitoring and supportive care procedures.

3. Blood collection justify

Provide justification for any survival blood collection regimens that approach or exceed the maximum collection limits as outlined.

Wildlife: NSP: EXPERIMENTAL EXERCISE**1. Experimental exercise table**

For each experimental exercise regimen, click "Add" to answer questions about it.

*

View	Title	.
	Describe	.
	Forced	No
	Monitor	.
	Justify	.
	Analgesic/Anesthetic regimen	.



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Wildlife: NSP: GENOTYPING AND IDENTIFICATION**1. Genotyping and identification table**

For each genotyping or identification regimen, click "Add" to answer questions about it.

*

View	Title	.
	Site	.
	Description	.
	Age of animals	No Value Entered
	Is Painful	No
	Analgesic/Anesthetic regimen	.

2. Genotyping and identification files

Attach file(s) with standard operating procedures or other supplementary information for genotyping or identification.

File

There are no items to display

Wildlife: NSP: IMAGING

For each imaging regimen, click "Add" to answer questions about it. Imaging includes X-rays, PET scans, CAT scans, MRIs, etc.

1. Imaging table

*

View	title	.
	modality	.
	max. no. of animals	No Value Entered
	contrast	No Value Entered
	duration	.
	freq./animal	.
	description	.
	painful?	No
	imaging analgesia/anesthesia	.

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Wildlife: NSP: IRRADIATION EXTERNAL SOURCE

For each irradiation regimen, click "Add" to answer questions about it.

Do not include administration of radioactive substances (i.e., radionuclides) or radiation exposure that is part of an imaging procedure. You will address those in the Substance Administration and Imaging sections respectively.

1. Irradiation table

*

View	title	.
	type	.
	max. no. of animals	No Value Entered
	max. duration	.
	max. single dose/animal	.
	max. total dose/animal	.
	freq./animal	.
	description	.
	painful?	No
	Analgesic/Anesthetic regimen	.

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Wildlife: NSP: PHYSICAL RESTRAINT

For each physical-restraint regimen, click "Add" to answer questions about it.

Do **not** include brief (< 15 min) physical restraint that is part of normal animal-handling practices or procedures.

Do **not** include normal wildlife-capturing techniques.

1. Restraint table

*

View	type of restraint	.
	max. duration	.
	acclimatization	.
	monitoring	.
	scientific justification	.
	painful?	No
	Analgesic/Anesthetic regimen	.

2. Restraint files

Attach file(s) with standard operating procedures or other supplementary information for physical restraint.

There are no items to display

Wildlife: NSP: OTHER NONSURGICAL PROCEDURES

Click "Add" to answer questions about nonsurgical procedures you haven't already described.

1. Other nonsurgical table

*

View	title	.
	max. no. of animals	No Value Entered
	pre and post care and/or treatment	No Value Entered
	description	.
	frequency	No Value Entered
	painful?	No
	Files	
	Analgesic/Anesthetic regimen	.

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Wildlife: NSP: NONSURGICAL MONITORING**1. Nonsurgical monitoring**

Review your list of nonsurgical procedures that include pain/discomfort/distress.

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen	Monitoring
	Euthanasia Methods		

Wildlife: SURGERY Y/N

Minor survival surgery: Body cavities are not exposed. Animals typically do not show significant signs of postoperative pain, have minimal complications, and quickly return to normal function.

Examples: wound suturing, peripheral vessel cannulation, percutaneous biopsy, and most procedures routinely done on an outpatient basis in veterinary clinical practice.

Major survival surgery: Body cavities are exposed, and tissues are extensively dissected or transected. Animals may show substantial impairment of physical or physiologic functions.

Examples: laparotomy, thoracotomy, joint replacement, craniotomy, and limb amputation.

Nonsurvival surgery: Procedures are terminal, and animals do not regain consciousness prior to death. Do NOT enter nonsurvival surgeries in Euthanasia.

Examples:

All perfusion or Nonsurvival (≤ 5 min): all perfusions or anesthesia duration ≤ 5 min (e.g. thoracotomy for terminal blood collection).

Nonsurvival: anesthesia duration greater than 5 minutes but less than or equal to 12 hours.

Extended nonsurvival: anesthesia duration > 12 hours.

Surgical procedures that are initiated on a live animal prior to confirmation of death, such as thoracotomy for terminal perfusion, are considered nonsurvival surgeries and should be described here.

NOT surgery: Fine-needle biopsies, intravitreal or subcutaneous injections, simple catheter insertions. These should be described in Other Nonsurgical Procedures.

1. Surgery y/n

Will surgery be performed on any of this species?

* ☒ Yes ☐ No**Wildlife: SURGERY AND POSTSURGERY SUMMARY**

For each surgical procedure for this species or group, click "Add" to provide details.

1. Surgery table

*

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View	title	.
	survival type	Minor survival
	max. no. of animals	No Value Entered
	Analgesic/Anesthesia regimen	.
	Euthanasia regimen	.
	Physical Euthanasia	Yes - .
	presurgery fasting	No Value Entered
	duration	.
	description	.

2. Pre and post operative care and/or treatment

Please describe any pre and post care and/or treatment (e.g., antibiotics).

3. Patient preparation

Describe how patient(s) will be prepared to create an appropriate surgical field for the proposed surgery (e.g., clipping hair, scrubbing with chlorhexidine solution and sterile water).

* .

4. Sterile field

Select which of the following will be used to maintain a sterile field during surgery. If a sterile field does not apply, please check "none."

*

☒ Sterile instruments (autoclave, gas sterilization)☐ Bead sterilizer☐ Sterile gown/garb☐ Sterile gloves☐ Sterile drapes☐ Surgical mask☐ Surgeon scrub☐ Other☐ None**Other sterile field**

If you choose other, provide the description here:

5. Surgery monitor

How will you monitor animals during surgery and anesthesia, from induction through recovery from anesthesia (immediate postsurgery period)? Document this in your written animal records, too.

* .

6. Postsurgery analgesia regimens

Select all regimens for the treatment of pain and distress after surgery.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/>	.	Wildlife

7. Postsurgery pain and monitoring

How will you monitor and treat the pain and distress associated with postsurgical conditions?

8. Surgery files

Add file(s) with illustrations, figures, standard operating procedures, or other supplementary information about this surgical procedure.

There are no items to display



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Wildlife: CONCURRENT SURGICAL PROCEDURES**1. Concurrent surgeries y/n**

Will you perform two or more surgical procedures under a single anesthetic event?

* ☒ Yes ☐ No**2. Concurrent surgeries table**

If yes, click ADD to provide details about your concurrent surgeries.

View	title	.
	surgery selection	.
	max. no. of animals	No Value Entered
	description	.
	justification	.

Wildlife: MULTIPLE SURVIVAL SURGERIES**1. Multiple survival surgeries**

Will any single animal or group of animals of this species survive two or more surgical procedures in separate anesthetic events?

* ☒ Yes ☐ No**MSS table**

Click "Add" to provide details about each unique regimen of separate, sequential, survival surgeries.

View	title	.
	surgery selection	.
	max. no. of animals	No Value Entered
	description	.
	justification	.

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Wildlife: ALTERNATIVES SEARCH

Review the following procedures and genetic modifications (if applicable) you described that cause more than momentary pain or distress. Then answer the questions that follow to explain how you determined that there weren't less painful or distressful alternatives to the procedures.

Painful all table

- **Non Surgical Procedures with pain**

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen
	Euthanasia Methods	

- **Surgical Procedures**

Surgery title	Survival Procedures	Anesthesia/analgesia regimens
	Minor survival	

List one or two databases you searched (e.g., AltWeb, Biological Abstracts, NORINA, PubMed, etc.) to look for alternatives.

1. **Alternative databases**

* .

2. **Alternatives years covered**

What years did your search cover? (yyyy-yyyy)

* .

3. **Alternatives recent search**

What was the date of your most recent search?

* 4/10/2017

4. **Alternatives other**

List other methods you used to determine that there weren't less painful or distressful alternatives to the procedures listed above. These should be secondary to the literature search, and may be useful to support or rebuke potential alternatives found in the database search. Examples of other sources are conference attendance, professional expertise, specific journal articles, training, etc.

5. **Alternatives search strategy**

Describe your search strategy, including the scientifically relevant keywords you used.

* .

6. **Alternatives narrative**

How did you evaluate the information you gathered? If you found an alternative or refined method but it couldn't be used in this research, explain why.

* .

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 29 of 33)

PRINTED ON: 4/10/2017

Wildlife: COMPLICATIONS**1. Complications**

In previous sections, you identified the pain and discomfort animals might experience from each procedure. Now consider your procedures from a broader perspective:

What are the potential complications animals may experience from any of your procedures or combination of procedures (e.g., internal bleeding after liver biopsy, Graft Versus Host Disease (GVHD) with transplant) or from any chronic condition resulting from the procedures (e.g., lameness, disease)?

*

2. Unrelieved pain or distress

Will treatment for pain or distress be withheld from any animals of this species?

☒ Yes ☐ No

Unrelieved justify

If yes, provide scientific justification for why pain or distress will not be relieved.

.

Wildlife: USDA DESIGNATION

The United States Department of Agriculture (USDA) established the following B-E categories based on levels of pain, discomfort, and distress associated with procedures.

- B** - animals bred or held for use in teaching, testing, experiments, research, or surgery but not used for such purposes
- C** - teaching, research, experiments or tests conducted that involve no pain or distress that require use of analgesics
- D** - experiments, teaching, research, surgery or tests conducted that involve accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic or tranquilizing drugs or palliative measures are used (including surgery or procedures under anesthesia that without the anesthesia would be painful)
- E** - teaching, experiments, research, surgery or tests conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic or tranquilizing drugs are not used because they would adversely affect the procedures, results or interpretation of the teaching, research, experiments, surgery or tests

1. USDA designation

Based on these definitions, choose the highest category of pain/distress that this species will experience as part of this protocol.

*

☒ B

☐ C

☐ D

☐ E

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 30 of 33)

PRINTED ON: 4/10/2017

Wildlife: EUTHANASIA

The RARC veterinary staff has recommendations for euthanizing the most commonly used species on campus. Your euthanasia plans must follow these recommendations unless your alternative method is scientifically justified and approved by your IACUC. Click on the blue question mark icon to view these recommendations and the AVMA Guidelines for the Euthanasia of Animals.

1. Criteria for anticipated euthanasia

What are your study endpoints?

* .

2. Criteria for unanticipated euthanasia

For unanticipated events or nonstudy-related health issues, what criteria or clinical signs will you use to determine an unanticipated endpoint for an animal?

* .

3. Plan for anticipated euthanasia

Select all applicable euthanasia methods for planned study procedures.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife

4. Plan for unanticipated euthanasia

Select all applicable euthanasia methods for unanticipated events or nonstudy-related health issues.

Regimen/Substance	Drugs and Compounds	Species
<input checked="" type="checkbox"/> .	.	Wildlife

5. Plans for physical methods of euthanasia (i.e. exsanguination, captive bolt)

Method Name	Method Description
View .	.

6. Other euthanasia methods

Other planned and unplanned euthanasia methods not included above. Include a statement here if euthanasia will be performed by the RARC Veterinary Staff.

7. Nonstandard euthanasia justify

For methods of euthanasia described above that are not listed in RARC Veterinary Standards for this species, justify the use of this method.

8. Ensure death

Describe the methods you'll use to ensure death following euthanasia procedures.

* .

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 31 of 33)

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Wildlife: DISPOSITION

Indicate the final arrangements for animals assigned to this protocol.

1. Disposition

At the end of their assignment in this protocol, animals will be:

*

Wildlife Disposition

☒ Not in contact with humans and will remain free-living in the habitat.☐ Released into their environment at or near the point of capture.☐ Euthanized.☐ Other.**Other disposition**

Describe other disposition arrangements and justify below.

Wildlife: UW LOCATIONS Y/N**1. UW locations y/n**

Will you bring any wildlife to campus locations for procedures or euthanasia?

NOTE: You cannot house wildlife, so if your planned procedures or euthanasia will take more than 24 hours, you must use the biomedical protocol type. (Normally housing is required when animals are held for more than 12 hours. This extended time of 24 hours is allowed only for wildlife brought to campus temporarily).

* ☒ Yes ☐ No**Wildlife: SELECT LOCATIONS****1. Current ACUC approved locations**

Location Common Name	Room Name	Location Type	Committee	Housing Allowed	Procedure Allowed	Surgery Level
There are no items to display						

2. Locations not found in Q1 -- Request ACUC approval

Building Name	Building Address	Room Name
.	.	.

3. Locations not controlled by UW-Madison or its affiliates

Location	Location Address
.	.

Wildlife : SELECT PURPOSE OF LOCATIONS**1. Locations table**

23 / 1

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 32 of 33)

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REQUIRED: Click on the name of each selected location. On the pop-up, indicate which of the following procedures and types of housing will occur at that location. Check all that apply for each location.

Location name	Surgical Procedures	Non Surgical Procedures	Euthanasia
.	No value entered	No value entered	
.	No value entered	No value entered	

Wildlife: TRANSPORT

How will you move live animals?

See All-Campus Policy 2011-43: Campus Transportation of Laboratory Animals for guidance on transporting laboratory animals outside the animal facility.

1. ☒ **I will not transport animals**2. **Transport routes**

I will transport animals

- ☐ within or between adjacent rooms within a vivarium (animal never leaves the vivarium - e.g. [redacted] to [redacted])
- ☐ within a building or between connected buildings (animal moves from lab to lab - e.g. [redacted] vivarium to [redacted])
- ☐ between buildings (e.g. [redacted] to [redacted])
- ☐ to or from field site (e.g. marsh to [redacted] and back to marsh)
- ☒ no transport of animals will occur

Order of movement

Explain order of movement.

3. **Transport methods**

How will you transport animals?

- ☐ in a dedicated animal transport vehicle or trailer
- ☐ hand-carried in a covered cage, in an animal-transport container, or covered on a cart
- ☐ in a privately owned vehicle
- ☐ other

Transport describe

If other method is used, please describe.

4. **Departmental/Personal Vehicle**

If animals will be transported in a non-designated departmental vehicle, provide the name of the department and a contact person. If animals will be transported in a private vehicle, provide the name of the owner. In both cases, complete and upload the RARC Permission to Transport Animals Using a Privately Owned or Non-designated Vehicle form.

5. **Transport files**

OPTIONAL: Attach file(s) with standard operating procedures; maps; RARC transportation form, if applicable; or other supplementary information for transport.

There are no items to display

Appendix 7d: Blank IACUC/OB Protocol Form, ARROW Wildlife Type (page 33 of 33)

PRINTED ON: 4/10/2017

Wildlife: END

You are done answering questions about this species.

Click on "Species Complete." You will be redirected to the Species start page where you can answer questions about additional species in your protocol or continue to the next section.

DRAFT

Appendix 8: IACUC/OB Minutes (page 1 of 41)

**College of Letters and Science and Vice Chancellor for Research and Graduate Education
Centers Animal Care and Use Committee
Open Session –March 24, 2017**

Present (voting):

Present (nonvoting):

Guests:

Absent:

Dr. [REDACTED] called the meeting to order at 10:30 a.m.

Approval of LSVAC ACUC Open Session Minutes of February 24, 2017

[REDACTED] moved to approve the minutes with minor editorial modifications.
The vote was unanimous.

[REDACTED] joined the meeting

Annual Updates (March)

[REDACTED] moved to approve the annual updates. The vote was unanimous.
Dr. [REDACTED] drew the ACUC's attention to feedback from one PI regarding ARROW, and asked that someone from the ARROW development team follow up.

Logs: Designated Review/other (March)

The committee reviewed the designated review and veterinary verified changes (VVC) logs. Dr. [REDACTED] noted that there were no VVCs this month despite several amendments that may have qualified for this process. The veterinarians will continue to remind PIs of the changes that are eligible for VVC.

Senior Program Veterinarian Report

Dr. [REDACTED] provided an update on campus efforts to reduce findings of expired materials. The ACUC briefly discussed strategies.

Dr. [REDACTED] had no report for open session.

Research Animal Resources Center

396 Enzyme Institute 1710 University Avenue Madison, WI 53726-4087
608-262-1238 Fax: 608-265-2698 Email: help@rarc.wisc.edu

Appendix 8: IACUC/OB Minutes (page 2 of 41)

LSVC ACUC – March 24, 2017 – Open Session

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There was no report from Dr. [REDACTED] for open session.

Report from Animal Program Assessment Specialists

Ms. [REDACTED] had no report for open session.

Committee Training

Dr. [REDACTED] led discussion of policy 2012-050, “Adverse Event Reporting,” (see attached), comparing and contrasting adverse events as defined by the policy with known complications described in protocols, unexpected outcomes of research, and accidents or equipment failures. He said that the policy was modified for clarification and to remove examples that did not meet the definition of adverse events. He described the various reporting and communication tiers within the animal program, such as the sick-animal reporting system and the methods by which deficiencies identified on semiannual inspections are managed. Dr. [REDACTED] reminded members that a veterinarian should be contacted if there is any doubt whether an incident is an adverse event.

Other Business

Dr. [REDACTED] reminded the ACUC of the recent e-mail communication regarding changes to the designated review process. She emphasized that while members are no longer required to submit a ballot indicating that a protocol is eligible for designated review, committee members still have the option to call any protocol for full committee review at any time.

Dr. [REDACTED] called for other business for Open Session. Hearing none [REDACTED] moved to adjourn into Closed Session for discussion of research protocols or other documents containing confidential proprietary information and personnel matters relating to such research protocols, pursuant to Wisconsin Statutes Section 19.85(1)(c), (d), and (e). [REDACTED] seconded. The vote was unanimous by roll call.

The meeting was adjourned from Closed Session without reconvening into Open Session.

[REDACTED]

*Approved by LSVC
ACUC 4/27/17*

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LOGS for LSVAC ACUC – March 2017

Designated Review New/Renewal

PI	Prot #	Date Rec'd	Title	Species	N/R
	G005777	2/20/17	Electrophysiology and neuroimaging of cognition in macaques	rhesus macaque	Renewal 3/8
	G005744	3/3/17	Treatment strategies to improve organ quality and function in the post-transplant period	cynomolgus macaque, rhesus macaque	Renewal Review

Designated Review Amendment

PI	Prot #	Date Rec'd	Title	Species	Sum of change
	G005698-A03	2/9/17	Nonhuman Primate Bone Marrow Transplantation Model	cynomolgus macaque	Chg drug from pharmaceutical grade to non-pharmaceutical grade. REV
	L005009-A06	2/10/17	Iron Supplements for Treating Nutritional Deficiencies	rhesus macaque	+ new experiment 3/13
	G005529-A02	2/16/17	CTL Exclusion from Lymphoid Follicles as a Mechanism of Lentivirus Immune Evasion	rhesus macaque	+ procedures to obtain BAL samples and cervical or vaginal biopsy samples REV
	G005362-A04	2/20/17	Tomotherapy and hematopoietic stem cells for tolerance to kidney transplants	rhesus macaque	+bone marrow for HSC collection and infusion under substance admin, animal number mods, various updates 3/16
	L005454-A02	2/20/17	Role of Nr1d1 in Social Reward	mus	Animal number mods, update social preference test, updates 3/12
	G005698-A04	2/27/17	Nonhuman Primate Bone Marrow Transplantation Model	cynomolgus macaque	Sirolimus and potential ATG and MSC treatment are added to the experimental narrative. REV
	G005565-A01	2/27/17	Enhanced Lymphocyte Infusions to Engineer Viral Eradication	rhesus macaque	UM1 grant changed + another project group funded by an R)1 with similar goals 3/16
	G005507-A03	2/27/17	Host Immune Responses that Contribute to Control of	cynomolgus macaque,	amended by the addition of DSPR1, a rhesus 3/11

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			Attenuated SIV in macaques	rhesus macaque	recombinant IgG1, as a control antibody to animal timeline 4 that concerns CD8 depletions. The experimental narrative and substance administration will reflect this addition.
	G005424-A02	2/24/17	Hematopoietic stem cell treatment of SHIV infected Mauritian cynomolgus macaques	cynomolgus macaque	Chg Surgery Summary to increase the total volume of bone marrow aspirates up to 20 ml. We are also adjusting the dose of the antiviral drug PMPA given to SIV-infected macaques in Substance admin: All other substances. REV
	G005315-A02	3/2/17	Epigenetic regulation of brain functions	mus	Surgical section modifications REV
	G005022-A05	3/2/17	Use of Herpesviruses as Vaccine Vectors for AIDS	rhesus macaque	+pilot experiment 3/12
	G005635-A02	3/8/17	Efficacy of a therapeutic on Zika virus infection	rhesus macaque	+ 3 rd study, updates, +10 animals REV

Dual School Review

PI	Prot #	Date Rec'd	Title	Species	Other Schools
	V5096-A06	2/14	Mechanisms of prostate development, urinary function and dysfunction	Mouse	2/H

Vet Verified Change (VVC)

PI	Prot #	Date Rec'd	Title	Species	Sum of change
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OPEN

2012-050 - Adverse Event Reporting | Research Animal Resource Center | University of Wisconsin-Madison

3/6/17, 2:03 PM

University of Wisconsin-Madison, Research Animal Resources Center**ACAPAC Policy Number:** 2012-050**Policy Title:** Adverse Event Reporting

Purpose: This policy provides a campus-wide definition of "Adverse Events" and identifies reporting and review requirements for both protocol-related and non-protocol-related adverse events. The purpose of adverse-event reporting is to improve monitoring, focus resources on problem areas, ensure appropriate follow-up when problem areas are identified, and clarify expectations between the ACUCs, the PIs, and the veterinary and animal care staff. The ultimate goal of this policy is to improve animal welfare.

Definition: An adverse event is defined as any event that caused harm to a vertebrate animal and that meets either of the following conditions:

1. (a) The event is research-related but is not identified in the approved protocol or occurring at a rate or severity higher than is indicated in the approved protocol; or
2. (a) The event is not research-related, but is unanticipated or due to a facility, physical plant, or equipment failure or malfunction, or personnel mistake.

POLICY: Adverse events must be promptly reported to the appropriate Animal Care and Use Committee (ACUC). Any member of the research community (PI, lab staff, veterinary staff, animal care staff) with knowledge of an adverse event may submit a report. Please consult with an RARC veterinarian for assistance with adverse event reporting.

The ACUC will review adverse event reports and may approve proposed corrective plans or require additional actions to ensure animal welfare. The responsible parties will be notified by the ACUC of any actions taken or requirements made regarding an adverse event.

Author: [REDACTED]**ePublication Date:** 9/19/2012 (orig.)**History:** amended 2/3/2017

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URL: https://www.rarc.wisc.edu/iacuc/acapac/2012-050_-_adverse_event_reporting_.html
Last update: 2017-02-10 16:40:10 UTC [2012-050]

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**College of Letters and Science and Vice Chancellor for Research and Graduate Education
Centers Animal Care and Use Committee
Closed Session – March 24, 2017**

Present (voting):

Present (nonvoting):

Guests:

Absent:

Approval of LSVC ACUC Closed Session Minutes of February 24, 2017

_____ moved to approve the minutes with minor modifications. The vote was unanimous. Dr. _____ provided a brief update on the blackout curtains discussed last month. She said that the laboratory will be removing the curtains. If the laboratory finds that they need them in the future, they will look into options that are more readily sanitized.

Report on Semiannual Inspections

The sign-up schedule was circulated.

Dr. _____ led discussions of the reports of recent inspections. Mr. _____ requested an extension of the correct-by-date for a cage waste disposal station that requires a non-standard filter that had to be special ordered. He said that in the meantime, animal care staff are wearing N-95 respirators. _____ moved to extend the correct-by-date to May 24, 2017. The vote was unanimous with _____ voting present.

Senior Program Veterinarians Report

Dr. _____ had no report for closed session.

Dr. _____ had no report for closed session.

There was no report from Dr. _____ for closed session.

Report from Animal Program Assessment Specialists

Research Animal Resources Center

396 Enzyme Institute 11710 University Avenue Madison, WI 53726-4087
(608) 262-1238 Fax: (608) 265-2698 Email: help@rarc.wisc.edu

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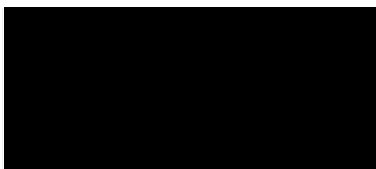
Ms. [REDACTED] said that she visited the [REDACTED] laboratory and noted that the new laboratory manager has made numerous positive changes. She said that all records were in good order.

Personnel Issues

Dr. [REDACTED] reminded the ACUC that the report in their packet (attached) is the twelfth of twelve monthly reports requested from Dr. [REDACTED]. She asked members if they would like to end or extend the monthly reporting requirement. Discussion ensued. Members agreed that the current report is excellent, and that the new laboratory manager appears to be working out well. However, he has been on board only a limited period. The ACUC wants to be sure that the improvements are sustained. [REDACTED] moved to extend the monthly reporting requirement for another six months. The vote was unanimous. Dr. [REDACTED] said that she will send Dr. [REDACTED] an e-mail complimenting her on the latest reports, and notifying her of the committee's decision.

Other Business

Dr. [REDACTED] called for other business for closed session or for open session. Hearing none, she adjourned the meeting at 11:06 a.m.



Approved by LSVC ACUC
4/28/17

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Included in packet for reference. Please sign up on the purple sheet passed DURING CLOSED SESSION

Current as of 3/13/17

School	Name	Date	Start Time	End Time	Special	Inspector 1	Inspector 2
LSVC	██████ Facility & Lab	Tuesday, April 11, 2017	12:30 PM	3:00 PM	TB Test Required	██████	██████
LSVC	██████ Facility & Labs & ██████	Tuesday, April 25, 2017	8:30 AM	11:00 AM	No prior rodent contact that day	██████	██████
LSVC	██████ Labs	Thursday, April 27, 2017	12:30 PM	2:00 PM		██████	
LSVC	██████ Date Finalized	Friday, May 19, 2017	8:00 AM	10:00 AM	Overnight Trip	██████	██████

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* travel times are approximate for One Way trips from west campus (RARC)

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Animal Facilities Inspection Checklist					
Name of Facility: [REDACTED] facility 2017A			School/College: LSVC		
Supervisor: [REDACTED]			Date: 02/09/17		
Inspection Team Members: [REDACTED] (V) [REDACTED] (R) [REDACTED] (V)			File created: 03/13/17		
Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R
General comments	Elevator	A	NOTE TO RARC: bring 20 dot keys Facility looks great.		
[REDACTED]	Hallway	A			
[REDACTED]	Kitchen	A			
[REDACTED]	Storage, computer	A			
[REDACTED]	Restroom	A			
[REDACTED]	Animal Housing	A			
[REDACTED]	Animal housing	A	discussed enrichment		
[REDACTED]	Animal holding (juveniles)	A			
[REDACTED]	Animal holding (juveniles)	N	empty, renovating door jams		
[REDACTED]	suite / atrium	A			
[REDACTED]	Treatment	A			
[REDACTED]	[storage] Procedure room	A	storage		
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding (juveniles)	N	empty, renovating door jams		
[REDACTED]	Animal holding (juveniles)	A			
[REDACTED]	Animal holding	A	described transport procedure		
[REDACTED]	Equipment wash	A	described cleaning process, room looks great with recent upgrades		
[REDACTED]	hallway	A			
[REDACTED]	Surgery	A			
[REDACTED]	Locker room	A			
[REDACTED]	surgery & prep	A			
[REDACTED]	surgery & prep room	A			
[REDACTED]	Procedure room	A			

[REDACTED] facility 2017A

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments	Elevator	A	NOTE TO RARC: bring 20 dot keys Facility looks great.			
	Procedure room	A				
	Animal holding	A				
	Animal holding	A				
	Procedure room	M	MINOR: expired medical materials: Miller syringe driven filter unit filters, expired jan 2013 see photo. [REPEAT, facility level]	02/20/17	R	Initial email sent to [REDACTED] on Mon 13 Feb, 17. Per email from [REDACTED] 15Feb17: "14 Feb 2017 - The filters were removed from the facility."
	Animal holding	A				
	Procedure	A				
	Procedures	N	experiment in progress			
	Procedures [Faraday cage]	A				
	Equipment wash	A				
	Animal holding	A				
	Hallway	A				
	Animal holding	A				
	Locker room	M	MINOR: three electrical cords running on floor, fixed at once.	02/09/17	R	
	Restroom	A				
	Animal holding	A				
	[storage] Office & pharmacy	A	demonstrated the records system.			
	Animal holding	A				
	Animal holding	A				
	Food prep/storage	A				
	Cooler	A	good system for noting expiration dates of enrichment items			
	Animal holding	A				
	Procedure room	A				
	Animal holding	A				
	Animal holding	A				

[REDACTED] facility 2017A

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments	Elevator	A	NOTE TO RARC: bring 20 dot keys Facility looks great.			
	Equipment wash	A				
	Storage	A				
	Storage	A				
	Loading dock	A				

facility 2017A

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July 14, 2017

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format 2/11

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Animal Facilities Inspection Checklist					
Name of Facility: [REDACTED] facility 2017A				School/College: LSVL	
Supervisor: [REDACTED]				Date: 02/23/17	
Inspection Team Members: [REDACTED] (R) [REDACTED] (V) [REDACTED] (V)				File created: 03/13/17	
Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A			
[REDACTED]	Support staff break room	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Treatment	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Anteroom for [REDACTED]	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Cleaning/storage/ Logs	A			
[REDACTED]	Shop/Storage	A			
[REDACTED]	Equipment wash	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A	New caging is going well.		
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Procedure/treatment	A			
[REDACTED]	Locker room	A			
[REDACTED]	Locker room	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A	Note: door to room needs repair. Work order is already in.		
[REDACTED]	Food prep/storage	A	Really tidy and well organized.		

[REDACTED] facility 2017A

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A				
	Food prep/storage	A				
	Food prep/storage	A				
	Autoclave room	A	Storage.			
	Procedure room/nursery	A				
	Animal holding	A				
	Procedure room	A				
	Animal holding	A				
	Animal Holding	A				
	Animal holding	A				
	Procedure room	A				
	Animal holding	A				
	Procedure room	A				
	Clean side	A				
	Equipment wash	A				
	Storage	N				
	Storage	A				
	Equipment wash/dirty side	A				
	Marmoset display housing	A				
	Marmoset display housing Entrance	A				
	Loading dock	M	MINOR: eyewash fluid in bite kit expired, fixed at once.	02/23/17	R	
Transport_Van_#1	Van #	M	MINOR: eyewash fluid in bite kit expired, fixed at once.	02/23/17	R	
Transport_Van_#2	Van #	A				

Basement facility 2017A

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Animal Facilities Inspection Checklist					
Name of Facility:		[REDACTED] facility 2017A		School/College: LSVC	
Supervisor:		[REDACTED]		Date: 03/02/17	
Inspection Team Members:		[REDACTED] R [REDACTED] V [REDACTED] V		File created: 03/13/17	
Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R
General comments		A			
[REDACTED]		A	ROLO note, mive down by		
[REDACTED]	Locker room	A			
[REDACTED]	Locker room	A			
[REDACTED]	Procedures	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Animal holding	A	new caging mayerial working well		
[REDACTED]	Procedures	A			
[REDACTED]	Animal holding	A			
[REDACTED]	Storage	A			
[REDACTED]	Food prep/storage	A			
[REDACTED]	Storage	A			
[REDACTED]	Storage	A			
[REDACTED]	Treatment	A			
[REDACTED]	Storage	A			
[REDACTED]	X-ray (developing)	A			
[REDACTED]	[surgery recovery]	A			
[REDACTED]	Animal holding (surgery/recovery)				
[REDACTED]	Surgery prep	A			
[REDACTED]	Laundry for nursery & surgery	M	MINOR: expired syringe, tossed at once. [Facility Repeat: expired medical materials]	03/02/17	R
[REDACTED]	Animal holding	A			
[REDACTED]	Procedure room	A			

[REDACTED] facility 2017A

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A				
	Animal holding	A				
	Liquid gas storage	A				
	Procedure room	A	SFI: for doses pulled up by lab add lot number or mix date in addition to drug dot.			
	Animal holding	A				
	Animal holding	A				
	Surgery	A				
	Animal holding	A				
	Surgery prep (drug storage)	A				
	Surgery	A	SFI: when reusing containers be sure to cross out old dates when writing new ones to avoid any confusion.			
	Surgery	A				
	Necropsy	A				
	Necropsy	A				
	Necropsy	A	SFI: be sure sharps containers do not get over full. Comment from Safety: passthrough door should be kept shut.			
	Locker room (bite kit)	A				
	Locker room (bite kit)	A				
	Procedure room	A				
	Procedure room	A				
	Procedure room	A				
	Animal holding	A				
	Procedure	A				
	Animal holding	A				
	Animal holding	A				
	Storage	A				
	Animal holding	A	empty			
	Storage	A				

facility 2017A

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A				
	Animal holding	A	ROLO note: start of IDI			
	Animal holding	A				
	Procedure	A				
	Animal holding	A				
	Animal holding	A				
	Procedure	A				
	Animal holding	A				
	Animal holding	A				
	[work space]	A	not IDI			
	Work space					
	Procedure	A				
	Animal holding	A	not IDI			
	Equipment wash/dirty side	A	not IDI			
	Animal holding	A				
	Animal holding	A				
	Animal holding	A				
	Office/data	A				
	Animal holding	A				
	Animal holding	A	ROLO note: end of IDI			
	Janitor closet	A				
	Storage	A				
	Food prep/storage	A				

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Animal Facilities Inspection Checklist					
Name of Facility:		Facility 2017A		School/College: LSVL	
Supervisor:				Date: 03/09/17	
Inspection Team Members:		(R) (V) (V)		File created: 03/13/17	
Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R
General comments		A			
	Laundry & Storage Area	A			
	Entrance to Quarantine Procedure Room	A			
	Quarantine Procedure Room	A			
	Quarantine Hallway	A			
	Quarantine 1/2 Service Entrance	A			
	Quarantine 3/4 Service Entrance	A			
	Loading Dock & Feed Storage	A			
	Lab	A			
	Lab	A			
	Kitchen	A			
	Procedure 1	A			
	Cage Wash & Autoclave	A			
	Storage Area	A			
	Restroom	A			
	Storage	A			
	Storage	A			
	Breakroom	A			
	Locker room: Men	A			

Facility 2017A

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A				
	Locker room: Women	A				
	Storage Area	A				
	Procedure Room for animals in holding	A				
	Housing: NHP Quarantine 1	A				
	Staging Entrance	A				
	Quarantine Locker Room & Shower	A				
	Housing: NHP Holding 1	A				
	Housing: NHP Quarantine 2	A				
	Quarantine Locker Room & Shower	A				
	Housing: NHP Quarantine 3	A				
	Quarantine Locker Room & Shower	A				
	Housing: NHP Holding 2	A				
	Housing: NHP Quarantine 4	A				
	Staging Entrance	A				
	Quarantine Locker Room & Shower	A				

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Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A				
	Housing: Marmoset	A				
	Housing H4	A				
	Storage	A				
	Procedure room for animals in holding	A				

 Facility 2017A

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Appendix 8: IACUC/OB Minutes (page 20 of 41)LSUC ACUC
MARCH, 2017 CON

Report:
February/2017

Health/Animal Care Checks**Daily Reports:**

Daily checks were conducted by ARTS and graduate/undergraduate students using doorsheets (adding to two checks per day) and also by a graduate student in charge for the month using the online records. Lab manager, [REDACTED] has improved the online spreadsheet and has been regularly checking to make sure that students are using it properly and timely.

Weekly:

Graduate and undergraduate students conducted weekly checks using the door sheets and one graduate student assigned monthly checked the online records. Lab manager has improved the online spreadsheet and has been regularly checking to make sure that students are using it properly and timely.

Biweekly:

Graduate and undergraduate students conducted biweekly checks using the door sheets and one graduate student checked the online records. Lab manager has improved the online spreadsheet and has been regularly checking to make sure that students are using it properly and timely.

Monthly:

Graduate students conducted monthly checks using the door sheets and one graduate student checked the online records. Lab manager has improved the online spreadsheet and has been regularly checking to make sure that students are using it properly and timely.

The PI checked the door sheets every week on the following dates and covered the weekly, biweekly and monthly checks. 2/03, 2/10, 2/17, 2/24

Extra notes:

The new lab manager has made several improvements at increasing efficiency and organization in the lab including, reorganizing/cleaning of records room, organizing old records, devising an updated system to more intuitively record new births in the colony room, managing researcher compliance and a system for reminding researchers when training renewal dates are approaching. The new lab manager has went through to make sure all new and returning researchers are familiar with the lab protocol and associated SOPs.

Training of new undergraduate assistants has advanced and training of returning researchers has been updated when necessary. Training Specifics:

[REDACTED] completed mouse handling course on February 15, 2017

[REDACTED] received UHS health clearance February, 25, 2017

[REDACTED] received UHS health clearance February, 22, 2017

[REDACTED] trained with [REDACTED] in February on February 24, 2017 at 9:30AM

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**College of Letters and Science and Vice Chancellor for Research and Graduate Education
Centers Animal Care and Use Committee
Open Session –April 28, 2017**

Present (voting):

Present (nonvoting):

Guests:

Absent:

Dr. [REDACTED] called the meeting to order at 10:30 a.m.

Approval of LSVC ACUC Open Session Minutes of March 24, 2017

[REDACTED] moved to approve the minutes as presented. The vote was unanimous with [REDACTED] and [REDACTED] voting present.

A brief discussion followed regarding the revised adverse events policy that was a committee training topic at the last meeting. Dr. [REDACTED] asked the ACUC if they feel the current level of reporting is appropriate, or if they would like to receive more or less information from the veterinarians. After discussion, the ACUC agreed that they are satisfied with the current level of reporting.

Annual Update from the Institutional Official

Dr. [REDACTED] introduced Dr. [REDACTED] the Institutional Official (IO). Dr. [REDACTED] thanked the committee members for inviting her, and for their time serving on the ACUC. She said she knows from personal experience that the commitment is significant since she chaired the SMPH ACUC for four years. She said that she is enjoying getting to know each of the other ACUCs.

Dr. [REDACTED] said that the animal program has been focusing heavily on reducing the number of expired medical materials and substances found in animal use areas, both in facilities and in laboratories. She said that a recent inspection by the USDA Veterinary Medical Officers (VMOs) found no expired materials and thanked members for their efforts on this issue. She reminded the ACUC that the presence of such items poses an institutional risk for citations and could impact animal welfare. Dr. [REDACTED] requested that the LSVC ACUC consider potential specific consequences that the committee could deliver to those responsible when expired materials are identified on semiannual inspections, and for Dr. [REDACTED] to share these

Research Animal Resources Center

396 Enzyme Institute 1710 University Avenue Madison, WI 53726-4087
608-262-1238 Fax: 608-265-2698 Email: help@rarc.wisc.edu

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LSVC ACUC – April 28, 2017 – Open Session

Page 2

recommendations with the All Campus Animal Planning and Advisory Committee (ACAPAC). Dr. [REDACTED] said that the LSVC has already discussed a plan consisting of a letter from the chair copied to the department head and requiring the Principal Investigator (PI) to submit a written plan to prevent further instances. Repeat offenders will be required to attend an IACUC meeting to describe the corrective plan and may be required to use the dot system for identifying expiration dates. Dr. [REDACTED] said that the LSVC has held off taking action on an LSVC plan to allow for campus-wide mandates to be implemented.

Dr. [REDACTED] said that she also wished to discuss issues of reducing regulatory burden on Principal Investigators (PIs), and reducing unnecessary self-imposed regulatory burden. She said that an often quoted statistic is that forty-two percent of investigator's time is spent dealing with regulatory issues. Reduction of this regulatory burden is being discussed and explored both at UW-Madison and nationally. The UW-Madison Chancellor recently testified to the United States Senate on this important topic. Dr. [REDACTED] said that she will want the ACUC to consider ways in which regulatory burden could be reduced within the animal program. She noted that she has met with Ms. [REDACTED] and Dr. [REDACTED] to discuss ideas such as discontinuing the annual update for protocols that do not require it. Some changes, such as allowing protocol writers to submit annual updates and consolidating the assurances checklist are now being implemented under her authority as the IO. Other items will require action from each of the committees. Dr. [REDACTED] asked that when proposed changes to ACUC business practices are presented for committee discussion that members be open-minded about the ideas.

Dr. [REDACTED] called for questions for Dr. [REDACTED]. Discussion ensued regarding upcoming changes to the organizational structure of RARC. Dr. [REDACTED] said that RARC will cease being a center, but will be under a new Office of Research Compliance. That office, currently known as the Office of Research Policy houses human subjects research administrators. She said that the human and animal program have much in common, such as the need to perform post-approval monitoring, and that having both under a single research compliance office makes sense. The ACUC discussed the fact that much of what RARC provides is service in addition to compliance. Dr. [REDACTED] confirmed that the RARC breeding core will probably not continue to be part of RARC, but that the veterinary unit is considered to be part of compliance since the care provided is considered part of the research mission. Dr. [REDACTED] described the plans for leadership of the new program and said that a new director will be recruited and hired. Dr. [REDACTED] called for any additional questions for Dr. [REDACTED]. Hearing none, Dr. [REDACTED] said that members are welcome to contact her anytime with questions or comments. Dr. [REDACTED] and others thanked Dr. [REDACTED].

Annual Updates (April)

Dr. [REDACTED] pointed out that both questions 3 and 4 on the annual update form are optional. [REDACTED] moved to approve the annual updates. The vote was unanimous with [REDACTED] abstaining.

Logs: Designated Review/other (April)

The committee reviewed the designated review and veterinary verification and consultation (VVC) logs. Dr. [REDACTED] noted that there were several VVCs this month and thanked the veterinarians for their efforts.

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Senior Program Veterinarian Report

Dr. [REDACTED] said that she wanted to remind everyone about the VVC process and encouraged members to continue to let PIs know of this process. She reported that there was a USDA inspection in March and that no expired materials were found.

Dr. [REDACTED] had no report for open session.

Dr. [REDACTED] had no report for open session.

Report from Animal Program Assessment Specialists

Ms. [REDACTED] had no report for open session.

Committee Training

Dr. [REDACTED] led discussion of a recent Comparative Medicine article on “The Interplay of Ethics, Animal Welfare, and IACUC Oversight on the Reproducibility of Animal Studies,” (see attached). Dr. [REDACTED] explained that the lack of reproducibility of some animal studies has led to concern within the scientific community. The article includes a discussion of the interplay of ethics, animal welfare, and animal oversight on the reproducibility of animal studies.

A lively committee discussion on animal numbers justification, reproducibility, and animal model selection followed. Dr. [REDACTED] said that the National Primate Research Centers currently have a working group examining scientific rigor and reproducibility and reminded members that they can always request a consultation from a statistician if there is a reason to do so. Dr. [REDACTED] concluded by saying that while the ACUC should keep reproducibility in mind when reviewing protocols, there are no new protocol review requirements at this time.

Other Business

Dr. [REDACTED] said that she received a self-report of a protocol violation on G005022. She said that eighteen animals were given Simian immunodeficiency virus in RPMI media rather than a saline vehicle as stated in the protocol. There were no adverse outcomes. The protocol will be revised to be more general and staff will be reviewing all related protocols. The ACUC accepted the report and the corrective actions as appropriate and sufficient.

Dr. [REDACTED] asked the ACUC for their advice on a project involving a very minor and noninvasive procedure to be performed on a large number of animals. He asked if the procedure could be added to protocol G005273, which covers the general colony, using VVC or an amendment, or if the individual PI's research protocol should be amended to add the animals. After brief discussion the committee felt that adding the procedure to G005273 is most appropriate, but since it involves a new procedure the change cannot be approved with VVC. Dr. [REDACTED] will amend protocol G005273.

Dr. [REDACTED] called for other business for Open Session. Hearing none, [REDACTED] moved to adjourn into Closed Session for discussion of research protocols or other documents containing confidential proprietary information and personnel matters relating to such research

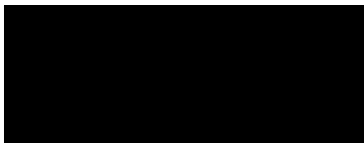
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protocols, pursuant to Wisconsin Statutes Section 19.85(1)(c), (d), and (e). [REDACTED] seconded. The vote was unanimous by roll call. Dr. [REDACTED] invited Dr. [REDACTED] to stay for Closed Session for purposes related to her role as I.O.

The meeting was adjourned from Closed Session without reconvening into Open Session.



*Approved by LSVC ACUC
5/23/17.*

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LOGS for LSVAC ACUC – April 2017

Designated Review New/Renewal

PI	Prot #	Date Rec'd	Title	Species	N/R
██████████	L005788	3/17/17	Ecology of Fishes Lab, Winter Limnology, Public Demos	Freshwater fishes of Wisconsin	Renewal 4/2
██████████	L005791	3/20/17	██████████ Aquarium	Largemouth bass	Renewal 3/28
██████████	G005800	3/30/17	Effect of senescent cell clearance on aging and metabolic phenotypes in monkeys	macaque	Renewal 4/9

Designated Review Amendment

PI	Prot #	Date Rec'd	Title	Species	Sum of change
██████████	G005354-A02	3/14/17	Neurobiology of GFAP mutant rats	rattus	+collection of cerebrospinal fluid surgical procedure change 3/21
██████████	G005592-A01	3/15/17	Macaque Assisted Reproductive Technologies.	macaque	Changes requested by RARC post approval monitoring review, changed language regarding analgesia 3/31
██████████	L005007-A03	3/17/17	The Microbiome and Infant Development	rhesus macaque	Increased number of scans, increased frequency of rectal swabs 3/30
██████████	L0459	3/20/17	Neural Circuitry of Emotion (teaching & research)	Cynomolgus macaque, rhesus macaque, snake	+iPSCs, updates (withdrawn) 3/30
██████████	L0459	3/20/17	Neural Circuitry of Emotion (teaching & research)	Cynomolgus macaque, rhesus macaque, snake	+iPSCs, employ DREADDs technology, updates 3/30
██████████	G005560-A01	3/29/17	Regulation of gonad development	mus	+ new experiments introduced from recent grant application 4/14
██████████	G005028-A02	4/3/17	Metabolic Engineering of Bacteria for Cancer Immunotherapy by Gamma Delta T Cells	rhesus macaque	+ second round of a variant of the experimental bacterial vaccine vs. control bacterial vaccine. 4/10

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██████	G005050- A04	4/4/17	Studies of Myelination	mus, rattus	Update a few compounds	4/18
██████	L005447- A03	4/10/17	Neuroendocrine Control of Social Behavior	mus	Modified "Isoflurane and decapitation" euthanasia method by adding handheld shears as a rapid decapitation tool.	4/19
██████	G005267- A01	4/14/17	Pathologic Evaluation of Laboratory Animals and Phenotypic Evaluation		Adding all UW locations for Necropsy or tissue collection	4/19

Dual School Review

PI	Prot #	Date Rec'd	Title	Species	Other Schools	
██████	M5120-A04	3/17	Role of Aging and Lipid Signaling in Alzheimer's Disease	Mouse		3/23
██████	A005483- A02	3/22/17	Rodent Health Surveillance	Mus, rattus		4/10

Vet Verified Change (VVC)

PI	Prot #	Date Rec'd	Title	Species	Sum of change	
██████	G005536-V02	03/16/17	Evaluation of IPX750 antiparkinsonian properties	common marmoset	Dose change	3/17
██████	G005153-V02	3/16/17	Chemogenetic modulation of the subthalamic region to rescue motor deficits in hemiparkinsonian rhesus macaques	rhesus macaque	Dose change	3/17
██████	G005469-V01	3/17/17	Dietary fat ratio's influence on adolescent depression	common marmoset	Modify sentence in significance of work section.	3/17

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██████	G005263-V03	3/27/17	Imaging the maternal-fetal interface in adverse pregnancy outcomes	macaque	Widen imagining window of time	3/28
██████████	G005635-V02	3/29/17	Efficacy of a therapeutic on Zika virus infection	Rhesus macaque	Slightly increase the number of times CSF, urine, and saliva are collected to	3/30
██████	G005536-V03	4/3/17	Evaluation of IPX750 antiparkinsonian properties	Common marmoset	Administer a double dose of substance	4/3

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LSUC IACUC
April, 2017 OPENComparative Medicine
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by the American Association for Laboratory Animal ScienceVol 67, No 2
April 2017
Pages 101–105*Overview***The Interplay of Ethics, Animal Welfare,
and IACUC Oversight on the Reproducibility
of Animal Studies**Stacy L Pritt^{1,*} and Robert E Hammer²

Reproducibility in animal studies has been defined as the ability of a result to be replicated through independent experiments within the same or among different laboratories. Over the past few years, much has been written and said about the lack of reproducibility of animal studies. Reasons that are commonly cited for this lack of reproducibility include inappropriate study design, errors in conducting the research, and potential fraud. In the quest to understand the basis for this lack of reproducibility, scientists have not fully considered the potential ramifications on ethical constructs for animal research, animal welfare considerations in animal research programs, the regulatory environment, and oversight by IACUCs. Here, we review how ethical theories behind animal research, policies, and practices meant to enhance animal welfare and the IACUC oversight process influence the reproducibility of animal studies, a previously undiscussed topic in the peer-reviewed literature.

Abbreviations: ILAR, Institute for Laboratory Animal Research; PI, principal investigator

**Defining the Scientific Concerns about the
Reproducibility of Animal Studies**

Most basic research scientists agree that one of the cornerstones of the scientific endeavor is the ability to share research data and learn from the positive—and negative—results of other scientists. Not surprisingly, this process involves the replication of studies, whether needed to validate a specific animal model that can then be used in subsequent studies or to modify specific components of an experimental paradigm to test varying hypotheses. Many times, studies are repeated to confirm results when those results were obtained in a different environment. The ability to repeat studies in different environments makes studies predictable and applicable to other animal research as well as human research.

Several commentaries, letters to the editors, review papers, and metadata analyses have indicated that poor reproducibility is indeed a very real problem for both human and animal studies.^{8,17,32} Some have asserted that "...a discovery is valid only if any scientist in any lab can conduct the same experiment under the same conditions and obtain the same results."³¹ When studies cannot be repeated in different environments (in other words, when the findings are not reproducible) despite scientists' attempts to adhere to all components of the previously published experiments, questions are raised. The inability to replicate a study and achieve independent confirmation of data hints at poor study design and other flaws.¹⁶

In 2014, the Institute for Laboratory Animal Research (ILAR) convened the roundtable discussion "Reproducibility Issues in Research with Animals and Animal Models" to address the specific concerns with animal studies.¹⁹ The resulting report summarized the issue by describing how recent publications and statements demonstrate the concern regarding the "...prevalence in the number of peer-reviewed studies that cannot be reproduced, particularly those containing data from experiments using animals and animal models..."¹⁹ According to this report and other sources, although the reproducibility problem impedes the advancement of some animal research, long-term repercussions include the erosion of the integrity and public trust in science and endangerment of the entire scientific endeavor as we currently know it leading to decreased funding and support for science and most certainly less translational research.^{8,19}

Causes of a Lack of Reproducibility

The current scientific literature is replete with reasons why studies cannot be reproduced. A ubiquitous reason is statistical insufficiency, primarily underpowered studies.^{5,8,18,32} Additional causes include incorrect data interpretation, unforeseen technical issues, incorrectly constituted (or absent) control groups, selective data reporting, inadequate or varying software systems, and blatant fraud.^{5,8,17,18,31} Some authors have remarked that the system of 'self-correction,' which has heretofore been taken for granted in the sciences, appears to be broken in that "papers with fundamental flaws often live on," because corrections, retractions, commentaries, or other mechanisms are not used to correct the scientific record.^{8,18} Others have commented that the bias towards

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publishing only positive results or inflation of a study's importance leads to downstream reproducibility problems.³¹

Less has been written about the variables in animal care, health, and welfare that can affect reproducibility. Laboratory animal professionals around the world are quick to recognize differences in institutional animal care programs but often fail to appreciate differences in the approach of scientists using animals in their research programs. Therefore, scientists may point to nonanimal causes for irreproducibility, as have been described in the previous paragraph, more quickly than those linked to animal care involving research animals.

Specific causes of irreproducibility, from a biologic, physiologic, and animal care perspective, as described by the aforementioned ILAR Roundtable report and other sources, include variables in the following areas (although this list is not exhaustive):^{3,10,26,30} 1) animal source (vendor, institution); 2) animal genetic background (inbred, outbred, or hybrid study populations as well as unique strains); 3) animal housing (food, water, bedding, sanitation frequency, air quality, caging materials, lighting, temperature, noise, and so forth); 4) animal health (disease status either active or sub-clinical, gut microbiota); 5) animal behavior (use of enrichment, presence of stereotypes, and so forth); and 6) animal affective or emotional states, regardless of behavior. Many of these causes could be considered normal variation within the species.

Although it is not feasible to determine every single reason for or source of variability behind a lack of reproducibility for animal studies, based on the literature the causes can be grouped into 3 main categories: 1) flaws in study design; 2) variability in study conduct; and 3) poststudy evaluation and publication bias. Ethics, animal welfare, and IACUC oversight significantly affect areas 1 and 2. Important questions that currently lack answers in the scientific and regulatory literature are raised when considering reproducibility from the viewpoints of animal welfare, ethics, regulatory mandates, and IACUC oversight. Such questions must be further examined to have a more well-rounded approach to reproducibility.

Ethical Considerations Regarding Reproducibility

The ethical construct most commonly used to justify the use of animals in research is that of the 'greater good'; this construct stems from the ethical theory of utilitarianism, which is a consequentialist theory.²⁷ A very basic description of this theory is that actions that produce the greatest good or happiness for the greatest number are the most moral actions.²⁶ The 'good' produced by animal research are the new drugs, treatments, as well as decreased suffering in humans and other animals; this 'good' justifies the use of animals in research.²⁷

Animal study reproducibility directly relates to the justification of animal research based on utilitarianism. Reproducible studies contribute to the ongoing research effort and can be justified. But what happens when a study is not reproducible? Concerns about losing the justification for animal use in research due to a lack of reproducibility are seen as statements contending that animals are being "sacrificed needlessly" when reproducibility is not achieved.^{17,19} Reproducibility, or replication, has been discussed within ethical texts because it may serve as a potential mechanism to determine fraud with the recognition that other variables that may prohibit replication can be in play. But now

scientists themselves are asserting an ethical responsibility for reproducibility because,^{17,26} with poor reproducibility, both animal lives and financial resources, time, and human energy might be wasted.^{17,31} Saying that animal lives and other resources are wasted implies that they are not a part of the 'greater good' and that the ethical argument for animal research can be questioned when there is irreproducibility. Therefore, reproducibility is now an ethical topic, with the main question being "if a study was not reproducible, was it ethical?"

One can debate the usefulness of data obtained from nonreproducible studies where misconduct is not the cause of the irreproducibility.²⁶ Commentators and authors who state that the lack of reproducibility indicates that animal lives were wasted imply that nonreproducible results do not contribute to the greater scientific enterprise and that such studies do not meet the criteria of the greater-good argument. In reality, data from studies that are not reproducible may still be of value to other researchers or be of such a unique nature as to preclude reproducibility. Perhaps authors could provide disclosures evaluating the potential reproducibility of studies as well as a description of the intent of the study, beyond hypothesis testing, with regard to limitations on reproducibility when publishing results. Other authors have called for investigators to label their published research as 'exploratory' or 'confirmatory,' so that the emphasis on reproducibility could be placed on confirmatory studies.¹⁵ Because of these nuances, the animal research community should be careful about making sweeping assumptions regarding the implications of reproducibility in terms of animal lives.

Concerns about the potential effects of irreproducibility on the safety of humans participating in clinical trials built upon animal study data have also arisen but are of a different nature. Appropriate deliberation of the potential applicability of animal studies to the safety of human patients in clinical trials should be explicit within publications. If manuscript reviewers do not understand that a particular study was not undertaken in an effort to safeguard human patient safety, then false assumptions may be made, and reproducibility becomes the scapegoat when it was never the focus of the research in the first place.

Animal Welfare Considerations Regarding Reproducibility

To discuss animal welfare, one must first define it. Although multiple authoritative definitions exist, animal welfare is a multifaceted topic and even popular definitions are not uniformly accepted. In addition, the field of animal welfare science combines both scientific assessments and moral judgements.⁴ Fraser⁹ provides one of the best authoritative definitions of animal welfare, which is based on 3 components: biologic health, affective (emotional) states, and natural living. This definition will be used as the definition of animal welfare for the purposes of this manuscript.

As previously discussed, laboratory animal veterinarians and research scientists have already identified those variables inherent in conducting animal research in different facilities and physical environments.¹⁹ Institutions, through their animal and veterinary care programs as well as IACUCs and comparable animal research oversight bodies, have specified those physical elements of their animal facilities that they believe provide the best animal health and welfare outcomes for laboratory animals. These ele-

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Effects of regulatory oversight on study reproducibility

ments, which directly affect both the 3 previously defined components of animal welfare as well as animal study reproducibility, include factors such as animal housing systems, animal facility macroenvironments, and source and quality of food and water. Therefore, questions regarding both animal health and animal welfare are inherent in discussions of reproducibility. These questions include “How is reproducibility ensured in different animal research environments with varying levels of animal welfare?”, “Can compromises in animal welfare make an animal study or model more or less reproducible?”, and “Should compromises in animal welfare be made in order to enhance study reproducibility?”

Potential answers have been offered to address reproducibility among different research environments that presumably have differing levels of animal welfare and care.³ The previously discussed 2014 ILAR report included the concepts of publishing additional details regarding the variables and establishing detailed standards that all institutions can follow.¹⁹ The formulation and continuing adoption of the *Animal Research: Reporting of In Vivo Experiments* (ARRIVE) guidelines along with *Guidance for the Description of Animal Research in Scientific Publications* are some of the best examples of this effort.^{12,14} Although the ARRIVE guidelines are being adopted, this work has been criticized as a potential source of regulatory burden.^{14,19,20}

The next 2 questions—“Can compromises in animal welfare make an animal study or model more or less reproducible?” and “Should compromises in animal welfare be made in order to enhance study reproducibility?”—are closely linked.²⁵ Assuming that all environmental elements and study variables are known, if one principal investigator wishes to reproduce the work of another in a different facility, will they need to ask for changes in animal management practices to facilitate potential reproducibility? Should an institution change its standards—which that institution believes fosters the desired level of animal welfare—to achieve reproducibility? Is there any guarantee that once changes are made that reproducibility will then be assured? Answers to these questions lie with an institution’s veterinary staff and oversight body but pit the need to maintain institutional standards used to cultivate a preferred animal welfare status against the ability for scientists to reproduce their work in multiple environments.

Allowable tumor size limits imposed by the IACUC present a clear example of this conundrum. Many IACUCs have policies dictating that subcutaneous tumors must not exceed a certain size, usually 1.5 to 2 cm in diameter. These policies are created with significant veterinary input and represent what individual IACUCs believe to be the best way to ensure appropriate animal welfare. However, what happens if a scientist wants to replicate a research project that allowed mice to develop very large tumors so that cells from the tumor could escape and metastasize but that same tumor size is larger than that permitted by his or her home IACUC? Does this situation conflict with animal welfare or support the greater good? Should policies that represent animal welfare standards be changed or exceptions permitted in order to achieve reproducibility? Similar arguments apply to analgesia, anesthesia, postoperative care, and many other policies and institutional standards. An increasing call for animal study reproducibility will result in more of these deliberations.

From the authors’ viewpoint, an obvious connection between animal welfare and reproducibility is the legitimate concern that

studies performed by using animals with compromised animal welfare may not be reproducible. However, the commitment of laboratory animal professionals to the provision of high-quality animal care and to the development of animal welfare standards that promote such care can help to improve reproducibility.

IACUC and Oversight

The charge to IACUCs, and related animal research oversight bodies, does not yet include a requirement to evaluate proposed studies for reproducibility. However, even without a specific charge, the IACUC responsibilities of ensuring the humane handling, treatment, and care of animals as well as evaluating hypothesis testing, sample size, and accuracy or relevancy of controls can “contribute to enhanced reproducibility.”¹⁹ Barriers to animal study reproducibility, however, still exist in the oversight process due to the goals of various regulations and agencies, institutional policies set by internal oversight bodies, and multiple interpretations of the 3Rs (reduction, replacement, and refinement).^{1,19,28}

In the United States, the USDA Animal Welfare Act and its associated regulations, in addition to the *United States Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training* and guidelines set forth by the Office of Laboratory Animal Welfare within NIH, form a core set of regulations and guidelines for animal research conduct and oversight.^{2,24} The documents and accompanying interpretations, policies, and FAQs, however, do not focus on study reproducibility and in some instances can be construed as to encourage the smallest number of animals possible without regard to reproducibility.^{22,23,29}

According to USDA regulations, an IACUC can only approve animal research activities after the principal investigator (PI) has provided a written assurance stating that the activities do not unnecessarily duplicate previous experiments.²⁹ These regulations and the USDA Animal Care Policy Manual do not address what constitutes unnecessary duplication of previous experiments, leaving that decision to the individual PI, IACUC, or institution. In addition, the term ‘duplication’ is not defined within the regulations and other USDA standards, which may generate confusion among the PI, IACUC, and others involved with oversight processes. Without such definitions, the PI, IACUC, and institution must decide whether the need to reproduce a study to verify reproducibility represents unnecessary duplication of previous experiments. Indeed, many institutions rely on the assurance statement that the PI signs in their description of animal research activities, whereas others use a literature search to determine unnecessary duplication—although there is no requirement or guidance for that type of literature search.

The third principle in the *United States Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training* states that animal selection should ensure that animals are of “an appropriate species and quality” and that the study uses a “minimum number required to obtain valid results.”²⁴ Currently, many animal studies are underpowered, meaning that they do not include enough animals to provide statistically meaningful results. The word ‘valid’ makes a strong point but is entirely contextual. Study results may be statistically valid for a particular scientific question in a specific laboratory using certain animals with specific genetic backgrounds and re-

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agents, but that validity does not guarantee that the study will be reproducible either in the same laboratory or in a different one.

In our experience, correspondence from the Office of Laboratory Animal Welfare has stated that investigators must be trained in methods that “minimize the number of animals used.” No such request is made to ensure that investigators are aware of statistical justification methods to arrive at desired animal numbers, although this justification is described on the Office’s website. A recommendation document released in October 2015 by the US Food and Drug Administration regarding animal medical device studies contains the statement that “A thoughtful attempt at utilizing the least number of animals that will provide meaningful interpretation is paramount and includes such measures as attention to the appropriate experimental control, consideration of potential experimental confounders, and an idea of best observation intervals...,” but does not mention future reproducibility or explain whether “meaningful interpretation” equates to study reproducibility.²⁰ Although some of the planning committee members for the much-cited *Reproducibility Issues in Research with Animals and Animal Models: Workshop in Brief* represented government offices, none of the speakers on the agenda represented a US government office’s viewpoint on the topic.¹⁹ The *Guide for the Care and Use of Laboratory Animals* is also silent on this topic.²¹ NIH’s recent initiative to enhance both rigor and reproducibility does not address IACUC review of animal research.²⁰ Without an explicit call from regulatory agencies and guidance documents for reproducibility to be of paramount concern in animal studies, especially in the decision making process for determining animal numbers, directives regarding minimization of animal numbers will be at odds with calls for increased reproducibility as a mechanism of promoting better and safer translational research.

IACUCs are charged with oversight according to these aforementioned regulations and guidelines, and the regulations and guidelines do not request that reproducibility factor into the IACUC’s decision-making. In fact, many feel that IACUCs can hinder reproducibility by focusing on the minimization of the number of animals used, whereas others may feel that IACUCs should assume some of the responsibility to help ensure reproducibility.¹ IACUCs should carefully consider which stance is appropriate given that many factors influencing reproducibility are beyond the scope of the IACUC, it may not be the intention of the PI that the study be reproduced, or the IACUC may be aware of only one small component of an entire experiment. An IACUC deciding that their reviews must safeguard reproducibility might also be construed as an example of regulatory drift.

IACUC reviews, decisions, policies, and other actions can, however, influence the ability of studies to be reproduced. Emphasizing the minimization of the number of animals to be used has been considered an over-interpretation of one of Russell and Burch’s ‘3Rs’ in that the original publication identifies the ‘R’ of ‘reduction’ not as the minimization of the number of animal used, but rather determining the correct number of animals (based on statistical analysis) prior to conducting the study rather than afterward.²⁸ Ultimately, determining the appropriate number of animals prior to study initiation could reduce the number of animals “...progressively as statistical and experimental techniques are improved.”²⁸ Striving for an “absolute minimization of animals used would be inconsistent with this aim” and can deter scientists from asking for the appropriate number of animals, resulting in underpowered studies and nonreproducible studies.^{1,28}

Because many IACUCs are constituted with knowledgeable scientists and statisticians, an IACUC protocol review can reveal that an inadequate number of animals has been requested for the proposed hypothesis testing and sample sizes. Scenarios include requesting too few animals to derive statistically relevant conclusions, having inadequate or nonexistent positive and negative control groups, and not accounting for sex- and strain-associated differences or animal attrition.^{17,18} What would not be obvious in IACUC review is requesting inadequate numbers due to budgetary constraints. The directive to minimize animal use does not include a companion obligation for the IACUC to request that animal numbers be increased to improve the chances for better statistical outcomes or reproducibility. In our experience, some IACUCs believe it is inappropriate to ask a PI to increase animal numbers during protocol review. However, such a request would be very much in line with the previously depicted ethical construct demanding the need for reproducibility in animal studies so that animal lives are not wasted.^{17,19} On further extrapolation, one might argue that if more studies are designed with reproducibility in mind, then fewer animal lives are ‘wasted’ in unsuccessful attempts at study replication after results have been made public, increasing the contribution to the greater good. Concentrating on the selection of the appropriate animal numbers rather than adhering to a preconceived notion of minimizing the number of animals to be used without factoring in a need for reproducibility should be an area of training and debate for IACUC members.

Conclusions

The reproducibility of animal studies has become a highly discussed topic in the scientific community during the past few years. Peer-reviewed manuscripts, retrospective reviews, meta-data analyses, webinars, workshops, journal clubs, symposia, NIH policies, and projects have all been instigated to determine the causes of this lack of reproducibility, to propose solutions to the problem, and to reproduce pivotal studies.^{5,7,13,16-18,19,25} Animal research is particularly vulnerable to concerns about reproducibility because preclinical results are used to support efficacy and safety determinations for clinical studies and direct but independent oversight in human trials addresses many of the scientific concerns raised with animal studies that lack such oversight.¹³ What has been largely absent from this discussion has been ethical and animal welfare considerations (questions), applicable regulatory mandates, and IACUC oversight. We have discussed the ethical construct for supporting the reproducibility in animal studies, but the call for reproducibility may potentially be undermined by animal welfare standards at individual research facilities, lack of regulatory or other guidance for IACUCs and other oversight bodies to stress reproducibility, and an emphasis on minimizing the number of animals used in proposed animal studies. With the NIH, research scientists, professional associations, pharmaceutical companies, and veterinarians asking that reproducibility receive serious deliberation, now is the time to evaluate fully all ethical, animal welfare, regulatory, and institutional influences that could, in the end, make reproducibility a reality.

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**College of Letters and Science and Vice Chancellor for Research and Graduate Education
Centers Animal Care and Use Committee
Closed Session – April 28, 2017**

Present (voting):



Present (nonvoting):



Guests:



Absent:



Approval of LSVC ACUC Closed Session Minutes of March 24, 2017

██████████ moved to approve the minutes with minor modifications. The vote was unanimous with ██████████ and ██████████ voting present

Report on Semiannual Inspections

Dr. ██████████ led discussions of the reports of recent inspections. She said that one question came up during the inspection of the ██████████ facility. The transport vehicle has air flow from the transport area into the rest of the van. The subcommittee would like feedback from the animal research safety team regarding any safety concerns. Ms. ██████████ said that she will look into it and report back to the ACUC.

Senior Program Veterinarians Report

Dr. ██████████ had no report for closed session.

Dr. ██████████ had no report for closed session.

Dr. ██████████ reported that an adult macaque on a PHS-funded protocol exited its primary enclosure after the door lock was not placed properly. The animal sustained a digit injury that required veterinary attention. The research staff involved underwent training guided by the Wisconsin National Primate Research Center standard operating procedures relevant to enclosure lock placement. The animal recovered without incident. The ACUC accepted the report and corrective action.

Research Animal Resources Center

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608-262-1238 Fax: 608-265-2698 Email: help@rarc.wisc.edu

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Report from Animal Program Assessment Specialists

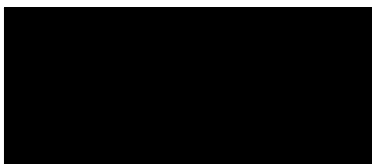
Ms. [REDACTED] said that she visited the [REDACTED] laboratory and that the new laboratory manager continues to make positive changes. Weaning labels are now color coded, and animal room doors are bar-coded so that student workers can be tracked. She said that she feels that this manager is working hard to change the culture and improve compliance, and that the PI is fully supportive. Dr. [REDACTED] said that he has also observed a positive impact on the laboratory.

Personnel Issues

Members reviewed the monthly report from the [REDACTED] laboratory (attached), and noted its thoroughness.

Other Business

Dr. [REDACTED] called for other business for closed session or for open session. Hearing none, she adjourned the meeting at 11:28 a.m.



Approved by LSVC ACUC
5/23/2017

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Included in packet for reference. Please sign up on the purple sheet passed DURING CLOSED SESSION

Current as of 4/14/17

School	Name	Date	Start Time	End Time	Special	Inspector 1	Inspector 2	additional
LSVC	████████ Facility & Lab	Tuesday, April 11, 2017	12:30 PM	3:00 PM	TB Test Required	████████	████████	████████
LSVC	████████ Facility & Labs & ████████	Tuesday, April 25, 2017	8:30 AM	11:00 AM	No prior rodent contact that day	████████	████████	████████
LSVC	████████████████████	Thursday, April 27, 2017	12:30 PM	2:00 PM		████████	████████	████████
LSVC	████████ Date Finalized	Friday, May 19, 2017	8:00 AM	10:00 AM	Overnight Trip	████████	████████	

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* Travel times are approximate for One Way trips from west campus (RARC)

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Animal Facilities Inspection Checklist					
Name of Facility: [REDACTED] facility 2017A				School/College: LSVC	
Supervisor: [REDACTED]				Date: 04/11/17	
Inspection Team Members: [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]				File created: 04/14/17	
Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A	SFI: check throughout facility for rust on carabiners Note: Animals look healthy, inspection team thanks staff for their hard work.		
[REDACTED]	Cage wash	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Storage/ Mechanics	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. Room/Office	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Animal exp. room	A			
[REDACTED]	Storage room	M	MINOR: peanut barrell needs refill/sanitize date	04/25/17	Initial email sent to [REDACTED] on Tue 11 Apr, 17.

[REDACTED] ility 2017A

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Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A	SFI: check throughout facility for rust on carabiners Note: Animals look healthy, inspection team thanks staff for their hard work.		
	[cage cleaning] Cage cleaning room	A			
	Animal housing	A			
	[corridor] Corridor	A			
	Food prep area	A			
	Exam/treatment room	A			
	Exam/treatment room	A			
	Animal housing	A			
	Animal housing	A			
	Exam/treatment room	A			
	Animal housing	A			
	Animal housing	A			
	Animal housing	M	MINOR: peeling paint on ceiling	05/09/17	Initial email sent to [REDACTED] on Tue 11 Apr, 17.
	Animal housing	A			
	Storage room	A			
	Storage room	A			
	Animal housing	A			
	Animal housing	M	MINOR small patches of rust, flaking paint on ceiling and by skylight.	07/11/17	Initial email sent to [REDACTED] on Tue 11 Apr, 17.
	Animal housing	A			
	Animal housing	A			
	Animal housing	A			
	Storage room	M	MINOR: peanut barrell needs refill/sanitize date	04/25/17	Initial email sent to [REDACTED] on Tue 11 Apr, 17.
	Cage cleaning area	A			
	Animal housing	A			

[REDACTED] ility 2017A

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Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A	SFI: check throughout facility for rust on carabiners Note: Animals look healthy, inspection team thanks staff for their hard work.		
	Animal housing	A			
	Treatment Area, storage	A			
	Storage room	A			
	Animal exp. room	A			
	Animal housing (colony)	A			
	Storage (liquid)	A			
	Surgery	A			
	Animal housing	A			
	Wet lab/Storage	A			
	Animal housing	A			
	Food prep & enrichment	N	remodel in progress		
	Food prep & enrichment	N	remodel in progress		
	Food prep & enrichment	N	remodel in progress		
	Food prep & enrichment	N	remodel in progress		
	Food prep & enrichment	N	remodel in progress		
	Animal housing	A			
	Shop/Toy Room	A			
	Animal housing	A			
	Preparation room	A			
	Preparation room	A			
	Animal exp. room	A			
	Animal housing	A			

ility 2017A

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Inspection Notes					Tracking
Room	Description	AMS	Comments/Notes	Correct by Date	R Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee
General comments		A	SFI: check throughout facility for rust on carabiners Note: Animals look healthy, inspection team thanks staff for their hard work.		
	Animal exp. room	A			
	Animal housing	A			
	Corridor	A			
	Animal transport vehicle	Q	QUESTION TO SAFETY: air flow from transport area to rest of van, is there cause for concern?		


 ility 2017A

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ANIMAL LAB INSPECTION CHECKLIST					School/College: LSV	
Inspection Unit: Lab 2017A					Date: 04/11/17	
Inspection Team Members:) V) R)) V)					File created: 04/14/17	
INSPECTION NOTES					TRACKING	
Room	Protocol [PI] (Species) Procedures	AMS	Comments/Notes	CORRECT BY DATE	Include name, date and method of all contacts & name, date and method of all responses. Indicate when Resolved or Referred to Committee	
General comments		A				
	L00459-0-04-14 (cynomolgus macaque,rhesus macaque,snake) housing	A				
	G005725 blood collection,imaging,anesthesia/analgesia,Other NSP: Cerebral Spinal Fluid (CSF) collection,Sub Admin: Isotonic intravenous fluids,Sub Admin: C11-raclopride,Sub Admin: salvinorin B (SALB),Sub Admin: clozapine-N-oxide (CNO)	M	MINOR: F/Air Canister has not been weighed for some time (machine not used). Disposed of at once SFI: cloth chair in room should be replaced.	04/11/17	R	
	L005003 blood collection,imaging,anesthesia/analgesia,Sub Admin: [18F]FECNT,Sub Admin: [18F]MEFWAY,Sub Admin: Awka Tears,Sub Admin: [18F]NIFENE,Sub Admin: [18F]FALLYPRIDE					

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LSU ACUC
APRIL 2017 CLOSING

Report:
March/2017

Health/Animal Care Checks

Daily Checks: Daily checks were conducted by ARTs and graduate/undergraduate students and recorded on door sheets and also by a graduate student in charge for the month using the online records. Lab manager, [REDACTED] has been regularly checking the online spreadsheet to make sure that students are using it properly and timely.

Weekly: Weekly tasks were conducted by graduate/undergraduate students and recorded on door sheets and also verified by a graduate student in charge for the month using the online records. Lab manager has been regularly checking the online spreadsheet to make sure that students are using it properly and timely.

Biweekly: Biweekly tasks were conducted by graduate/undergraduate students and recorded on door sheets and also verified by a graduate student in charge for the month using the online records. Lab manager has been regularly checking the online spreadsheet to make sure that students are using it properly and timely.

Monthly: Monthly tasks were conducted by graduate students and recorded on door sheets and also verified by a graduate student in charge for the month using the online records. Lab manager has been regularly checking the online spreadsheet to make sure that students are using it properly and timely.

The PI checked the door sheets every week on the following dates to verify daily checks were done and daily, weekly, biweekly, and monthly tasks were recorded as having been done on schedule: 3/03, 3/10, 3/18, 3/24, 3/31

Additional Notes:

A. The new lab manager continues to make improvements including:

1. Added the university's SOP for not taking photos or video in the animal facility to the lab's policy binder and requires all researchers to read it and sign a log that they have done so, formalizing the policy and tracking that all of received this training.
2. Creating a central spreadsheet with compliance requirements and using it to remind students to meet renewal of compliance before deadlines, including the UHS annual Animal Contact Risk Questionnaire.

B. Training of new undergraduate assistants has advanced and training of returning researchers has been updated when necessary. Training Specifics:

1. [REDACTED] completed mouse handling course on 3/06/2017
2. [REDACTED] completed mouse handling course on 3/09/2017
3. [REDACTED] renewed annual UHS Animal Contact Risk Questionnaire and received medical clearance on 3/09/2017.
4. [REDACTED] renewed annual UHS Animal Contact Risk Questionnaire on 3/28/2017.
5. [REDACTED] renewed annual UHS Animal Contact Risk Questionnaire on 3/31/2017.

Appendix 9: IACUC/OB Periodic Report (page 1 of 24)**College of Letters & Sciences and VCRGE Centers (LSVC)
ANIMAL CARE AND USE COMMITTEE**

We the undersigned voting member of the LSVC ACUC verify the attached reports reflect our Fall 2016 Semiannual Review of the program of animal care in the School.

[Redacted signature block]

Date of Review: November 14, 2016

Research Animal Resources Center

396 Enzyme Institute 1710 University Avenue Madison, WI 53726-4087
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Appendix 9: IACUC/OB Periodic Report (page 2 of 24)

Memorandum to: Dr. [REDACTED]

From: College of Letters and Science and Vice Chancellor for Research and Graduate Education Centers (LSVC) Institutional Animal Care and Use Committee

Subject: Fall 2016 Semiannual Review of Animal Care and use Program and Inspection of Facilities

Date: December 6, 2016

Each animal care and use committee is legally required to evaluate the Animal Program twice a year. The results of those evaluations must be submitted in a report to the Institutional Official and signed by a majority of the committee members. The LSVC ACUC conducted its semiannual review of the institution's animal care and use program by committee on November 14, 2016, using the Guide for the Care and Use of Laboratory Animals (Guide), and, as applicable, 9 CFR Chapter I, 2.31, and an adopted Program Definition (Lab Animal 2005 Nov; 34(10):41-4). A work sheet based on the Program Definition was used as the Program evaluation tool (Lab Animal 2007 Oct; 36(9):36-40). The committee discussed and clarified any possible deficiencies at this meeting and continued to distinguish sections XIII and IX of the worksheet from the preceding sections for internal self-evaluation purposes rather than reportable deficiencies.

Overview: This represents the second semiannual program review since the merging of the two formerly independent ACUCs (Grad and L&S). It was noted that the LSVC animal program has operated in a highly effective manner during the preceding 6-month period. Since the last program review, the LSVC ACUC has reviewed and approved 92 animal use protocols (new/renewals = 22, amendments = 70). Of the amendments, 26% were approved via Veterinary Verification and Consultation (VVC). No minority views were submitted by voting ACUC members. The overall average turnaround time from submission to approval was ~20 days (range 3-32 days) for new/renewals and 12.5 days (range 0-53 days) for amendments. No protocols have been suspended by the ACUC. No individual's animal use privileges have been revoked by the ACUC.

Summary: The following text summarizes deficiencies, recommended corrective actions, and correct-by dates. The organization follows that of the worksheet.

I. Physical Plant. *Overall, the committee found this component of the program to be strong. The committee acknowledged that there are times when humidity levels in facilities depart from Guide standards due to seasonal changes. However, from the perspective of performance*

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standards, these departures did not affect animal well-being. The veterinary staff and animal research technicians (ARTs) closely monitor all animals for signs of humidity-related disease, and no such clinical cases were seen in the past six months. This monitoring will continue, and the veterinary staff will report clinical issues related to humidity to the ACUC as necessary. PIs will be informed of the potential impact of low and fluctuating animal facility humidity on their research.

I am happy to report that the committee agreed that a previously identified minor deficiency involving locking stairway doors in animal facilities has now been resolved. This includes the approval of a new door in one facility [REDACTED] and verification from the [REDACTED] that the doors in the other facility [REDACTED] meet all relevant fire codes (see attachment).

II. Animal Environment, Housing, and Management. No deficiencies were identified. The committee receives regular training regarding social housing and enrichment programs for all species in the program at our monthly meetings.

III. Personnel Qualifications and Training. RARC has an outstanding training program that has attracted national attention. No deficiencies regarding training were identified. In the last six months, LSVC animal users have received the following training:

- 121 Online Animal User Orientation
- 42 Mouse/Rat (on-line and hands-on)
- 17 Laboratory animal surgery
- 50 Primate Orientation & Primate Health
- 30 Reptile, fish, bird, cat, cattle, etc.
- 81 Aseptic technique, medical records, anesthesia, etc.

The training staff have engaged in numerous outreach activities. This includes a recent CPR class held at the [REDACTED] for research animal users that was well attended. Overall, the RARC training program represents a valuable resource for the UW-Madison animal user community.

In terms of continuing education activities, Wisconsin National Primate Center (WNPRC) funds AALAS membership for supervisors and colony managers, hosts lectures by PIs for ARTs about current research projects, requires annual SOP reviews, and encourages AALAS certifications. [REDACTED] ARTs also undergo annual SOP reviews and attend talks on relevant topics presented by PIs, vets, and other subject matter experts. Other L&S ARTs who care for non-primates also attend staff meetings on relevant animal care topics. At the large [REDACTED] rodent facility ARTs are given AALAS memberships, attend yearly refresher training by RARC veterinary staff, and ALAT certification is encouraged.

IV. Occupational Health and Safety. No deficiencies were identified. The Office of Biological Safety Animal Research Safety (ARS) staff continue to perform comparative reviews of animal protocols and biosafety protocols, and to facilitate chemical risk assessments with the Chemical Safety staff. ACUC members have access to the animal-specific portions of biosafety protocols in ARROW

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As of our meeting date, compliance with the medical assessment process to receive clearance to work with animals, including completion of the Animal Contact Risk Questionnaire (ACRQ), was 95%. Improved communication between University Health Services and RARC now ensure individuals named on animal protocols undergo baseline and annual health risk assessments in a timely manner.

The committee was informed that a new biosafety officer will begin employment in December and additional biosafety cabinet certification staff have been hired. This will rectify a shortage of biosafety staff noted in the Spring 2016 semi-annual program review.

V. Veterinary Medical Care. *No deficiencies were identified. The committee believes that this component of the animal program is exceptionally strong. Dr. [REDACTED] also noted OLAW complemented the University on the results of the campus' 2015 rodent survival surgery records review.*

VI. Institutional Animal Care and Use Committee. *No deficiencies were identified. It was felt that RARC does an outstanding job in providing administrative services to our committee. Dr. [REDACTED] reviewed ACUC member training topics covered at monthly meetings, web seminars and distance learning events, and ARROW training offered to the ACUC in the past six months.*

The LSVC ACUC has approved the following departures from the Guide for reasons including those indicated by the bulleted text below each departure category:

- *97 protocols (9 approved in the last six months) approved for housing animals individually for experimental or veterinary reasons*
- *19 protocols (1 approved in the last six months) that involve restraint for more than one hour*
- *23 protocols (1 approved in the last six months) that involve food or fluid regulation*
- *68 protocols (8 approved in the last six months) that use non-pharmaceutical grade compounds*

To date these "departures" have not contributed to adverse outcomes.

VII. Institutional Official. *No deficiencies were identified. The committee believes that the I.O.'s annual attendance of an ACUC meeting is highly valuable and requests she continue to do so.*

VIII. Program Integration. *No deficiencies were noted. The committee agreed that in general program integration is strong and well coordinated.*

IX. Support of the Institutional Mission. *No deficiencies were noted. The committee agreed that in general institutional support is strong and well coordinated.*

Attachments: Letter from [REDACTED]

Inspection of Animal Facilities

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To fulfill other responsibilities, the LSVC ACUC inspects facilities and animal use areas semiannually. In these inspections deficiencies and required corrective actions are identified and then followed up to insure that the corrective actions were completed. To review a summary of the deficiencies that were identified, and the current status of corrective action:

1. Go to www.rarc.wisc.edu
2. At the very top, right-hand side of the page, click on "RARC login" button.
3. Log in with your NetID and password.
4. Click on the IACUC tab.
5. Click on "RARC Limited" on the left side of the page.
6. Click on the "All Inspections" tab.
7. Choose "LSVC" from the "School" picklist, "2016B" from the "Cycle" picklist, and "All" from the "Issues" picklist.
8. When finished, use the "RARC Logout" link at the top of the page to log out of the RARC website.

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September 19, 2016

LSVC IACUC,

Thank you for your inquiry regarding the locking stairwell doors at [REDACTED]. I understand your committee designated these stairwell doors a minor deficiency. Construction Renovation Services has evaluated the [REDACTED] facility for upgrading the doors and locks and specified a system to allow the doors to [REDACTED]. We estimated the cost for this upgrade at \$120,000. It is our understanding that your division cannot pay for this upgrade and requested central campus funding.

[REDACTED] complies with all building and fire codes that were applicable at the time the building was constructed. The current State Fire Code requires that we maintain this level of safety, at minimum, and we do. If the [REDACTED] was constructed today, the current applicable codes would require the additional access elements mentioned above in the \$120,000 estimate. As stated in my July email to [REDACTED] this project has been placed in a group with 24 other buildings requiring work to enhance the health and safety of the occupants to this current-day construction level.

All of our buildings are evaluated twice yearly by the Madison Fire Department for fire and life safety. Please be assured that the [REDACTED] has safe exiting. However, FP&M will continue to evaluate our available funding for an opportunity to help the LSVC Committee move the upgrade project to the design phase.

Please feel free to contact me with any further questions.

Sincerely,

[REDACTED]
[REDACTED]@wisc.edu

Facilities Planning & Management
Physical Plant

University of Wisconsin-Madison 30 North Mills Street Madison, Wisconsin 53715

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**College of Letters and Science and Vice Chancellor for Research and Graduate Education
Centers Animal Care and Use Committee
Semiannual Program Review – November 14, 2016**

Present (voting):

[REDACTED]

Present (nonvoting):

[REDACTED]

Guests:

[REDACTED]

Absent:

[REDACTED]

Dr. [REDACTED] called the meeting to order at 1:00 p.m. She stated that the meeting today has been called to perform the semiannual review of the animal program overseen by the LSVC ACUC, noting the review will be carried out by discussing each section of the UW-Madison Animal Care and Use Program Review Worksheet. The comments from the Spring 2016 program review has been provided for reference for today's discussion. Dr. [REDACTED] said to accommodate Ms. [REDACTED]'s teaching schedule, the review discussion will begin with section III (Personnel Qualifications and Training).

Fall 2016 Semiannual Program Review

The committee discussed section III (Personnel Qualifications and Training). Ms. [REDACTED] at RARC, led discussion of her report (see attached). She said the Animal User Orientation online module was updated in August 2016, and that the trainers are beginning to create online species-specific modules that include PIs and veterinarians showing certain animal health characteristics and behaviors of each species. Ms. [REDACTED] then highlighted the number of LSVC animal users who have accessed RARC classes and who have requested waivers from required training, noting no waivers have been requested from LSVC users in the past six months. Dr. [REDACTED] noted that as a matter of course she does not issue waivers from the mouse, rat, or nonhuman primate species-specific classes. Ms. [REDACTED] described the RARC trainers' process for following up with individuals who fail to attend required training, noting that non-responsive individuals would be reported to the ACUC for action if necessary but to date that has not been needed. Lastly, Ms. [REDACTED] reported that one specialized training was provided under the RARC training protocol G5281, intragastric injections in mouse pups, noting Dr. [REDACTED] led this lab-specific training. Dr. [REDACTED] asked if there were any questions for Ms. [REDACTED]. Hearing none, Dr. [REDACTED] thanked Ms. [REDACTED] and Ms. [REDACTED] left the meeting. Dr. [REDACTED] noted that the tracking of species-specific training of animal research technicians (ARTs) will soon be standardized and documented via training protocols held by facility supervisors. Initial and continuing training for

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ARTs was briefly reviewed, with no significant changes from what was reported at the Spring 2016 program review. Dr. [REDACTED] reported a cardiopulmonary resuscitation (CPR) class was recently held at the [REDACTED] for research animal users, and was very well-attended.

The committee discussed section I (Physical Plant), in general finding this aspect of the program strong. The committee acknowledged that there are times when humidity levels in facilities depart from *Guide* standards due to seasonal changes. Drs. [REDACTED] and [REDACTED] agreed to notify PIs of the potential impact of low and fluctuating animal facility humidity levels on their individual research results as recommended by the 2014 AAALAC site visit team.

The committee discussed section II (Animal Environment, Housing, and Management). The committee was reminded that in October 2016 the correct-by date for one fire door that could pose a risk of entrapment of staff was extended in order to accommodate the scheduled work to correct this issue.

The committee discussed section IV (“Occupational Health and Safety,” OHS). An informational report from University Health Services (UHS) detailing the status of the Animal Contact Risk Questionnaire (ACRQ) was reviewed (see attached), and the committee noted the 95% compliance rate. Ms. [REDACTED] said that by the end of the year UHS plans to display ACRQ notifications in the PI Portal, to help PIs and others stay informed of deadlines. Ms. [REDACTED] reported that the biosafety cabinet certification group is still catching up on certifications and repairs. As was reported at the spring review, outside vendors are still helping with certifications, areas such as BSL-3 laboratories remain the highest priority for completion, and cabinets in animal areas will be serviced by UW employees. ACUC members should continue noting out-of-date cabinets on semiannual inspections so these can be prioritized. She noted that the newly hired campus [REDACTED] will start in December, 2016.

The committee discussed section V (Veterinary Medical Care), finding in general this component of the animal program is strong. Dr. [REDACTED] noted the results of the campus’ 2015 rodent survival surgery records review were reported to OLAW, and OLAW complimented the animal program’s proactive approach to compliance and animal well-being. A new veterinarian who will have oversight of small animals in VCRGE facilities will begin in December, and all open veterinary technician positions at RARC have been filled. Veterinary pre-review of protocols continues to have value, and the Veterinarian Verified Consultation (VVC) process continues to be well-received by PIs. Dr. [REDACTED] noted at the most recent AALAS meeting, an RARC veterinarian and a technician received third prize for a poster on axolotl enrichment.

The committee discussed section VI (Institutional Animal Care and Use Committee) (see attached reports). Ms. [REDACTED] thanked members for their active participation in the inspections and provided information on the most recent inspections period. There was a brief discussion of the challenges in ensuring all expired compounds, including those in PI labs, are found and discarded in a timely manner. Dr. [REDACTED] provided a report on committee training topics covered during the last six months and on protocol review turnaround, noting review times were shorter than the previous six months for all protocol types. Dr. [REDACTED] provided detailed information about the Veterinarian Verified Change (VVC) approvals, including PI feedback about the process. A summary of departures from the *Guide* in protocols approved by the LSVC ACUC was

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reviewed. Dr. [REDACTED] noted that in August the Animal Program Assessment Specialists (APAS) began performing formal post-approval monitoring (PAM) per ACAPAC policy 2016-059. To date campus-wide four protocols have undergone PAM with one in process, including one LSVC protocol. Dr. [REDACTED] answered committee member questions about how protocols are selected for routine PAM, noting if a WNPRC protocol were to be selected that Ms. [REDACTED] would also be contacted. Members expressed confidence in the committee's procedures for identifying and correcting deficiencies, as evidenced by recent robust discussion and actions taken by the ACUC regarding a noncompliant laboratory.

The committee discussed section VII ("Institutional Official," I.O.), noting the recent appointment of interim I.O. Dr. [REDACTED] at the beginning of the month. Dr. [REDACTED] noted that Dr. [REDACTED] chaired the School of Medicine and Public Health ACUC until she accepted the I.O. role and is very knowledgeable about the animal program. The LSVC ACUC has found it very beneficial to have the I.O. attend at least one ACUC meeting each year, and will request that Dr. [REDACTED] continue this practice.

The committee discussed section VIII (Program Integration) and section IX (Support of the Institutional Mission). Members agreed that the outreach carried out by the RARC trainers as presented in their report represent support of the institutional mission regarding animal activities.

Dr. [REDACTED] asked for other comments. Hearing none, Dr. [REDACTED] said a draft report will be written based on today's review, and the ACUC will review and sign the report at an upcoming meeting. She asked if there was any other business. Hearing none, [REDACTED] moved to adjourn. The vote was unanimous. The meeting was adjourned at 2:25 p.m.

[REDACTED]
IACUC Administrator

*Appd by LSVC ACUC
30 Nov 2016*

Appendix 9: IACUC/OB Periodic Report (page10 of 24)**UW-Madison Animal Care and Use Program Review Worksheet: Fall 2016 LSVC ACUC**

(based on *Defining the Animal Care and Use Program*, Lab Animal 34(10) 41-44, *Guide for the Care and Use of Laboratory Animals 8th ed.*, and *Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching 3rd ed.*)

(I). Physical Plant: "A well-planned, well-designed, well-constructed, and properly maintained and managed facility is an important element of humane animal care and use as it facilitates efficient, economical, and safe operation." (*Guide*, p.133). This includes animal facilities not located on the UW-Madison campus (e.g., Agricultural Research Stations).

A. Methods exist to assure Veterinary, ACUC, PI, and Program staff input into animal facility planning, design, and construction to ensure that new or remodeled facilities meet Program needs.
Fall 2016 ACUC response: Yes.
B. The animal facilities adhere to performance standards in the areas of facility planning, design, and construction. All animal facilities meet relevant physical plant performance standards.
Fall 2016 ACUC response: Yes.
C. Appropriate areas are available for: • animal housing • animal care • sanitation of cages and other materials • materials receiving and storage • separation of species or isolation of individual projects when necessary • performance of aseptic surgery • other specialized spaces, facilities, and/or equipment required for the conduct of certain studies
Fall 2016 ACUC response: Yes.
D. Appropriate areas and procedures exist for receipt and quarantine of arriving animals, and separation and quarantine of animals if there are disease outbreaks.
Fall 2016 ACUC response: Yes.
E. Methods exist to monitor and maintain the physical condition of animal facilities to ensure that it remains adequate and appropriate.
Fall 2016 ACUC response: Yes.
F. Departures from The Guide are identified, discussed, and approved by the ACUC.
Fall 2016 ACUC response: Yes. Drs. [REDACTED] and [REDACTED] agreed to notify PIs of the potential impact of low and fluctuating animal facility humidity levels on their individual research results as recommended by the 2014 AAALAC site visit team.
G. Procedures exist to identify, communicate, and correct animal facility physical deficiencies.
Fall 2016 ACUC response: Yes.
H. Other criteria that should be used to evaluate physical plant & the animal program?
Fall 2016 ACUC response: None.

(II). Animal Environment, Housing, and Management: "An appropriate program provides environments, housing, and management that are well-suited for the species or strains of animals maintained and takes into account their physical, physiologic, and behavioral needs, allowing them to grow, mature, and reproduce normally while providing for their health and well-being." (*Guide*, p.41). Adequate management requires appropriate and sufficient physical, procedural, and human resources. This includes the special needs of aquatic species, and animal facilities not located on the UW-Madison campus (e.g., Agricultural Research Stations).

A. When providing animal housing the institution considers the appropriateness of: • the shape, size, and construction of the animals' primary enclosures (cage, pen, etc.) • temperature, humidity, ventilation, and illumination
Fall 2016 ACUC response: Yes.
B. When providing animal housing the institution considers the appropriateness of behavioral management. That is,

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environmental enrichment and social housing programs are beneficial to animal well-being and are consistent with the goals of animal use (includes meeting needs for social housing and/or environmental enrichment, exercise for dogs, and promotion of the psychological well-being of nonhuman primates).
Fall 2016 ACUC response: Yes.
C. In assuring appropriate management of animals and animal facilities the institution considers: <ul style="list-style-type: none"> • animal husbandry, including selection, storage, preparation, and provision of food, bedding, and water • population management, including animal identification (cage cards, ear tags, tattoos, etc.) and records • weekend and holiday animal care • sanitation of enclosures and physical plant • integrated pest control programs
Fall 2016 ACUC response: Yes.
D. Furthermore, the institution considers: <ul style="list-style-type: none"> • facility security and biosecurity • preparation of a disaster plan that takes into account both personnel and animals • personnel security (pre-employment screening, etc.)
Fall 2016 ACUC response: Yes.
E. Methods exist to monitor and maintain the physical, procedural, and human contributions to adequate animal environment, housing, and management to ensure that they meet performance standards for all animals. That is, facilities are checked to ensure animals are fed, watered, cared for, and protected in species-appropriate ways.
Fall 2016 ACUC response: Yes.
F. Facilities in which animals are housed and used are secure and provide animal and human safety. That is, access to animals in facilities is controlled, monitored, and/or documented.
Fall 2016 ACUC response: Yes.
G. Departures from The Guide are identified, discussed, and approved by the ACUC.
Fall 2016 ACUC response: Yes.
H. Procedures exist to identify, communicate, and correct deficiencies in animal environment, housing, and management.
Fall 2016 ACUC response: Yes.
I. Other criteria that should be used to evaluate animal environment, housing, management & the animal program?
Fall 2016 ACUC response: None.

(III). Personnel Qualifications and Training: "All personnel involved with the care and use of animals must be adequately educated, trained, and/or qualified in basic principles of laboratory animal science to help ensure high-quality science and animal well-being. ...Institutions are responsible for providing appropriate resources to support personnel training and the IACUC is responsible for providing oversight and for evaluating the effectiveness of the training program." (*Guide*, p.15). Personnel represent both a tremendous resource and a source of complexity in maintaining an effective Program. In view of the importance of training and the diversity of training needs, the training program must be comprehensive and flexible.

***Fall 2016: See also supporting report (attached).**

A. All categories of personnel that constitute the animal research and care community receive adequate and appropriate training, including: <ul style="list-style-type: none"> • animal care staff • management and supervisory personnel • research personnel (investigators, instructors, technicians, trainees, students) • IACUC members • Institutional Official • veterinarians and veterinary staff • physical plant and security staff
Fall 2016 ACUC response: Yes.

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B. As appropriate, each member of the animal research and care community (as listed above) understands:
<ul style="list-style-type: none"> • the components of the animal care and use Program • his or her role within that Program • how that role interacts with the roles of other members of the community
Fall 2016 ACUC response: Yes.
C. <u>Initial</u> formal and/or on-the-job training in Program goals and the humane care and use of animals is provided.
Fall 2016 ACUC response: Yes.
D. Personnel using or caring for animals participate regularly in <u>continuing</u> education activities relevant to their responsibilities.
Fall 2016 ACUC response: Yes. Dr. [REDACTED] reported a cardiopulmonary resuscitation (CPR) class was recently held at the [REDACTED] for research animal users, and was very well-attended.
E. Documentation of training exists and is accessible.
Fall 2016 ACUC response: Yes.
F. The effectiveness of the initial and continuing training of individuals working with animals is regularly evaluated.
Fall 2016 ACUC response: Yes.
G. Procedures exist to identify, communicate, and correct deficiencies in training.
Fall 2016 ACUC response: Yes.
H. <i>Other criteria that should be used to evaluate training & the animal program?</i>
Fall 2016 ACUC response: None.

(IV). Occupational Health and Safety: "Each institution must establish and maintain an occupational health and safety program (OHSP) as an essential part of the overall animal care and use program of animal care and use.... An effective OHSP requires coordination between the research program (as represented by the investigator), the animal care and use program (as represented by the A.V., I.O. and IACUC), the environmental health and safety program, occupational health services, and administration (e.g., human resources, finance, and facility-maintenance personnel)." (*Guide*, p.17).

A. The UW-Madison Occupational Health and Safety Program performs hazard identification and risk assessment associated with:
<ul style="list-style-type: none"> • animal care • animal experimentation • teaching using animals • outreach using animals • field studies using wild animals
Fall 2016 ACUC response: Yes. The newly hired [REDACTED] will begin in December.
B. The UW-Madison Occupational Health and Safety Program provides initial and continuing medical evaluation and preventive medicine for personnel with animal contact.
Fall 2016 ACUC response: Yes. As of mid-October 2016 overall compliance by animal users with the Animal Contact Risk Questionnaire (ACRQ) was 95%, with ongoing follow-ups by UHS staff with noncompliant users. See also supporting report from UHS (attached).
C. The UW-Madison Occupational Health and Safety Program identifies and provides occupational safety training to animal users including appropriate hygiene practices and instruction in appropriate PPE.
Fall 2016 ACUC response: Yes.
D. The UW-Madison Occupational Health and Safety Program monitors animal users, facilities, and procedures.
Fall 2016 ACUC response: Yes. Isoflurane and other monitoring of specific areas can be done upon request. The newly-hired [REDACTED] will start in December.
E. The ACUC and the institution monitor the effectiveness of the Occupational Health and Safety program.
Fall 2016 ACUC response: Yes.
F. Procedures exist to identify, communicate, and correct deficiencies in the Occupational Health and Safety program.
Fall 2016 ACUC response: Yes.

Appendix 9: IACUC/OB Periodic Report (page 13 of 24)**G. Other criteria that should be used to evaluate the Occupational Health and Safety Program for the animal program?**

Fall 2016 ACUC response: Ms. [REDACTED] reported that the biosafety cabinet certification group is still catching up on certifications and repairs. As was reported at the spring review outside vendors are still helping, areas such as BSL-3 laboratories remain the highest priority for completion, and cabinets in animal areas will be serviced by UW employees. ACUC members should continue noting out-of-date cabinets on semiannual inspections so these can be prioritized.

(V). Veterinary Medical Care: "Veterinary care is an essential part of an animal care and use program. The primary focus of the veterinarian is to oversee the well-being and clinical care of animals used in research, testing, teaching, and production. This responsibility extends to monitoring and promoting animal well-being at all times during animals use and during all phases of the animal's life. ...The veterinary care program is the responsibility of the attending veterinarian." (Guide, pp.105-106). At UW-Madison attending veterinarian obligations are shared among several veterinarians. Adequate veterinary care is a Program component that closely affects all other components.

A. The Program has access to and meets appropriate performance standards for animal procurement and transportation.
Fall 2016 ACUC response: Yes.
B. The Program has access to and meets appropriate performance standards for preventive medicine, including animal quarantine, stabilization, and separation, as well as surveillance, diagnosis, treatment, and control of disease.
Fall 2016 ACUC response: Yes.
C. The Program has access to and meets appropriate performance standards for management of experiment-associated disease, disability, or other sequelae.
Fall 2016 ACUC response: Yes.
D. The Program has access to and meets appropriate performance standards for assessment of animal well-being. Veterinary access to all animals is provided.
Fall 2016 ACUC response: Yes.
E. The Program has access to and meets appropriate performance standards for establishment of adequate surgical and post-surgical care, including proper use of anesthesia and analgesia. Anesthesia and analgesia (1) must be used before their expiration dates and (2) should be acquired, stored, their use recorded, and disposed of legally and safely.
Fall 2016 ACUC response: Yes. Dr. [REDACTED] noted the results of the campus' 2015 rodent survival surgery records review were reported to OLAW, and OLAW complimented the animal program's proactive approach to compliance and animal well-being.
F. The Program has access to and meets appropriate performance standards for proper selection and conduct of euthanasia.
Fall 2016 ACUC response: Yes.
G. The Program has access to and meets appropriate performance standards for veterinary participation in protocol development and review.
Fall 2016 ACUC response: Yes.
H. There are a sufficient number of veterinarians and veterinary technicians trained to meet Program needs.
Fall 2016 ACUC response: Yes. A new veterinarian who will have oversight of small animals in LSVC facilities will begin in December, and all open veterinary technician positions at RARC have been filled.
I. There is effective evaluation and mentoring of research animal veterinarians to meet Program needs.
Fall 2016 ACUC response: Yes. Dr. [REDACTED] noted at the most recent AALAS meeting, an RARC veterinarian and a technician received third prize for a poster on axolotl enrichment.
J. A mechanism exists for direct and frequent communication to ensure that timely and accurate information about problems associated with animal health, behavior, and well-being information is conveyed to the veterinary staff.
Fall 2016 ACUC response: Yes.
K. Mechanisms exist to ensure appropriate veterinary participation in decisions regarding animal husbandry, preventive

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medicine, and experiment planning and conduct, including surgical and post-surgical care.
Fall 2016 ACUC response: Yes.
L. Veterinarians are provided with sufficient authority to carry out their duties. Direct or delegated authority is given to the veterinarians to oversee all aspects of animal care and use.
Fall 2016 ACUC response: Yes.
M. Records document provision of adequate veterinary care to all animals. Veterinarians have access to these records.
Fall 2016 ACUC response: Yes.
N. The institution monitors the effectiveness of the Veterinary Care program.
Fall 2016 ACUC response: Yes.
O. Procedures exist to identify, communicate, and correct deficiencies in the Veterinary Care program.
Fall 2016 ACUC response: Yes.
P. The veterinary program offers a high quality of care and ethical standards appropriate to the species and the program.
Fall 2016 ACUC response: Yes.
Q. Other criteria that should be used to evaluate the program of veterinary care within the animal program?
Fall 2016 ACUC response: None.

(VI). Institutional Animal Care and Use Committee (IACUC): "The responsibility of the IACUC is to oversee and routinely evaluate the program." (*Guide*, p.24). More than any other group, the IACUC is directly responsible for ensuring the adequacy of all aspects of the Program and can protect the institution's privilege to use animals in research, testing, or education.

A. The ACUC is duly constituted according to the AWA and PHS Policy, and meets as necessary to fulfill its responsibilities.
Fall 2016 ACUC response: Yes.
B. The ACUC members understand the role and responsibilities of the ACUC.
Fall 2016 ACUC response: Yes.
C. The ACUC members receive suitable orientation, background materials, and specific training in understanding and evaluating issues brought before the committee. Training consists of a formal orientation to the institution's program; an overview of legislation, regulations, guidelines, and policies; and instruction on how to conduct protocol review, inspect facilities and labs, and evaluate the program. Committee member training includes both initial and ongoing training/education.
Fall 2016 2015 ACUC response: Yes. Dr. [REDACTED] provided a report on committee training topics covered during the last six months. See also supporting report (attached).
D. The ACUCs review and evaluate the Animal Program semiannually.
Fall 2016 ACUC response: Yes.
E. The ACUCs inspect and evaluate animal activity areas semiannually, including identified animal barrier vivaria and labs where animals go for procedures, surgery areas, transport vehicles, "temporary" housing, etc.
Fall 2016 ACUC response: Yes. Ms. [REDACTED] thanked members for their active participation in the inspections and provided information on the most recent inspections period. See also supporting report (attached).
F. The ACUCs inspect and evaluate drug storage and control programs.
Fall 2016 ACUC response: Yes. There was a brief discussion of the challenges in ensuring all expired compounds, including those in PI labs, are found and discarded in a timely manner.
G. The ACUCs review proposed uses of animals in research, teaching and outreach (i.e., protocols), including special review requirements regarding physical restraint, multiple major surgical procedures, food or fluid restriction, and the

Appendix 9: IACUC/OB Periodic Report (page 15 of 24)

use of pharmaceutical grade chemicals. ACUC members named in protocols or with other conflicts recuse themselves from protocol decisions. ACUC oversight of approved use continues post-approval.
Fall 2016 ACUC response: Yes. Dr. [REDACTED] provided detailed information about turnaround review times, and the Veterinary Verified Change (VVC) approvals, including PI feedback about the process. See also supporting report (attached).
H. Departures from The Guide are identified, discussed, and approved by the ACUC.
Fall 2016 ACUC response: Yes. Ms. [REDACTED] summarized the departures from The Guide currently approved in protocols by the LSVC ACUC. See also supporting report (attached).
I. A mechanism is established for receipt and review of concerns involving the care and use of animals at the institution, including the establishment of a "Whistleblower Policy."
Fall 2016 ACUC response: Yes.
J. All minority reports submitted by appointed ACUC members with voting privileges were handled in according with applicable OLAW and USDA regulations.
Fall 2016 ACUC response: Yes. No minority reports have been submitted in the last six months.
K. The ACUCs have the authority to suspend animal activities that do not comply with regulations and policies.
Fall 2016 ACUC response: Yes.
L. The ACUCs submit reports to institutional officials.
Fall 2016 ACUC response: Yes.
M. The ACUCs advise and make recommendations to the Institutional Official on any aspect of the Program.
Fall 2016 ACUC response: Yes.
N. The institution backs the authority of the ACUCs.
Fall 2016 ACUC response: Yes.
O. An effective mechanism exists for direct and frequent communication to ensure that timely and accurate information is conveyed to the ACUC regarding problems in any Program component.
Fall 2016 ACUC response: Yes.
P. The ACUCs have adequate administrative support.
Fall 2016 ACUC response: Yes. Ms. [REDACTED] said an online semi-annual inspection sign-up mechanism is planned to go live before January 1, 2017.
Q. Methods exist to monitor and maintain committee activities and effectiveness in support of the Program.
Fall 2016 ACUC response: Yes.
R. Procedures exist to identify, communicate, and correct deficiencies.
Fall 2016 ACUC response: Yes. Members expressed confidence in the committee's procedures for identifying and correcting deficiencies, as evidenced by recent robust discussion and actions taken by the ACUC regarding a noncompliant laboratory.
S. Other criteria that should be used to evaluate the ACUCs' role in the animal program?
Fall 2016 ACUC response: None

(VII). Institutional Official (IO): Each institution must appoint an institutional official, who legally commits the institution to meet all requirements embodied in the AWA, AWRs, and PHS Policy by ensuring that the Program satisfies all performance criteria described in the Guide. The IO has the authority to allocate the resources needed to ensure the program's overall effectiveness (*Guide*, p.13). The Institutional Official must have a working understanding of his/her role in the animal program.

A. The ACUC has not identified any deficiencies in the I.O.'s understanding of Program structure.
Fall 2016 ACUC response: True. The ACUC acknowledged the recent appointment of Dr. [REDACTED] as interim

Appendix 9: IACUC/OB Periodic Report (page 16 of 24)

I.O. effective October 1, 2016. Dr. [REDACTED] is an experienced ACUC Chair, and understands program structure.
B. The ACUC believes the IO monitors Program functions, including IACUC activities and membership. Fall 2016 ACUC response: Yes.
C. The ACUC has not identified any deficiencies in the administrative, financial, and legal support for the Program of Animal Care. Fall 2016 ACUC response: True.
D. The ACUC believes the IO receives appropriate and timely communications from the ACUC and other members of the Program, and carries out appropriate follow-ups and responses. Fall 2016 ACUC response: Yes.
E. The IO has demonstrated authority to enforce Program policies to the ACUC's satisfaction. Fall 2016 ACUC response: Yes.
F. Annual and other reports are submitted to federal agencies in a timely manner by the IO. Fall 2016 ACUC response: Yes.
G. Methods exist to monitor and evaluate the effectiveness of the IO. Fall 2016 ACUC response: Yes.
H. Other criteria that should be used to evaluate the IOs' role in the animal program? Fall 2016 ACUC response: The ACUC has found it very beneficial to have the I.O. attend at least one regular ACUC meeting each year, and will request that Dr. [REDACTED] continue this practice.

Sections VIII and IX of this Worksheet are designed for internal self-evaluation purposes only. The institution is not obligated to communicate the findings of these sections to USDA, OLAW, or AAALAC unless those findings identify a program deficiency considered reportable by those agencies.

(VIII). Program Integration. For the Program to be effective, all Program components must function well together.

A. There is a cadre of individuals with expertise and understanding regarding Program components who can evaluate Program adequacy. Fall 2016 ACUC response: Yes.
B. There is strong and well-informed administrative coordination of efforts to support the Program. Fall 2016 ACUC response: Yes.
C. The ACUC believes that within its school/college Program there is effective and timely communication among veterinarians, principal investigators, the Committee, and the school/college administration so that each of these groups can carry out its designated responsibilities. Fall 2016 ACUC response: Yes.
D. The ACUC believes that campus-wide there is effective and timely communication among Program administration, veterinarians, principal investigators, the Committee, and the Institutional Official (IO) so that each of these groups can carry out its designated responsibilities. Fall 2016 ACUC response: Yes.
E. There are sufficient financial, physical, procedural, and human resources to meet Program requirements. Fall 2016 ACUC response: Yes.
F. There is school/college-wide recognition of the need for and practice of compliance; that is, all Program personnel and participants accept that they must follow the rules. Fall 2016 ACUC response: Yes.
G. Methods exist to monitor program integration to ensure that all Program elements function well together. Fall 2016 ACUC response: Yes.

Appendix 9: IACUC/OB Periodic Report (page 17 of 24)

H. Procedures exist to identify, communicate, and correct deficiencies in program integration.
Fall 2016 ACUC response: Yes.
I. Other criteria that should be used to evaluate integration of the animal program?
Fall 2016 ACUC response: None.

(IX). Support of the Institutional Mission: The Program must support and enhance the institution's mission in the areas of research, teaching, and outreach that involve living vertebrate animals. Evaluation of the Program must consider whether and how well it fulfills its reason for existence.

A. The animal care program supports research, teaching, and outreach activities that involve animals.
Fall 2016 ACUC response: Yes. Members agreed that the outreach carried out by the RARC trainers as presented in their report represent support of the institutional mission regarding animal activities.
B. The animal care program enhances research, teaching, and outreach activities that involve animals.
Fall 2016 ACUC response: Yes.
C. Methods exist to monitor and maintain the effectiveness of the program.
Fall 2016 ACUC response: Yes.
D. Other criteria that should be used to evaluate the efficiency and efficacy of animal program in fulfilling its mission?
Fall 2016 ACUC response: None.

Appendix 9: IACUC/OB Periodic Report (page 18 of 24)
UHS UNIVERSITY
HEALTH SERVICES

ENVIRONMENTAL & OCCUPATIONAL HEALTH

Worksheet Sec. IV
 University Health Services Environmental and Occupational Health
 Summary Animal Contact Risk Questionnaire (ACRQ) Status
 October 25, 2016
Compliance with ACRQ

As of October 19 2016 the compliance rate was 95% with 3998 enrolled. The average compliance rate from April to October was 94%.

Impacts to compliance rate

- As noted in the last report, UHS provides a monthly list to RARC of those non-compliant. The monthly rate of those due to submit the annual ACRQ requiring message from RARC has been 9-23%.
- UHS continues to message supervisor and/or department administrator/chair and enrollee (as identified either by RARC or previous ACRQ submission) as a final step prior to providing the non-compliant list to RARC.
- UHS continues to identify and enroll those that are not listed on a protocol, eg. Courses and recently SVM hospital care staff.
- Second and third reminders to submit annual ACRQ for October were delayed due to the meningitis mass vaccination effort. Messages will commence again on October 26th.

Improvements in the process

- Based on feedback provided, the "sender" from UHS was changed to Environmental Occupational Health rather than GM Environmental Occupational Health.
- MyUHS log-in page and UHS messages were updated to include: DO NOT open multiple MyUHS tabs. Doing so will cause unexpected errors.
- Clarification to questions on the ACRQ, including an option to schedule an appointment in lieu of listing medications.
- An obvious notice (pop-up box with number of errors) when the questionnaire submission is not complete due to errors or omissions on the form.
- Coming very soon! UHS has been working with the VCGRE office and RARC to upload ACRQ compliance data into the PI portal.

Obstacles encountered by submitters beyond MyUHS:

- Messages going to Clutter box (<https://kb.wisc.edu/wiscaccountadmin/page.php?id=33784>).
- UHS policy as reviewed by UW Madison legal does not allow messages to go to gmail, yahoo or other private accounts.

UHS continues to work with the software vendor for improvements:

- Upon initial access to MyUHS, a list of Forms to be completed will be presented.
- Recall of previous ACRQ submission.
- UHS continues to work with the vendor on a weekly basis and expects additional enhancements in another upgrade expected later in 2016.

608.890.1992 | uhs.wisc.edu/eoh

University of Wisconsin–Madison | 333 East Campus Mall, Room 8303 | Madison, WI 53715-1381

Appendix 9: IACUC/OB Periodic Report (page 19 of 24)

**UW-Madison Animal Care and Use Semi-Annual Program Review
Fall 2016 LSVC
ACUC III. Personnel Qualifications and Training**

RARC Training courses (May 1, 2016 - Present)**Worksheet Sec. III**

- UW research personnel accessed courses 2119 times
- LSVC research personnel accessed courses 341 times
 - o 121 Animal User Orientation
 - Revision
 - o 17 Lab Animal Surgery Course
 - o 122 Species Specific Courses
 - Online module/hands on training
 - 50: Primate Orientation and Primate Health
 - 42: Mouse and Rat
 - 30: Fish, Reptile, Bird, Cat, Cattle, Frog, Swine, Zebrafish, Chipmunk, Dog, Rabbit, Sheep, Vole
 - o 81: Aseptic Technique, Medical Records, Anesthesia, Working with Wildlife, Nonsurvival Surgery, Transportation, Anesthesia Machine User Guide, Microisolator Technique, Controlled Substances

Waivers

- Approval granted from Dr. [REDACTED] ACUC
- 19 total waivers campus wide (1 CALS, 1 SMPH, 5 SVM)
 - o Lab Animal Surgery, Horse, Dog, Cat, Chinchilla

Revocations

- Trainers follow up with each individual
 - o If no resolution, then follow up with PI
 - o If still no resolution, report to Dr. [REDACTED]
 - o Last resort, report to ACUC
- To date 7 LSVC individuals revoked out of 36 total campus wide
 - o Wildlife, Sheep, Primate Health, Mouse, Lab Animal Surgery

Less Common Procedure Training

- Intra-gastric injections
 - o Protocol A5064, PI: [REDACTED]
 - o 2 separate training sessions with same 2 individuals
 - o 19 mouse pups total, each euthanized after injection

Outreach

- Campus Visitor's Program
 - o middle schools and high schools
- Wisconsin Science Festival
- Madison College Veterinary Technician Program

Other Training Updates

- Animal behavior and training: horses, swine, rats, kittens
- ART Training and tracking

Appendix 9: IACUC/OB Periodic Report (page 20 of 24)

Committee Training
May, 2016-November, 2016
Committee Training at Monthly Meetings

for Worksheet
Sec. VI-C

May: ARROW Power User Tips

June-July: Viewing differences in protocols submitted in ARROW

July-August: How to inspect for Expired Materials

Aug.-Sept: ASHER Document

Aug-Oct: How to Decide Full Committee versus Designated Review

Oct-Nov: Legal advice on what should be reviewed in Closed Session [REDACTED]

Web Seminars*

May, 2016: Meet the New Head of APHIS Animal Care (NABR)

June 9, 2016: Balancing Public Interests, Benefits, and Risks in Animal Research by [REDACTED]
(OLAW)

July 19, 2016: Q&A with the USDA: The Next Generation (NABR)

September 8, 2016: Implementing Guidance on Significant Changes: One Institution's Experience (OLAW-
no group viewing)

*Web Seminars are generally available in a recorded format for viewing at your convenience if you were
unable to make the group event.

Appendix 9: IACUC/OB Periodic Report (page 21 of 24)**Worksheet Sec. VI-E**

LSVC Fall 2016 Program Review Report on Semi-Annual Inspections

Number of Inspections

Regularly scheduled = 11 + written report from [REDACTED]

Hours Spent by Voting Members on Regularly Scheduled Inspections

Total = ~38

Number of Rooms Inspected

Total = 518: Facility = 454, Lab = 61, Core Unit = 3

Minor Deficiencies**Expired Items:** 25, up from 18 Spring 2016

Drugs AAE* = 3

Other Drugs** = 4 [1 Facility 2nd Repeat [REDACTED]Other Medical Materials = 15 [3 Facility 2nd Repeat [REDACTED]

Food/Treats = 2 [1 Facility Repeat Primate [REDACTED] 1 Lab Repeat]

Cleaner/Disinfectant = 0

Human Safety/First Aid = 1

* AAE- Anesthetic, Analgesic or Euthanasia agent

** Includes experimental drugs

Infrastructure: 10, down from 15 in Spring 2016

Paint/walls/floors etc. = 3

Light covers or bulbs = 6

Other = 1

Records/Logs/Labels: 11, up from 8 in Spring 2016Unlabeled containers = 7 [1 Facility Repeat Primate [REDACTED] 1 Facility 2nd Repeat [REDACTED]

Eyewash Station logs = 2

Husbandry & Water Quality logs = 2

Safety: 5, down from 9 Spring 2016Electrical cords on floor = 2 [1 Repeat [REDACTED] Labs, 1 2nd Repeat [REDACTED] Labs]

Other = 3

Housekeeping/General: 10, down from 14 Spring 2016

Insects or debris in light fixtures = 6 [1 Facility Repeat [REDACTED] 1 Facility Repeat [REDACTED]

General = 4 [1 Facility Repeat [REDACTED]

Welfare: 2 same as Spring 2016

1 outdated husbandry SOP [Repeat [REDACTED] lab]

1 water quality reading out of range

/Volumes/PROTOCOL Server/FACILITY INSP ACTIVE/7:16-12:16/LSVC/LSVC Fall 2016 Program Review Report on Semi.docx

Appendix 9: IACUC/OB Periodic Report (page 22 of 24)**LSVC ACUC Fall 2016 Protocol Review Statistics****for Worksheet
Sec. VI-G****Number of Protocols Reviewed and Approved in the six-month period preceding program review
(4/13/2016 – 10/13/2016)**

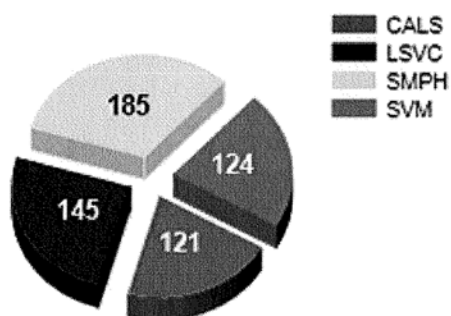
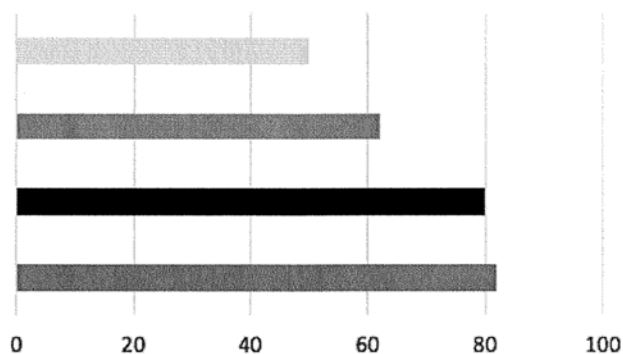
	Spring 2016	Fall 2016
New/Renewals	43	22
Amendments	66	70*
Total	109	92

Turn-around time (in Days) for Protocols Reviewed and Approved during this period

New or Renewals	Spring 2016	Fall 2016
Mean	29.4	19.7
Median	27	19
Range	10-61	3-32

Amendments	Spring 2016	Fall* 2016
Mean	19.3	12.5
Median	16	11
Range	0-51	0-53

*Includes amendments approved through Veterinary Verification and Consultation (VVC) in which the changes may be implemented immediately after vet consultation. Slightly over a quarter of the LSVC amendments (26%) approved this cycle were via this process (see below).

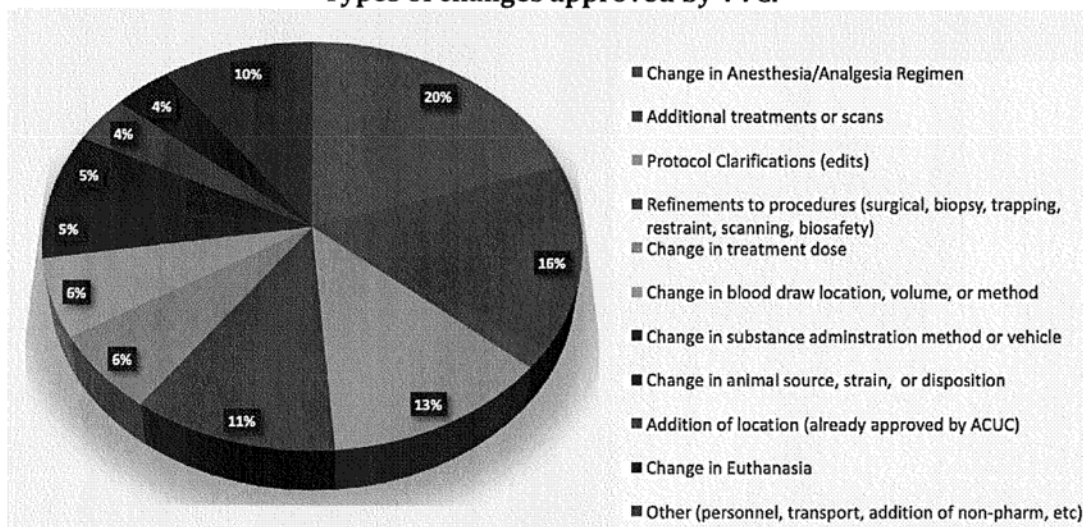
Campus-wide ARROW Statistics**Protocols by Committee****Percent of Active Protocols in ARROW**

Appendix 9: IACUC/OB Periodic Report (page 23 of 24)

Campus-Wide VVC Summary

In the first six months since VVC was enacted, sixty protocols were modified by this means.

Types of changes approved by VVC.



Feedback from PIs on VVC

I thought the VVC was great. It was extremely rapid and allowed us to move forward in a timely fashion.

I think this is awesome for the PI. As a veterinarian and a PI, this has helped me tremendously a couple of times. It helped continue a time-sensitive study by allowing me to simply add another dose of drug instead of having to completely stop and wait for an amendment. It also allowed me to start organizing a study quickly because all I had to do is add a single acupuncture point to a protocol that had other points already in it. I have found the VVC to be wonderful. However, I worry that the vets will be overwhelmed :(

This program allowed us to follow-up on a newly observed phenomenon in a time-sensitive project. Without this program, this opportunity to characterize a finding of potentially significant clinical importance may have been lost.

During a protocol-approved experimental procedure, we observed a new phenomenon of potentially great value to anesthesiology and coma treatment. If we were to characterize this phenomenon in the remaining experiments of the series (after which the neural recording equipment would be repositioned/removed), we would need to make an adjustment to the procedure. The VVC program allowed us adjust the procedure as required in time for the next experiment date, and we have since reliably reproduced the phenomenon. Consultations with the veterinary staff at the WNPRC throughout the entire timeline of these events was very valuable. Had the VVC program not existed, it is unlikely that the usual protocol amendment process would have been completed in time to allow the necessary procedural adjustment and thus we may not have been able to determine the important factors giving rise to our finding.

This was very useful for me when I wanted to add additional biosafety information to my protocol (sign, MSDS, SOP etc). The study itself had already been approved, but as we met with animal care staff, I realized that I wanted them to have access to these materials. The expedited process was much easier than a full amendment.

This is an excellent policy and allowed us to begin and finish a study without delay. I found it to significantly enhance our ability to conduct research and do so while trained individuals were around at the right time and we spent less time training individuals to conduct the behavioral studies.

I used VVC to amend my protocol. It saved me a lot of time, was efficient, and was very helpful.

Appendix 9: IACUC/OB Periodic Report (page 24 of 24)**Worksheet Sec. VI-H**

As of November 2, 2016, the L&S and GRAD animal programs currently have the following departures from the Guide approved in protocols (out of 236 approved protocols total, 148 ARROW and 88 non-ARROW):

- 97 protocols (9 approved in the last six months) for housing animals individually for experimental or veterinary reasons:
 - to minimize heat sources in order to induce torpor
 - to reduce the effect of social housing on social behavioral testing
 - to precisely measure food intake and digestive efficiency in individual study animals
 - to preserve the health status of animals enrolled in infectious disease studies
 - after female frogs are induced to ovulate so that the egg quality of individual animals can be precisely evaluated
- 19 protocols (1 approved in the last six months) that involves restraint for more than one hour for the following reasons:
 - pole/collar and chair restraint of macaques for semen collection
 - to restrict the movement of sheep to allow precise oxygen delivery in order to model submariner ascent
- 23 protocols (1 approved in the last six months) that involve food or fluid regulation for the following reasons:
 - to prevent methane gas production in the digestive tract and avoid bloating in sheep
 - to ensure blood glucose and insulin levels return to baseline prior to blood sampling
 - motivation to perform behavioral tasks or instrumental conditioning for study purposes
- 68 protocols (8 approved in the last six months) that use non-pharmaceutical grade compounds for the following reasons:
 - no pharmaceutical-grade formulation is available
 - an equivalent veterinary or human drug is available for experimental use but the chemical-grade reagent is required to replicate methods from previous studies because results are directly compared to those of replicated studies
 - the equivalent veterinary or human drug is not available in the concentration or formulation appropriate to meet experimental requirements
 - the available human or veterinary drug does not meet the nontoxic vehicle requirements for the specified route of injection or for the proposed research species

Spring 2016 program review data for comparison:

- 88 protocols approved for housing animals individually for experimental or veterinary reasons
- 19 protocols that involve restraint for more than one hour
- 22 protocols that involve food or fluid regulation
- 76 protocols use non-pharmaceutical grade compounds

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Summarize the heating, ventilation and air conditioning (HVAC) information for each animal facility, including all satellite facilities, indicating: a) source(s) of air, b) air recirculation rates if other than 100% fresh air, c) air exchange rates, d) relative pressure differentials, e) humidity control, and f) date of most recent measurement/evaluation. 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, etc.). Air exchange rates within animal holding rooms and cage washing facilities are required. 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. HVAC information should be provided from assessments obtained within the past 12 months.

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary

AAALAC CERTIFICATION DATA LEGEND

2017 AAALAC CERTIFICATION DATA

AIRFLOW MEASUREMENT TEST EQUIPMENT USED:

Shortridge ADM-860,870 or 880 used with the following accessories:

- A. pito tube
- B. velgrid
- C. airfoil
- D. 14"x14" airflow hood, short skirt
- E. 12"x48" airflow hood
- F. 5 ¼" x 47" airflow hood
- G. 24"x24" airflow hood
- H. 36"x36" airflow hood
- I. 24"x48" airflow hood
- J. 14"x14" airflow hood, long skirt
- K. 10"x18"x30" airflow hood
- L. 36"x12" airflow hood
- U. Unknown


AIR FILTER TYPES:

- M. pleated filters
- N. rolled filters
- O. bag filters
- P. HEPA filters
- Q. TA filters
- R. washable metal filters
- S. varicell filters
- T. cartridge filters


HUMIDITY CONTROL:

- W. system humidification
- X. room humidification
- Y. system humidification and room humidification
- Z. branch humidification


Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – Biotron Laboratory

<div>  <div> 2017 AAALAC CERTIFICATION DATA </div> <div> Bldg. No. [REDACTED] </div> </div> <div> Page 1 of 2 </div>											
ROOM NO.	ROOM USAGE	ROOM VOLUME (FT³)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	procedure	3874	100% OA	O	G	negative	610	9.4	-.005	W	05/17/17
[REDACTED]	rodents	2142	100% OA	O	A Rm [REDACTED]	positive	739	20.7	.020	Y	05/17/17
[REDACTED]	rodents	2142	100% OA	O	A Rm [REDACTED]	positive	755	21.1	.13	Y	05/17/17
[REDACTED]	mice	2208	100% OA	O	A Rm [REDACTED]	negative	507	13.8	-.011	Y	05/17/17
[REDACTED]	chambers	11487	100% OA	O	A Rm [REDACTED]	negative	1319	6.9	-.002	W	05/17/17
[REDACTED]	procedure	2711	100% OA	O	G	negative	630	13.9	-.0015	W	05/17/17
[REDACTED]	rodents	2699	100% OA	O	A Rm [REDACTED]	positive	633	14.1	.009	Y	05/17/17
[REDACTED]	rodents	2699	100% OA	O	A Rm [REDACTED]	positive	613	13.6	.108	Y	05/17/17
[REDACTED]	procedure	1377	100% OA	O	G	positive	208	9.1	-.002	W	05/17/17
[REDACTED]	mice	3575	100% OA	O	G & A	negative	279	4.7	-.004	Y	05/17/17
[REDACTED]	procedure	2573	100% OA	O	G	negative	380	8.9	-.019	W	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	214	14.0	-.0385	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	215	14.1	-.236	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	196	12.8	-.049	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	226	14.8	-.049	Y	05/17/17
[REDACTED]	procedure	2573	100% OA	O	G	negative	210	4.9	-.005	W	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	208	13.6	-.96	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	204	13.3	-.18	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	216	14.1	-.29	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	206	13.5	-.41	Y	05/17/17
[REDACTED]	procedure	2573	100% OA	O	G	negative	270	6.3	-.005	W	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	211	13.8	-.018	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	194	12.7	-.18	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	184	12.0	-.043	Y	05/17/17
[REDACTED]	rodents	918	100% OA	O	A	negative	214	14.0	-.18	Y	05/17/17
[REDACTED]	surgery	3780	100% OA	O	B	negative	977	15.5	-0.028	W	5/17/17
[REDACTED]	cage wash -clean	3348	100% OA	O	I	positive	2962	53.1	.003	None	05/17/17
[REDACTED]	cage wash-dirty	4050	100% OA	O	I	negative	1680	24.9	-.017	None	05/17/17
[REDACTED]	rodents	1904	100% OA	O	A	negative	501	15.8	-.001	Y	5/17/17

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – Biotron Laboratory

<div>  <div> 2017 AAALAC CERTIFICATION DATA </div> <div> Page 2 of 2 </div> </div>											
<div> <div> THE UNIVERSITY WISCONSIN MADISON </div> <div> Bldg. No. [REDACTED] </div> </div>											
ROOM NO.	ROOM USAGE	ROOM VOLUME (FT^3)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	storage	5490	100% OA	O	J	positive	318	3.5	.0014	W	05/17/17
[REDACTED]	procedure	1510	100% OA	O	B	negative	699	27.8	-.0005	W	05/17/17
[REDACTED]	rodents	4320	100% OA	O	A Rm [REDACTED]	positive	1374	19.1	.005	Y	05/17/17
[REDACTED]	procedure	2573	100% OA	O	G	negative	262	6.1	-.0015	W	05/17/17
[REDACTED]	mice	714	100% OA	O	A	negative	197	16.6	-.008	Y	05/17/17
[REDACTED]	mice	714	100% OA	O	A	negative	208	17.5	-.002	Y	05/17/17
[REDACTED]	mice	714	100% OA	O	A	negative	279	23.4	-.004	Y	05/17/17
[REDACTED]	mice	714	100% OA	O	A	negative	205	17.2	-.016	Y	05/17/17
[REDACTED]	rodents	11525	100% OA	O	A Rm [REDACTED]	positive	2518	13.1	.094	Y	5/17/17
[REDACTED]	procedure	3045	100% OA	O	B	positive	505	10.0	.095	W	5/17/17
[REDACTED]	procedure	1885	100% OA	O	G	positive	196	6.2	-.049	W	05/17/17

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – Waisman




2017 AAALAC CERTIFICATION DATA

Bldg. No. [REDACTED]

Page 1 of 1

ROOM NO.	ROOM USAGE	ROOM VOLUME (FT^3)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	necropsy	720	100% OA	P	A	negative	617	51.4	-0.021	W	01/13/17
[REDACTED]	procedure	884	100% OA	P	B	negative	416	28.2	-0.055	W	01/13/17
[REDACTED]	mouse	1402	100% OA	P	A	negative	389	16.6	-0.054	W	01/13/17
[REDACTED]	mouse	1334	100% OA	P	A	negative	334	15.0	-0.061	Y	01/13/17
[REDACTED]	procedure	892	100% OA	P	A	positive	226	15.2	0.046	Y	01/13/17
[REDACTED]	rat	1462	100% OA	P	A	negative	431	17.7	-0.059	Y	01/13/17
[REDACTED]	mouse	918	100% OA	P	A	negative	265	17.3	-0.127	Y	01/13/17
[REDACTED]	mouse	3170	100% OA	P	A	negative	804	15.2	-0.015	Y	01/13/17
[REDACTED]	procedure	1504	100% OA	P	A	positive	666	26.6	0.076	W	01/13/17
[REDACTED]	storage	2363	100% OA	P	A	positive	421	10.7	0.005	Y	01/13/17
[REDACTED]	mouse	2218	100% OA	P	A	negative	561	15.2	-0.021	Y	01/13/17
[REDACTED]	clean cagewash	5349	100% OA	P	G	positive	3342	37.5	0.016	W	01/13/17
[REDACTED]	procedure	1504	100% OA	P	A	negative	1087	43.4	-0.026	W	01/13/17
[REDACTED]	mouse	1496	100% OA	P	A	negative	355	14.2	-0.037	Y	01/13/17
[REDACTED]	mouse	1539	100% OA	P	A	negative	398	15.5	-0.056	Y	01/13/17
[REDACTED]	mouse	1496	100% OA	P	A	negative	390	15.6	-0.125	Y	01/13/17
[REDACTED]	mouse	3162	100% OA	P	A	negative	804	15.3	-0.066	Y	01/13/17
[REDACTED]	clean intake	864	100% OA	P	A	(1) positive	507	35.2	(1) .0004	W	01/13/17
[REDACTED]	dirty cagewash	4573	100% OA	P	G	negative	1176	15.4	-0.012	W	01/13/17
[REDACTED]	dirty intake	877	100% OA	P	A	(2) negative	360	24.6	(2) -.0004	W	01/13/17
[REDACTED]	quarantine	880	100% OA	P	G	negative	278	19.0	-0.040	W	01/13/17
[REDACTED]	mouse	944	100% OA	P	A	negative	225	14.3	-0.048	Y	01/13/17
[REDACTED]	mouse	935	100% OA	P	A	negative	240	15.4	-0.071	Y	01/13/17
[REDACTED]	rat	1008	100% OA	P	A	negative	325	19.3	-0.0120	Y	01/13/17
[REDACTED]	surgery	1336	100% OA	P	A	positive	539	24.2	0.021	W	01/13/17
[REDACTED]	procedure	1080	100% OA	P	G*	positive	244	13.6	0.097	Y	01/13/17
						(1) room pressure to [REDACTED]	thru BSC / -.029 to corridor.				
						(2) room pressure to [REDACTED]	thru BSC / -.019 to corridor.				
G* Indicates flow hood extension for lab style S/A diffuser											

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC, Blue Mounds



**THE UNIVERSITY
of
WISCONSIN
MADISON**


2017 AAALAC CERTIFICATION DATA

Bldg. No. [REDACTED]

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ROOM NO.	ROOM USAGE	ROOM VOLUME (FT ³)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	PROCEDURE	1750	100% OA	P	A	negative	300	10.3	-0.122	W	6/6/17
[REDACTED]	PROCEDURE	1513	100% OA	P	A	negative	412	16.3	-0.070	W	06/06/17
[REDACTED]	PROCEDURE	2700	100% OA	P	A	negative	537	11.9	-0.015	W	06/06/17
[REDACTED]	PROCEDURE	2899	100% OA	P	A	negative	930	19.2	-0.048	W	06/06/17
[REDACTED]	PROCEDURE	2899	100% OA	P	A	negative	1166	24.1	-0.050	W	06/06/17
[REDACTED]	CAGEWASH	10827	100% OA	P	A	negative	1341	7.4	-0.0007	W	06/06/17
[REDACTED]	MONKEY	5513	100% OA	P	A	negative	1065	11.6	-0.080	W	06/06/17
[REDACTED]	MONKEY	10829	100% OA	P	A	negative	1832	10.2	-0.075	W	06/06/17
[REDACTED]	MONKEY	5513	100% OA	P	A	negative	1093	11.9	-0.043	W	06/06/17
[REDACTED]	MONKEY	5513	100% OA	P	A	negative	1030	11.2	-0.034	W	06/06/17
[REDACTED]	MONKEY	10829	100% OA	P	A	negative	2657	14.7	-0.011	W	06/06/17
[REDACTED]	MONKEY	5513	100% OA	P	A	negative	1031	11.2	-0.141	W	06/06/17
[REDACTED]	MONKEY	17746	100% OA	P	A	negative	3512	11.9	-0.142	W	06/06/17
[REDACTED]	MONKEY	15525	100% OA	P	A	negative	6164	23.8	-0.099	W	06/06/17
[REDACTED]	MONKEY	18398	100% OA	P	A	negative	5745	18.7	-0.029	W	06/06/17

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC Bldg. 1




2017 AAALAC CERTIFICATION DATA

Bldg. No. [REDACTED]

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ROOM NO.	ROOM USAGE	ROOM VOLUME (FT^3)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	monkey	8746	100% OA	Q	G	negative	2100	14.4	-0.013	W	6/1/17
[REDACTED]	monkey	4597	100% OA	Q	A [REDACTED]	negative	1201	15.7	-0.0034	W	6/1/17
[REDACTED]	monkey	1651	100% OA	Q	A [REDACTED]	negative	494	18.0	-0.005	W	6/1/17
[REDACTED]	monkey	2002	100% OA	Q	A	negative	879	26.3	-0.002	W	6/1/17
[REDACTED]	monkey	3485	100% OA	Q	A	negative	1431	24.6	-0.0007	W	6/1/17
[REDACTED]	prep	2024	100% OA	Q	D	negative	526	15.6	-0.0034	W	6/1/17
[REDACTED]	monkey	2066	100% OA	Q	A [REDACTED]	negative	770	22.4	-0.0025	W	6/1/17
[REDACTED]	monkey	2106	100% OA	Q	A	negative	674	19.2	-0.002	W	6/1/17
[REDACTED]	surgery	1883	100% OA	Q	A	positive	548	17.5	0.0167	W	6/1/17
[REDACTED]	prep	1186	100% OA	Q	D	positive	260	13.2	0.004	W	6/1/17
[REDACTED]	research	2091	100% OA	Q	D	negative	464	13.3	-0.0015	W	6/1/17
[REDACTED]	meds	1246	100% OA	Q	D	negative	283	13.6	-0.006	W	6/1/17
[REDACTED]	recovery	1216	100% OA	Q	D	negative	465	22.9	-0.004	W	6/1/17
[REDACTED]	research	1623	100% OA	Q	D	negative	731	27.0	-0.002	W	6/1/17
[REDACTED]	research	1423	100% OA	Q	D	negative	315	13.3	-0.012	W	6/1/17
[REDACTED]	monkeys	1244	100% OA	Q	G	negative	475	22.9	-0.031	W	6/1/17
[REDACTED]	prep	1078	100% OA	Q	A	negative	1018	56.7	-0.02	W	6/1/17
[REDACTED]	research	1244	100% OA	Q	G	negative	482	23.2	-0.028	W	6/1/17
[REDACTED]	research	1931	100% OA	Q	D	negative	690	21.4	-0.0024	W	6/1/17
[REDACTED]	monkeys	3381	100% OA	Q	C	negative	1519	27.0	-0.0017	W	6/1/17
[REDACTED]	research	2091	100% OA	Q	A [REDACTED]	negative	546	15.7	-0.0007	W	6/1/17
[REDACTED]	monkeys	2521	100% OA	Q	G	negative	765	18.2	-0.003	W	6/1/17
[REDACTED]	monkeys	2091	100% OA	Q	A [REDACTED]	negative	815	23.4	-0.0014	W	6/1/17
[REDACTED]	monkeys	2091	100% OA	Q	A [REDACTED]	negative	1102	31.6	-0.01	W	6/1/17
[REDACTED]	research	1565	100% OA	Q	D	negative	497	19.1	-0.003	W	6/1/17
[REDACTED]	research	614	100% OA	Q	G	negative	525	51.3	-0.002	W	6/1/17
[REDACTED]	monkeys	2106	100% OA	Q	D	negative	739	21.1	-0.003	W	6/1/17
[REDACTED]	monkeys	2091	100% OA	Q	A [REDACTED]	negative	934	26.8	-0.019	W	6/1/17
[REDACTED]	monkeys	2091	100% OA	Q	A	negative	540	15.5	-0.0016	W	6/1/17
[REDACTED]	monkeys	4597	100% OA	Q	G	negative	1356	17.7	-0.0016	W	6/1/17

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC Bldg. 2



2017 AAALAC CERTIFICATION DATA


Bldg. No. [REDACTED]

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ROOM NO.	ROOM USAGE	ROOM VOLUME (FT³)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	monkey	3880	100% OA	M, O	A Rm [REDACTED]	negative	1008	15.6	-0.047	Y	05/25/17
[REDACTED]	prep	1067	100% OA	M, O	G	positive	301	16.9	0.044	Y	05/25/17
[REDACTED]	monkey	4042	100% OA	M, O	A Rm [REDACTED]	negative	1024	15.2	-0.020	Y	05/25/17
[REDACTED]	monkey	2425	100% OA	M, O	A Rm [REDACTED]	negative	941	23.3	-0.037	Y	05/25/17
[REDACTED]	monkey	1373	100% OA	M, O	A Rm [REDACTED]	negative	314	13.7	-0.063	Y	05/25/17
[REDACTED]	monkey	1692	100% OA	M, O	A Rm [REDACTED]	negative	375	13.3	-0.007	Y	05/25/17
[REDACTED]	monkey	2425	100% OA	M, O	A Rm [REDACTED]	negative	565	14.0	-0.011	Y	05/25/17
[REDACTED]	monkey	4042	100% OA	M, O	A Rm [REDACTED]	negative	997	14.8	-0.016	Y	05/25/17
[REDACTED]	monkey	4042	100% OA	M, O	B	negative	704	10.5	-0.038	Y	05/25/17
[REDACTED]	monkey	4042	100% OA	M, O	B	negative	917	13.6	-0.011	Y	05/25/17
[REDACTED]	monkey	960	100% OA	M, O	G	negative	203	12.7	-0.007	Y	05/25/17
[REDACTED]	procedure	960	100% OA	M, O	I	negative	223	13.9	-0.002	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I*	negative	848	16.3	-0.011	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	I*	negative	813	15.5	-0.003	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	I*	negative	940	18.0	-0.015	Y	05/25/17
[REDACTED]	prep	1593	100% OA	M, O	G	negative	375	14.1	-0.0004	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I	negative	836	16.1	-0.011	Y	05/25/17
[REDACTED]	prep	1593	100% OA	M, O	G	negative	424	16.0	-0.003	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	I	negative	700	13.4	-0.0030	Y	05/25/17
[REDACTED]	storage	1602	100% OA	M, O	G	negative	555	20.8	-0.0050	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	I	negative	747	14.3	-0.003	Y	05/25/17
[REDACTED]	prep	1566	100% OA	M, O	G*	positive	444	17.0	0.007	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I	negative	951	18.3	-0.022	Y	05/25/17
[REDACTED]	prep	1602	100% OA	M, O	G	negative	528	19.8	-0.004	Y	05/25/17
[REDACTED]	cage wash (clean)	8960	100% OA	M, O	G	negative	2627	17.6	-0.073	Y	05/25/17
[REDACTED]	cage wash (dirty)	7376	100% OA	M, O	I	negative	2099	17.1	-0.074	Y	05/25/17
[REDACTED]	atrium	1116	100% OA	M, O	A Rm [REDACTED]	negative	419	22.5	-0.003	Y	05/25/17
[REDACTED]	prep	1059	100% OA	M, O	G*	negative	223	12.6	-0.010	Y	05/25/17
[REDACTED]	monkey	1053	100% OA	M, O	G*	negative	459	26.2	-0.017	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	I*	negative	811	15.5	-0.008	Y	05/25/17


* Indicates flow hood extension for lab style S/A diffuser

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC Bldg. 2

<div>  <div> 2017 AAALAC CERTIFICATION DATA <div>Bldg. No. [REDACTED]</div> </div> </div> <div>Page 2 of 3</div>											
ROOM NO.	ROOM USAGE	ROOM VOLUME (FT ³)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	prep	1059	100% OA	M, O	G*	negative	251	14.2	-0.003	Y	05/25/17
[REDACTED]	monkey	1053	100% OA	M, O	G*	negative	503	28.7	-0.007	Y	05/25/17
[REDACTED]	recovery	3015	100% OA	M, O	I	negative	667	13.3	-0.006	Y	05/25/17
[REDACTED]	prep	3169	100% OA	M, O	I	positive	711	13.5	0.001	Y	05/25/17
[REDACTED]	prep	1854	100% OA	M, O	G	negative	490	15.9	-0.0005	Y	05/25/17
[REDACTED]	prep	602	100% OA	M, O	G	negative	122	12.2	-0.006	Y	05/25/17
[REDACTED]	atrium	395	100% OA	M, O	G	negative	120	18.2	-0.006	Y	05/25/17
[REDACTED]	prep	1534	100% OA	M, O	G*	negative	349	13.7	-0.001	Y	05/25/17
[REDACTED]	atrium	396	100% OA	M, O	G	negative	130	19.7	-0.013	Y	05/25/17
[REDACTED]	prep	1059	100% OA	M, O	G*	negative	254	14.4	-0.007	Y	05/25/17
[REDACTED]	monkey	1953	100% OA	M, O	G*	negative	507	15.6	-0.003	Y	05/25/17
[REDACTED]	animal	1692	100% OA	M, O	G	negative	435	15.4	-0.012	Y	05/25/17
[REDACTED]	surgery	2106	100% OA	M, O	G	positive	536	15.3	0.0016	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	I*	negative	769	14.7	-0.011	Y	05/25/17
[REDACTED]	prep	4536	100% OA	M, O	G	negative	483	6.4	-0.0040	Y	05/25/17
[REDACTED]	surgery	2484	100% OA	M, O	G	positive	519	12.5	0.005	Y	05/25/17
[REDACTED]	necropsy	1854	100% OA	M, O	I	negative	1384	44.8	-0.0015	Y	05/25/17
[REDACTED]	prep	1782	100% OA	M, O	G*	positive	471	15.9	0.0007	Y	05/25/17
[REDACTED]	monkey	2871	100% OA	M, O	I	negative	724	15.1	-0.011	Y	05/25/17
[REDACTED]	prep	2403	100% OA	M, O	G	negative	407	10.2	-0.004	Y	05/25/17
[REDACTED]	monkey	1827	100% OA	M, O	G	negative	496	16.3	-0.005	Y	05/25/17
[REDACTED]	monkey	1836	100% OA	M, O	G	negative	525	17.2	-0.002	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I	negative	817	15.7	-0.019	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I*	negative	722	13.9	-0.009	Y	05/25/17
[REDACTED]	monkey	2871	100% OA	M, O	I*	negative	721	15.1	-0.0003	Y	05/25/17
[REDACTED]	prep	2412	100% OA	M, O	G	negative	481	12.0	-0.0140	Y	05/25/17
[REDACTED]	monkey	1836	100% OA	M, O	G*	negative	511	16.7	-0.008	Y	05/25/17
[REDACTED]	monkey	1836	100% OA	M, O	G*	negative	450	14.7	-0.005	Y	05/25/17
[REDACTED]	prep	2403	100% OA	M, O	G	negative	470	11.7	-0.0006	Y	05/25/17
[REDACTED]	monkey	1827	100% OA	M, O	G	negative	512	16.8	-0.001	Y	05/25/17


* Indicates flow hood extension for lab style S/A diffuser

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC Bldg. 2

<div>  <div> 2017 AAALAC CERTIFICATION DATA Bldg. No. [REDACTED] </div> </div> <div>Page 3 of 3</div>											
ROOM NO.	ROOM USAGE	ROOM VOLUME (FT^3)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	monkey	1836	100% OA	M, O	G	negative	430	14.1	-0.001	Y	05/25/17
[REDACTED]	procedure	1773	100% OA	M, O	I*	positive	834	28.2	-0.031	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I	negative	761	14.6	-0.004	Y	05/25/17
[REDACTED]	prep	1008	100% OA	M, O	G	negative	324	19.3	-0.0008	Y	05/25/17
[REDACTED]	monkey	3290	100% OA	M, O	I*	negative	624	11.4	-0.017	Y	05/25/17
[REDACTED]	monkey	3123	100% OA	M, O	I*	negative	718	13.8	-0.021	Y	05/25/17
[REDACTED]	monkey	3290	100% OA	M, O	I*	negative	560	10.2	-0.033	Y	05/25/17
[REDACTED]	office	1539	100% OA	M, O	G*	positive	117	4.6	0.0005	Y	05/25/17
[REDACTED]	monkey	3290	100% OA	M, O	I*	negative	558	10.2	-0.036	Y	05/25/17
[REDACTED]	monkey	3141	100% OA	M, O	G*	negative	567	10.8	-0.008	Y	05/25/17
[REDACTED]	storage	7931	100% OA	M, O	G	negative	312	2.4	-0.027	Y	05/25/17


* Indicates flow hood extension for lab style S/A diffuser

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC, WIMR

<div>  <div> 2017 AAALAC CERTIFICATION DATA <div>Bldg. No. [REDACTED]</div> </div> </div> <div>Page 1 of 2</div>											
ROOM NO.	ROOM USAGE	ROOM VOLUME (FT³)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	necropsy	2017	100% OA	P	A	negative	403	12.0	-0.0090	W	12/30/16
[REDACTED]	lab	2220	100% OA	P	G	negative	763	20.6	-0.0008	W	12/30/16
[REDACTED]	lab	448	100% OA	P	G	negative	122	16.3	-0.0363	W	12/30/16
[REDACTED]	lab	470	100% OA	P	G	negative	130	16.6	-0.0306	W	12/30/16
[REDACTED]	lab	470	100% OA	P	G	negative	120	15.3	-0.0246	W	12/30/16
[REDACTED]	surgery	4066	100% OA	P	A	positive	1039	15.3	0.0061	W	12/30/16
[REDACTED]	recovery	2183	100% OA	P	A	negative	647	17.8	-0.0025	W	12/30/16
[REDACTED]	prep	1301	100% OA	P	A	negative	496	22.9	-0.0152	W	12/30/16
[REDACTED]	surgery	4108	100% OA	P	A	positive	1048	15.3	0.0053	W	12/30/16
[REDACTED]	prep	1230	100% OA	P	A	negative	422	20.6	-0.0043	W	12/30/16
[REDACTED]	treatment	1332	100% OA	P	A	negative	516	23.2	-0.0039	W	12/30/16
[REDACTED]	clean cage	7300	100% OA	P	A	positive	3415	28.1	0.0003	W	12/30/16
[REDACTED]	dirty cage	10221	100% OA	P	A	negative	3519	20.7	-0.0023	W	12/30/16
[REDACTED]	procedure	3328	100% OA	P	A	negative	872	15.7	-0.0063	W	12/30/16
[REDACTED]	procedure	1521	100% OA	P	A	positive	438	17.3	0.0003	W	12/30/16
[REDACTED]	procedure	1362	100% OA	P	A	negative	440	19.4	-0.0045	W	12/30/16
[REDACTED]	procedure	1264	100% OA	P	A	negative	362	17.2	-0.0025	W	12/30/16
[REDACTED]	animal	2832	100% OA	P	A	negative	968	20.5	-0.0047	W	12/30/16
[REDACTED]	animal	2832	100% OA	P	A	negative	899	19.0	-0.0401	W	12/30/16
[REDACTED]	animal	4259	100% OA	P	A	negative	1377	19.4	-0.0288	W	12/30/16
[REDACTED]	animal	2832	100% OA	P	A	negative	923	19.6	-0.0046	W	12/30/16
[REDACTED]	animal	4259	100% OA	P	A	negative	1178	16.6	-0.0220	W	12/30/16
[REDACTED]	procedure	4205	100% OA	P	A	negative	1126	16.1	-0.0104	W	12/30/16
[REDACTED]	animal	2687	100% OA	P	A	negative	970	21.7	-0.0253	W	12/30/16
[REDACTED]	lab	2712	100% OA	P	A	negative	1131	25.0	-0.0443	W	12/30/16
[REDACTED]	procedure	2985	100% OA	P	A	negative	918	18.5	-0.0037	W	12/30/16
[REDACTED]	procedure	1328	100% OA	P	A	negative	426	19.2	-0.0039	W	12/30/16
[REDACTED]	procedure	1328	100% OA	P	A	negative	413	18.7	-0.0037	W	12/30/16
[REDACTED]	animal	3232	100% OA	P	A	negative	991	18.4	-0.0152	W	12/30/16
[REDACTED]	animal	4016	100% OA	P	A	negative	1083	16.2	-0.0215	W	12/30/16

Appendix 10: Heating, Ventilation and Air Conditioning (HVAC) System Summary – WNPRC, WIMR

Page 2 of 2


2017 AAALAC CERTIFICATION DATA
Bldg. No. [REDACTED]

ROOM NO.	ROOM USAGE	ROOM VOLUME (FT ³)	AIR SUPPLY	AIR FILTER TYPE	TEST EQUIPMENT USED	DESIGN ROOM PRESSURE	MEASURED AIRFLOW SA (CFM) EX	AIR CHANGES (AC/HR)	STATIC PRESSURE (IN. W.C.)	HUMIDITY CONTROL	DATE ASSESSED
[REDACTED]	animal	2832	100% OA	P	A	negative	794	16.8	-0.0286	W	12/30/16
[REDACTED]	animal	4016	100% OA	P	A	negative	1070	16.0	-0.0203	W	12/30/16
[REDACTED]	animal	2832	100% OA	P	A	negative	960	20.3	-0.0102	W	12/30/16
[REDACTED]	Lab	2133	100% OA	P	A	negative	526	14.8	-0.0021	W	12/30/16
[REDACTED]	Prep	480	100% OA	P	A	negative	208	26.0		W	12/30/16
[REDACTED]	Animal test	560	100% OA	P	A	equal	157	16.8		W	12/30/16
[REDACTED]	Animal test	601	100% OA	P	A	equal	158	15.8		W	12/30/16
[REDACTED]	Animal test	601	100% OA	P	A	equal	148	14.8	-0.0005	W	12/30/16
[REDACTED]	Lab	1994	100% OA	P	A	negative	552	16.6		W	12/30/16
[REDACTED]	Animal test	601	100% OA	P	A	equal	149	14.9		W	12/30/16
[REDACTED]	Animal test	880	100% OA	P	A	equal	172	11.7		W	12/30/16
[REDACTED]	Lab	2150	100% OA	P	A	negative	534	14.9	-0.0025	W	12/30/16
[REDACTED]	Animal test	946	100% OA	P	A	equal	183	11.6		W	12/30/16
[REDACTED]	Animal test	887	100% OA	P	A	equal	169	11.4	-0.0008	W	12/30/16
[REDACTED]	procedure	1475	100% OA	P	A	negative	475	19.3		W	12/30/16
[REDACTED]	procedure	1537	100% OA	P	A	negative	514	20.1		W	12/30/16
[REDACTED]	procedure	1452	100% OA	P	A	negative	521	21.5	-0.0025	W	12/30/16

Appendix 11: Aquatic Systems Summary

Aquatic Systems Summary* – Part I

Please summarize water management and monitoring information programs for each animal facility, including all satellite facilities/rooms/enclosures. The following key will assist you in completing the form:

- (1) List location of aquaria, including outdoor enclosures (ponds or outdoor tanks). If indoors, list building and room number. Note that all species housed at the same location and maintained via the same design and monitoring may be listed in the same row.
- (2) Please indicate if embryonic (E), larval (L), juvenile (J) or Adult (A)
- (3) Group tanks (ponds, outdoor tanks, multiple aquaria) are arranged as arrays with shared water supply; individual aquaria have exclusive water handling systems.
- (4) Indicate water type, e.g., fresh, brackish, or marine.
- (5) Indicate water circulation, e.g., static, re-circulated, constant flow, or some combination of these. If applicable, indicate water exchange frequency and amount (percentage).
- (6) Provide a key word for filtration employed, e.g., biological, chemical, mechanical, etc. and type (e.g., mechanical-bead filter). A diagram may be provided showing the flow of water, filtration, source of “make-up” water and amount replaced daily.

Part I

Location (1)	Species (2)	System Design					
		Group / Individual (3)	Water Type (4)	Pre-treatment	Circulation (5)	Filtration (6)	Disinfection (e.g., UV, ozone)
██████, Room █████	Xenopus – Adult	Individual	Fresh	Inline filters (both carbon and fiber)	Recirculated	Biological: colonized beads Mechanical: fiber & carbon filters	UV

*Records of equipment maintenance (filter changes, UV bulb changes, probe changes, calibrations, etc.) should be available for review.

Appendix 11: Aquatic Systems Summary

Aquatic Systems Summary – Part II

Part II

Monitoring <i>Indicate in the boxes below the frequency of monitoring and method of control for the following parameters. (1)</i>									
Location (from Part I)	Temperature	Salinity	pH	NH ₄	NO ₂	NO ₃	Dissolved O ₂	Total Dissolved gases	Other. Please List (2):
Room	Daily: Auto	Daily: Auto	Daily: Auto	Weekly: Dropper Test	Weekly: Dropper Test	Weekly: Dropper Test	Monthly: Auto	Monthly	Conductivity: Auto; Carbonate hardness: Dropper test

(1) In these columns, please indicate monitoring frequency, e.g. daily, weekly, monthly or other point sampling frequency; continuous/real time, or none, if applicable. Also indicate method of control (heaters versus room HVAC, hand versus auto dosing, etc.).


(2) Indicate other parameters and their monitoring frequency, e.g., alkalinity, total hardness, conductivity, chlorine/chloramine, etc.

This information may be provided in another format, provided that all requested data is included.

Appendix 12: 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**
mice	14.7" x 9.2" x 5.5"	5	Guide	IVCS 
rat	17" x 8.5" x 8"	2	Guide	Static microisolator/polycarb
13 lined ground squirrel	13.5" x 9" x 7.5"	1	Guide	conventional open-topped polycarbonate

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).

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**
Xenopus	30 L	10	Guide	Open-topped polycarbonate tanks with retractable polycarbonate covers


*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).

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**
Lab Mouse	7.5" x 11.75" x 5" h	4	Guide	Polycarbonate Static Microisolator Cage Manufacturer: [REDACTED]
Lab Mouse	10.5" x 19" x 6" h	10	Guide	Polycarbonate Static Microisolator Cage Manufacturer: [REDACTED]
Lab Mouse	>75 in ²	5	Guide	Zyfone Static Microisolator Cage Manufacturer: [REDACTED]
Lab Mouse	13.5" x 7.0" x 6.5" to 8.5" h	5	Guide	Polycarbonate IVCS Manufacturer: [REDACTED] re [REDACTED]
Lab Mouse	81 in ²	5	Guide	100% PET plastic IVCs. BPA-Free. Recyclable. Manufacturer: [REDACTED]
Lab Rat	10.5" x 19" x 8" h	2	Guide	Polycarbonate Static Microisolator Cage Manufacturer: [REDACTED]
Lab Rat	141 in ²	2	Guide	100% PET plastic IVCs. BPA-Free. Recyclable. Manufacturer: [REDACTED]

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).



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**
Macaque	25" L x 27" W x 32" H	◆ 1	Animal Welfare Act Regulations, Guide	stainless steel mobile caging
Macaque	60" L x 60" W x 78 H	5	“	group caging
Marmoset	36" L x 24" W x 72" H	6	marmoset references	aluminum caging
Marmoset	24" L x 24" W x 72" H	4	marmoset references	aluminum mobile caging

◆ Maximum number of adult macaques per enclosure is 1, however a mother and young infant or two young weanlings could be housed in a single enclosure.

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).

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**
Macaque	23.75" L x 27" W x 30" H	◆ 1	Animal Welfare Act Regulations, Guide	Two-tiered stationary caging system
Macaque	34.5" L x 34" W x 36.75" H	◆ 1	“	“
Macaque	26.1" L x 24" W x 30" H	◆ 1	“	“
Macaque	26.5" L x 25" W x 30" H	◆ 1	“	“
Macaque	34.5" L x 32.75" W x 33.25" H	◆ 1	“	“
Macaque	34.5" L x 32.75" W x 36" H	◆ 1	“	“
Macaque	29.5" L x 28" W x 31" H	◆ 1	“	“
Macaque	34.5" L x 33.75" W x 33.75." H	◆ 1	“	“
Macaque	34.5" L x 33.75" W x 36.75." H	◆ 1	“	“
Macaque	33.75" L x 32.875" W x 33.75." H	◆ 1	“	“
Macaque	78" L x 120" W x 87" H x 2	15-20	“	Group pen

◆ Maximum number of adult macaques per enclosure is 1, however a mother and young infant or two young weanlings could be housed in a single enclosure.

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).

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**
Marmoset	36" L x 24" W x 72" H	6	marmoset references	aluminum caging
Marmoset	24" L x 24" W x 72" H	4	marmoset references	aluminum mobile caging
Marmoset	122" L x 52" W x 98.5" H	10	Animal Welfare Act Regulations, Guide	group pen
Marmoset	108" L x 120" W x 132" H	12	"	group pen
Macaque	60" L x 60" W x 78 H	5	"	group pen
Macaque	24" L x 26.25" W x 30" H	◆ 1	"	stainless steel mobile caging
Macaque	32" L x 27" W x 32" H	◆ 1	"	"
Macaque	31.25" L x 31" W x 33" H	◆ 1	"	"
Macaque	41.5" L x 28" W x 36" H	◆ 1	"	"
Macaque	24" L x 26.1" W x 30" H	◆ 1	"	"
Macaque	23" L x 27" W x 30" H	◆ 1	"	stainless steel stationary caging
Macaque	33.75" L x 32.875" W x 33.75" H	◆ 1	"	stainless steel stationary caging
Macaque	29.5" L x 27.25" W x 30.875" H	◆ 1	"	stainless steel stationary caging


(continued)

Macaque	12" L x 13.25" W x 12" H	◆ 1	“	polypropylene incubators
Macaque	18" L x 18" W x 30" H	◆ 1	“	polypropylene incubators
Macaque	41.5" L x 28" W x 36" H	◆ 1	“	“

◆ Maximum number of adult macaques per enclosure is 1, however a mother and young infant or two young weanlings could be housed in a single enclosure.

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).



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**
Macaque	31.25" L x 31" W x 33" H	◆ 1	Animal Welfare Act Regulations, Guide	stainless steel mobile caging
Macaque	34" L x 27" W x 32" H	◆ 1	Animal Welfare Act Regulations, Guide	stainless steel mobile caging

◆ Maximum number of adult macaques per enclosure is 1, however a mother and young infant or two young weanlings could be housed in a single enclosure.

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually ventilated cage systems (IVCS).

Appendix 13: 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	Other Comments
Micro-environment			
Solid-bottom cages (static)	Tunnel washer	weekly	Spot cleaning as needed
Solid-bottom cages (IVC)	Disposable	2 weeks	
Suspended wire-bottom or slotted floor cages	Tunnel washer	weekly	
Cage lids	Disposable		
Filter tops	wire in tunnel washer	weekly (wire)	
Cage racks and shelves	Tunnel washer	monthly	
Cage pans under suspended cages	Pressure washer	monthly	
Play pens, floor pens, stalls, etc.	not applicable		
Corrals for primates or outdoor paddocks for livestock	not applicable		
Aquatic, amphibian, and reptile tanks and enclosures	N/A	N/A	
Feeders	N/A	N/A	
Watering Devices	Disposable		
Exercise devices and manipulanda used in environmental enrichment programs, etc.	Tunnel washer	weekly	
Transport cages	Disposable		
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	Tunnel washer	weekly	
Euthanasia Chambers	Tunnel washer	weekly	Spot clean as needed


 (continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	Swept/Mopped	daily/weekly	
Walls	High or low-pressure washer	quarterly	Spot clean as needed
Ceilings	High or low-pressure washer	quarterly	Spot clean as needed
Ducts/Pipes	Hand washing	quarterly	Spot clean as needed
Fixtures	Hand washing	quarterly	Spot clean as needed
CORRIDORS			
Floors	mopped/floor scrubber	Daily/weekly	And as needed
Walls	Wall scrubber	quarterly	Spot clean as needed
Ceilings	N/A	N/A	
Ducts/Pipes	Hand washing	quarterly	Spot clean as needed
Fixtures	Hand washing	quarterly	Spot clean as needed
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	Swept/mopped	Daily/weekly	And as needed
Walls	Wall scrubber	quarterly	Spot clean as needed
Ceilings	Hand washed	quarterly	Spot clean as needed
Ducts/Pipes	Hand washed	quarterly	Spot clean as needed
Fixtures	Hand washed	quarterly	Spot clean as needed
IMPLEMENTS (note whether or not shared)			
Mops	Tunnel washer/not shared	weekly	

 (Continued)

Mop buckets	Tunnel washer/not shared	weekly	
Aquaria nets	N/A	N/A	
Other	N/A	N/A	
OTHER			
Vehicle(s)	Full service car wash	As needed	
Other transport equipment (list)	N/A	N/A	

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Micro-environment			
Solid-bottom cages (static)	N/A		
Solid-bottom cages (IVC)	N/A		
Suspended wire-bottom or slotted floor cages	N/A		
Cage lids	N/A		
Filter tops	N/A		
Cage racks and shelves	N/A		
Cage pans under suspended cages	N/A		
Play pens, floor pens, stalls, etc.	N/A		
Corrals for primates or outdoor paddocks for livestock	N/A		
Aquatic, amphibian, and reptile tanks and enclosures	Hand-washing with brine solution	Bi- monthly	Spot clean as needed
Feeders	N/A		
Watering Devices	N/A		
Exercise devices and manipulanda used in environmental enrichment programs, etc.	Hand washing	Bi-weekly	
Transport cages	N/A		
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	N/A		
Euthanasia Chambers	Hand washing	Bi-weekly	

 (continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	Broom sweeping/wet mopping	Weekly	
Walls	N/A		
Ceilings	N/A		
Ducts/Pipes	N/A		
Fixtures	N/A		
CORRIDORS			
Floors	N/A		
Walls	N/A		
Ceilings	N/A		
Ducts/Pipes	N/A		
Fixtures	N/A		
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	N/A		
Walls	N/A		
Ceilings	N/A		
Ducts/Pipes	N/A		
Fixtures	N/A		
IMPLEMENTS (note whether or not shared)			
Mops	Hand wringing	Weekly	


 (continued)

Mop buckets	Faucet-rinsed	Weekly	
Aquaria nets	Netsoak cleaning solution	Weekly	
Other			
OTHER			
Vehicle(s)			
Other transport equipment (list)			

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Micro-environment			
Solid-bottom cages (static)	Mechanical Tunnel Washer	Weekly	<u>Chemical agent:</u> Labsan 120 Detergent (Sanitation Strategies Inc.)
Solid-bottom cages (IVC)	Mechanical Tunnel Washer	Bi-Monthly	<u>Chemical agent:</u> Labsan 120 Detergent (Sanitation Strategies Inc.)
Suspended wire-bottom or slotted floor cages	N/A	N/A	
Cage lids	Mechanical Tunnel Washer	Monthly	<u>Chemical agent:</u> Labsan 120 Detergent (Sanitation Strategies Inc.)
Filter tops	Mechanical Tunnel Washer	Monthly	<u>Chemical agent:</u> Labsan 120 Detergent (Sanitation Strategies Inc.)
Cage racks and shelves	Pressure sprayer and foaming sanitizer	Monthly	<u>Chemical agent:</u> Labsan 120 Detergent (Sanitation Strategies Inc.)
Cage pans under suspended cages	N/A	N/A	
Play pens, floor pens, stalls, etc.	N/A	N/A	
Corrals for primates or outdoor paddocks for livestock	N/A	N/A	
Aquatic, amphibian, and reptile tanks and enclosures	N/A	N/A	
Feeders	Mechanical Tunnel Washer	Bi-Monthly	Chemical agent: Labsan 120 Detergent (Sanitation Strategies Inc.)
Watering Devices	N/A	N/A	
Exercise devices and manipulanda used in environmental enrichment programs, etc.	N/A	N/A	
Transport cages	N/A	N/A	Disposable caging used for Transportation
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	N/A	N/A	
Euthanasia Chambers	Mechanical Tunnel Washer	Weekly	<u>Chemical agent:</u> Labsan 120 Detergent (Sanitation Strategies Inc.)

(continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	Wash: hand mop	At least weekly	Labsan 256 CPQ Disinfectant Cleaner ()
Walls	Sanitize: by hand (wall mop)	Every 3 months	“
Ceilings	Sanitize: by hand (wall mop)	Every 3	“
Ducts/Pipes	Sanitize: by hand (wall mop)	months	“
Fixtures	Sanitize: by hand (wall mop)	Every 3 months	“
CORRIDORS			
Floors	Wash: hand mop Sanitize: by hand (floor mop)	Wash: at least daily Sanitize: every 6 months	Daily = Monday – Friday Labsan 256 CPQ Disinfectant Cleaner ()
Walls	Sanitize: by hand (wall mop)	Every 6 months	Labsan 256 CPQ Disinfectant Cleaner ()
Ceilings	Sanitize: by hand (wall mop)	Every 6 months	“
Ducts/Pipes	Sanitize: by hand (wall mop)	Every 6 months	“
Fixtures	Sanitize: by hand (wall mop)	Every 6 months	“
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	Wash: hand mop Sanitize: by hand (floor mop)	Wash: at least weekly Sanitize: every 6 months	Labsan 256 CPQ Disinfectant Cleaner ()

 (continued)

Walls	Sanitize: by hand (wall mop)	Every 6 months	“
Ceilings	Sanitize: by hand (wall mop)	Every 6 months	“
Ducts/Pipes	Sanitize: by hand (wall mop)	Every 6 months	“
Fixtures	Sanitize: by hand (wall mop)	Every 6 months	“
IMPLEMENTS (note whether or not shared)			
Mops	Laundry service or in-house laundry	Daily	Mops may be shared between rooms/areas with the same health status.
Mop buckets	Foaming sanitizer	Daily	Mop buckets may be shared between rooms/areas with the same health status.
Aquaria nets	N/A		
Other	N/A		
OTHER			
Vehicle(s)	N/A		
Other transport equipment (list)	N/A		Disposable equipment used for transpiration.

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Micro-environment			
Solid-bottom cages (static)	N/A		
Solid-bottom cages (IVC)	N/A		
Suspended wire-bottom or slotted floor cages	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Cage lids	N/A		
Filter tops	N/A		
Cage racks and shelves	N/A		
Cage pans under suspended cages	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Play pens, floor pens, stalls, etc.	High-pressure sprayers, foamers, hand washing,	daily/2 weeks	Spot cleaned when necessary
Corrals for primates or outdoor paddocks for livestock	N/A		
Aquatic, amphibian, and reptile tanks and enclosures	N/A		
Feeders	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Watering Devices	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	water lines to mobile cages are flushed every two hours.
Exercise devices and manipulanda used in environmental enrichment programs, etc.	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Transport cages	High-pressure sprayers, foamers, hand washing, mechanical washers	after each use/as needed	
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	High-pressure sprayers, foamers, hand washing, mechanical washers	after each use/as needed	

Euthanasia Chambers	N/A		
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(continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	High pressure sprayers, foamers, hand washing	daily/2 weeks	
Walls	High pressure sprayers, foamers, hand washing	once per day/2 weeks	
Ceilings	Hand washing	As needed	
Ducts/Pipes	N/A		
Fixtures	Hand washing	As needed	
CORRIDORS			
Floors	Brooms, mops, floor scrubber	At least 2 times/week	Floor scrubbed once per week
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	Broom, mops	As needed	Floor scrubbed as needed
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	

(continued)

IMPLEMENTS (note whether or not shared)			
Mops	Washed in deep sink	after each use	Old mop heads are disposed of when not cleanable
Mop buckets	Washed in deep sink	After each use	
Aquaria nets	N/A		
Other	N/A		N/A
OTHER			
Vehicle(s)	sweeping, mopping, hand washing, hose	After each use/2 weeks	sweeping, mopping, hand washing, hose
Other transport equipment (list)	N/A		N/A

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Micro-environment			
Solid-bottom cages (static)	N/A		
Solid-bottom cages (IVC)	N/A		
Suspended wire-bottom or slotted floor cages	High-pressure sprayers, foamers, hand washing	Daily/2 weeks	
Cage lids	N/A		
Filter tops	N/A		
Cage racks and shelves	N/A		
Cage pans under suspended cages	High-pressure sprayers, foamers, hand washing	Daily/2 weeks	
Play pens, floor pens, stalls, etc.	High pressure sprayers, foamers, hand washing	Daily/2 weeks	spot cleaned when necessary
Corrals for primates or outdoor paddocks for livestock	N/A		
Aquatic, amphibian, and reptile tanks and enclosures	N/A		
Feeders	High-pressure sprayers, foamers, hand washing	Daily/2 weeks	
Watering Devices	High-pressure sprayers, foamers, hand washing	Daily/2 weeks	water lines to stationary cages are flushed at least once per day.
Exercise devices and manipulanda used in environmental enrichment programs, etc.	High pressure sprayers, foamers, hand washing, dish washer, mechanical washer	Daily/2 weeks	
Transport cages	High-pressure sprayers, foamers, hand washing, mechanical washers	After each use / as needed	
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	High-pressure sprayers, foamers, hand washing, mechanical washers	After each use / as needed	
Euthanasia Chambers	N/A		

(continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	High-pressure sprayers, foamers, mops	Daily/weekly	
Walls	High-pressure sprayers, foamers	Daily/2 weeks	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	
CORRIDORS			
Floors	Brooms, mops, floor scrubber	At least 2 times/week	Floor scrubbed once per week
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	Broom, mops	As needed	Floor scrubbed as needed
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	

(continued)

IMPLEMENTS (note whether or not shared)			
Mops	Washed in deep sink	after each use	Old mop heads are disposed of when not cleanable
Mop buckets	Washed in deep sink	after each use	
Aquaria nets	N/A		
Other	N/A		
OTHER			
Vehicle(s)	sweeping, mopping, hand washing, hose	after each use/2 weeks	sweeping, mopping, hand washing, hose
Other transport equipment (list)	N/A		

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Micro-environment			
Solid-bottom cages (static)	N/A		
Solid-bottom cages (IVC)	N/A		
Suspended wire-bottom or slotted floor cages	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Cage lids	N/A		
Filter tops	N/A		
Cage racks and shelves	N/A		
Cage pans under suspended cages	High-pressure sprayers, foamers, hand washing	daily/2 weeks	
Play pens, floor pens, stalls, etc.	High-pressure sprayers, foamers, hand washing,	daily/2 weeks	spot cleaned when necessary
Corrals for primates or outdoor paddocks for livestock	N/A		
Aquatic, amphibian, and reptile tanks and enclosures	N/A		
Feeders	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Watering Devices	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	Water lines to stationary cages are flushed at least once per day and Edstrom water lines to mobile cages are flushed every two hours.
Exercise devices and manipulanda used in environmental enrichment programs, etc.	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Transport cages	High-pressure sprayers, foamers, hand washing, mechanical washers	after each use/as needed	
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	High-pressure sprayers, foamers, hand washing, mechanical washers	after each use / as needed	

Euthanasia Chambers	N/A		
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(continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	High pressure sprayers, foamers, hand washing	daily/2 weeks	
Walls	High pressure sprayers, foamers, hand washing	once per day/2 weeks	
Ceilings	Hand washing	As needed	
Ducts/Pipes	N/A		
Fixtures	Hand washing	As needed	
CORRIDORS			
Floors	Brooms, mops, floor scrubber	At least 2 times/week	Floor scrubbed once per week
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	Broom, mops	As needed	Floor scrubbed as needed
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	

[REDACTED] (continued)

IMPLEMENTS (note whether or not shared)			
Mops	Washed in deep sink	after each use	Old mop heads are disposed of when not cleanable
Mop buckets	Washed in deep sink	after each use	
Aquaria nets	N/A		
Other	N/A		
OTHER			
Vehicle(s)	sweeping, mopping, hand washing, hose	after each use/2 weeks	sweeping, mopping, hand washing, hose
Other transport equipment (list)	N/A		

[REDACTED]			
Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Micro-environment			
Solid-bottom cages (static)	NA		
Solid-bottom cages (IVC)	NA		
Suspended wire-bottom or slotted floor cages	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Cage lids	N/A		
Filter tops	N/A		
Cage racks and shelves	N/A		
Cage pans under suspended cages	High-pressure sprayers, foamers, hand washing	daily/2 weeks	
Play pens, floor pens, stalls, etc.	N/A		
Corrals for primates or outdoor paddocks for livestock	N/A		
Aquatic, amphibian, and reptile tanks and enclosures	N/A		
Feeders	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Watering Devices	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	water lines to stationary cages are flushed at least once per day and [REDACTED] lines to mobile cages are flushed every two hours.
Exercise devices and manipulanda used in environmental enrichment programs, etc.	High-pressure sprayers, foamers, hand washing, mechanical washers	daily/2 weeks	
Transport cages	High-pressure sprayers, foamers, hand washing, mechanical washers	after each use/as needed	
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	High-pressure sprayers, foamers, hand washing, mechanical washers	after each use / as needed	
Euthanasia Chambers	NA		N/A

(Continued)

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Other Comments
Macro-Environment			
ANIMAL ROOMS			
Floors	High pressure sprayers, foamers, hand washing	daily/2 weeks	
Walls	High pressure sprayers, foamers, hand washing	once per day/2 weeks	
Ceilings	Hand washing	As needed	
Ducts/Pipes	N/A		
Fixtures	Hand washing	As needed	
CORRIDORS			
Floors	Mopped/floor scrubber	Daily/	
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:			
Floors	Broom, mops	As needed	Floor scrubbed as needed
Walls	Hand washing	As needed	
Ceilings	Hand washing	As needed	
Ducts/Pipes	Hand washing	As needed	
Fixtures	Hand washing	As needed	
IMPLEMENTS (note whether or not shared)			
Mops	Washed in deep sink	after each use	Old mop heads are disposed of when not cleanable

[REDACTED] (Continued)

Mop buckets	Washed in deep sink	after each use	
Aquaria nets	N/A		
Other	N/A		
OTHER			
Vehicle(s)	sweeping, mopping, hand washing, hose	after each use/2 weeks	sweeping, mopping, hand washing, hose
Other transport equipment (list)	N/A		

Appendix 14: Biological Agents (page 1 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G005021	Cynomolgus macaque	2	SIVmac239
G005022	Rhesus macaque	2	RRV-Δgag construct
		2	ALVAC (Modified Canary Pox Virus)
		2	MVA (Modified Vaccinia Ankara) virus
		2	Recombinant DNA encoding SIV or SHIV
		2	rRRV combination vaccine: rRRV-CMV-SIVnfl rRRV-LTR-SIVnfl rRRV-DUAL-SIVnfl rRRV-26p-SIV239env(E767) rRRV-26pSIV316env(E767)
		2	rRRV construct producing 4L6 and 5L7 antibody
		2	rRRV encoding the following: RRV-SIVenv, RRV-SIVgag, RRV-SIVrev-tat-nef, RRV-SHIVenv(ad8), or RRV-SIV expressing all nine SIV genes in a replication defective form
		2	SHIV-AD8
		2	SIVmac239
G005024	Rhesus macaque	2	SHIV BG505
G005028	Rhesus macaque	2	Recombinant strains of actA- or actA- lytB- Listeria monocytogenes vaccine bacteria
G005045	Rhesus macaque	2	eCD4-Ig protein
		2	CD4-Ig, enhanced CD4-Ig, HIV broadly neutralizing - Ig, CCR5-Ig, or modified CCR5-Ig all expressed in AAV
		2	SHIV or SIV
G005061	Cynomolgus macaque, Rhesus macaque	2	Listeria monocytogenes
G005080	Rhesus macaque	2	anti-HIVenv monkey serum
		2	Virus particles derived from replication deficient HIV-1 proviral DNA clone tat-minus rev-minus NL4-3 in CEM-TART cells in tissue culture
G005088	Rhesus macaque	2	Recombinant Vesicular Stomatitis Virus (rVSV) including various SIVmac239 envelope sequences
G005094	Rhesus macaque	2	Influenza A virus

Appendix 14: Biological Agents (page 2 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G005097	Cynomolgus macaque	2	Porphyromonas gingivalis
G005101	Cynomolgus macaque, Macaque,	2	Human-induced pluripotent stem cells (hiPSCs)
		2	Genes delivered with viral vectors: GFP, RFP, Caldesmon, C3, MMP, PGFsynthase, cochlin, dnRho
G005108	Rhesus macaque	2	mDA (monkey dopaminergic neuron derived from IPS) labeled with lentiviral vectors
		2	mDA (monkey dopaminergic neuron derived from IPS) labeled without lentiviral vectors
		2	mDA (monkey dopaminergic neuron derived from IPS, genomic edited to express DREADD)
G005109	Rhesus macaque	2	SHIV162P3
G005113	Cynomolgus macaque, Rhesus	2	Retroviral vector encoding human telomerase reverse transcriptase (hTERT)
		2	Chemokines CXCL9, CXCL10
		2	SIV
G005141	Rhesus macaque	2	AAV vector
		2	scSHIV-AD8EO and scSIVmac155T3
		2	SHIV-AD8EO
		2	SIVmac239
G005145	Rhesus macaque	2	Recombinant DNA encoding various SIV genes and IL-12
		2	Recombinant Adenovirus serotype 5 (rAd5) vector encoding various SIV genes
		2	Recombinant Modified Vaccinia Ankara (MVA) vector encoding various SIV genes
		2	Recombinant Rhesus Rhadinovirus (rRRV) vector encoding various SIV genes
		2	Recombinant Vaccinia Virus (rVV) vector encoding SIV-vif
		2	Recombinant Vesicular Stomatitis Virus (rVSV) vector encoding various SIV genes
		2	Recombinant Yellow Fever Virus (rYF) 17D vector encoding various SIV genes
G005153	Rhesus macaque	2	Simian Immunodeficiency Virus (SIV)
G005153	Rhesus macaque	2	AAV-IVM
G005154	Rhesus macaque	2	Recombinant adeno-associated viral (AAV) vector expressing eGFP (green fluorescent protein) and aromatase. Estradiol (E2), Estradiol Benzoate (EB), Letrozole

Appendix 14: Biological Agents (page 3 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G005169	mus	2	Recombinant DNA
		2	Replication-defective Lentivirus
		2	Replication-defective retrovirus
		2	Replication-defective rabies virus
		2	Replication-defective AAV
		2	Neural progenitor cells derived from human pluripotent stem cells
G005172	Macaque	2	CRISPR/Cas9 vectors
G005188	mus	2	Lentivirus
		2	Mouse adipose stromal cells
		2	Mouse epithelial cells
		2	Mouse tumor cell lines
		2	PRL-derived mouse tumor cell lines
		2	Diphtheria toxin
		2	Human breast cancer cells
		2	Human stromal cells
G005230	rattus	2	Human cells
G005234	Common marmoset	2	Viral vector - estrogen receptor alpha knockdown - Recombinant adeno-associated virus-8 (AAV8) vector expressing: 1. CMV-GFP (green fluorescent protein) under the control of cytomegalovirus (CMV) promoter 2. CMV-mERaWT-V5/6XHis, the CMV promoter expression wild-type mouse ERalpha with V5/V6XHis epitope at the C-terminus 3. H1-shRNA34, H1 promoter expressing short hairpin RNA#34 directed against ERalpha expression 4. H1-shRNA56, H1 promoter expressing short hairpin RNA#56 directed against ERalpha expression 5. H1-shRNAscram, H1 promoter expressing a scrambled control shRNA
G005248	Rhesus macaque	2	SIVmac239
G005261	Rhesus macaque	2	SIVmac239M
G005263	Macaque	2	Listeria monocytogenes
G005269	Cynomolgus macaque	2	Dengue vaccine
		2	Wild type dengue virus (wtDENV)
G005300	mus	2	Mammalian stem cells

Appendix 14: Biological Agents (page 4 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G005307	Rhesus macaque	2	Recombinant Vaccinia Virus (rVV) vector encoding SIV-gag
		2	Recombinant Vesicular Stomatitis Virus (rVSV) vector encoding SIV-gag
		2	SIV
G005312	Rhesus macaque	2	SIVmac239
		2	SIVmac239 lacking tethern activity
G005315	mus	1, 2	Adeno-associated virus
		1, 2	Astroglial progenitor cells
		1, 2	Lentivirus
		1, 2	Plasmid DNA
G005339	mus	2	Mammalian Cells
G005341	mus	2	Mammalian Cells
G005379	mus	2	Lentivirus
		2	Retrovirus
		2	Pseudotyped attenuated Rabies virus
		2	AAV
G005401	Macaque	2	Zika virus
		2	Dengue virus
		2	Barcoded infectious Zika virus clone
G005424	Cynomolgus macaque	2	Hematopoietic stem cells
		2	Mesenchymal stem cells
		2	Replication incompetent lentivirus encoding eGFP
		2	SHIV
G005430	mus rattus	2	Human stem cells
		2	Divalent metal transporter 1
		2	Ferritin
		2	Luciferase
		2	Human progenitor/stem cells
		2	Human lentiviral SIN-PGK-WHV
		2	Human adeno-associated virus CMV-globin intron-pA
G005435	Rhesus macaque	2	Human adeno-associated virus serotype 5
		2	SIV or SHIV

Appendix 14: Biological Agents (page 5 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G005443	Rhesus macaque	2	Autologous cells
		2	GBV-C
		2	SIVmac239
G005449	Rhesus macaque	2	mDA (monkey dopaminergic neuron derived from IPS, genomic edited to express DREADD or MCherry)
G005475	Macaque	2	rAd vaccination Ebola, rAd vaccination Influenza, rAd vaccination SIV, and rAd vaccination TB NOTE: adenoviral vectors are rendered incompetent to replicate by deletion of the E1 and E3 viral genes
G005507	Cynomolgus macaque	2	Alt-803 (Interleukin (IL)-15)
		2	rAd5 containing Mtb antigens (rAd5-Mtb)
		2	SIVmac239
		2	SIVmac239 Δ nef and its variants
G005529	Rhesus macaque	2	SIVmac239
G005549	Rhesus macaque	2	ZIKV Rio U-1 strain of Zika virus
G005553	Cynomolgus macaque	2	SIVmac239
G005563	Rhesus macaque	2	Recombinant DNA encoding SIV genes
		2	Recombinant Rhesus Rhadinovirus (rRRV) vector encoding various SIV genomes
		2	SIVmac239
G005565	Rhesus macaque	2	SIVmac251 or SHIV162p3
G005604	Macaque	2	Adenoviral vector a known antigen
		2	SIVmac239
G005635	Rhesus macaque	2	Zika virus

Appendix 14: Biological Agents (page 6 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G005654	Rhesus macaque	2	Modified Vaccinia Ankara (rMVA)
		2	Recombinant Adenovirus serotype 5 vector encoding various SIV genes
		2	Recombinant Rhesus Rhadinovirus (rRRV) vector encoding various SIV genes
		2	Recombinant Vaccinia vector encoding various SIV genes
		2	Recombinant Vesicular Stomatitis Virus (rVSV) vector encoding various SIV genes
		2	SIV
G005656	Rhesus macaque	2	Nonhuman primate cells
		2	rAAV vector expressing Antibody (Ab)
		2	SIV, SHIV
G00566	Cynomolgus macaque, Rhesus macaque	2	Seasonal influenza virus strains and related viruses
G005698	Cynomolgus macaque, Rhesus macaque	2	Hematopoietic stem cells (HSC)
		2	iPSC-derived hematopoietic cells.
		2	iPSC-derived mesenchymal stem cells (MSCs)
		2	Replication incompetent lentivirus encoding eGFP or tdTomato lentivirus
G005721	mus rattus	2	Human stem cells
G00638	Cynomolgus macaque, Rhesus macaque	2	Recombinant human C1 inhibitor - rhC1INH (Rhucin), Plasma derived-C1 Esterase Inhibitor
G00659	Common marmoset	2	The AAV virus (both capsid and inverted terminal repeat (ITR) from AAV8) expresses 1 + 2 or 3 or 4: (1) CMV-GFP, the eGFP (green fluorescent protein) under the control of cytomegalovirus (CMV) promoter, AND (2) CMV-mERaWT-V5/6XHis, the CMV promoter expressing wild-type mouse ERalpha with V5/6XHis epitope at the C- terminus, OR (3) H1-shRNA34, H1 promoter expressing shRNA#34 directed against ERalpha, OR (4) H1-shRNA56, H1 promoter expressing shRNA#56 directed against ERalpha.
G00661	Rhesus macaque	2	SIVmac239

Appendix 14: Biological Agents (page 7 of 7)

IACUC/OB No.	Species	BSL	Name of Biological Agent
G00733 (G005736)	Rhesus macaque	2	Viral vector - estrogen receptor alpha (ERalpha) gene silencing - Recombinant adeno-associated virus-8 (AAV8) vector expressing: 1. CMV-GFP (green fluorescent protein) under the control of cytomegalovirus (CMV) promoter 2. CMV-mERaWT-V5/6XHis, the CMV promoter expression wild-type mouse ERalpha with V5/V6XHis epitope at the C-terminus 3. H1-shRNA34, H1 promoter expressing short hairpin RNA#34 directed against ERalpha expression 4. H1-shRNA56, H1 promoter expressing short hairpin RNA#56 directed against ERalpha expression 5. H1-shRNAscram, H1 promoter expressing a scrambled control shRNA
		2	Viral vector - progesterone receptor gene silencing - Recombinant adeno-associated virus-8 (AAV8) vector expressing: 1. CMV-GFP (green fluorescent protein) under the control of cytomegalovirus (CMV) promoter 2. CMV-mERaWT-V5/6XHis, the CMV promoter expression wild-type mouse ERalpha with V5/V6XHis epitope at the C-terminus 3. H1-shRNA34, H1 promoter expressing short hairpin RNA#34 directed against ERalpha expression 4. H1-shRNA56, H1 promoter expressing short hairpin RNA#56 directed against ERalpha expression 5. H1-shRNAscram, H1 promoter expressing a scrambled control shRNA
		2	Viral Vector- Aromatase gene silencing - Recombinant adeno-associated virus-8 (AAV8) vector expressing: 1. CMV-GFP (green fluorescent protein) under the control of cytomegalovirus (CMV) promoter 2. CMV-mERaWT-V5/6XHis, the CMV promoter expression wild-type mouse ERalpha with V5/V6XHis epitope at the C-terminus 3. H1-shRNA34, H1 promoter expressing short hairpin RNA#34 directed against ERalpha expression 4. H1-shRNA56, H1 promoter expressing short hairpin RNA#56 directed against ERalpha expression 5. H1-shRNAscram, H1 promoter expressing a scrambled control shRNA
G00747	Cynomolgus macaque, Rhesus macaque	2	DNA vectors encoding influenza virus proteins will be used as a "prime" for the "DNA-MVA" vaccine regimen. The vaccine vector is composed of a recombinant poxvirus, modified vaccinia Ankara (MVA), encoding influenza virus genes.
		2	Seasonal and 2009 pandemic H1N1 influenza viruses
		2	Replication- deficient MVA-vectored vaccine
G00748	Rhesus macaque	2	SIVmac239
		2	Small molecule antagonists of HIV-1 Vif protein added to a variety of food items
G00751	Rhesus macaque	2	SIVmac239

Appendix 15: Chemical Agents (page 1 of 2)

IACUC/OB No.	Species	Hazard Category	Name of Agent
G005050	mus rattus	carcinogen	Bromodeoxyuridine (BrdU) Tamoxifen
		mutagen	Bromodeoxyuridine (BrdU)
		teratogen	Tamoxifen
G005054	mus	carcinogen	Bromodeoxyuridine (BrdU)
		mutagen	Bromodeoxyuridine (BrdU)
G005108	Rhesus macaque	toxin	MPTP (1-methyl-4-phenyl 1,2,3,6-tetrahydropyriine)
G005136	mus	carcinogen	4-hydroxytamoxifen Tamoxifen
		teratogen	Tamoxifen
G005150	mus	carcinogen	Bromodeoxyuridine (BrdU)
		mutagen	Bromodeoxyuridine (BrdU)
G005153	Rhesus macaque	toxin	MPTP (1-methyl-4-phenyl 1,2,3,6-tetrahydropyriine)
G005169	mus	carcinogen	Bromodeoxyuridine (BrdU)
		mutagen	Bromodeoxyuridine (BrdU)
G005188	mus	carcinogen	Bromodeoxyuridine (BrdU) Tamoxifen
		mutagen	Bromodeoxyuridine (BrdU)
		teratogen	Bromodeoxyuridine (BrdU) Tamoxifen
G005201	mus	mutagen	Bromodeoxyuridine (BrdU) Doxorubin
		toxin	Docetaxel
		teratogen	Docetaxel
		carcinogen	Doxorubicin
G005291	macaque	carcinogen	Mitomycin solution
		mutagen	Mitomycin solution
G005300	mus	carcinogen	BrdU Injection
		mutagen	BrdU Injection
		teratogen	BrdU Injection
G005307	Rhesus macaque	carcinogen	ART (antiretroviral therapy) provided by Gilead Sciences
		teratogen	ART (antiretroviral therapy) provided by Gilead Sciences
G005315	mus	carcinogen	Bromodeoxyuridine (BrdU) Tamoxifen
		mutagen	Bromodeoxyuridine (BrdU)
		teratogen	Tamoxifen

Appendix 15: Chemical Agents (page 2 of 2)

IACUC/OB No.	Species	Hazard Category	Name of Agent
G005339	mus	carcinogen	BrdU Injection
		mutagen	BrdU Injection
		teratogen	BrdU Injection
G005341	mus	carcinogen	BrdU Injection
		mutagen	BrdU Injection
		teratogen	BrdU Injection
G005379	mus	carcinogen	Bromodeoxyuridine (BrdU) Tamoxifen
		mutagen	Bromodeoxyuridine (BrdU)
		teratogen	Tamoxifen
G005396	mus	carcinogen	BrDU (in water) Tamoxifen Piperonyl butoxide (PBO)
		mutagen	BrDU (in water)
		teratogen	BrDU (in water) Tamoxifen Piperonyl butoxide (PBO)
		teratogen	Vismodegib
G005449	Macaque, Rhesus macaque	toxin	MPTP (1-methyl-4-phenyl 1,2,3,6-tetrahydropyriine)
G005536	Common marmoset	toxin	MPTP-HCL
G005560	mus	carcinogen	Tamoxifen plus Progesterone
		mutagen	Tamoxifen plus Progesterone
		teratogen	Tamoxifen plus Progesterone
G005652	rattus	carcinogen	Bromodeoxyuridine (BrdU) treatment
		mutagen	Bromodeoxyuridine (BrdU) treatment
		teratogen	Bromodeoxyuridine (BrdU) treatment
G005698	Cynomolgus macaque, Macaque, Rhesus macaque	mutagen	Fludarabine
		toxin	Fludarabione
		teratogen	Fludarabine
G005751	mus	carcinogen	Tamoxifen
		teratogen	Tamoxifen
G00638	Cynomolgus macaque, Rhesus macaque	carcinogen	Cyclosporine
		teratogen	Hydralazine Ketorolac Valganciclovir
G00752	Rhesus macaque	teratogen	Acetylcholine Nicotine

Appendix 16: Physical Agents (page 1 of 3)

IACUC/OB No.	Species	Physical Agent
G005030	Rhesus macaque	Imaging: MRI
G005101	Cynomolgus macaque, Macaque, Rhesus macaque	Scanning laser polarimetry (GDx, VCC), Optical coherence tomography (OCT), Scanning laser tomography (HRT), Laser photocoagulation
G005108	Rhesus macaque	Radiotracer: C11-dihydratetabenazine (DTBZ) Imaging: MRI Imaging: PET
G005150	mus	Imaging: MRI (high magnetic field)
G005153	Rhesus macaque	Imaging: MRI
G005154	Rhesus macaque	Radiotracer: C11-cetozole, Carbon-11 Imaging: PET Imaging: x-rays
G005158	macaque	Imaging: X-ray Laser photocoagulation
G005208	Common marmoset	Radiotracers: 11-C-methylephedrine (MHED) and C11-dihydratetabenazine (DTBZ) Imaging: MRI Imaging: PET
G005229	Rhesus macaque	Imaging: MRI
G005230	rattus	Imaging: MRI (high magnetic field)
G005234	Common marmoset	Imaging: Dual-energy X-ray absorptiometry (DXA) Imaging: MRI
G005236	sheep	Imaging: MRI (high magnetic field) Imaging: Optical coherence tomography Imaging: x-ray
G005263	macaque	Imaging: MRI
G005291	macaque	Ophthalmologic imaging: scanning laser polarimetry, retinal tomography, optical coherence tomography, adaptive optics, fluorescein angiography and/or fundus photography
G005325	Rhesus macaque	Imaging: Dual-energy X-ray absorptiometry (DXA)
G005330	Cynomolgus macaque	Radiotracers: DPC siRNA polymer or fluorescently labeled DPC or 64Cu labeled DPC Imaging: PET Imaging: CT

Appendix 16: Physical Agents (page 2 of 3)

IACUC/OB No.	Species	Physical Agent
G005362	Rhesus macaque	Imaging: CT Irradiation: total lymphoid irradiation (TLI)
G005386	African clawed frog	Confocal fluorescence microscopy
G005401	macaque	Imaging: MRI
G005424	Cynomolgus macaque	Imaging: CT Irradiation: total lymphoid irradiation (TLI)
G005430	mus rattus	Imaging: MRI (high magnetic field) Optical Imaging PET (radioactive tracers)
G005431	Common marmoset	Imaging: Dual-energy X-ray absorptiometry (DXA)
G005449	Rhesus macaque	Radiotracer: C11- raclopride Imaging: MRI Imaging: PET
G005469	Common marmoset	Imaging: Dual-energy X-ray absorptiometry (DXA) Imaging: MRI
G005545	mus	Imaging: MRI (high magnetic field)
G005651	Cynomolgus macaque	Imaging: MRI
G005652	rattus	Imaging: MRI (high magnetic field)
G005662	macaque	Imaging: Dual-energy X-ray absorptiometry (DXA) Imaging: x-ray
G005698	Cynomolgus macaque	Imaging: CT Irradiation: Standard Ablative Total Body Irradiation and Nonmyeloablative, XF-RIC (2-Gy (gray)) TBI (irradiation plus fludarabine-reduced intensity conditioning)
G005726	Rhesus macaque	Imaging: Dual-energy X-ray absorptiometry (DXA) Imaging: x-ray
G00659	Common marmoset	Imaging: MRI ((magnetic resonance imaging) Imaging: CT (computerized tomography) Imaging: x-ray
G00733 (G005736)	Rhesus macaque	Imaging: MRI

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IACUC/OB No.	Species	Physical Agent
G00736 (G005777)	Rhesus macaque	Imaging: MRI
G00740	Cynomolgus macaque	Imaging: MRA (magnetic resonance angiography) Imaging: CT angiogram
G00749	Rhesus macaque	Radiotracers: Dopamine transporter: [18F]FECNT, [11C]l-threo-MP; Dopamine D1 receptor ligand: [11C]SCH23390; Dopamine D2 receptor ligands: [18F]fallypride, [11C]raclopride, [18F] FLB; Serotonin 1A receptor ligands: [18F]MPPF, [18F]MEFWAY; SERT ligand: [11C]DASB, [11C] WAY100635, [18F] MPPF, [18F] MefWAY, [11C]AFM; Glucose metabolism: [18F]FDG, Norepinephrine transporter: [11C] MRB; Sympathetic nervous system: [11C] Metahydroxyephedrine; Benzodiazepine receptor: [11C] PK11195 Imaging: MRI (magnetic resonance imaging) Imaging: CT (computerized tomography) Imaging: PET (positron emission tomography) Imaging: fMRI/PET (functional magnetic resonance imaging/positron emission tomography) Imaging: CT/PET
G00752	Rhesus macaque	Imaging: MRI

Appendix 17: Protocols Approved for Restraint (page 1 of 9)

IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G005061	Cynomolgus macaque Rhesus macaque	Pole/Collar and Chair restraint	30 minutes	Acclimation is typically completed in 30 days, but may take longer. Steps: 1) pre-study exam with collar placed under sedation, 2) collar adaptation period, 3) pole attached to collar, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. When animal is comfortable with chair restraint, electro-ejacuation is attempted. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint
G005091	Cynomolgus macaque	Pole/Collar and Chair restraint	10 - 30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Steps: 1) pre-study exam with collar placed, 2) collar adaptation period, 3) pole attached to collar in a restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation increasing from 5 to 30 minutes. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	During pole/collar and chair restraint training, the animals are observed daily for abnormal behaviors by care staff or research staff. Collars are checked for proper fit approximately once every 4 weeks.
G005097	Macaque	Pole/Collar and chair restraint training	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) pre-study exam with collar placed under sedation, 2) collar adaptation period, 3) pole attached to collar in a restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G005154	Rhesus macaque	Chair	<12 hours	Acclimation is typically completed in 4 weeks, but may take longer. Steps: 1) experimenter visits monkey and gives treats, 2) lightly sedated animal placed in chair for periods increasing from 2 to 12 hours, 3) experimenter work in proximity and touches animal's head, 4) simulation of microdialysis. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Sensitized animals are reacquainted. Larger collar sizes are used as an animal grows.	During the adaptation period animals are examined constantly and observations are documented at least every hour. At Levels 1 and 2, the monkeys are observed continually and directly. At the remaining levels, the monkeys are observed through a video monitor continually and directly inspected every hour.
	Rhesus macaque	Jacket and tether	48 hours	Jacket and tether acclimation is very similar to chair training described immediately above. Monkeys start by wearing a jacket for ~2 hrs in their home cage. The jacket is removed if a monkey exhibits any sign of distress and training is restarted at a lower level on another day. Monkeys that will be tethered are then adapted to the jacket and cage and then the jacket, and cage with the tether attached.	Animals in jackets with tethers are checked at least 3 times daily (more during the training period).
G005172	Macaque	Pole/Collar and chair restraint training	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) pre-study exam with collar placed under sedation, 2) collar adaptation period, 3) pole attached to collar in a restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G005229	Rhesus macaque	Chair restraint	Up to 12 hours, but usually less than 8 hours	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation, 6) acclimation to brief head restraint in chair. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	During pole/collar and chair restraint training, the animals are observed daily for abnormal behaviors by care staff or research staff. Collars are checked for proper fit approximately once every 4 weeks.
G005236	sheep	A collar and headbox in a hyperbaric chamber (~40 sq.ft.) The headbox delivers measured oxygen.	up to 25 hours	Acclimate over 2-wks prior to confinement. Drape simulates head box. Monitored continuously and records kept on acclimation procedures. Acclimate for increasing time spans from 15 min to 5 hrs during 1 week prior to chamber exposure. Sheep enter chamber in pairs for companionship; can stand, drink water, flex necks, and be recumbent.	Visually monitored hourly during 25 hr exposure.

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G005240	Rhesus macaque	Jacket and tether	Jackets may be worn from ~1 week prior to instrumentation surgery until necropsy. Tether: Daily for ~4 days, ~1 hour per day for adaptation; up to ~every other day for up to ~4 hours/day for testing	Prior to instrumentation surgery, animals may be adapted to the tether system. Immediately prior to the initiation of adaptation, animals are put in a canvas vest with an adapter on the back that is used for tether attachment. Animals are then attached to the tether system for each adaptation period. The animals remain in their vests for the entire length of the experiment. Animals that fail to acclimate are removed from the study.	While attached to the tether system for acclimation, animals are visually monitored at least every 15 minutes. During testing, animals physiologic responses will be monitored continuously and animals will be visually monitored every 30 minutes. While animals are wearing jackets but not attached to the tether system, they are checked at a minimum 3 times per day.
G005246	Rhesus macaque	Pole/Collar and chair restraint training	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar in a tabletop restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint.

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G005263	Macaque	Pole/Collar and Chair restraint	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar in a tabletop restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint
G005366	Rhesus macaque	Pole/Collar and chair restraint training	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar in a tabletop restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint
G005401	Macaque	Pole/Collar and chair restraint training	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar in a tabletop restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G005446	Rhesus macaque	Pole, collar and restraint chair for semen collection	30 min	Acclimation is typically completed in 30 days, but may take longer. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	The restraint period is short and the animal will be attended by staff continually during the restraint period.
G005592	Macaque	Pole/Collar and chair restraint training	30 minutes	Acclimation is typically completed in 30 days, but may take longer. The WNPRC Behavior Management Unit is available to assist. Animals that fail to acclimate are removed from study. Steps: 1) collar placed, 2) collar adaptation period, 3) pole attached to collar in a tabletop restraint device, 4) animal trained $\leq 3x/day$, $\leq 7days/week$ to respond to pole/collar lead, 5) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Continuously monitored during restraint

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G00733 (G005736)	Rhesus macaque	Jacket and tether	2-24 hours	The adaptation process takes ~2- 5 weeks, depending on individual monkeys. Progression commonly progresses as: 2h, wk1; 4h, wk 1-2; 8h, wk 1-2; 12h, wk 2-5; 24h, wk 2-5; only this latter time includes lights off.	Animals are attended by staff continuously during initial adaptation (2-4 hr periods; observations recorded approximately every 15 min) and, subsequently on longer durations of acclimation, checked at least every hour during lights on. We examine for the presence of skin abrasions or bruising, and record all observations. During overnight acclimations (24h only) there is one check between 2000h-2200h during lights out.

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G00736 G005777	Rhesus macaque	Pole/Collar and chair restraint training	8 hours	Animals that fail to acclimate are removed from study. Steps: 1) pre-study exam with collar placed under sedation, 2) collar adaptation period, 3) pole attached to collar in a restraint device, 4) ~3 days of pole acclimation, 5) animal trained to respond to pole/collar lead, 6) chair acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	Animals in a primate chair are always accompanied by a lab member or WNPRC staff member. The animal is always visible and audible to the lab member or WNPRC staff member, who is in the same room as the animal or on the other side of a partition viewing the animal via a live feed video camera.
G00749	Rhesus macaque	Pole/Collar and chair restraint training	max 12 hours	Animals that fail to acclimate are removed from study. Steps: 1) pre-study exam with collar placed under sedation, 2) collar adaptation period, 3) pole attached to collar in a restraint device, 4) pole acclimation, 5) animal trained to respond to pole/collar lead, 6) chair / scale acclimation. Positive reinforcement used throughout. Each step must result in successful acclimation before starting the next. Larger collar sizes are used as an animal grows.	In every experiment the monkeys are monitored continuously on closed circuit TV. If any signs of discomfort or distress are noted, the experimental session is terminated and the monkey returned to its quarters.

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IACUC/OB No.	Species	Type of Restraint	Duration	Acclimation	Monitoring
G00752	Rhesus macaque	Pole/Collar and chair restraint training	up to 10 hours	After a monkey appears comfortable, it is fitted with a collar that can be used to be hooked by a pole in order to safely and comfortably move the monkey from the home cage to the primate chair. In exchange for food rewards, the monkey is first trained to allow it to be hooked by its collar with a pole, then to leave the cage and climb to the floor of the room, to get in the primate chair, and finally to sit in the chair in the laboratory setting.	The animal is closely monitored by video camera during experiment/training session in the laboratory for any signs of distress. Any discomfort noted is either alleviated by re-positioning the animal, or by termination of the test run. In the latter case, close inspection to detect and eliminate the cause is undertaken, with veterinary consultation as indicated.

Appendix 18: Protocols Approved for Multiple Major Survival Surgeries (page 1 of 5)

IACUC/OB No.	Species	Surgery Description	Time Between Surgeries	Monitoring
G005044	Common marmoset	oocyte retrievals, embryo transfers, and/or embryo recoveries by laparotomy	at least 60 days	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005061	Cynomolgus macaque	Fetectomies, Cesarean sections, and/or laparotomies	3 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005108	Rhesus macaque	MPTP intracarotid infusion followed by stereotaxic injections	2-3 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
	Rhesus macaque	MPTP intracarotid infusion followed by intracerebral cell transplant	2-6 months	
G005153	Rhesus macaque	MPTP intracarotid infusion followed by intracerebral viral vector infusion,	2-3 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005154	Rhesus macaque	Cranial pedestal implant plus orchidectomy	28 days	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
	Rhesus macaque	Cranial pedestal implant plus ovariectomy		
	Rhesus macaque	Brain surgery with ventriculography for viral vector infusion plus ovariectomy		
G005169	mus	cell transplantation	1 week	Monitor every 15 min for 1 hr or until recovered from anesthesia (alert and mobile). If animal does not wake after 1 hr post-op, we monitor every 15 min up to 4 hrs post-op. If not awake at 4 hrs post-op, animal is euthanized. Cage returned to home room when all mice awake and no signs of pain observed.
G005172	Macaque	Cesarean sections	6 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
	Macaque	Surgical embryo transfers	> 6 months	
G005229	Rhesus macaque	Chronic Microdrive Placement, Head-restraint ring, Labyrinthectomy, Semicircular canal plugging	Months to years	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.

Appendix 18: Protocols Approved for Multiple Major Survival Surgeries (page 2 of 5)

IACUC/OB No.	Species	Surgery Description	Time Between Surgeries	Monitoring
G005230	rattus	Brain injury and cell/tracer injection	At least one day. The best timing for grafting after brain injury is determined by experimentation.	Rats exhibiting respiratory distress, abnormal grooming, ruffled fur, or hunched posture are discussed with the vet, and euthanized immediately under anesthesia if discomfort cannot be alleviated.
G005234	Common marmoset	Ovariectomy followed by MRI-guided viral infusion	Months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005240	Rhesus macaque	Ovariectomy then thoracotomy / laparotomy	6 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005246	Rhesus macaque	Cesarean sections	5.5 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005341	mus	Brain Injection (Lesion Induction) then Brain Injection (Cell Injection)	At least one week	Monitored continually until recovered (i.e., ambulatory) from anesthesia. Then inspected 2x/day by Waisman staff and additionally 1x/day by lab staff for 2-3 days post-op, checking food and water intake, responsiveness to stimuli and ability to move normally.
G005362	Rhesus macaque	Donor Nephrectomy, Lymph node collection	14 days	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
	Rhesus macaque	Lymph node collection, Renal Transplant, Repair surgery, transplant kidney biopsy, Ureteral stent removal	Some surgeries concurrent. Repairs could be done at any time.	
G005366	Rhesus macaque	Cesarean sections	5.5 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005386	African clawed frog	Oocyte surgery	At least four months	Monitored visually for reacquisition of body movements and swimming. Signs of failure to recover include bleeding, swelling, abnormal behavior.

Appendix 18: Protocols Approved for Multiple Major Survival Surgeries (page 3 of 5)

IACUC/OB No.	Species	Surgery Description	Time Between Surgeries	Monitoring
G005430	rattus	Excitotoxic Brain and Spinal Cord Lesions and Cell Injection in CNS	Seven days following QA lesions, cells will be injected in the brain	Observe behavior (interaction with environment, body posture, teeth grinding, grooming, weight loss) post-op. If animal exhibits signs of pain or distress, analgesics are administered and vet staff consulted.
	rattus	CNS Injury and Cell Injection	at least 1 week	
G005446	Rhesus macaque	Fetectomies (Caesarean sections)	90 days	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005449	Rhesus macaque	MPTP intracarotid infusion followed by intracerebral mDA neuron infusion	1-3 months	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005533	Common marmoset	Cesarean sections	A breeding female undergo a caesarian section due to dystocia or fetal demise and may undergo the same procedure in a subsequent pregnancy.	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005560	mus	Gonadectomize then Kidney Capsulte Implant	At least 2 weeks	Monitored frequently op and post-op. Analgesia once before recovery and second dose after 12 hrs if necessary: ketoprofen or as recommended by the vet. A second dose of ketoprofen is administered if animal displays decrease in activity or excessive swelling or inflammation at the wound site (in collaboration with a vet). Animals recover on warming pad. Vet contacted if animal displays poor recovery or undue discomfort by 24 hrs post-op. If analgesic does not relieve the discomfort, or on vet recommendation, animal is euthanized.

Appendix 18: Protocols Approved for Multiple Major Survival Surgeries (page 4 of 5)

IACUC/OB No.	Species	Surgery Description	Time Between Surgeries	Monitoring
G005592	Macaque	Laparoscopic collection of primate oocytes	1 month	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G005640	mus	Gonadectomy, then Stereotaxic surgery	At least 7 days	Monitored at least every 15 min by surgeon until recovered from anesthesia (regained consciousness). Kept warm post-op using a warm water-circulator beneath cage. After initial recovery, monitored at 12 hr intervals. Inspect the surgical site, track animal's weight, note appearance and ability to ambulate, and look for any signs of pain or distress.
	mus	Gonadectomy then steroid Capsule Replacement	at least 16 days	Monitored at least every 15 min by surgeon until recovered from anesthesia (regained consciousness). Kept warm post-op using a warm water-circulator beneath cage. After initial recovery, monitored at 12 hr intervals. Inspect the surgical site, track animal's weight, note appearance and ability to ambulate normally, and look for any signs of pain or distress.
G00638 (G005744)	Cynomolgus macaque, Rhesus macaque	Spleen, liver and kidney biopsies via laparotomy with possible lymph node biopsies, Kidney Transplant +/- bilateral nephrectomy and lymph node biopsies, Repair Surgeries	4 days. Repairs could be done at any time.	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
	Cynomolgus macaque, Rhesus macaque	Kidney biopsy via laparotomy, Kidney Transplant +/- bilateral nephrectomy, Lymph Node Biopsy, Repair Surgery		
G00653	mus	Cranial injection of retrovirus, followed by cranial injection of pseudotyped rabies virus	3 weeks	Following recovery, cages not changed for 3 days. Monitored 2x/day for the first 2 days then 1x/day.

Appendix 18: Protocols Approved for Multiple Major Survival Surgeries (page 5 of 5)

IACUC/OB No.	Species	Surgery Description	Time Between Surgeries	Monitoring
G00733 (G005736)	Rhesus macaque	MRI-guided intracerebral cannula placement and viral vector infusion into the hypothalamus and ovariectomy	0 days	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G00736 (G005777)	Rhesus macaque	Multiple head implants, craniotomies (>3mm) and small skull holes (≤3mm), and removal of head implant	1 week	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G00749	Rhesus macaque	Implant head posts and recording cylinders, and replacement / repair / repositioning surgeries	2 weeks. Repairs could be done at any time.	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.
G00752	Rhesus macaque	Implant head head restraint device and recording cylinders, and replacement / repair / repositioning surgeries	2 weeks. Repairs could be done at any time.	Animals observed and incision sites inspected at least daily for a minimum of 5 days post-op.

Appendix 19: Food and/or Fluid Regulation (page 1 of 4)

IACUC/OB No.	Species	Type of Restriction	Justification	Length of Restriction	Health Monitoring
G005050	mus	Food restriction	Deplete internal stores of glucose and glycogen, so that we obtain a physiological response to the large bolus of insulin signaling upon refeeding a carbohydrate-rich diet.	12-24 hours	Monitored every 12 hrs during the fast by body condition scoring.
G005108	Rhesus macaque	Food restriction	To ensure that the animals are interested in the behavioral testing, during weekdays that testing occurs.	max 24 hours	Monitored closely by research and veterinary staff for signs of stress (appetite, stool, physical condition, etc). If any of the above parameters are unacceptable, the WNPRC veterinary staff are notified and their recommendations followed.
G005181	mus	Fasting	Prior to glucose tolerance testing	4 to 6 hours	None
G005188	mus	Fasting	To ensure that changes in plasma glucose and insulin levels do not correspond to the postprandial state.	4 hours	Body condition scores are assessed prior to starting the trial and again at the end of the trial.
G005229	Rhesus macaque	Water scheduling	Water scheduling to ensure motivation to perform tasks during testing.	5-6 days per week	Monitored daily for signs of dehydration and loss of body weight.
G005230	rattus	Food restriction	To motivate desired behavior.	Food restriction to achieve 80-90% of free-feeding bodyweight continuously during the period they are undergoing behavioral tests (up to 1 yr).	Observe and weigh rats each weekday.

Appendix 19: Food and/or Fluid Regulation (page 2 of 4)

IACUC/OB No.	Species	Type of Restriction	Justification	Length of Restriction	Health Monitoring
G005236	sheep	Fasting	Excessive methane gas production may occur in the digestive tract and result in bloating upon decompression.	24 hours pre-dive	Provided with food after hyperbaric exposure when first physical examination and bubble detection completed (usually it takes 10-15 min). Then provide hay and continue monitoring. Monitored and evaluated on a routine daily basis by lab staff. Undergo an examination with these measurements: temperature, pulse, and respiratory rate. An ultrasound of the precordial site, panniculus test and proprioception response is performed.
G005341	mus	To motivate desired behavior.	Food-restricted and maintained at 85% free-feeding bodyweight (food regulation equal to 70% of ad lib intake which is about 3.5g normal chow) during habituation and testing	One week prior to testing and water is given ad lib	Monitored and weighed daily. Weight compared to the baseline body weight.
G005373	mus	To motivate desired behavior.	Maintained at between 75-85% of free-feeding weight. Allowed to feed ad lib, their daily intake is measured, and then standard chow is provided at 75-85% of the ad lib amount. Food rewards (generally sucrose pellets or other approved treats) can be given in addition to standard chow.	Continue for the duration of experiment.	Weighed daily and monitored by animal care staff and veterinarians.
G005640	mus	Fasting	For blood glucose and insulin levels to return to baseline prior to blood sampling.	4 to 16 hours	None

Appendix 19: Food and/or Fluid Regulation (page 3 of 4)

IACUC/OB No.	Species	Type of Restriction	Justification	Length of Restriction	Health Monitoring
G005726	Rhesus macaque	Caloric restriction	Examine effects of mild calorie restriction on aging rhesus monkeys.	Continue for the duration of experiment.	At least twice daily animals are evaluated by WNPRC Animal Services Unit staff for signs of pain, illness, and stress observing appetite, stool, typical behavior, physical condition, etc.
G00653	mus	Caloric restriction	For radial arm maze testing	Restricted to ~1.5 gm of food per day up to 11 days (4 days prior to testing followed by 5 to 7 day test period).	Weighed to monitor weight loss
G00736	Rhesus macaque	Water scheduling	Water scheduling to ensure motivation to perform tasks during testing.	27 days (or less) after a 3-day gradual decrement from ad lib access. After those ≤ 27 days, animal receives at least 2 days of ad lib access before another 3-day gradual decrement and another ≤ 27 days of water regulation. Maximum consecutive days fluid-regulation is 30 (3+27), and a minimum of 48 hours of ad lib water availability every 30 days	Animals are monitored daily for signs of dehydration and loss of body weight.
G00749	Rhesus macaque	Water scheduling	Water scheduling is used to ensure motivation to perform tasks during testing.	5-7 days per week	Animals are monitored daily for signs of dehydration and loss of body weight.

Appendix 19: Food and/or Fluid Regulation (page 4 of 4)

IACUC/OB No.	Species	Type of Restriction	Justification	Length of Restriction	Health Monitoring
G00752	Rhesus macaque	Water scheduling	Water scheduling is used to ensure motivation to perform tasks during testing.	5-6 days per week	Animals are monitored daily for signs of dehydration and loss of body weight.

Appendix 20: Animal Social Housing & Enrichment Requirements (ASHER) (page 1 of 5)**RARC: Animal Social Housing & Enrichment Requirements (ASHER)****1) Social Housing**

- a) Definitions: Single housing is defined as 1 animal in 1 primary enclosure; pair housing is 2 animals in 1 primary enclosure, and social housing is 3 or more animals in 1 primary enclosure.
 - i) There are 2 categories of single housing:
 - (1) Category 1 single housing: 1 animal in 1 room, or 1 animal per primary enclosure housed in way where there is no or minimal visual, olfactory, auditory and/or tactile contact with conspecifics.
 - (2) Category 2 single housing: 1 animal per primary enclosure, with visual, olfactory, auditory, and/or tactile contact with conspecifics.
- b) Social Housing Program
 - i) Social housing will be applied according to this document.
 - ii) Social housing strategies may differ from that described in this document if there is scientific justification and IACUC approval, or at RARC veterinary discretion.
 - iii) Some individuals of a social species may be incompatible for social housing, such as adult male mice used for breeding, adult male rabbits and female hamsters.
 - (1) These animals may be permanently separated into single housing.
 - iv) Female rodents near the time of parturition may be singly housed to allow for recommended minimum space.
 - v) There may be instances where there is only 1 individual animal of a social species; e.g., 1 animal remaining in a long-term study, or 1 animal ordered for a small or pilot study.
 - (1) To prevent additional experimental variables (e.g., by the addition of a new animal to the pen/cage), these animals may be separated into single housing until the end of the experiment.
 - vi) Some species (e.g., 13-lined ground squirrels) are not considered social and will be housed individually.
 - vii) Enhanced environmental enrichment may be indicated for category 1 single housing; RARC veterinarians may evaluate this on a case-by-case basis.

2) Environment Enrichment

- a) Environmental enrichment will be applied according to this document.
- b) Environmental enrichment strategies may differ from that described in this document if there is scientific justification and IACUC approval, or at RARC veterinary discretion.

3) IACUC Review

- a) At least once yearly each IACUC will review the **Animal Social Housing & Enrichment Requirements**

Each species will be in compliance with the UW Default Housing method. (see table on pg. 2 and 3). Each species should be provided with at least one of the Default Enrichment devices, with the option for including additional devices. Deviations from the defaults (housing or enrichment) are possible, but must be justified in the protocol or done at the direction of an RARC veterinarian.

(Footnotes apply on following table)

- * All food must be vet approved; some animals may be on lower calorie or lower fat diets, so all treats may not be appropriate for all animals. Food enrichment must also not interfere with the study goals.
- ^ All toys must be vet approved.
- ⚙ Default housing and enrichment only required for these species when being used in biomedical protocols.

Dr. [REDACTED], March 2015

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Appendix 20: Animal Social Housing & Enrichment Requirements (ASHER) (page 2 of 5)**RARC: Animal Social Housing & Enrichment Requirements (ASHER)**

Species	Default Housing	Default Enrichment	Secondary Enrichment	3rd	4th
Mice	Social/pair housing	Nesting material	Shelters/ structures/lofts	Food treats* (sunflower seeds)	Exercise devices
Rats	Social/pair housing	Shelters/structures/lofts	Chewing items, nesting material	Food treats*	
Rabbits (also see page following table)	Females: social/pair housing (if possible)	Toys^, perching devices, shelters/structures	Larger runs, playtime outside of cage	Food treats*	Chew items
	Males: singly (category 2)				
Hamsters	Females: singly (category 2)	Shelters/structures	Nesting material	Chew Items	Food treats*
	Males: pair housing (if possible)				
Gerbils	Pair housing	Chew items, nesting material	Shelters/structures	Food treats*	
Guinea Pigs	Females: social/pair housing	Shelters/nesting materials	Food treats*	Chew Items	Positive human interaction
	Males: pair housing (if possible)				
Dogs	Social/pair housing	Sufficient exercise space	Positive human interaction, food treats, toys^	Resting board, textile bedding when appropriate	
Cats	Social/pair housing	Elevated resting surface	Scratching devices, toys^	Positive human interaction, pheromone	Food treats*
Ferrets	Social/pair housing	Sleeping device, structures	Toys^	Food treats*	Positive human interaction
Ground squirrels	Single housing	Nesting material	Shelters/structures		

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Appendix 20: Animal Social Housing & Enrichment Requirements (ASHER) (page 3 of 5)**RARC: Animal Social Housing & Enrichment Requirements (ASHER)**

Chinchillas	Social/pair housing	Dust bath, shelters/structures	Play area, chew items	Food treats*	
Pigs ☼	Social/pair housing	Toys^	Ice, food treats*	Scratching surfaces	
Sheep ☼	Social/pair housing	Sheep in adjacent pen for singly housed animals	Complex forage/ Salt licks	Food treats*	

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Appendix 20: Animal Social Housing & Enrichment Requirements (ASHER) (page 4 of 5)**RARC: Animal Social Housing & Enrichment Requirements (ASHER)**

Species	Default Housing	Default Enrichment	Secondary Enrichment	3rd	4th
Goats ☼	Social/pair housing	Climbing structure	Food treats*	Toys^	
Cattle (dairy) ☼	Intact males: singly (category 2)	Dairy cow brush/ time on pasture/ complex forage	Positive human interaction		
	Others: social/pair housing				
Cattle (beef) ☼	Intact males: singly (category 2)	Time on pasture/Complex forage	Salt licks	Cow brush	
	Others: social/pair housing				
Horses ☼	Intact males: singly (category 2)	Time on pasture/ brushing/ positive human interaction	Food treats*		
	Others: social/pair housing				
Small birds (highly species dependent)	Pair/group housing	Perching structures	Visual cage barriers, shelters/structures, nesting material	Food treats*	Water baths
Reptiles (highly species dependent)	Pair/group housing (when species appropriate)	Shelters/structures	Hiding devices	Food treats*	
Amphibians (highly species dependent)	Pair/group housing (when species appropriate)	Shelters/structures	Hiding devices	Food treats*	
Fish (highly species dependent)	Pair/group housing (when species appropriate)	Hiding devices (when species appropriate)			
Nonhuman primates					

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Appendix 20: Animal Social Housing & Enrichment Requirements (ASHER) (page 5 of 5)**RARC: Animal Social Housing & Enrichment Requirements (ASHER)****Social Housing of Rabbits**Purpose:

The ILAR *Guide for the Care and Use of Laboratory Animals*, 8th edition (2011) states that “Appropriate social interactions among members of the same species (conspecifics) are essential to normal development and well-being”¹ but acknowledges that social housing is not always possible – – “Not all members of a social species are necessarily compatible. Social housing of incompatible animals can induce chronic stress, injury, and even death.”¹ This document details specific information and requirements for the social housing of rabbits.

University of Wisconsin Program for Social Housing of Rabbits:

1. Male rabbits are not considered social due to aggressive and territorial behaviors. Male rabbits are not to be pair- or group-housed. Castration of intact rabbits to mitigate aggressiveness is not considered to be in the best interest of animal well-being, and may create unwanted study variables. For the purposes of this program, castration is not considered to be an acceptable practice solely for the purpose of attempting to socially house male rabbits.
2. Female rabbits of any age may be singly housed if there is clearly defined scientific justification for single housing in the pertinent ACUC-approved animal use protocol(s); such justification will be reviewed by the ACUC at least once every 3 years during protocol renewal.
3. Female rabbits ≥18 weeks of age that have never been pair- or group-housed are not to be socially housed, as older rabbits display aggressive behaviors and there is increased risk for harm to animal well-being.
- a. At the discretion of the research animal veterinarian, female rabbits ≥18 weeks of age that have at one time been successfully housed with other rabbits, and that are on a study with no scientific justification for single housing, may be socially housed; such housing will be discontinued if aggressive behaviors are displayed that endanger animal well-being
4. Female rabbits <18 weeks of age will be pair- or group-housed.
5. Veterinary-directed exceptions to required pair- or group-housing as defined by this document are acceptable, if based on clinical or animal well-being needs. Such exceptions must be documented in the animal's clinical record and include reasoning for the exception and a description of pertinent long-term husbandry plans. The ACUC will be informed of any veterinary-directed exceptions.
6. In all cases of single housing of rabbits, provisions will be made to house rabbits so that tactile and/or visual and/or olfactory contact with conspecifics is allowed, with the exception of category 1 single housing; in these cases, enhanced forms of environmental enrichment may be utilized as per veterinary direction.

Reference:

Institute of Laboratory Animal Resources (U.S.) 2011. *Guide for the Care and Use of Laboratory Animals 8th ed.*, Washington, D.C.: National Academy Press

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Appendix 21: Acronyms

ACAPAC	All Campus Animal Planning and Advisory Committee
ACRQ	Animal Contact Risk Questionnaire (UW-Madison's Medical Evaluation Form)
APV	Association of Primate Veterinarians
ARROW	Application Review for Research Oversight at Wisconsin (online protocol submission system)
ART	Animal Research Technician
ASHER	Animal Social Housing & Enrichment Requirements (a veterinary policy)
BSL	Biosafety Level
[REDACTED]	[REDACTED]
CALS	UW-Madison College of Agricultural and Life Sciences
CBSP	Certified Biological Safety Professional
CDC	Centers for Disease Control and Prevention
CEO	Chief Executive Officer
CIH	Certified Industrial Hygienist
CPIA	Certified Professional IACUC Administrator
[REDACTED]	[REDACTED]
DACLAM	Diplomate, American College of Veterinary Medicine
DR	Designated Review (of protocols by the IACUC/OB)
EHR	WNPRC's Electronic Health Records System
EH&S	Environment, Health and Safety. A Division of UW-Madison Facilities Planning and Management (FP&M)
ETO	Ethylene Oxide (EtO) gas sterilization
FP&M	UW-Madison Division of Facilities Planning & Management (under the Vice Chancellor of Administration)
GHS	Globally Harmonized System (of hazard communication)
HCG	Human Chorionic Gonadotropin
hESC	Human Embryonic Stem Cell
hPSC	Human Pluripotent Stem Cell
IBC	Institutional Biosafety Committee
IO	Institutional Official
IRRC	Invertebrate Research Review Committee
ISSCR	International Society for Stem Cell Research
IVCs	Individually Ventilated Caging Systems
L&S	UW-Madison College of Letters and Science
LSVC	The IACUC/OB that oversees both the College of Letters & Science and the VCRGE animal programs

	(contract environmental waste removal service)
MMM	Master of Medical Management degree
MPH	Master of Public Health degree
MPT	Master of Physical Therapy
	(a contact laundry service)
NAS	National Academies of Science
NIH	National Institutes of Health
NSF	National Science Foundation
OBS	UW-Madison Office of Biological Safety
OLAW	PHS Office of Laboratory Animal Welfare
ORIP	NIH's Office of Research Infrastructure Programs
PAPR	Powered Air Purifying Respirator
PHS	Public Health Service
PPE	Personal Protective Equipment
RARC	Research Animal Resources Center
RSP	Research and Sponsored Programs. An office in VCRGE that oversee the lifecycle of research funding awards.
SCRO	Stem Cell Research Oversight Committee
SM(NRCM)	Specialist Microbiology, National Registry of Microbiologists
SMPH	UW-Madison School of Medicine and Public Health
SOP	Standard Operating Procedure
SPI	Scientific Protocol Implementation (a research support unit in the WNPRC)
SVM	UW-Madison School of Veterinary Medicine
UHS	UW-Madison University Health Service
USDA	United State Department of Agriculture
VCRGE	Office of the Vice Chancellor for Research and Graduate Education (formerly the Graduate School)
WNPRC	Wisconsin National Primate Research Center