Program Description
Animal Care and Use Program

College of Agricultural and Life Sciences

AAALAC File Number 001190

University of Wisconsin-Madison

[redacted]

July 23, 2018

For
AAALAC International

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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 College of Agricultural and Life Sciences (CALS). Its parent organization is the University of Wisconsin-Madison (UW-Madison).

Subunits within CALS involved in the care of animals for research, teaching, and outreach include the Departments of Animal Sciences, Biochemistry, Dairy Science, Nutritional Sciences, Forest & Wildlife Ecology, and some of the Agricultural Research Stations. Stations that house animals are located at [redacted], and [redacted]. In addition, CALS has investigators in the Departments of Forest and Wildlife Ecology and Entomology that conduct research with wildlife in the field. Wildlife may be housed in one laboratory within the [redacted] and is therefore included in this Program Description.

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. In 1866, the University of Wisconsin received designation as a land grant institution with the mandate to serve Wisconsin through focus on agriculture, science, and engineering. The main campus covers 936 acres in the city of Madison and the experimental farms and stations encompass more than 7700 acres across the state.

The University's educational offerings include 232 Undergraduate Majors and Certificates, 160 Master's degrees, 109 Doctoral degrees, 25 Professional Certificates, and 22 Capstone Certificate programs. The fall 2017 enrollment was 43,820 students. Research is increasingly vibrant and varied with growing emphasis on interdisciplinary collaboration. In FY2017, research expenditures exceeded $1.1 billion, which ranked 6th nationally among all U.S. universities. 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, referred to as the Wisconsin Idea, manifests in educational outreach, partnering with industry and research collaborations around the world.

The College of Agricultural & Life Sciences (CALS), established in 1889, carries out UW-Madison's mission as a public land grant institution. CALS offers 23 Undergraduate Majors, 23 Master's degrees, and 19 Doctoral degree programs as well as non-degree programs related to dairy processing, food production, safety and government and economic policy. Our oldest non-degree program is the Farm and Industry Short Course, which began in 1885 and serves our farming community to this day. The fall 2017 enrollment in CALS was 3,239 Undergraduates, 836 Graduate students, and 100 Farm & Industry Short Course non-degree students.

CALS strives to provide high quality programs in teaching, research, outreach, and public service ranging from production agriculture to natural resources to social sciences to fundamental life sciences. CALS's core mission is to encourage collaboration and innovation among these fields to address problems and create opportunities that affect the quality of life by discovering, critically analyzing, and sharing knowledge in food and agriculture, the life sciences, natural resource and environmental stewardship, and rural community development.

As a partner in the University of Wisconsin System, the College of Agricultural & Life Sciences offers strong research-based education responsive to public needs and sensitive to social, economic, and environmental concerns. Commitment to excellence in undergraduate and graduate education and research prepares students for life-long learning and effective citizenship in a global community, while promoting scholarship, individual creativity, multidisciplinary teamwork, and appreciation of cultural diversity.

Internships and collaborative activities with Wisconsin and international businesses, organizations, and industries present a wide spectrum of opportunities for in-depth inquiry, from the fundamental challenges of science to the immediate problems and prospects facing farms, agriculture, and biotechnology. CALS partners closely with UW-Extension, providing research-based agricultural and natural resource education to Wisconsin citizens, and plays a vital role in international agricultural development.

An excellent animal care and use program supports all parts of the University's mission, and is particularly important to research and graduate education. The UW supports approximately 494 principal investigators used 1,236,000 animals (about 50 species) at the University in 2017. About 877 protocols for animal projects, including teaching, research, and outreach are on-going.

CALS specifically has 74 principal investigators and 205 approved animal use protocols. The large majority of these projects take place at [redacted] on-campus facilities, and [redacted] experimental farms located in Wisconsin.

C. Note that AAALAC International's three primary standards are *the Guide for the Care and Use of Laboratory Animals* (*Guide*), NRC, 2011; the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (*Ag Guide*), FASS, 2010, and the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, Council of Europe (ETS 123). Other regulations and guidelines used (U.S. Department of Agriculture (USDA), Public Health Service (PHS) Policy, Good Laboratory Practice (GLP), Canadian Council on Animal Care (CCAC), etc.) may also apply. Describe which of the three primary standards and other regulations and guidelines are used as standards for the institutional animal care and use program and how they are applied. For example, an academic institution in the United States with an Office of Laboratory Animal Welfare (OLAW) Assurance may use the standards of the *Guide* and PHS Policy for all animals, the Animal Welfare Act regulations for covered species, and the *Ag Guide* for agricultural animals used in agricultural research and teaching (see also *Guide*, pp. 32-33). In the European Union, the standards applied might be the *Guide*, ETS 123, Directive 2010/63, and any country-specific regulations.

The University of Wisconsin-Madison formally adopted and recognizes the following as standards for the animal care and use program: (1) the *Guide for the Care and Use of Laboratory Animals* (Guide), NRC, 2011; (2) the *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 the facilities planning and management, oversight of animal environments, animal user training programs, IACUC functions, and veterinary care. For purposes of assessing appropriate species-specific euthanasia plans, the animal program adheres to the American Veterinary Medical Association Guidelines on Euthanasia (2013).

D. Describe the organization and include an accurate, current, and detailed organizational chart or charts (see **Appendix 4**) detailing the lines of authority from the Institutional Official to the Attending Veterinarian, the Institutional Animal Care and Use Committee/Oversight Body (IACUC/OB), and the personnel providing animal care. Please include the title, name (*Note:* For individuals whose information is publically available, provide the titles and names; for individuals whose information is not publically available, you may provide titles only.), and degree (if applicable) of each individual at the level of supervisor or above. Names of animal care staff below the title of supervisor need not be

included, but the titles and number of animal care personnel under each supervisor should be included. If animal care responsibility is administratively decentralized, including the management of satellite housing areas/locations, the organizational chart or charts must include all animal care programs, indicating the relationship between each administrative unit and personnel, the Attending Veterinarian, and the Institutional Official.

University of Wisconsin-Madison

The Chancellor of the University of Wisconsin-Madison is Rebecca M. Blank, PhD, who serves as CEO. Chancellor Blank officially delegated the responsibilities of the Institutional Official (IO) and IACUC appointment authority to [redacted], PhD, [redacted]. Dr. [redacted] has officially delegated the responsibility and authority of appointing members to the CALS IACUC to [redacted], PhD, [redacted] in CALS.

UW-Madison has multiple animal research programs with dedicated IACUCs. Two University-wide units support the programs and promote coordination; the Research Animal Resources and Compliance and the All Campus Animal Planning and Advisory Committee:

1)Research Animal Resources and Compliance (RARC), is a central service unit, providing support for responsible care and use of animals throughout the University. Administratively housed within the Office of The Vice Chancellor For Research and Graduate Education (OVCRGE), RARC has four primary functions:

a. Provide veterinary and laboratory services in support of quality animal care.
b. Provide the support and training necessary to provide the highest quality care possible for the University's research animals.
c. Provide administrative support functions for the IACUCs, such as maintenance of the protocol management system, manage the semiannual inspections, and program review.
d. Provide post-approval evaluation and assurance of compliance with the laws, regulations, and guidelines governing the care and use of laboratory animals.

2)The All Campus Animal Planning and Advisory Committee (ACAPAC) provides advice to the IO, RARC and the Vice Chancellor for Research and Graduate Education on planning, operations and advocacy in the animal program. The ACAPAC members are appointed by the IO and include the Attending Veterinarian for the campus, the chairs of the school and college IACUCs, researchers with active animal programs, animal facility managers, and representatives of UW Legal Affairs. Subject matter experts are invited to participate in ACAPAC activities as needed. The ACAPAC is not an IACUC, and ACAPAC action cannot supersede or counter any official action taken by the CALS IACUC or any other campus IACUC. The ACAPAC provides advice

to the IO on setting some policies (IO Policies) that pertain to animal research campus-wide.

Veterinary staff:
[redacted], DVM, MPH, PhD, DACLAM of the RARC is the Chief Campus Veterinarian of the University of Wisconsin-Madison. Dr. [redacted] serves as Attending Veterinarian for the University and is responsible for the campus-wide veterinary care of research animals. Dr. [redacted] has a direct reporting line to Dr. [redacted], IO. [redacted], [redacted] in the Office of the Vice Chancellor for Research and Graduate Education has a personnel supervisory role over RARC.

[redacted], DVM is RARC Senior Program Veterinarian for the CALS laboratory animal, aquatic program, and poultry research.

[redacted], DVM is RARC Program Veterinarian that will provide backup for Dr. [redacted] for clinical care of the CALS laboratory animals.

[redacted], DVM is RARC Senior Program Veterinarian for the CALS livestock animal program on and off campus.

[redacted], DVM is Program Veterinarian for the CALS livestock animal program on and off campus.

University of Wisconsin-Madison, College of Agricultural and Life Sciences

The [redacted] (CALS), [redacted], PhD, has delegated the overall administrative responsibility for the CALS animal care and use program to the [redacted], [redacted], PhD. Dr. [redacted] is also the [redacted]. The CALS animal program is decentralized. Each animal facility has a designated manager/superintendent and most have a faculty advisor. The manager/superintendent reports to their departmental chair/director. The chairs meet monthly and the director of the Agricultural Research Stations meets weekly with the Dean's Office.

The CALS animal program consists of [redacted] campus laboratory animal facilities, [redacted] campus agricultural animal facilities, and [redacted] off-campus agricultural research facilities. All of these facilities are overseen by the CALS IACUC, and are included in this program description. Organizational detail is provided in Appendix 4.

E. Identify the key institutional representatives (including, but not limited to, the Institutional Official; IACUC/OB Chairperson; Attending Veterinarian; animal

program manager; individual(s) providing biosafety, chemical hazard, and radiation safety oversight; etc.); and individuals anticipated to participate in the site visit.

University of Wisconsin – Madison, Oversight	
Rebecca Blank, PhD	Chancellor, CEO per PHS policy
[redacted], PhD	[redacted] Professor of Oncology
[redacted], PhD	Institutional Official, [redacted], Professor of Surgery
[redacted], MS	[redacted]
[redacted], PhD	[redacted] Associate Professor of Psychology
[redacted], PhD	Chair of CALS Animal Care and Use Committee, Professor of Forest & Wildlife Ecology
[redacted], PhD	[redacted], Professor of Neuroscience
[redacted], DVM, MPH, PhD, DACLAM	UW-Madison Chief Campus Veterinarian/Attending Veterinarian Research Animal Resources and Compliance
University of Wisconsin – Madison, University Health Services (UHS)	
[redacted], MD, MPT	[redacted]
[redacted], MS, CIH	[redacted]
[redacted], MS, CIH	[redacted]
University of Wisconsin – Madison, Environment, Health & Safety (EHS)	
[redacted], PhD	[redacted]
[redacted], PhD	[redacted], Assistant Director of EHS

[redacted], PhD	[redacted], Assistant Director of EHS
[redacted], MPH	[redacted], Assistant Director of EHS
[redacted], BS, MBA	[redacted], EHS Representative to the IACUCs
[redacted], HS	Risk Management Specialist Senior, EHS Representative to the IACUCs
[redacted], BS	Risk Management Specialist, EHS Representative to the IACUCs
[redacted], BS	Risk Management Specialist, EHS Representative to the IACUCs
[redacted], MS, CBSP, SM	[redacted],

Office of VCRGE Research Animal Resources and Compliance (RARC)

[redacted], MS	[redacted]
[redacted], DVM, MPH, PhD, DACLAM	UW-Madison Chief Campus Veterinarian/Attending Veterinarian RARC
[redacted], PhD	[redacted]
[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], PhD	[redacted], Animal Program Assessment Specialist, Senior 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], DVM, PhD, DACVP	[redacted]
[redacted], DVM	RARC Senior Program Veterinarian
[redacted], DVM	RARC Program Veterinarian
[redacted], DVM	RARC Senior Program Veterinarian
[redacted], DVM	RARC Program Veterinarian

College of Agricultural and Life Sciences (CALS), Dean's Office

[redacted], PhD	[redacted], Professor of Plant Biology
[redacted], PhD	[redacted]
[redacted], BA, CVT	[redacted], Senior Administrative Program Specialist

CALS, Department of Animal Sciences

[redacted], PhD	[redacted], Professor
[redacted], MS	Research Program Manager II, Animal Sciences [redacted] Animal Facilities
[redacted], BS	Research Assistant, Animal Sciences [redacted]
[redacted], HS	Lab Tech Support Supervisor, Animal Sciences [redacted]
[redacted], BS	Research Program Manager II, Animal Sciences [redacted]
[redacted], MS, LAT	Research Program Manager II, Animal Sciences [redacted]
[redacted], PhD	Senior Scientist, Animal Sciences, Forest & Wildlife Ecology, [redacted]

CALS, Agricultural Research Stations (ARS)

[redacted], MS	[redacted]
[redacted], MS	Research Program Manager III [redacted]
[redacted], MS	[redacted]
[redacted], MS	Research Program Manager II, [redacted]
[redacted], MS	Research Program Manager II [redacted]
[redacted], MBA	Research Program Manager II [redacted]
[redacted]	UW Agricultural Supervisor, [redacted]
[redacted], MS	Research Program Manager II [redacted]
[redacted], MS	Research Program Manager I [redacted]

CALS, Department of Biochemistry

[redacted], PhD	[redacted] Professor of Biochemistry
[redacted], BS	Associate Administrative Program Specialist, [redacted]
[redacted], PhD	Professor, Department of Biomedical Chemistry, [redacted]

CALS, Department of Dairy Science

[redacted], PhD	[redacted], Professor of Dairy Science
[redacted], MS	Research Program Manager III, Dairy Science [redacted]
vacant	Research Program Manager, [redacted]
[redacted], BS	Research Program Manager, Dairy Science [redacted]
CALS, Department of Forest & Wildlife Ecology	
[redacted], PhD	[redacted], Professor
[redacted], PhD	Professor, Department of Forest & Wildlife Ecology
[redacted], MS	[redacted]
CALS, Department of Nutritional Sciences	
[redacted], PhD	[redacted], Professor
[redacted], MS	Senior Research Specialist and Associate Administrative Program Specialist, Department of Nutritional Sciences [redacted]
[redacted], MSPM	Associate Administrative Program Specialist, Department of Nutritional Sciences [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 **Appendix 5** (Animal Usage) or provide the information requested in a similar format as an Appendix.

Animals are used in a broad array of research teaching, and outreach programs in CALS. Basic and applied investigative research, teaching and outreach occur within the disciplines of agricultural animal production and management, animal health and nutrition, bacteriology, biochemistry, food science and microbiology, genetics, nutrition, physiology, and wildlife ecology. Agricultural Research Stations augment campus laboratories, serving as outdoor classrooms, as extension and outreach education centers, and are used by researchers in fundamental biological sciences as well as those in agricultural production. Currently, 74 principal investigators in CALS hold approximately 205 approved animal care and use protocols.

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

CALS extramural research awards totaled over $74 million in 2017. Federal competitive grants comprised approximately 68% of this amount, with awards from the National Institutes of Health, The Centers for Disease Control, the United States Department of Agriculture, the National Science Foundation, the National Aeronautics and Space Administration, the Department of Interior, and the Department of Energy. State agencies such as the Department of Natural Resources and the Department of Agriculture, Trade and Consumer Protection awarded research support funds. Other funding sources include private associations and foundations (e.g., American Heart Association, American Diabetes Association), agricultural commodity groups (e.g. Wisconsin Soybean Marketing Board, Potatoes USA), and private industry.

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

In addition to the College of Agricultural and Life Sciences, three other schools and one college at the UW-Madison use animals in teaching and research: 1) School of Veterinary Medicine (SVM), 2) Office of the Vice Chancellor for Research and Graduate Education (VCRGE) 3) School of Medicine and Public Health (SMPH), and 4) College of Letters and Science (L&S).

L&S is the only school that is not AAALAC accredited. Therefore, animals used by the other college and schools are not housed in L&S facilities.

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

Each school/college facilities are operationally distinct, and each program is overseen by program-specific IACUC.

The UW-Madison research program has included some use of higher invertebrates in the past. Potential future use will be overseen by the non-IACUC Invertebrate Research Review Committee (IRRC). IRRC is a voluntary oversight committee that will meet on an as-needed basis and is charged with reviewing research projects using higher invertebrates, such as cephalopods. The primary responsibility of the committee is to ensure that higher 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. Currently CALS has no research with higher invertebrates.

Facility use is allowed between the AAALAC accredited schools/college. Generally, when animals are housed and used in facilities that cross the jurisdictions of more than one IACUC, primary oversight (including protocol review and approval, semiannual inspections, and veterinary care) is performed by the IACUC that oversees the facility where the majority of the animals for a given study are housed. Complementary protocol review consultation is sought from the campus research veterinary staff and other campus IACUCs on an ad hoc basis when the design of a particular study requires the use of facilities overseen by an IACUC other than the IACUC with primary oversight. A campus policy describes the method and circumstances under which multiple IACUCs exercise shared protocol review and approval (All Campus policy 2003-024, "Assignment of Protocols to UW-Madison IACUCs").

There are 5 CALS principal investigators whose protocols allow animals to be housed at a School of Medicine and Public Health (SMPH) facility. The SMPH is AAALAC-accredited.

PI	Species
Dr. [redacted]	Mice
Dr. [redacted]	Mice
Dr. [redacted]ield	Mice, Rats
Dr. [redacted]	Zebrafish
Dr. [redacted]	Mice

There are 3 CALS principal investigators whose protocols allow animals to be housed at the School of Veterinary Medicine. The SVM is AAALAC-accredited.

PI	Species

Dr. [redacted]	Voles
Dr. [redacted]	Mice
Dr. [redacted]	Mice

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.

Also on the UW campus is a meat processing facility inspected and approved by the State of Wisconsin. The [redacted] is located at [redacted]. The [redacted] portion of the building includes an abattoir, where animals are harvested for classroom teaching and for research purposes, as well as a meat processing area and an adjoining classroom. The [redacted] portion of the building includes faculty and staff offices and research labs. Animals are housed here for less than 12 hours. A new facility is scheduled to open in 1/2019.

The [redacted]). Annually, the mill produces 4000 tons of bulk pellet and bagged feed for beef and dairy cattle, horses, sheep, swine, and poultry housed on campus and at the CALS Agricultural Research Stations. The [redacted] includes 2000 acres used for pasture, crop research and the production of grains and forage for the animal units within the ARS.

[redacted]) includes 575 acres located about [redacted] of the UW-Madison campus. The station produces feed and hay to supply campus agricultural animal needs. It also assists with animal transport, operating and maintaining a trailer and truck that can haul livestock from agricultural facilities. The [redacted] crew serves as back-up drivers for CALS animal transport needs.

[redacted], located [redacted] of Madison ([redacted]), is available for activities that fulfill the University's missions of teaching, research, and outreach. The [redacted] also rents this facility to educational groups (e.g. FFA, 4-H), as well as for events co-sponsored by the College or the Cooperative Extension Service.

Section 2. Description

I. Animal Care and Use Program

A. Program Management

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

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

The UW-Madison Chief Campus Veterinarian communicates directly with Dr. [redacted], the Institutional Official (IO).

The IACUC sends reports of its semiannual inspections and program reviews to the IO. The Chair of the IACUC can communicate programmatic needs to the IO at any time. The IO also attends at least one regular IACUC meeting per year and most All Campus Animal Planning and Advisory Committee (ACAPAC) meetings.

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

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

- a list of responsibilities
- a description of the veterinarian's involvement in monitoring the care and use of laboratory animals
- the percentage of time devoted to supporting the animal care and use program of the institution if full-time; or the frequency and duration of visits if employed part-time or as a consultant.

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

[redacted], 100%, DVM, MPH, PhD, DACLAM, Chief Campus Veterinarian/Attending Veterinarian
Dr. [redacted] supervises UW-Madison veterinary care, all veterinarians and veterinary technicians providing service to the CALS animal research program. She reports programmatic concerns to the IO. Dr. [redacted] serves as a voting member of the All-Campus Animal Planning and Advisory Committee and an alternate voting member on the CALS IACUC.

[redacted], DVM, DABVP-Bovine, Senior Program Veterinarian, Large Animal
Dr. [redacted] provides clinical care to the college's agricultural research animals; he oversees the disease surveillance programs, surgical procedures, provides training and consults with researchers. Dr. [redacted] serves as a voting member on the CALS IACUC, reviews the large animal research protocols, and facility Standard Operating Procedures. Dr. [redacted]'s appointment is divided between CALS (90%) and the School of Veterinary Medicine (10%).

[redacted], DVM, Senior Program Veterinarian, Small Animal
Dr. [redacted] provides clinical care to the college's laboratory research animals; oversees the disease surveillance program, surgical procedures, and consults with researchers. He serves as a voting member on the CALS IACUC, reviews the laboratory animal and wildlife use protocols, as well as the facility Standard Operating Procedures. Dr. [redacted] divides his time between the VCRGE laboratory animal program (40%) and CALS (60%).

[redacted], DVM, MS, DACVIM, Assistant Research Animal Veterinarian, Large Animal
Dr. [redacted] provides clinical care to the college's agricultural research animals and serves as a voting alternate for Dr. [redacted] on the CALS IACUC. Dr. [redacted] divides her time between CALS (80%) and the School of Veterinary Medicine (20%).

[redacted], DVM, Associate Research Animal Veterinarian
Dr. [redacted] is the Senior Program Veterinarian for the SVM small animal program. She provides back-up clinical care to laboratory animals for Dr. [redacted].

The Senior Program Veterinarians monitor the care and use of CALS animal program through animal-use protocol pre-review, and review, semiannual IACUC inspections, veterinary facility visits, and consultation with key facility and research staff. RARC veterinary staff provide emergency, weekend and holiday coverage for laboratory animals.

Private veterinary practitioners through [redacted] provide supplemental veterinary support and diagnostic services including weekend and holiday coverage for agricultural animals housed on campus.

All the CALS Agricultural Research Stations with off-campus animal programs have established doctor/client/patient relationships with local veterinary services, whose licensed DVMs provide clinical care and respond to animal health emergencies as needed. Either [redacted] or [redacted]) provide after hours, weekend and holiday emergency care to [redacted] animal units and the [redacted] as necessary. [redacted] has clinical support from [redacted]). [redacted] contacts Marshfield Veterinary Service, SC (Marshfield, Wisconsin). For all of these facilities, ultimate oversight responsibility and program direction rests with Dr. [redacted].

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

Small Animal Facilities:
RARC Veterinary staff provide veterinary care. Daily health surveillance of animals is provided by animal care staff following approved policies and procedures. When sick or injured animals are identified, husbandry staff makes an initial evaluation, and reports the concern to their supervisor or manager, the PI or laboratory manager, and the RARC veterinary staff. The researcher and the

veterinary staff discuss proposed medical care and treatment plans are implemented under the direction of a veterinarian.

Large Animal Facilities:
In agricultural animal production settings, managers or trained animal care staff may initiate treatments for 'routine' ailments or conditions as delineated in facility standard operating procedures approved by RARC Senior Program Veterinarian, Faculty Advisor and Facility Manager. Each approved procedure includes typical signs of illness or injury, on-farm therapies, and end-point parameters to determine when a veterinarian needs to be called to examine the animals and develop an alternate treatment plan. RARC veterinary staff visit off-campus facilities at least every other week or as needed dependent upon circumstances. In addition, the off-campus facilities have established a doctor/client/patient relationship with a private veterinary service local to their area for husbandry and emergency care as needed.

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

Policy 2003-015-io on collaborative research projects applies to UW-Madison research projects involving non-UW-Madison collaborators. The Policy states that any UW-Madison investigator conducting collaborative animal-based research at facilities not owned or controlled by UW-Madison must have an IACUC-approved protocol from the institution where the animal work occurs. Additionally, UW-Madison does not relinquish its right to review any animal care and use protocol. Animal ownership in collaborations is determined on a case by case basis. Regardless of ownership, the institution housing the animals has primary responsibility for animal welfare.

2. Personnel Management

a. Training, Education, and Continuing Educational Opportunities
Describe *how* the IACUC/OB provides o*versight* and *evaluates the effectiveness* of training programs and the assessment of personnel competencies. Describe how training is documented.
Note: Do not include details about the training program, which should be described in the following sections.

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

Policy 1999-006-io describes the university's training program. Upon protocol submission to RARC for IACUC review, administrative staff verify that all individuals listed on each protocol have completed the animal user certification and animal safety training. If an individual listed on the protocol has not completed this training, they are removed from the protocol.

The IACUC has the discretion to address an individual's non-compliance, require additional training, or retraining on a case-by-case basis, with the completion of such as a condition of protocol approval. The IACUC may request 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. They observe and evaluate techniques of the researcher, and report their findings to the IACUC.

University training is documented in central training databases maintained by RARC and University Environment Health and Safety. Training records for all individuals listed on a protocol are available to the principal investigator via the PI Portal.

Additional site- specific training is conducted by the sites program manager, faculty advisor or program veterinarian. Some of this training is based upon the facility's "veterinary standard operating procedures," a set of veterinarian approved, health treatments for animals with a specific set of clinical signs. Other training provided by program managers or outside experts is relates to equipment use and safety; staff document these special sessions in the "Facility Training Notebook."

i. **Veterinary and Other Professional Staff** [*Guide*, pp. 15-16]
For the Attending Veterinarian and other individuals having a direct role in providing veterinary medical care (veterinarians, other professional staff listed above, private practitioners, etc.), provide: name, credentials (including degrees), and a description of their qualifications, training, and continuing education opportunities.

Note: Please do not provide curriculum vitae of personnel; if preferred, this information may be presented in a Table or additional Appendix.

[redacted], DVM, MPH, PhD, DACLAM, Chief Campus Veterinarian/Attending Veterinarian: [redacted]

[redacted], DVM, PhD, DACVP, [redacted]

[redacted]

[redacted], DVM, MS, Senior Program Veterinarian, Small Animal: [redacted]

[redacted], DVM, DACLAM. Program Veterinarian, Small Animal: [redacted]

[redacted], DVM, DABVP-Bovine, Senior Program Veterinarian, Large Animal: [redacted]

[redacted]

[redacted], **DVM, MS, DACVIM, Program Veterinarian, Large Animal:** [redacted]

[redacted]: Is a private mixed practice veterinary service provider with 6 full time large animal veterinarians on staff. The veterinarians provide their services during normal business hours, and offer 24-hour emergency and pharmacy services.

[redacted]: Is a private mixed practice veterinary service provider with 13 full-time veterinarians, provides care for livestock and equine (5 veterinarians specialize in equine care and 8 in livestock care). The clinic offers normal business hours, as well as 24-hour emergency, and pharmacy services. [redacted], a private mixed practice veterinary service provider employs 2 full time mixed practice veterinarians on staff and offer a wide variety of veterinary services including beef production, dairy cattle, sheep, goats or swine. The clinic has normal business hours, as well as 24-hour emergency and pharmacy services.

[redacted]**:** Is a private mixed practice veterinary service provider employs 4 full time veterinarians specializing as large animal practitioners and offers veterinary services specifically to dairy farmers in the [redacted] area. The large animal veterinarians offer 24-hour emergency and pharmacy services.

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

1) Indicate the number of animal care personnel.

80

2) Summarize their training, certification level and type, experience, and continuing education opportunities provided.
Note: If preferred, this information may be provided in a Table or additional Appendix.

CALS employs 80 animal care takers in both full and part time positions. Nine individuals work exclusively as small animal laboratory caretakers; the remaining 71 caretakers work with our livestock animals in various positions including, but not limited to, neonatal care, milking, and basic animal husbandry needs.

Training:
Initial training for Animal Research Technicians (ARTs) involves the UW-Madison Animal User Orientation, Species-specific Training, and the Safety Training for animal users. The Animal User Orientation and safety training classes are recertified every five years. In addition, animal care workers receive initial and on-going SOP-based training at the specific unit of employment by managers or veterinary staff as appropriate. On-site supervisory personnel are responsible for determining appropriate unit level training beyond the campus requirements and its implementation. Site supervisors document these manager/supervisor-led trainings in the site's training notebooks.

Continued training is encouraged for all of the CALS managers and staff.

Levels of Competency and Experience:
Several levels of competency for the ART title series exist based upon years of service, task proficiency, and leadership. ARTs with basic skills begin at the entry level, and can advance quickly to the objective level based upon job performance. The next two levels, advanced and senior, are based upon leadership skills and years of experience. CALS current ART staff ranges from less than one year of experience to more than 8 years.

RARC coordinates instruction of the entry level AALAS course for caretakers, to prepare them for AALAS certification. CALS has had 14 successful certifications. UW-Madison encourages the animal care staff to become AALAS certified and provides an hourly wage increase for the first level.

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 review, protocol administrative staff verifies that every individual listed on each protocol has completed basic animal user training as detailed in campus policy 1999-006-io. This policy addresses training requirements for employees, students, and visitors involved in the University of Wisconsin-Madison animal program. This training includes completion of the online UW-Madison Animal User Orientation, 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 central training database operated by RARC.

a) Briefly describe the content of any required training.

UW-Madison Animal User Orientation is an online training module, covers the rules and regulations regarding the use of animals in research and teaching. Topics covered include animal care and use legislation, IACUC function, ethics of animal use, the Three R's, methods for reporting concerns, occupational health and safety issues and links, as well as animal handling, aseptic technique, anesthesia, analgesia, euthanasia, and other related topics. Reauthorization is required every 5 years.

Safety for Personnel with Animal Contact is an online training, or upon request, an in-person seminar. The Animal Research Safety program within Environmental, Health and Safety (EHS) administers this training. The training focuses on hazards associated with direct contact with animals, safety when using sharps, personal protective equipment, reporting significant exposures, first-aid tips, medical concerns, and respirator use. Customizable on-line safety training for the agricultural setting is an alternative to the laboratory training. This training must be completed every 5 years.

Risk Communication in Animal Facilities is an online training module administered by the Animal Research Safety program within Environment, Health and Safety (EHS). The training focuses on use of appropriate signage to communicate use of hazardous agents in the room and at the cage level. This training must be completed every 3 years by researchers and their laboratory staff.

Species Specific Training includes online training, and hands-on training with the particular species the individual will be working with. This training is conducted either by RARC staff or by research staff approved as trainers by RARC.

Laboratory Animal Surgery is required of all personnel performing surgery. This course consists of online modules, lectures, demonstrations and hands-on opportunities in anesthesia/analgesia, instrumentation, suturing and wound closure, aseptic technique and surgical technique (e.g., performing a splenectomy on a rat).

Anesthesia Training Module is a pre-requisite of the Lab Animal Surgery course. This online module is an introduction to basic terms and definitions associated with anesthesia, addresses why we use anesthesia, and factors affecting response to anesthesia. The module also covers types of anesthesia, anesthesia administration, stages and planes of anesthesia, recognizing pain, animal monitoring, and recovery.

Aseptic Technique Training Module is a pre-requisite of the Lab Animal Surgery course. This online module introduces basic terminology associated with aseptic technique. It covers why aseptic technique is used, common sterilization methods, the difference between disinfecting and sterilizing, and the required steps taken in preparation for animal surgeries. This training is a prerequisite for the Laboratory Animal Surgery Class.

Medical Records Training Module is a pre-requisite of the Lab Animal Surgery course. This online training module 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.

Anesthesia Training Requirements for Nonsurvival Surgery Class 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.

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

Per Policy 1999-006-io, all UW-Madison animal users must complete the UW-Madison Animal User Orientation prior to being listed on an IACUC-approved animal protocol. Once listed in an IACUC-approved protocol, species-specific training (administered by RARC) for the species with which the individual will work must be completed within 30 days.

Individuals named on IACUC-approved protocols as surgical staff must also complete the Lab Animal Surgery Class or the Anesthesia Training Requirements for Nonsurvival Surgery Class (administered by RARC) within 30 days of being placed on the protocol.

In addition, the online Safety for Personnel with Animal Contact or Agricultural Safety training managed by Environmental Health and Safety, located on the Learn@UW website, is required to be renewed every five years. A 30-day completion requirement for this training is to be added to the training policy.

If individuals use or care for animals before completing the required training, they must work under the direct supervision of an individual who has completed the training described in section II of policy 1999-006-io.

c) Describe continuing education opportunities offered.

Online training modules or opportunities are available in the Training section of the RARC website. These modules include:

AALAS Learning Library
Anesthesia Machine User Guide
Anesthesia Training Requirements for Nonsurvival Surgery
Lab Animal Surgery Anesthesia
Lab Animal Surgery Aseptic Technique
Controlled Substances
Medical Records
Micro-isolator Technique
Perfusion
Stereotactic Surgery
Tissue Collection
Working with Wildlife

RARC offers training for those wishing to obtain AALAS certification. Classroom training is available for the ALAT certification level and a self-study tutorial is available for LAT and LATG certification levels.

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

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

The RARC Veterinary Staff learns of proposed surgical techniques via protocol pre-review. Research animal veterinarians or the IACUC address questions about personnel qualifications or the nature of the proposed surgical technique(s) through protocol review.

Every individual named on IACUC-approved protocols as part of the surgery staff must successfully complete the RARC Laboratory Animal Surgery Class or the Anesthesia Training Requirements for Nonsurvival Surgery Courses taught by qualified RARC Trainers and Veterinary Staff. Protocol administrative staff verifies that individuals listed on an IACUC-approved protocol as surgical staff successfully completed the mandatory species-specific and/or surgical training as outlined in Policy 1999-006-io. If an individual does not complete the required training in the time permitted, that individual is sent a notice of revocation. The individual's PI also receives a copy of

the revocation notice. Policy 1999-006-io also describes processes to exempt experienced surgeons from this training. Any protocol violations or non-compliance issues are reported to the Chief Campus Veterinarian/Attending Veterinarian and/or Senior Program Veterinarian(s) and the IACUC.

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

Anesthesia must be described in the approved animal care and use protocol. Every protocol is reviewed for proper anesthesia usage by the IACUC and an assigned veterinarian.

Individuals listed on IACUC-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 may be offered during the species-specific training courses.

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

Once an individual completes 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.

RARC provides additional supportive material. 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 Veterinary Standards and Records Requirements section of the RARC website. 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.

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

Euthanasia method(s) must be described in an approved animal care and use protocol. Individuals listed on IACUC-approved protocols must complete RARC species-specific training for the species with which they will be working. Individualized euthanasia training is offered during the species-specific training courses. RARC training provides instruction on verification of death after euthanasia procedures, techniques of CO2 euthanasia, and intraperitoneal (IP) injections for rodent species. Euthanasia of larger species is performed by veterinary staff members or experienced investigators or experienced facility staff. Instruction on physical methods of euthanasia is provided by experienced staff, with assistance from RARC when needed. Ongoing assessment of proficiency takes place through regular programmatic oversight by RARC and facility staff, IACUC semiannual inspections, and formal post-approval monitoring.

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

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

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

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

The 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 (EHS)

3. Institutional Safety Committees
4. Stem Cell Research Oversight Committee (SCRO)
5. Animal Care and Use Committees (IACUCs)
6. Office of Risk Management

1. University Health Services (UHS): UHS has two major divisions, Environmental and Occupational Health and Occupational Medicine.

A) Environmental and Occupational Health: Environmental and Occupational Health provides a variety of services campus wide: industrial hygiene investigation and consultations, noise evaluation surveys and hearing conservation, indoor air quality, assist 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: Occupational Medicine staff review the Animal Contact Risk Questionnaire (ACRQ) baseline to enroll personnel with animal contact into the occupational health program. Thereafter, an annual form is used. 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 also coordinates any serum collection for pre-employment or pre-exposure services for some labs depending on the hazardous agent involved. Employees not regularly working with animals but whom enter animal areas, for example maintenance staff and UWPD, complete the Service Personnel Limited Animal Area Access Form (SPLAAAF). The ACRQ baseline, the annual and the SPLAAAF forms are included in Appendix 6.

Further information about UHS can be found on their website: http://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-F below):

A) The Office of Biological Safety (OBS): Assists 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: Advises IACUCs on animal protocol hazards 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 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. There are no approved CALS animal use protocols that are subject to SA program.

B) Biosafety Cabinet Certification (BSC) team: BSC team provides facilities and biomedical containment consultation throughout the University and within EH&S. BSC team provides consultation concerning the purchase of biological safety cabinets (BSC) and offers a BSC and containment equipment certification program.

C) Office of Chemical Safety: 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. The Office provides general laboratory safety training and also performs

laboratory visits in order to provide direct feedback on safety and compliance concerns. Chemical Safety also consults with investigators on safety and compliance concerns 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 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 safe use of hazardous chemicals and hazardous drugs administered into animals.

D) Office of Radiation Safety: 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 laboratories to ensure all radiation safety requirements are in place. ORS staff visit laboratory to discuss safe handling and storing, posting and labeling, contamination checks, waste disposal, record keeping and other requirements as needed. In order to use radioactive materials in vertebrate animals, the authorized user must submit a form 99A to ORS. An animal care and use protocol approved by the IACUC 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 cages, that animal waste, food and bedding are properly disposed of, that the animals are permanently marked or tagged as having been given radioactive materials, that the animal is 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 the project.

E) Office of General & Building Safety: This entity 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 proactive maintenance programs to insure the safety of those persons using campus facilities for working, 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, testing and evaluation of safety showers and eye wash stations, fire safety (includes fire extinguisher maintenance and training, 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 review 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.

C) Chemical Safety Committee: The 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 Committee: The Executive Radiation Safety Committee has oversight of the of the six standing safety

committees that focus on more specific aspects of radiation safety. There is a specific committee that oversees animal research involving radioactive materials.

E) Occupational Health Committee: The committee advises University administration, 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. The committee charter includes advocacy for adequate resources to support the Occupational Health Program.

4. Stem Cell Research Oversight Committee (SCRO): The SCRO is an institutional committee based in the Office of the Vice Chancellor for Research and Graduate Education (OVCRGE). The SCRO Committee provides oversight for all research on campus that involves 1) the use human stem cells or their derivatives; 2) the introduction of human pluripotent stem cells, 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 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. Before approval, the committee ensures all appropriate oversight approvals are in place.

5: Animal Care and Use Committees (IACUCs): Exposure intensity, frequency, hazards posed by animal species, and the research materials used in or with the animals are evaluated by the IACUC and other specialized review committees described above. Specialists from the EH&S Office of Biological Safety's Animal Research Safety Group review animal protocols as voting members of the IACUCs. Ms. [redacted] is the voting member

assigned to all four IACUCs and Ms. [redacted] is her voting alternate. The specialists participate in IACUC semiannual facility inspections, and attend convened IACUC meetings to provide expert opinion and guidance as needed. The specialists also review animal related parts of the Biological Safety protocols and attend the IBC meetings as needed.

The IACUC 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

2) Describe methods to identify work-related hazards and the processes used to evaluate the significance of those hazards in the context of duties and tasks. Describe both common approaches and differences, if applicable, for categories of personnel such as, but not limited to, researchers, veterinarians, husbandry staff, cage-washing staff, students, housekeeping, physical plant staff, security personnel, IACUC/OB members (including non-affiliated members), contractors, visitors, etc. [*Guide*, pp. 18-19; see also Chapters 2 and 3 in Occupational Health and Safety in the Care and Use of Research Animals, NRC 1997.].

Research Hazards Identification & Evaluation Processes:
Processes to identify, evaluate, manage and control hazards are overseen by the Offices of Biological Safety, Radiation Safety, Chemical Safety and by the IACUC.

Office of Biological Safety (OBS):

PIs must submit a Biological Safety protocol to OBS, and OBS routes these protocols to the Institutional Biosafety (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. The review process is as follows:

1. PIs must submit a Biological Safety Protocol to OBS.
2. 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 insure congruence with applicable animal care and use protocols.
3. The PI is notified if any changes are needed. Finalized Biological Safety protocol is submitted to the Institutional Biosafety Committee (IBC) for review.
4. The IBC reviews research activities involving biologically hazardous materials and/or recombinant or synthetic DNA molecules/organisms.
5. The IBC will either approve the protocol, approve the protocol pending changes, or table the protocol.

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

a. proper radiation training has occurred,
b. animals are not moved to unauthorized facilities,
c. proper labeling is placed in animal rooms and cages,
d. animal waste food and bedding is properly disposed of,
e. the animals are permanently marked or tagged as having been given radioactive materials,
f. the animal is disposed of by ORS when sacrificed
g. other requirements as stated on form 99A are followed.

The PI must indicate on the animal care and 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 projects.

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), areas not designated as laboratories not using hazardous chemicals are required to have a Hazard Communication Plan. The Chemical Safety Committee uses 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 sign is reviewed and updated annually.

IACUC Protocol Review:
Animal care and use protocols must include identification of hazards, initial risk assessment of hazards, establishment of precautions, and confirmation of an applicable Biosafety protocol and/or Radiation Safety Form 99A. As part of the protocol review process, an Animal Research Safety staff member:

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 agents administered to the animals. Compares the animal care and use protocol to any Biological Safety protocol for consistency. When necessary notifies the PI if the Biological Safety protocol, must be modified or amended, needs to be renewed, or if safety precautions contained in the other protocols are inconsistent with information presented in the animal 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 needed or available: pharmacokinetic data, safety and toxicity data, Safety Data Sheets or produce inserts.

The IACUC has authority to place a hold on granting animal care and use protocol approval if a corresponding amendment is needed to the Biological Safety protocol. If a PI adds 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 Animal Research Safety 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 biosafety protocol has been achieved.

Once the IACUC approves an animal care and use protocol, RARC sends electronic notification to the PI. The notification includes instruction to contact animal facility staff 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.

Research Staff Responsibility.
Research personnel hold the responsibility 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 precaution cards, cage labels, and special hazard signs and verbal instructions when needed. A mandatory on-line training for laboratory staff on hazard communication in animal facilities has been added to ACAPAC Policy: 1999-006. The Animal Safety Research program in EHS administers this training.

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

Post-Approval Monitoring:

1. 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. They also participate in Biosafety lab visits with Biological Safety staff.

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

3. University Health Services reviews an individual's Animal Contact Risk Questionnaire or Service Personnel Limited Animal Area Access Form on an annual basis. UHS contacts the individual if there are changes in health status or a work-related hazard, for example needing medical clearance for a respirator.

4. UHS and EH&S have a "First Report" systems that allow individuals to report adverse events such as needle sticks, exposures, or animal bites that will initiate follow-up by the staff in these units.

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

The EH&S emergency contact website homepage (http://ehs.wisc.edu/emergency.htm) prominently features access to an injury or exposure report. When submitted, this report provides the Office of Biological Safety, the Office of Occupational Health, and the Institutional Biosafety Committee with information to ensure that proper actions occurred, including appropriate medical care. It also assists the University in meeting NIH reporting requirements. The Office of Biological Safety performs a root cause analysis to determine if any mitigation steps can be taken to avoid the incident from reoccurring.

Once threats to personal safety and property have been mitigated, the employee completes the Employee's Work Injury or

Illness Report and submits the form to their supervisor. The supervisor completes a Supervisor's Accident Analysis and Prevention Report and submits it to the unit's Human Resources office. The supervisor form should be completed within 24 hours of being notified by the employee of an accident. Unit human resources and/or safety staff then complete the Employer's First Report of Injury or Illness form. These 3 forms are then promptly forwarded to UW-Madison's Division of Business Services Office for 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.

The UW-Madison Institutional Biosafety Committee (IBC) requires that Principal Investigators report all potential exposures to 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.

The EH&S Chemical Safety Office 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 and will communicate to the rest of campus (when appropriate) lessons that have been learned from these incidents. The Chemical Safety Office also requires reporting (link to form on the same emergency contact webpage as 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.

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

ii. Standard Working Conditions and Baseline Precautions

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

1) Medical Evaluation and Preventive Medicine for Personnel

[*Guide*, pp. 22-23] *Note:* Include blank forms used for individual health assessment as **Appendix 6.**

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

Policy 2004-025-io, "Occupational Health Enrollment Program": identifies groups of employees, students, visitors and service personnel and outlines when enrollment in the Occupational Health Program (OHP) is required. Anyone who through their employment, training or service at UW Madison has regular contact with animals: 1) faculty, staff and students named in an animal-use protocol, 2) research animal veterinarians, 3) animal care staff, 4) IACUC members, 5) veterinary medical students, 6) Veterinary Medicine Teaching Hospital staff, 7) students enrolled in a class with more than minimal contact, 8) visitors with more than minimal exposure, and 9) UW EHS safety and physical plant personnel, and UW police with direct or indirect contact.

Service, security, and maintenance personnel are defined as electricians, plumbers, steamfitters, sheet metal workers, painters, maintenance mechanics, other maintenance staff, and members of the UW Police. All service personnel will be enrolled in the UW-Madison OHP for service personnel (SPLAAAF).

Visitors with more than minimal exposure will have one of: 1) prior risk assessment from different institution, 2) reading and signing a disclosure statement, 3) incorporation in departmental contract or 4) enrolled in OHP.

Students and visitors with minimal exposure will be advised and/or signage and/or read and sign a disclosure statement.

b) Describe provisions for allowing an individual to decline participation in all or parts of the medical evaluation and preventive medicine programs (if applicable). Provide an estimate (percentage) of personnel associated with the animal care and use program that have declined participation in the medical evaluation program.

There is no declination provision for personnel with direct animal contact. Personnel must enroll in the Occupation Medicine program as outlined in Policy 2004-025-io. Animal use privileges are removed if an individual does not enroll or fails to complete their annual update. However, personnel can decline certain vaccinations.

c) Describe provisions for assuring confidentiality of medical information.

Individual risk and prevention recommendations are communicated via a secure UHS electronic health records system. The information obtained in the Animal Contact Risk Questionnaire (including review of previous annual submission) is used to determine required immunizations, use of personal protective equipment, hygiene practices, medical surveillance, and training.

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

Students and visitors with minimal exposure will be advised via these methods, verbally, and/or signage, and/or read and sign a disclosure statement.
Some of the available signage that is used to alert visitors is the following:
Allergen exposure
Livestock/Animal-use Facility
No food or drink allowed
Wash hands after exiting the area
Hazard Communication – Pregnancy awareness poster

In addition, facility staff escort visitors and provide a verbal discussion for entrance into an animal housing area. Topics of discussion include the appropriate PPE for entrance into the area and the importance of washing hands after exiting and the removal of the PPE.

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

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

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

UHS provides pre-exposure services such as routine testing, examinations, consultation, immunizations and other services that are required before encountering a specific occupational risk.

Medical professionals at UHS evaluate the Animal Contact Risk Questionnaire (Appendix 6) to assess potential risks for each individual who may have contact with research animals or may work in animal facilities. Individual risk and prevention recommendations are communicated via a secure UHS electronic health records system. The information obtained in the ACRQ (including review of previous annual submission) is used to determine required immunizations, use of personal protective equipment, hygiene practices, medical surveillance, and training.

Individual immunization services provided by UHS include tetanus, hepatitis B rabies and influenza.

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

A) UW Hospital and Clinics (Emergency Department and Infectious Disease Physicians), SSM Emergency Department and Meriter Hospital Emergency Department. 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. UHS Occupational Medicine provides medical response guides and updates on a periodic basis to the emergency departments.

B) On occasion, Occupational Medicine staff will provide assistance/coordinate with an employee's personal healthcare provider regarding the management of work related allergies and those contracting an infectious disease either experimental or zoonotic.

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

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

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

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

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

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

All campus personnel with identified animal contact must complete an Animal User Orientation presented by the RARC, and Safety for Personnel with Animal Contact training presented by the EH&S staff. Both of these trainings are renewed every 5 years.

Office of Animal Research Safety offers Safety for Personnel with Animal Contact as part of the animal handler required training. Specific Agricultural Safety training exists for agricultural animal users. Additional online training information is available through EH&S and includes zoonotic hazards, syringe use guidelines, bloodborne pathogens, and safe use of liquid nitrogen.

Biosafety offers a number of training covering work with biological and recombinant hazards. Trainings for personnel listed on a biological safety protocol includes a six-module course titled "Biosafety Required Training." The six modules cover the following topics:
Introduction to Biosafety Risk Assessment & Mitigation
NIH Guidelines and Research Oversight at UW-Madison
Biosafety Protocol Process
Procedural Risks & Mitigation
Exposure Response & Reportable Events
Disinfection, Decontamination & Biohazard Disposal

These trainings cover risk assessment and mitigation, exposure response, biohazard disposal, and other information that is applicable to the day to day operations of a laboratory including the occupational health and safety of personnel. All Personnel listed on a biosafety protocol are required to take the online biosafety training, and complete the required quiz with a score of

70% or higher. A refresher of the "Biosafety Required Training" is required every 5 years.

Office of Radiation Safety: Any personnel involved with handling radioactive materials and/or radiation producing devices is required to take a specific training and must pass the quiz in order to be approved to use and handle radioactive materials. The following training modules are available at the Environmental Health and Safety –Radiation Safety website:
Radiation Safety 101: Radiation Safety for Radiation Workers – Part 1
Radiation Safety 101: Radiation Safety for Radiation Workers – Part II
Radiation Safety 105: Radiation Safety for Irradiator Users and Animal Caregivers
Radiation Safety 106: X-Ray Diffraction
Laser Safety Training
Radiations Safety 102: Radiation Safety Refresher Training is required annually and is for personnel who have been previously certified to work with radioactive material on campus and have taken Radiation Safety 101 Parts I and II.

Chemical Safety Office: The Chemical Safety Office is responsible for overseeing campus chemical safety and compliance through its Hazard Communication and Chemical Hygiene programs. 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 in-person and online. The following trainings can be found at the Chemical Safety-Environmental Health & Safety website:
Fume Hood Use-refresh every 5 years
Chemical Safety-refresh every 5 years
Hazardous Chemical/Shipping Transportation Training-refresh every 2 years
Hazard Communication-no renewal, however, if a new chemical is introduced awareness training must occur prior to the use of the new chemical for staff that will have contact.

Additional trainings offered by EH&S includes: personal protective equipment, asbestos awareness, and fire extinguisher uses. Information regarding all educational offerings is available at the EH&S website.

CPR/AED training is available through the UW-Madison Police Department.

University Health Services
Trainings for personnel with animal contact: site specific training in ergonomics, body mechanics, and proper lifting techniques are provided through the UHS ergonomic specialist; periodic topic specific training is also offered, eg. Animal Allergen Seminar. Personnel enrolled in the Respiratory Protection Program receive training during their annual fit testing from UHS staff.

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

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

The following items of protective equipment are provided to personnel as needed:

Safety glasses
Chemical splash goggles
Respirators – disposable N-95
Coveralls – disposable/launderable
Rubber boots
Scrub suits
Disposable dust mask
Gloves: Leather/rubber/disposable
Disposable shoe covers
Lab coats – disposable/launderable
Caps surgical and bouffant
Hearing protection
Shoe & Boot Covers – disposable

Research and animal care staff are provided with a sufficient number of lab coats, scrubs, work coveralls and/or pants and shirts, and rubber or other site-dedicated boots for use in the facility. These items are disinfected, disposable, or dedicated. Gloves are mandatory to handle animals, except with agricultural animals; gloves are required during all procedures. In addition, depending on specific research specifications, additional items of PPE may be required, as listed above. Those requirements are posted on individual doors/areas. Employees may also be provided with dedicated outer wear such as hooded sweatshirts, insulated coveralls, work gloves, as well as eye and respiratory protection when needed.

b) Describe arrangements for laundering work clothing.

Protective clothing is changed daily or as often as necessary for persons to present a clean, neat appearance. All uniforms are laundered either in the facilities or by contracted services. CALS adopted an Agricultural Animal Worker and Researcher site-dedicated Clothing Policy (May, 2005) to clarify practices for work clothing in greater detail and these details are included in the facility SOPs.

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

The care staff is provided wash time before lunch and prior to the end of their shift. Showers are available at most facilities; exceptions are the [redacted] and the [redacted]. Personnel must change back into street clothes before leaving the facility. It is recommended that animal housing clothes be changed or covered prior to entering non-animal facility areas.

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

All buildings at the UW-Madison are designated smoke-free 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 or leased vehicles. Eating or drinking is only allowed in break rooms and offices. Lunch and break rooms are provided for staff at all facilities.

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

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

Livestock Facilities:
All of the UW dairy facilities have vet rooms equipped with restraints as needed (e.g. hoof trimming, vaccinations). Dairy barns have human pass-through openings to exit freestall areas quickly when needed. Newborn calves are transported by wheeled cart or box and forklift, to the hutch area.

The [redacted] has a round tub with head catch for cattle handling. Gating is used to safely handle cattle, swine and sheep movement within the facility.
[redacted] has a processing room with a chute and a head catch with pneumatic controls.
[redacted] and [redacted] have an outdoor chute for safe handling of beef cattle.
[redacted] has animal restraint devices used in repetitive processes that are ergonomically designed for the handler, as well as processing areas designed with a single file race for low-stress animal handling.
Laboratory Animal Facilities:
Biological Safety Cabinets and Fume Hoods prevent exposure to hazardous chemicals and biologicals.

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

University Health Services has issued a Laboratory Animal Allergen Exposure Control Guidance. The Guidance offers background information on the most likely source of LAA and the most common symptoms of an allergic response. Personnel that work with laboratory animals should reduce

exposure levels as low as reasonable achievable. Job tasks with a high likelihood for exposure are rodent cage transfer and subsequent dirty bedding disposal/dumping. Control measures to reduce exposure are to use local exhaust ventilation such as a Biological Safety Cabinet or an Animal Transfer Station and PPE. Other work practices that will reduce exposure is the use of a HEPA filtered vacuum for animal bedding cleanup, work in a well ventilated room, avoid dry sweeping of bedding waste, wash hands after handling animals and keep personal items out of the animal areas. Allergic responses are assessed annually via the Animal Contact Risk Questionnaire for personnel that work directly with animals. Also, for personnel that work near animal use areas signage is posted and questions can be directed to UHS.

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

Likely sources of zoonoses
Q-fever (sheep, cattle, pigs)
Orf virus (sheep)
E. coli (cattle)
Salmonella (chickens and cattle)
Cryptosporidium (cattle)

Facility design features
All CALS animal care facilities have the ability to quarantine newly arriving animals with no health history as well as for animals that become sick.

Equipment and procedures
PPE (lab coats, sleeves, gloves and masks or respirators)
Signage
Hand washing/showers
Dedicated clothing
Guidance documents for staff are available through EH&S and outline symptoms of the likely zoonotic diseases.

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

If personal protective equipment becomes worn, broken, or unsanitizable it will be replaced. The majority of PPE used in the facilities are disposable, one-time use items.

Animal transfer stations, biological safety cabinets, are tested and re-certified annually by the Biosafety Cabinet Certification Team specialists, and decontaminated and repaired as needed. Chemical fume hoods are tested and re-certified annually by UW Physical Plant. HVAC systems are maintained by UW Physical Plant personnel.

Fire & Life Safety, sub-division of Environment, Health and Safety performs an annual flushing and inspection of emergency showers and eyewash stations. Eye wash stations in the animal areas are checked and flushed weekly by care staff.

The Fire & Life Safety Department maintains and annually inspects all fire extinguishers on campus and our stations.

e) Respiratory Protection

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

Respiratory protective equipment is made available to employees when, 1) use is noted as recommended to enter an area due to a zoonotic hazard, or the use of a biological, chemical, carcinogen, drug/toxin or for radioactive materials. 2) Whenever a person's health status changes, which may make them more susceptible to a particular hazard. Personnel are informed of situational hazards via signage or direct communication from supervisory staff, veterinary staff, laboratory staff or EH&S staff.

Employees may request to wear a dust mask or disposable respirator in a situation where none is required. These situations do not require an employee to be enrolled in the respiratory protection program.

The Agricultural Research Stations have a respiratory protection plan for chemical applications in the field.

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

Personnel enrolled in the Respiratory Protection Program submit a medical questionnaire for the use of respirators, which is reviewed by UHS Occupational Medicine providers. Once approved to wear a respirator, a fit test is performed for tight fitting respirators by UHS. The fit testing is conducted annually and includes training on the proper donning, ensuring the respirator fits comfortably and seals appropriately, and information on the appropriate use, maintenance and limitations of the particular respirator. Additional respirator care and use training is offered by Environmental and Occupational Health.

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

Respiratory protective equipment is selected based on the hazards to which the worker is exposed to (29 CFR Part 1910.134) and as determined by risk assessments performed by University Health Services(UHS). UHS provides guidance on the type of respiratory and model specific selections for the hazardous material the worker has exposure to during work.

f) Heavy Equipment and Motorized Vehicles

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

The care staff is trained by the supervisor, senior ART, or vendor in safe operation of equipment such as: Rack/cage washer, autoclaves, power washers and floor scrubbers. Signage is posted to notify/remind user of the location for emergency shut-off. There is also an online safety training module developed by the Animal Research Safety unit that provides appropriate information for cage wash and autoclave safety and is directed at facility care staff and other users of this equipment. Cage wash safety signage is posted outside and inside the cage washer.

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

The operation of forklift and skid loader is performed only by those that have had formal training or previous experience. Formal training is organized through our Agricultural Research Station [redacted], on an as needed basis--usually there is an annual opportunity at one of our agricultural stations.

Other trainings available through General & Building Safety are: Lock-out/Tag-out, Confined Spaces, Hazard Communication, Ladder Safety, Fall Protection and a general presentation for personnel working in agriculture. These trainings are available on line or as site specific training upon facility request through the Safety Department.

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

For large animals a trailer is used. On occasion very young sheep or swine may be transported within the passenger

compartment for their environmental comfort. Small animals placed within a private or university owned vehicle, are held inside a clean leak proof container to protect the driver and vehicle from allergens or zoonotic agents. Private and university owned vehicles that are used for transport of USDA covered species are inspected by the IACUC and follow the All Campus Policy 2011-043 "Campus Transportation of Laboratory Animals. For transport of non-USDA covered animals, all personnel involved in the transport must complete a "Permission to Transport Animals Using a Privately Owned or Non-Dedicated Fleet Vehicle" form, which is retained by RARC. In both the policy and the permission form there is information on how to protect personnel from hazards such as allergens or zoonosis exposure.

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

Anesthetic machines are inspected before and after use for any cracks or leaks. Isoflurane gas is the typical anesthetic used in the machines. Several CALS researchers use ether in their research for scientific reasons.
Anesthetic gases are scavenged by using the appropriate scavenging system: a charcoal canister recovery system, being connected to the building exhaust or use within a certified fume hood. Ether must be used within a certified fume hood. A guidance document is available on the EH&S website that provides detailed information for safe use and storage of ether used in research.
UW-Madison Environmental & Occupational Health policy for Control and Monitoring of Waste Anesthetic Gases in Animal Research identifies preferred controls for isoflurane use:

1. An externally ventilated hood such as a fume hood or Class II B2 biological safety cabinet should be utilized whenever available.
2. A commercial anesthesia machine with a charcoal scavenging unit should be utilized 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 utilized.

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 used in gas anesthesia machines 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, with a machine without a scavenging device or hood or other improvised scavenging (i.e. laboratory vacuum line) method, monitoring by UHS can be done to evaluate the exposure level to personnel. When an area and/or procedure are found with levels above the recommended 2ppm, mitigation procedures recommended that include equipment and ventilation improvements.

Anesthesia machines are calibrated annually and certified by a commercial company, [redacted]. The IACUC checks for date of last maintenance of the anesthesia machines during semi-annual inspections.

In cases where ether is used in an IACUC approved protocol, this procedure must be done in a chemical fume hood. Animal carcasses post ether use are bagged and frozen to ensure no risk of vapor buildup. Ether containers should be disposed of one year after opening. Ether guidance document is available for laboratories to reference.

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

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

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

Examples may include bacteria, viruses, viral vectors, parasites, human-origin tissues, etc.

Agent Name	Agent Rating
Bacterial suspensions (M. avium ss. Paratuberculosis, M. avium ss. avium, M. bovis BCG strain)	BSL - 2
Pertussis toxin	BSL - 2
Cryptococcus-genetically altered	BSL - 2
Diphtheria Toxin	BSL - 2
Adenovirus	BSL - 2
Listeria monocytogenes	BSL - 2
Aeromonas Salmonicida vaccine	BSL - 2
Pasteurella Multocida	BSL - 2
Mycobacterium avium subspeicies paratuberculosis (MAP) – Live attenuated or killed strains M.bovis, M. avium ss. avium and virulent MAP strains (e.g. JQ5, JTC1285, K10 islolates)	BSL - 2
Genetically altered: Mycopar or Silirum commercial vaccines in oil adjuvant.	BSL - 2
Escherichia coli	BSL - 2

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

Chemical Agent	Hazard Category
Bromodeoxyuridine	Carcinogen, mutagen
Tamoxifen	Carcinogen, teratogen
5-fluorocytosine	Teratogen
2,4-D	Toxic agent
Phenylhydrazine	Carcinogen, mutagen
Rapamycin	Carcinogen, teratogen
Torrin 2	Teratogen, toxic agent
Lead nitrate	Carcinogen, teratogen, toxic agent

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

Physical Agent
Ultrasound
X-ray Fluoroscopy
Ultraviolet B Irradiation
Dual-Energy X-Ray Absorptiometry (DEXA)
Radioactive Neobee Oil
Radioisotopes
X-Ray Irradiation Radioactive Iron -59Fe Radioactive Methionine/Cysteine
NMR (EchoMRI)
Radioactive Selenium
B-, M-, and Doppler mode ultrasound
X-ray
Ultraviolet Light Irradiation Radioactive 3H-labeled Tryptophan
Imaging: MRI (high magnetic field)
Radioactive Vitamin D Analogs
Radioactive I125-labeled LDL
Radioactive Tritium-labeled Vitamin D Analogs

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

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

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

Office of Biological Safety (OBS):
PI's must submit a Biological Safety protocol to OBS, and OBS routes these protocols to the Institutional Biosafety (IBC). Review of biosafety protocols forms the basis for the conduct of thorough risk assessment, the results of which are communicated to the principal investigator. The review process is as follows:

1. PI's must submit a Biological Safety Protocol to OBS.
2. 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 insure congruence with applicable animal care and us protocols.
3. The PI is notified if any changes are needed. Finalized Biological Safety Protocol is submitted to the Institutional Biosafety Committee (IBC) for review.
4. The IBC reviews research activities involving biologically hazardous materials and/or recombinant or synthetic DNA molecules/organisms.
5. The IBC will either approve the protocol, approve the protocol pending changes, or table the protocol.

Office of Radiation Safety (ORS):
PIs using radioactive materials in vertebrate animals must submit a Radiation Safety form 99A to ORS. An animal care and use protocol approved by the appropriated IACUC 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
-animal are disposed of by ORS when euthanized
-other requirements as stated on form 99A are followed.

The PI must indicate on the animal care and 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 laboratory. The Laboratory Emergency Information card is reviewed and updated annually.

IACUC Protocol Review:
Animal care and use protocols must include identification of hazards, initial risk assessment of hazards, establishment of precautions, and confirmation of an applicable Biosafety protocol and/or Radiation Safety form 99A. As part of the protocol review process, an Animal Research Safety staff member:

a. Assess 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. Assess the risk presented by biological agents administered to the animals. Compares the protocol to Biological Safety protocol for consistency, and if necessary, notifies the PI if a Biological Safety is needed, if they need to be modified or amended, needs to be renewed, or if safety precautions

contained in the other protocols are inconsistent with information presented in the animal protocol.

c. Assess the risk presented by chemicals or drugs administered to the animals. Performs research to obtain the following information regarding the compound if needed or available: 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.

The IACUC 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 that must also be added to their Biological Safety protocol. The Animal Research Safety 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 biosafety protocol has been achieved.

Once the animal care and 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.

Post-Approval Monitoring:

1. A member of the Animal Research Safety group participates in semiannual site inspections of animal facilities and research laboratories performed by the IACUC. Animal Research Safety members also participate in Biosafety laboratory visits with the Biological Safety staff.
2. Personnel from the EH&S Offices of Biological Safety, Chemical Safety and Radiation Safety may perform site visits to ensure that facilities, laboratories, 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.

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

The UW-Madison Institutional Biosafety Committee (IBC) requires that the PI or supervisors to 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 of primary containment as well as potential releases to the environment.

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 PI's 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 room cause and corrective actions and will communicate to the rest of campus (when appropriate) lessons that have been learned from these incidents.

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

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

Soiled bedding and refuse is bagged and sealed daily and placed in dumpsters provided by the UW-Madison Physical Plant.

In the [redacted], and [redacted] BSL2 rooms, the used bedding is autoclaved before disposal.

The UW Safety Department's animal tissue disposal service collects and incinerates carcasses from the campus small animal facilities. Carcasses are bagged, properly labeled and placed in designated freezers. Carcasses are collected until facility storage capacity is approached. At this point the Safety Department is called to pick up the carcasses. Carcasses exposed to ether are stored in explosion proof freezers.

Bagged radioactive carcasses are placed in a freezer used for radioactive materials only. The Radiation Safety Department is called for pickup.

Sharps and waste needles are collected in closable, puncture resistant and leak proof containers that meet OSHA standards. Full containers are deposited in a large facility collection container, and then picked up by [redacted] for final disposal. Laboratory glassware is disposed of in a separate, 10" X 10" X 12" plastic-lined cardboard box waste container labeled "Hazardous Glass for Disposal" and is collected by UW janitorial personnel. Waste sharps and laboratory glass that are contaminated with radioactive materials are disposed of according to the University's Radiation Safety Regulations. Radioactive lab waste is double-bagged and then sealed.

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

The Animal Contact Risk Questionnaire and the Service Personnel Limited Animal Area Access forms (Appendix 6) is evaluated by medical professionals at UHS to assess potential risks for each individual who may have contact with hazardous agents or who may work in animal facilities. Individual risk and prevention recommendations are communicated via a secure UHS electronic health records system. The information obtained in the ACRQ and the SPLAAAF (including review of previous annual submission) is used to determine required immunizations, use of personal protective equipment, hygiene practices, medical surveillance, and training. This facilitates confidential communication between the person completing the form and the reviewer. Participants are to update their information when there is a change in their health status or as requested by UHS.

University Health Services (UHS) is a fully accredited ambulatory care clinic located on campus that provides primary medical care to students and occupational medicine to faculty and staff.

Post-exposure services are also provided by University Health Services. 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.

Radiation Safety provides dosimeter and pregnancy surveillance for personnel who work with radioactive materials. Occupational medicine services are provided at University Health Services under the direction of a board-certified occupational medicine physician. These services include medical clearance to wear a respirator, medical clearance for active tuberculosis, occupational allergy or asthma assessments, and other specialized medical services as needed. Specialized laser eye exams are provided to personnel who work with class III-B and class IV lasers.

During the initial "Safety Training for Personnel with Animal Contact", a required training for personnel working with animals, personnel are provided with contact information for UHS and EHS Department and are encouraged to contact them with any questions or concerns they may have about their health and well-being as it relates to their job.

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

Biosafety:
Two educational programs are required: The Biosafety Training Course and Bloodborne Pathogens for Lab and Research. The Biosafety Training Course covers risk assessment and mitigation, exposure response, biohazard disposal, and other information that applies to occupational health and safety.

Office of Radiation Safety:
Any personnel involved with handling radioactive materials or radiation producing devices are required to take specific trainings to be approved to use and handle radioactive materials. Training modules are available on the radiation safety website.

Chemical Safety Office:
The Chemical Safety 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 participate in 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 spill release of a hazardous chemical. Chemical Safety offers a variety of trainings on their website, these include fume hood training, and hazard communication.

In addition to the above laboratory staff are require to take a training on "Risk Communication in Animal Facilities". It is an online training module administered by the Animal Research Safety Group, within the Office of Biosafety.

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

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

[redacted] uses a conventional small animal room for hazardous agent work; signage is posted on the door with instructions to wear the appropriate PPE. A biological safety cabinet is used during the administration of infectious agents within the laboratory and animal housing spaces. In [redacted] hazardous agents are contained at the room level.

[redacted] has a quarantine suite in the [redacted] vivarium [redacted] and [redacted], and a second quarantine space outside of the [redacted] vivarium, Room [redacted]. The [redacted] space is used for general quarantine and is 206 sq. ft. The ante-room has a biological safety cabinet. The walls are epoxy painted cement block, floor is epoxy coated seamless cement, ceiling is sealed sheet rock with epoxy paint and door is solid core steel. One housing bay has a dedicated ventilation system; the other 4 bays use micro-isolation static caging. The quarantine suite in the [redacted] vivarium has 2 animal housing rooms [redacted] and [redacted]. The walls are epoxy painted cement block, floors are linoleum with heat sealed seams, ceiling is sealed sheetrock with epoxy paint. Room [redacted] is for BSL2 level infectious agent work and is 120 sq. ft. [redacted] is a general quarantine room and is 160 sq. ft. Each room contains a biological safety cabinet to be used when working with the agent or infected animals. [redacted] Standard Operating Procedure #005 describes entry protocol to be used for each of these quarantine spaces. Fume hoods are used for the administration of ether and BRDU in [redacted] vivarium and the laboratories. In [redacted], hazardous agents are contained at the cage level, room level, and/or quarantine suite. In all of the above facilities investigators use hazardous agents in chemical safety hoods or biological safety cabinets in compliance with an approved biosafety protocol (OBS). Chemical and radioactive hazards are contained at the cage level and/or in chemical fume hoods.

[redacted] houses animals at the cage level in conventional rooms when working with hazardous agents. Signage is posted on the door and on the cage. EH&S is consulted to assure exposure controls are in place. In [redacted] hazardous agents are contained at the cage and room level.

[redacted] uses a conventional space for housing animals exposed to hazardous agents; signage is posted on the door with instructions to wear the appropriate PPE. EH&S is consulted to assure the appropriate exposure controls are in place. Other large animal facilities typically do not use hazardous research agents. Zoonotic diseases are addressed through a dedicated clothing policy and personal protective equipment as well as through the on-line safety training required to be taken by our staff. The [redacted] keeps hazardous agents contained at the room level.

The off-campus agricultural facilities keep hazardous agents contained at the facility level with a dedicated clothing policy plus personal protective equipment as determined through a job risk assessment process.

Prior to work commencing, a consult with an EH&S specialist, the researcher, program veterinarian and facility manager is set-up to further asses and mitigate any risks.

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

Frogs are housed for several days in the PI's laboratory space for post-surgical care before returning to their dedicated facilities. The doors are locked and only authorized laboratory staff enter.

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

Animal transfer stations, biological safety cabinets, are tested and re-certified annually by Biosafety Cabinet Certification team, and decontaminated and repaired as needed. Chemical fume hoods are tested and re-certified annually by UW Physical Plant. HVAC systems are maintained by UW Physical Plant personnel.

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

Animal care staff working with animals that have been administered infectious agents, hazardous chemicals and drugs, or radiation are given special instructions on the handling of feed, bedding, and animals by their supervisor, principal investigator, Environment, Health & 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 or rooms where these materials are in use.

Animals administered hazardous chemicals and drugs where significant amounts may be expelled; hazard communication is employed during the time of significant hazard. Door signs are posted that include precautions to enter the room and handle the animals, researcher contact information, PPE to wear, safety equipment to use, decontamination procedures, and appropriate waste disposal. Cages are labeled and the agent identified. Waste is disposed of according to protocol.

When animals have been treated with radioactive compounds and are still excreting those compounds, the cages and rooms are clearly identified with the well-known radioactive compound symbol, the radioisotope used, and the quantity of the radioisotope that has been used. Staff is trained in the proper precautions to take when handling the animals and their wastes. Once the “non-radioactive” animals are removed from the rooms, these rooms are cleaned by personnel trained in radiation safety.

e) Incidental Animal Contact and Patient Areas

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

[redacted] The equipment is disinfected after every use and there is a contracted maintenance plan with the manufacturer that keeps the equipment in good working order. The human subject researcher has an IRB approved protocol.
Not Applicable to any other CALS facilities.

ii) Describe any o*ther* 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.

Movement of rodents can occur through common use corridors in the college's three rodent facilities including, [redacted] and [redacted]. Movement of these animals to a designated research laboratory space is reviewed by our IACUC and Animal Research Safety staff during the protocol approval process. All animals are transported in opaque shipping containers with filtered vents or micro-isolator cages placed under an opaque material so the animals cannot be viewed.

Not applicable to any other CALS facility.

B. Program Oversight

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

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

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

i. Describe Committee membership appointment procedures.

The UW-Madison Chancellor Rebecca Blank, PhD, has delegated authority for IACUC appointments to the Institutional Official, who has further delegated this authority to senior administrators in each college/school. Potential appointments to the College of Agricultural and Life Sciences (CALS) IACUC are made using an advise-and-consent nomination process involving the CALS Dean's office and the IACUC Chair. An appointment letter, authored by the CALS Dean's office, contains date of appointment, the term of service and voting status. Appointment letters for alternate voting members indicate for whom the alternate is appointed. Non-voting and ex-officio members generally include CALS and RARC support staff, compliance staff and legal counsel.

A membership roster for the CALS IACUC is presented in Appendix 7.

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

The CALS IACUC holds a regularly scheduled monthly meeting. Separate, focused meetings occur twice a year to perform the semiannual program reviews. Additional subcommittee meetings may be convened for other reasons at the discretion of the chair. Facilities (including laboratories) are inspected every six months.

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

Newly appointed IACUC members attend an orientation session with the committee chairperson and/or the IACUC 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 members receive a reference binder containing copies of the Guide and Ag Guide, AWAR section 2.31, the PHS Policy, the 2013 AVMA Report on Euthanasia, guidance on reviewing protocols, and related materials. All IACUC members must complete online RARC animal user orientation, and enrollment in the UW-Madison occupational medicine program.

Committee training constitutes a standing agenda item for each IACUC meeting. Topics range broadly with emphasis on regulations and regulatory updates. IACUC administrators select training based on current national and/or campus regulatory issues, as well as ideas from IACUC members and RARC staff, and topics originating from professional venues (e.g. IACUC-ADMIN listserv). Several web seminars produced by NABR, OLAW, USDA APHIS, and other entities are hosted each year for all IACUC members.

b. Protocol Review [*Guide*, pp. 25-27]
A blank copy of your institution's protocol review form should be provided as **Appendix 9**. Also include forms used for annual renewal, modifications, amendments, etc., as applicable.

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

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

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

All work involving the use of vertebrate animals at UW-Madison requires approval by at least one of the college or school IACUCs prior to work beginning, regardless of the source of funding or the intended use of the animals (e.g. teaching, research or testing, outreach).

New and renewal animal care and use protocols are submitted via the web-based system called ARROW. Protocols are submitted to RARC and processed by the IACUC office staff. In addition, all new and renewal protocols undergo a required veterinary pre-review. Protocols are then distributed to the appropriate IACUC for review in one of two ways: Full Committee Review at a convened IACUC meeting, Designated Review (DR).

For Full Committee Review, two voting members of the IACUC (one veterinarian and one non-veterinarian) are responsible for leading the IACUC discussion of the specific protocols assigned to them. Although these "primary reviewers" are named, all voting IACUC members are provided with access to all protocol submissions scheduled for review at the convened meeting. Prior to the convened monthly meeting, all IACUC members are encouraged and expected to read all of the protocols and can submit review questions relevant to each protocol. Questions are visible to all members and are used to facilitate discussion. After discussion of each protocol at a convened meeting, the IACUC takes action to approve, require modifications to secure approval, defer, or deny the protocol. If the IACUC action is to require modifications to secure approval, the investigator must submit a rewrite of the protocol addressing all of the IACUC's questions and concerns that were finalized at the meeting. Such rewrites are reviewed via DR by the

senior program veterinarian or other voting committee member as detailed in institutional policy 2002-020-c (see below).

Institutional policy 2002-020-c describes the three circumstances under which protocols may be reviewed by Designated Review (DR):

(1) DR can be used as an alternative to review of a protocol at a legally convened meeting. For DR, each voting committee member is provided access to the protocol in ARROW and is asked to respond before a reasonable deadline (generally 3 working days) as to whether or not the protocol is eligible for DR. If any member votes "not eligible for DR," the protocol is scheduled for full committee review at the next convened IACUC meeting. If approved for DR, then designated reviewers from that IACUC (one veterinarian and one non-veterinarian) are appointed by the Chair. Designated reviewers review identical versions of the protocol. 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 approval of a motion to require modifications to secure approval. The solicited changes are reviewed by a least one veterinarian who has voting privileges on the IACUC, with the 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 of less than 12 hours occur.

• Addition of an IACUC-approved housing location within the reviewing IACUC'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.

• The addition of adopting out animals at the end of a study following established school/college procedures and RARC veterinary approval.

• Addition of language to allow the transfer of animals between IACUC-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 certain types of procedures and/or procedure locations.

Amendments that fall into this third category are reviewed by the IACUC Chair and the school/college Senior Program Veterinarian, either of which may call for the amendment to be reviewed by the full IACUC at a convened meeting.

Following review, and with approval, RARC notifies the investigator of the status of the protocol via ARROW. The logistics of all protocol processing and PI notifications regarding protocol maintenance (e.g. impending expirations) are coordinated by the RARC IACUC office. A log is kept of any protocols reviewed outside a convened IACUC meeting. This log is reviewed at the next full committee meeting; any committee member has the right to call a previously-approved amendment for full-committee review.

Regardless of the review method used, the IACUC applies the same standards to their reviews to balance potential benefits against potential animal welfare concerns, as well as potential pain and distress that the procedures in the study may cause animals and any alternatives that were considered. The IACUC review of specific questions in the standardized protocol form ensure that PIs have explained the goals of the study and its potential benefits and harms. If this information is inadequate or unclear, the IACUC requires

modifications to the PI's responses until the IACUC is satisfied. Regarding potential pain or distress, the IACUC comprehensively evaluates the proposed work, the animal monitoring plans, anesthesia and analgesia plans, and the PIs' literature searches. If this information is inadequate or unclear, the IACUC requires modifications to the PI's responses until the IACUC is satisfied.

Evaluation of the use of animals and the appropriate numbers of animals for studies is conducted on a case-by-case basis during protocol review by the IACUC. PIs must include a justification for animal use, indicating why non-animal alternatives cannot be used. PIs are also instructed to include acceptable justifications for species and the requested number of animals. If the PI's explanation of the need for animal use, species, or the number of animals is unclear to the IACUC, the Committee requires modification of the response until it meets the IACUC's satisfaction before approval of the protocol is granted. Policy 2013-051-c provides specific guidance to PIs in presenting animal number justifications to the IACUC.

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

PIs can make changes in funding, personnel other than the PI, and to laboratory administrative contacts via an administrative process known as "non-review changes". Upon submission, non-review changes are logged in the history of the protocol, incorporated into the approved protocols, and take effect immediately. Except in cases of Veterinary Verification and Consultation (see below), all other amendments must be submitted within a full copy of the currently-approved protocol. The amended protocol is then reviewed by the full IACUC or via designated review according to procedures previously described.

In accordance with NIH Notice NOT-OD-14-126, "Guidance on Significant Changes to Animal Activities", the IACUC has adopted a University-wide Veterinary Verification and Consultation (VVC) policy 2016-058-c. This policy is in full compliance with the NIH Notice. Under this policy, veterinarians – acting as subject matter experts can approve:

a) Certain changes to anesthesia, analgesia or sedation
b) Changes in experimental substances and routes of administration, as long as the change does not result in a change of study objectives or in greater pain, distress, or degree of invasiveness
c) Changes in method(s) of euthanasia to any method approved in the current AVMA Guidelines for the Euthanasia of Animals.
d) Duration, frequency, type or number of previously approved procedures performed on an animal, as long as the change does not result in greater pain, distress, or degree of invasiveness.
e) An increase in previously approved animal numbers so long as the increase is justified and in accordance with Policy 2013-051-c.
f) A change in location from one ACUC-approved housing or procedure space to another approved space within the reviewing ACUC's oversight.
g) A change in the source of animals.
h) A change in the disposition of animals.

This policy and a list of RARC veterinarians qualified to perform VVC is approved by the CALS IACUC.

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

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

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

Alternatives to humane experimental endpoints are embedded within the IACUC 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 with

veterinary input. These often include a scheduled report back to the Committee regarding endpoint outcomes.

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

The CALS IACUC's goal is to identify humane endpoints that also supports the goals of the research. The Senior Program Veterinarian reviews all protocols and works closely with the PI prior to the start of a project to determine the ideal endpoint for humane euthanasia without compromising the research objectives. If a suitable endpoint cannot be determined the IACUC will approve a pilot study for a minimal amount of time. This gives the researcher and the veterinary staff time to report back to the IACUC with the ideal endpoint and allow for a full three-year approval term. The Senior Program Veterinarian will report any adverse events to the IACUC during monthly meetings. Also, the Senior Program Veterinarian has the authority to intercede in any activity involving the use of animals for research and teaching purposes, including the removal of animals from study, which in their judgment jeopardizes animal welfare or compliance with federal or university policies.

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

The care staff monitors all animals on a daily basis and reports animals in severe pain or distress, sick, injured or requiring immediate attention to the veterinary staff via a phone call, email, or an on-line reporting system.

The PI of the approved animal use protocol is responsible for ensuring appropriate monitoring of animals and ensuring the end-points specified in the approved protocol are applied. The PI's laboratory staff must complete species-specific training for all species they work with under the approved animal care and use protocol. In addition, the laboratory staff must read the approved animal care and use protocol and understand the study objective

criteria, such as degree of a physical or behavioral deficit that will enable prompt decision regarding initiation of the humane end-point. Also, study specific training is available via the RARC veterinary and training staff to enable the laboratory staff in making a prompt decision regarding initiation of the humane endpoint.

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

Describe how unexpected outcomes of experimental procedures (e.g., unexpected morbidity or mortality, unanticipated phenotypes in genetically-modified animals) are identified, interpreted, and reported to the IACUC/OB.

The IACUC can become aware of unexpected outcomes in several ways. PIs are required to report adverse events when they occur in accordance to institutional policy and standard operating procedures (policy 2012-050-v, available at rarc.wisc.edu>Policies). 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 Senior Program Veterinarian report forms an agenda item for each IACUC meeting, and unexpected outcomes may be reported then. Animals with unexpected morbidity or mortality are necropsied at the discretion of the program veterinarians.

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

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

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

Prolonged restraint must be described and justified in the animal care and use protocol, and must be approved by the IACUC. Application of prolonged restraint must be in accordance with policy 1997-004-v. The policy describes the requirements for protocol approval, animal selection and acclimation, personnel training; animal monitoring, additional 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.

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

There have been no animal restraint devices approved for use in research protocols as defined on page 29, of "*The Guide*".

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

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

In compliance with the AWA, Policy 14 of the USDA's Animal and Plant Health Inspection Service, and the Guide, the CALS IACUC approves multiple major or minor survival surgeries on a single animal only if presented with adequate scientific rationale for the performance of these procedures.

PIs who wish to perform multiple survival surgical procedures on a single animal within one protocol must provide adequate scientific justification to the CALS IACUC. In addition, veterinary record review and approval is required to transfer animals between protocols, to be sure that no animal is used for survival surgeries between protocols.

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

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

Protocol A005729-Frogs will undergo 6 surgeries at 9 month intervals for the collection of oocytes.

The veterinary staff makes regular visits to the facilities to monitor these animals. Also, the laboratory staff monitors the animals on a daily basis and reports to the veterinarian when the health status of the animal changes and medical care is then initiated.

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

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

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

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

Species	IACUC No./Type of Restriction	Justification, length of restriction	Health Monitoring
Mus	A005125/fast	Feed restricted for 24 hrs, then fed Purina 5008 chow diet for 24 hrs, feed restricted again for 24 hrs and then refed Purina 5008 chow diet. Alternatively, mice are fed restricted for 24 hours, then fed Harlan TD03045 high-sucrose, very low-fat diet for 12 hours. This procedure of feed restriction followed by refeeding (referred to as fasting refeeding) provides the highest	12 hours of fasting is not detrimental to mice and occurs overnight. For the second 12 hours, mice are monitored for lethargy.

		induction of lipogenic gene expression. Mice fasted for 4 hrs prior to blood collection or euthanization.	
Species	IACUC No./Type of Restriction	**Justification, *length of restriction***	**Health Monitoring**
Rattus	A005253/fast	The purpose of these studies is to examine the absorption of phosphate in the gut. Because food in the gut can alter absorption of other substances, all rats are fasted prior to the experiment in order to reduce animal to animal variability in phosphate absorption. *Up to 18 hr.*	Rats are weighed upon arrival in the vivarium and again on the morning of the fast to ensure they are growing properly prior to the fast and initiation of the experiment. Rats have ad lib access to water.
Mus	A005254/fast	To minimize variations in energy metabolism, plasma metabolites, gene expression, and plasma hormone levels. *4 to 16 hour fast prior to experimental procedures.*	Not applicable with 4 to 16 hr fasting. Animals have ad lib access to water.
Mus	A005260/pair feeding	Animals eat less of diets that are very low in iron content. So we measure food intake in the iron deficient group and the following day provide the control group with the same weight of control diet that the iron deficient animals ate the previous day. We want one variable - iron status and intake. If food intake varies then intake of energy and many other dietary components is varied. *Up to 56 days*	Weighed daily and assessed by health status, posture and behavior.
Mus	A005326/fast	To measure the blood lipid profile as an indicator/predictor of this disease model. These blood lipid measurements such as total cholesterol, LDL, HDL, triglyceride	4 hours of fasting is not enough to cause adverse effects in mice. Mice have ad lib access to water.

		measurements must be performed after fasting for at least 4 hours. *4 hour.*	
Species	IACUC No./Type of Restriction	**Justification, *length of restriction***	**Health Monitoring**
Mus	A005337/fast, pair feeding	Restricted feeding ensures that a full dose of gavaged material into the stomach is readily absorbed and is allowed to interact with feed. Previous studies showed that certain feed additives (i.e. adenine) added directly to the diet may decrease feed consumption. Hence, the adenine or antibody may have to be gavaged to ensure full dose and in other cases, where food intake is not affected by adenine or the antibody, diet administration will be used (preferred method of supplementation). To assure that interval feeding of mice does not affect total daily intake, pair fed mice will be provided food ad libitum and daily intake monitored and compared to interval fed mice. *Feed restricted up to 12 hours*	Feed restricted up to 12 hours. Body weight monitored to ensure no more than 20% reduction.
Mus	A005348/fast	To minimize variations in energy metabolism, plasma metabolites, gene expression, and plasma hormone levels. *Up to 6 hours*	Not applicable with 6-hour fast. Animals have ad lib access to water.
Mus	A005368/fast	Standard protocol for glucose tolerance testing and insulin tolerance testing is performed on fasted animals. A 4-6 hr fast used to assess response to glucose or insulin. *4-6 hours*	No adverse events are expected with this relatively brief fast.

Species	IACUC No./Type of Restriction	Justification, *length of restriction*	Health Monitoring
Mus	A005438/fast	Fasting ensures that dietary components do not dilute, bind, or obscure the passage of FITC-dextran or HRP from the intestinal lumen into the bloodstream. *Up to 6 hours prior to oral gavage and an additional 4 hours post gavage.*	Mice are monitored throughout the fasting period by observing behavior and motoring activity. Mice have ad lib access to water.
Chicken	A005452/fast	Food withdrawn prior to slaughter to minimize excreta contamination of carcass during slaughter. This is standard procedure in the slaughter of poultry and livestock for human consumption. *12 hr*	Birds that show any adverse health events before slaughter are removed and euthanized. Birds have ad lib access to water.
Chicken	A005456/fast	Presence of food in the gastrointestinal tract and the process of food digestion interferes with indirect calorimetry. *16 hours*	Chick health is assessed and only healthy chicks receive a feed restrictive protocol and calimetry. Animals have ad lib access to water.
Cattle	A005467/feed restriction	Fatty liver induction treatment ensures enough animals develop fatty liver for statistical analysis. Without the treatment, many more animals would be needed on the chance that enough would naturally develop fatty liver within the time frame of the study. *Feed intake of treatment cows is restricted to 80% of the NRC recommendation for energy from 14d to 42d postpartum*	Due to the relationship between fatty liver and ketosis onset, urine Ketostix are used to monitor animal health throughout the fatty liver induction period.
Mus	A005482/fast	To minimize variations in energy metabolism, plasma metabolites, gene expression, and plasma hormone levels. *Up to 6 hour fast prior to experimental procedures.*	Not applicable with 6-hour fast. Animals have ad lib access to water.

Species	IACUC No./Type of Restriction	**Justification, *length of restriction***	**Health Monitoring**
Swine	A005528/fast	Following antibiotic administration, two different methods of gastrointestinal tract bacterial repletion are attempted in two groups of animals. Prior to this repletion phase, and in order to standardize gastrointestinal tract conditions between animals, it is necessary that the digestive tract be as cleared as possible of bacteria and of the fecal material in which many bacteria reside. *24 hours*	It is highly unlikely that a single day of fasting will result in nutritional deficiencies. However, animals are monitored for signs of adverse events related to food restriction, such as hanging head, drooping ears, abnormal respiration, or listlessness. Animals have ad lib access to water.
Mus	A005693	Feed restricted to allow measurement of the permeability of the intestine after injection with LPS or cecal ligation. The stomach must be empty for both the control and treated mice to ensure that only gut permeability and not food intake or gut transit time are responsible for the appearance of dextran beads in circulation. Mice fasted for minimum time necessary according to the experimental design. *Up to 24 hours*	Mice monitored daily for signs of adverse events. Feed restriction will only occur once, so long term nutritional deficiencies are not expected.
Cattle	A005715/feed restriction	This feed restriction should reduce the circulating insulin concentration so that outcomes in ovarian function can be measured. *Group 1: up to 50% feed restriction for up to 4 days.* *Group 2: 25% feed restriction for 4 days.* *Group 3: 50% feed restriction of 4 days.*	No deleterious effects are expected as a result of this feed restriction.

		Group 4: 50% feed restriction + wheat straw for 4 days. *Ten days between treatment periods, all cows will go through all treatments. One group of non-pregnant cows will undergo up to 25% feed restriction for up to 8 days.*	
Species	IACUC No./Type of Restriction	**Justification, *length of restriction***	**Health Monitoring**
Mus	A005723/synthetic diet feeding	The synthetic diet was developed to comply with American Institute of Nutrition (AIN76) recommendations for laboratory mice. The diet is estimated to provide 3.9 kcal/g; animals gain weight when fed this diet. We feed a defined amount of the diet daily in order to regulate the amount of vitamin D3 or calcitriol consumed by the animals.	We monitor vitamin D status by collecting blood for analysis of serum 25-hydroxyvitamin D3. The only restricted nutrient is vitamin D3 (cholecalciferol). Mice fed this diet have on average 10-15 ng/mL of serum 25-hydroxyvitamin D3 at the end of 8 weeks. This level is considered to be vitamin D insufficient, not vitamin D deficient.
Cattle	A005727/fast	To get reliable measure of insulin sensitivity a minimum 12-hour pretest fast is needed. The test is run over 4 hours after which food is provided. *Up to 18 hours*	No adverse events related to the 18-hour fast are expected.
Cattle	A005781/food and fluid restriction	Water is absorbed in the gut via osmosis and is therefore not expected to affect transporter protein expression. Electrolytes can be absorbed via transporter proteins. Thus, their presence in the gut may upregulate expression of these transporter proteins and confound the effect of calf age. *Calves to be euthanized less than 4 hours after birth will not receive food or water. Calves*	Calves are observed multiple times per day prior to euthanasia for signs of deficiency. Hydration status is monitored closely using the skin tenting test. If calves become dehydrated (skin tenting test > 2 seconds), water is offered via a nipple bottle.

		assigned to be euthanized at > 4 hours of life will receive 4 liters of warm distilled water via esophageal tube feeder within 4 hours after birth. If assigned euthanasia occurs prior to 30 hours of age, then no additional feed or water will be provided. Calves assigned to euthanasia at 46 to 50 hours after birth will receive up to 2 liters of milk replacer at approximately 24 and 36 hours of age.	
Species	IACUC No./Type of Restriction	**Justification, *length of restriction***	**Health Monitoring**
Mus	A005789/High or low fat diet	There are known problems with lactation in obese mothers. We are hoping to identify the role serotonin may play in issues of lactation and obesity. *Dams are randomly assigned to a commercially produced high-fat diet or a low-fat diet at puberty for 3-6 weeks prior to mating with free access to food and water for the duration of the study.*	Mice are weighed weekly, and food intake is measured. Animals have ad lib access to water.
Mus	A005821/fast	To measure glucose accurately, animals are fasted for a minimum of 4 hours. *4 hr*	A 4 hour fast should have no adverse effects.
Mus	A005845/amino acid modified diets	To identify the role of amino acids on mammary signaling and milk protein production, we investigate the pathways involved in the regulation of milk protein production. *Up to 24 days*	Pups are weighed daily to monitor growth. They are monitored visually for developmental markers. Animals have ad lib access to water.

Species	IACUC No./Type of Restriction	Justification, *length of restriction*	Health Monitoring
House sparrow	A005855/high protein or high starch diet	Some species are digestively flexible and change the amount of enzymes in their intestine to match changes in their diet. For example, the final step of starch digestion in the small intestine of birds is the breakdown of maltose, the product of starch breakdown by other enzymes. Increase in this maltasic activity is critical in the transition of newly hatched poultry from reliance on lipid and protein in the yolk to starch rich foods that are fed to growing poultry, and also in the transition of many wild birds between different diets. One goal of our project is to advance knowledge about the mechanisms that underlie this flexibility. *Up to 4 days for nestlings, up to 7 days for adults*	Nestlings are fed hourly. Any non-responsiveness is immediately noted. Growth is compared with growth curves for lab and wild nestlings.
Mus	A005913/fast	Accurate blood glucose measurement requires a 4-hour fast followed by a blood collection. *4 hours*	All mice are monitored daily by animal care personnel to ensure they are not experiencing pain or discomfort.

vi. Use of Non-Pharmaceutical-Grade Drugs and Other Substances
[*Guide*, p. 31]
Describe the IACUC/OB's expectations regarding the justification for using non-pharmaceutical-grade drugs or other substances, if applicable.

Campus Policy 2010-037-io describes the policy on non-pharmaceutical-grade drugs. The use of non-pharmaceutical-grade

compounds must be described in a protocol and be scientifically justified for approval by the CALS IACUC. Briefly, the policy states:

1. Medications to be used in living vertebrate animal subjects are to be pharmaceutical-grade whenever possible.
2. The use of non-pharmaceutical-grade chemical compounds in living vertebrate animal subjects is a necessary and acceptable component of biomedical research under certain circumstances. Permission to use non-pharmaceutical-grade chemical compounds may be granted by the IACUC upon request by PI's. Such requests must:
   a. Be made within the context of an animal care and use protocol submitted to the IACUC;
   b. Include information on the scientific necessity to use a non-pharmaceutical-grade chemical compound (e.g. the non-availability of an acceptable veterinary or human pharmaceutical-grade compound);
   c. acknowledge that guidelines provided by Policy 2010-037-io will be used when preparing non-pharmaceutical-grade compounds for administration; and
   d. be approved in the protocol by the IACUC before any administration of a non-pharmaceutical-grade chemical compound to research animals.

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

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

Considerations unique to studies involving wild animals in their natural habitats are embedded within the Committee protocol review and approval functions. There are specific responses that are required from PIs when wild animals are the species of interest, including details of capture methods, frequency of checking nets and traps, quarantine and bio-security concerns (including the inadvertent transmission of pathogens between individual animals and collection sites), and release procedures. Safety concerns unique to field studies are specially reviewed by Animal Research Safety staff, and field biologists may be asked to consult on specific aspects of field study protocols.

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

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

Policy 2014-054-v, describes the circumstances under which animals may be transferred or re-used. Before such a reuse is authorized, the program veterinarian reviews the animal's previous use and determines if reuse will compromise the animal's health and well-being, or the research being considered. In no case may a veterinarian or an IACUC unilaterally approve a transfer that would involve an animal undergoing multiple major survival surgeries across protocols; this would require special review/approval.

2) Briefly describe the types of activities currently approved that involve the reuse of individual animals.
Note: A list of specific protocols involving reuse of animals should be available during the site visit.

Livestock may be used in multiple studies over their life in the UW-herd. Animals may participate in multiple studies that involve management improvement for species specific research in the areas of reproduction, nutrition, manure and herd health. It is important to our mission to keep animals in our herds at various ages and densities to be able to meet the demands of our research, teaching and outreach programs. Managers of our livestock herds carefully select animals after IACUC protocol approval that will meet the researchers outlined project parameters with consideration to previous use and current health status. The program veterinarians routinely visit our livestock animal facilities to monitor herd health and are a primary reviewer for all biomedical and agricultural livestock species protocols.

Frogs used for breeding are reused over the course of their life and their health and welfare are closely monitored by the veterinary staff.

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

Cattle, Sheep and Swine are sold either to other livestock producers or for humane harvest. Wildlife used in approved protocols are released at the site of capture.

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

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

Up to two reminders are sent to each PI by the ARROW system prior to the annual re-approval date of each protocol. A required form must be filled out by each investigator for each protocol and returned to RARC. The PI must specifically request continuance of the protocol for one year. At each convened meeting, the IACUC reviews the submitted forms. The IACUC may request any needed changes or clarifications, and approves the annual re-approvals by motion and majority vote. RARC communicates the IACUC's requests, (if any) to the PIs, tracks the responses, and reports the results to the IACUC. If a PI fails to return the required form, the IACUC may take action 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 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 IACUC office via email to the PI, department chairperson, Senior Program Veterinarian of the relevant IACUC, and the manager of the animal facility listed on the protocol. Animals remaining on the terminated protocol are transferred to a veterinary holding protocol pending approval of the renewal.

With the approval of the Senior Program Veterinarian, individual animals may be adopted by appropriate owners. Policy 2012-049-v describes circumstances under which animal adoption would be considered.

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

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

The program is reviewed every six months at a specially convened meeting of the IACUC or by a subcommittee of the IACUC. The review uses a worksheet based on the "Guide for the Care and Use of Laboratory Animals" and the description of an animal care and use program published in Lab Animal ([redacted], "Defining the Animal Care and Use Program, Lab Animal, vol. 34 no. 10). When a subcommittee is used, the full IACUC reviews the subcommittee's report, makes modifications as needed, and signs the report.

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

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

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

Without exception, all animal housing facilities, animal activity areas and animal transport trailers are inspected semiannually.

One full-time position at RARC is dedicated to supporting the IACUC semiannual facility and laboratory inspections. The incumbent reports to the [redacted] and is responsible for scheduling, note-taking, database management, follow-up on deficiency correction, and reporting to the IACUC. The [redacted] and [redacted] back-up the position's functions in order to provide coverage for UW-Madison's multiple animal facilities and labs.

The inspections involve at least two voting members of the CALS IACUC, but may be performed by a single voting member when only non-USDA-covered species are involved. In the event deficiencies are discovered, the inspection team can at their discretion request corrective action and set correct-by dates. The findings of each inspection are compiled, presented and discussed at the next convened IACUC

meeting, and recorded in the official meeting minutes. The IACUC can mandate further corrective action be taken if deemed necessary.

On occasion consultants are involved in facility inspections. For example, a facility where non-USDA-covered species are used may be inspected by RARC compliance staff. A compliance checklist is used by the inspecting team to guide each inspection. These consultants may recommend deficiencies and correction dates, but must also refer them to a convened IACUC for action. Inspections performed by consultants are specifically approved by IACUC vote.

Corrective actions are monitored and logged by RARC IACUC Office staff. Reports of overdue actions or requests for extensions are provided to the IACUC as needed. Real-time inspection data concerning deficiencies and the status of corrective action may be viewed by the IO, the IACUC Chair, and selected IACUC Office staff via an RARC secure website.

CALS does not have contract facilities or contract personnel.

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

CALS has not been cited with any deficiencies or non-compliant items during external regulatory inspections conducted in the last three years.

In the event the UW-Madison CALS program were to receive formal notice of non-compliant items or other deficiencies from a government or regulatory agency, the following would occur:

Regulatory inspection reports are shared with research animal veterinarians, the IO, and members of the IACUC. In the event that deficiencies are identified, these individuals would work together to correct existing problems, and develop a method to ensure that those problems do not recur. Final decisions on corrective actions are made by the IACUC, and may include development of new institutional policies, targeted for-cause Post Approval Monitoring (PAM) projects, discussion with those involved, formal retraining, 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 and RARC. Actions taken are reported to relevant regulatory agencies by the IACUC Chair, IO, and/or Chief Campus Veterinarian.

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

There are several ways that protocol and regulatory compliance are monitored. Animal Research Technicians observe animals daily, and alert veterinary staff to unexpected events, which triggers veterinary staff to ensure appropriate care is provided. In addition, veterinary staff performs routine walk-throughs of all animal holding facilities. Veterinarians and veterinary technicians will often consult approved protocols to determine if conditions they observe are congruent with the approved protocol. The Senior Program Veterinarian Report is a standing agenda item at all IACUC meetings, which is used to report any non-compliance to the IACUC. Animal program assessment specialists employed by RARC also assess protocol and regulatory compliance via a PAM program. These assessments can include: protocol, and medical records reviews, procedural observations, laboratory and animal facility visits, and implementation of, or suggestions for, improvements where necessary.

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

Policy 2003-017-io states any individual with concerns related to the use of animals in teaching, research or outreach at UW-Madison may express those concerns without fear of reprisal. Reporting may be anonymous via a hotline, or verbally, or in writing to a person of authority in the animal program. Signage about this policy with contact information is posted in all animal facilities. Reports are investigated either by the Chief Campus Veterinarian or designee, in cooperation with animal program directors, and facility managers, department chairs, research staff, legal services, human resources staff, and other campus support as needed. The reported concern may be reported to the IACUC, the IO, OLAW, USDA, AAALAC or other entities depending on the nature of the report and the ultimate finding of the investigation.

4. Disaster Planning and Emergency Preparedness [*Guide* p. 35]
Briefly describe the plan for responding to a disaster potentially impacting the animal care and use program:

- Identify those institutional components and personnel which would participate in the response.
- Briefly describe provisions for addressing animal needs and minimizing impact to animal welfare.

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

The UW-Madison Police Department's (UWPD) Emergency Management Unit manages he animal program's emergency planning. UWPD, an accredited law enforcement agency, created the Emergency Management Unit in 2004 to meet Homeland Security needs. The unit's staffing and mission has grown and currently provides coordinated emergency management service throughout the University.

The University uses an all-hazards plan. All-hazards plans are commonly used in county, state and federal agencies throughout the United States. Such plans identify in advance the expertise, decision making authority, equipment and supply sources, and financial resources to deal with a broad spectrum of emergency scenarios. Then, those combined resource are tested at least annually with professionally managed table top, functional and practical exercises. The results are analyzed and used to refine threat assessment, implementation practices and lists of resources. Regular practice allows implementation to become routine.

UW-Madison's emergency plans consist of four components:

1) The University Response Plan (URP) is the University's institution-wide plan managed by UWPD. It lists emergency resources identified, including senior staff in the animal program and from throughout the University. Dr. [redacted] (Chief Campus Veterinarian), Dr. [redacted] and Dr. [redacted] (Senior Program Veterinarian, RARC) represent the animal program directly as specified liaisons. They are called upon when UWPD activates the Emergency Operations Center (EOC), [redacted] to respond to unfolding situations that threaten the University's operations. Lists of staff and resource at the animal facilities that were identified by the facility managers are available to our animal program liaisons both in the EOC and on flash drives they carry. Since representatives from University Communications, finance, administration, Legal Affairs, housing, food service, human resources, fleet, physical plant and real estate agents are represented in the EOC, our animal program liaisons are afforded the opportunity to productively communicate the animal program's emergency needs to those who control necessary

recovery resources. A credit card with a limit of $1 million is dedicated for UW-Madison's emergency use. Further, EOC exercises are often jointly practiced with units of local, county and state government. This facilitates access to resources beyond the University. Please note that some portions of the URP are confidential for security reasons and will not be available for site visitor review.

2) Continuity of Operations Plans (COOPs) generally follow a UWPD format and are also all-hazards plans. They are written by college, school and unit staff and include expertise and other resources available at more local levels in the animal program and throughout the University. They are specifically intended to facilitate the return of units to their normal operation. Like the URP, COOP plans are tested through exercises facilitated by UWPD Emergency Management staff. After-action reports are prepared and used to refine the URP.
3) Occupant Emergency Plans (OEPs) closely follow a UWPD template and are reviewed by UWPD's Emergency Management unit. They are commonly prepared by the individual building or farm managers specifically for the occupants of their facilities. OEPs provide key contact information and current best practices for building occupants to follow when an unexpected threat suddenly presents. Building evacuation routes, fire drills, bomb threats, suspicious package identification, and the like are included. OEPs are updated at least annually.
4) The Animal Program Emergency Plan (APEP) is an administrative document. It accomplishes two purposes. First, it identifies three senior animal program representatives who will be contacted by UWPD's Manager-On-Call in the event that an animal facility is threatened but the EOC is not activated. Presently, these are Dr. [redacted] and Dr. [redacted] with the third position temporally vacant. Second, the APEP outlines regulatory requirements, as well as "shoulds" from *The Guide*, for animal program contingency plans. The APEP, and the other components, are reviewed annually by a group consisting of the Chief Campus Veterinarian, the [redacted], compliance representatives from each UW school/college, and UWPD Emergency Management staff. Refinements are made as needed to assure that practices do not drift from compliance or prudence.

In addition, the IO consults with UWPD administration as needed to assure animal program needs are addressed.

II. Animal Environment, Housing and Management – Laboratory Facilities

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

A. Animal Environment

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

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

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

[redacted]: 100% outside air. Temperature adjustments are at the room level with humidification adjustments at the air handler unit. Animal room temperature and humidity are monitored continuously by the [redacted]. Temperature and humidity are checked daily by the staff. The system alarms if the environmental temperature and humidity are no longer within a set range.

[redacted], & [redacted]: 100% outside air. Temperature and humidity adjustments are at the room level in the [redacted] vivarium. Temperature adjustments are at the room level and humidification adjustments are at the air handler unit for [redacted]. Animal room temperature and humidity are monitored continuously by the [redacted]. Temperature and humidity are checked daily by the staff and the [redacted] system alarms if the environmental temperature is no longer within a set range.

[redacted]: 100% outside air with steam heat, chilled air and central humidification dedicated to the animal rooms in the laboratory. The researcher has no live animal research at this time.

[redacted]: 100% outside air. Temperature, humidity and pressure in the animal holding rooms are controlled by an automation system. Room temperature and humidity are monitored continuously by the [redacted] and an

alarm is sent to facility staff when the temperature is out of the desired range. [redacted] monitors room pressure/airflow with the Ball-In-The-Wall room pressure monitoring system. Water temperature in the [redacted] **frog room** is controlled by mixing valves and is set to be delivered to the frog tanks at 59 - 77°F. Temperature of the frog tank water is then maintained by controlling the room temperature (65-70° F), and the temperature of the water and the room air is checked daily by the care staff. Laboratory housing of frogs may occur in Room [redacted] on the [redacted] and in Room [redacted] in [redacted]. Water temperature in Room [redacted] is maintained by controlling the room temperature. The room temperature is monitored continuously by the [redacted]. Water temperature in Room [redacted] is maintained by controlling the room temperature. The room temperature is monitored continuously by a dial out system.

Fish tanks in [redacted] are supplied with flow-through aerated water with temperature regulated to within+/-1°C of the defined set point. Water temperature is checked daily by the staff at the mixing head tanks and is monitored by an auto-dialer system. The facility also maintains a 125-gallon marine tank for a teaching display.

See Appendix 11 HVAC System Summary or Appendix 12 Aquatic System Summary for temperature set-points for species housed in each of the above facilities.

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

See Appendix 11 HVAC System Summary and Appendix 12 Aquatic System Summary.

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

Animal housing facilities use room temperatures according to the Guide's parameters for each species. To avoid heat or cold stress in species, these parameters are typically set below the Lower Critical Temperature (LCT). However, in some facilities, for young animals the environmental monitoring limits are narrowed to closely monitor the stage of development to avoid heat or cold stress. Animals are provided with adequate resources to avoid cold stress, which includes nesting material, appropriate bedding material and presence of cage mates to aid in thermoregulation. Temperatures for fish, wild caught birds, and chickens vary by stage of development.

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

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

Air flow, balance parameters and overall ventilation performance are evaluated and documented every 3 years. The data is presented in the HVAC Systems Report found in Appendix 11. UW Facilities Planning & Management maintenance mechanics address air flow and rebalancing needs as they arise, or as necessary for biological safety reasons or to redress suspected mechanical failure. [redacted] vivarium have room pressure changes monitored at the entrance to each animal room.

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

[redacted] has three Allentown forced air rodent racks. The racks are exhausted through the building's exhaust system.

[redacted] quarantine room- One bay has a separate ventilation system. The other 4 bays use micro-isolation static caging. [redacted] uses [redacted] P/NC positive/negative control ventilated caging system for mice, caging has exhaust flow gauges mounted for each IVC rack in service. The exhaust of the racks is through the building exhaust system.

[redacted] researcher uses a [redacted] cage system to measure energy intake and energy expenditure of mice. Each cage has

its own air supply and sensors for quantifying food and water consumption as well as a transmitter/receiver for monitoring animal core body temperature and activity. The system is on an emergency back-up power supply. It also has an open circuit system, where the top of every cage has a small orifice that will allow air to come in when positive pressure generated by the pump stops.

Not applicable to [redacted] and [redacted].

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.

Not applicable

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

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

The CALS Aquatic Animal Management Program is in Appendix 12. The Aquatic Animal Management Program sets minimum standards for care of aquatic species, including water quality requirements and testing/assurance (e.g. daily temperature monitoring and weekly pH and ammonia checks). CALS uses both static and recirculating aquatic housing systems. Housing densities vary according to species and type of system (static vs. recirculating), but densities used must provide an environment where animal health and behavior is not adversely affected and where water quality remains within the required parameters.

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

[redacted] – flow through carbon filtered system. Water temperature is monitored at the mixing head tanks via the phone autodial system. Water temperature is monitored at the tank level as part of the daily care. Housing densities of all animals vary according to age, size, species, and research project. Fish are typically

housed in glass aquaria (6L-30L), fiberglass tanks (30, 60 and 200 gallon) or in alternative appropriate fish tanks based on research projects. Room temperature of 20° C. Water quality is monitored for chlorine.

This facility also maintains a recirculating live rock 125 gallon marine tank with a protein skimmer. A 30% water change is completed every 3-4 weeks. Water quality is monitored for ammonia, nitrite, nitrate, alkalinity and total hardness. The protein skimmer is cleaned weekly.

Frogs in the [redacted] are housed in tanks made of polycarbonate. The water in these tanks is changed daily by an automated flush and fill system. Water entering housing tanks is adjusted to 59-77°F via a mixer valve before passing through a mixed bed filter, a carbon filter for chlorine removal and a 5 micron filter for particle removal. The water temperature post-mixer valve is maintained by controlling the room temperature, 65-70°F. The carbon and 5 micron filters are changed and logged every 6 months by a contracted company; [redacted]. Manual water changes are done if the system fails. Animal densities are maintained at 1 adult frog per gallon of water. Most tanks hold 96 gallons of water and may contain 30-35 frogs/tank. Water quality is tested weekly and logged for pH, ammonia, nitrite, nitrate, and chlorine levels.

Fish are housed in [redacted] room #[redacted], in polycarbonate 6 L tanks. A 25-50% water change will be performed at least 3-times per week, increasing in interval up to daily depending on the diet, size, and population density of the tank. City water will run through a carbon in-line filter to provide chlorine-free water for changes. Water will be kept at ambient temperatures and the air temperature 70 degrees F., is monitored by the [redacted] system. Light cycle will be adjusted at least monthly to approximate the sunrise/sunset in Madison WI. Chlorine levels will be monitored every-other-week to ensure adequate chlorine removal.

Animal densities vary dependent on life stage, and tank size.

See Appendix 12 for further details.

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.

We are always cognizant of the effect noise and vibration in the lab might have on the animals. All units are isolated from public-use corridors and other human areas (locker rooms, break rooms). [redacted]. Solid core doors are kept closed at all times and the walls surrounding animal rooms are insulated to dampen noise transmission. Cage washing, and other support rooms, are separate from animal rooms and are also kept closed. The HVAC systems, refrigerators, freezer fans, and compressor motors provide for a steady "white-noise" background. No radios, stereos, or unnecessary sound-producing devices are allowed in animal housing rooms. Animal care workers attempt to use quiet work habits. Fire alarms in animal housing facilities alert personnel through voice alarms and ambient lights. Casters on carts, racks, and hand trucks are routinely repaired, lubricated or replaced as needed.

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

1. Primary Enclosures

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

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

UW-Madison has formally adopted the following as standards for the animal care and use program: (1) the Guide for the Care and Use of Laboratory Animals (Guide), NRC, 2011; (2) the Guide for the Care and Use of Agricultural Animals in Research and Teaching (Ag Guide), FASS 2010. These standards are applied to facilities planning and management, oversight of animal environments, animal user training programs, IACUC/OB functions, and veterinary care.
See Appendix 13 for a list of primary enclosures.

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

program. [*Guide*, pp. 55-63]

The CALS Small Animal Program has approved space exceptions for mice breeding enclosures that are smaller or denser than standard for species. This type of exemption is justified in an animal care and use protocol and is approved by the IACUC and the veterinary staff.

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

   a. **Environmental Enrichment**

      i. Describe the structural elements of the environment of primary enclosures that may enhance the well-being of animals housed (e.g., resting boards, privacy areas, shelves/perches, swings, hammocks).

      Appropriate environmental enrichment must be provided in laboratory animal housing unless there is a scientific justification approved by an IACUC that precludes the use of enrichment materials or practices. The default enrichment devices for rats are shelters, structures, or lofts. PVC tubes and rat lofts are commonly used. Mice may be provided with structural enrichment such as igloos or stainless tubes. The default enrichment for fish is hiding devices (when species appropriate), fish at [redacted] may be provided with PVC structures. See Social Housing and Environmental Enrichment Policy, 2011-042-v.

      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).

      Appropriate environmental enrichment must be provided in laboratory animal housing unless there is a scientific justification, approved by an IACUC, that precludes the use of enrichment materials or practices. Default enrichment for mice is the provision of nesting material; food treats may also be given. Rats may be given chewing items, nesting material and food treats. Frogs and fish are housed with plenty of room to allow for swimming and movement. Wild birds are provided perches in their cages and food treats. See Social Housing and Environmental Enrichment Policy, 2011-042-v.

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

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

The default method of housing social animals (rodents, etc.) is with at least one other conspecific. Exceptions to this must be scientifically justified in an IACUC approved protocol, or based on veterinary-related concerns.

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

Single housing of social species is allowed when based on animal welfare concerns, in the case of non-compatible adult male mice used in breeding, or when the research objectives necessitate single housing. If a researcher requests single housing of social animals, there must be an appropriate scientific rationale presented to an IACUC in the animal care and use protocol and then approved. The following are examples of scientifically justified approvals for single housing: Rodents on nutrition studies fed formulated research diets and animals housed in metabolic cages.

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

The default method of housing social animals is with at least one other conspecific and appropriate environmental enrichment must be provided in laboratory animal housing unless there is scientific justification, approved by an IACUC, that precludes social housing or the use of enrichment materials or practices. Enhanced environmental enrichment may be indicated for singly housed animals. Visual, olfactory, auditory and/or tactile contact with conspecifics is encouraged if it does not interfere with study objectives.

c. Enrichment, Social and Behavioral Management Program Review [*Guide*, pp. 58, 69]

Describe how enrichment programs and exceptions to social housing of social species are regularly reviewed to ensure that they are beneficial to

animal well-being and consistent with the goals of animal use.

Exceptions to social housing are reviewed by the IACUC when the protocol is submitted, renewed, and/or amended.
Enrichment programs are evaluated in situ by the facility veterinarian and the veterinary technician. The Senior Program Veterinarian must approve the enrichment SOPs; these are reviewed periodically by the veterinary staff. In addition, IACUC members assess exceptions to social housing during routine inspections and check for environmental enrichment.

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

Not applicable

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).

None of the laboratory animal facilities use sheltered or outdoor housing.

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

Not applicable

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.

Not applicable

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

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

None of the laboratory animal facilities use naturalistic environments.

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.

Source	Type	Species
[redacted]	Purina Rodent lab Chow Lab Diet Rodent Food Type 5008 Lab Diet Rodent Food Type 5015- Breeder Lab Diet Rodent Food Type 5010- Lab Diet Rodent Food Type 5012- Rat	rats, mice mice mice mice rats
[redacted]	Pelleted Rodent feed #8604 Breeder Chow #2109	Rats, mice

		Custom research diets from Envigo (Nutritional Science)	Mice Rats and Gerbils
	[redacted]	Frog Brittle	*Xenopus tropicalis* adult/
	[redacted] Madison, WI	Birdseed (when housed)	Songbirds
	[redacted]	Starter Crumble Classic Fry Gemma Diet	Larval freshwater fish species
	[redacted]	TetraMin	Cichlid and Marine fish
	[redacted]	Brine shrimp, frozen, flake or cysts Rotifers	Fathead minnows Fish species

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

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

Vendors

[redacted] maintains a strict standard of sanitation in all its facilities. Warehouse sanitation is the primary operational concern in the [redacted] storage facilities. Their operating procedures and quality control program consists of the following: sanitation program, fully climate-controlled, vermin control program, and inspection of incoming materials.

[redacted]; [redacted] is a distributor of Purina products and maintains a Purina approved sanitation program within its facilities. Waldschmidt provides adequate storage facilities which are clean, dry and sanitary at all times. They are meeting "Guidelines for Establishing and Maintaining a Sanitation and Pest Control Program for Certified Lab Dealers" and inventorying adequate stocks and lines of Purina lab feed to insure proper stock control. Veterinary staff visit this facility yearly.

Centralized or bulk food storage

There are no centralized or bulk food storage facilities that serve the CALS laboratory animal program.

Animal facility or vivarium feed storage rooms

[redacted]: Room #[redacted], [redacted]: Room #[redacted] is used for storage and special diet preparation, [redacted]: Room [redacted], [redacted]: Room [redacted] (rodent) and [redacted] (frogs), [redacted]: Room [redacted] is used for storage, Room [redacted] and [redacted] are used for research diet preparation and [redacted] contains refrigerators for diet storage. [redacted] keeps food in Room [redacted] in a refrigerator or in a sealed Rubbermaid container at room temperature.

Storage containers within animal holding rooms

Rodents:

Food is typically stored in storage rooms that are separate from animal rooms. The original sealed bags are stored off the floor on pallets until opened. Once opened, food is placed in a container with a lid; the secondary container may be stored in the animal room. The container has a card that indicates feed type, date opened, date feed can no longer be fed. Researcher prepared diets are kept in a sealed container and labeled with date of preparation and stored off the floor.

Birds:

[redacted] - Bird feed kept in a secondary container and labeled with feed type, date opened, and mill date.
[redacted] – Poultry feed is maintained in a secondary container and labeled with feed type, date opened and mill date.

Aquatics:
[redacted] - Frog food is transferred to sealed plastic containers upon receipt and stored in the frog room.

[redacted] – Dry food is stored in a secondary container labeled with feed type, date opened, and mill date in room [redacted]. A live Rotifer culture is maintained in the room for the larval fish through day 21. Rotifer numbers are checked daily and additional rotifers are added as necessary to a density of 1500-3000 per fish when rotifers are the sole constituent of the diet.

[redacted] – Food is stored in a freezer, refrigerator or in plastic bins in the lab. The live Rotifer culture is maintained in the laboratory for larval fish in this lab. When dry foods are being used, secondary containers are created. These containers are labeled with product information; the container provides a 5-day supply.

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

[redacted] and [redacted] mix specialized research feeds in a designated room. All dietary components are stored off of the floor in sealed containers labeled with product information. Feed that needs refrigeration is stored in designated refrigerators within the vivarium. All diet preparation is done in rooms designated exclusively for that purpose. Equipment and storage areas are inspected by the IACUC during semiannual inspections.

Location of feed preparation spaces
Room [redacted] is used at [redacted] for rodent diets, Room [redacted] of the [redacted] for minus D Diet, [redacted] & [redacted] are used for research diet preparation and [redacted] holds refrigerator space for the research diets.

There are no feed preparation areas at [redacted] and [redacted].

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

Mammals:
Feed troughs in the stainless steel wire lids of cages, hanging feeders, metal food cups for gerbils and glass or ceramic food cups for other rodents are all used for the purpose of providing diets. Rodent food is provided ad libitum for most animals and is added to cage feeders at minimum, twice weekly. The feeders are located on the cage lids or sides and provide ample access to all animals in a given cage.

In [redacted] animals on special diets or those fed limited amounts may be fed using specialized feeding cups placed directly in the cage. These cups are designed to minimize contamination and spillage of the diet into the cage. The animals on research study are typically inspected daily by research staff and the care staff is aware when the research diet is consumed completely. The feeding cups are cleaned after each use.

Birds:
Wild Caught Birds when housed at [redacted] are fed ad libitum using feed appropriate to the species. Nestlings are hand fed hourly; amount of feed is dependent on age and weight. Poultry housed in cages in the [redacted] vivarium have cage mounted feeders and are feed ad libitum.

Aquatics:
[redacted] - Frogs are limit fed; a gram of brittle is provided per adult frog directly into the water.

[redacted] – Feeding is dependent upon species in research project. The fish are fed ad libitum twice daily at this facility. Type of feed varies with age. Coldwater fish species that may be present are fathead minnows, walleye, musky, and trout. There is also a freshwater Yellow Lab Cichlid breeder tank.

[redacted] – Larval fish are raised in a "polyculture" system; fish and rotifers are reared in 5 ppt salt water. The rotifer culture is

sustained for feeding larval fish during days 1-21. Dry diets can be fed to the larval fish starting on day 2 post-hatch. By day 21 post-hatch the larval fish are fed exclusively a dry diet. The dry feed is kept in a labeled secondary container in room 121.

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

Food is ordered and used in accordance with needs to minimize storage time. Incoming food is visually checked for mill dates and stock is rotated to use oldest mill dates first. Newly opened food is transferred to a plastic container with lid and the diet's mill and open date is recorded. The CALS IACUC has developed a set of feed storage guidelines for facilities to follow. Researchers label and date all of their special diets with a preparation and expiration date.

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).

Provision:
Water is provided to rodents using glass or plastic water bottles with stainless steel sipper tubes at [redacted] and [redacted]. [redacted] has an Edstrom Automatic watering system and holding tank. The water storage tank holds several days of water at full capacity in the event of an unexpected interruption in the water source. The automatic watering system cycles water through ultraviolet light to sanitize. Lixits in the caging are removed and sanitized before a new group of rodents are housed.

Treatments:
[redacted] **and** [redacted] supplies purified RO water to animals for drinking. [redacted] uses distilled drinking water for mice and acidified drinking water for rats. [redacted] **and** [redacted] provide distilled drinking water to all animals.

At [redacted], chickens receive tap water via an automatic watering system run through PVC with nipples or inverted plastic or

glass jar waterers. Wild caught nestlings at [redacted] are hand fed.

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

The water supply for the University campus comes from the City of Madison Water Utility. The City of Madison Water Utility is in compliance with the Federal Safe Water Drinking Act. The Environmental Protection Agency requires random testing throughout the city as well as the campus. These samples are tested at the City of Madison Health Department lab. The Water Utility monitors the water supply regularly for organic and inorganic contaminants, bacteria, parasites, pesticides and radionuclides, and provides copies of their monitoring reports to RARC.

Filters for automatic watering pressure reduction stations are changed according to manufacturer's recommendations.

At [redacted], [redacted] performs a quality control testing on water system in this vivarium annually.

RARC Water Quality Monitoring Program for all facilities:
Water is tested quarterly 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.

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

[redacted]**:** Auto watering system employs UV light sanitization before entering the water lines. The quick disconnects for the water ports are washed through the bottle washer prior to introduction of a new group of animals.
[redacted]**:** The auto watering system used for birds is cleaned when birds are moved to new caging, this happens every 2-weeks.

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

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

Rodents are bedded using both direct and indirect bedding. Animals housed in solid bottom cages are bedded directly. Facilities may use different bedding types including 1/8 Bed O'Cob®, aspen shavings, Enviro-dry® and Beta Chips®. Nesting materials are composed of paper or cotton.

Indirect bedding is used for the wire-bottom cages in the form of pan liners for rodents. Nestlings' housing container is lined with 2 layers of paper toweling, these are changed twice daily.

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

None

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

Bedding is purchased in accordance with needs to minimize storage requirements and is visually inspected as it is added to the cages at all facilities. Opened bags of bedding are stored in a second container and used within 2 weeks. Storage rooms are cleaned and inspected regularly.

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.

[redacted], and [redacted], occasionally use a personal vehicle or departmental vehicle to transport animals.
[redacted] and [redacted] departments use a department-owned vehicle to transport animals.

All vehicles have functional heating and air conditioning and owners must submit a form to RARC verifying that the vehicle is capable of maintaining the appropriate temperature range per the Guide. Animals are transported within a shoebox cage or a disposable cage with a micro-isolator lid to prevent escape and exposure of their allergens to humans.

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

[redacted] - High pressure washers, animal transfer stations, autoclave, manual dump station with dust collector, water bottle filling station, fume hood and biological safety cabinet.

[redacted] – Tunnel cage washer, animal transfer stations, Garb-el dump station with dust collector, autoclave, biological safety cabinets, fume hoods approved for use of ether, water bottle filling station, bedding dispenser.

[redacted] – Cage washer, [redacted] bottle washer, and dump station with filter. Room [redacted] has an animal transfer station.

[redacted] – Cage washer, and [redacted] bottle washer.

[redacted] – Biological safety cabinets, manual bedding dump station with filter, autoclave, cage washer, and glassware washer.

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.

Bedding is changed according to the following table as a minimum standard. Pan liner and bedding changes are conducted at greater frequencies if judged to be necessary by the animal care staff and/or the principal investigator to keep the animals dry and clean.

Species/Facility	Cage Type	Frequency
[redacted] Rats	Solid bottom	Bedding changed 1 x weekly

Mice Larval fish Chickens	Solid bottom IVC Static Brooder or other caging	Changed weekly Every other week Water monitored daily Drop pans scraped 2 x weekly
[redacted] Rats Mice & Rats Frogs	Suspended wire bottom Solid bottom Static and IVC cages Static Tanks	Pan liners replaced minimum of 2 x weekly Bedding change 1 -2 x weekly Water is changed daily Tanks scrubbed every 2 weeks
[redacted] Rat/mouse Mice/Rat/ Gerbil	Suspended wire bottom Solid Bottom	Pan liners replaced 2 x weekly Bedding changed 1 x weekly
[redacted] Nestlings (when housed)	Small container	Paper toweling replaced twice daily
[redacted] Fresh and Coldwater Fish Marine Fish	Tanks Recirculating system tank	Continuous Flow system 30 gallon water change every 3-4 weeks (RO water)

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

Some approved protocols allow for delayed bedding changes when there are new litters to increase acceptance of newborns by their mothers.

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

[redacted] – rodent bedding is removed in the cage wash Rm. [redacted] and clean bedding is placed into clean cages in Rm. [redacted]. The fecal drop pans from the chicken caging are removed and scraped at least 2 times weekly into the trash in the animal room. The trash liner is removed on the day of scraping and disposed of as required by each specific project. Fish aquaria are cleaned after use with chloramine-T or bleach.

[redacted] – bedding is removed in the cage wash Rm. [redacted] and clean bedding is placed into clean cages in Rm [redacted]. Pan liners are removed and replaced in the animal rooms. [redacted] – Room [redacted] has a dirty side and clean side of the cage wash, there are no walls dividing the space. Clean caging and bedding is stored in a separate room, [redacted].

[redacted] – Dirty bedding is removed in the dirty side of the cage wash, Rm [redacted], and clean bedding is placed on the clean side of the cage wash Rm. [redacted].

[redacted] - Dirty bedding is removed in the dirty side of the cage wash, Rm. [redacted], and clean bedding is placed in the clean side of the cage wash, Rm. [redacted]. Pan liners are removed and replaced in the animal room.

[redacted] – Tanks are cleaned in place with chloramine-T or bleach between studies.

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

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

Rat micro-isolator lids are approved to be changed up to every 2 months and mouse micro-isolator lids are approved to be

changed up to every 3 months. This is based on studies conducted on campus to determine biologic load of these items with extended changing.

2) Assessing the Effectiveness of Sanitation and Mechanical Washer Function

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

Mammals and birds

All units swab cages, feeders and watering devices quarterly. These swabs are analyzed by RARC using [redacted]. The [redacted] is a self-contained, single use service ATP rapid hygiene test. The [redacted] provides a true measure of hygiene and cleanliness by, detecting micro-organisms and food/organic product residues present on surfaces, which may provide a nutritious medium for microbial growth and act as barriers to the direct action of both sanitizers and disinfectants. Examples of items tested are: water bottles, stoppers, feeders, rodent shoebox cages and wire bar lids.

A 180°F temperature tape is used weekly to monitor water temperature, and charm swab testing is used quarterly to assure equipment is properly sanitized in each of the facilities cage washers.

[redacted] uses the [redacted] swabs quarterly and 170° temperature tape every other week to assure disinfection by the bottle washer. Washers at [redacted] and [redacted] will not cycle down until it reaches pre-determined set point and maintains it for a specified time, which is dependent on soil level and cycle used. The [redacted] bottle washer is monitored weekly using 180° temperature tape and charm swab testing quarterly to assure equipment is properly sanitized.

On a monthly basis, autoclaves in the [redacted] **and** [redacted] vivaria are monitored through RARC via [redacted] Each biological indicator vial contains spores of

Bacillus stearothermophilus, an autoclave testing log is maintained by the vivarium.

b) Describe preventive maintenance programs for mechanical washers.

[redacted] Washers Solutions repairs the cage washer as needed.

[redacted] **and** [redacted] - [redacted] is contracted to conduct semi-annual preventative maintenance service on the cage washers and autoclaves.

[redacted] – Cage washer is worked on as needed by physical plant, or [redacted] a private repair contractor. The [redacted] bottle washer is worked on as needed by [redacted] or physical plant personnel.

McArdle – to be determined

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

i. Soiled bedding and refuse.

Soiled bedding and refuse is bagged and sealed daily and placed in dumpsters provided by the UW-Madison Physical Plant.

For the [redacted] and [redacted] BSL2 room, the used bedding is autoclaved before disposal.

ii. Animal carcasses.

The UW EH&S Department's animal tissue disposal service collects and incinerates carcasses from the campus small animal facilities. Carcasses are bagged, properly labeled and placed in designated freezers. Carcasses are collected until facility storage capacity is approached. At this point the EH&S Department is called to pick up the carcasses.

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

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

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

Storage methods and ongoing pest control have effectively controlled vermin problems in laboratory animal facilities. The buildings are sealed tight, providing limited access to mice. Roaches are kept out of animal facilities by pouring anti-freeze in dry drains to prevent roaches from entering rooms. If mice or roaches are seen, animal care staff will set traps, or call the UW Pest Control Office to deal with the problem. The method for eliminating pests is determined by the Pest Control Office in consultation with the lab manager or principal investigator. Finding and eliminating entry ways is the preferred method. Rodenticides are used only as a last resort and never in animal rooms. Live traps are used at [redacted] and [redacted]; a log is kept to document that traps are checked daily. [redacted] and [redacted] currently have no wild rodent issue. Roaches are controlled using roach bait and boric acid.
Aquatic snails at [redacted] are controlled as needed with a garden snail control product.

Insecticides and rodenticide used in the past, at the recommendation of the Pest Control Officer, include Suspend SC® (Deltamethrin), CBPurge® III (natural Pyrethrin), BP100 (Natural Pyrethrin), and Final®(Brodifacoum).

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

None

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

Generally, pesticides are not used. The decision to use pesticides would be made by animal care staff in consultation with animal users. Animal users are notified before any control agents are used, and if necessary, animals are removed and housed in a separate location to prevent exposure to potentially toxic substances.

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

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

The same level of care is provided on weekends and holidays as during regular workdays. Animal care is provided by regular animal care staff, student hourly staff, laboratory animal researchers, or some combination of these qualified individuals. If student help is used, students undergo training by RARC and are further trained and supervised by the animal care facility manager in laboratory animal husbandry. New student help is not allowed to work independently or to be scheduled for a weekend shift until they are competent.

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

Students undergo training by RARC and are further trained and supervised by the animal care facility manager in laboratory animal husbandry. Laboratory research staff are trained by the RARC, their supervisor and facility manager. One or more animal care staff members are on call at all times to advise workers, and veterinary personnel contact numbers are posted for contact and consult if needed.

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

RARC has a veterinarian on call, 24 hours per day, 365 days per year. The dedicated paging number (managed by the UW-Madison 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.

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).

[redacted]: Rodents are identified with cage cards; individual rodents may be identified by metal ear tags or ear punch. Fish are identified by tank. Chickens are identified by cage card or by wing band.

[redacted]: Rodents are identified with ear punch and cage cards that include the following information: principal investigator, protocol number, species, strain, source, date received or weaned, and laboratory contact person and phone number.

[redacted]: are identified by holding tank.

[redacted] **and** [redacted]: Cards displayed outside each cage identify mice housed in polycarbonate cages. Cards include animal source, strain, primary investigator/contact person, and protocol number if applicable. A number displayed on tape outside the cage identifies rats in wire-bottom cages. The numbers are listed on the animal log sheet posted on the room door. Individual rodents may be identified by ear notch, toe clip or tattoo.

[redacted]: In most cases identification for individual fish is not kept, but is done through identification of the entire tank of fish. If individual records are kept, fish are marked with fin-clips, visual tags and internal PIT tags. Daily records are kept on the counter in a 3-ring binder in room [redacted]. Other facility records (protocols, SOPs, inventory) are kept in a black binder in [redacted]. Approximate fish numbers are displayed on each tank.

[redacted]: Wild birds when housed at [redacted] are identified by cage card and leg bands. Nestlings when housed are identified by cage card on housing container.

b. Breeding, Genetics, and Nomenclature

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

Proper selection of animal models 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 provided on a one to one basis either in response to a specific request or as a result of questions raised during protocol reviews.

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.

PIs are responsible for proper use of nomenclature to identify their research animal strains used in a study. RARC veterinarians are available for consultation and can also provide advice to investigators on nomenclature during pre-review or review.

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

PIs are responsible for breeding colony and strain management. Policy 2010-038-v Genotyping of Mice and Rats, sets consistent standards for genotyping of rodents. RARC provides practical information for management and recordkeeping practices at their website, which includes colony management with parameters that fit common strains of mice. The Veterinary and Training staff are available for consultation regarding appropriate management of the breeding colony. In addition, the UW-Madison Genome Editing and Animal Models offers strain rederivation and embryo or sperm cryopreservation services.

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

Special husbandry needs and expected disease processes for newly generated genotypes are described by the investigator in the breeding protocol. All animals are observed at least daily by animal care staff, veterinary staff, or research staff and unexpected phenotypes with potential adverse effects on well-being are reported to the IACUC.

II. Animal Environment, Housing and Management ***(includes the Agricultural Animal Program facilities only. The Laboratory and Aquatic Animals Program is in the previous section)***

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

A. Animal Environment

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

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

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

Campus Facilities

[redacted] temperature and humidity are centrally controlled by computer and continuously monitored by the [redacted] system. The [redacted] system sends an automatic alert to staff at the [redacted] if room temperatures differ from the preset range for the animal room.

[redacted] uses heat provided by hot water radiant heaters during the winter months. Temperature is checked manually and kept at or above 45° F in the spring, fall and winter. Evaporative cooling cells and ventilation keep the barns cool during the summer. Humidity is not controllable.

[redacted] Ambient temperatures and humidity affect the facility. Radiant heaters are used to warm the space during the heating season. Box fans, stand fans, and exhaust fans in the main room as well as in the stallion barn ventilate the barn. Humidity is not controllable.

[redacted] is heated by hot water radiant heaters and kept between 50 -75° F. Temperature is monitored daily, and is adjusted at the room level. The humidity is not controllable. In the warmer months, exhaust fans are used for ventilation. If spring temperatures warm quickly before the poultry can acclimate to the season, extra floor fans are brought

in to increase ventilation. Room [redacted] (chick room) is the only conditioned space in the facility. There is a heating and air conditioning unit mounted on the ceiling with additional ducting from the unit to increase the circulation of conditioned air to the young poultry. Humidity is not controllable in the wings.

Off-Campus Facilities

[redacted] has heaters in all animal areas. Optimal room temperature and ventilation rate are set on individual room controllers. These controllers then monitor the room temperature and adjust ventilation rate and heaters to reach the set temperature, or are adjusted manually as necessary. Animal room temperatures are displayed on control panels outside of each room and monitored at least two times per day by caretakers to determine that heaters, fans, and controllers are working properly. Temperatures can be centrally recorded electronically by either a computer in the office or by data loggers in the animal rooms. Set points are changed according to pig comfort (piling, spreading out, etc.).

The lambing jug room at the [redacted] has supplemental heat. The temperature in this room is thermostatically controlled and monitored during lambing by the animal care staff. Exhaust fans provide ventilation.

[redacted] and [redacted] have areas equipped with supplemental heating for newborn calves for extreme winter weather conditions. [redacted] provides supplemental heat for newborn calves in severe winter conditions in a PolyDome calf warmer. An animal shelter in the "windmill pasture" and a second shelter near the main barns at the [redacted] are equipped with LP gas-fired heaters. [redacted] has a heated space for newborn calves from the research herd. The heated spaces are used during spring calving when weather conditions are severely cold.

The remaining facilities at [redacted] **and** [redacted] are not air-conditioned. Temperature and humidity are significantly influenced by weather conditions. Cooling is achieved by opening doors, roof vents, windows and sidewalls as available. Heat is provided, with a few exceptions, by the body heat of the animals and by closing doors and providing wind breaks. Bedding is increased in winter to insulate the animals from excess heat loss. The roof of the Dairy Cow Barn at

[redacted] (Building #[redacted]) added an insulated roof in 2018, which will keep the barn warmer in the winter and cooler in the summer.

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

The [redacted] and the chick room in the [redacted] monitor temperatures at the room level. Most facilities are affected by outside conditions. Humidity is not measured but is controlled with appropriate ventilation.
See Appendix 11 for temperature set-points by species.

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

Animals are kept on pasture at many of the agricultural facilities. Animals are observed daily and outdoor temperatures are monitored by care staff. In the event temperatures are > 85°F, animals will be monitored for signs of heat stress by the care staff. Heat abatement measures will be employed per facility SOP. In warm summer temperatures, animals are provided with increased ventilation in the barn areas. For example, at the [redacted], the fans are maintained at the highest velocity. At the dairy facilities the side walls and roof vents are opened.

In the winter months, animals are housed in shelter or brought to a near pasture that provides natural wind breaks. Prior to placing them in a hutch, the newborn calf is kept in a temperature controlled area until dry to prevent hypothermia when winter temperatures are severe.

Other devices that ensure thermoregulation for young animals are the following: newborn piglets have access to a heat lamp, chicks are kept in brooder cages, and calves are provided with fitted warming blankets and deep bedded with chopped straw in the winter or sand bedded in the summer, to enable young animals to adjust to the temperatures in their environments.

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

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

Most of the CALS livestock facilities are open to the ambient temperatures, humidity and summer temperatures are managed with exhaust fans, tunnel ventilation, side wall curtains or portable fans. Fans are used in barns to provide cooling and ventilation. Barn doors and windows are opened if more air flow is necessary. Use of fans, open windows, and open doors to address ventilation needs is coordinated by animal care staff.
Specifically, the [redacted] uses two 24" fans in the stall area. [redacted] is an enclosed building that uses conventional building ventilation methods. HVAC system data are included in Appendix 11. Floor fans are used to provide additional air movement when needed.
[redacted] runs exhaust fans year round, employing auxiliary exhaust fans during the hot months, and has additional pedestal and barn fans to provide air movement within animal areas. Room [redacted], (chick room) has its own heating and air conditioning unit, data is included in Appendix 11. [redacted] uses tunnel ventilation, drawing air through the length of the barn wings, which is exhausted by fans. Additional cooling is provided via evaporative cooling cells.

Off-Campus Facilities.
Most of these facilities are open-air ventilated with roof ridge vents and either doors, windows and/or moveable sidewalls that can be opened during warm weather to increase ventilation. Some facilities have additional ventilation.
[redacted] – Cattle housing areas are naturally ventilated. Milking herd freestall barn, building #[redacted], the ventilation is supplemented with 36, 52" fans. Dry cow freestall barn, building #[redacted], is open to a pasture in the summer.
[redacted] - lambing room uses an exhaust fan to ventilate the area when needed.
[redacted] sets optimal temperature and ventilation rate on individual room controllers. These controllers then monitor the room temperature and adjust ventilation rate and heaters to reach the seasonal set temperature. Thermostat set points are changed according to season, age of animals, and pig comfort (piling, spreading out, etc.). Infrared lamps provide

supplemental heat during cool/cold temperatures for new born piglets in the Nursery rooms.

Temperature	°F
Nursery rooms	90 - 65
Finishing rooms	75 - 50
Farrowing rooms	65 - 70
Gestation room	60 – 65

The summer fans are a variable speed 3' or 4' fan built into the wall, used for ~8 months and then covered in the winter to minimize cold air drafts. Sources of cooling in the Grow & Finish House are inlet air, regulated by exhaust fans and roof baffles, and misters. The [redacted]'s surgery suite has enclosed heating, ventilation and air conditioning; these rooms are included in the System Summary in Appendix 11.

[redacted] - During summer, [redacted] and [redacted] Barns use tunnel ventilation with inlets at the south ends of the barns along with windows along each wall and 6-48" exhaust fans on the north end. During winter, [redacted] and [redacted] Barns are ventilated with wall fans to maintain temperature at 45° F. [redacted] barn is naturally ventilated with curtain sidewalls that are raised and lowered to control environmental temperatures. [redacted] Barn is a power ventilated freestall barn with thermostatically controlled exhaust fans on the North wall and curtains on the South wall. The curtains are opened varying amounts based on interior barn temperature. There is also a sprinkling system for cows at temperatures above 75° F. [redacted] Barn pens (29-33) have an open south wall with curtained north wall. The pre-fresh pen in the [redacted] barn (35) has mounted ventilation fans to assist with cooling during warmer months. The dry cow barn [redacted], is a freestall barn with curtain sidewalls to control environmental temperatures.

[redacted] –Dairy cow barn ventilation is supplemented with sixteen, 52" fans; fans are regulated by use of thermostat. The calving barn contains an insulated ceiling, and ventilation is supplemented with two 20" exhaust fans and 52" ceiling fans.

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

None

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.

None

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

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

Not applicable

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

Not applicable

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

No active measures are taken to control noise and vibration in the campus and off-campus livestock facilities. Mechanical devices (milking pumps, feed mixers, etc.) are isolated in closed rooms.

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

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

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

Animals are housed at densities that meet the recommendations of the 2010 Guide for the Care and Use of Agricultural Animals in Research

and Teaching. The eighth edition of the Guide is referenced for livestock used in biomedical research.

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

The [redacted] and the [redacted] houses both Agricultural and Biomedical swine. Gestation crates and farrowing pens are used and are scientifically justified in the researcher's protocol. The [redacted] staff monitor pen sizes for growing animals and careful consideration is given to the adequacy of the space to meet their needs as well as to meet the space recommendations specific to the research goals.

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

a. Environmental Enrichment

i. Describe the structural elements of the environment of primary enclosures that may enhance the well-being of animals housed (e.g., resting boards, privacy areas, shelves/perches, swings, hammocks).

[redacted] uses laying boxes and roosting platforms.

Cattle, horses, and sheep housing includes freestall, tie stalls, bedded packs, pens, and pasture. In these housing arrangements animals have complete freedom of movement, complex environments, and interaction with others in the group. Cattle at [redacted], and [redacted] have access to cow brushes in the freestall area.

Goats at the [redacted] are group housed in a pen with structures to climb. Forage is provided in hanging containers to encourage their natural browsing behaviors.

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).

Livestock animals are typically group housed and have free access to exercise lots, freestalls, and pasture. When management practices don't allow contact with herd mates (for example when housed in calf hutches, tie stalls or maternity pens), animals are located within sight and sound of others of the same species; often nose-to-nose contact is possible.

[redacted]**:** horses are provided with balls to play with and student groomers provide human interaction. Also, social groups of mares are turned out for a minimum of 30 minutes daily; stallions are turned out individually. From May to December horses are housed at [redacted]; stallions have a paddock and barn area that is separate from the mares' pasture and barn.

[redacted]**:** swine are provided with balls, kong toys, chains and food treats when individually housed.

[redacted]**:** weaned piglets have access to enrichment devices that can be manipulated by pushing or pulling. Some pen housed adults on special study have balls or chains they can manipulate and music is used for sensory enrichment in some animal housing areas.

Dairy calves are provided mineral blocks in their hutch.

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

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

The default method of housing social animals is with at least one other conspecific. Exceptions to this must be scientifically justified in an IACUC approved protocol, or are based on veterinary-related concerns.

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

The following are examples of scientifically justified approvals for single housing. All housing meets the industry standard conditions.

The emissions research at the [redacted] may require single housing to collect the needed research data. However, these singly housed animals are provided with a ball suspended from the ceiling to interact with and mirrors to view their reflections. These animals can also hear and smell conspecifics.

Boars are housed in gestation crates in the [redacted] for an approved research project.

The [redacted] has animals on special research studies housed in gestation crates.

Calves on rare occasion are born at the [redacted] and they are housed in the arena for 24-hours. These calves are provided with a mirror until transport can be arranged to the [redacted] calf rearing building.

Intact male animals (roosters, bulls, stallions, boars) are housed individually, or in stable social groups (roosters, rams, bulls), in secure pens that still allow visualizations of the surrounding environment.

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

Cattle, sheep, sows, and poultry are within sight, smell, and sound of conspecifics. Animal care takers interact with all animals twice daily during feeding and or milking.

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

Exceptions to social housing are reviewed by the IACUC when the protocol is submitted, renewed, and/or amended. The enrichment program is evaluated in situ by the facility veterinarian and standards are discussed in the facility SOP for each species. In addition,

committee members assess exceptions to social housing during routine inspections and check for the use of the environmental enrichment standards described in the Social Housing and Environmental Enrichment Policy, 2011-042-v.

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

Animal care staff interact with all animals using calm and gentle handling on a daily basis.

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).

[redacted]
Building #[redacted], houses the calf-rearing portion of the [redacted]. The calf rearing building has an 8,250 square foot outdoor gravel and sand pad. The outdoor pad area has the capacity to house 80 individual Calf-Tel® hutches and 12 Multi-Max® hutches. The indoor sections of Building [redacted] provides over 500 square feet of support space for preparing feed for the neonates, warming a neonate, and appropriate cleaning and sanitizing all calf rearing supplies. Building #[redacted], is a 4-row freestall pole barn that houses the dry cows. In spring, summer, and fall the animal have access to a 4-acre pasture.

[redacted] houses cattle in two three-sided post-frame buildings that are both steel-roofed and concrete-floored. The West Pole Barn ([redacted]), a wood framed and sided shelter with southern exposure, contains 24 group pens divided by cables, each holding 5 – 8 cattle, along with 48 (7' X 11') individual pens divided by pipe gates. The front half of each pen has concrete flooring, while the back half is floored with gravel and dirt. The open side of this building can be closed if necessary on snowy, and windy days to prevent snow from blowing into the building.

In the East Pole Barn ([redacted]), which is wood-framed and steel-sided, there are 6 group pens, with access to outside lots. The inside pens and outside lots are constructed of cattle panels and wooden

planks. The front and back 10 feet of each pen floor are concrete, with a 20-foot dirt section in the middle. When the animals are confined under the roof, each pen holds 4 – 7 mature cows. With access to outside lots, the capacity per lot is 20 – 25 cows.

[redacted] houses cattle and horses in five three-sided buildings. All the buildings are divided into pens connected to outside lots.

The Research Barn ([redacted]) has 4 pens holding 20 mature cows per pen. The inside pens are divided with pipe gates, and the outside lots with cattle panels and wooden planks. Flooring is primarily concrete with one dirt area.

Barn 1 ([redacted]) is divided into two pens by a solid wooden wall. Pens are dirt-floored and lots are concrete. This space is used to house 8-10 mares from the [redacted] during May - December. There is an adjoining 5-acre pasture. The pasture is fenced with woven wire fencing with and electric top strand.

Barn 2 ([redacted]) holds one pen divided inside by wooden planks and outside by highway guardrail holding 15 – 20 mature cows. The floor is concrete outside and dirt inside.

Barn 3 ([redacted]) consists of two pens divided inside and out by highway guardrail with a 10-foot concrete strip at the south edge of the barn. The remainder of the floor is dirt. Each pen holds 30 - 60 head of cattle.

Barn 4 ([redacted]) has 3 dirt-floored pens divided inside and out with cattle panels and planks. The stallions are housed year round and mares with foals are housed in this barn May – December. The east pen has access to a pasture. Fencing is woven wire to the north and high tensile smooth wire along the remainder of the pasture.

[redacted]
This facility houses animals in both barns and pasture. Barn #2 ([redacted]) is a pole building constructed of a wood frame with metal roof and siding. There is a dirt floor in the loafing area, with cement alleys and an exterior cement feed floor. The interior contains 8 pens and holds a maximum of 96 animals. A cattle handling facility, 2 stave silos and 3 bulk feed bins are located adjacent to the building.

Approximately 20 different pastures comprising 210 total pasture acres are used in the spring, summer and fall. The southeast 'Windmill Pasture' has a permanent Animal Shelter (▇), a wood frame building with a metal roof, wood siding, and dirt floor, connected to a 10-acre pasture using woven wire and a high tensile electric fence. It has loose housing space for up to 12 cattle and is typically used to warm newborn calves during cold spring temperatures. Some pastures have natural windbreaks and/or shaded areas.

During the fall, winter and spring, a dirt mound with an adjoining 3-acre pasture is used for housing cattle. The ▇ facility also has crop fields and a wooded area comprising approximately 30 acres where cattle are housed during these seasons. Submissive animals in pastures or pens have sufficient room to escape. Access to water is provided by waterers.

Certain pasture and wintering areas for cattle have a forest type environment. These areas are connected to open areas of pasture or other field areas for cattle to graze or be fed. The animals are checked at least once per day to monitor well-being. Cattle on pasture have access to shade from trees when needed and to water from natural streams or provided sources. All of the outdoor housing areas used during winter afford wind protection via sheltering valleys or trees.

▇

Barn ▇ is a Virginia-style pole barn constructed of wood and steel and does not have a concrete floor. The floor consists of limestone screenings. Barn ▇ has pen numbers ▇-29-▇33 and ▇35. Pen ▇-29 houses eight-month old heifers, ▇-30 houses the nine-month old heifers, ▇-31 houses ten-month old heifers, ▇-32 houses eleven-month old heifers and pen ▇33 houses the twelve-to-thirteen-month old heifers. ▇-35 is the pre-fresh and maternity pen. The floor consists of limestone screenings covered in chopped corn stover for bedding. The walk-up and feed areas are concrete. Waste is removed from the concrete pad three times weekly and from the bedding area five times per year. Building ▇ has sand bedded freestalls for far-off dry cow housing.

Non-lactating cows and springing heifers have unlimited access to one 2-acre pasture paddock. During summer months this group has

access to a larger pasture. Pastures have perimeter fencing of woven or stretched barbed wire and paddocks within pastures are divided with nylon twist electric fencing wire and push-in posts. Most pastures are surrounded by wooded areas or contain such areas within their parameters, serving as windbreaks and providing natural shade to the animals in the pasture.

[redacted]
This facility provides animals with windbreaks, shelters and shaded areas. Heat-radiating structures are present in the barns. Animals on pasture are co-mingled with donkeys to protect them from predators. Sheep are housed in barns that contain pens of various sizes, each with access to an outdoor lot.

The Experimental Barn ([redacted]), a pole barn with wooden siding and a metal roof, is comprised of a large sheep pen, feed storage and handling space, and animal working areas. Feed storage and handling areas, as well as animal working areas, have concrete floors. Pens are divided by 48" steel portable panels that can be reconfigured as needed and easily removed for cleaning out the pen area. The front of the pen is a cement bunk feeder with two wire cables above the feeder to keep the sheep out of the bunk. The cement bunk feeders sit on the edge of an 8' cement alley inside of the barn. Pen backs are open to outside lots along the south side of the building.

To provide protection from the wind during winter months, a 4' high plywood wall is constructed along 75% of the opening to the outside lots. A 5' plastic curtain can also be dropped to the top of the plywood wall to further protect animals from inclement weather. The floor is earthen and bedded with straw. Each pen has 1 or 2 automatic, heated waterers.

The North Barn ([redacted]), has pens in the south wing that are exposed and have attached lots. This wing has a concrete foundation 3' above grade with wood construction with metal siding sitting on the foundation. A 12' section is open in the middle of the east wall, and the section is spanned with a metal gate. During inclement weather, this section is covered with a tarp. The floor is earthen and bedded with straw. Water is provided in 2 automatic waterers, and feed is provided in portable metal feeders. This area is 24' X 48' and holds up to 50 dry ewes, 50 ewes with lambs or 100 lambs. It is often divided into 4 smaller pens with portable panels and 10' hay/grain

feeders and is used to house ewes and lambs after they come out of the inside mixing pens, for lambs from weaning to market weight, for dry ewes, or for rams.

The east and west wings are steel span with steel siding and roof, dirt floors and contain pen/lot combinations similar to those in the Experimental Barn. Pens are made from 4' or 5' high portable steel panels that can be reconfigured as needed or removed for pen clean-out. There is a 5' cement alleyway along the front of the pens in the east win, and a 3' alley in the west wing. Eight-foot wide overhead doors at the back of each pen give access to the outside lots in the east wing. The floor is earthen and bedded with straw. Each pen has an automatic, heated waterer and 5-6 10' portable hay/grain feeders.

The outside lots have an earthen and gravel base and slope away from the building. Portable Smidley grain feeders are used in the spring and summer for self-feeding growing lambs and collapsible metal hay feeders are placed in the center of each pen for feeding big bales of alfalfa or grass hay.

[redacted]
Pole barn ([redacted]) and cattle barn ([redacted]) – Both barns are open to the south and have exercise areas to the south, east, north and west. Animals have free access to the sheltered areas. There is enough area for animals to separate from each other. Floors in the barns are concrete and most of the exercise yard is concrete. The animals have access to a dirt area. Water is provided by heated livestock automatic waterers. There are three devices in pole barn ([redacted]), and one device in cattle barn ([redacted]).

Barn ([redacted]) has a wood frame with a metal exterior and is non-insulated. The building has 4 pens that face south and 1 pen that faces north with access to a concrete exercise area. The south side of the barn can be draped down to cover up most of the opening on the sides, protecting the animals from weather extremes. The floors in the barn and pens are concrete and slope to the outside. Water is provided by heated automatic water devices. Portable metal feeders are used for feeding sheep.

[redacted] has 80 acres of land dedicated to pasture. Pastures contain perimeter fencing composed of high tensile wire. Paddocks

within pastures are divided with nylon twist electric fencing wire and push-in posts. During seasons unsuitable to pasturing heifers are housed in confinement.

About 60 feet from the northwest corner of the Health Barn #[redacted] and Milk Parlor #[redacted] is the calf hutch area. The foundation of the outdoor calf hutch area is composed of gravel and sand. The designated hutch pad has capacity to house 8 individual calf hutches. [redacted] uses a portable outdoor hospital shelter. This 10' x 20' hospital shelter is on skids and can be moved to various parts of the facility.

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

Animals are kept on pasture at many of the agricultural facilities. In some facilities, pasture is used from spring to fall, and in others pastures are used year round. Animals are observed daily and outdoor temperatures are monitored by care staff. In the event temperatures are > 85°F animals will be monitored by the care staff for signs of heat stress. Heat abatement measures will be employed per facility SOP. In the winter, animals are housed in shelters or brought to a near pasture that provides natural wind breaks.

Sheep on pasture are housed with a donkey to alert/prevent predation of the pastured animals.

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.

Cattle
Animals of similar age, size, and expected parturition date are grouped together to reduce socialization issues and to ensure there is ample access to water and grassland acreage to accommodate submissive animal needs. Animals are observed daily and body condition monitored to ensure they have adequate water and dry matter intake.

Sheep
To protect animals from injury from older and larger animals, animals are generally put in groups of similar age and like sex. The

only exceptions are young lambs with older ewes (their mothers) prior to weaning, rams with ewes during the breeding season, and weaned lambs of both sexes together until 4-5 months of age. Animals limit-fed in the barn or lots are fed once per day, with the amount of feeder space per animal equal to or greater than those recommended by the Ag Guide. Feeders of self-fed animals are checked daily to ensure constant availability of feed. Animals in the barn or lots are provided water through automatic water bowls. Animals on pasture are watered in tubs or tanks. Most tubs and tanks have float valves attached to a water source so they are always full. If a float valve is not used, tubs and tanks are observed twice per day, and filled when water levels are low.

Horses
Pasture and exercise areas are large enough for submissive animals to escape. When on pasture horses are provided multiple food and water sources to assure access for all horses.

Swine
Animals of similar age and size are grouped together to reduce socialization issues. Group size is determined by pen size and ample access to water and feed. Animals are observed daily to monitor health and body condition.

Goats
Animals are given plenty of room for submissive animals to escape and are provided multiple food and water sources to assure access for all goats.

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

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

[redacted] has 4 acres of fenced forage pasture used by the dry dairy cows. The cattle are monitored daily and have access to water in the barn via automatic drinking fountains or from a water tank in the pasture. The cattle are free to move from the pasture to the building during the spring, summer and fall dependent upon the condition of the pasture.

[redacted] has 105 acres of fenced forage pasture. Five acres are used for the horses. The other 100 acres are used for rotational grazing studies. Temporary electrified fencing is used and lot size is determined by the specific study. Animals are monitored daily. Shade cloth is provided for cattle. If the heat index rises, animals are monitored more often for signs of heat exhaustion and moved out of the sun when necessary. A water line from the facility provides water to temporary watering devices.

[redacted] has 3.5 acres of fenced grass pasture available. Pastures have electrified fencing and metal posts. Animals on pasture are monitored daily. The pasture area is used to provide exercise; animals have access to the barn at all times. Water is provided in tanks.

[redacted] has 49.6 acres of fenced grass pasture. Pasture can be sub-divided for rotational grazing studies with net woven wire fencing in combination with electric woven fencing and the presence of a donkey all work together to prevent predation. Animals are monitored daily. Supplemental feed is provided when needed and water is provided in tanks.

[redacted] has 20 grass/forage pastures on 210 acres. Fencing is constructed from metal, wire, and wood, and posts are metal or plastic; poly-wire is used to electrify perimeters when needed. Water is provided in tanks in most pastures. In the windmill pasture, animals have access to a permanent water tub with float valve. The windmill pasture has a shelter used to warm neonates in below average temperatures. Animals in this pasture are checked several times a day during parturition and daily thereafter. Animals in nutrition studies are checked daily and moved to new pastures as dictated by the research. If forage is no longer available, the animals are moved off pasture to lots where feed and water is readily available. During temperature extremes animals are monitored with greater frequency and watched for signs of heat exhaustion.

[redacted] has 92 acres of grass/forage pasture. Animals are observed daily for adequate forage mass and their well-being. Pastures contain perimeter fencing composed of 4 strands of high tensile wire and fitted with a 9 W energizer. Water is available in tanks and mineral is available in portable ground mineral feeders. Supplemental feed is provided as needed. Animals on study are moved to new pastures as dictated by the research. Non-trial

animals are moved following a managed intensive rotational grazing protocol. If pasture forage is no longer available, the animals are brought back to the barn where feed and water is available. During temperature extremes animals are monitored with greater frequency and watched for signs of heat exhaustion. If such conditions are present, animals are brought back to the barn.

[redacted] has 2,007 acres used for pasture and crop production. Heifers are kept on pasture during the summer and monitored daily for well-being. Supplemental feed is provided when needed. Water is provided in tanks. Dry cows on pasture are kept on land close to the facility and monitored daily. Water is provided in tanks with floats. They are moved to a maternity pen when parturition date nears.

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

[redacted] and the [redacted] have animals on pasture during the warmer months. Animals on pasture are observed daily and moved to a new pasture or supplemented with stored feeds if the amount of forage available on the pasture will not sustain them. Animals on pasture are provided water in tubs or tanks. Some tubs and tanks have float valves attached to a water source so they are always full. If a float valve is not used, tubs and tanks are observed twice per day or more often if needed, and filled when water levels are low.

iii. Describe how animals are captured.

Horses are haltered and led by lead rope. Sheep at the [redacted] are herded with the help of trained dogs. Beef cattle are moved to new pasture or confined areas for treatment with all-terrain vehicles. Dairy cattle are corralled by staff and traverse back to the barn via cattle lanes.

C. Animal Facility Management

1. Husbandry

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

i. List type and source of food stuffs.

Campus Facilities

[redacted] – Fermented (ensiled) forages and dry hay are provided by [redacted] and grains from the [redacted].

[redacted] – Baled alfalfa/grass mix hay comes from [redacted]. Tribute® Kalm 'N EZ is procured from a local vendor.

[redacted] – Feed type is dependent upon research and teaching project. Most rations are provided by the [redacted] but occasionally some components and/diets are provided by commercial sources; this is dependent upon the research project.

[redacted] – Chick Mash and All Mash Breeder are provided by [redacted].

[redacted] – Baled alfalfa/grass mix hay is provided by [redacted], grain from the [redacted].

[redacted] – Hay in large bales is provided by [redacted].

Off-Campus Facilities

At the [redacted] farms, the majority of forages for the facilities are grown and processed (baled, chopped, ensiled) on [redacted] property. Grain diets are mixed and delivered from the [redacted], with ingredients either grown on station property or purchased by ARS staff from commercial feed manufacturers.

[redacted] – Hay, silages and grains are grown on site, and are processed by the [redacted]. Other feed concentrates are purchased from off-site vendors as needed.

[redacted] – Hay, silages and grains are grown on site, additional corn is purchased as needed. The [redacted] processes grains and provides supplements. Equine are pastured at the [redacted] and provided supplemental hay from [redacted] and Tribute® Kalm 'N EZ is procured from a local vendor. Cattle are also housed at the [redacted], the manager of the [redacted]

[redacted] provides the husbandry care. These animals are provided hay, silages and grains. Supplements are provided by the [redacted].

[redacted] – Legume/grass hay or haylage, corn silage, corn, oats, soybean meal and mineral/vitamin supplements comprise sheep diet. While primarily grown and processed at [redacted], some feed components are purchased by [redacted] staff or the facility manager. The complete mineral mixes are purchased from [redacted]. The Lamb Starter ration is purchased from [redacted]. Sheep are also housed at the [redacted]; the manager of the [redacted] provides husbandry care when animals are housed here.

[redacted] – Corn/soybean diet ingredients are procured from [redacted]. Vitamin and mineral premixes are supplied by a commercial vendor ([redacted]).

[redacted] – Legume and grass pastures, alfalfa and grass hay and haylage, corn and corn silage are all grown on site. [redacted] provides various minerals (TM Salt, Dical Phos) and concentrate feeds. Calf feed and other concentrates are obtained from [redacted] and cattle mineral is purchased from [redacted].

[redacted] – Pasture grasses, alfalfa silage, baleage, hay, grass silage, corn, corn silage and soybeans are grown on site. Concentrates such as mineral and vitamin pre-mixes, dairy sugar, dry cow and pre-fresh mixes, and proteins are purchased in bags or bulk from [redacted], [redacted], or other sources as required through the federal bidding process. Calf starter and grower are purchased from [redacted]. Milk to feed newborn calves comes from the dairy. Bagged milk and dried milk replacers or supplements are purchased from [redacted] or other sources as needed.

[redacted] - Alfalfa hay and haylage, corn and corn silage and soybeans are all grown on site. Soybean oil meal, canola and corn distillers' byproducts are purchased via a federal bid process, so vendors may change from purchase to purchase. Pelleted soy hulls, mineral pre-mixes (lactating cow, dry cow, heifer, calf), calf feed starter, porcine blood meal and SoyPlus® and various mineral and vitamin mixes are purchased from [redacted].

Calves are feed pasteurized milk from dairy cows on milk-with-holding.

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

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

Bulk food storage is in silos and grain storage bins at the livestock facility.

When feed is stored in animal rooms, it is kept in clean and dry areas to prevent any contamination. Bagged feed is kept in enclosed containers to keep out vermin. The following facilities store feed in animal rooms: [redacted] in the chick room; [redacted] stores feed in covered barrels and hay is stacked in a designated area with no animal access; [redacted] stores special diets in enclosed container in the animal room or hall.

Vendor Facilities

[redacted] maintains a Purina approved sanitation program for its facilities by: providing adequate storage facilities that are clean, dry and sanitary at all times, meeting "Guidelines for Establishing and Maintaining a Sanitation and Pest Control Program for Certified Lab Dealers" and inventorying adequate stocks and lines of Purina lab feed to insure proper stock control. 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 are made 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 Talon Rodenticide ("Broadifacoum"). All feeds are stored on pallets. This facility is visited annually by an RARC veterinarian.

[redacted], Tribute Feeds – Kalm-N-EZ.

Wholesale Feeds
50-pound bags on pallets wrapped in plastic.

Commodity Carriers
Loose bulk stored in bins that are inaccessible to rodents.

[redacted]
Loose bulk stored in bins that are inaccessible to rodents.

[redacted]
The [redacted] stores bulk feeds in bins that are inaccessible to rodents.

[redacted]
Loose bulk stored in bins that are inaccessible to rodents or 50 pound bags on pallets wrapped in plastic.

[redacted]
The [redacted] Plant is an FDA approved feed plant, specializing in the manufacture of base mixes, micro premixes specialty products. Our state-of-the-art warehouse and efficient delivery fleet combine to meet the unique livestock feed needs of a diverse customer base.

Feed manufacturers are licensed by the state of Wisconsin; feeds are stored according to industry standards to meet federal FDA regulations and annual inspections by the state of Wisconsin. [redacted] home plant is in [redacted], but there is a new plant located in [redacted], [redacted]. The feeds are inspected for quality upon receipt by the facility.

<u>Off-Campus Facilities Bulk Storage Facilities</u>

[redacted]
The [redacted] harvests crops for research animals housed on campus. Haylage and corn silage are stored in silage bags on black-topped pads at two locations on the station property. Dry baled hay and straw is stored stacked in a

hayshed. Plastic covering is laid over the earthen floor before stacking feed material. Rodent control is implemented on an as-needed basis, using appropriate methods. All feed material is transported to campus on an as-needed basis. Silos are filled from silage bags noted above, and hay and straw are transported using large grain trucks.

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

The following campus facilities contain feed preparation areas:

[redacted] – All total mixed rations are prepared in the feed center where the feed is stored. The mixed rations are prepared in a self-propelled Riesller mixer. The mixing wagon has four load cells that feed constant information to an Avery-Weightronix scale head. This scale head is integrated with an Armour Tablet computer. The computer records all diet mixing and feeding information, as well as, daily pen refusals. The data are backed up daily to the central office computer.

[redacted] – The feed room contains 2 scales and 3 portable mixers—a small bench top rotary mixer, a floor-stand rotary mixer, and a large capacity (500 lb) tumble mixer. There is a sink for cleaning equipment.

[redacted] – Prep room has shelving that holds sealed containers of feed ingredients. Ingredients that require refrigeration are stored in a refrigerator in the room. The room also contains 2 scales and 3 mixers—a small bench top rotary mixer, a floor stand rotary mixer, and a large capacity (200 lb) ribbon mixer. Safety modifications were installed on the ribbon mixer to prevent users from opening the mixer while in operation. There is a sink and a drying rack for cleaning equipment.

Off-Campus Facilities:

[redacted]

The [redacted] operates a [redacted] to provide special feed rations for the many research animals housed on the station, and at other university locations. Attached to the west end of the [redacted] is a metal-framed warehouse with a

concrete floor for storage of bagged ingredients. Feed is stored in the warehouse, in 39 overhead bins for bulk ingredients that vary in size from 6-ton to 32-ton and in eleven 8-ton load out bins. Temperature is ambient in the warehouse and bulk load out area. The main mixing room with the 39 overhead ingredient bins is heated when needed. The facility also has six storage bins and two Harvestore silos on site for holding corn that can be transferred to the feed mill. [redacted] services the area once monthly and bait stations are set up inside the building.

Safety for the [redacted] staff is a high priority. The main safety concerns and emergency procedures are written in our Standard Operating Procedures and are reviewed every three years by the [redacted] staff. The staff uses lock-out/tag-out procedures during machinery maintenance, mandatory eye protection when using forced air or grinding metal, hearing protection when entering the basement while the blowers are in operation and use air monitors and a dust mask or respirator when in a confined space such as a feed bin. Logs are kept to track housekeeping and annual maintenance tasks. To maintain a level of biosecurity all feed mill staff have dedicated footwear and are supplied with a cleaned uniform. Plastic bools are required of visitors.

[redacted] – All total mixed rations are prepared in various locations around the dairy site near where the feed is stored. The mixed rations are prepared in one of two mixing wagons. The larger wagon is a vertical mixer wagon, powered by a power take off shaft. The mixer is pulled by a tractor and has 640 cubic feet of mixing capacity. The smaller mixer wagon is a Riesller mixer. This mixer blends feed via an apron chain and is fed out via a hydraulically powered paddle conveyor. Both mixing wagons have four load cells that feed constant information to an Avery-Weightronix scale head. This scale head is integrated with an Armour Tablet Computer. This tablet computer records all diet mixing and feeding information as well as daily pen refusals. The data are backed up daily to the central office computer.

The calf feed is prepared at a dedicated neonatal care area. Whole milk is brought to the prep area each day and placed in the pasteurizer, where the milk is chilled until an appropriate time for pasteurization to begin. Calf grains are stored in dedicated bulk bins or 50 pound bags in the neonatal care area. This feed is delivered via a calf area only wheelbarrow.

[redacted] – Diet preparation for [redacted] is done in a large room that allows workers to position the feed cart either under the silo chute, under bulk bin augers that extend through the walls, or under the corn conveyor that carries corn from the unlading auger to the feed cart. All diets for [redacted] are prepared at the [redacted] and delivered to site. Dairy refusal is feed at [redacted] for animals not on a nutrition study.

[redacted] – Haylage and corn silage are mechanically unloaded from the silos into motorized feed cart and delivered to feed bunks. Grain and concentrates are mechanically unloaded from their bins into portable carts. Feed is delivered to bunks with the use of a mechanical cart; delivery to other areas of the farm is by push cart or motorized vehicle. North side large square bales of hay are delivered by skid loader.

[redacted] – All feed preparation is done at either the [redacted] or [redacted] and the [redacted]. Bedding and some forage is stored on site.

[redacted] – A 480 sq. ft. feed mixing area is used to prepare small batches of experimental diets. It houses scales, 2 small bowl mixers, and a larger feed mixer (double ribbon horizontal mixer, stainless steel).

[redacted] – Feed mixing is typically done with the tractor and mixer wagon outside of the animal area. If feed preparation is done by hand, it usually is done near the silo area in the Beef Barn in a clean, dry place.

[redacted] – Total mixed rations are prepared with a 600 cubic ft. vertical mixer. Forages for mixes are loaded from silo bags located on a 250' x 300' concrete feed pad (approximately 300 ft. from the Feed Center). The Feed Center contains a concrete floor which is thoroughly swept several times a week. The mixer is filled with concentrates in the Feed Center drive-through via augers connected to bulk bins. Bagged concentrates are manually added to the mixer, as directed by the ration. Pushcarts are kept in the calf transition barn and contain total calf ration grain mixes. Two bulk bins contain the calf feed mixes and are accessible by way of auger attached to external bulk bins.

Milk and milk replacer are prepared in the milk house and delivered to neonate calves in the calf hutch area. A sink, brushes, detergent and water are available for sanitation of calf feeding equipment in the milk house.

[redacted] – Rations are prepared with a Kuhn-Knight Reel-Auggie mixer wagon (diets greater than 1000 pounds) or Rissler carts (diets less than 1000 pounds) in a central feed center ([redacted]). Each cart and wagon has load cells for proper inclusion rates. Ingredients added at a low inclusion rate are measured with a top loading scale. The feed center contains ingredients for all rations. All bulk bin and pallet storage is labeled with a sign showing delivery and expiration dates.

Most feed centers have overhead doors that can open to the outside or have exhaust fans to reduce dust exposures for the staff. All staff are trained by the sites managers or supervisors on safe use of large motorized equipment.

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

[redacted] – Feed in the [redacted] is provided according to research and herd protocols and is delivered via a mechanical feed cart using a totally mixed ration mixer with a scale that dispenses measured amounts of feed for each animal. Daily feed refusal is manually removed and discarded. Herd diets are developed by a professional nutritionist. Animals at this site are fed according to the research study protocol.

[redacted] – A limited amount of grain is fed twice daily in rubber tubs or pails. Hay in limited amounts is fed on the floor of the stall and on the ground in the exercise yard.

[redacted] – Food is provided ad libitum for swine, cattle, goats and sheep or as specified by research project. Sows are limit-fed. Group fed swine are provided food in gravity 2- or 3-hole feeders; sows have individual feeders. Cattle have bunk/manger or individual tip/tilt feeders and sheep and goats are provided wooden or molded plastic box feeders. Goat feeders are designed and placed to encourage natural foraging behaviors and discourage

soiling of the feed stuffs with urine and feces. All limit fed animals are provided individual feeders.

[redacted] – All birds are fed ad libitum. Birds in [redacted] are fed using a mechanical trough feeder that runs along the outside of the cages. Other birds are fed using standard poultry gravity feeders on pen floors. Chicks are fed from stainless steel feed troughs that attach to the outside of the brooder battery cage.

[redacted] – Cattle are fed grain from individual feed tubs, and hay is offered on the floor ad libitum. Sheep are feed from hexagon shaped hay feeders inside the pen ad libitum and grain from a group trough feeder. Pigs are fed from gravity feeder(s) or in rubber tubs inside the pens ad libitum.

[redacted] – Cattle are fed from large round bale feeders in the exercise lot ad libitum.

[redacted] – Feed is provided according to research and herd protocols and delivered with mechanical mixing wagons. Herd diets are developed by professional nutritionists. Animals on nutrition research trials are provided diets in accordance with IACUC approved protocols. Refused feed is removed daily prior to delivery of fresh feed. Animals at this site are fed to 10 percent refusal. Calves are feed pasteurized milk from cows on treatment/milk withdrawal periods.

[redacted] **(including cattle housed at the [redacted])** – Hay is provided ad libitum in bale feeders. At [redacted], a mixed diet of grain, silage/hay and supplement is prepared daily and fed in limited quantities using fence line feed bunks and delivered by a feed cart. [redacted] also provides hay ad libitum in bale feeders. When offered, grain is provided in feed bunks outside of pen areas, in limited amounts according to animal requirements. Horses at [redacted] are fed grain twice daily in rubber tubs or pails and ad libitum hay in several locations, to accommodate submissive animal needs.

[redacted] – Haylage and corn silage are mechanically unloaded from the silos into motorized feed cart and delivered to feed bunks. Grain and concentrates are mechanically unloaded from their bins into portable carts. Feed is delivered to bunks with the use of a mechanical cart, delivery to other areas of

the farm is by push cart or motorized vehicle. Large square bales of hay are delivered by skid loader. Feed is provided ad libitum in bunks or round bale feeders. Orphaned lambs are provided milk replacer from Lacto-matic feeder, or adopted by adult ewe when possible. Silage and grain is trucked over from [redacted] to animals housed at [redacted]. Hay is stored on site. Feed is provided ad libitum in tubs or round bale feeders.

[redacted] – In the nursery, feed for growing pigs and lactating sows feed is provided ad libitum from Staco self-feeders. Non-lactating breeding animals and mini pigs over 7 weeks of age are limited fed to control body condition. Feed is augured in and circulated to feed drops, which are triggered at the designated feeding time. Feed will either drop into the trough (animals in stalls) or the floor (animals in pens). Gestating sows in farrowing rooms are fed 1 x day (~2kgs). Post-farrowing, sows are fed to appetite (all they will clean up) at each meal (3 meals/day). Farrowing feeders are attached to the head gates of the farrowing crates and are designed to prevent feed wastage.

[redacted] – Feed is delivered to the animals by tractor, wagon or truck. Some feeds are mixed in a mixer wagon and tractor and then delivered to the cattle after mixing. Hay is provided to meet minimum requirements, or ad libitum on the ground or in bunk feeders. Mixed feed is provided on a ration that meets the requirements of the animals. In all cases the [redacted] requirements are used as minimum standards.

[redacted] – Feed is provided according to research and herd protocols. Feed delivery is done either by mechanical mixer, bucket, pushcart and by hand. Calves <21 weeks of age are fed 2x per day and ad libitum hay. Heifers greater than 5 months of age are fed once daily and TMR feed is delivered to dairy cows twice a day. Forages are sampled once a week, Dietary rations are balanced weekly by a professional nutritionist according to type and quality of forage, and seasonal energy needs. Milk is delivered to neonates with 2- or 3-quart bottles. Grass/forage needs of heifers on pasture is accomplished through the methods of managed intensive rotational grazing.

[redacted] – All animals greater than 2 months of age are fed ad libitum, a total mixed ration. Calves are

feed pasteurized milk twice daily and ad libitum access to a commercial concentrate mix. Rations are fed in open bunks, buckets, or partitioned feed mangers. Excess feed is removed daily prior to delivery of fresh feed, and feed alleys are swept daily.

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

Feed is inspected visually and by smell daily for moisture, mold, or other debris. Spoiled or sub-standard feeds are removed and discarded. If feed is ordered, care is taken to order an amount that can be used before feed degrades. Bin sizes allow for rotation on a regular basis and older feed is fed first.

In general, off-Campus facilities are producing much of the feed on site. The staff exercises quality control during harvest, storage and milling to ensure that hay, haylage, silage and grains are of good quality and properly processed and stored. The dairy facilities have forage samples analyzed monthly for protein, fiber and mineral quantities. Other facilities test at harvest. On a daily basis, management reviews the total mixed ration for appropriate inclusion of ingredients, and palatability. Pen intakes are also monitored daily.

Grazing systems are managed and monitored to ensure ample supply of pasture or supplemental feed. Baled hay is managed to avoid mold development and weathering loss.

The IACUC has developed feed storage guidelines to give guidance to facility managers, researchers and committee members when evaluating the storage of feeds used in research and herd/colony management.

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).

Campus Facilities
The water supply for the campus proper comes from the City of Madison Water Utility.

[redacted] barns use automatic watering cups to provide constant access to fresh water.

[redacted] provides water in individual stalls using pails or tubs. Automatic heated waterer is used in the yard.

[redacted] uses automatic nipples and automatic drinking cups. Goats are provided water in buckets or float activated water tubs or cups.

[redacted] supplies water using an automatic nipple system. Young birds are provided with secondary water source via 3-gallon waterers in pen.

[redacted] offers water in tanks, tubs or with an automatic nipple system depending on species and where housed.

[redacted] water is provided via a tank with a float, located in the lot.

Off-Campus Facilities

All off-campus facilities use well water.

[redacted] – Water to all mature cattle is delivered via thirty-four Little Ritchie automatic water fountains. Cattle have ad-libitum access to these water fountains. They are heated to ensure water is always available to cattle regardless of time of year and environment. Calves are offered fresh water twice daily via a water bucket in their hutch.

[redacted] – Cattle have access to automatic waterers in pens and tanks with a float in the pasture. Horses have access to automatic waterer in the shed and a tank with float in the pasture.

[redacted] – Animals in barns and lots have access to automatic waterers or drinking cups. Animals on pasture have access to tanks with a float. Animals in jugs and small group/mixing pens have pails.

[redacted] – automatic waterers or tubs.

[redacted] – Except in the gestation area, all water is provided by nipple waterers. In gestation stalls, water is provided via a trough with a timer and float valve set to insure water availability except during feeding.

[redacted] – Cattle are watered with automatic livestock waterers, or water tanks.

[redacted] – Cattle are provided water ad libitum through heated automatic waterers. Animals on pasture have access to tank waterers.

[redacted] – Water is supplied with water tanks and floats to perimeter summer pastures or with heated Mirafount waterers at Barns [redacted] and [redacted], and one out-wintering pasture. Pairs of cows in tie stalls have access to water with non-siphoning paddle water cups. Each free stall pen has one heated automatic waterer. All waterers are non-siphoning with a continuous supply for the cattle. Calves under 2 months of age have access to water in buckets that are cleaned and sanitized daily.

All animals are provided with water ad libitum. Water sources are checked daily and are cleaned as needed to provide a healthy water source

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

Campus Facilities

The City of Madison Water Utility is in compliance with the Federal Safe Water Drinking Act. The Environmental Protection Agency requires random testing throughout the city as well as the campus. These samples are tested at the City of Madison Health Department lab. The Water Utility monitors the water supply regularly for organic and inorganic contaminants, bacteria, parasites, pesticides and radionuclides, and annually provides copies of their monitoring reports to RARC.

Off-Campus Facilities

Water quality from wells at facilities is monitored by the Environmental Health Division of University Health Services. Bacterial sampling is conducted annually, and monitoring is done in compliance with the EPA Safe Drinking Water Act. As required for

non-transient/non-community wells, tests are performed for nitrate, lead and copper, volatile organic, inorganic and synthetic organic compounds.

[redacted] is serviced by 2 wells. Both wells are over 200 feet in depth and are capable of delivering 80 gallons per minute service.

The wells at the [redacted] are required to undergo different tests annually as requested by the Wisconsin Department of Natural Resources (DNR). The tests are dictated by an annual risk assessment survey done by the Wisconsin DNR.

[redacted] and [redacted] have water samples tested for bacteria and nitrates.

In addition to the above, dairy regulations require a test every other year for production units and every year for dairy plants, unless on a municipal water system. All of our dairy facilities are licensed and meet this requirement.

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

Water sources are checked daily and are cleaned as needed to provide a healthy water source.

[redacted] – Filters for automatic watering pressure reduction stations are changed according to manufacturer's recommendation, dates of most recent change is noted on the filter casing. The water lines are sanitized annually, see SOP Poultry 29.

[redacted] – Water nipples are sanitized at the same time as room clean out.

[redacted] – Water buckets are emptied and refilled daily. Each bucket is scrubbed daily prior to refilling. Buckets are returned to the same stall. Buckets are sanitized with a 5% bleach solution annually. Outdoor heater water is checked daily and cleaned as needed.

[redacted] – Water cups are scrubbed and sanitized between animals.

[redacted] – Water nipples and/or water troughs are pressure washed and disinfected at the same time as room clean out.

[redacted] – Checked daily, sediments or foreign debris are removed as needed. Waterers are cleaned completely 3-4 times annually.

[redacted] – Checked daily, sediments or foreign debris are removed as needed. Waterers are cleaned out 3-4 times annually. Horses - Water buckets are emptied and refilled daily. Each bucket is scrubbed daily prior to refilling. Buckets are returned to the same stall. Buckets are sanitized with a 5% bleach solution annually. Outdoor heater water is checked daily and cleaned as needed.
[redacted] – Checked daily, sediments or foreign debris are removed as needed. Waterers are cleaned out between groups.

[redacted] – Checked daily, sediments or foreign debris are removed as needed. Waterers are cleaned out 3- 4 times annually.

All Dairy Operations – Automatic water fountains are checked daily and sediments or foreign debris is removed. Fountains are flushed daily at [redacted] as weather permits, water troughs are scrubbed three-times each week. [redacted] and [redacted] sanitize fountains once every two weeks when weather permits. Fountains are heated to ensure water is always available to cattle regardless of time of year and environment. Calf water buckets are sanitized between groups.

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

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

[redacted] - Stalls are bedded with kiln-dried wood shavings. Each stall is equipped with a Pasture Mat® to ensure cow comfort and hock health.

[redacted] – Stalls are covered with rubber mats and bedded with wood sawdust or straw.

[redacted] – No direct bedding is used at this facility. Floors are metal slatted, or concrete slatted covered with rubber mats or rubber coated mesh over pits.

[redacted] – Floor pens are bedded with wood shavings. Rooster cages in Wing 1 and the chick batteries are equipped with drop pans. The layer batteries are equipped with an automatic vinyl belt.

[redacted] - The [redacted] floor is covered with limestone screenings. Animals housed for short periods are in direct contact with the limestone screenings. When animals are housed in room #[redacted] for short term events, they are deep bedded with straw or wood shavings.

[redacted] – A bedded pack is built with corn stover or straw in the exercise lot.

[redacted] – Lactating and dry cows are housed on sand bedded stalls. The sand is recycled, washed, and then used again for cow bedding. Maternity pens are bedded three times per week with chopped straw. Straw bedded packs are completely emptied at least once per month. Calf hutches are also bedded with chopped straw in the winter months and with new sand in the summer months.

[redacted] – Bedding types used at both facilities are chopped corn stalks, soybean stubble, straw or sawdust, spread in pens as needed to provide dry areas.
Horses – Pens/shed is bedded with straw.
Cattle at the [redacted] are bedded with similar materials.

[redacted] – Bedding is typically oat or wheat straw or corn fodder, and on occasion sawdust or wood chips.
Sheep housed at [redacted] are bedded with similar materials.

[redacted] – No direct bedding is used in this facility.

[redacted] – Straw, corn fodder, and grass hay are the types of bedding used for the beef cattle on the station. Bedding is added as needed for confined animals, typically twice a week.

[redacted] – Calf hutches are bedded with straw or clean sand. Calves in the barn (13 to 17 weeks of age) are bedded with chopped straw or other organic bedding material; clean bedding is provided daily. During cold months, long straw is used. The straw pack is removed entirely between groups.

Heifers in the UW semi-compost pack barn (18 weeks to first breeding) are bedded with various organic materials including kiln dried sawdust, chopped bean stubble, and straw. Clean bedding is applied daily. The pack in the semi-compost bedded barn is turned and aerated daily (by use of tractor and chisel plow).

Heifers in the USDA freestall barns are bed twice a week with dried manure solids and sand. The USDA freestall heifer barn is bed twice a week.

Animals enter the calving barn 6-weeks to 3-weeks precalving. Dirtied bedding in the calving barn is removed daily, the barn is bed daily with straw. Stalls in the lactating cow barn are bed twice a week with sand and/or dried manure solids.

[redacted] – A variety of bedding is used based on age of animal and stage of production. Straw is used for lactating cows in the tie stall barns ([redacted] and [redacted]). Pressed solids or chopped straw are used to bed heifers in the [redacted] Barn, fresh bedding is added twice weekly. Chopped straw or corn stover is used to bed lactating cows in the [redacted] Barn and in the maternity wing, Barn [redacted]. Sand is used to bed dry cows in the [redacted] building, and chopped corn stover is used to bed the young heifers in the [redacted] Barn. Calf hutches are bedded with straw in the winter, in the late spring, summer and early fall sand only is used.

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

All bedding storage facilities are located at the specific animal facility and are described in Section IV, Physical Plant. The [redacted] and [redacted] stores hay and straw; for future use at the

animal units on campus and at [redacted]. Pests are controlled with a contracted pest control vendor.

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

Bedding quality is assessed visually as the bedding is used and any foreign material is removed. Recaptured sand bedding at [redacted] is periodically sampled for bacterial count. Dried manure solids at [redacted] are monitored for dry matter; bacterial counts are sampled once per month.

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.

Campus Facilities

[redacted] and [redacted] each have a pickup truck and livestock trailer used to transport animals between campus and agricultural research stations or farm sites as necessary.

Off-Campus Facilities

[redacted] – The Dairy Science Department maintains a 24-foot gooseneck Eby trailer. This trailer is pulled by a 1-ton truck. The trailer is cleaned of soiled bedding between each use and undergoes a complete wash out as least once per week when in use. This trailer is occasionally used by other animal care facilities in the University and it is completely washed and sanitized before use and upon its return.

[redacted] – Two pickup trucks are used for pulling a cattle trailer and for hauling feed, hay and all types of equipment such as water tanks, feeders and fencing supplies. Three ATVs are primarily used for checking and moving cattle.

[redacted] – The sheep unit has one truck used to haul feed, bedding, or animals in the bed and for pulling a trailer. A skid-steer loader is used to move feed (mostly large hay bales) and bedding. A box has been constructed to fit on the pallet forks for use in transporting young lambs between the two barn buildings. A UTV is used to move feed to pasture.

[redacted] – A pickup truck is used for transporting small amounts of feed and an environmentally controlled trailer for transport biomedical subjects to research site after purchase. The Trailer is 7' X 20' X 7' and is equipped with a diesel generator, 3 AC units, 2 furnaces, HEPA filtered intake, indoor and outdoor temperature and humidity monitoring, 7 animal pens equipped with water nipples.

[redacted] – Four full-size pickups are available, along with a 16-foot cattle trailer.

[redacted] – Three pickup trucks are used for hauling feed and bedding and for pulling a trailer. Two, 4-wheelers are used for moving animals, feed and bedding. Two, all-terrain vehicles (Kawasaki Mule and Kubota RTV-900) is used for moving animals, feed and bedding; multiple tractors and one skid-steer can also be used for hauling feed and bedding.

[redacted] – A 20-ft. aluminum gooseneck trailer is used to transport cattle. The trailer is ventilated by installing or removing side panels. Other transport is provided by the [redacted] trailer or contracted haulers. A 4' x 4' ventilated box is used to transport up to two neonates to market in the bed of a pickup truck. The box is securely fastened to the bed of a truck.

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

All of these facilities use high-pressure sprayers for cleaning equipment. In addition, the following facilities have specialized equipment:
[redacted] – *Milking*- 12 stall, double-six Boumatic milking parlor. The parlor is automated with electronic animal identification and automatic milk production and conductivity recording. Other equipment includes: Portable milking unit, pressure washer, feeding equipment, manure removal equipment and a skid-steer. The veterinary room is equipped with a restraint stock, surgical lighting and washable surfaces.

[redacted] – three Priefert horse stocks, collection dummy, brushes and hoof picks for grooming, jolly balls provided to stallions for enrichment.

[redacted] – an electric cauterizing beak trimmer, transport cages, pressure washer.

[redacted] - brushes, combs, electric clippers and hoof picks, used to groom animals. Animals are blown dry with a commercially available animal blow dryer. There are also fitting chutes and grooming stands available to help restrain the animals.

[redacted] – Metabolism crates for sheep, pressure washer, squeeze chute, scale and working tub for cattle handling.

[redacted] – *Milking*-The dairy maintains a 32 stall quad eight Westfalia Surge Parallel milking parlor. The parlor is fully automated with electronic animal identification and automatic milk production and conductivity recording. The dairy also has a single stall milking unit for milking fresh cows and cows that are unable to ambulate to the parlor. Additionally, the dairy has a Upsy-daisy cow lifter to assist down cows and a portable milking unit in the event a severely injured animal needs to be milked in the hospital pen. Pasteurizer to feed calves pasteurized waste milk.

Washing Equipment-A Hotsy propane fired hot water pressure washer is maintained to wash parlor walls and floors, trailers, feeding equipment, and manure removal equipment.

Environmental Enrichment-The dairy has 4 easy way oiling brushes for cows to practice grooming behaviors as well as receive topical insecticide treatments. Two pens (Pen 18 & 30) at the [redacted] are equipped with a DeLaval power cow brush. This brush spins in response to a cow's presence and allows cows to groom all areas of her upper frame, head, flanks, and back.

Other-The dairy also has two Bobcat skid loaders, Utility Vehicle, two sand bedding slingers, a skid-steer mounted feed push, a Fritsche power bunk defacer, skid-steer mounted pallet forks, a skid-steer mounted straw bedding slinger, a skid-steer mounted bedding extractor and a McLanahan sand-manure separator.

[redacted] – Cattle restraint chutes with scales, and power washers are at both sites. A motorized feed cart is used at [redacted].

[redacted] – Electric sheep shearing unit, pressure washer, sheep sorting and restraint panels, and a trailer, remote intranet accessible camera feed to monitor lambing jugs, a lacto-matic milk replacer feeding unit, motorized feed cart.

[redacted] – Cattle restraint chute.

[redacted] – cattle restraining chutes, scale

[redacted] – The site contains two Real Tuff cattle restraint chutes, one hoof trimming chute, a double 8 DeLaval milking parlor with 16 milking units, and single milking unit with air compressor to milk non-ambulatory cattle outside of the milking parlor. All cows have access to Lely cattle brushes; located one brush per cow pen. A 20' x 10' 3-sided, portable shelter is available to cattle in need of rehabilitation from injury. The portable shelter is used seasonally.

The facility contains three skid loaders, two electric vehicles and three UTV's for farm and utility transport, a feed push tractor, a sand shooter and sand rake, small livestock weight scale, a bedding spreader (for use dispensing bedding in the UW heifer barn). 5 push feed carts, a skid loader front-mounted calf mover and walk behind manual calf cart mover, and several power washers.

[redacted] – a sixteen-unit Boumatic milking parlor with electronic data capturing capabilities and a single unit DeLaval portable milking unit for milking cows that are unable to reach the parlor. A pasteurizer is used to feed calves pasteurized waste milk. Other equipment includes a hoof trimming chute in the veterinary room, two scales, one being portable to weigh research animals, three skid steers, and a high pressure washer for cleaning the parlor, the return lane, and the calf hutches.

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.

Campus Facilities

[redacted] – Soiled bedding is removed from the stall and replaced with fresh bedding daily. The old bedding and manure is scraped into the gutter, where a mechanical barn cleaner removes it from the building into a manure bunker. [redacted] staff, removes waste from the bunker 3 times per week.

[redacted] – Horse stalls are picked and fresh bedding added daily. Soiled bedding is placed in a 3 sided manure pit, which is emptied a minimum of once weekly by [redacted] staff.

[redacted] – Animals in this facility are housed over pits that are flushed several times per day into the City of Madison sewer system. Most animal rooms are hosed down daily.

[redacted] – Bedding in floor pens is added as necessary and is completely replaced annually. Drop pans and the automatic belt are scraped twice weekly.

[redacted] – Pens are picked and fresh bedding added daily. When animals are removed from the building, all soiled bedding is removed.

[redacted] – Fresh corn stover is added to the pack as needed to keep animals dry. The pen is completely cleaned out between animal groups.

Off-Campus Facilities

[redacted] – All sand bedded pens are cleaned continuously using cable pulled Houle Alley scrappers. The manure is brought to a center barn drop where the waste is flushed out using recycled wastewater. The sand is reclaimed at the sand separation building and the remainder of the waste is used as fertilizer on crop production acreage. All sand is removed from the freestall loafing area twice a year. The outer dry cow barn and the maternity feed lane is scrapped daily using a skid-steer loader.

[redacted] – Cattle held in outside lots with shelter have access to bedded packs. Fresh bedding is added according to animal population and environmental conditions with the objective of providing dry places for cattle to rest. Pens are cleaned out every 2-3 months. Horses have a run-in shed for loafing Building #[redacted], fresh bedding is added as needed. The shed is cleaned out every 1-2 months. Stalls in Building #[redacted], are picked daily. Bedding is added as needed during cold weather months.

[redacted] – The lambing jugs are cleaned out between new groups; lime is applied to the floor to absorb excess moisture before new bedding is applied. Additional straw is added as needed. Mixing pens are cleaned out once weekly, soiled bedding is removed and lime is applied to the floor to absorb excess moisture before new bedding is applied. Earthen floor pens are cleaned spring and fall, fresh bedding is added weekly throughout the season.

[redacted] – Sheep pens are cleaned out once weekly. Cattle lots are scraped twice weekly, bedding is applied as needed in loafing areas. Clean out is every 2-3 months.

[redacted] – Animals in this facility are housed over pits that are flushed several times daily.

[redacted] – Some areas of the facility are cleaned daily with replacement of old bedding. At other times, new bedding is added on top of the old bedding to provide a bedding pack to help augment heat for the animals in winter. All pens are kept as dry as possible and are cleaned as necessary during periods of heavy use. Otherwise pens are cleaned quarterly.

[redacted] – Clean bedding is added daily to calf pens. The used bedding pack is removed when calves leave the pens. The pack is groomed daily with a chisel plow to aerate. In the UW heifer barn, clean bedding is distributed daily on the pack. In the USDA heifer barn, mattresses are bedded twice a week with sand/manure solids to keep stalls sufficiently filled and dry. Manure and soiled bedding are scraped daily. Cow barn stalls are raked twice daily to remove manure, soiled bedding, and reposition clean sand. Sand/manure solids are applied twice

a week to keep stalls sufficiently filled and dry. Manure and soiled bedding are removed daily from the USDA calving barn pack. Clean bedding is added daily. Calf hutches are freshly bedded with each new calf; soiled bedding is removed as needed.

[redacted] – Wet bedding and fecal material are removed from tie stalls 5 times a day and fresh bedding (straw) added on top of mattresses 2 times a day. Wet bedding and fecal material are removed from free stalls 2 times a day and additional bedding (chopped straw) added once a day. Free stalls in heifer pens are bedded with pressed solids once a week. Winter maternity pens are cleaned and re-bedded with chopped straw once a day. The three season maternity pen, ([redacted]) is bedded with fresh corn stover three times per week. Hutches are bedded with chopped straw daily. After removal from the stall, soiled bedding is removed from the barn via a chain driven barn cleaner. Bedded packs are completely cleaned out and composted or spread on fields approximately every 90 days.

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

None

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

Not applicable

ii. Cleaning and Disinfection of the Micro- and Macro-Environments
Note: A description of the washing/sanitizing frequency, methods, and equipment used should be included in **Appendix 14** (Cleaning and Disinfection of the Micro- and Macro-Environment) and **Appendix 15** (Facilities and Equipment for Sanitizing Materials).
Add 2015 to Appendix 14 and 15
1) Describe any IACUC/OB approved exceptions to the *Guide* (or applicable regulations) recommended sanitation intervals.

None

2) Assessing the Effectiveness of Sanitation and Mechanical Washer Function

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

For most of the agricultural facilities, cleanliness is assessed through visual inspection. Milking equipment is monitored twice daily for proper sanitation and milk samples are assessed monthly by the dairy plants for bacterial count. The [redacted] uses a Dairy Cheq system to monitor milk temperatures, washer temperature, and level of detergent in the wash. Reclaimed sand at the [redacted] is cultured periodically to check for undesirable microbes.

b) Describe preventive maintenance programs for mechanical washers.

Not applicable

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

i. Soiled bedding and refuse.

Campus Facilities
With the exception of the [redacted], soiled bedding and manure from all campus facilities is handled by the [redacted]. Staff at each facility remove soiled bedding and place it in concrete containment areas or manure pits. Staff from the [redacted] pick up waste 2 to 3 times weekly and haul it to the [redacted] site, where it is disposed of through composting and eventual field application.

Off-Campus Facilities
All off-campus Facilities agricultural facilities remove bedding and refuse from animal housing areas and store it in composting containment areas or manure pits. Dairy Operations removes manure and soiled bedding by means of scraping with skid loader, bucket loading by skid loader or by automatic scrapers that move manure to a manure channel fitted with an auger. Manure is stored

either in a pit or on a pad or it is processed for sand and solid recovery through a sand separator and solids screen press at [redacted] and [redacted]. Slurry is pumped into a manure settling lagoon. Manure is applied on cropland in spring and fall. The [redacted] holds a CAFO permit through the WI DNR and currently meets the standards for appropriate manure holding and handling.

ii. Animal carcasses.

Campus Facilities

When necropsy is not needed, all animals are picked up by a commercial livestock removal service and rendered. If rendering is inappropriate animal carcasses are transported to the campus incineration unit or transported to the [redacted] and disposed of in the digester system.

Off-Campus Facilities

Most off-campus facilities do not have incineration capability and rely on the services of a local stock removal company for disposal. Stock removal companies respond promptly and usually are able to pick up a carcass within a day.

[redacted] **and** [redacted] – carcasses are hauled to the [redacted] County landfill.

[redacted] – all placental membranes and carcasses are incinerated on-site.

[redacted] **and** [redacted] – carcasses are removed by a contracted dead-stock removal service.

[redacted] – mature dead cattle are removed by contracted service. This commercial rendering plant meets all USDA and FDA requirements for processing deceased cattle. Calves are composted on site.

[redacted] – calf carcasses are composted on site. Carcasses of older heifers and cows are removed by Barr Animal Foods, a commercial rendering plant.

[redacted] - cattle are removed by a contracted service, 5-Star Stock Removal Service.

[redacted] –calf carcasses and the deceased [redacted] study cattle are composted on site. Other cattle are removed by a rendering company.

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

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

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

Campus Facilities

Rodent and fly control for campus facilities is overseen by animal care staff and the UW Pest Control Office. Generally, rodents are controlled using traps and bait stations.

[redacted] – commercially contracted with Plunkett's Pest Control. Insects on cattle are controlled using cattle oilers, commercially available pour on solutions, and FDA approved feed to products. Surfaces in the milking parlor are treated with a pyrethrin solution. Other parasites and lice are controlled by yearly application of Eprinex® or Cydectin to all animals.

[redacted] – uses synthetic pyrethrins on the animal prior to turning them out to the exercise lot.

[redacted] – controls feather mites and other external parasites using insecticides (RVAP) and or a biological control on the birds.

[redacted] – a pyrethrin premise spray is applied to the walls as needed for fly control.

Off-Campus Facilities

[redacted] – A professional pest control company ([redacted]) handles pest control. Rodents are controlled by bait stations and tracking powders. Insects on cattle are controlled by using cattle oilers, commercially available

pour-on solutions, and FDA approved feed to products. Surfaces in the milking parlor are treated with a pyrethrin solution. Other parasites and lice are controlled by yearly application of Eprinex® or Cydectin to all animals.

[redacted] – Rodent traps are used indoors as needed. Pour on insecticides are used to control external parasites and flies on the animals as needed.

[redacted] – Pest control is conducted by [redacted]-

[redacted] – A commercial pest control service ([redacted]) is contracted to provide baited rodent traps for the outside perimeter When extra rodent control is necessary SRTC staff place additional stations inside the building. These instances are determined when the commercial pest technician communicates concerns or when rodent activity is evident inside the building. With proper cleaning of animal areas, flies and other insects are kept to a minimum. Any area with a fly problem is fogged using a commercial insect fogger (Permectrin II.) baited with scatter fly poison outside of animal areas, or controlled through the use ofsticky fly tape.

[redacted] – For flies, pyrethrin-type sprays and insecticide ear tags are used for cattle. Other similar sprays are used for buildings as needed. Traps and poison (Havoc) are used to keep rodents out of feed and animal areas. Live traps are used to catch other vermin such as raccoons, opossums and woodchucks. The Superintendent and/or Agriculture Supervisor oversee all pest control.

[redacted] – The facility has contracts with [redacted] for rodent control. Insecticide is applied per label direction to pasture animals for fly bite control. Other parasites and lice are controlled by yearly application of Eprinex to all animals.

[redacted] – Insects on cattle are controlled using commercially available pour-on solutions, pyrethrin-based sprays, and FDA approved feed-through products. Surfaces in the parlor are treated with a pyrethrin solution. Fly tape is installed in places where they attract the greatest number of flies. Insecticide-impregnated ear tags are applied to heifers on pasture. The frequency of pour-on

insecticides are outlined in the station SOP by the attending veterinarian.

Rodents are controlled by bait stations. Bait stations are checked at least one time per month by staff. Birds are controlled by use of bird spikes, bird netting and bait boxes containing Avitrol. Avitrol is chemically treated in the grain bait placed in bait boxes to control the bird populations in all animal housing units. A commercially licensed pest control professional manages the refilling of treated grain in the bird bait stations.

Larger nuisance pests (muskrats, raccoons, fox) are captured by use of traps or rid from the farm by gunshot. The use of firearms to euthanize nuisance pest is done outside of buildings and performed by trained staff.

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

Several campus and off campus facilities including the [redacted], and [redacted] use barn cats to control the wild mice population.

Rodent traps and poison are used indoors as needed. Pour on insecticides are used to control external parasites and flies on the animals as needed

[redacted] uses a donkey for predator control for animals on pasture.

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

Safety Data Sheets for products used in pest control are available at each facility.

<u>Campus Facilities</u>
Request for pest control in campus facilities is often generated by animal facility workers, and is coordinated with the campus pest control officer by facility managers. The appropriate principal investigator gives approval for use of pesticides in their research

animal rooms and can opt out of the pest control by notifying the facility manager.

[redacted] records pyrethrin application on the daily room record located on the door.

Miticide applications at the [redacted] are posted and human entry is not allowed until the manufacturers recommended waiting period is reached, emails are sent 48 hours prior to application to notify the researchers of the location of the affected animals, application time, and the time re-entry is allowable.

Off-Campus Facilities

[redacted] – All pesticides are applied according to facility standard operating procedures. Management uses verbal and written reminders to communicate when a pesticide treatment that is not listed within the facility SOP is done.

[redacted] – The herd manager is informed before any chemicals are used around animals and notifies investigators by telephone if new or unusual chemicals are to be used.

[redacted] – Users and employees are notified of application of Eprinex® by verbal and posted written communication from management. Employees are verbally informed when the pasture oilers are used for fly control. Additional spraying for fly control around the milking parlor and offices is posted prior to application.

[redacted] – Before any pest control agents are used, animal research technicians and researchers are informed by the facility manager. SDS for pest control products are available and regular safety meetings are used to keep employees informed.

[redacted] – All pesticides are applied according to facility SOP. An email is distributed to employees to notify them of use of bird bait and the locations of the boxes. Employees, researchers and research staff are notified via email when live traps are used on station grounds.

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

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

Campus Facilities

Health surveillance of animals is provided by animal care staff, student workers, and graduate students who follow approved policies and procedures. When sick or injured animals are identified, husbandry staff makes an initial evaluation and reports the concern to their supervisor, the PI, and the RARC veterinary staff. Trained agricultural animal care staff can initiate treatments for 'routine' ailments or conditions as delineated in facility SOPs that have been approved by the Senior Program Veterinarian at each facility. In addition, when emergency care is required the care staff must call until a veterinarian is contacted. Veterinary coverage is provided 24 hours per day, including emergency coverage by the RARC, [redacted], or [redacted].

Off-Campus Facilities

As at campus agricultural facilities, health surveillance of animals is provided by facility managers and animal care staff, student workers, and graduate students who follow approved policies and procedures. When sick or injured animals are identified husbandry staff makes an initial evaluation, provide treatment or first aid, and reports the concern to their supervisor and the RARC veterinary staff. Trained agricultural animal care staff may initiate treatments for 'routine' ailments or conditions as delineated in facility standard operating procedures that have been approved by Senior Program Veterinarian for each facility. When emergency care is needed a veterinary service is contacted and a report is provided to the RARC veterinary staff.

All [redacted] **animal units** and [redacted] can call [redacted] for animal emergencies.

[redacted] has on-call support from [redacted].

[redacted] contacts [redacted].

For all these facilities, ultimate oversight responsibility and program direction rests with Dr. [redacted].

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

All regular staff are scheduled on rotation to cover all shifts, including weekend and holiday shifts.

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

Included in section i

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).

Campus Facilities

[redacted] – Cattle are identified with plastic ear tags and Radio Frequency EID Tags and numeric leg bands. These ear tags are compliant with the national livestock identification system that is now required for all livestock in the United States.

[redacted] – A stall card identifies each horse by name. If registered, horses have a registration number and an official name that may differ from their barn name.

[redacted] – Sheep are identified with an ear tag or paint mark, cattle with ear tag, ear tattoo or freeze brand, and pigs with an ear notch or tag or tattoo (just prior to shipping to slaughter), goats are identified with a neck bands and/or ear tag.

[redacted] – Chickens and roosters are identified with wing bands, leg bands, or wing badges.

[redacted] – All animals brought to this facility for short-term housing are identified using the system in place at their home facility.

[redacted] – Cattle are identified with ear tags.

Off-Campus Facilities

[redacted] – Cattle are identified with plastic ear tags and Radio Frequency EID Tags and numeric leg bands. These ear tags are compliant with the national livestock identification system that is now required for all livestock in the United States.

[redacted] – Primarily cattle are identified with ear tags, on rare occasion freeze brands, and ear tattoos are used.
[redacted] – Within one day of age, every lamb receives a unique identification number as an ear tag. All animals over one year of age receive an additional unique ear tag as part of the Voluntary Scrapie Certification Program.
[redacted] – Sheep and cattle are identified with an ear tag.
[redacted] – All animals are ear-notched using the metric ear notch system for identification purposes. Some animals have USDA tags placed prior to shipment.
[redacted] – Cattle are identified with an ear tag.
[redacted] – Cattle are identified with neck chain tags, metal, and plastic ear tags, leg bands, Radio Frequency EID and registration tags. These ear tags are compliant with the national livestock identification system that is now required for all livestock in the United States.
[redacted] – Animals are identified with a plastic ear tag in each ear. These ear tags are compliant with the national livestock identification system that is now required for all livestock in the United States. Older cattle in our herd have a metal brucellosis vaccination tag as an additional source of identification. Cows receive Alflex EID tags at birth for automatic identification in research trials, in the parlor or scales.

b. Breeding, Genetics, and Nomenclature

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

Consultation is on a one-to-one basis either due to a specific request or as a result of questions raised during protocol reviews.

[redacted] – most animals come from our other units, exceptions include the beef cattle and goats, which are purchased from a local source. Animals from a local source are isolated and tested for disease status based upon program veterinarian's recommendation.

[redacted] – Replacement horse stock is selected by the investigator and herdsperson based on ease of handling, phenotype and pedigree.

[redacted] **and** [redacted] – Genomic testing is done on the Allenstein herd; these records are stored on a centralized computer system. The manager uses the computer records kept on each animal to establish an initial list that balances the animal's genomic predictions with the researcher's study objectives. Lists are then modified with the help of barn research staff who identify any current or ongoing problems with individual cows. Final decision is given to the principal investigators.

[redacted] – Selection of individual animals for replacement is done by the shepherd following guidelines discussed with the faculty member in charge of the sheep operation and any other investigators using the particular group of sheep.

[redacted] – Genetic lines are maintained within the facility. Investigators are not allowed to introduce new animals into the facility without approval of the center director.

[redacted] – Purebred cattle are selected on the basis of Expected Progeny Differences (EPDs) and phenotypic evaluation. Non-purebred cattle are selected on the basis of phenotype (structural and reproductive) evaluation. The cow/calf herd housed at [redacted] is managed by the researcher to meet their specific research goals.

[redacted] – Researchers are advised of all applicable information for selection such as pedigree, health, disposition, animal weights and any other criteria of importance.

[redacted] – Genomic testing is done on the Allenstein herd; these records are stored on a centralized computer system. The manager uses the computer records kept on each animal to establish an initial list that balances the animal's genomic predictions with the researcher's study objectives. Lists are then modified with the help of barn research staff who identify any current or ongoing problems with individual cows. Final decision is given to the principal investigators.

[redacted] – Computer records are used to establish inventory for trial. Animals are mated with sires with known

lineages from commercial semen companies. In fall of 2018 this herd will receive animals from the Allenstein herd. This will help to introduce new genomics into the herd at this location.

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.

Agricultural animal investigators use appropriate herd books, purebred registries, pedigrees, and breed association record keeping services, as well as publications of their respective breed production associations, to ensure that they are consistent with national standards.

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

Livestock facilities manage the herd health and reproductive records electronically on paper or a combination of both. Records are available to all stakeholders and includes veterinary staff, researchers and facility managers and assures genetic diversity is maintained.

[redacted] purchase animals from a vendor for specific research projects. The exception is the cow/calf herd that has a specific research purpose.

[redacted] is enrolled in the National Sheep Improvement Program (NSIP). This program develops estimated breeding values for traits of economic importance to the sheep industry. The [redacted] uses these estimated breeding values to make selection decision and price sheep for sale.

[redacted] – The beef herd's reproductive records are managed by the Superintendent. New bulls are introduced to meet reproductive goals and avoid inbreeding and build progeny that can pass desired traits for beef quality. The twining research herd is managed by the researcher.

[redacted] & [redacted] **Allenstein Herd** – A Breeding Committee consisting of Dairy Science stakeholders selects bulls from the [redacted] bull list as potential donors for breeding the Allenstein herd heifers and cows. [redacted] will assist the committee with the final selection process by reporting the incidence of inbreeding based upon the heifer, cow and bull genomic lineage. **The** [redacted] uses a similar process for their dairy herd as described for the Allenstein Herd.

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

Special husbandry needs and expected disease processes for newly generated genotypes are described by the investigator in the breeding protocol. All animals are observed at least daily by animal care staff, veterinary staff, or research staff and unexpected phenotypes with potential adverse effects on well-being are reported to the IACUC.

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

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

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

1. Animal Procurement

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

Laboratory Animals (all facilities)
Rodents: Mice, rats, and gerbils are purchased 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 sources (e.g., other campus facilities, other universities or institutions) are evaluated and approved on a case-by-case basis by a research animal veterinarian. Vendor health surveillance quality control reports, vendor past performance, animal health certificates, physical examinations, daily

observation, and diagnostic tests (e.g., serology, parasitology, PCR, etc.) may all be used to evaluate the quality and health status of incoming laboratory animals. Incoming rodents from private institutions may be quarantined either at the [redacted] or other campus quarantine facilities.

Aquatics: Users may order their own animals from vendors. Health concerns regarding incoming animals are reported to veterinary staff.

Wild Caught: Wild-caught animals may be housed for specific studies; researcher applies for applicable wildlife study permit. Health concerns about incoming animals are reported to veterinary staff.

Agricultural Species

For agricultural animals, the quality varies depending on the use of the animals. For example, livestock purchased for carcass evaluation would be required to vary in their body composition and type, while steers purchased for a feeding trial would be expected to be within a certain weight class. Facility managers alert our program veterinarian prior to the arrival of new stock to determine quarantine needs. The managers evaluate the new animals for signs of disease upon arrival and are kept separated from the existing herd. If health concerns are observed veterinary consult is sought.
Cattle: All of our breeding stocks are tested annually for Johne's disease. All cattle purchased are tested for BVD-PI (Bovine Viral Diarrhea-Persistent Infection), Bovine Leukosis Virus (BLV), and *Neospora* sp.

Sheep: Purchased breeding stock of sheep (rams) are required to be from scrapie resistant lines. Since 2009, new herd stock is tested for Q-fever and OPP. New stock is housed separately from the general flock until test results have been reviewed by a program veterinarian.

Swine: All of our breeding stock are housed in the closed colony at [redacted]. If new breeding stock is needed, piglets will be delivered by caesarian section prior to placement into the [redacted], and fostered by a colony sow.

Equine: All of our mares and stallions are EIA tested and separately housed within the facility for 21 days prior to acceptance into the general herd.

Poultry: Generally, breeding stock is purchased from reliable vendors as fertile eggs. When live birds are purchased they come from a reliable vendor (e.g., NPIP certified) and are housed in separate pens.

Goats: Purchased from a reliable source and are examined by a program veterinarian upon arrival.

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).

Laboratory Animals (all facilities)

Animals are delivered by commercial vendors or by a professional animal transport service in their own climate controlled vehicle. Within the institution, rodents and other small animals may be transported in approved, climate controlled University vehicles. Occasionally, investigators transport small numbers of experimental animals themselves. A campus policy approved by the Attending Veterinarian provides guidance for those instances. The guidelines are posted on the RARC website outlined in Policy No. 2011-043-v. Animals are delivered to specified loading docks at animal housing facilities where animal care staff transfers them to appropriate housing or quarantine rooms. The destination room is based on species, strain, source or animal and health status.

Wild-caught animals generally do not need to be transported but if transportation is required the method is reviewed and approved by the IACUC. Vehicles transporting USDA covered species are inspected by the IACUC.

Agricultural Animals

Agricultural animals are transported by commercial haulers or in University-owned livestock trailers. The IACUC has developed a standard operating procedure that covers transportation of cattle, swine and sheep. Agricultural animals are transported in bedded trailers that are cleaned and disinfected between species. Consideration is given to the ambient temperature, humidity, and wind chill before transporting. Swine for biomedical use are transported in an environmentally controlled trailer.

B. Preventive Medicine

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

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

Laboratory Animals

Rodents: Sentinel rodents exposed to dirty bedding from colony animals are used to monitor for pathogens. Techniques used to monitor for infectious agents include necropsy, PCR, serology, and direct

examination of tissues for ecto- and endo-parasites. Necropsy or direct sampling of individual rodents (i.e., live-bleeds for serology or collection of fecal pellets for PCR) can take place if directed by a research animal veterinarian.

Other species: If an infectious agent is suspected, animals may be submitted for necropsy or samples may be collected for diagnostic testing.

Agricultural Animals
Facility manager or designated animal caretaker observe animals daily. If problems are noted, veterinary assistance is sought or treatment is initiated as outlined in the veterinary section of the facility's standard operating procedures. Necropsies are performed on a subset of mortalities when requested by the veterinary staff. Known or suspected pathogen testing is listed below.

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

Laboratory Animals
Movement of animals and personnel between facilities and within facilities is based on the pathogen status of the animals. Transfer of animals between facilities requires prior veterinary approval. If an infectious agent is present, or suspected to be present, animals are placed in containment. Containment may include change in entry order procedures and donning of additional protective equipment. Methods to control or eliminate an infectious agent depend on the pathogen; final determination of the methods used is made by the veterinarian in consultation with the researcher and facility manager.

Agricultural Animals
Cattle: The cattle housed at the [redacted] and [redacted] are collectively referred to as the Allenstein Dairy Herd and we consider their disease status as equivalent.

Dairy cows infected with contagious mastitis pathogens (*Staph. aureus*) are identified with leg bands and either milked last or have their milking unit flushed. Dairy calves have tested positive for endemic cryptosporidiosis, *Coronovirus*, *Rotavirus*, and *Salmonella* sp. at our units. If a unit is experiencing an increased incidence of calfhood diarrhea, veterinary consult, diagnostics, and a treatment plan is developed to control the outbreak. Raising the dairy calves in individual huts, feeding pasteurized waste milk, monitoring passive transfer of maternal antibodies and vaccinating the dams are all methods used to control these and other potential infectious agents. All dairy and beef

cow facilities have developed management plans to monitor for and prevent movement of Johne's disease.

The [redacted] and Allenstein Dairy Herds practice one time use of needles and palpation sleeves between animals for Bovine Leukosis Virus (BLV) control.

Sheep: The [redacted] sheep flock is tested for Ovine Progressive Pneumonia (OPP). An eradication plan was formulated several years ago and involved segregation, cross fostering, weaning, individual needle use and disinfection of animal husbandry implements. As of May 2018, diagnostics indicate OPP has been eradicated from the flock. Sheep that are transported to campus for use in research and teaching are individually screened for Q-fever. If a positive serological test result is found the animal is quarantined and samples are submitted for PCR (placenta, vaginal swabs) after lambing. In 2016, we began a vaccination program with the goal of eradicating Caseous Lymphadenitis.

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

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

Rodents: Animal shipments are received by care staff, and placed in the appropriate primary enclosure. During this process animals are observed for injury or illness and abnormal findings are reported to the veterinary staff, facility supervisor, and the PI.
Agricultural:
Newly arrived livestock are kept separate from other animals and monitored during a designated 21-day quarantine period for signs of illness unless a veterinarian approves an earlier release. Newly arrived cattle are tested for BVD-PI, BLV, *Neospora* sp. and may be tested for Johne's disease (depending on age). Newly arrived sheep are tested for OPP, Caseous Lymphadenitis, and Q-fever.

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

Laboratory Animals (all facilities)
Purpose-bred:
Rodents purchased from approved vendors may go directly to their assigned rooms.

Rodents from non-approved vendors may be quarantined at the [redacted] Animal Facility, which has an IVC rack dedicated to quarantine for incoming CALS rodents. Mice remain in quarantine for up to 12 weeks. Mice may be tested directly (e.g., PCR methods) or sentinel animals are used to determine the group's health status. Alternatively, they may be rederived by the UW Genome Editing and Animal Models Shared Resource.

Agricultural Animals (all facilities)
Purpose-bred: Not applicable.

Laboratory Animals (all facilities)
Random-source:

Aquatics: Incoming animals are generally separated by tank.

Wild-caught: If housed, animals are placed in separate rooms and enclosures.

Agricultural Animals
Random-source:
Cattle: Newly arrived cattle are housedt separately for a period of 21 days and tested for BVD-PI, BLV, and *Neospora* sp. status. The degree of separation depends on the facility. Cattle are kept in separated pens without nose-to-nose contact.

Sheep: Purchased sheep (usually rams) are tested for Q-fever, CL, and OPP. They are housed in separate facilities for a quarantine period of 21 days.

Swine: The swine herd is operated as a Specific Pathogen Free facility to maintain a minimum animal disease level and therefore new arrivals are generated by cesarean section. The Specific diseases and parasites that this policy is designed to prevent include atrophic rhinitis, *Mycoplasma hyopneumoniae*, swine dysentery, lice, mange, and internal parasites.

Equine: Horses are kept in quarantine for 21 days. Quarantine consists of a separate pen/pasture without contact with resident horses or, at the [redacted], an individual stall separated by an alley.

Poultry: There is no quarantine for poultry, because most are purchased as eggs. However, if acquired after hatching, they are purchased from a limited number of long-term sources (hatcheries) and are housed in separate pens.

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

Laboratory Animals (all facilities)
All vertebrate animal species will have a minimum of 48-hours to stabilize and acclimate to animal housing facilities and to recover from shipping stress prior to use in any procedure. Shorter acclimation periods may be used with scientific justification and approval from the IACUC or with approval from an RARC program veterinarian. Animals intended for use after intra-campus transport or in non-survival surgeries/terminal use protocols are not required to have a minimum acclimation period. However, it is strongly recommended that they receive at least 48-hour acclimation prior to use in a research protocol (Policy 2015-055-v).

Agricultural Animals
Newly acquired Livestock acclimate to their environment during the 21-day quarantine period before introduction to the general herd.

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

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

Laboratory Animals (all facilities)
Rodents, fish, frogs and birds are separated by species and health status.

Agricultural Animals
Donkeys are housed with sheep at the [redacted] Facility for the purpose of predator control. Except for donkeys, all agricultural animals are kept in species-and age-specific groups. Once animals have completed the 21-day quarantine period, they are treated as university stock and may be introduced to groups of animals of a similar class.

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

Laboratory Animals (all facilities)
N/A

Agricultural Animals

A donkey is housed with sheep in the pasture at the [redacted] Facility for the purpose of predator control.

c. Describe isolation procedures and related facilities for animals.

Laboratory Animals (all facilities)
Rodents and birds are treated in their home cage. Aquatics may be treated in their home tank or moved to a temporary isolation tank. In the event of the discovery of excluded rodent pathogens in a facility, animals may be isolated *in situ*, with signage on the doors indicating appropriate procedures for personnel to follow.

Agricultural Animals
In general, sick animals are left in their standard housing. In the case of an infectious disease, the program veterinarian will institute quarantine requirements similar to those used when new animals arrive.
Cattle: Dairy calves are housed individually in calf hutches to decrease the transmission of communicable diseases. All dairies have pens available for ill animals. The [redacted] and [redacted] Facility have pens that are utilized for ill animals.

Sheep: [redacted] sheep facility has separate pens to house ill animals.

Horses: Sick or injured horses are kept in an individual stall.

Poultry: Can be separated by wing or moved to the [redacted] for treatments as directed by the veterinarian.

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

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

a. Describe the procedure(s) for daily observation of animals for illness or abnormal behavior, including:
- the observers' training for this responsibility
- method(s) for reporting observations (written or verbal)
- method(s) for ensuring that reported cases are appropriately managed in a timely manner.

Laboratory Animals (all facilities)
Animal Research Technicians (ARTs) are responsible for observing every animal daily in the facility to which they are assigned. It is their responsibility to report all sick, injured, or dead animals that they find to the veterinary staff and the PI either electronically (non-emergency) or by telephone (emergency). A "Notice to Vet Staff" green card is placed

on the cage for ease of location of the ill animal. The veterinary staff will triage cases when reported and is responsible for ensuring that cases are managed appropriately in a timely manner. ARTs are trained by the facility managers and by our program veterinarians.

The veterinary staff will communicate any assessments and treatment plans to the PI/research team and animal care personnel as necessary. The veterinary staff documents the diagnosis, treatment plan, progress and resolution in the "Veterinary Care Record Book". A designee is identified and is then responsible for carrying out the treatment plan. Phone numbers/contact information are listed within facilities for the appropriate program veterinarians, principal investigators and research laboratory contact personnel. If it is an emergency situation, a phone call is required to a member of the RARC veterinary staff.

Agricultural Animals
ARTs are responsible for observing every animal on a daily basis in the facility to which they are assigned. ARTs report all sick, injured or dead animals they find to the supervisor or facility manager. The facility manager or supervisor or trained care staff will initiate veterinary approved treatments for "routine" ailments or conditions as delineated in the facility standard operating procedures. If the animal does not respond to the standard treatment, the veterinarian is consulted for alternative treatment plans. ARTs are trained by the facility managers and by our program veterinarians to observe and then appropriately report animal care concerns in a timely manner.

The diagnosis, treatment plan, progress and resolution are documented in the "Veterinary Care Record Book" by the contracted veterinarian or facility manager. If it is an emergency situation, a phone call is required to the contracted veterinarian and the program veterinarian.

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

Laboratory Animals (all facilities)
If a non-emergency, the animal care staff contact the veterinary staff and research team via email (e.g., via an online animal health reporting system). This system automatically generates appropriate contact information from the approved animal use protocol, allowing for real-time, efficient communication regarding cases of concern. Following examination, a treatment plan is devised between the veterinarian and research staff. In an emergency, the veterinary staff are contacted by telephone to respond immediately. The supervisor or veterinary staff will then follow up with the PI/research staff.

Agricultural Animals
If a non-emergency the facility manager will contact the veterinary staff and PI/research staff and may initiate treatments for "routine" ailments or conditions as delineated in facility standard operating procedures that have been approved by the senior program veterinarian. If an emergency, the facility manager will contact the contracted veterinarian for immediate response. The manager or program veterinarian will then follow up with the PI/research staff.

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

Laboratory Animals (all facilities)
Preventive medicine:
Animal care staff, and/or investigational staff observe all animals at least daily. Sick, injured, or dead animals are reported in accordance with established standard procedures. Veterinary medical intervention is implemented as needed under the direction of the program veterinarian.

The veterinarians routinely check vendor-supplied serology information for purchased animals. Serology and parasitology reports are required before animals can be acquired from non-commercial sources (e.g., other universities) and such transfers must be approved by a veterinarian.

Health Monitoring:
Serologic and other diagnostic testing is used to regularly screen mouse and rat rooms for common rodent pathogens and parasites. Other rodent species are screened at the discretion of the clinical veterinarian. Sentinel animals are usually used in lieu of colony animals, although colony animals are occasionally utilized.

Agricultural Animals
Preventive medicine:
(More details and descriptions are included in the Veterinary Care Sections of each facility's SOP).

Species (class)	Treatment	Schedule
Cattle (dairy calves)	Clostridium Antitoxin, First Defense	Birth
Cattle (dairy calves)	Inforce-3 (IBR, PI3, BRSV) Bovilis (BCV)	Prior to transport to MARS

Cattle (dairy calves)	Bovi-Shield Gold FP5 (BVD, IBR, PI3, BRSV, and Lepto 5-way) Vision 7 (Clostridial 7-way)	4-8 months and repeat one month later
Cattle (dairy heifers)	Lepto 5-way	~ 13 months of age (prebreeding)
Cattle (dairy heifers)	Salmonella Newport	1st pregnancy exam and repeat in 4 weeks
Cattle (dry cows & springing dairy heifers)	Scourguard 4K/C and Endo-vac bovi	~ 7 weeks pre-calving, booster in 2 -4 weeks
Cattle (lactating dairy cows)	BVD,IBR, PI3,BRSV, and Lepto 5-way, Clostridial 7-way, SRP and seasonal parasite treatments	Annual vaccinations scheduled from ~ 15-180 DIM
Beef Cattle (Prebreeding heifer calf)	Leptoferm 5	3 weeks prior to breeding @ Lancaster
Beef Cattle (PG)	Bovi-Shield Gold FP5 (BVD, IBR, PI3, BRSV, and Lepto 5-way), Vision 7 (Clostridial 7-way),	Annual revaccination Fall
Beef Cattle (PG)	Scourguard 4K/C	3-6 weeks prior to calving, heifers receive a booster in 21 days
Cattle (adult beef bulls/steers)	Bovi-Shield Gold 4 (BVD, IBR, PI3, BRSV) Vision 7 (Clostridial 7-way),	Annual vaccinations and treatments
Cattle (beef heifer calves)	Bovi-Shield Gold FP5 (BVD, IBR, PI3, BRSV, and Lepto 5-way) Vision 7 (Clostridial 7-way), and parasite treatments	3 weeks prior to weaning booster within 3-4 weeks.
Cattle (beef heifer calves)	Brucellosis	< 10 months of age
Cattle (beef new purchase)	Inforce-3 (IBR, PI3, BRSV)	Upon arrival

Cattle (beef new purchase with no vaccination history)	Bovi Shield Gold 4 (IBR, BVD, PI3), Vision 7 (Clostridial 7-way), and parasite treatments	Week after arrival, booster in a 4 weeks
Sheep (lambs)	Bo-SE	At 12-24 hours of age
Sheep (lambs)	Contagious ecthyma (sore mouth)	30-45 days of age (pending vaccine availability)
Sheep (lambs)	Clostridial C/D and Tetanus	2-4 weeks of age and booster within 3-4 weeks.
Sheep (ewes)	Clostridial C/D and Tetanus	Annual vaccination 2-4 weeks before parturition. (Maiden ewes will be given 2 doses; 9 wks peri-parturition & at 3-4 wks.)
Sheep (ewes)	Caseous Lymphadenitis bacterium	Annual vaccination (booster given 3-4 weeks for first parity lambs)
Sheep	Ivomec or panacur	3 times/year Fall after first hard frost, at time of pre-lambing shearing, Spring prior to pasture.
Swine (weaning)	Porcilis ileitis vaccine	One time dose
Swine (gilts)	Farrowsure Gold B (Parvo, Erysipelothrix, Lepto 6 serovars)	Gestation and booster in 21 days
Swine (sows and boars)	Farrowsure Gold B (Parvo, Erysipelothrix, Lepto 6 serovars)	Minimum of twice annually
Horses (foals)	Eastern and Western Encephalomyelitis and Rhinopneumonitis, tetanus toxoid, West Nile virus vaccine and Rabies Influenza	Six months of age and then booster within 30 days. Twice annually (spring & fall)
Horses (open mares and stallions)	Eastern and Western Encephalomyelitis and Rhinopneumonitis, tetanus toxoid, West Nile virus vaccine and Rabies Influenza	Annual vaccination Twice annually (spring & fall)
Horses (pregnant mares)	Rhinopneumonitis	Booster vaccinations at 5, 7 and 9 months of gestation.

Horses	Ivermectin or Moxidectin or Benzimidazole or pyrantel pamoate or Praziquantel	Minimum of twice annually.
Horses	Dental exam	Annually
Horses	Farrier appointment	Minimum of twice annually
Poultry (long-term) does not include broilers or birds used or sold prior to 3 weeks of age	Marek's Newcastle+ Bronchitis Newcastle+ Bronchitis(inactivated) Avian Encephalomyelitis+ Fowl Pox Bursal Disease,- Newcastle-Bronchitis, Reovirus(inactivated)	Once, day old chicks Chicks - one day of age. Booster 4 weeks. 5 weeks old or at least 35 days old. Booster 4 weeks. 8 weeks old or at least 56 day old 10 weeks old or at least 70 days old

Health Monitoring:
At the discretion of the veterinarians and herd managers, animals are screened for internal parasites. Animals are regularly evaluated for signs of external parasites.
Cattle: Dairy and beef cattle are carefully monitored for Johne's disease. The dairy herds have been historically tested and found to be free of brucellosis and T.B. The Allenstein and [redacted] herd managers culture milk from cows with mastitis. All cattle purchased are tested for BVD-PI, BLV and *Neospora* sp. to determine whether they are persistently infected.

Sheep: Lambs are screened for scrapie resistance genes at 2-4 weeks of age. Ewes sold to campus for research or teaching, are tested for Q-fever. The [redacted] flock has eradicated OPP and has begun an eradication plan for CL.

Swine: The swine herd is serologically screened for a variety of pathogens. These include: PRRS, APP, *M. hyopneumoniae*, PRV, TGE, Swine Influenza H1N1 and H3N2. The pathogens screened for vary year to year depending on health concerns. The frequency varies from annually to biennially.

Equine: Horses are tested for EIA annually.

Poultry: Environmental testing for *Salmonella* is performed semi-annually. *Salmonella pullorum* testing is carried out annually. Birds being hatched for

long-term inclusion in the flock are vaccinated for Marek's Disease, Newcastle, Infectious Bronchitis, Avian encephalomyelitis, and Fowl Pox, Bursal disease, and Avian Reovirus. Incoming adult birds are sprayed with permethrin upon arrival for control of ectoparasites.

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

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

Laboratory Animals (all facilities)
Veterinary personnel are available 24 hours a day, 365 days a year. The veterinary staff have access to campus resources, to secure drugs, and use of equipment to care for the needs of animals during all hours of the day and week.
Outside regular working hours the RARC veterinary staff is contacted through a dedicated after-hours call out service. During regular working hours RARC veterinary staff are contacted via telephone or via the online reporting system. Their workday contact numbers are posted for contact and consultation if needed. The same level of care is provided on weekends and holidays as during regular work week.

Agricultural Animals
The means for providing emergency veterinary care to campus and off-campus agricultural animals varies, but in all cases is supplied by qualified veterinarians. The senior program veterinarian is available for campus and [redacted] animal emergencies during working hours and some weekends. A doctor/patient/client relationship has been established with local Wisconsin licensed DVMs for supplemental support and diagnostic services, including weekend and holiday coverage. They have access to drugs and equipment via their clinic or from the animal facility. Campus agricultural animal units, as well as the [redacted] Animal Science units use the [redacted] for emergency care. The [redacted] uses the [redacted] for regular scheduled visits and for emergencies. The [redacted] uses the [redacted] to conduct regular scheduled visits and for emergencies. The [redacted] also provides on-call service for the horses housed on campus or at [redacted].

For other off-campus agricultural animal facilities, a doctor/client/patient relationship has also been established with local veterinary services whose Wisconsin licensed DVMs provide clinical care as needed and

respond to animal health emergencies. [redacted] Facility has on-call support from [redacted]. [redacted] Facility contacts [redacted]. In all UW-Madison facilities, the senior program veterinarian maintains oversight responsibility and program direction.

Animal care staff may initiate emergency treatments for ailments or conditions as delineated in facility standard operating procedures that have been approved by the RARC senior program veterinarian. Each approved procedure includes typical signs of illness or injury, on-farm therapies, and end-point parameters to determine when a veterinarian needs to be called to reassess the animal.

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

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/Attending Veterinarian and her designees have full authority to treat any animal as deemed necessary, or to euthanize animals, depending on circumstances.

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

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

Laboratory Animals (all facilities)
Treatment/observation 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 with the medical record after treatment is finished or if the animal is euthanized or dies.

Agricultural Animals
Veterinarians are responsible for completing physical exam, surgical and prescription records. These records are kept in a binder in the facility's office. Facility managers and trained animal caretakers are responsible for maintaining treatment records, documentation of

preventative procedures (e.g., vaccination, dehorning, deworming, etc.) and adding follow up information to a medical record. Most units use computer programs to maintain their animal husbandry and veterinary care records.

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

Medical records are maintained jointly by three parties: the animal research technicians and facility managers, who may make entries to describe symptoms or document treatment; the laboratory staff, who make entries upon manipulation of USDA covered species for the purpose of research; and the research animal veterinary staff, who make entries upon manipulation of animals for the purpose of clarifying clinical signs, making a diagnosis, or documenting treatment.

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

RARC veterinarians have the authority to require actions that are necessary to assure the development of adequate and accessible medical, husbandry, experimental, and teaching records. Ultimate responsibility and authority for determining adequacy of animal records rests with the Chief Campus Veterinarian/Attending Veterinarian who may delegate that authority to the Senior Program Veterinarians.

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

a. In-house diagnostic laboratory capabilities.

The in-house [redacted] is available to support the clinical care of research animals in CALS. It is located in the [redacted] and managed by RARC. The [redacted] provides necropsy, histopathology, cytology, urinalysis, and parasitology services for all species. The lab has a board certified pathologist, two clinical lab technicians, a histotechnologist and student workers. The [redacted] uses bacteriology, hematology, clinical pathology and virology services of the [redacted], the [redacted], and the [redacted]. The [redacted] oversees the campus rodent surveillance program and directly handles most rodent surveillance and testing submissions for the campus. Environmental quality control (autoclave testing, cage wash testing) is managed through the [redacted] as well, with the use

of the 3-M LumGiene® Pocket Swabs Plus system and autoclave ampules.

There is an electronic submission and reporting process set-up through RARC for distant sites for necropsy and clinical pathology services. The large animal veterinarian can order the necropsy of any animal when it is deemed necessary. The [redacted] is also available for necropsy submissions, bacteriology testing, serological testing and PCR testing. Clinical mastitis cases are routinely cultured by the [redacted], [redacted], or with the [redacted].

b. Commercially provided diagnostic laboratory services.

RARC: Commercial labs used by the RARC [redacted] include:

1. [redacted]
2. [redacted]
3. [redacted]
4. [redacted]
5. [redacted]
6. [redacted]
7. [redacted]
8. [redacted]
9. [redacted]
10. [redacted]

c. Necropsy facilities and histopathology capabilities.

RARC: Lab facilities consist of a necropsy room for rodents and smaller animals, a histology lab and clinical lab. The current clinical lab occupies 372 sq. ft. 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 animals with human tissue implants, or those infected with BSL-2 organisms.

The necropsy room is designed with a square downdraft 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], which has necropsy rooms with enhanced biosecurity and a 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 Leitz manual rotary microtome, a histology coverslipping hood, microwave and appropriate safety storage cabinets. Occasionally tissues may be processed by the [redacted] or the UW Hospital Histology services.

d. Radiology and other imaging capabilities.

If necessary, animals are referred to the [redacted] for radiologic evaluation. In addition, a portable field radiograph unit, is available through the [redacted] and the contracted veterinarians. Drs. [redacted] and [redacted] routinely use a portable ultrasound for reproductive exams and occasionally for diagnostic imaging.

Dexa scanners are available at the [redacted] and in the [redacted] vivarium. A CT scan unit is kept at the [redacted]. Ultrasound equipment is kept at the dairies.

MRI, CT and PET scan units are also available at various sites on the UW-Madison campus if more sophisticated imaging modalities are necessary.

5. Drug Storage and Control

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

Controlled Substances
Individual investigators are required to obtain their own state and federal controlled substance 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. The controlled drugs are stored in the researcher's laboratory or in the animal facility in an appropriate locking storage unit.

RARC veterinarians with DEA licenses are allowed to provide controlled drugs when used directly for the provision of veterinary care.

Common non-controlled drugs are available for sale through the RARC pharmacy service or through approved vendors. Non-controlled drugs are stored in the animal facility. Vaccines and temperature-sensitive supplies are stored in refrigerators. Investigators and their staff, facility managers, and care staff are educated about the necessity of using in-date drugs.

The IACUC verifies use-by dates on drugs and other medical materials during semi-annual inspections.

b. Describe record keeping procedures for controlled substances.

Guidance is provided to investigators on the RARC website. Required information includes drug name, date drug is received, vial/record number, vial/bottle size, concentration, volume, route and remaining amount of drug in the vial. Records are stored with the controlled substances in the locked box.

Expired controlled substances are stored in the locked cabinet in a separate container labeled "for disposal do not use", until proper disposal is documented through the DEA.

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

1. Pre-Surgical Planning [*Guide*, p. 116]

Describe the process(es) used to ensure adequate pre-surgical planning, including: identifying personnel; locating equipment, supplies, veterinary involvement for selecting analgesic and anesthetic agents and facilities; planning; and pre- and post-operative care.

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, and work is allowed only after approval. Principal investigators are responsible for compliance with this plan, and for ensuring that their students and technicians are trained appropriately. 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. Veterinarians and Physicians certified by the board of the American College

of Surgeons, and other individuals with documented experience in surgery, may request from the IACUC and the Chief Campus Veterinarian/Attending Veterinarian or designee to have the Lab Animal Surgery course requirement waived.

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. All approved surgery spaces are kept in a database by RARC, veterinary and IACUC input are used to determine the appropriateness of new spaces to be used for surgery.

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) are written by the researcher, must be in an Animal Use Protocol, and are reviewed and approved by a veterinarian as part of either a protocol pre-review process and/or as part of the IACUC 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 or the Chief Campus Veterinarian/Attending Veterinarian. The finalized amendment is returned to the IACUC 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- and Post-operative Care
Specific pre- and post-operative care is performed in accordance with the approved Animal Use Protocols reviewed by the IACUC with input from the veterinary staff as deemed necessary. Pre-operative diagnostics are performed on a case-by-case basis with the final decision for diagnostics determined by the Senior Program Veterinarian.

2. Surgical Facilities [*Guide*, pp. 116-117, 144-145]
List building name(s) and room number(s) or other locations (coded, if confidential) where surgical procedures are performed. For each, describe:

- the type of species (including rodents, fish, agricultural species, etc.)
- nature of procedure(s) (major/minor/emergency, survival and non-survival, etc.)
- the amount of use [heavy (daily), moderate (weekly), or light]
- major surgical support equipment available (gas anesthesia machines, respirators, surgical lights, etc.)
- facilities for aseptic surgery, surgical support, animal preparation, surgeon's scrub, operating room, and postoperative recovery
- construction features of the operating room(s), including interior surfaces, ventilation, lighting, and fixed equipment used to support surgical procedures and other means of enhancing contamination control

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

Laboratory Animals (Surgical facilities)
[redacted]
Species: mice and rats
Nature of Procedures: major and/or minor, survival and non-survival
Amount of Use: moderate
Major surgical support equipment available: anesthesia machines for common use located in designated procedure rooms,
Surgical Support Facilities:
One Room, Bench top procedures.
Construction features of the operating room(s):
There are no special construction features.

[redacted] (Rm. [redacted])
Species: mice, rats, and gerbils
Nature of Procedures: major and/or minor, survival and non-survival
Amount of Use: moderate
Major surgical support equipment available: each laboratory has equipment that is described in their approved animal protocol to perform the surgeries. There is anesthetic equipment for common use.
Surgical Support Facilities:
One room, multiple surgical tables grouped together to create a larger procedural space.
Construction features of the operating room:
Additional lighting and ventilation is located above the surgical tables.

Agricultural Animals
[redacted] (Rm. [redacted])
Species: dairy cattle
Nature of Procedures: major and/or minor, emergency, survival

Amount of Use: moderate
Major surgical support equipment available:
Restraint stocks, lights, counter top with sink, and cabinets
Surgical Support Facilities:
One room, used for standing procedures/surgeries.
Construction features of the operating room:
Painted block walls, concrete floor, and a water resistant ceiling with recessed lighting. Ventilation for this room has recently been updated and is separate from the housing spaces.

[redacted] – Rm [redacted] (pre-surgical suite), Rm [redacted] (surgical suite) and Rm. [redacted] (recovery suite),
Species: sheep and swine, goats
Nature of Procedures: major and/or minor, survival and non-survival
Amount of Use: moderate
Major surgical support equipment available:
Restraint pen, gas anesthesia machines, mechanical ventilator, hydraulic surgery table, surgical lights, hydraulic gurney, cautery unit, ultrasound CT-scan and gas anesthesia monitoring equipment.
Construction features of the operating room: Painted block walls, sealed concrete floor and recessed ceiling lights. There is a separate air handling unit serving the surgical suite and adjoining lab spaces. The recovery room has padded flooring.

[redacted] – Rm [redacted] (surgeon's scrub), Rm. [redacted] (surgery suite), Rm [redacted] (recovery), Rm [redacted] (pre-surgical suite)
Species: swine
Nature of Procedures: major and/or minor, survival and non-survival
Amount of Use: light
Major surgical support equipment available: Surgical light, gas anesthesia machine, mechanical ventilator, hydraulic gurney, patient heating pad, cautery unit, gas anesthesia monitoring equipment, restraint pen and recovery pen with infrared heat lamp.
Construction features of the operating room: Painted concrete wall, sealed concrete floor, waterproof ceiling lights. There is a separate air handling unit serving the entire surgical suite.

[redacted] – Rm. [redacted] (Hospital Room)
Species: dairy cattle
Nature of Procedures: Standing minor/emergency, survival
Amount of Use: moderate
Major surgical support equipment available: Restraint stocks, lights, sink, and cabinets. Room [redacted] contains vet supplies and equipment.
Construction features of the operating room: Poured cement walls and floor.

Marshfield Dairy Facility – Procedure room
Species: dairy cattle
Nature of Procedures: minor/emergency, survival
Amount of Use: light
Major surgical support equipment available: Restraint stocks, lights, sink and cabinets
Construction features of the procedure room: Poured cement floor, metal side walls.

[redacted] – Procedure room
Species: dairy cattle
Nature of Procedures: minor/emergency, survival
Amount of Use: light
Major surgical support equipment available: 3-Restraint stocks, lights, sink and cabinets
Construction features of the procedure room: Poured concrete floor and side walls.

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).

Survival Surgery is defined as those procedures after which the animal recovers from anesthesia (i.e. regain 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, may 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.

Aseptic technique for non-rodent mammalian surgery:
• Training of personnel in proper aseptic surgical technique, e.g., through the RARC Laboratory Animal Surgery Course
• Use of sterile instruments and surgical supplies
• Protocol specified surgical attire that may include the following items: wearing of head cover, face mask, gown, and sterile gloves
• Clipping, surgical scrub, and draping of the surgical site
• Performing survival procedures only in IACUC approved surgical suites.

Aseptic technique for rodent surgeries:
• Training of personnel in proper aseptic surgical technique, e.g. through the RARC Laboratory Animal Surgery Course.
• Clipping and cleaning of the surgery site
• Gloves, facemask, and lab coat
• Sterile instruments
• Dedicated area for surgery; keep the surrounding area clean and neat.
Non-survival surgery: As a minimum, investigators performing non-survival surgery are required to clip the surgical site, wear gloves, scrubs, or lab coat, use clean instruments, utilize a dedicated area for surgery, and keep the surrounding area clean and neat. Additional aseptic measures are required if the procedure is long enough for signs of infection to begin.

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

Steam autoclaves, ethylene oxide (ETO) sterilizers, and glass bead sterilizers are used for instruments and surgical gowns. Indicator strips are used to monitor effective sterilization by autoclave or ETO. Drapes for maintenance of sterile field are either autoclaved or purchased commercially. Sterile gloves are purchased commercially.

Liquid sterilants are typically not used as a sole means of sterilizing instruments for any major procedures. Occasionally, liquid sterilants such as Cetylcide ® or other glutaraldehyde solution may be used to sanitize instruments. Manufacturers' recommendations for exposure

times are followed, typically 10-15 minutes minimum for most applications. Sterile water or saline is used to rinse off sterilant before instruments are used.

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

Glass bead sterilizers may be used to re-sterilize instruments between serial surgeries.

d. Indicate how effectiveness of sterilization is monitored.

Indicator strips are used to ensure effectiveness of sterilization equipment.

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

Beyond the RARC Laboratory Animal Surgery Course, veterinary staff assistance with surgery and anesthesia can be provided to investigators upon request of the PI or directive of the IACUC and veterinary staff.

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.

Novel research surgeries in livestock species may be conducted under direct supervision of an RARC veterinarian to ensure the appropriate level of technical competency is achieved by the researcher.

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.

Intraoperative monitoring for all species includes routine evaluation of anesthetic depth through respiration, heart rate and reflexes (as appropriate for the species). Body temperature is maintained by the use of equipment such as circulating water blanket and or increased room temperature. RARC veterinary and training staff has developed templates for intraoperative record keeping for all animals, these are available at the RARC website.
Batch records are usually kept for rodents and agricultural animals. These are maintained by the principal investigator but are accessible to veterinary personnel. For USDA covered species individual records are kept and maintained where the animal is housed.

Monitoring and documentation of anesthesia during non-survival procedures is identical to survival surgeries.

6. Postoperative Care [*Guide*, pp. 119-120]

Describe the postoperative care program, including who is responsible for overseeing and providing the care, types of records maintained (e.g., perioperative), where the records are maintained, etc.

The researcher and investigational staff are primarily responsible for post-operative monitoring and the reporting of complications to the program veterinarians. However, the animal research technician also observes all animals on a daily basis, and reports any clinical signs of pain, distress, or post-operative complications to the veterinary staff and the researcher. The post-operative monitoring plans are included in an approved IACUC protocol.
Individual records are generated by the veterinary staff if post-operative care becomes necessary for a rodent or livestock animal. These records are maintained in a log book in the facility.

The post-operative record for a USDA covered species includes, at least an every 15-minute documentation of the animal's anesthetic recovery including heart rate, respiratory rate or character, color, and body temperature (as appropriate for the species). The animal must be able to make postural adjustments on its own before returning to cage/pen. Also, the documentation of the daily observation by the investigator's staff is recorded in the record until the animal is fully healed. These records are maintained where the animal is housed.

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

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

Criteria for assessing pain and distress must be in an approved IACUC protocol. These criteria are subject to veterinary approval through the protocol pre-review or review process, and the protocol must be approved by the IACUC before any work can commence. During the research, pain and distress is monitored via animal behaviors (e.g., off feed or abnormal postures) by laboratory members, animal care staff and veterinary staff during daily care of the animal. If pain and distress have not been adequately relieved by the protocol-approved analgesic regimen, the program veterinarian will provide alternative analgesia to the animal. Humane euthanasia is used if pain cannot be managed appropriately.

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

indicators of pain and distress.

Training for personnel responsible for monitoring animal well-being is included in the Surgery course and is outlined in a campus policy 2008-035-v. The program veterinarian reviews the animal use protocol and assures that careful consideration is done to ameliorate pain and distress for painful procedures by providing pre-emptive analgesia and via an IACUC approved frequency of post-operative analgesia and observation of the patient to monitor signs of break-through pain. Signs of pain/distress by species is outlined in a RARC on-line document (https://www.rarc.wisc.edu/animal_health/**pain_and_distress**.html), and is used during instruction of personnel enrolled in the Surgery Course offered through the RARC Trainers.

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

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

Agent	Rodent	Wildlife	Xenopus	Fish	Poultry	Horse	Cattle	Sheep	Goat	Swine
Isoflurane or sevoflurane	X	X								X
Pentobarbital							X			X
Xylazine	X	X				X	X	X	X	X
Propofol										X
Ketamine	X	X					X		X	X
Flunixin Meglumine			X				X			X
Telazol		X								X
Bupivacaine										X
Lidocaine	X					X	X			X
Meloxicam	X						X			X
Ether	X									
Droperidol	X									
Fentanyl	X									
Diazepam		X					X		X	
MS 222			X							
Proparacaine-HCL	X									
Etomidate	X									
Ketoprofen	X	X								

Buprenorphine	X									X
Carprofen										X
Xylazine + butorphanol							X			
Tribromoethanol	X									
Dexmedetomidine		X								
Atapamezole		X								
CO2	X				X					
Acepromazine							X			
Detomidine hydrochloride						X				

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

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

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

The program veterinarians provide guidance on the use of anesthetics and analgesics primarily during protocol development, pre-review and review processes. In addition, they consult with investigators and research staff as requested and as part of ad hoc training sessions. Also, in day-to-day interaction and observation, the use of drugs and their efficacy can be assessed and changes are recommended by the veterinarian when needed.

RARC offers training classes in anesthesia and analgesia for investigators and their staff. An RARC formulary is on the RARC website and can provide additional guidance for analgesics and appropriate dosage ranges for use in an IACUC approved animal use protocol.

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

Monitoring the use of analgesics and anesthetics is a responsibility shared among the veterinarians, investigators, and the IACUC. The veterinarians examine written descriptions for the use of analgesics and anesthetics as part of the protocol review process. Issues of concern are communicated to the PI and resolved before the protocol is approved.

Additionally, if problems are noted during the post-operative period, the veterinarians will investigate to ensure that adequate anesthesia and analgesia are being provided. PIs are responsible for ensuring that approved anesthesia and analgesia protocols are executed as written and for notifying the veterinary staff if they or their support staff observe problems. If a protocol-described analgesia is deemed insufficient, veterinarians will provide additional analgesia and require a protocol amendment through a Veterinary Verified Consult (VVC) describing a refined analgesia regimen. The VVC process in outlined in Policy 2016-058-c.

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

Any proposed use of neuromuscular blocking agents must be stated and justified in the Protocol, and this must be approved by the IACUC. Veterinarians evaluate the proposed use of neuromuscular blocking agents via protocol pre-review and/or review.

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

Yearly maintenance/calibration of inhalant anesthetic vaporizers is required and verified during IACUC semi-annual inspections.

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

1. Describe approved methods of euthanasia, including humane slaughter (for additional guidance, see pertinent AAALAC Reference Resources). Include:

- consideration of species, age, condition (e.g., gestational period, or neonatal) and
- location(s) for the conduct of the procedure.

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

Euthanasia, depending on method, may be performed in any of our vivaria, campus laboratories or agricultural sites. These must be listed on the approved protocol and are inspected semi-annually by the IACUC. CO_2 inhalation is accomplished without pre-charging the chamber; carbon dioxide is introduced at the rate of 10-30% of the chamber volume per minute. Humane harvest of agricultural species occurs on campus at the federally inspected [redacted] or at a commercial plant.

Below are IACUC approved methods for various species:

Method	Species
Pentobarbital overdose or commercial euthanasia solution	All
CO_2 inhalation	Rodents, poultry, piglets<21 days of age
Cervical dislocation	Mice, Rats (<200 grams w/ tranquilization)[1, 2]
Decapitation	Rats, mice (w/ tranquilization)[1, 2,]
Isoflurane overdose followed by a secondary method according to approved protocol.	Mice, Poultry, wild birds
Captive bolt followed by exsanguination, Pithing or saturated solution of Potassium chloride	Large domestic species
Gunshot	Large domestic species
Potassium chloride; saturated solution	Large domestic species while under a surgical plane
Electrical stunning followed by exsanguination	Swine, Sheep
MS-222 overdose	Fish, amphibians
Surgical anesthesia followed by destruction of a critical organ exsanguination, or chemical fibrillation	All
Blunt force trauma to head	Piglets <21 days of age

Process for euthanizing rodent neonates is outlined in policy 2003-2018-v.

1. If cervical dislocation or decapitation is requested without sedation or anesthesia, a scientific justification must be given and approved by the IACUC/OB.
2. Personnel must be adequately trained before performing the technique.

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

CO_2 regulators are replaced when there is any indication of improper function. Instruments used in decapitation are maintained according to policy 2015-056-v. The instrument is cleaned after each use and kept in good working order; care logs are viewed during the semi-annual IACUC inspections. Captive bolts are maintained in good working order by the facility manager or veterinarians. Firearms are properly secured, personnel have been trained in the safe use of firearms by a certified trainer and our program veterinarian trains the user on proper projectile placement for humane euthanasia of the stock animal.

The [redacted] is checked during semi-annual IACUC inspections, members inspect the holding area and equipment used for humane slaughter.

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

All personnel who euthanize research animals must at the very least verify cardiac and respiratory arrest. Instruction on this procedure is given to all staff that use animals and is provided during required RARC training classes. For rodents, (typically stated in Animal Use Protocols) a secondary physical means of euthanasia such as bilateral pneumothorax, cervical dislocation, or decapitation is employed.

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

A. Facilities Overview

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

Small Animal Facilities

[redacted] – Animal facilities are located in the [redacted] of the [redacted] on the UW-Madison campus. Housing of rodents, chickens and fish are in this space.

[redacted] – Animal facilities are located in the [redacted] of the [redacted], and in the [redacted] and [redacted] of the [redacted] **(aka** [redacted]

[redacted] on the UW-Madison campus. Housing of rodents and frogs are in these buildings.

[redacted] – Animal facilities and located in the [redacted] of [redacted] on the UW-Madison campus. Housing facilities are used on occasion for wild caught birds.

[redacted] – Animal facilities are located in the [redacted] of the [redacted], and the [redacted] of the [redacted] on the UW-Madison campus. The [redacted] is a closed School of Medicine and Public Health vivarium space that [redacted] will occupy in the future. The building's HVAC system was updated in 2017.

[redacted] – Animal facilities are located in the [redacted] of the [redacted] on the UW-Madison campus. The animal space is managed by the scientist and is labeled as laboratory housing.

Large Animal Campus Facilities

[redacted] – Animal facilities are located at [redacted] on the UW-Madison campus. Housing allows for 84 adult lactating animals. A milking parlor is located on the site. The cattle return to [redacted] or [redacted] after the research study has been completed. An exercise pad is available behind the building.

[redacted] – Animal facilities are located at the [redacted] and the [redacted] located at [redacted] on the UW-Madison campus. Box stall housing is available for mares and stallions used in teaching reproductive and handling courses. In the summer and fall these horses are relocated to the [redacted] for housing on pasture.

[redacted] – Animal facilities are located at [redacted] on the UW-Madison campus. Housing is available for young cattle, goats, sheep, poultry and swine. This building can accommodate animals used in agricultural and biomedical research studies, BSL-1 and 2 (agent dependent).

[redacted] – Animal facilities are located at [redacted] on the UW-Madison campus. Poultry rearing and housing is provided here for layers and broilers used in research and instructional courses offered by Animal Science.

[redacted] – Animal facilities are located at [redacted] on the UW-Madison campus in the basement. The building is used for public exhibition of production animals and animal handling instructional courses for Animal Science and Dairy Science.

Large Animal Off-campus Facilities

[redacted] – [redacted] crop research and feed production headquarters and [redacted] are located at [redacted]

[redacted] – Animal facilities are located at [redacted] and at [redacted]. [redacted] has access to pastures and houses horses and a cow/calf research herd. Other projects may be housed here depending upon research goals. [redacted] consists of multiple pens capable of holding one animal or groups of animals. There is a processing room and a feed center, animals housed here are dependent upon the research goals.

[redacted] – Animal facilities are located at [redacted]. This facility is a dairy herd and calf rearing center for Dairy Science. After weaning calves are relocated to [redacted] for rearing until first parity. Springing heifers carrying a female calf return to [redacted] prior to calving.

[redacted] – Animal facilities are located at [redacted], [redacted]. This facility houses a food and fiber sheep herd used for production, sale, and instruction.

[redacted] – Animal facilities are located at [redacted]. The swine herd is managed as a closed herd with biosecurity management. The herd is used in research, teaching and production. All staff and visitors must shower in and wear dedicated clothing.

[redacted] – Animal facilities are located at [redacted]. This facility is used as an alternate site to house beef cattle and sheep.

[redacted] – Animal facilities are located at [redacted]. This is a beef cow/calf operation where pasture and crop production research is performed.

[redacted] – Animal facilities are located at [redacted]. Heifer rearing for the UW Dairy Herd, which is located at [redacted], occurs at this site. In addition, the USDA collaborates with CALS at this site. Specifically, the USDA has ownership of some of the barn facilities including the milking parlor and uses the small UW Dairy herd for research studies related to manure management.

[redacted] – Animal facilities are located at [redacted]. This is a UW Dairy Herd that collaborates with the USDA, All physical facilities are owned by the USDA. All ages of dairy cattle from calf to lactating animals are cared for by UW-staff. The USDA research focus is to discover efficient use of forage for milk production. [redacted] – Crop research and production unit and livestock transport vehicle are located at [redacted]. No live animals are housed at this site.

B. Animal Facilities

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

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

1. General arrangement of the animal facilities (conventional, clean/dirty corridor, etc.).
2. Physical relationship of the animal facilities to the research laboratories where animals may be used.
3. Types of available animal housing spaces used, such as conventional, barrier, isolation/quarantine, hazard containment (infectious, radioactive, chemical), "animal cubicles" or facilities specifically designed for housing certain species such as ponds, pastures, feedlots, etc.
4. Finishes used throughout the animal facility for floors, walls, ceilings, doors, alleyways, gates, etc. (note any areas that are not easily sanitized and describe how these are maintained).
5. Engineering features (design, layout, special HVAC systems, noting exhaust air treatment, if applicable) used in hazardous agent containment.

6. Security features, such as control of entry, perimeter fences, gates, entryways, cameras, guards; identify and describe exceptions for individual facilities or areas incorporating fewer or additional security features than the general features described.

7. Consideration for facilities with exterior windows, if applicable, including management of environmental conditions (i.e., temperature and photoperiod control) and potential security risks.

8. Storage areas for flammable or hazardous agents and materials (e.g., disinfectants, cage-washing chemicals, pesticides, fuel).

[redacted]
(1 – General arrangement) Conventional with centralized support areas in the vivarium; (**2 – Physical proximity)** Labs are within the same building; (**3 – Types of housing spaces**) Conventional rooms only. (**4 - Finishes**) **Corridors:** are cement block sealed with epoxy paint, floors are epoxy coated cement with grit embedded into the coating. Three corridors are 5'5" wide, one is 11'6" wide and the final is 5'3" wide.

Floors: All floors are epoxy coated cement with grit embedded into the coating.

Walls: Concrete block sealed with epoxy paint.

Ceilings: Ceilings are constructed of coated (waterproof) plasterboard.

Animal Room Doors: Steel

(**5 – Engineering features**) None; (**6 - Security**) [redacted]; **(7 – Exterior windows)** N/A; **(8 – Specialized storage areas)** No flammable or hazardous agents/materials. Disinfectants stored in supply closet, cage-washing chemicals stored in Room [redacted].

[redacted]
(1 – General arrangement) Conventional with centralized support areas in the rodent vivarium's. Frogs are maintained outside of the barriers in the [redacted] of the [redacted] in Room [redacted]; **(2 – Physical proximity)** Labs are located within the [redacted]; **(3 – Types of housing spaces)** Conventional rooms, quarantine space located in the [redacted] in Room [redacted], **(4 - Finishes) Corridors:** Walls are epoxy painted cement block, floors are epoxy coated seamless cement. Three corridors are 8' wide, 10' high.

Floors: Sealed concrete epoxy floors ([redacted]). Linoleum with heat sealed seams, chosen for its durability and antimicrobial properties ([redacted]).

Walls: Epoxy painted concrete block with caulked seams.

Ceilings: Sealed sheetrock with epoxy paint.

Animal Room Doors: Solid core steel.

(5 – Engineering features) none; **(6 - Security)** [redacted] **(7 – Exterior windows)** none; **(8 – Specialized storage areas)** Ether stored in procedure room [redacted] in an approved safety hood ([redacted]).

(8 – Specialized storage areas) Ether stored in [redacted] and in [redacted] in approved safety hoods, disinfectants are stored in room [redacted] and the dirty cage wash [redacted], animals exposed to ether prior to euthanasia are stored in an explosion proof freezer, prior to pick-up for incineration, in room [redacted] ([redacted]).

[redacted]
(1 – General arrangement) Laboratory housing **(2 – Physical proximity)** Three animal housing rooms within the footprint of the researcher's laboratory. **(3 – Types of housing spaces)** Conventional animal housing. **(4 – Finishes) Corridors:** None.

Floors: All floors are epoxy coated cement.

Walls: Concrete block sealed with epoxy paint.

Ceilings: Cement.

Animal Room Doors: Painted steel.

(5 – Engineering features) none. **(6 - Security)** [redacted]. **(7 – Exterior windows)** No exterior windows in the animal rooms. **(8 – Specialized storage areas)** Flammable or hazardous material is stored in ventilated, fire-protected storage cabinets in the research laboratory.

[redacted]

(1 – General arrangement) Conventional with a centralized support area. There is no designated procedure space in the vivarium. However, Rm. [redacted] can be used for procedures. Also, some animals are housed outside of the vivarium in Rm [redacted]. This room is used for special metabolic studies and at times receives animals from other campus facilities. The room is cleaned last and has strict bio-security procedures in place to prevent spread of disease to the main vivarium. **(2 – Physical proximity)** Research labs where live animals may be taken for non-survival procedures are located on the [redacted] of [redacted]. **(3 – Types of housing spaces)** Conventional **(4 - Finishes) Corridor:** "U" shaped, dimensions are 5' x 20', 5' x 101, 4.5' x 14'4". Flooring is linoleum with silicone caulked joints. Walls are concrete block with epoxy paint. Block walls.

Floors: Linoleum with silicone caulking at joints (vivarium & Rm. [redacted]).

Walls: Concrete block sealed with epoxy paint (vivarium & Rm. [redacted]).

Ceilings: Ceilings are constructed of stainless steel panels (vivarium). Ceiling is constructed of sealed concrete (Rm. [redacted]).

Animal Room Doors: Painted steel without windows (vivarium & Rm. [redacted]).

(5 – Engineering features) none **(6 - Security)** [redacted]. **(7 – Exterior windows)** no exterior windows. **(8 – Specialized storage areas)** Disinfectants kept in cage wash room. No hazardous agents or flammables are stored in the animal facilities. Extra detergent and bleach are kept in room [redacted] (adjacent to office).

[redacted]

(1 – General arrangement) Located on the [redacted]. The vivarium is conventional with a centralized support area. **(2 – Physical proximity)** Research labs where live animals may be taken for non-survival procedures are located in a nearby on the [redacted], and [redacted] of the [redacted]). **(3 – Types of housing spaces)** Conventional

animal housing**. (4 – Finishes) Corridors:** Single corridor with vinyl tile flooring and epoxy glazed tile block walls.

Floors: Troweled on epoxy.
Walls: Epoxy glazed tile block or epoxy painted plaster.

Ceilings: Epoxy painted concrete slab.

Animal Room Doors: Painted wood.

(5 – Engineering features) none. **(6 - Security)** [redacted] **(7 – Exterior windows)** Windows within the animal rooms are covered and sealed. **(8 – Specialized storage areas)** none.

[redacted]
(1 – General arrangement) Aquatic housing with a flow through fresh water system. **(2 – Physical proximity)** Three animal housing spaces within the footprint of the researcher's laboratory. **(3 – Types of spaces)** various tank sizes **(4 - Finishes) Corridors:** none.

Floors: All floors are epoxy coated cement.

Walls: Concrete block sealed with epoxy paint.

Ceilings: Cement.

Animal Room Doors: Painted steel.

(5 – Engineering features) none. **(6 – Security)** [redacted].
(7 – Exterior windows) no exterior windows. **(8 – Specialized storage areas)** none.

[redacted]
(1 – General arrangement) Dairy Barn. **(2 – Physical proximity)** Most researchers have lab space in the [redacted], approximately [redacted] away at [redacted]. **(3 – Types of housing spaces)** Milking parlor, 84 tie stalls, outside exercise lot. **(4 - Finishes) Corridors:** none.

Floors: Concrete.

Walls: All metal siding in animal areas, concrete block and tile elsewhere.

Ceilings: Fiber-Reinforced Plastic panels.

Animal Room Doors: Metal overhead rolling doors.

(5 – Engineering features) none. **(6 - Security)** [redacted] **(7 – Exterior windows)** Windows are metal frame, single pane glass, and are used to provide natural light and ventilation.

(8 – Specialized storage areas) Flammables are stored in safety cabinet. Disinfectants stored in original container in milk house.

[redacted]
(1 – General arrangement) Livestock housing. **(2 – Physical proximity)** Research labs are located in the [redacted], approximately [redacted] from this facility. **(3 – Types of housing spaces)** 12 equine box stalls, instructional space with restraint stocks and an adjoining outdoor exercise lot. **(4 - Finishes) Corridors:** none.

Floors: Cement covered with rubber mats.

Walls & Ceilings: Wood.

Animal Room Doors: Sliding wooden doors with metal bars on each box stall.

Lot: Cement lot, electrified smooth wire perimeter. Dirt corral for the stallion.

(5 – Engineering features) none. **(6 - Security)** [redacted] **(7 – Exterior windows)** Wood framed single pane glass windows that do not open in room [redacted]. Wood screened single pane glass windows that roll inward in room [redacted]. Provides a naturalized environment and ventilation. **(8 – Specialized storage areas)** No flammables or hazardous agents stored in this space.

[redacted]
(1 – General arrangement) Livestock group housing. **(2 – Physical proximity)** Instructional space for Animal Science Cattle Reproductive Physiology. **(3 – Types of housing spaces)** group housed in the 600 sq. ft.

outdoor lot on a bedded pack and restrained in self-locking head gates within the barn for a class period (3 times weekly for 2 hours). **(4 - Finishes)** **Corridors:** none.

Floors: Concrete with central alleyway.

Walls: Wood and metal.

Ceilings: Wood.
Animal Room Doors: Wood sliding panel, others are regular sized wooden doors.

(5 – Engineering features) none. **(6 - Security)** [redacted]. **(7 – Exterior windows)** Wooden frame windows with single pane glass are present. This barn is exposed to ambient temperatures and the photoperiod is not controlled. **(8 – Specialized storage areas)** none.

[redacted]
(1 – General arrangement) Livestock housing of various species for instructional and research purposes. **(2 – Physical proximity)** Researchers have laboratories located in [redacted], the School of Medicine & Public Health and the [redacted]. **(3 – Types of housing spaces)** There are 3 cattle rooms with head catches, 2 farrowing rooms, 1 gestation room, 4 feeder pig rooms, 1 sheep room, and 2 flexible use rooms (pigs, goats or sheep). In addition, there are 2 multipurpose rooms in which animals can be housed for metabolism projects, or that can be used as staging areas or classrooms. This building also has a 4-room surgery suite, 2 lab areas, a feed storage room, an equipment storage room, and a space dedicated to housing the dual-energy x-ray absorptiometry (DEXA) machine. **(4 - Finishes)** **Corridors:** Two corridors with walls that are epoxy painted cement block. Floors are epoxy coated seamless cement.

Floors: Surgical suite ([redacted]) has an epoxy floor. Recovery room ([redacted]) has rubber flooring. All floors in animal rooms are raised decking. Rooms [redacted] and [redacted] have concrete slats. Room [redacted] has concrete slates with rubber mats. Rooms [redacted] and [redacted] are coated wire mesh (Tenderfoot). Rooms [redacted], [redacted], and [redacted] have galvanized metal slats (Tribar). Room [redacted] has wire mesh with rubber mats.

Walls: Concrete block sealed with epoxy paint. Rm [redacted] has walls covered with HDP PolyMax boards.

Ceilings: Concrete block sealed with epoxy paint.

Animal Room Doors: Steel sliding track metal doors with window inserts.

(5 – Engineering features) Drainage and Plumbing: Rooms [redacted], [redacted] and [redacted]: Septic Flush System - waste accumulates in the pit below the animal floors and is flushed multiple times per day into the multi-stage lagoon. Recycled water is pumped back into the unit to flush the pits. **(6 - Security)** [redacted] **(7 – Exterior windows)** none. **(8 – Specialized storage areas)** Diesel tank is in room [redacted] and sits inside a secondary well with absorbent material in the bottom of the well to contain spills.

[redacted]

(1 – General arrangement) Consists of a main building and 4 attached wings. The main building contains a small office, 2 animal rooms, a hatchery, an equipment/cage wash room, a storage room, a feed mixing room, a classroom, a processing room, a room for handling eggs, and locker/restroom/shower rooms. **(2 – Physical proximity)** Laboratories are located in the [redacted]. **(3 – Types of housing spaces)** Wing 1 has wire caging to house the birds; Wings 2, 3, & 4 have floor pens. The Wing 4 is divided use, with one portion used for floor pens and another portion used for storage. **(4 - Finishes) Corridors:** The 4 wings are each 31' x 100'.

Floors: Concrete, smooth finish.

Walls: Galvanized steel in the 4 wings; concrete block in remainder of building.

Ceilings: Galvanized steel in wings; support areas and chick room have open rafters, no ceiling.

Animal Room Doors: Wooden doors to chick room (Rm# [redacted]), sliding metal doors to each of the 4 wings.

(5 – Engineering features) none. **(6 - Security)** [redacted]. **(7 – Exterior windows)** Windows are aluminum framed, screened windows with sliding glass and provide cross ventilation and natural lighting for the animals. **(8 – Specialized storage areas)** Storage cabinet in room # [redacted] is used for hazardous agents. No flammables are stored in this facility.

[redacted]

(1 – General arrangement) Open floor for instruction and exhibition. Pens created with fencing panels. **(2 – Physical proximity)** none. **(3 – Types of housing spaces)** Animal areas consist of a large arena on the [redacted] and a large animal holding area on the [redacted], Room #[redacted]. **(4 - Finishes)** **Corridors:** none.

Floors: Concrete smooth finish, ramp to lower level is grooved, arena is limestone screenings.

Walls: Concrete in the arena, lower level is brick.

Ceilings: Concrete

Animal Room Doors: Wooden and an overhead rolling metal door.

(5 – Engineering features) none. **(6 - Security)** [redacted] **(7)** Wood framed, vertical roll out windows. Used for natural lighting and ventilation. **(8)** none.

[redacted]

(1 – General arrangement) Dairy farm with freestall housing and a milking parlor. **(2 – Physical proximity)** Approximately [redacted] from UW-Madison campus. Research labs are located on the UW-Madison campus in the Department of Dairy Sciences in the [redacted]. **(3 – Types of housing spaces)** Group housing in freestall barns, maternity pens, calf hutches and a pasture area used for grazing study. (4 - Finishes)

Corridors: none

Floors: Concrete (all buildings)

Walls: Building [redacted]8 – Areas [redacted] and [redacted] are steel-sided; remaining walls are concrete block. Area [redacted] has fiberglass panels above the steel siding.

Building [redacted] is steel-sided on the north side, curtain sidewalls elsewhere.

Building [redacted] is steel-sided.

Building [redacted] has masonary walls and wood trusses.

Building [redacted] has curtain sidewalls, steel trusses, and insulated steel roof with wooden perlins.

Ceilings: Building [redacted] – Metal ceilings and drywall in the calf support areas.

Building [redacted] has dry wall ceilings in administrative spaces and metal ceilings in the other areas.

Building [redacted] and [redacted] have metal ceilings.

Animal Room Doors: Overhead metal doors

(5 – Engineering features) none. **(6 - Security)** [redacted]. **(7 – Exterior windows)** Building [redacted] has glass windows to milking parlor for visitor viewing. Building [redacted] & [redacted] has curtain sidewalls that allow natural light when lowered. **(8 – Specialized storage areas)** Feed shed fuel is stored at the fuel pumping station. Disinfectants for the milking parlor are stored on catch wells on the floor in room next to the milking parlor; an eye wash station is located in this area. Pesticides and other drugs for animal use are kept in the veterinary room, Building [redacted].

[redacted]

(1 – General arrangement) This is a large animal holding facility consisting of loose, open housing and pastures. **(2 – Physical proximity)** Approximately [redacted] from UW-Madison campus. Research labs are located on the UW-Madison campus in the Department Animal Sciences in the [redacted]. **(3 – Types of housing spaces)** Open sided barn areas with bedded packs and exercise lots. Grazing studies occur during the summer and fall months in adjacent pastures. Cattle are rotated through these pastures. Two buildings at this location house the horses during the summer and fall months. These are also open sided barns with access to exercise lots and grassy areas for grazing. **(4 - Finishes) Corridors:** none.

Floors: Floors in office, bathroom, locker room and cattle processing room are concrete. Animal housing areas have both dirt and concrete floors.

Walls: All barns have painted wood walls.
Ceilings: metal.

Animal Room Doors: Metal gate.

(5 – Engineering features) none **(6 - Security)** [redacted]. **(7 – Exterior windows)** none **(8 – Specialized storage areas)** Barn [redacted] has a flammable storage cabinet.

[redacted]

(1 – General arrangement) Livestock facility **(2 – Physical proximity)** Approximately [redacted] from UW-Madison campus. Research labs are located on the UW-Madison campus in the Department of Animal Sciences in the [redacted]. **(3 – Types of housing spaces)** Cattle holding facility consisting of loose, open housing. **(4 - Finishes) Corridors:** none.

Floors: Concrete and dirt.

Walls: Painted wood.

Ceilings: N/A (metal roof).

Animal Room Doors: Metal and wood gates.

(5 – Engineering features) none. **(6 - Security)** [redacted] **(7 – Exterior windows)** All barns open to the south, allowing natural photoperiods. **(8 – Specialized storage areas)** Flammable storage cabinet in Building [redacted].

[redacted]

(1 – General arrangement) The facility consists of 5 animal housing buildings, an office, a storage shed, outdoor exercise areas and a small grazing pasture. **(2 – Physical proximity)** Approximately [redacted] from UW-Madison campus. Research labs are located on the UW-Madison campus in the Department of Animal Sciences in the [redacted]. **(3 – Types of housing space)** Overflow housing for beef cattle or sheep from the [redacted] units. Other buildings are used for feed storage by the [redacted]. **(4 – Finishes) Corridors:** none

Floors: All Pole Barns: Concrete flooring.

Walls: Pole Barns ([redacted] and [redacted]) – These buildings are wood frame with metal exterior and non-insulated.

Pole Barn ([redacted]) – Fieldstone foundation, wood frame and walls with metal exterior and non-insulated.

Pole Barn ([redacted]) – This building is a wood frame, wood exterior and non-insulated.

Pole Barn ([redacted]) – This building is a wood frame and metal exterior. Top one-third of the walls are translucent panels to allow light to enter. The bottom two-thirds of the west wall is metal and the bottom two-thirds of the east wall has a small diameter stock panel.

Ceilings: All pole barns with steel roofs.

Animal Room Doors: N/A

(5 – Engineering features) none. **(6 – Security)** [redacted]. **(7 – Exterior windows)** Pole Barn [redacted], and [redacted] are all open to the south which allows natural light and ambient temperatures. **(8 – Specialized storage areas)** No flammable or hazardous material storage at this time.

[redacted]

(1 – General arrangement) The facility consists of 3 animal housing buildings, a storage shed, outdoor exercise areas and grazing pasture. **(2 – Physical proximity)** Approximately [redacted] from UW-Madison campus. Research labs are located on the UW-Madison campus in the Department of Animal Sciences in the [redacted]. **(3 – Types of housing spaces)** Open sided barns with access to the outdoors. A second barn has small pens used for lambing and other pens for group housing of ewes with nursing lambs and group housing of weaned animals. **(4 - Finishes) Corridors:** none
Floors: Building [redacted]; and the North Barn's central section and procedure room have concrete floors. All other floors are dirt.

Walls: Experimental Barn ([redacted]): Animal areas have un-insulated wooden walls. The interior rooms (procedure, administrative, personnel areas) have insulated wooden interior walls.

North Barn ([redacted]): Metal-sided building, not insulated. The central section has un-insulated rock walls.

Shed ([redacted]): Steel sided building.

Isolation Shed ([redacted]): Steel sided building.

Ceilings: Experimental Barn ([redacted]): Animal areas have exposed wooden frame. Interior rooms have painted wood ceilings.

North Barn ([redacted]): Central section has exposed floor joists supporting the hay mow. Other building sections have exposed metal roofs. Shed ([redacted]): Steel roof Isolation Shed ([redacted]): Steel roof

Animal Room Doors: N/A

(5 – Engineering features) none. **(6 – Security)** [redacted]

[redacted]. **(7 – Exterior windows)** Windows allow for a natural photoperiod and ventilation; barns are open to ambient temperatures. **(8 – Specialized storage areas)** Disinfectants and pesticides are stored in a metal cabinet in the lambing room. Fuel and oil are stored in flammable cabinet in the storage room in the Experimental Barn ([redacted]).

[redacted]
(1 – General arrangement) Closed herd meeting the housing standards for swine used in agriculture. The building has secure access and all visitors must shower in and wear facility-supplied attire. **(2 – Physical proximity)** Research can take place within the facility or at the [redacted] located approximately [redacted] on the UW-Madison campus. Other research programs purchase animals from this facility for use at their sites. **(3 – Types of housing spaces)** This facility has spaces for raising a closed swine herd from gestation to market weight. The facility uses gestation, farrowing crates and pens designed to hold similar aged groups. **(4 – Finishes) Corridors:** [redacted] ([redacted]): Corridors are 6' wide. Walls are ½" plywood-BCX with 0.05 inch thick polyester resin, reinforced by laminating one side with glass fiber in a random, chopped strand mat.

Grow and Finish House ([redacted]): Corridors are 6' wide. Walls consist of sheet metal fastened to the wood studs. Treated lumber runs the length of the corridor to keep animals from contracting the walls.

Floors: Both buildings have sealed concrete floors with a rough broom finish.

Walls: [redacted] ([redacted]): The first 36" from the floor are poured and sealed concrete. Above this, the walls are 1/2" plywood-BCX with 0.05 inch-thick polyester resin, reinforced by laminating one side with glass fiber in a random, chopped strand mat.

Grow and Finish House ([redacted]): Walls are either 1/2" painted plywood sheets or 1/2" plywood-BCX with 0.05 inch-thick polyester resin, reinforced by laminating one side with glass fiber in a random, chopped strand mat or ¼" 100% high density polyethylene (HDPE) boards.

Ceilings: Ceilings in [redacted] ([redacted]): are 1/2" plywood-BCX with 0.05 inch-thick polyester resin, reinforced by laminating one side with glass fiber in a random, chopped strand mat.

Grow and Finish House ([redacted]): ½" painted plywood sheets.

Animal Room Doors: Research and Teaching Center ([redacted]): are 1 ¾" thick, SDI-100, Grade III, extra heavy duty, Model 2, minimum 16 gauge faces.

Grow and Finish House ([redacted]) Doors: 1 ½" thick aluminum hollow doors.

(5 – Engineering features) Drainage and Plumbing: [redacted] ([redacted]): Waste is accumulated in the pit below the animal floor and flushed multiple times per day into the multi-stage lagoon. Recycled water is pumped back into the unit to flush the pits. **(6 - Security)** [redacted] **(7 – Exterior windows)** none **(8 – Specialized storage areas)** Bulk disinfectants (50-gallon drums) are stored in the Annex, in a space that is not accessible to animals. No large volumes of flammables are stored within the facility.

[redacted]

(1 – General arrangement) Cattle are housed throughout the year in various pastures across the station. All facilities are loose housing for cattle. **(2 – Physical proximity)** Approximately [redacted] from UW-Madison campus. Research labs are located on the UW-Madison campus in the Department of Animal Sciences in the [redacted]. **(3 – Types of housing spaces)** Cow-Calf beef operation. There are support areas for dystocia and distressed new-born calves and their cows. During the winter months' animals are brought into close pastures with natural or barn areas for shelter. **(4 - Finishes) Corridors:** none

Floors: The Quonset Machine Shed ([redacted]) has a cement floor; the Beef Barn ([redacted]) has a cement and dirt floor; other buildings have dirt floors.

Walls: All buildings have steel and wood walls.

Ceilings: All ceilings are open to the roof material, generally metal and wood.

Animal Room Doors: N/A

(5 – Engineering features) none **(6 - Security)** [redacted] **(7 – Exterior windows)** none. **(8 – Specialized storage areas)** Gasoline and diesel fuel are stored in double walled bulk storage tanks located outside. Other flammable

agents are stored in a secluded storage area from other machinery and labeled appropriately. Hazardous agents and materials, including all pesticides, herbicides and other similar items are stored in a separate building (Bldg. [redacted]) on the station.

[redacted]

(1 – General arrangement) Animal facilities consist of loose housing in pens or freestalls. All barns are naturally ventilated. **(2 – Physical proximity)** USDA scientists are located at the Marshfield facility and research labs are located approximately [redacted] on the UW-Madison campus in the Department of Dairy Sciences in the [redacted]. **(3 – Types of housing spaces)** Group housing of heifers in similar age groupings, freestall barns for dairy cattle and a freestall barn for research heifers, milking parlor, maternity pens for heifers with bull calf identified via ultrasound. **(4 - Finishes) Corridors:** none.

Floors: concrete and scraped daily, bedded packs are groomed daily.

Walls: are structured with metal, wood, or curtained side walls.

Ceilings: Barns have metal roofs.

Animal Room Doors: Metal; most are overhead doors. Gates are metal.

(5 – Engineering features) none. **(6 - Security)** [redacted]. **(7 – Exterior windows)** none **(8 – Specialized storage areas)** Main storage area for flammable agents (fuels) is in the shop. All bulk fuels are stored with secondary containment or on spill palates. Small quantity fuel is stored in approved gas containers in safety cabinets. Animal pesticide products, disinfectants and other cleaning products and compressed gasses are stored away from animal and feed in separate buildings.

[redacted]

(1 – General arrangement) This is a dairy animal milking facility. The farm is a cooperative effort between the United States Department of Agriculture – Agricultural Research Service and the University of Wisconsin College of Agricultural and Life Sciences. The facilities and equipment are owned by the USDA, the dairy cattle are owned by CALS and the care staff are CALS employees. The station superintendent is [redacted]. [redacted] reports to [redacted]

[redacted]. The USDA employs a crop research manager, [redacted]. **(2 – Physical proximity)** The station is situated [redacted] of Madison. USDA scientists perform much of the research at the facility and the research labs are located on the UW-Madison campus at the [redacted]. The facility has two small labs for performing basic processing of samples. (**3 – Types of housing spaces)** mainly freestall barns for dairy cows and research heifers, a milking parlor, and maternity pens. Pastures are used for feeding and agronomic studies. **(4 – Finishes)** **Corridors:** none.

Floors: All barn floors are concrete, either grooved to prevent cattle slippage or smooth, with the exception of the limestone screening floor in the [redacted] barn.

Walls: Wood frame with steel sheeting covering

Ceilings: Wood frame with steel sheeting covering.

Animal Room Doors: Either steel or plastic. All gates are painted steel piping.

(5 – Engineering features) none. **(6 - Security)** [redacted].

(7 – Exterior windows) There are plexiglass or glass exterior windows in Barns [redacted] and [redacted] (Bldg. [redacted]). These windows are manipulated along with ventilation fans to produce proper airflow in both summer and winter. The exterior windows pose no temperature or photoperiod control or security risk. **(8 – Specialized storage areas)** Flammable products are kept in fire cabinets in the feedcart room and the machine shop. Pesticides are contained in a chemical storage and mixing facility.

C. Satellite Animal Housing Facilities

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

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

Satellite Animal Housing is defined as housing of animals outside of a dedicated vivarium for greater than 12 hours. Policy 2012-045-v "Laboratory Housing of Animals" and the companion guidance document describes the criteria to follow for the housing of animals outside of a facility.

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

The laboratory housing space is required to meet the same criteria as specified for a centrally-maintained facility. This includes HVAC requirements, appropriate light cycle, proper storage of feed, monitoring of temperature, documentation of husbandry and veterinary access for inspection and health assessment.

D. Emergency Power and Life Support Systems

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

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

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

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

[redacted]: [redacted]. Power failures have occurred but are brief in duration.

[redacted]: [redacted] Power failures have occurred, but are brief in duration.

[redacted]: A [redacted]. A power failure is experienced on the average of once per year. The power failures range in duration from a few minutes to a couple of hours.

[redacted]. A power failure is experienced on the average of once per year. The power failures range in duration from a few minutes to a couple of hours.

[redacted] A power failure is experienced on the average of once per year. The power failures range in duration from a few minutes to a couple of hours.

[redacted]. On occasion power may fail. This generally occurs once per year for less than 30 minutes.

[redacted]. Power failure is rare, perhaps once per year for less than 30 minutes.

[redacted]. Power failure is rare, perhaps once per year for less than 30 minutes.

[redacted]. Power failure occurs rarely, perhaps once per year for less than 30 minutes.

[redacted]. Power failure occurs rarely, perhaps once per year for less than 30 minutes.

[redacted]. Power failure occurs rarely, perhaps once per year for less than 30 minutes.

[redacted]. Power interruptions do occur, but are of a short duration.

[redacted]. Power failures have been infrequent and of short duration.

[redacted]. Power failures are infrequent and of short duration.

[redacted].

[redacted]

[redacted]. Short interruptions of power occasionally occur.

[redacted]. Historically the average power outage occurs once yearly with a duration of 3 – 4 hours.

[redacted]. On occasion there are power failures. These typically occur once per year on average and last for a few hours.

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

Accreditation (Section 2.f).

None to report

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

1. Other Animal Use Facilities [*Guide*, pp. 146-150]

Describe other facilities such as imaging, irradiation, and core/shared behavioral laboratories or rooms. Include a description of decontamination and methods for preventing cross-contamination in multi-species facilities.

[redacted] (206 ft^2)

[redacted] has bone density/scanning equipment. Quarantine Suite [redacted] with 2 separate holding rooms [redacted] and [redacted].

[redacted]: Restraint chute used for palpation and pregnancy check of cattle.

[redacted]: DEXA and a C-arm radiology equipment both are used for research projects.

2. Other Animal Program Support Facilities

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

[redacted]: Rm. [redacted], procedural space with biosafety cabinet. Rm. [redacted] BSL2 designated animal housing equipped with biosafety cabinet.

[redacted] – Food preparation of the minus-Vitamin D diet is done in Room [redacted].

[redacted] - Rm. [redacted] is for special diet preparation. Rm. [redacted] is an office and houses the veterinary records, protocols and other pertinent animal care records.

[redacted]: A [redacted] residence for 2 on-call students equipped with a full kitchen and bathroom facilities. Visitor Center on the west end of the center.

[redacted]: The feed room (305 ft^2) contains 2 scales and 3 portable mixers—a small bench top rotary mixer, a floor-stand rotary mixer, a large capacity (500 lb) tumble mixer and a sink for cleaning.

[redacted]: Feed prep room 352 ft.^{2} has shelving that holds sealed containers of feed ingredients. Ingredients that require refrigeration are stored in a refrigerator in the room. The room also contains 2 scales and 3 mixers—a small bench top rotary mixer, a floor stand rotary mixer, and a large capacity (200 lb) ribbon mixer.

[redacted]: A feed mixing area is used to prepare small batches of experimental diets. It houses scales, 2 small bowl mixers, and a larger feed mixer (double ribbon horizontal mixer, stainless steel)-480 ft^2.

[redacted]: Building [redacted] is the feed center, the augers from bulk bin storage units are aligned into a center drive. Manure handling - Manure storage hoop-shaped building with nylon covering 72' X 25" has 5 concrete bays for storing manure. The building has radiant heat with curtain side walls. All of the bays have overhead doors which allow for manual removal of manure. A fifth bay pumps the manure to the manure processing building.

The manure processing building (40' X 33' 3") is a hooped-structure with nylon roof and corrugated metal for side walls. The manure processing building contains a sand separator and solid screen press for recovery of organic and inorganic byproducts of manure.

[redacted]**:** Manure solids are composted and reused for bedding in the heifer barn. Manure is augured to a retention lagoon. From the lagoon, manure is pumped to a transfer station approximately [redacted] from the station and away from the [redacted].

Program Description Appendix
Animal Care and Use Program

College of Agricultural and Life Sciences

AAALAC File Number 001190

University of Wisconsin-Madison

[redacted]

July 23, 2018

For

AAALAC International

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Appendices Index

Appendix 1: Glossary of Abbreviations and Acronyms

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

Abbreviation/Acronym	Definition
AALAS	American Association for Laboratory Animal Science
ACAPAC	All Campus Animal Planning and Advisory Committee
ACLAM	American College of Laboratory Animal Medicine
ACRQ	Animal Contact Risk Questionnaire
ACUC	Animal Care and Use Committee
APEP	Animal Program Emergency Plan
ARENA	Applied Research Ethics National Association
ARO(s)	Alternate Responsible Official(s)
ARROW	Application Review for Research Oversight at Wisconsin
ARS(s)	Agricultural Research Station(s)
ART(s)	Animal Research Technician(s)
ASLAP	American Society of Laboratory Animal Practitioners
AVMA	American Veterinary Medical Association
[redacted]	[redacted]
BRDU	Bromodeoxyuridine
BSC	Biosafety Cabinet
BSL	Biosafety Level
CAFO	Concentrated Animal Feeding Operation
CALS	College of Agricultural and Life Sciences
CBSP	Certified Biological Safety Professional
CHO	Chemical Hygiene Officer
CHP	Chemical Hygiene Plan
CIH	Certified Industrial Hygienist
COOP	Continuity of Operations Plan
CORD	Central Ordering Receiving and Distribution
CPIA	Certified Professional IACUC Administrator
CSC	Chemical Safety Committee
DACLAM	Diplomate, American College of Laboratory Animal Medicine
DABVP	Diplomate of the American Board of Veterinary Practitioners
DEXA	Dual-energy X-ray Absorptiometry
DNR	Department of Natural Resources
DoIT	Division of Information Technology
DR	Designated Review
EHS	Environment, Health and Safety
EID	Electronic Identification
EOC	Emergency Operations Center
FFA	Future Farmers of America

Appendix 1: Glossary of Abbreviations and Acronyms

Abbreviation/Acronym	Definition
FP&M	Facilities Planning and Management
HR	Human Resources
HS	High School (education)
IBC	Institutional Biosafety Committee
IO	Institutional Official
IRRC	Invertebrate Research Review Committee
IVC	Individually Ventilated Cages
LAA	Laboratory Animal Allergen
LO/TO	Lock Out/Tag Out
L&S	College of Letters and Science
[redacted]	[redacted]
MPH	Master of Public Health
NIH	National Institutes of Health
NSF	National Science Foundation
OBS	Office of Biological Safety
OEP	Occupant Emergency Plan
OHP	Occupational Health Program
ORS	Office of Radiation Safety
OVCRGE	Office of The Vice Chancellor for Research and Graduate Education
PAM	Post Assurance Monitoring
PAPR	Powered Air Purifying Respirator
PHS	Public Health Service
PI	Principal Investigator
PIT	Passive Integrated Transponder tag
PPE	Personal Protective Equipment
[redacted]	[redacted]
PRIM&R	Public Responsibility in Medicine and Research
RARC	Research Animal Resources and Compliance
RDRC	Radiation Drug Research Committee
RSP	Research and Sponsored Programs
SCRO	Stem Cell Research Oversight
SMPH	School of Medicine and Public Health
SOP(s)	Standard Operating Procedure(s)
SPLAAAF	Service Personnel Limited Animal Area Access Form
[redacted]	[redacted]
SVM	School of Veterinary Medicine
SWAALAS	Southern WI American Association for Laboratory Animal Science
URP	University Response Plan
URSC	University Radiation Safety Committee
UHS	University Health Services

Appendix 1: Glossary of Abbreviations and Acronyms

Abbreviation/Acronym	Definition
UV	Ultraviolet
UW	University of Wisconsin
VCRGE	Vice Chancellor for Research and Graduate Education
VVC	Veterinary Verification and Consultation
WAES	Wisconsin Agricultural Experiment Station
[redacted]	[redacted]

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. See Instructions, Addendum A - Animal Facility Square Footage/Meters Compilation Form for guidance in calculating the size of your animal care and use program.

	Animal Housing and Support Sites					
Location (building/site /farm name*)	Distance from Agricultural Hall	Approx. sq.ft./m (acreage) animal housing	Approx. sq.ft./m (acreage) support/ procedure space	Species housed	Approximate Daily Animal Census by species	Person in charge of site
[redacted]	[redacted]	1,015 sq. ft Conventional	988 sq. ft.	Mice, Chickens, Fish	Mice – 250 Chickens – 35 Fish - 100	[redacted]
[redacted]	[redacted]	1,259 sq. ft. Conventional & aquatic	2770 sq. ft.	Mice, Rat, frogs	Mice – 4,500 Rat – 450 Frogs - 120	[redacted]
[redacted]	[redacted]	5,049 sq. ft. Conventional	1,809 sq.ft.	Mice, Rat	See above information	[redacted]
[redacted]	[redacted]	1020 sq. ft. Conventional & Aquatic	1875 sq. ft.	Mice, Rat, Gerbil,	Mice – 1700 Rat – 13 Gerbil – 7	[redacted]
[redacted]	[redacted]	2,711 sq. ft.	2264 sq. ft.	Mice, Rat	TBD	[redacted]
[redacted]	[redacted]	360 sq. ft. conventional	571 sq. ft.	Wild caught Birds	Nestling – 0 Wild Caught Birds - 0	[redacted]

[redacted]						
[redacted]	[redacted]	536 sq. ft. Aquatic	1567 sq. ft.	Cool water fish species, Display Marine tank	Cool water fish various species – 660	[redacted]
Totals:		11,950 sq. ft.	11,844 sq. ft.	[redacted]		
Total animal housing and support space:		23,794 sq. ft.				

*Please state name and acronyms used for building names, if not coded for confidentiality.

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. See Instructions, Addendum A - Animal Facility Square Footage/Meters Compilation Form for guidance in calculating the size of your animal care and use program.

	Animal Housing and Support Sites					
Location (building/site /farm name*)	Distance from Ag Hall –UW Madison campus	Approx. sq.ft./m (acreage) animal housing	Approx. sq.ft./m (acreage) support/ procedure space	Species housed	Approximate Daily Animal Census by species	Person in charge of site
[redacted]	[redacted] from Ag Hall Building remodel 6/2012-1/2013	13,698 sq.ft.	7,619 sq.ft. (Outside Exercise lot 8,000 sq. ft.)	Dairy Cattle	Cattle - 84	[redacted]
[redacted]	[redacted]	4,137 sq. ft.	Outside exercise lots Round pen (diameter) 43' Back lot-8,008 sq. ft.	Equine	Equine - 0-8	[redacted]
[redacted]	[redacted]	5,339 sq. ft.	Outside exercise lot same as Equine	Cattle	Cattle – 0-22	[redacted]

		Animal Housing and Support Sites				
Location (building/site /farm name*)	Distance from Ag Hall –UW Madison campus	Approx. sq.ft./m (acreage) animal housing	Approx. sq.ft./m (acreage) support/ procedure space	Species housed	Approximate Daily Animal Census by species	Person in charge of site
[redacted]	[redacted]	9,248 sq.ft.	7,846 sq.ft.	Swine, Cattle, Sheep, Goats	Swine – 20 Cattle – 24 Sheep – 6 Goats - 30	[redacted]
[redacted]	[redacted]	200 sq.ft. (3 outdoor holding pens)	500 sq.ft.	Cattle, sheep, swine	Cattle – 0 Sheep – 0 Swine - 0	[redacted]
[redacted]	[redacted]	13,809 sq.ft.	6,414 sq.ft.	Chicks Hens Rooster	Chickens - 500	[redacted]
[redacted]	[redacted]	400 sq.ft.	12,469 sq.ft.	Cattle Sheep Swine	Cattle 0-10 Sheep 0-10 Swine 0-4	[redacted]
[redacted]	[redacted]		2,037 acres Crop research & production. Animal units		0	[redacted]
[redacted]	[redacted]	26,522 sq.ft. animal holding with 80 acres pasture	400 sq.ft.	Beef Cattle Horses	Cattle – 200 Equine – 2-8	[redacted]

		Animal Housing and Support Sites				
Location (building/site /farm name*)	Distance from Ag Hall –UW Madison campus	Approx. sq.ft./m (acreage) animal housing	Approx. sq.ft./m (acreage) support/ procedure space	Species housed	Approximate Daily Animal Census by species	Person in charge of site
[redacted]	[redacted]	31,209 sq.ft. animal holding with 5.3 acres pasture	1,200 sq.ft.	Beef Cattle	Cattle - 130	[redacted]
[redacted]	[redacted]	109,122 sq.ft. animal holding on 41 acres	34,194 sq.ft.	Dairy Cattle & Calves	Cattle - 654	[redacted]
[redacted]	[redacted]	30,132 sq.ft. animal holding with 49.6 acres pasture	2,400 sq.ft.	Sheep	Sheep – 500 Donkey - 2	[redacted]
[redacted]	[redacted]	40,435 sq.ft.	3,600 sq.ft.	Swine at varying stages of production	Swine - 1481	[redacted]
[redacted]	[redacted]	20,922 sq.ft.	3,410 sq.ft.	Cattle Sheep Used for overflow housing	Cattle – 0-50 Sheep - 25	Cattle - [redacted] Sheep - [redacted]
[redacted]	[redacted]	13,592 sq.ft. with 210 acres pasture	1,300 sq.ft. and 320 acres crop production	Beef Cattle (Cow/calf production)	Cattle - 240	[redacted]

		Animal Housing and Support Sites				
Location (building/site /farm name*)	Distance from Ag Hall –UW Madison campus	Approx. sq.ft./m (acreage) animal housing	Approx. sq.ft./m (acreage) support/ procedure space	Species housed	Approximate Daily Animal Census by species	Person in charge of site
[redacted]	[redacted]	42,892 sq.ft with pasture	9,517 sq.ft. and 622 acres crop production	Dairy cattle-Heifer replacement	Cattle - 660	[redacted]
[redacted]	[redacted]	100,194 sq.ft. with 172 acres pasture	18,000 sq.ft and 1338 acres for crop production	Dairy cattle & Heifer replacement	Cattle - 753	[redacted]
[redacted]	[redacted]	0	532 acres for crop production & Livestock transport	None	0	[redacted]
Totals:		461,851 sq. ft.	108,677 sq. ft.	[redacted]		
Total animal housing and support space:		570,528 sq. ft.				

*Please state name and acronyms used for building names, if not coded for confidentiality.

Appendix 3: Line Drawing Index

[redacted]

Room Key

[redacted] Bldg. [redacted] [redacted]

College of Agricultural and Life Sciences

Room	Description
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

[redacted]

College of Agricultural and Life Sciences

[redacted]

Room Key

[redacted] Bldg. [redacted] [redacted]

College of Agricultural and Life Sciences

Room	Description
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[redacted]	[redacted]
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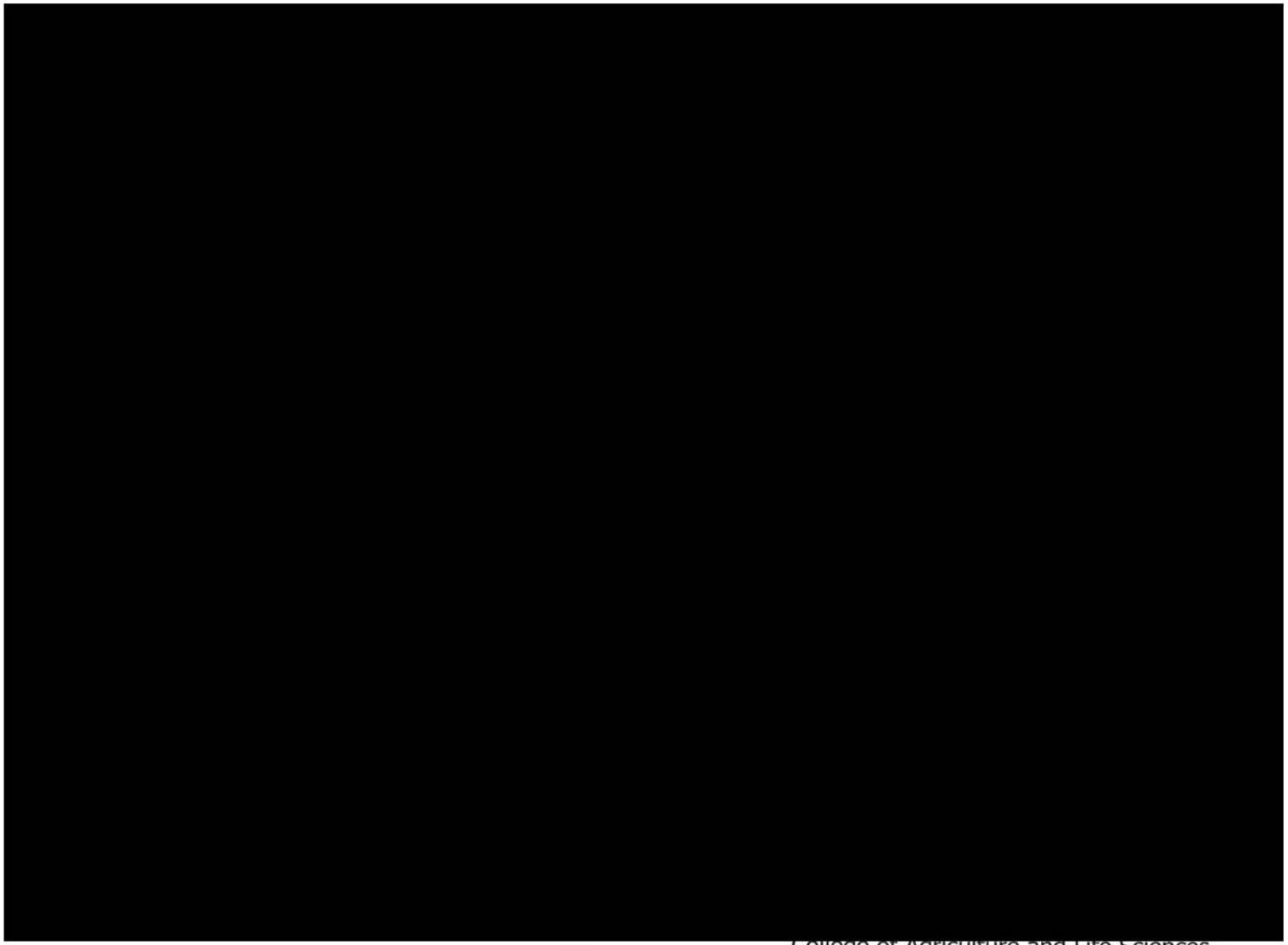

Room Key

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College of Agricultural & Life Sciences

Room	Description	Room	Description
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[redacted]	[redacted]	[redacted]	[redacted]

College of Agricultural and Life Sciences

Room Key

[redacted]r Bldg. [redacted] [redacted]r

College of Agricultural and Life Sciences

Room	Description
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
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College of Agricultural and Life Sciences

Appendix 3: Line Drawings

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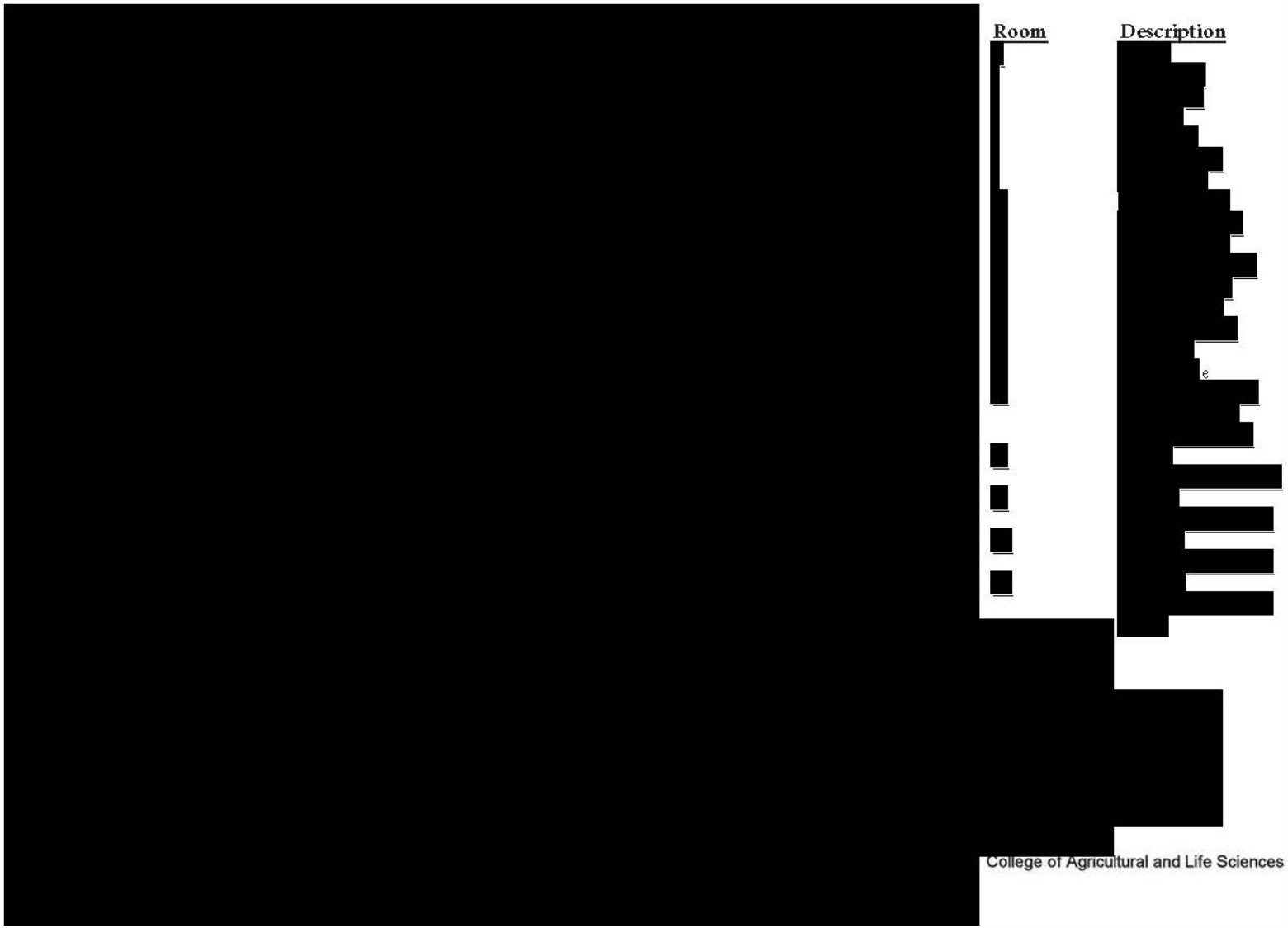
Room
Description
e
College of Agricultural and Life Sciences

Appendix 3: Line Drawings

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[redacted]

Room	Description
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[redacted]

Room	Description
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College of Agricultural and Life Sciences

Room	Description
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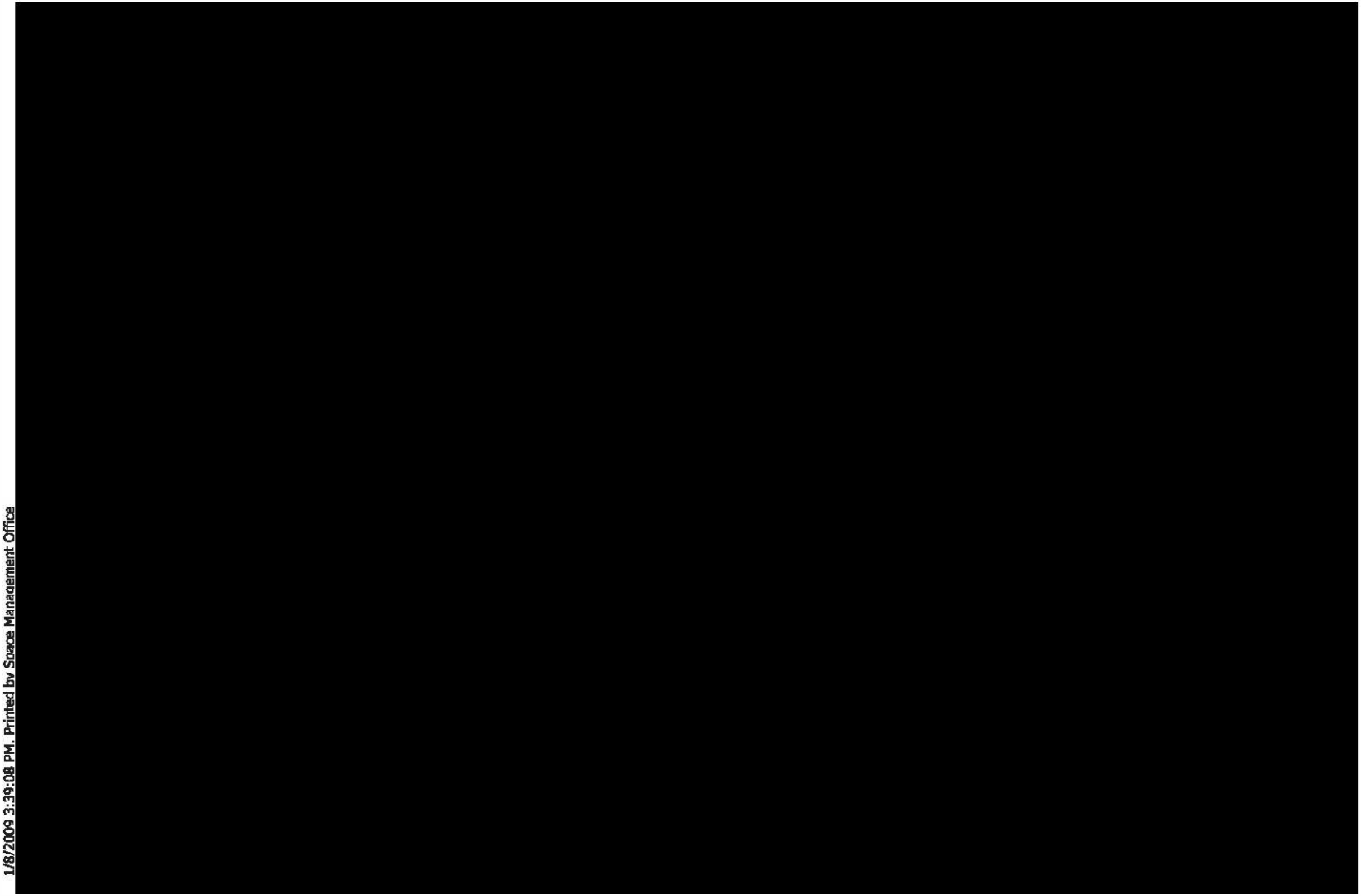
College of Agricultural and Life Sciences



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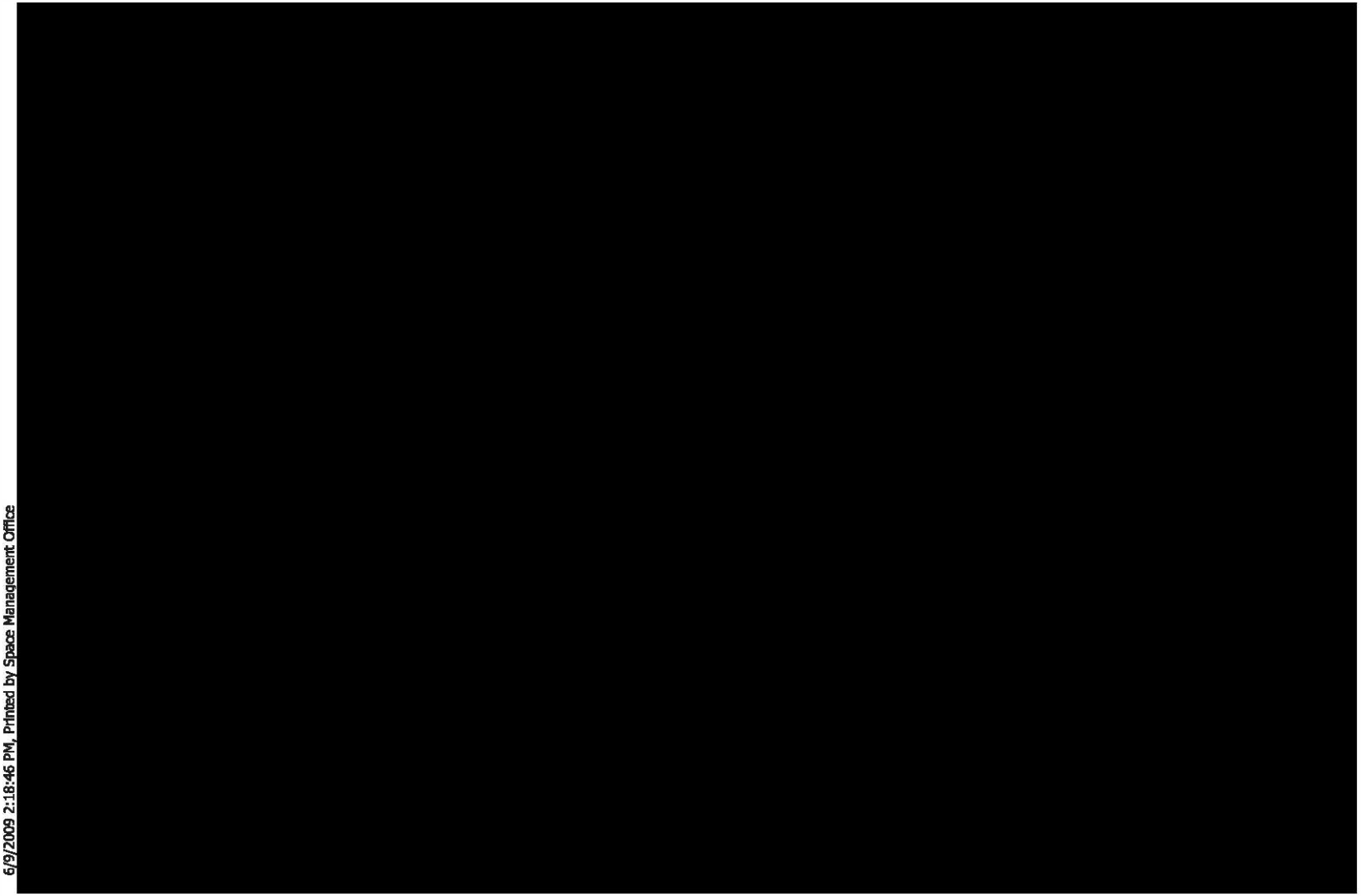

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College of Agricultural & Life Sciences

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Bldg.	
Bldg.	
Bldg.	

[redacted]

Building	Description
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[redacted]

College of Agricultural and Life Sciences

[redacted]

Building/Room Key

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College of Agricultural and Life Sciences

Room	Description
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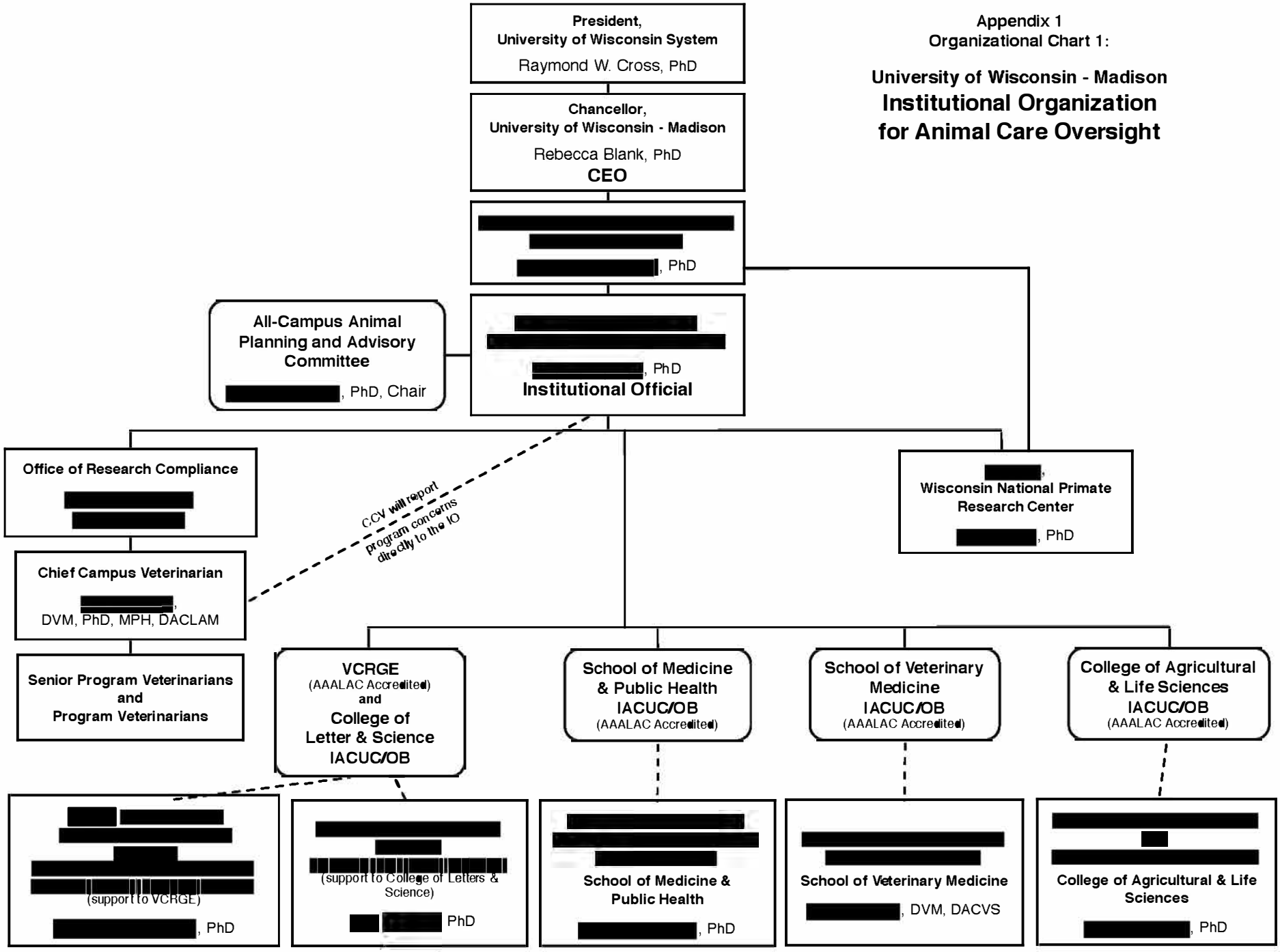
[redacted]

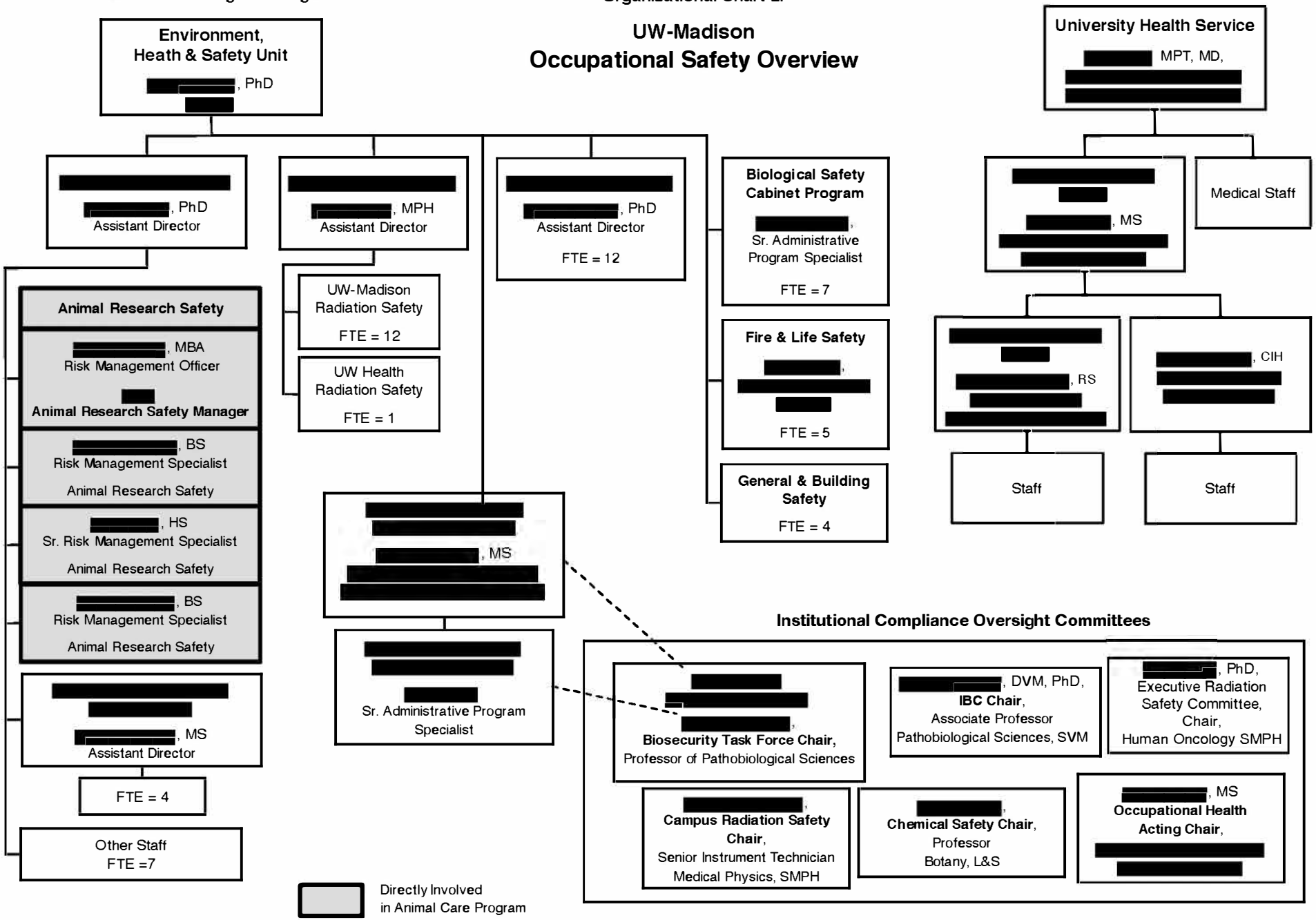
Appendix 1
Organizational Chart 1:

University of Wisconsin - Madison
Institutional Organization for Animal Care Oversight



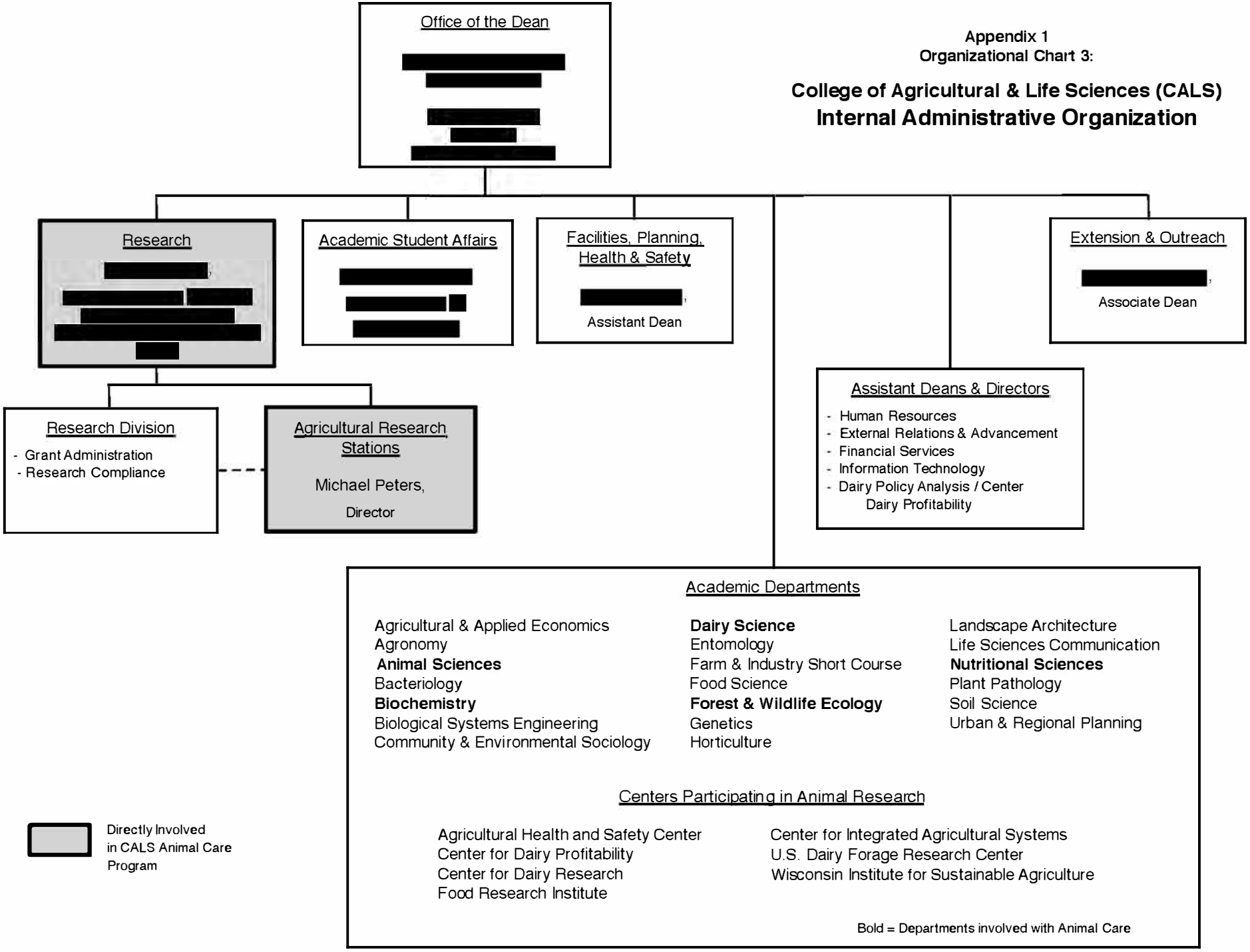
Appendix 1
Organizational Chart 2:

UW-Madison
Occupational Safety Overview



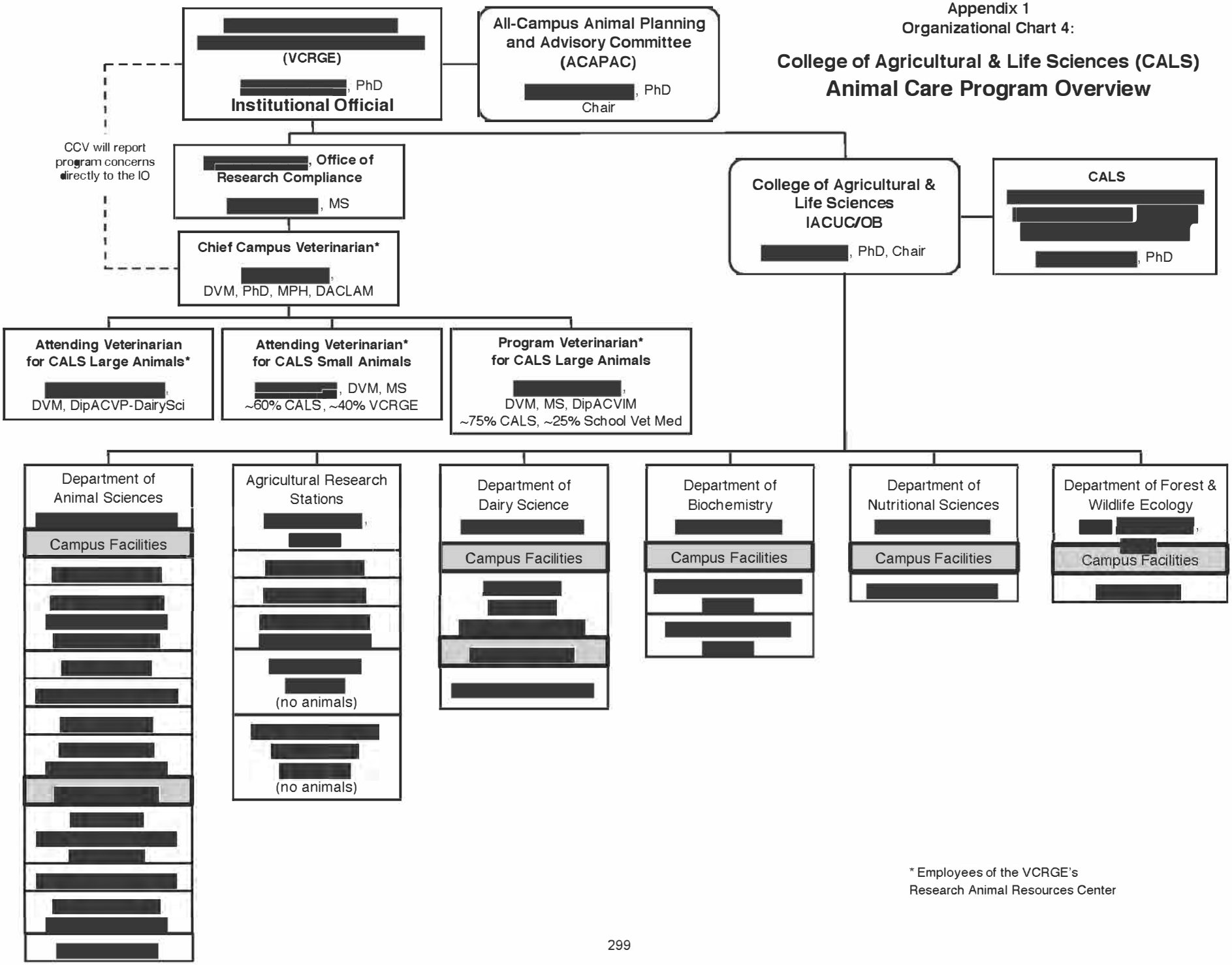
Appendix 1
Organizational Chart 3:

College of Agricultural & Life Sciences (CALS)
Internal Administrative Organization



Appendix 1
Organizational Chart 4:

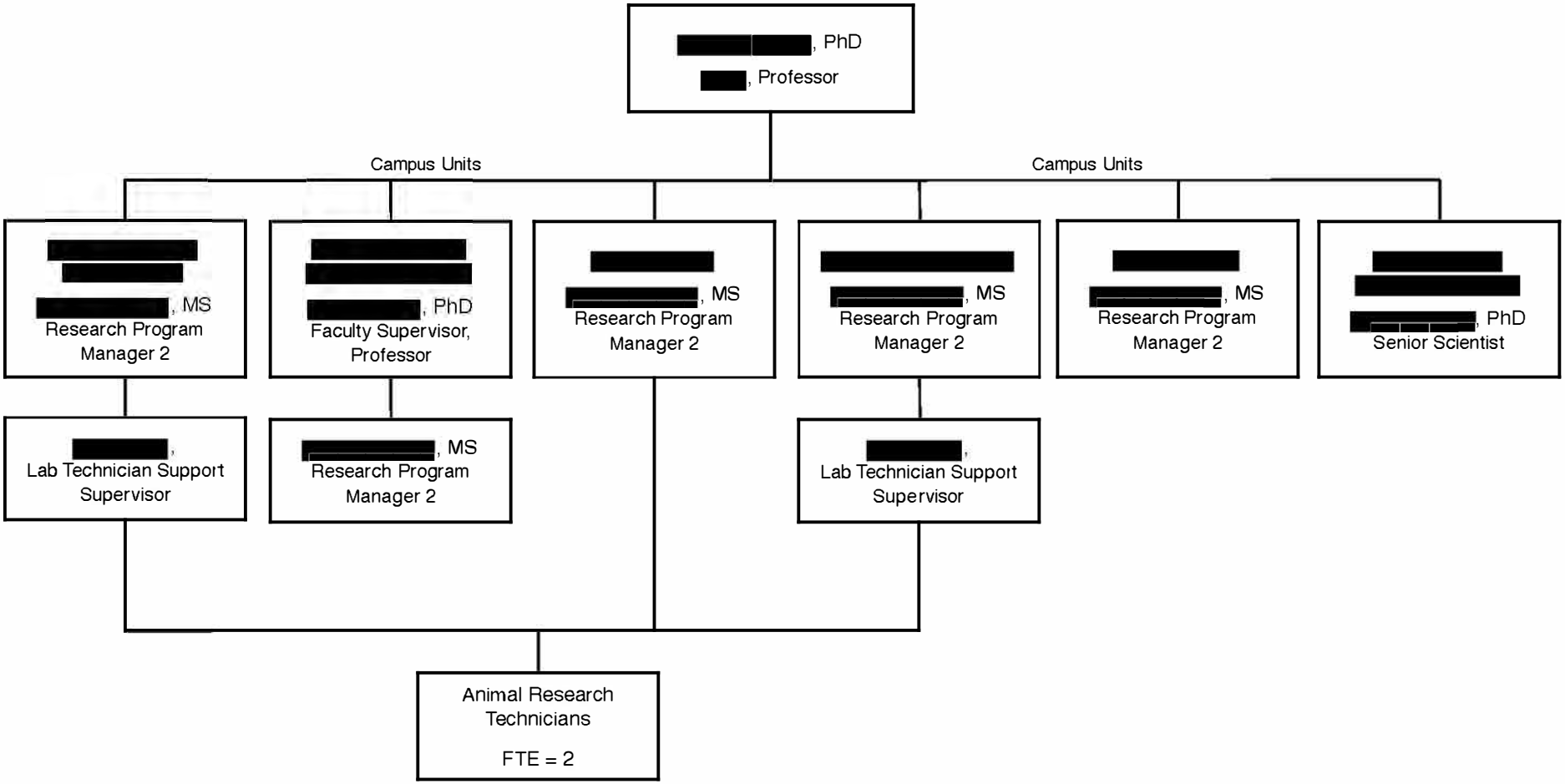
College of Agricultural & Life Sciences (CALS)
Animal Care Program Overview



* Employees of the VCRGE's Research Animal Resources Center

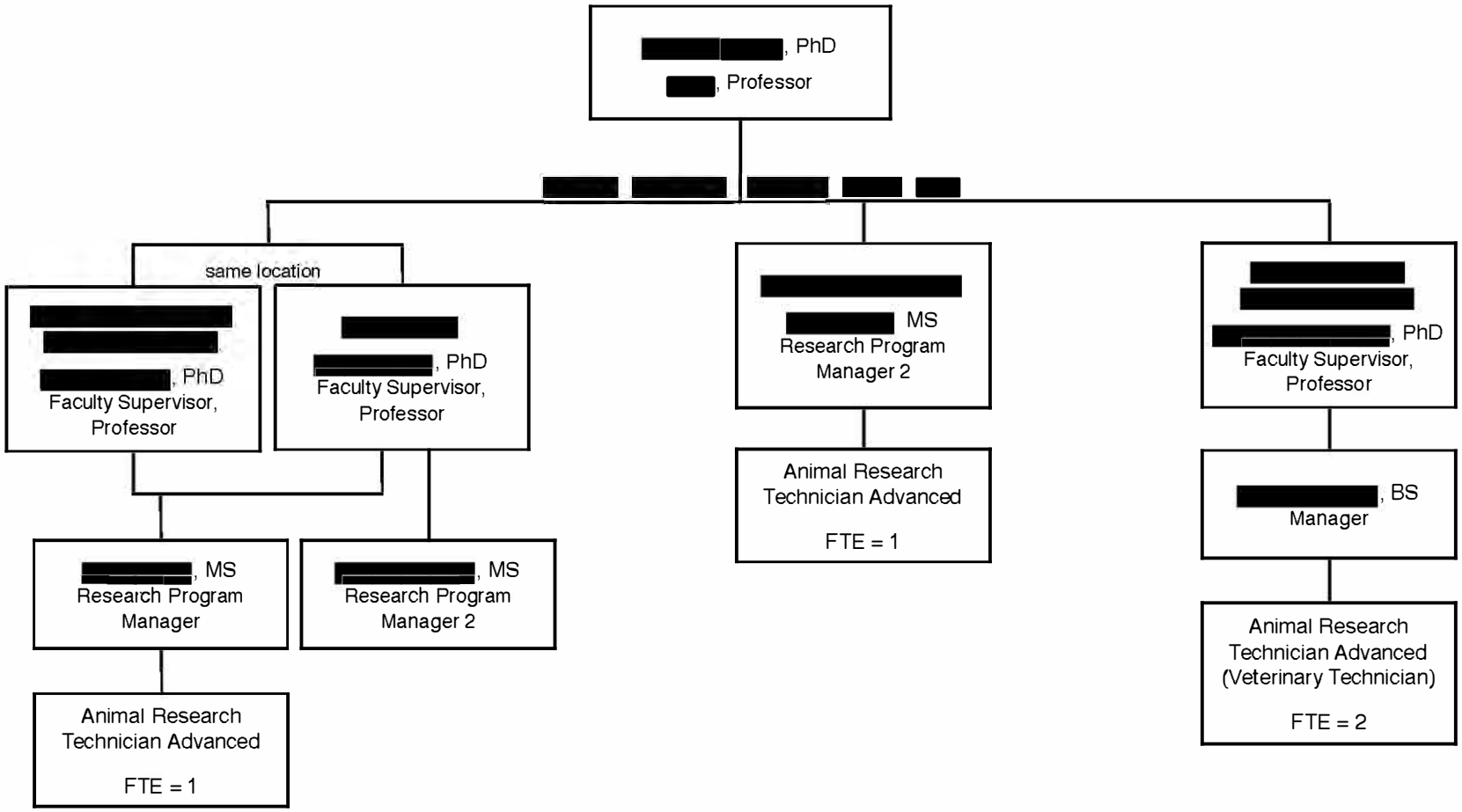
Appendix 1
Organizational Chart 5:

College of Agricultural & Life Sciences (CALS)
Department of Animal Sciences (1 of 2)



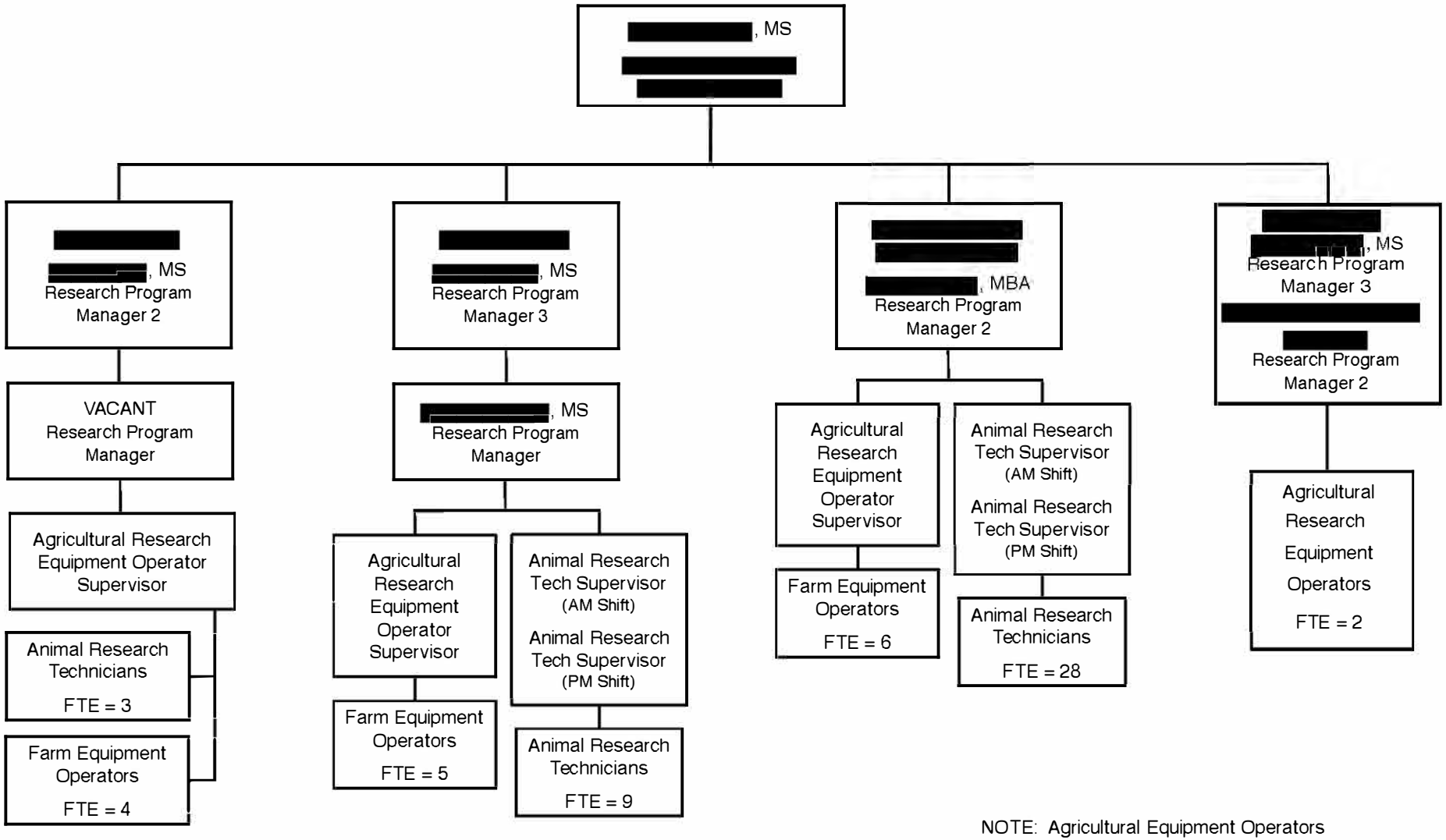
Appendix 1
Organizational Chart 6:

College of Agricultural & Life Sciences (CALS)
Department of Animal Sciences (2 of 2)



Appendix 1
Organizational Chart 7:

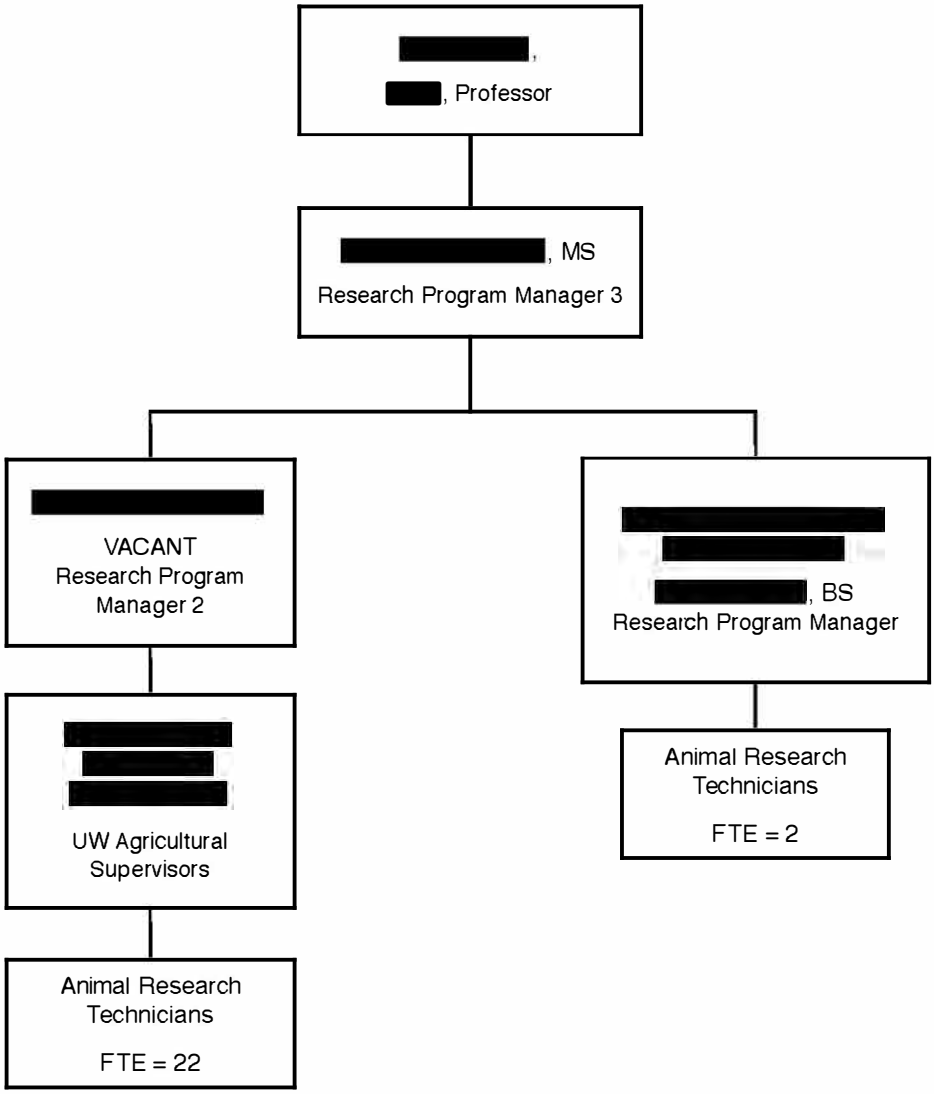
College of Agricultural & Life Sciences (CALS)
Agricultural Research Stations
with Animals



NOTE: Agricultural Equipment Operators May Work with Animals as Needed

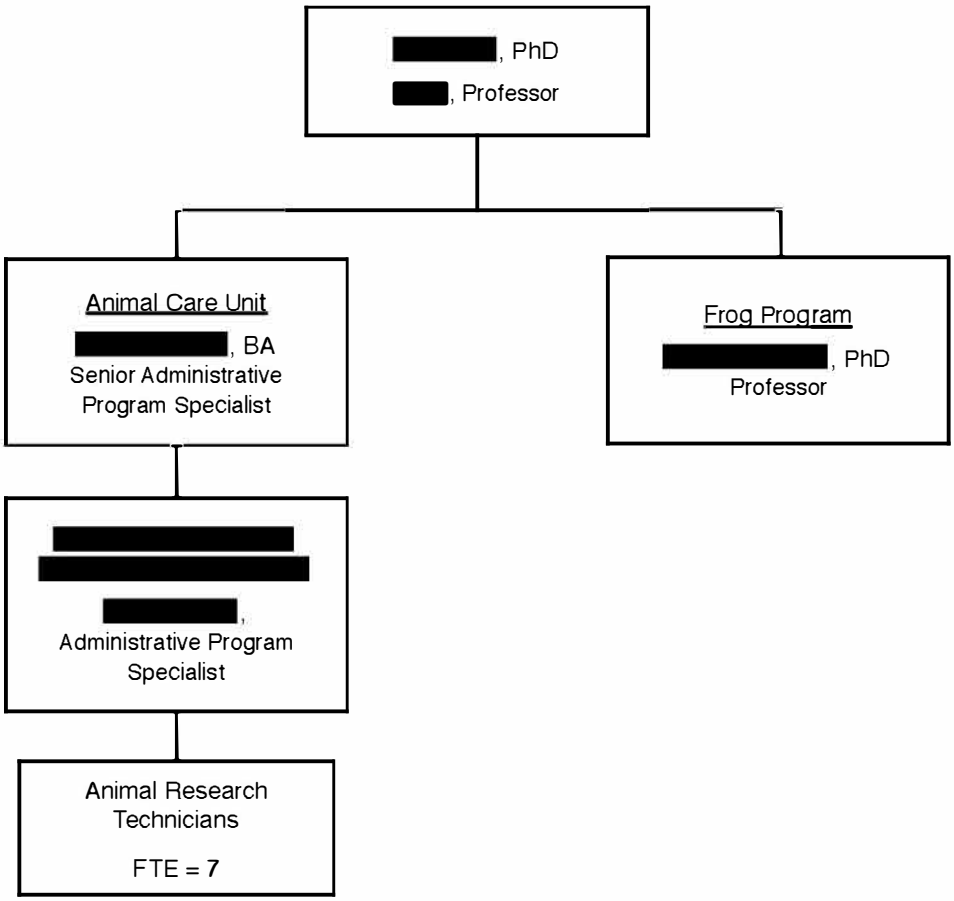
Appendix 1
Organizational Chart 8:

College of Agricultural & Life Sciences (CALS)
Department of Dairy Science



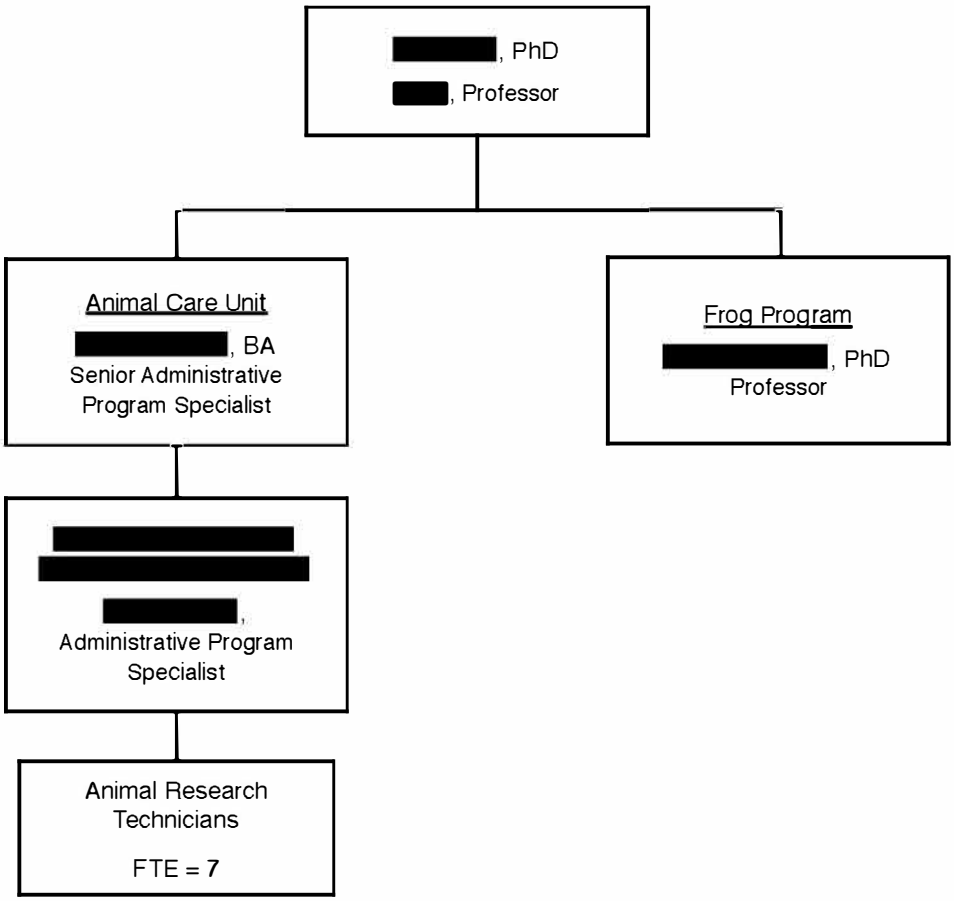
Appendix 1
Organizational Chart 9:

College of Agricultural & Life Sciences (CALS)
Department of Biochemistry



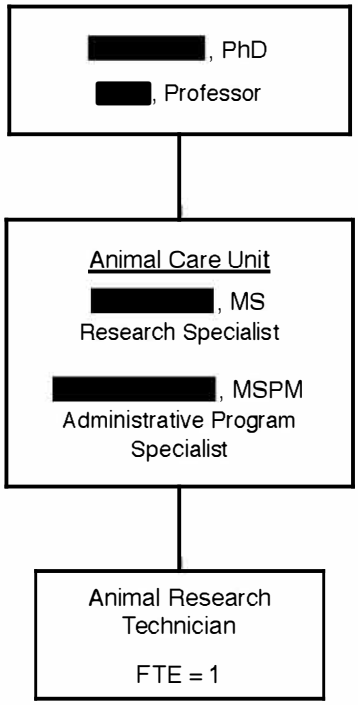
Appendix 1
Organizational Chart 9:

College of Agricultural & Life Sciences (CALS)
Department of Biochemistry



Appendix 1
Organizational Chart 10:

College of Agricultural & Life Sciences (CALS)
Department of Nutritional Sciences



Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Development of Novel Swine Models for Translational Research	A005036	[redacted]	Domestic pig: 3610	D	X				Phys	
Effects of Diet and Management Characteristics on Dairy Cattle Production and Efficiency	A005043	[redacted]	Domestic cattle temperate-type : 696	C						
Evaluating Animal and Microbial Factors that Affect the Conversion of Dietary Fractions to available Nutrients in Dairy Cattle	A005053	[redacted]	Domestic cattle temperate-type : 402	C						
Grazing Management Effects on Grass and Legume Growth	A005060	[redacted]	Domestic cattle temperate-type : 72	C						
Evaluation of Ruminal Fiber Degradability of Forages used in Dairy Cattle Diets	A005062	[redacted]	Domestic cattle temperate-type : 72	C						
Vitamin A and Development	A005063	[redacted]	mus: 3858	D				X		[redacted]
Testing of Vitamin D Analogs for Possible Therapeutic Use	A005065	[redacted]	mus: 1008 rattus: 5832	D					Phys	
A Calf Model for Mycobacterial Vaccine Evaluation	A005070	[redacted]	Domestic cattle temperate-type : 150	C					Bio	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Analysis of Vertebrate Development	A005076	[redacted]	Western clawed frog: 20 African clawed frog: 150	D		X				[redacted]
A Porcine Model to Evaluate Scrotal Insulation	A005079	[redacted]	Domestic pig: 55	C						
Determining the Relationship between Vitamin D, Ultraviolet Radiation and Colon Cancer.	A005105	[redacted]	mus: 7656 rattus: 6996	D					Chem	
Determining the Molecular Mechanisms of Ultraviolet B-mediated Protection on Experimental Autoimmune Encephalomyelitis	A005106	[redacted]	mus: 8200	E					Bio Chem Phys	
Determining the Mechanisms Underlying Vitamin D-mediated Suppression of Experimental Autoimmune Encephalomyelitis (EAE)	A005107	[redacted]	mus: 8676	C					Phys	
Silvopasture in Wisconsin	A005114	[redacted]	Domestic cattle temperate-type : 380	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Maximizing the Use of Canola Meal in Dairy Diets	A005115	[redacted]	Domestic cattle temperate-type : 276	C						
Molecular Biology of Virulence of Cryptococcus and Candida Using a Murine Model	A005118	[redacted]	mus: 1730	D					Bio Chem	
Physiological Basis for Anovulation in High-Production Dairy Cattle	A005119	[redacted]	Domestic cattle temperate-type : 6000	C					Phys	
Best-practices for Topical Treatment, Prevention and Control of Digital Dermatitis in Cattle	A005122	[redacted]	Domestic cattle temperate-type : 608	D						
Fish Endocrinology and Aquaculture Research	A005124	[redacted]	Musky: 480 Zebrafish: 750 Sauger: 9 Fathead minnow: 2400 Yellow Lab Cichlid: 1000 Yellow perch: 515500 Northern pike: 500 Walleye: 280,960 Rainbow Trout: 750	C					Chem	[redacted]

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Metabolic Regulation of Lipid Biogenesis in Health and Disease	A005125	[redacted]	mus: 8175	E			X	X	Phys	[redacted]
University of Wisconsin Dairy Technology Transfer Program	A005130	[redacted]	Domestic cattle temperate-type : 12	C						
Reproduction and Lipid Synthesis Enzymes	A005135	[redacted]	mus: 690	C						
In Vitro Digestibility of Forage Crops	A005137	[redacted]	Domestic cattle temperate-type : 6	C						
Electrode Arrays for Bloodless Liver Resection and Tumor Ablation	A005143	[redacted]	Domestic pig: 82	D	X					
Forage Legume Grazing Tolerance	A005147	[redacted]	Domestic cattle temperate-type : 72	C						
Evaluation of the CYP2R1 and CYP27A1 Enzymes in the Vitamin D Activation Pathway	A005152	[redacted]	mus: 1782	D						
Milking Machine Research	A005167	[redacted]	Domestic cattle temperate-type : 1260	C						
Developmental Studies of Transgenic Mouse Lines	A005168	[redacted]	mus: 2894	E					Phys	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
A Positional Candidate Gene Approach for Identification of Quantitative Trait Loci in Dairy Cattle	A005171	[redacted]	Domestic cattle temperate-type : 400	C						
Effects of Increasing Residual Milk and Milking Frequency on Lactation Physiology, Milk Yield, Milking Time and Teat Tissue Stress	A005178	[redacted]	Domestic cattle temperate-type : 42	D						
Exocrine Secretion in the Digestive System	A005179	[redacted]	mus: 710 rattus: 594	D						[redacted]
Effects of Stocking Rate at the Feedbunk on the Performance and Behavior of Holstein Dairy Heifers Offered Alfalfa Haylage/Corn Silage Diets Diluted with Straw	A005189	[redacted]	Domestic cattle temperate-type : 140	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Evaluation of Alternative Forage Use in Dairy Heifer Diets in Central Wisconsin	A005195	[redacted]	Domestic cattle temperate-type : 192	C					Phys	
Demographic Consequences of Attenuating Winters: Cryptic Declines of Ruffed Grouse (Bonasa Umbellus) in the Upper Midwest	A005198	[redacted]	Ruffed Grouse: 120	C						
Invasive Plant Management with Livestock	A005202	[redacted]	Domestic goat: 531 Domestic pig: 156 Domestic sheep: 90 Horse: 16	C						[redacted]
Multitrophic Links in the High Andes: Importance of the Puma-Vicuña Interaction for the Conservation of Andean Condors	A005219	[redacted]	Andean Condor: 30	C						
Assessing Wisconsin's American Marten Reintroduction through Noninvasive and Genetic Approaches	A005239	[redacted]	American marten: 190	C						
Calf Necropsy for Teaching Purposes	A005247	[redacted]	Domestic cattle temperate-type : 12	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Testing of Oral Phosphate Binders for the Clinical Management of Hyperphosphatemia	A005253	[redacted]	rattus: 600	C			X			
Physiological Functions of Lipid Synthesis Enzymes	A005254	[redacted]	mus: 3600	D	X		X		Bio Chem Phys	[redacted]
Factors Affecting Iron Homeostasis in Vertebrates	A005260	[redacted]	mus: 6828 rattus: 292	D			X		Chem Phys	[redacted]
Foraging Ecology of Marbled Murrelets	A005275	[redacted]	Marbled Murrelet: 100	C						
Investigating the immunoregulatory Role of Vitamin D during Infection.	A005276	[redacted]	mus: 6912	D				X	Bio	
Sharp-tailed Grouse and Sage Grouse in Northwestern Colorado	A005282	[redacted]	Columbian Sharp-tailed grouse: 450 Greater Sage grouse: 200	C						
Antigen-induced Dermatitis Model	A005284	[redacted]	mus: 320	E						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Response of Dairy Cows to Induced Subclinical Hypocalcemia when Fed an Acidified Diet and Different Levels of Supplemental Valcium	A005295	[redacted]	Domestic cattle temperate-type : 60	D						
Winter Bird Survival in Relation to Extreme Climate Events and Supplemental Food Use in a Fragmented Landscape	A005310	[redacted]	black capped chickadee: 300 downy woodpecker: 300 hairy woodpecker: 300 northern cardinal: 300 tufted titmouse: 300 white-breasted nuthatch: 300	C						
A Method to Control Calcium Mobilization during Lactation	A005316	[redacted]	Domestic cattle temperate-type : 192	D						
Seawater Aquarium in WSEL - Marine Aquaculture Demonstration Unit	A005317	[redacted]								
Regulation and Activation of Bovine Leukocytes	A005324	[redacted]	Domestic cattle temperate-type : 40	C						
Effects of Calcemic Compounds on Specific Gene Regulation in Genetically Modified Mice	A005326	[redacted]	mus: 3514	D			X		Phys	[redacted]

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Regulation of Nutrient Homeostasis	A005337		Domestic chicken: 10,056 mus: 3645	D			X			
Genes and Pathways in Obesity and Diabetes	A005338		mus: 4220	C					Phys	
Effect of CSA-144 on Zootechnical Performance in Broiler Chickens	A005340		Domestic chicken: 464	C						
Diabetes and Lipid Synthesis Enzymes	A005348		mus: 1044	D			X			
Effects of Preen Oil on the Growth and Stress Tolerance of Fish	A005351		Rainbow Trout: 168 Fathead minnow: 3360 Walleye: 135 Yellow perch: 600 Atlantic Salmon: 2000	D					Bio	
Genetics, Behavior and Demography of Sloths in Costa Rica	A005357		Three-Toed Sloth: 400 Two-toed sloth: 400	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Genetics and Ecology of Blanding's, Painted, Snapping, and Wood Turtles	A005358	[redacted]	Wood Turtles: 300 Blanding's Turtle: 300 Painted Turtle: 400 Snapping Turtle: 250	C						
Grazing Kura Clover with Cool and Warm Season Grasses	A005360	[redacted]	Domestic cattle temperate-type : 960	C					Phys	
Demography of California Spotted Owls in the Central Sierra Nevada	A005367	[redacted]	Barred Owl: 120 California spotted owl: 450 Domestic mouse: 4500 small mammals native to Sierra Nevada: 360	C						
New Essential Roles for Selenium	A005368	[redacted]	rattus: 396 Domestic chicken: 558 mus: 4140 Domestic turkey: 558	C			X		Phys	[redacted]
Dairy Cattle Herd Management	A005374	[redacted]	Domestic cattle temperate-type : 3525	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Livestock Production (Animal Science/Dairy Science 101)	A005377	[redacted]	Horse: 18 Domestic cattle temperate-type : 90 Domestic sheep: 90 Domestic chicken: 435 Domestic pig: 300	C						
Nutritional and Immune Studies of the Chicken and Duck	A005392	[redacted]	Muscovy duck: 7200 Domestic chicken: 17,580	E						
Research and Education Progrms on Lyme Disease in Wisconsin	A005400	[redacted]	deer mouse: 200 Eastern chipmunk: 200 masked shrew: 150 northern short tailed shrew: 150 Raccoon: 10 red backed vole: 100 red squirrel: 10 southern flying squirrel: 50 white footed mouse: 1300	C						
Improving Nitrogen Efficiency in Dairy Cows in Mexico.	A005403	[redacted]	Domestic cattle temperate-type : 792	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Kirtland's Warblers Breeding Season Analysis	A005409	[redacted]	Kirtland's warbler: 305	C						
Foraging and Population Ecology of Steller's Jays in California	A005411	[redacted]	Steller's Jays: 440	C						
Using Tissues of Turkeys and Chickens as Models of Vitamin E Metabolism and Lipid Oxidation	A005420	[redacted]	Domestic turkey: 150 Domestic chicken: 120	C						
Production of Eggs, Embryos, and Chicks, and the Maintenance of Chickens and other Poultry for Research, Instruction, Public Sale and Display.	A005436	[redacted]	Japanese quail: 300 Domestic turkey: 1500 Domestic chicken: 98,904	B						
Murine Arthritis	A005438	[redacted]	mus: 1564	E			X			
Strategies to Increase Antibody Titer in the Egg	A005441	[redacted]	Domestic chicken: 240	E						
Impact of Contrasting Residual Feed intake on CH4 Emission and N Efficiency from Dairy Cows Fed a High or Low Forage to Concentrate Ratio	A005445	[redacted]	Domestic cattle temperate-type : 26	C						
Poultry Teaching	A005452	[redacted]	Domestic chicken: 3333	C			X			
Avian Physiology 503 Laboratory(teaching)	A005456	[redacted]	Domestic chicken: 795	C			X			

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Genetic and Physiological Analysis of Genes for Ovulation Rate in Cattle	A005459	[redacted]	Domestic cattle temperate-type : 834	D	X					[redacted]
Cryopreservation of Mutant Mouse Strains	A005464	[redacted]	mus: 80	C						
Regulation of Hepatic Lipid Accumulation in Transition Dairy Cattle	A005467	[redacted]	Domestic cattle temperate-type : 300	D			X			
Evaluation of a Clay-based Feed Additive in Calf Starter fed to Pre-weaned Dairy Heifer Calves	A005472	[redacted]	Domestic cattle temperate-type : 40	C						
Genomic Control of Cyp24a1 and Cyp27b1 Regulation and Function	A005478	[redacted]	mus: 5240	E					Phys	[redacted]
Rumen Cannulation Surgery	A005480	[redacted]	Domestic cattle temperate-type : 90	D	X					
Gut Microbiome and Lipid Synthesis Enzymes	A005482	[redacted]	mus: 415	C			X			[redacted]
Rodent Health Surveillance	A005483	[redacted]	mus: 4346 rattus: 166	C						
Beef Cattle Teaching Program	A005495	[redacted]	Domestic cattle temperate-type : 240	D						
Dairy Science 305 Lactation Physiology	A005498	[redacted]	mus: 30 Domestic cattle temperate-type : 72	D						[redacted]

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
The Effects of Lactose and Sucrose Supplementation on VFA Profile, NDF Digestibility, and pH at Varying Starch and Rumen Degradable Protein Levels by in vitro Fermentation	A005504	[redacted]	Domestic cattle temperate-type : 27	C						
Dietary Modulation of avian Gut Microbiome	A005514	[redacted]	House sparrow: 165	C						[redacted]
Characterization of Cardiovascular Disease States in the Wisconsin Mini Swine (WMS) FH Model (CRF 2016 'Omics' Study)	A005522	[redacted]	Domestic pig: 125	D					Phys	
Survival and Habitat Use of Eastern Grey Squirrels in an Urban Environment	A005524	[redacted]	Eastern grey squirrel: 45	C						
Extension Wildlife Inventory and Monitoring	A005527	[redacted]	Vertebrate wildlife species found in Wisconsin: 100	C						
Oxalate Degradation by Gut Microbiota	A005528	[redacted]	Domestic pig: 31	C			X			
Swine Patella Cartilage Development with Orientation Change	A005538	[redacted]	Domestic pig: 10	D					Phys	
AnSci 250 Horse Science and Management	A005543	[redacted]	Horse: 10	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
In vivo Pancreatitis	A005562	[redacted]	mus: 4071	E					Chem	[redacted]
Evaluation of Stainless Steel and Plastic Rat and Mouse Lofts	A005579	[redacted]	mus: 1000 rattus: 1000	C						
Assessing the Impact of Ruminal Contents Dosing during Dairy Calf Development	A005590	[redacted]	Domestic cattle temperate-type : 105	C						
Anti-microbial Proteins and Peptides in the Broiler Egg	A005591	[redacted]	Domestic chicken: 2000	C						
Determining the Mechanism of Protection from Experimental Autoimmune Encephalomyelitis by Ultraviolet B Light	A005594	[redacted]	mus: 3080	E					Bio Phys	
AWA (Association of Women) Breakfast on the Farm - Animal Educational Display	A005595	[redacted]	Livestock display: 231	C						
Birds of the [redacted]	A005598	[redacted]	Landbirds (migratory/resident) wild caught: 850	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Classroom Demonstration/Instruction-F&W Ecol 306 Terrestrial Vertebrates (teaching)	A005610	[redacted]	Vertebrate species native to Wisconsin: 60	C						[redacted]
Health and Performance of Dairy Calves offered Alternative Pre-weaning Feeding Programs.	A005614	[redacted]	Domestic cattle temperate-type : 190	C						
Investigating Urban Coyote and Red Fox Ecology	A005624	[redacted]	coyote: 40 red fox: 30	C						
Determination of In situ Degradation Kinetics for Wisconsin Forages	A005626	[redacted]	Domestic cattle temperate-type : 30	C						
Effect of Altering Dietary Cutrient Composition on Methane and Ammonia Emissions in Lactating Dairy Cows	A005631	[redacted]	Domestic cattle temperate-type : 150	C						
Animal Handling: AS 110 and Madison College Veterinary Technician Program Classes	A005632	[redacted]	Domestic cattle temperate-type : 243 Domestic sheep: 582 Domestic chicken: 84 Horse: 27 Domestic pig: 810	C					Phys	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Effect of Treatment with Ampicillin Trihydrate after Experimental Infection with Pasteurella Multocida in Young Holstein Calves.	A005636	[redacted]	Domestic cattle temperate-type : 40	D					Bio Phys	
Gestation Dietary Factors Potentially Lead to Hypocalcemic in Sows at Farrowing and Early Lactation Phases	A005638	[redacted]	Domestic pig: 800	C						
Training for Swine Reproduction Techniques	A005642	[redacted]	Domestic pig: 3324	D	X				Phys	
Regulation of Hepatic Lipid Accumulation in Bovine Hepatocytes	A005643	[redacted]	Domestic cattle temperate-type : 40	D						[redacted]
Grazing Protocol Perennial Forages	A005650	[redacted]	Domestic cattle temperate-type : 90	C						
Methods for Improving Reproductive Efficiency of Dairy Cattle	A005653	[redacted]	Domestic cattle temperate-type : 4500	C					Phys	
Genomic Selection and Herd Management for Improved Feed Efficiency of the Dairy Industry	A005658	[redacted]	Domestic cattle temperate-type : 2000	C						
Evaluation of Processed Corn Stover Pelleted Feedstuffs in Dairy Cow Diets	A005661	[redacted]	Domestic cattle temperate-type : 72	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Dairy Science 375 Reproductive Management of Dairy Cattle, Farm and Industry Short Course-Advanced Reproduction (Teaching)	A005672	[redacted]	Domestic cattle temperate-type : 75	C					Phys	
Interactions Between Diet and Genetics in Swine Models of Atherosclerosis.	A005673	[redacted]	Domestic pig: 90	D					Phys	
Vitamin D Requirements of Growing Pigs	A005674	[redacted]	Domestic pig: 150	C					Phys	
Transcriptional Control of the Phosphatonin Fibroblast Growth Factor 23 (FGF23) in Chronic Kidney Disease	A005676	[redacted]	mus: 5282	E					Phys	[redacted]
Characterizing Vitamin D Phenotypes of Genetically Altered Mice	A005677	[redacted]	mus: 3008	D					Phys	[redacted]
Digestibility of 5-hydroxy-L-tryptophan in the Rumen of Dairy Cows	A005678	[redacted]	Domestic cattle temperate-type : 24	C						
Bioavailability and Efficacy Studies of Various Retinoids and Carotenoids	A005679	[redacted]	rattus: 120 Domestic chicken: 40 Mongolian gerbil: 244	D					Phys	
Vaccine Development for Mycobacterial Infection in Goats or Sheep	A005688	[redacted]	Domestic sheep: 150 Domestic goat: 400	D					Bio	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Dietary Control and Biomarkers of Sepsis	A005693	[redacted]	Domestic pig: 360 mus: 1908	E	X		X		Phys	[redacted]
Swine Models of Chronic and Inducible Tumors	A005694	[redacted]	Domestic pig: 80	D						
Sheep Production/Management Classes (Teaching) and Sheep Shearing Schools	A005695	[redacted]	Domestic sheep: 1370	C						
Reproductive Teaching in Animal Sciences	A005696	[redacted]	Horse: 27 Domestic sheep: 75 Domestic pig: 80 Domestic cattle temperate-type : 98 Domestic chicken: 45	C					Phys	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Voluntary Activity and Lipid Synthesis Enzymes	A005700	[redacted]	mus: 1017	D				X		[redacted]
Effects of 2,4-D on Native Wisconsin Fish Species	A005702	[redacted]	Musky: 3600 Fathead minnow: 11,520 Northern pike: 3600 Walleye: 3600 Rainbow Trout: 3600 White sucker: 3600 Lake sturgeon: 3600 Yellow perch: 3600	E					Chem	[redacted]
Dairy Cattle Evaluation, Selection and Management Instruction; Department of Dairy Science Outreach Workshops	A005706	[redacted]	Domestic cattle temperate-type : 210	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
The Wisconsin Integrated Cropping Systems Trial (WICST): A Learning Center for Studying Alternative Production Strategies	A005709	[redacted]	Domestic cattle temperate-type : 18	C						
Understanding Follicular Cysts in Dairy Cattle	A005711	[redacted]	Domestic cattle temperate-type : 200	C					Phys	
Regulation of Luteal Regression and Pregnancy in Cattle	A005712	[redacted]	Domestic cattle temperate-type : 180	D					Phys	
Effect of Nutrition on Superovulation and Circulating Hormones in Dairy Cattle.	A005715	[redacted]	Domestic cattle temperate-type : 3000	D			X		Phys	
Theriogenology Clinical Training	A005716	[redacted]	Domestic goat: 1080 Domestic dog: 10 Domestic cattle temperate-type : 4800 Domestic sheep: 900	C					Phys	
Dairy Cattle Rumen Function Demonstration	A005718	[redacted]	Domestic cattle temperate-type : 60	C						
Vitamin D and Experimental Encephalomyelitis	A005723	[redacted]	mus: 3165	D			X	X	Bio	[redacted]

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Regulation of Ovarian Function in Livestock.	A005727	[redacted]	Domestic cattle temperate-type : 240 Horse: 360	D			X		Phys	
Dairy Cattle Herd Management	A005728	[redacted]	Domestic cattle temperate-type : 1785	B						
Cleavage, Polyadenylation and Transport of mRNA	A005729	[redacted]	African clawed frog: 597	D		X				[redacted]
Effect of High and Low Forage Diet based on either Alfalfa or Corn Silage on Production Efficiency and Gaseous Emission of Holstein and Jersey Cows	A005738	[redacted]	Domestic cattle temperate-type : 56	C						
Beef Cattle Herd Management	A005739	[redacted]	Domestic cattle temperate-type : 1800	B						
CALS Day for Kids	A005745	[redacted]	Domestic rabbit: 6 Domestic pig: 12 Domestic cattle temperate-type : 9 Domestic cat: 9 Domestic chicken: 60 Domestic sheep: 9 Domestic dog: 3	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Study of Vitamin D in a Systemic Lupus Erythematosis Mouse Model	A005746	[redacted]	mus: 2756	C						
UW Extension Workshops; Badger Dairy Camp; State Future Farmers of America (FFA) Career Development Events (CDE)	A005755	[redacted]	Domestic cattle temperate-type : 200	C						
Genetic Engineering in Aquaculture for Global Food Security and Sustainability	A005758	[redacted]	Zebrafish: 2500 Yellow perch: 600	C						[redacted]
Use of Transgenic Animals to Study the Exocrine Pancreas Function and Disease.	A005769	[redacted]	mus: 8838	C						[redacted]
Studies of Regulated Secretion	A005773	[redacted]	mus: 1325 rattus: 200	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Mitigating Transmission of Antimicrobial resistance on Large Dairy Farms by Reducing Behavioral Pathways of Exposure	A005774	[redacted]	Domestic cattle temperate-type : 960	C						
Utilization of Wireless Sensors to Monitor Behavior and Health of Dairy Calves and Cows	A005778	[redacted]	Domestic cattle temperate-type : 29	C						
Neonatal Pigs as an Orthopedic Surgery Model for Anterior Tibialis Tendon Transfer	A005780	[redacted]	Domestic pig: 36	D					Phys	
Effects of Colostrum Feeding and Age on Immunoglobulin G receptor Distribution and Tight Junction Formation in the Neonatal Calf Intestine	A005781	[redacted]	Domestic cattle temperate-type : 18	C			X			
Hormone and Genetic Studies in Mice	A005789	[redacted]	mus: 18530	D			X	X		[redacted]
Dermatology Studies of Vitamin A and D Compounds	A005795	[redacted]	mus: 5080	C					Chem Phys	[redacted]

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Small Mammal Trapping in the Apostle Islands National Lakeshore	A005801	[redacted]	mice: 250 Shrews: 250 Squirrels: 250 Voles: 250	C						
Development of Milk and Genomic Prediction Tools to Improve Detection and Treatment of Sub-clinical Ketosis.	A005802	[redacted]	Domestic cattle temperate-type : 2500	C						
Landscape Genetics of an Invasive Carnivore in Puerto Rico	A005810	[redacted]	Small Indian mongoose: 1040	C						
The Influence of Topography and Microclimate on Invertebrate Abundance and Avian Condition and Fitness	A005812	[redacted]	Non-threatened or endangered forest passerines (songbirds): 160	C						
Purple Martin Project Removal of Exotic Species	A005813	[redacted]	Exotic cavity nesting bird species: 60	B						
Relationship Between Forage Genotype, Forage Growth Environment, Ruminal Digestibility, and Ruminal Microbial Populations	A005818	[redacted]	Domestic cattle temperate-type : 36	C						
Diabetes Research in Mice	A005821	[redacted]	mus: 6733	D	X		X		Chem Phys	[redacted]

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Evaluation of Genomically Predicted Traits and Grazing on Dairy Heifer Growth and Lactation	A005824	[redacted]	Domestic cattle temperate-type : 70	C						
Effects of Early Nutrition on the Establishment of Protozoa in Dairy Calves	A005829	[redacted]	Domestic cattle temperate-type : 568	C						
Dept. of Forest and Wildlife Ecology Summer Field Practicum (FWE 424)	A005836	[redacted]	amphibians: 100 birds: 100 mammals: 300 reptiles: 50	C						
Evaluation of Feeding an Oral Antibody to Interleukin-10 to Newly Housed Dairy Heifers on Growth, Efficiency, Disease Incidence, Subsequent Growth, and Lactation Performance	A005838	[redacted]	Domestic cattle temperate-type : 192	C						
Instruction of Animal Sciences 101, 220, 221, 305 and Meat Animal Evaluation Short Course, and Extension Activities involving use of Livestock Display	A005842	[redacted]	Domestic pig: 90 Domestic cattle temperate-type : 90 Domestic sheep: 90	C						
The Role of Amino Acids on Mammary Signaling and Milk Protein Synthesis	A005845	[redacted]	mus: 17,784	D			X		Chem	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Effects of the Rate of Starch Fermentation on Rumen pH, Diet Digestibility, Microbiome Establishment, and Inflammation in Young Calves	A005848	[redacted]	Domestic cattle temperate-type : 14	D	X					
Predator-prey Dynamics at the Sandhill Wildlife Area	A005849	[redacted]	Fisher: 10 Porcupine: 180 Snowshoe hare: 125	D	X					
Intravesical Administration of Tannin-containing Gynecological and Urological Therapeutic Formulations	A005854	[redacted]	mus: 500	D					Bio	
Phylogeny and Dietary Modulation of Intestinal Digestive Enzymes in Birds	A005855	[redacted]	House sparrow: 169 Japanese quail: 10 Ruby-throated Hummingbird: 10 Domestic chicken: 580 Zebra finch: 10 Domestic turkey: 10	C			X			[redacted]
Swine Production at the University of Wisconsin [redacted] and Animal Science Teaching	A005856	[redacted]	Domestic pig: 16,500	C					Phys	

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Evaluation of a Wax-based Spray-on Silage Cover	A005869	[redacted]	Domestic cattle temperate-type : 288	C						
Dietary Strategies for improving Nutrient Utilization in Feedlot Cattle	A005870	[redacted]	Domestic cattle temperate-type : 885	C						
Development of Reproductive Management Strategies for Dairy Cattle	A005875	[redacted]	Domestic cattle temperate-type : 18,900	C					Phys	
An Sci 433 Equine Business and Management	A005882	[redacted]	Horse: 13	C						
Evaluation of Forages used in Dairy Cattle Diets	A005887	[redacted]	Domestic cattle temperate-type : 670	C						
Metabolic Study of Vitamin D analogs in Rodents	A005890	[redacted]	rattus: 540 mus: 432	D					Phys	
The Effect of Sources of Corn Silage and Corn Grain in Diets of Lactating Dairy Cows on Feed Intake and Milk Production.	A005900	[redacted]	Domestic cattle temperate-type : 156	C						
National Blood Lead Proficiency Testing Program	A005901	[redacted]	Domestic cattle temperate-type : 10	C					Chem	
Population-scale Buccal Sampling of Dairy Cattle for Improved Milk Production Prediction	A005902	[redacted]	Domestic cattle temperate-type : 505	C						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Evaluation of the Effects of Serotonin on the Methylation of the Mammary Gland and it's impact on Calcium Metabolism	A005903	[redacted]	Domestic cattle temperate-type : 36	D						
Understanding the Predation Paradox along a Rural to Urban Gradient	A005905	[redacted]	coyote: 126 Eastern cottontail rabbit: 450 Red fox: 126 Small mammals: 7500	C						
Developing Sustainable Dairy Cattle Housing for Heat Stress Mitigation	A005906	[redacted]	Domestic cattle temperate-type : 600	C						
The Role of Essential Amino Acid on Milk Protein Synthesis in Lactating Dairy Cows	A005910	[redacted]	Domestic cattle temperate-type : 48	D					Chem	
Bovine Immunization Trial for African Trypanosomiasis	A005911	[redacted]	Domestic cattle temperate-type : 16	C						
Housing and Husbandry of Research and Teaching Animals (CALS)	A005912	[redacted]								
Understanding the Role of Vitamin D in the Development of Diabetes	A005913	[redacted]	mus: 4716	D			X			

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Anti-inflammatory Activities and Metabolism of Dietary Bioactives.	A005914	[redacted]	mus: 5008	E						[redacted]
Wood Turtle Hatchling Survival in Wisconsin	A005917	[redacted]	Wood turtle: 35	C						
Raccoon in Madison -- Capstone Project	A005926	[redacted]	Raccoon: 30	C						
Sheep Flock Management	A005929	[redacted]	Donkey: 1 Domestic sheep: 2500	B						
Regression of Osteochondrosis Lesions in Growing Pigs	A005930	[redacted]	Domestic pig: 472	C					Phys	
Assessment of the Efficacy of an Intramammary Infusion of Polyinosinic-polycytidylic acid potassium salt (Poly I:C) in Lactating Dairy Cows on the Rate of Mammary Gland Involution	A005934	[redacted]	Domestic cattle temperate-type : 18	C						
Marten Movement and Energetics across a Heterogeneous Landscape, Lassen National Forest, California.	A005935	[redacted]	Pacific marten: 16	D						
Feed Efficiency Repeatability Across Different Diets in Lactating Dairy Cows	A005945	[redacted]	Domestic cattle temperate-type : 76	D						

Protocol Title	IACUC/OB No.	Principal Investigator	Species: Animals Approved per 3 years	Pain & Distress Category	SS	MSS	FFR	PR	HAU	NCF
Teaching and Outreach using the Allenstein Dairy Herd	A005948	[redacted]	Domestic cattle temperate-type : 150	C					Phys	
Animal Science Horse Herd Management	A005962	[redacted]	Horse: 27	B						
The Role of Vitamin D in the Immune System	A005964	[redacted]	rattus: 416	E						

Pain/Distress Classification Description/Definition, if applicable:

The UW-Madison uses the USDA Animal Use Category's for all species used in the animal program.

USDA Category B – animals bred or held for use in teaching, testing, experiments, research or surgery but not used for such purposes.

USDA Category C – teaching, research, experiments or tests conducted that involve no pain or distress that required use of analgesics

USDA Category D – experiments, teaching, research, surgery or tests conducted that involve accompanying pain or distress to 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)

USDA Category E – teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to animals and for which the use of appropriate anesthetic, analgesic or tranquilizing drugs were not used because they would have adversely affected the procedures, results or interpretation of the teaching, research experiments, surgery or tests

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

Animal Type or Species	Approximate Annual Use
Goat	4[redacted]
Donkey (predatory control for sheep on pasture)	2
Sheep	2296
Horses	9
Fish	69[redacted]8
Rats	28[redacted]9

Animal Type or Species	Approximate Annual Use
Swine	492[redacted]
Poultry	3914
Cattle	3881
Wild mice (wildlife not housed)	41[redacted]
Sloth (wildlife not housed)	1[redacted]
Snowshoe hare (wildlife not housed)	1[redacted]3

Appendix 5: Animal Usage

Animal Type or Species	Approximate Annual Use
Mice	28885
Frogs	107
Reptiles (wildlife not housed)	86
Passerine Birds (wildlife not housed)	1179
Chipmunk (wildlife not housed)	71

Animal Type or Species	Approximate Annual Use
Marten (wildlife not housed)	50
Vole (wildlife not housed)	32
Fox (wildlife not housed)	2
Squirrel (wildlife not housed)	133

University Health Services at UW-Madison

UHS UNIVERSITY HEALTH SERVICES

Welcome, Harry Spyder | Logout

Compose New Secure Message

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 ADMINSITRATIVE 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.

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 protocol
List 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

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

** 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 ☐6

Specify Other Type of Wild Animal

Other Type of Animal

☐1 ☐2 ☐3 ☐4 ☐5 ☐6

Specify 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

**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

**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:

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 Guerin (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

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:

**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 burnettii, 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 burnettii infection)?

○ Yes ○ No ○ Don't know ○ Not applicable (do not work with sheep)

Additional Comments on Working With Sheep

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 measle 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 measle 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.

** 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.

Send Cancel

UW Madison - University Health Services

Printed 4/13/2017 by [redacted]

University Health Services at UW-Madison

UHS UNIVERSITY HEALTH SERVICES

Welcome, Harry Spyder | Logout

Compose New Secure Message

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:

Check all that apply. Some individuals may be in more that 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

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)

☐ ANESTHETIC GAS(ES)
List agent(s)

☐ CARCINOGEN(S), MUTAGEN(S), TERATOGEN(S)
List agent(s)

☐ OTHER
List 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?

**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:

PART C: HEALTH CONCERNS

**DO YOU HAVEANY 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 wth 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

Send Cancel

Recipient: HIM OM
Message Type: OM SPLAAAF
Subject: OM SPLAAAF

Items marked with **are required.

Service Personnel Limited Animal Area Access Form

This form helps the University protect your health. Many types of animals are on campus. At times you may work near animals or in their environment. There are some hazards you should be aware of when working in areas where animals are or may have been. Risks are usually low, but can be greater when you have certain health conditions.

Campus policy requires staff who may enter animal facilities to complete this form. Your responses to the questions are confidential. Only University Health Services staff will see them. If you have health conditions noted below, UHS will contact you to discuss actions you can take to protect yourself.

** **Check your work unit:**

- ☐ Electrical
- ☐ Plumbing
- ☐ Steam Fitting
- ☐ Maintenance Mechanic
- ☐ Carpenter and Mason
- ☐ Paint Glazers and Tile Setters
- ☐ Machine Shop
- ☐ Sheet Metal
- ☐ Pest Control
- ☐ Lock
- ☐ UWPD
- ☐ Other (specify below)

If you selected Other above, please specify:

** Supervisor Name:

Supervisor email (if known)

Supervisor phone (if known)

Animals
Animals commonly housed at the University include:

- Rats and Mice
- Horses
- Monkeys

- Sheep
- Dogs and Cats
- Pigs
- Cows
- Poultry
- Rabbits
- Others

Exposures and Hazards
Hazards in Animal Areas may include:
- Materials that may cause infection
- Animal material that may cause allergies such as fur, dander, or urine
- Chemicals

Protective Measures
- Read and follow safety instructions on door signs
- Talk to the facility or animal area manager about safety rules before entering animal areas
- Wash your hands often
- Talk to your supervisor about concerns
- Clean your tools before leaving animal areas
- Wear safety equipment that facility managers say is necessary
- Wear safety equipment as listed on door signs.

HEALTH CONCERNS - Answers will be confidential and meet UW campus Health Information Portability and Accountability Act (HIPAA)

Do you have any of these health concerns?

** Allergy, particularly to animals ○ Yes ○ No

** Asthma ○ Yes ○ No

** Chronic obstructive pulmonary disease or emphysema ○ Yes ○ No

** Heart valve or heart abnormalities (This is relevant to work with sheep) ○ Yes ○ No

** Compromised immune conditions such as organ transplant, cancer, diabetes, immune system suppression from medications or disease ○ Yes ○ No

** Concerns about pregnancy or reproductive health ○ Yes ○ No

** Would you like to discuss health concerns with a UHS health provider? ○ Yes ○ No

If you have a health condition above, you should talk to your doctor before working in facilities with animals or infectious materials.

3/2/18

Send

Appendix 7: IACUC/OB Membership Roster

College of Agricultural and Life Sciences IACUC/OB	
VOTING MEMBERS 3-Year Terms	
Name, Degree	Department Affiliation
[redacted], Ph.D., Chair	Professor, Forest & Wildlife Ecology
[redacted], Ph.D., Vice Chair	Professor, Nutritional Science
[redacted], Ph.D.	USDA-ARS Scientist; Adjunct Professor, Dairy Science
[redacted], MS.	Senior Research Specialist, Animal Science
Vacant	Second Non-affiliated Member
[redacted], BA.	[redacted] Non-scientific Member
[redacted], Ph.D.	Professor, Biochemistry
[redacted], DVM, Ph.D.	Senior Program Veterinarian (Lab species), RARC
[redacted], Ph.D.	Professor, Biomolecular Chemistry (SMPH)
[redacted], DVM	Senior Program Veterinarian (Ag Species), RARC
[redacted], Ph.D.	[redacted], Non-affiliated Member
[redacted], Ph.D.	Professor, Animal Science
[redacted], BS, MT, ASCP	Laboratory Manager III, Dairy Science
[redacted], Ph.D.	Associate Professor, Dairy Science
[redacted], MBA	Risk Management Officer, Animal Research Safety
ALTERNATES	
[redacted], DVM, MPH, Ph.D., Diplomate ACLAM	Attending Veterinarian, RARC
[redacted], DVM, MS	Program Veterinarian, RARC (Ag Species)
[redacted], DVM	Program Veterinarian, RARC (Lab Species)
[redacted], HS	Environmental Health & Safety, Animal Research Safety
EX OFFICIO/NON-VOTING MEMBERS Terms Indefinite	
[redacted], MS	Animal Program Assessment Specialist, RARC
[redacted], BS	Animal Program Assessment Specialist, RARC
[redacted], Ph.D.	Animal Program Assessment Specialist, RARC
[redacted], MS	[redacted], RARC
[redacted], MA	[redacted], RARC
[redacted]	[redacted], VCRGE
[redacted], MBA.	[redacted], RARC
[redacted], HS	University Services Associate, RARC
[redacted], Ph.D.	IACUC/OB Associate Administrator, RARC
[redacted], BS	Risk Management Specialist, Animal Research Safety
[redacted], BS	Risk Management Specialist, Animal Research Safety
[redacted], Ph.D.	CALS [redacted]
[redacted], BA, CVT	[redacted], CALS Research Division
[redacted], BS	[redacted], CALS Research Division

WISCONSIN
UNIVERSITY OF WISCONSIN - MADISON

College of Agricultural and Life Sciences Animal Care and Use Committee
Open Session – April 19, 2018

Present (voting): [redacted]

Present (nonvoting): [redacted]

Guests:

Absent: [redacted]

Dr. [redacted] called the meeting to order at 2:00 p.m.

Approval of Open Session Minutes March 15, 2018

[redacted] moved to approve the Open Session Minutes as submitted. The vote was unanimous with [redacted] and [redacted] abstaining and [redacted] voting present.

Annual Reapprovals (April)

Dr. [redacted] led committee discussion of the annual updates. [redacted] moved to approve the annual updates. The vote was unanimous with [redacted] and [redacted] abstaining.

Dr. [redacted] stated her intention to take agenda items out of order due to committee members' schedule constraints. Dr. [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), (e), (f) and (g). [redacted] seconded. The vote was unanimous by roll call.

After closed session the meeting reconvened in open session.

Protocol Review

A005821-A03: Diabetes research in mice - Discussion of the protocol amendment ensued, noting the request to use Avertin in rodents. The PI will be asked to provide scientific justification for the use of Avertin and for singly-housing some mice, clarify the purpose of performing liver perfusion, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

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396 Enzyme Institute 1710 University Avenue Madison, WI 53726-4087
608-262-1338 Fax 608-265-2698 Email: help@rac.wisc.edu

A005119-R01: Physiological Basis for Anovulation in High-Production Dairy Cows - Discussion of the protocol ensued. The PI will be asked to clarify the chronology of procedures, to provide more information about hormone injections, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005122-R01: Best-practices for Topical Treatment, Prevention and Control of Digital Dermatitis in cattle - Discussion of the protocol ensued. The PI will be asked to add fecal sampling and skin scrapings as non-surgical procedures, to provide more details about the hoof bath study, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005125-R01: Metabolic Regulation of Lipid Biogenesis in Health and Disease - Discussion of the protocol ensued. The PI will be asked to provide more information about wheel running, to update the description of genotyping, to update the biosafety protocol to match the animal protocol, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005137-R01: In vitro digestibility of forage crops - Discussion of the protocol ensued. The PI will be asked to clarify the rumen collection procedure, to ask all study team members to update their animal training information, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A006013: Monitoring the Effects of Habitat Restoration on Wisconsin Snake Assemblages - Discussion of the protocol ensued. The PI will be asked to describe equipment decontamination procedures, clarify the capture method, and to make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A006029: The effect of supplementing cannabidiol oil (CBD) to pregnant and lactating mice on milk production - Discussion of the protocol ensued. The PI will be asked to verify the CBD oil dosing regimen for mice, to add isoflurane as a chemical hazard, and to make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

[redacted] left the meeting]

A006036: Role of Vitamin D in the Skin – Discussion of the protocol ensued. The PI will be asked to describe potential complications of vitamin-deficient diets, to clarify the number of animals requested, and to make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

Logs: Designated Review/other (April)

The committee reviewed the designated review logs, noting the changes that were made via veterinary verification and consultation (VVC). Ms. [redacted] clarified that the animals added to protocol V005060 via VVC were cattle for a grazing study.

Senior Program Veterinarians Report

Dr. [redacted] had no report.

Dr. [redacted] that some piglets assigned to a tibia tendon transfer study experienced unexpected mortality and were submitted for necropsy. Final results are not yet available, but he will provide an update next month.

Report from the Animal Program Assessment Specialists

Dr. [redacted] had no report.

Policy Updates and Action

Ms. [redacted] reminded the ACUC that the Veterinary Verification and Consultation (VVC) policy has been amended to allow increases in animal numbers to be reviewed by VVC. Because the proposed changes to the VVC policy (2016-058-c) reference ACUC policy 2013-051-c (Justification of Animal Numbers in Protocols), policy 51 must be amended to describe the circumstances under which an increase in animal numbers may be approved by VVC. The committee reviewed the proposed changes to policy 51 (see attached). Dr. [redacted] explained that she spoke with representatives in the Office of Laboratory Animal Welfare (OLAW) and received clarification on OLAW's intent regarding the VVC process to not allow increased animal pain and distress. The OLAW guidance is not intended to prevent a net increase in pain and distress to all animals, only to those assigned to procedures in each specific study. Discussion ensued. [redacted] moved to table action on the proposed modifications to policy 2013-051-c, "Justification of Animal Numbers in Protocols". The vote was unanimous.

Committee training was postponed to the May meeting.

Other Business

Dr. [redacted] reported that the All Campus Animal Planning and Advisory Committee (ACAPAC) discussed a draft of an update to policy 2012-048-io, "Photography and Videography in UW Animal Use Areas" to more specifically clarify what may not be photographed in animal areas. Dr. [redacted] explained that also at ACAPAC the ACUC chairs discussed the preferred practice when encountering locked controlled substances boxes on semiannual inspections that are reported as empty or not in use. She said the boxes must be unlocked and inspected by the ACUC teams, as they would by the USDA inspectors, and it is recommended that PIs who have a lockbox but are not using it at the time of the inspection leave the box unlocked.

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), (e), (f) and (g). [redacted] seconded. The vote was unanimous by roll call.

The meeting was adjourned from Closed Session without reconvening into Open Session.

[redacted]

Appd by CALS ACUC
17 May 2018

LOGS FOR CALS ACUC – April 2018

Designated Review: New/Renewal

PI	#	Rec'd	Project Title	Species	N/R

Designated Review: Amendment

PI	Prot #	Rec'd	Title	Species	Summary of change
[redacted]	A005631-A01	3/2/18	Effect of altering dietary nutrient composition on methane and ammonia emissions in lactating dairy cows	cow	Updated experimental narrative section describing the second experiment 3/30
[redacted]	A005638-A01	3/4/18	Gestation dietary factors potentially lead to hypocalcemic in sows at farrowing and early lactation phases	pig	+ new experiment 3/20
[redacted]	A5694-A01	3/5	Swine Models of Chronic and Inducible Tumors	Pig	+imaging 4/4
[redacted]	A5441-A01	3/6	Strategies to increase antibody titer in the egg	chicken	Clarification of injection timing 3/21 Sent Back to PI – In Procedure
[redacted]	A5836-R01-A01	3/6	Development of Novel Swine Models for Translational Research	Pig	+VEP, +DXA, +spatial T-maze, +ear tag clarification, - potassium chloride 4/5 PI Requested
[redacted]	A5590-A04	3/6	Assessing the impact of ruminal contents dosing during dairy calf development	cow	+increase in # of cannulated animals 3/13
[redacted]	A5316-A01	3/13	A method to control calcium mobilization during lactation	cow	+early lactation 4/10
[redacted]	A5400-A03	3/15	Research and Education Programs on Lyme Disease in Wisconsin	Deer mouse, chipmunk, shrew, raccoon, vole, squirrel, white footed mouse	+fluorescent marking, +radiocollaring, +200 deer mice 4/5
[redacted]	A5420-A01	3/16	Using tissues of turkeys and chickens as models of vitamin E metabolism and lipid oxidation	Chicken, turkey	+rhodiola, updates 3/26
[redacted]	A5189-	3/16	Effects of Stocking Rate at	cow	Update funding source. 4/5

	A02		the feedbunk and Push-Up Frequency of the performance of Holstein Dairy Heifers Offered Alfalfa Haylage/Corn Silage Diets		protocol title, justification and experimental narrative and search information	
[redacted]	A005610-A01	3/21/18	Classroom Demonstration/instruction-F&W Ecol 306 Terrestrial Vertebrates (teaching)	Vertebrate species native to Wisconsin	Vet/chair amendment – room removal	4/5
[redacted]	A005456-A05	3/22/18	Avian Physiology 503 laboratory (teaching)	chicken	+ new experiments, updates	4/4
[redacted]	A005594-A04	3/27/18	Determining the mechanism of protection from experimental autoimmune encephalomyelitis by ultraviolet B light	mus	+ topical testing of tyrosine added, updated animal numbers	4/12
[redacted]	A005693-A01	3/28/18	Dietary control and biomarkers of sepsis	Pig, mus	Change of PI	4/17
[redacted]	A005478-A02	4/2/18	Genomic control of Cyp24a1 and Cyp27b1 regulation and function	mus	+ two additional strains and added new diet experiment	REV
[redacted]	A005914-A02	4/2/18	Anti-inflammatory activities and metabolism of dietary bioactives.	mus	+ to allow testing of orally administered probiotics	REV

Dual School Log

PI	Prot #	Rec'd	Project Title	Species	Add'l ACUC	
[redacted]	V5593-A02	3/28	Food Animal Elective	Cow, sheep		REV

Veterinary Verification and Consultation (VVC)

PI	Prot #	Rec'd	Project Title	Species	Summary of change	
[redacted]	A005795-V01	3/2/18	Dermatology Studies of Vitamin A and D Compounds	mus	+ nutritionally complete high lactose diet	3/12
[redacted]	A5467-V06	3/9	Regulation of Hepatic Lipid Accumulation in Transition Dairy Cattle	Cow	+staples for incision closing	3/12
[redacted]	A5260-V01	3/12	Factors Affecting Iron Homeostasis in Vertebrates	Mouse, rat	+Phenyl Hydrazine	3/14
[redacted]	A005902-V01	3/16/18	Population-scale buccal sampling of dairy cattle for improved milk production prediction	cow	+ cattle course, update animal numbers	3/19
[redacted]						

CALS ACUC
April 2018 · open

University of Wisconsin-Madison Institutional Animal Program Policy

Policy No: 2013-051-c
Policy title: Justification of Number of Animals in protocols.

Purpose:

For justification of the species and number of animals proposed, the *Guide* states that in the preparation of the protocol by the researcher and its review by the IACUC, whenever possible, the number of animals and experimental group sizes should be statistically justified [p. 25, 4th in a list of 15 items], and that while the responsibility for scientific merit review normally lies outside the IACUC, the committee members should evaluate scientific elements of the protocol as they relate to the welfare and use of the animals. For example, hypothesis testing, sample size, group numbers, and adequacy of controls can relate directly to the prevention of unnecessary animal use or duplication of experiments (p. 26). The Animal Welfare Act states that a proposal to conduct an activity involving animals must contain the following: (1) identification of the species and the approximate number of animals to be used; (2) a rationale for involving animals, and for the appropriateness of the species and numbers of animals [Regulations 2.31,e,1,2)]. This policy and companion SOP provide guidance on appropriate approaches to justifying the number of animals requested in protocols submitted to the Animal Care and Use Committees.

Policy:

1. Whenever possible, the number of animals and experimental group size should be statistically justified using power calculations based on previous research, published data, pilot studies, or prior experience.
2. When statistical justification is not possible, explain briefly why statistical justification is not possible, and then provide a rationale for the proposed animal numbers, such as citations of previous research or prior experience.
3. For a pilot study to test the variability of an outcome or to verify planned procedures, a brief rationale for proposed animal numbers should be provided when statistical justification is not possible.
4. For teaching protocols, a brief rationale for proposed animal numbers should be provided based on previous experience or projected needs for students' learning experience.
5. A firm number (not a range) of animals must be given for a three-year period. You may list a maximum number. It is recommended that you consider including a 5-10% overage to cover cases where animals must be removed from your studies for non-experimental reasons.
6. As per policy 2016-058-c ("Veterinary Verification and Consultation"), an increase in previously-approved animal numbers up to 100% may be handled via veterinary verification and consultation if the newly-added animals will not undergo painful or distressful procedures. Increases in animal numbers that will result in a net increase in

Author [redacted]
ePublication Date: 2013 01 11 (orig.)
History: Amended 3/2018 to match 2016-058-c

overall animal pain or distress must be submitted as an amendment to the protocol for ACUC review via Designated Review or at a convened meeting.

See companion SOP for assistance.

[redacted]
Effective Date: 2013 01 11 (orig.)
History: Amended 3/2018 to match 2016-098-c

APAR Training.

Details to be revealed at the meeting.

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

College of Agricultural and Life Sciences Animal Care and Use Committee
Closed Session – April 19, 2018

Present (voting): [redacted]

Present (nonvoting): [redacted]

Guests: [redacted]

Absent: [redacted]

Protocol Review

A005118-R01: Molecular Biology of Virulence of Cryptococcus and Candida Using a Morine Model – Dr. [redacted]ed discussion of the protocol, noting the PI's request for closed session review due to the inclusion of information that is under patent review and has not been discussed previously in public. The PI will be asked to clarify the use of VDR mice, to provide more information about potential animal health complications, and to make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

Dr. [redacted] stated her intention to take agenda items out of order to ensure voting quorum for remaining open session business and to accommodate guests invited for closed session business. [redacted] moved to adjourn into open session. The vote was unanimous.

After the conclusion of open session business, the meeting adjourned into closed session.

Approval of Closed Session Minutes March 15, 2018

[redacted] moved to approve the Closed Session Minutes as submitted. The vote was unanimous with [redacted] and [redacted] abstaining and [redacted] voting present.

Inspection Reports

Ms. [redacted]ed discussion of reports of recent inspections (see attached). She summarized the deficiencies identified by the inspection team at the [redacted] The team found that the animals were in good shape and their hocks appeared healthy. However the team identified incomplete animal case records, outdated signage, the presence of unused and unnecessary equipment, and maintenance issues. Ms. [redacted] noted the team recommends performing an additional ACUC inspection of [redacted] in the

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306 Engineering Institute 1710 University Avenue Madison, WI 53726-4087
608-262-1238 Fax 608-265-2098 Email help@rarc.wisc.edu

summer. Discussion ensued, and the Committee agreed to perform a semiannual inspection in July in addition to the regularly scheduled Fall 2018 inspection. Ms. [redacted] will make the arrangements and will notify the facility manager when the inspection is scheduled.

Ms. [redacted] presented the inspection report from the [redacted] noting the comments regarding veterinary oversight and animal health. Dr. [redacted] noted the [redacted] will be discussed in detail later in closed session.

Ms. [redacted] then explained that she performed the inspection of the [redacted] as a consultant and recommends that the committee accept her findings. [redacted] moved to accept the "acceptable" consultant findings. The vote was unanimous. Ms. [redacted] presented the remaining reports, with committee members commenting on inspections they attended. She noted that all of the spring 2018 inspection have been completed. Ms [redacted] reported that the Institutional Official is continuing to visit agricultural facilities and recently toured the sheep and beef units at [redacted]

[redacted]

Dr. [redacted] invited Dr. [redacted] to present information regarding the question in the inspection report regarding chickens observed on Wing 1, and also the [redacted] staff member comment regarding veterinary oversight. Dr. [redacted] said that on February 23, 2018, approximately 115 hens were brought to the [redacted] by research staff member Dr. [redacted] and were immediately vaccinated by Dr. [redacted] as per protocol A005441. Dr. [redacted] then offered the hens commercially-available feed that was not provided by [redacted]. Neither the veterinary staff nor the facility staff were notified that the newly-arrived hens had been force molted by withholding feed by the source farm at Dr. [redacted]'s request. She said that on February 27th the [redacted] animal research technician (ART) reported hens in poor condition to the RARC veterinary staff, and veterinary staff arrived on site within two hours of receiving the report. Dr. [redacted] stated there are more than 30 documented interactions between the [redacted] staff and the veterinary staff between February 27th and March 6th, the date of the ACUC inspection of [redacted] and additional communications between the veterinary staff and the research staff regarding the hens. She said that approximately 25 of the hens that arrived on February 23rd eventually died or had to be euthanized, a mortality rate of 22%. Dr. [redacted] stated she strongly believes the veterinary staff were responsive to the [redacted] staff during these events. Dr. [redacted] noted that in response to similar comments from [redacted] facility staff, he met in person with the staff member regarding veterinary oversight, and as a result the veterinary staff increased the frequency of their facility visits and their interactions with the staff. Dr. [redacted] said that when he later followed up with the [redacted] staff to ask if those changes in veterinary oversight had made a positive difference, the staff member agreed that they had, and so he was surprised to see the comment about veterinary care in the inspection report.

Dr. [redacted] then asked Dr. [redacted] the PI for protocol A005441, to present his adverse report regarding the hens that arrived at [redacted] on February 23rd (see attached). She noted a copy of the protocol is also included in the meeting materials for the committee members' reference (see attached). Dr. [redacted] said he submitted the report after learning of the comments made during the ACUC inspection and upon discovering the hens had been force molted prior to

arrival at [redacted] Dr [redacted] believes the circumstances that led to the adverse event were in part due to gaps in communication due to the absence of the facility supervisor for medical leave, the regular RARC veterinarian responsible for [redacted] being on family leave, and the absence of the poultry science faculty member who had been directly involved in the work due to his death. Dr. [redacted] then explained that he has been the PI of the protocol since its approval because at the time he was [redacted] and the faculty member directing the work had a conflict of interest (COI) due to his ownership in AbE Discovery, the company supporting the study. He stated that he now has a conflict of interest as PI on this protocol due to his new role as [redacted] program, as [redacted] is a supporting donor of the program.

[redacted] left the meeting]

Dr. [redacted] asked Ms. [redacted] for comments. Ms. [redacted] said that she and [redacted] met with Dr. [redacted] and Mr. [redacted] to discuss the adverse event and oversight of the project. A follow-up meeting including Dr. [redacted] was held to discuss specific details and next steps. She said at that meeting Dr. [redacted] said that he attempted to provide water to the hens that were in poor condition by hand with partial success, but had not informed the veterinary staff he had done so.

Dr. [redacted] said the ACUC will need to consider the nature of Dr. [redacted] continuing involvement in this project given the COI. She also noted that the only research staff member is Mr. [redacted] an [redacted] employee with an honorary appointment in Animal Science who has limited access to [redacted] Dr. [redacted] stated the ACUC must determine how to strengthen communication between facility staff, veterinary staff, and research staff in order to avoid similar adverse events if this project is going to continue. Dr. [redacted] called for discussion before inviting Dr. [redacted] and Dr. [redacted] into the meeting. Hearing none, Dr. [redacted] and Dr. [redacted] joined the meeting.

[Dr. [redacted] and Dr. [redacted] joined the meeting; [redacted] left the meeting]

Dr. [redacted] introduced himself and gave a brief history of his involvement with the project. He said he had been [redacted] with Dr. [redacted] and when [redacted] was started in 2015 he was hired as an employee. Dr. [redacted] stated that he is the [redacted] and is serving as the faculty supervisor of [redacted]. He said that he is attending today's meeting in his supervisor role. Dr. [redacted] explained to Dr. [redacted] and Dr. [redacted] that the CALS ACUC is responsible for both animal welfare and regulatory compliance in the research context. She said the committee members want to understand the events that occurred and how to move forward to best ensure animal welfare and compliance.

In response to committee member questions, Dr. [redacted] explained that force-molted hens are safer to transport, because during shipping developing eggs could break inside the hens which could lead to peritonitis and death. He said he uses older hens because they produce larger eggs from which he can obtain more antibodies, and they are cheaper. Dr. [redacted] explained that when the producer notifies him that hens are ready, he himself picks up the hens from the

producer and transports them to [redacted]. He said typically he informs the lead staff member at [redacted] that he is bringing hens to [redacted] and she in turn informs the ARTs and the veterinary staff. Once hens have been delivered, Dr. [redacted] says that he personally inspects the new arrivals once daily for three days for health issues, as that is the time window in which any issues will usually present themselves. He said that he had informed [redacted] staff that the incoming hens were older and appeared in rough shape, however, it was not made clear that feed had been withheld from the hens for force molting. Dr. [redacted] said he had asked the producer for feed recommendations to start refeeding the hens, and purchased commercial feed from a retailer following the producer's recommendation. He did not notice that the hens did not consume this feed, nor that they were not drinking water, until they were in fairly poor condition. He attempted to manually provide water to the hens, but was only partially successful. Dr. [redacted] said this was the first time he had brought in geriatric hens, and he had not anticipated the hens would be so selective about the feed.

Dr. [redacted] asked why force molting was achieved via withholding feed rather than through manipulations of the light cycle or another method. Dr. [redacted] said that was the method available to him through the producer, and noted all methods of force molting have an expected mortality rate. It was noted that a 22% mortality rate is high, and that the protocol does not include descriptions of any method of force molting or associated expected mortality, so the ACUC did not consider this when reviewing the protocol for approval. Mr. [redacted] asked what Dr. [redacted] would do differently in the future. Dr. [redacted] said he would request feed from [redacted] rather than use a commercial feed, and amend the protocol to allow administration of electrolyte solution as an option. He said he would also monitor the newly-arrived hens for more than three days for health issues.

Dr. [redacted] asked what work is currently occurring. Dr. [redacted] said he is collecting eggs from the remaining hens, and has not brought any new hens to [redacted]. Dr. [redacted] said that communication needs to be improved on all levels moving forward. All agreed. Dr. [redacted] stated his intent to become the PI for protocol A005441 due to Dr. [redacted]'s stated COI.

Dr. [redacted] called for final questions for Dr. [redacted] and Dr. [redacted]. Hearing none, Dr. [redacted] thanked them for attending the meeting.

[Dr. [redacted] and Dr. [redacted] left the meeting]

Ms. [redacted] said there may be evidence that the source producer withheld feed to force-molt the hens in contradiction with producer-held certification that bans this method. Dr. [redacted] asked if the scientific question being investigated can be pursued using hens that are force-molted by other methods, or with younger hens. Extensive discussion ensued. [redacted] moved to appoint a subcommittee of the ACUC to develop a request for an amendment to protocol A005441, and to direct Dr. [redacted] and Dr. [redacted] to not order any new hens for the protocol until the protocol amendment is submitted and approved by the CALS ACUC. The vote was unanimous.

Senior Program Veterinarians Report

Dr. [redacted] reported that two weeks ago a cow housed in the [redacted] barn at the [redacted] was found dead. The cow had become entrapped in free stall. He immediately directed all animals of similar size housed in similar stalls be moved to pen housing. Dr. [redacted] said he had recommended a redesign of these particular stalls due to his concerns for animal entrapment, but renovations had not been performed when the recent incident occurred. One set of stalls has now since been redesigned. The committee accepted the report.

Dr. [redacted] had no report.

Report from the Animal Program Assessment Specialists

Dr. [redacted] had no report.

Other Business

[redacted]

Dr. [redacted] called for other business for closed session or for open session. Hearing none, Dr. [redacted] adjourned the meeting from closed session at 5:25 p.m.

[redacted]

Appd by CALS ACUC
17 May 2018

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/06/18	
Inspection Team Members: [redacted] (V) [redacted] (R) [redacted]) [redacted]) [redacted])					File created: 04/06/18	
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		F	Note: facility is very clean and well kept. Full Committee Discussion: One facility staff member expressed concern regarding level of veterinary oversight, both in general and in current cases of some sick animals. (See [redacted] notes).			Concerns about current cases conveyed to Chief Campus Veterinarian same day as inspection and follow up was immediate.
[redacted]	Storage	A				
	Mixing-feed	A	Note: facility already has plan in place to paint peeling patches.			
	Chick room	A	Safety note: loose wires on side wall should have electrical tape to cover exposed ends. Note: good hose storage.			
[redacted]	Hatchery	A				
	Washroom	A				
	Office	A				
	Storage (vet)	F	Full Committee Discussion: Concerns expressed by one facility staff member that facility walkthroughs by vet staff are not as frequent as they were in the past. Communication between vet and facility staff could be improved.			
[redacted]	General Storage	A				
	Processing cooler	A				
	Research Cooler	A				
	Womens bathroom	A				
	Mens bathroom	A				
	Locker/shower	A				
	Processing	A				

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		F	Note: facility is very clean and well kept. Full Committee Discussion: One facility staff member expressed concern regarding level of veterinary oversight, both in general and in current cases of some sick animals. (See [redacted]).			Concerns about current cases conveyed to Chief Campus Veterinarian same day as inspection and follow up was immediate.
[redacted]	Classroom	M	MINOR: bucket of sharps with no lid, expired needles. SFI: if incubator is not in use then decontaminate and remove biohazard sticker. SFI: tidy up supplies adjacent to teaching cabinet, label items that are not for live animal use.	03/19/18	R	Initial email sent to [redacted] on Mar 12, 2018. Yer email from [redacted] on Mar 28, 2018 to [redacted] Sharps container was removed from the facility on 3/9/2018.
[redacted]	Feed Storage	A				
Bay/Main_ Hallway	Freezer, Storage, Euthanasia Station	A				
[redacted]	Cage housing--chickens	Q	Question to vet staff: The inspection team observed several chickens that were lethargic with no manure production. How is this being addressed?			
[redacted]	Pen housing--chickens	A	In process of cleaning.			
	Pen housing--chickens	A				
	Pen housing--chickens-storage	A				

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A						School/College: CALS
Supervisor: [redacted]						Date: 03/01/18
Inspection Team Members: [redacted] V) [redacted] V) [redacted] R) [redacted]) [redacted]) [redacted] V) [redacted]						File created: 04/09/18
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		M	Facility-wide Minor deficiencies. MINOR: records need to be more complete and need to have initials indicating who noted the information. Note: AAALAC will examine records back to 2015. MINOR: The general sop folder should be updated. MINOR: centralized eyewash log should list the location of each eyewash and have individual sign off for each. Ideally have logs at each location. Positive comment: Cows look healthy through the facility, hocks in great shape. NOTE: Inspection team recommends a formal ACUC inspection in July or August.	06/01/18		Initial email sent to [redacted] on Fri 02 Mar. 18. Second email sent to [redacted] on 16Mar18.
General comments	General-	A	Facility-wide note: entire farm needs to be de-cluttered.			Per email from [redacted] 06APR18 "Farm cleanup scheduled for 4/2018"
[redacted]	Records, protocols & SOPs *Review SOPs for Badger watershed grazing*	A	SFI: use a consistent system to mark which paper records have been entered into the electronic database.			Per email from [redacted] 06APR18 "now are stamped when entered"
[redacted]	Safety & training records	M	MINOR: have staff initial records so you can tell which person noted the information.	06/01/18	R	Initial email sent to [redacted] on Fri 02 Mar. 18. Second email sent to [redacted] on 16Mar18. Per email from [redacted] 06APR18 "Implemented"

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		M	Facility-wide Minor deficiencies. MINOR: records need to be more complete and need to have initials indicating who noted the information. Note: AAALAC will examine records back to 2015. MINOR: The general sop folder should be updated. MINOR: centralized eyewash log should list the location of each eyewash and have individual sign off for each. Ideally have logs at each location. Positive comment: Cows look healthy through the facility, hocks in great shape. NOTE: Inspection team recommends a formal ACUC inspection in July or August.	06/01/18		Initial email sent to [redacted] on Fri 02 Mar, 18. Second email sent to [redacted] on 16Mar18.
[redacted]	Milk storage/ Cleaning solutions/ Laundry	A				
[redacted]	Animal restraining area for treatment, including surgery, foot trimming	M	MINOR: over full sharps container. Facility unclear of how to dispose of properly. MINOR: several burned out lights. MINOR, light covers loose. MINOR: debris in light covers. MINOR: electrical socket cover is loose. MINOR: both light switches need waterproof covers. MINOR: half case of expired blood draw tubes December 2016, tossed at once. UPDATE: this minor was noted in error syringes had manufactured date of 12/17, they do not expire until 2020. [MINOR: expired box of syringes (DECEMBER 2017)]	03/30/18	R	Initial email sent to [redacted] on Fri 02 Mar, 18. Second email sent to [redacted] on 16Mar18. Per email from Mr. [redacted] 19Mar18 "Have made arrangements with MERI to collect sharps starting week of 3/19/18. Electrical sockets and switches have not been replaced. Please extend this for 30 days. " EXTENSION REQUESTED new CBD 30APR18. Sent request for update via email 06APR18. Per email from [redacted] 06APR18 " As of 4/1/18 lights replaced, fixtures have new covers and outlets and switches have new plates/covers"
[redacted]	Storage of feeding carts, support lab space	A				

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		M	Facility-wide Minor deficiencies. MINOR: records need to be more complete and need to have initials indicating who noted the information. Note: AAALAC will examine records back to 2015. MINOR: The general sop folder should be updated. MINOR: centralized eyewash log should list the location of each eyewash and have individual sign off for each. Ideally have logs at each location. Positive comment: Cows look healthy through the facility, hocks in great shape. NOTE: Inspection team recommends a formal ACUC inspection in July or August.	06/01/18		Initial email sent to [redacted] on Fri 02 Mar, 18. Second email sent to [redacted] on 16Mar18.
[redacted]	Waste handling and separation of solids	N				
[redacted]	Free stall barn	A				
	72 tie stalls housing lactating cows	M	MINOR: multiple burnt out lightbulbs. MINOR be sure to update signage to make it obvious which animals are on which study.	03/16/18	R	Initial email sent to [redacted] on Fri 02 Mar, 18. Second email sent to [redacted] on 16Mar18. Per email from Mr. [redacted] 19Mar18 "Researchers have posted protocol for heifers in chambers. Lights replaced."
[redacted]	16 tie stalls, 4 chambers	A				
	Prepare milk for calves and wash-up calf pails	A				
		M	MINOR: broken part of gate is sharp hazard. SFI: second waterer in first left side pen should be fixed.	03/09/18	R	Initial email sent to [redacted] on Fri 02 Mar, 18. Second email sent to [redacted] on 16Mar18. Per email from Mr. [redacted] 19Mar18 "Piece removed"

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		M	Facility-wide Minor deficiencies. MINOR: records need to be more complete and need to have initials indicating who noted the information. Note: AAALAC will examine records back to 2015. MINOR: The general sop folder should be updated. MINOR: centralized eyewash log should list the location of each eyewash and have individual sign off for each. Ideally have logs at each location. Positive comment: Cows look healthy through the facility, hocks in great shape. NOTE: Inspection team recommends a formal ACUC inspection in July or August.	06/01/18		Initial email sent to [redacted] on Fri 02 Mar, 18. Second email sent to [redacted] on 16Mar18.
[redacted]	Maternity area	A				
[redacted]	Sick cow holding	A				
[redacted]	Animals on Pasture	N	No animals on pasture.			
[redacted]	pasture	N	No animals on pasture.			

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/06/18	
Inspection Team Members: [redacted] V) [redacted] R) [redacted]) [redacted]) [redacted])					File created: 04/06/18	
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		F	Consultant inspection by [redacted] 09Mar18. Recommendation: Acceptable VOTE NEEDED			
[redacted]	Wash rack (for animals)	F	Consultant inspection by [redacted] 09Mar18. Recommendation: Acceptable VOTE NEEDED			
[redacted]	Harness room (store feed)	F	Consultant inspection by [redacted] 09Mar18. Recommendation: Acceptable VOTE NEEDED			
[redacted]	Animal housing	F	Consultant inspection by [redacted] 09Mar18. Recommendation: Acceptable, SFI: store hoses out of traffic area. VOTE NEEDED			
[redacted]	[arena] Arena	F	Consultant inspection by [redacted] 09Mar18. Recommendation: Acceptable VOTE NEEDED			

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/06/18	
Inspection Team Members: [redacted] V) [redacted] R) [redacted]) [redacted]) [redacted])					File created: 04/06/18	
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				
pen	outdoor holding	A				
Ramp	ramp from pens to [redacted]	A				
[redacted]	euthanasia	A				

ANIMAL LAB INSPECTION CHECKLIST					School/College: CALS	
Inspection Unit: [redacted] Lab 2018A					Date: 03/06/18	
Inspection Team Members: [redacted] V) [redacted] R) [redacted]) [redacted]) [redacted])					File created: 04/06/18	
INSPECTION NOTES					TRACKING	
Room	**Protocol [PI] (Species)**	**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
[redacted]	procedures OK, surgery_level: 1 A005914 [redacted]	A	Note: send updated vet card, CALS small animal.			sent via campus mail

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/08/18	
Inspection Team Members: [redacted] V) [redacted] R) [redacted] V) [redacted])					File created: 04/06/18	
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]	Public Viewing Area	A	Discussed plans for future displays.			
[redacted]	Break Room	A				
	Mud Room	A				
	Milking Parlor	A	Observed post-milking scrub of parlor.			
	Corridor, SE Side of of East Barn	A				
[redacted]	Herdsman Office	A	Overview of staff trainings and records. Dr. [redacted] is assisting with training. Also saw facility SOPs. Question to RARC: do facility managers have access to PI portal? Where is best spot to find most current and comprehensive training records? Best format for AAALAC? Possibility of training protocol in ARROW? On boarding checklist is in place at [redacted]			RARC trainers and IACUC Administrator will assist with training records.
[redacted]	Storage	A				
[redacted]	Corridor, South side of East Barn	A				
[redacted]	Arena (previos feed storage area)	A	Discussed different uses for this area.			
[redacted]	South Barn, 28 Cow Stalls	A				
[redacted]	Freezers (in Arena)	N				
[redacted]	Hospital Room	A				

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]	West Cow Barn, S4 Cow Stalls	A				
[redacted]	Corridor, Milk House Area	A				
[redacted]	Milk House	A				
[redacted]	Holding Area, Includes Cattle Pens	A				
[redacted]	Rest Room	A				
[redacted]	Holding Pen	A				
[redacted]	Feed Room South of West Barn RECOMISSIONED post-remodel. [Decommissioned per CALS ACUC CS minutes 8-16-12.]	A				

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/08/18	
Inspection Team Members: [redacted] V) [redacted]) [redacted] R) [redacted] V) [redacted]) [redacted])					File created: 04/06/18	
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	Note: new sand is working out very well, somatic cell count is cut in half! Employees are a really good group. Also discussed trailer maintenance..			
[redacted]		A	Question from Facility: best types of training records? What do they record and when?			RARC Trainers and IACUC Admin will assist with training records.
[redacted]		A				
[redacted]	laundry; pumps; water softener; etc.	A				
[redacted]		A				
[redacted]	"A" Barn	A				
[redacted]		A	Great description of monitoring of cows due to calve and the calf care.			
[redacted]		A	Note: adjacent to hospital room.			
[redacted]	"Dairy Comp" workstation	A	Overview of treatment records systems and treatment sops. Very well organized. Health monitoring is very comprehensive, excellent integration between electronic records and visual observations.			
[redacted]	"B" Barn	A				
[redacted]	Dry Cow Housing	A				
[redacted]	Bagged Feed	A				

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	Note: new sand is working out very well, somatic cell count is cut in half! Employees are a really good group. Also discussed trailer maintenance..			
[redacted]	(area in front of old parlor)	A	Calf rearing is very well organized.			
	Bldg [redacted] Calf Hospital room	A				
	(lawn outside office)	A				
	Bldg [redacted]	A				

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/22/18	
Inspection Team Members: [redacted] V) [redacted]) [redacted] R) [redacted] V) [redacted])					File created: 04/06/18	
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	Lambing going well. RARC Note: send training records template Positive note: the health of the folk is really good, [redacted] and [redacted] are giving excellent care. Positive note: Facility staff very grateful for great vet care, close working relationship with vet staff. The vest students helping with lambing is a continuing success.			
[redacted]	Animal housing	A	Also trailer [redacted] and truck [redacted] Misc. [redacted] Acceptable.			
[redacted]	Animal housing/storage, shearing, semen collection	A				
[redacted]	Bathroom, office, storage, water heater	A				
[redacted]	Animal housing (outdoors)	A				
[redacted]	Animal housing	A				
[redacted]	Temporary animal housing	A				
[redacted]	Hay & bedding, other storage	A				
[redacted]	Storage	A				
[redacted]	Office	A	In bldg [redacted]			

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	Lambing going well. RARC Note: send training records template Positive note: the health of the folk is really good, [redacted] and [redacted] are giving excellent care. Positive note: Facility staff very grateful for great vet care, close working relationship with vet staff. The vest students helping with lambing is a continuing success.			
[redacted]	storage (drugs, materials)	M	MINOR: expired irrigation solution and antibiotic ointment in human first aid kit, disposed of at once. In Bldg [redacted]	03/22/18	R	
		A	SFI: housekeeping could be improved.			
	Heater, hot water heater, storage	N				
	Storage, equipment	A				
	Shearing, fitting, AI breeding, semen collection, storage.	A				
	Bag feed, mineral feed, general storage	A				
	Hay dispensing	A				
	Straw and hay storage	A				
	Animal housing	A	Bldg [redacted]			

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	Lambing going well. RARC Note: send training records template Positive note: the health of the folk is really good, [redacted] and [redacted]re giving excellent care. Positive note: Facility staff very grateful for great vet care, close working relationship with vet staff. The vest students helping with lambing is a continuing success.			
[redacted]	Pasture adjacent to building, used for sheep.	N	No animals on pasture yet.			

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/22/18	
Inspection Team Members: [redacted] V) [redacted]) [redacted] R) [redacted] V) [redacted])					File created: 04/06/18	
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: pick up clutter, e.g tires, fence sections.			
[redacted]	Storage	A				
	#[redacted] (old Calf barn)	N	Not in use			
	Offices	N	Not in use			
	Barn & Pens	A				
	Barn & Pens	A				
		N	Not in use yet			
	Storage (old mink barn)	N	Not in use.			

Animal Facilities Inspection Checklist						
Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 03/22/18	
Inspection Team Members: [redacted] V [redacted] [redacted] R [redacted] V [redacted])					File created: 04/06/18	
Inspection Notes					Tracking	
Room	Description	AMS	Comments/Notes	Correct by Date	R	Includes name, date and method of all contacts & answer, date and method of all responses. Indicate when resolved or Referred to Committee
General comments		A				
[redacted]	Cattle housing	A	Bldg [redacted]			
[redacted]	Office & Fridge	A	Bldg [redacted]			
[redacted]	Restroom and changing	A	Bldg [redacted]			
[redacted]	Prep room and lab area	A	Bldg [redacted]			
[redacted]	Feed room and storage area	A				
[redacted]	Cattle housing	A				

Animal Facilities Inspection Checklist

Name of Facility: [redacted] facility 2018A						School/College: CALS	
Supervisor: [redacted]						Date: 03/22/18	
Inspection Team Members: [redacted] V) [redacted]) [redacted] R) [redacted] V [redacted])						File created: 04/06/18	
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]	Feed & equipment storage	A					
[redacted]	Summer cattle housing/horse housing	A					
[redacted]	Cattle housing	A					
[redacted]	Office	A					
[redacted]	Cattle processing and treatment room	A					
[redacted]	Workshop and storage	A					
[redacted]	Restroom and shower	A					
[redacted]	Carts, supplies, etc.	A					
[redacted]	Horse housing	A					
[redacted]	Cattle or horse housing	A					
[redacted]	Cattle housing	A					
[redacted]	Sawdust & bedding storage	A					
[redacted]	Equipment storage	A					
[redacted]	Supply storage	A					
[redacted]	Outside chute	A					
[redacted]	Cattle housing	A					

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]	Horse area	N	Not in use			

Animal Facilities Inspection Checklist

Name of Facility: [redacted] facility 2018A					School/College: CALS	
Supervisor: [redacted]					Date: 04/05/18	
Inspection Team Members: [redacted] ([redacted]R) [redacted] ([redacted]V) [redacted])					File created: 04/06/18	
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	staff	A	Note: there is a company that will collect and recycle the ag bag plastics- great idea!			
[redacted]	Manager's office; SOPs, safety info	A	Records and sop review.			
[redacted]	drug storage, laundry, shower, refrigerator	A				
Trailer	Old, red, "CornPro"	A				
[redacted]	Cows during calving/Machine Shed	A				
[redacted]	Bld [redacted] Cow and newborn calves in spring (seasonal)	A	Note: bldg [redacted] second to last stop			
[redacted]	Bld [redacted] Steers in spring and winter, other misc. (near scale chute)	A	Bld [redacted] move up to second stop after main of the, near the chute and scale house			
[redacted]	Calving/overflow / isolation (not often used)	A				
[redacted]	Machine shed/shop office/vet log/records	A				
[redacted]	Squeeze Chute & Scale	A	Near bldg [redacted]			
[redacted]	Sheds	A	Near gonset			
[redacted]	Pasture management projects	A				

CALS IACUC
April 2018
closed

CONFIDENTIAL

SD

From: [redacted] ansci.wisc.edu
Subject: RE: A005441 adverse event
Date: March 25, 2018 at 5:03 PM
To: [redacted] rarc.wisc.edu [redacted] rarc.wisc.edu
Cc: [redacted] wisc.edu [redacted] gmail.com, [redacted] wisc.edu

[redacted] and [redacted]

I found the "New Adverse Event" button on my A005441 protocol site. The button took me to the adverse event policy statement, but then I did not know what to do next. Just to get this event reported here it is below.

Situation: [redacted] procured hens in molted physiological state from a private vendor. The 115 hens arrived at the [redacted] on March 2. In the days following delivery, 6 hens died and 19 hens were euthanized. The birds were in a weakened state presumably because they did not acclimate to the new feed source provided by the research group. Due to this weakened state, they were unable to drink water. Deaths were presumably due to metabolic, not disease, complications leading to dehydration.

I believe this situation was exacerbated by the absence of [redacted] the regular [redacted] veterinarian [redacted] leave, and the absence of a poultry science faculty member following [redacted] death in September 2017).

I have been the PI of this protocol since its approval date (6/8/2016). I did so because I was [redacted] and [redacted] had a conflict of interest due to his ownership in [redacted] his spin-off company. I had the attitude that as [redacted] would fill the transient gaps when they arose in the Department, but then I departed from the [redacted] role on June 30, 2016.

On Jan 1, 2018, I assumed the role of [redacted] program. An inducement for me to assume this role was a temporary base adjustment to my salary. The funding for this base adjustment is from a Strategic Start up account that is funded by non-University donors. One of the donors is an owner of [redacted] Therefore, I am conflicted in this adverse event. I will speak to my Department Chair to inquire which of my two roles ([redacted] or A005441 PI) I should sustain.

I propose the following actions to prevent this situation from occurring in the future.

1. The physiological state of the laying hens was not specified in A00541, and it is believed that this is the first instance of molted hens being procured for research in the [redacted] Consequently, all parties except the research group were unaware of necessary preparations. Use of molted hens will be proposed in a protocol amendment. In this case, molted hens were fed a laying hen diet purchased from Farm & Fleet. It is likely that a better option would have been to feed the laying hen diet available at the [redacted]
2. A00541 does not include a decision tree with regard to hen euthanization. Such a decision tree will be proposed on a protocol amendment. Without a decision tree, all parties except the research group were unaware of the process for either bird recovery procedures or preemptive euthanization.
3. Since this research project is being conducted by [redacted] personnel, there was no easy reference which could be consulted to ascertain when [redacted] personnel last monitored health of the hens. A log book will be used in the future into which each visit

by [redacted] personnel will be recorded together with notations of actions applied to hens.

I will certainly answer questions to the best of my knowledge when they arise.

Sincerely,
[redacted]

CONFIDENTIAL

From: [redacted]
Sent: Friday, March 23, 2018 7:12 AM
To: [redacted]@ansci.wisc.edu>
Subject: Re: A005441 adverse event

HI [redacted]

There should be a button for you to do that. click on the adverse event button and there are instructions on how to do that after you click the button. It should be under the "my activities" section on your left.

Thanks,
[redacted]

On Mar 22, 2018, at 10:28 PM, [redacted]
[redacted]@ansci.wisc.edu> wrote:

[redacted]
I also need to report an adverse event for A005441. I thinkthat will be possible for me to do after the amendment is withdrawn. If I need more coaching, I will contact you.
[redacted]

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WISCONSIN UNIVERSITY OF WISCONSIN–MADISON	University of Wisconsin-Madison Institutional Animal Care and Use Committee (IACUC)	Protocol # : A005441 Date Approved : 6/8/2016 Expiration date : 6/7/2019

PROTOCOL BASICS

1. **Protocol title**
   Give your protocol a title.
   * Strategies to increase antibody titer in the egg

2. **PI name**
   Click Change to choose a different name. If you can't find the name you want, email arrow_help@arc.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.
   * Animal Sciences

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., A01234 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@arc.wisc.edu

   Person
   [redacted]

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@arc.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

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*

Person

[redacted]

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@arc.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) funding**
   Are 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.

   * Agricultural Research, Teaching and/or Herd Management

VA ACORP

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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 course of approved ACORP(s).

There are no items to display

SIGNIFICANCE and JUSTIFICATION

1. **Significance of work**

Using non-technical (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 non-scientific language how you plan to interpret the collected data to meet the goals of the study.

*

The use of antibiotics in animal agriculture is potentially hazardous. Studies conducted in China revealed that the "antibiotic of last resort" was found to have resistance in a transmissible form in pigs (Liu Y et al. Lancet Infectious Diseases, published online 2015). To combat antibiotic resistance emerging [redacted] is essential to find a new way to treat these animals for food in a humane way. During the last 5 years of work in [redacted] we found a new way to treat infectious diseases: a antibody to host (chicken in this case) interferon-10.

[redacted] is important for shut-down of the immune system however, the microbes that cause infection use this pathway to escape immune detection and cause disease. We have demonstrated that inhibiting [redacted] using a chicken egg antibody is effective at inhibiting [redacted] is the most common and destructive poultry disease causing an estimated $1 Billion annually to the poultry industry and largely the cause for the use of antibiotics in raising chickens. In order to prevent/treat this disease in a cost effective manner further research is need to improve the amount of the [redacted] antibody that is deposited in the egg.

The goals of this study are to improve the amount of antibody in an egg. This is important for using egg antibodies as alternatives to antibiotics. Currently we need to improve our antibody titer 2-5 fold in order to be competitive in the marketplace. The overall benefits of the research would be a reduction in the use of antibiotics in animal agriculture while simultaneously reducing the number of chickens needed to make the alternative to antibiotics thus reducing the number of animals that may experience pain and distress from the vaccination procedure.

2. **Justify use of animals**

Explain why you must use live vertebrate animals instead of non-animal alternatives such as computer simulation or in vitro systems.

* Currently there are no means of producing large quantities of polyclonal antibodies without using animals. Ultimately, monoclonal antibody production in plants or through fermentation may one day be possible for specific parts of the protein that we are targeting. The use of the eggs as a source of antibody is a large improvement over more traditional means of producing antibodies that require blood collection. So it could be argued that progress has been made in replacing some of the procedures in the production of antibody.

EXPERIMENTAL NARRATIVE

1. **Experimental narrative**

In language that scientific colleagues outside your discipline would understand, 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.

DO NOT include experimental details here, such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc. Later in the protocol, you will enter those details.

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DO NOT describe animal housing arrangements or other standard husbandry practices. Later in the protocol you will enter those details in that later section, only describe practices that differ from those 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.

Chickens who are found to be consistently laying eggs will be used in these experiments. To try and improve the amount of antibodies in the chicken egg a few strategies will be employed.

First chickens being used as control will be injected with [redacted] This is currently the best way we know how to make the most antibody for the chicken egg. Using that as a control, we will test different adjuvants and corticosteroids in the feed to try and increase the amount of antibody in the egg without the harmful side-effects of [redacted]

In our first experiment we will use [redacted] this has been shown to increase antibody titer to a whole salmonella protein. It did not appear, in the published study [redacted] to have the negative side-effects associated with [redacted] It also has the added benefit of being able to be injected in every vaccination and boost. In my personal communication with the authors of the paper they indicated that the use of CpG-ODN was used in every injection. Chickens will be injected at [redacted] After the initial injections, chickens will then be followed and potentially [redacted]

The next series of trials will be using different adjuvants such as [redacted] as injectable adjuvants much the same as [redacted] The only differences may be the use of [redacted] in combination with the other adjuvants to determine if there is synergistic effect i.e. [redacted] in the initial injection [redacted] in the initial injection. Alternatively [redacted] may be used in the initial injection with one of the other adjuvants used in the second injection. Finally the [redacted] may be used initially with a different adjuvant at any of the other injections. The injection timing will be identical.

The final series of experiments will test if the addition of [redacted] before injection will increase the amount of antibody in the egg. [redacted] in a personal communication, and patent application, said that the use of [redacted] helped to increase egg antibody titer to a bacteria. I need to test this using [redacted]

Combinations of these different strategies may also be used. Below is a paper that used both [redacted] ...ect may be used to try and further increase the amount of antibody in the egg.

Eggs will be collected from the hens starting at day 0 and be collected for up to 6 months. At the end of the 6 months chickens may be euthanized or transferred to another protocol that does not involve vaccination.

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.

[redacted]

3. **Summary files**

Attach file(s) with timelines, illustrations, figures, or other supplemental information that provides an overview of the protocol. Do

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not attach copies of grant applications.

Collaboration with the University of Wisconsin-Madison, approx

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., AllWeb, Biological Abstracts, NCBINA, PubMed, etc.):
   * PubMed, Google Scholar
2. **Duplication years covered**
   Indicate the time frame covered by search (yyyy-yyyy):
   * 1950-2016
3. **Duplication recent search**
   Indicate the date of the most recent search (mm/dd/yyyy):
   * 2/25/2016
4. **Duplication keywords**
   List the keywords used for search:
   * Adjuvant
   [redacted]
   Chicken
   Antibody
   Titer
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.
   I have worked with [redacted] for 5 years and we have never explored these areas. He is considered a leading expert in the field of egg antibody technology.
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.
   * The studies are novel in that we are trying to increase the egg antibody titer to a [redacted] has never been shown. It has been shown that [redacted] can increase egg antibody titer to bacterins which are large and have many different immunogenic sites. The combinations of adjuvants have never been published using chickens. So the combination of [redacted] with other adjuvants is new and novel.

SELECTED SPECIES

ATTENTION: Questions regarding each species can be found in the Species Details section of the protocol. Click on the Species Details button next to the species you would like to work on.

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.

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To REMOVE a species, click the trash can icon on the appropriate 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	Domestic chicken	240	no	no	no		E		

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 arow_help@rac.wisc.edu
   *

	Name	Office phone	Lab phone	Cell phone	Email
View	[redacted]	[redacted]		[redacted]	[redacted]@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 live species, explain how the PI will provide the oversight necessary for compliance with animal program regulations and requirements.
   Dr [redacted] will communicate with Dr [redacted] in terms of knowing the treatments per experiment, experiment sequence, and bird usage per experiment.

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.
   * Dr [redacted] is already an experienced handler of chickens within the UW-Madison context.

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]
   * Confirmed

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.

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ALL painful/distressful procedures and surgeries must be associated with at least one staff member.

1. Study team member assignments

Name	[redacted]
Species	Domestic Chicken
Surgeries	*No value entered*
RARC Classes	UW Animal User Orientation - 2013-07-25 Biomethodology of the Zebrafish - 2013-04-10 Biomethodology of the Fish - 2013-04-10 Lab Animal Surgery - 2012-11-15 Bio... read more...
Education	*No Value Entered*
Experience	Cattle experience 1 year; sheep experience 1 year , chicken experience 5 years,
Painful non surgical procedures	*No value entered*
Physical euthanasia methods	*No value entered*

View

2. Protocol-specific experience/training not included above for any study team member may be included here.

OCCUPATIONAL HEALTH AND SAFETY OF PERSONNEL

Use of hazardous materials requires separate review and approval by EHS. 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@pmwisc.edu)

*

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- [ ] Biological hazards (zoonotic agents, human or animal pathogens, human cells, prions, etc.)
- [x] Chemical hazards (carcinogens, flammables, highly reactive, corrosives, etc.)
- [ ] Physical hazards (UV light, magnetic fields, noise, electric shock, temperature, etc.)
- [ ] Radiation and/or radioactive materials (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.

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@ipm.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@ipm.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 IACUC 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.

   *

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Chemical hazard details

Reagent/Substance	[redacted]
Drugs and Compounds	[redacted]
Containment Preparation	No special containment needed
Species	Domestic chicken
Containment Animals	No special containment needed
PPE needed	Lab coat or Disposable gown, Exam gloves - Latex
Waste	No special precautions needed for waste/dirty bedding
Carcasses	No special precautions needed for disposal use facility standard method
Chemical Risk	If repeatedly injected with [redacted] may cause anaphylactic shock
Chemical SDS	Yes

View

3. Chemical safety signage

Upload any chemical 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.

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Domestic chicken: JUSTIFY SPECIES CHOICE

1. **Justify species choice**

   Why is this species the most appropriate for your protocol?

   * Chicken eggs are used to produce antibodies on a large scale. Determining the best way to make antibodies in the chicken egg would be valuable.

Domestic chicken: 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.

   * 240

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 ACARA Policy 2013-051 for guidance and its Companion SOP for examples of acceptable justifications.

   *

   During a power analysis we found that 10 laying hens/group was appropriate. Since we will be testing each of the 12 different adjuvants and combinations that is 120 chickens, since we will also need 10 controls for each of the different adjuvant combinations we will need 120 control chickens.

   Power Analysis

   FCA= 200, 75, 50, 110, 30 (Titer)
   Mean=93
   Std dev=67
   Variance = 4489

   Calculation for detecting a difference of 93 (2 fold)
   \
   7.9 X 2 X variance/difference squared
   79X2X4489/93X93 =8 birds

   Since we expect more variance because we are using new adjuvants that is the reason for 10/group.

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

Domestic chicken: AGRICULTURE SPECIES SOURCE

Check all sources that apply for this species.

1. **UW or affiliated sources**

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Ag Species Source
☐ [redacted]
☐ [redacted]
☐ [redacted]
☐ [redacted]
☐ [redacted]
☐ [redacted]
☐ [redacted]
☑ [redacted]
☐ [redacted]
☐ [redacted]
☐ [redacted]
☐ Other UW source

2. **Non-UW sources**

Ag Species Source
☐ Capture or collection from wild (free-living) population
☑ Commercial vendor
☐ Private herd or flock
☐ Other non-UW source

3. **Ag other source**

If the source is other UW or other non-UW source, list it here.

[redacted]

4. **Transmissible disease determination**

How will you determine that these animals are free of transmissible diseases?

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- [x] UW resident herd animals are tested/monitored as per facility SOPs for transmissible disease
- [x] RARC veterinary staff will be notified of pending purchase/acquisition two weeks in advance to develop and implement appropriate testing and quarantine strategies
- [ ] Donated animals will be placed into quarantine until RARC vet services approve health status
- [ ] Not applicable
- [ ] Other: Describe below

Transmissible disease determination other

[redacted] is a commercial egg farm and have there own disease monitoring program

Domestic chicken: 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 a new approved protocol.

Domestic chicken: GENETICALLY MODIFIED Y/N

1. **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

Domestic chicken: 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 research substances.
   *

- [ ] analgesics/anesthetics/sedatives to relieve pain or distress caused by nonsurgical and/or surgical procedures
- [x] euthanasia substance(s)
- [x] all other substances
- [ ] feed study
- [ ] I will not administer any substances.

Domestic chicken: SUBSTANCE ADMIN: EUTHANASIA

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If a substance is used to euthanize this species, it should be entered here. Include CO_2.

1. **Euthanasia substance table**

Regimens

View	regimen	CO2
	Drugs and Compounds	Carbon Dioxide
	description	Chickens that are to be euthanized will be placed in a separate container with a transparent window for animal observation. In a manner that they are not overcrowded and CO2 from a compressed gas cylinder at a flow rate to displace 10-30% of the chamber volume per minute will be administered for at least 1 minute after apparent signs of clinical death.

Domestic chicken: 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	[redacted]
	Drugs and Compounds	[redacted]
	category	*No Value Entered*
	Dosing details	A maximum of [redacted] will be used for every [redacted] intramuscular [redacted]. Chickens will then be followed out for up to [redacted] with booster injections up to [redacted]
	purpose of use/ monitoring	This is to determine if [redacted] will improve antibody titer to [redacted]
	painful/distressful?	No
	anesthesia/analgesia regimen	*No value entered*

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Substance name	[redacted]
Drugs and Compounds	[redacted]
category	*No Value Entered*
Dosing details	[redacted] will be injected into control chickens one time with [redacted] chicken with the [redacted] will then be used in subsequent booster [redacted] And then used as a booster [redacted]
purpose of use / monitoring	[redacted] the best adjuvant at increase the amount of antibody in the chicken egg. There have been reported side effects including tissue necrosis in other animal species, however, in my 5 years of experience using this with chickens we have not seen any side effects.
painful/distressful?	Yes
anesthesia/analgesia regimen	*No value entered*

View

Substance name	[redacted]
Drugs and Compounds	[redacted]
category	*No Value Entered*
Dosing details	Intramuscular [redacted] every [redacted] Chickens will then be injected one or two [redacted] with booster [redacted]
purpose of use / monitoring	This is one adjuvant to determine if usi[redacted]on with the others listed will improve antibody titer t[redacted]
painful/distressful?	No
anesthesia/analgesia regimen	*No value entered*

View

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View	Substance name	[redacted]
	Drugs and Compounds	[redacted]
	category	No Value Entered
	Dosing details	[redacted] Chickens will then be [redacted] intramuscular.
	purpose of use / monitoring	improve egg antibody titer to [redacted]
	painful/distressful?	No
	anesthesia/analgesia regimen	No value entered

View	Substance name	[redacted]
	Drugs and Compounds	[redacted]
	category	No Value Entered
	Dosing details	[redacted] intramuscular [redacted] Chickens will then be followed out for [redacted] with booster injections [redacted]
	purpose of use / monitoring	increase antibody titer [redacted]
	painful/distressful?	No
	anesthesia/analgesia regimen	No value entered

View	Substance name	[redacted]
	Drugs and Compounds	[redacted]
	category	No Value Entered
	Dosing details	Using manufacturers directions we will use between [redacted] Chickens will then be followed out for [redacted] with booster injections [redacted]
	purpose of use / monitoring	to improve antibody titer beyond [redacted]
	painful/distressful?	No
	anesthesia/analgesia regimen	No value entered

Domestic chicken: SPECIAL SUBSTANCES

1. Special substances
   *

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- [ ] cells, cell lines, tissues, or tissue products (animal and/or human)
- [x] [redacted]
- [ ] controlled substances (requiring DEA registration)
- [x] nonpharmaceutical-grade compounds
- [ ] paralytic agents
- [ ] none of the above

Domestic chicken: [redacted]

1. [redacted] Selection

Select the substances that are [redacted]

*

	Regimen/Substance	Drugs and Compounds	Species
[ ]	[redacted]	[redacted]	Domestic chicken
[x]	[redacted]	[redacted]	Domestic chicken
[ ]	CO_2	Carbon Dioxide	Domestic chicken
[ ]	[redacted]	[redacted]	Domestic chicken
[ ]	[redacted]	[redacted]	Domestic chicken
[ ]	[redacted]	[redacted]	Domestic chicken
[ ]	[redacted]	[redacted]	Domestic chicken

2. [redacted] Justify

[redacted] must be scientifically justified and a comprehensive search for alternatives considered. Please justify use of [redacted] versus alternative adjuvant systems.

*We are trying to test other compounds against [redacted] and determine if they would replace [redacted] in terms of matching or exceeding the ability to increase egg antibody titer. So it is essential to have [redacted] as a control.

Domestic chicken: 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.

*

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Reagent/Substance	Drugs and Compounds	Species
☑ [redacted]	[redacted]	Domestic chicken
☑ [redacted]	[redacted]	Domestic chicken
☐ [redacted]	Carbon Dioxide	Domestic chicken
☑ [redacted]	[redacted]	Domestic chicken
☐ [redacted]	[redacted]	Domestic chicken
☑ [redacted]	[redacted]	Domestic chicken
☑ [redacted]	[redacted]	Domestic chicken

2. **Nonpharmaceutical-grade use justification**

Justify your use of each nonpharmaceutical-grade substance you'll administer.

* No pharmaceutical-grade formulation is available, drugs are not available for experimental use, the highest-grade equivalent chemical (e.g., non-USP) reagent will be used and if formulated topically and with a nontoxic vehicle as appropriate for the route of administration.

[redacted] FDA approved for human use and a pharmaceutical grade will be used.

3. **Nonpharmaceutical-grade preparation**

If appropriate, describe the preparation method for each compound selected.

The preparation method for each of the non-pharmaceutical grade is unique. The [redacted] is purified by HPLC so there is no other contaminant in the material, further purification should be unnecessary. The [redacted] will be filter sterilized before injection into any animal. The [redacted] will be used with sterile procedures to ensure there is no contamination from the environment prior to injection.

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

Domestic chicken: AGENTS

1. **Agents**

*

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- [ ] rDNA
- [ ] bacteria
- [ ] virus
- [ ] prion
- [ ] human-derived
- [ ] genetically altered
- [ ] toxin
- [ ] carcinogen
- [ ] mutagen
- [ ] teratogen
- [ ] radioactive
- [x] none of the above

Domestic chicken: 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.
- [ ] **Forced exercise**
  Exercise that includes any negative stimuli
- [ ] **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.
- [x] **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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Domestic chicken: HSP: OTHER NONSURGICAL PROCEDURES

Click "Add" to answer questions about nonsurgical procedures you haven't already described.

1. **Other nonsurgical table**

title	vaccination
max no. of animals	240
pre and post care and/or treatment	none needed
description	Each chicken will be injected with [redacted] on the chicken with [redacted] The sites will be [redacted] The chickens will be vaccinated [redacted] for [redacted] initially. Chickens may then be boosted [redacted]
frequency	7 times
pain/distressful?	No
Files	
Analgesic/Anesthetic regimen	*No value entered*

View

Domestic chicken: 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

Domestic chicken: ALTERNATIVES SEARCH

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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**
- **Non Surgical Procedures: with pain**

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen
[redacted]	Substance Administration	No value entered

- **Surgical Procedures**

Surgery title	Survival Procedures	Anesthesia/analgesia regimens
There are no items to display		

List one or two databases you searched (e.g., AltWeb, Biological Abstracts, NTRINA, PubMed etc.) to look for alternatives.

1. **Alternative databases**
   * Pubmed, GoogleScholar
2. **Alternatives years covered**
   What years did your search cover? (yyyy-yyyy)
   *1980-2016
3. **Alternatives recent search**
   What was the date of your most recent search?
   *3/24/2016
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 refute potential alternatives found in the database search. Examples of other sources are conference attendance, professional expertise, specific journal articles, training, etc.
   In my own and my mentors [redacted] we have not found a better adjuvant than [redacted] and if we didn't use [redacted] we would need to use more animals for the same result.
5. **Alternatives search strategy**
   Describe your search strategy, including the scientifically relevant keywords you used.
   [redacted]
   Adjuvants
   Pain
   Use the above keywords. It will search for any alternative [redacted] that does not remove antibody titer.
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.
   * We are currently evaluating alternatives [redacted] in this protocol. Before we switch to a new method we must be sure that the new method is better [redacted]

Domestic chicken: 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 (e.g., internal bleeding after liver biopsy,

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Graft Versus Host Disease (GVHD) with transplant) or from any chronic condition resulting from the procedures (e.g., lameness, disease) and how will the complications be managed?

* There should be little complications from the use of these different adjuvants. Each has been used in the literature and all have fewer reported side effects. Far [redacted]

Injection w[redacted] can cause severe swelling, granulomatous [redacted], necrosis, and ulceration of tissues surrounding injection following the accidental injection [redacted]

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.

Domestic chicken: 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

Domestic chicken: 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?

The study endpoints are to find if a different adjuvant can perform as well as [redacted] or better, in terms of increase egg antibodies in the egg. The benefit will be in getting rid of [redacted] Once it is determined that we can or cannot increase the amount of antibody in the egg up to or over the amount of [redacted] the chickens will be euthanized. [redacted]

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2. **Criteria for unanticipated euthanasia**
For unanticipated events or non-study-related health issues, what criteria or clinical signs will you use to determine an unanticipated endpoint for an animal?
* If animals can no longer freely move, eat or drink then it should be euthanized.

3. **Plan for anticipated euthanasia**
Select all applicable euthanasia methods for planned study procedures.

	Regimen/Substance	Drugs and Compounds	Species
☑	CO2	Carbon Dioxide	Domestic chicken

4. **Plan for unanticipated euthanasia**
Select all applicable euthanasia methods for unanticipated events or non-study-related health issues.

	Regimen/Substance	Drugs and Compounds	Species
☑	CO2	Carbon Dioxide	Domestic chicken

5. **Plans for physical methods of euthanasia (i.e. exsanguination, captive bolt)**

Method Name	Method Description
There are no items to display	

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.
* We will check for a heart beat. If there is no discernible heart beat the animal will be considered dead.

Domestic chicken: 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:
*

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- [ ] 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.
- [x] 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 products 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.

Domestic chicken: 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.

Don't describe the use of wire bottom caging here if non-avian animals will be on wire-bottomed caging for less than 12 hours. That should be included in the EXPERIMENTAL NARRATIVE.

1. **Nonstandard husbandry**

Check all non-standard conditions that apply to this species.

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- [ ] **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.
- [x] **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 for more than 12 hours (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.

Domestic chicken: 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?
   * Chickens will be housed singly for the duration of the study.
2. **Single housing enrichment**
   What enrichment will you provide for singly housed animals?
   * Chickens will be provided with enrichment in the cages such as string.
3. **Single housing monitor**
   How will you monitor singly housed animals?
   * Animal care staff will monitor the animals daily.

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4. **Single housing justify**

What is your justification for single-housing a social species?

* Single housing is needed to reduce the number of chickens used. If more chickens were housed in a cage, statistically it would still be considered an group of 1. This means we would have to at least double the number of animals used to get the answer we require. Since with single housing each chicken is an experimental unit, and each egg laid is a part of that experimental unit, we are trying to use the fewest animals possible to get the answer we need.

Domestic chicken: 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 Veterinary Medicine Teaching Hospital (VMTH) space? Enter "SVM_VMTH" in Question 1 and then select the usage area or areas within SVM_VMTH you want to use. Do not choose specific room numbers for VMTH in Question 1. Do not type in specific rooms for VMTH 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 Clinical Sciences Center (CSC) include the building module (e.g. K4/123). 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
View	[redacted]	vivarium	facility	CALS	yes	yes	Meet Surgeries Allowed

2. **Locations not found in Q1 — Request ACUC approval**

Building Name	Building Address	Room Name
There are no items to display		

3. **Locations not controlled by UW-Madison or its affiliates**

Location	Location Address
There are no items to display	

Domestic chicken: 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
[redacted] vivarium	yes	no	[redacted]	No value entered	yes

Domestic chicken: TRANSPORT

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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 Methods**
Will animals assigned to this protocol be transported or moved between facilities or via transport methods outside of normal management practices? (See help text for more information)

○ Yes ○ No

Order of movement
If yes, in 2-4 sentences describe animal movement and transport method.

Domestic chicken: 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.

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WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

College of Agricultural and Life Sciences Animal Care and Use Committee
Open Session – May 17, 2018

Present (voting): [redacted]

Present (nonvoting): [redacted]

Guests: [redacted]

Absent: [redacted]

Dr [redacted] called the meeting to order at 2:04 p.m. and announced that the ACUC will immediately convene into Closed Session to accommodate a guest.

Dr. [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), (e), (f) and (g). [redacted] seconded. The vote was unanimous by roll call.

[redacted] joined the meeting during closed session]

After closed session the meeting reconvened in open session.

Approval of Open Session Minutes April 19, 2018

[redacted] moved to approve the Open Session Minutes as submitted. The vote was unanimous.

Annual Reapprovals (May)

Dr. [redacted] led committee discussion of the annual updates. Mr. [redacted] asked about the status of protocol A005441. It was noted that the requested amendment has not yet been submitted, but that the protocol remains active under the restrictions discussed at the last meeting. [redacted] moved to approve the annual updates. The vote was unanimous with [redacted] and [redacted] abstaining.

Protocol Review

A005106-R01: Determining the molecular mechanisms of ultraviolet B-mediated protection on experimental autoimmune encephalomyelitis – Discussion of the protocol ensued. The PI

Research Animal Resources Center
396 Enzyme Institute 1710 University Avenue Madison, WI 53726-4087
608-262-4238 Fax 608-265-2698 Email:help@arc.wisc.edu

will be asked to clarify the animal numbers justification, describe the enrichment for singly-housed animals, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005130-R01: University of Wisconsin Dairy Technology Transfer Program - Discussion of the protocol ensued. The PI will be asked to clarify the animal numbers justification, delete details of in-vitro procedures, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005143-R01: Electrode Arrays for Bloodless Liver Resection and Tumor Ablation - Discussion of the protocol ensued. The PI will be asked to modify the search for alternatives and make other minor changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005147-R01: Forage Legume Grazing Tolerance - Discussion of the protocol ensued. The PI will be asked to revise the experimental narrative to include a chronological summary of the research, update the duplication literature review, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005171-R01: A Positional Candidate Gene Approach for Identification of Quantitative Trait Loci in Dairy Cattle - Discussion of the protocol ensued. The PI will be asked to clarify the sampling schedule, add citations, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005189-R01: Effects of Stocking Rate at the Feedbunk and Push-Up Frequency on the Performance of Holstein Dairy Heifers Offered Alfalfa Haylage/Corn Silage Diets - Discussion of the protocol ensued. The PI will be asked to indicate that there will be prior use of animals on the herd protocol. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A005195-R01: Evaluation of Alternative Forage Use in Dairy Heifer Diets in Central Wisconsin - Discussion of the protocol ensued. The PI will be asked to specify what diet the alternative forage will be compared to and update the duplication literature search. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A006038: Fox niche partitioning in Patagonia - Discussion of the protocol ensued. The PI will be asked to clarify how long the Giving up Density (GUD) station will be operational and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

A006041: Thin soles in lactating dairy cows – behavioral and production impact and the influence of Zinpro Performance Minerals on hoof growth, wear and integrity - Discussion of the protocol ensued. The PI will be asked to include a brief explanation of how the RNA samples will be used to accomplish the experimental goals, clarify the ultrasound procedure, and make other changes. [redacted] moved to require modifications to secure approval. The vote was unanimous.

Logs: Designated Review/other (May)

The committee reviewed the designated review logs.

Senior Program Veterinarians Report

Dr. [redacted] had no report.

Dr. [redacted] provided an update on the status of the online health reporting system that is now being used in all CALS rodent facilities. He said that the system is working well now that a few issues identified on implementation have been corrected.

Report from the Animal Program Assessment Specialists

Mr. [redacted] had no report.

Other Business

Dr. [redacted] reported that the CALS-specific policies on Dogs and Cats on CALS Animal Facilities and Farms, Feed Storage Principles, Guidelines for the Use of Wire-Bottom Rat Cages, Tail Docking of Dairy Calves, and Policy on Use of Electric Prods with Livestock will be reviewed at next month's meeting to determine if they are still necessary.

Dr. [redacted] reminded the ACUC that Campus Policy 2012-048-io: Photography and Videography in UW Research Animal Use Areas has been updated and was featured in the latest RARC newsletter.

Dr. [redacted] reminded members that the CALS Semiannual Program Review meeting will be held next Tuesday at 10:30 a.m.

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), (e), (f) and (g). [redacted] seconded. The vote was unanimous by roll call.

The meeting was adjourned from Closed Session without reconvening into Open Session.

Approved by CALS ACUC
6/21/18

[redacted]

LOGS FOR CALS ACUC – May 2018

Designated Review: New/Renewal

PI	#	Rec'd	Project Title	Species	N/R

Designated Review: Amendment

PI	Prot #	Rec'd	Title	Species	Summary of change	
[redacted]	A005821 A03	4/13/18	Diabetes research in mice	mus	Amending substances and nonsurgical procedures section -- Called for full committee 4/19/18 meeting	5/7
[redacted]	A005392	4/23/18	Nutritional and immune studies of the chicken and duck	Domestic chicken, Muscovy duck	Update substance administration	REV
[redacted]	A005400 -A04	5/3/18	RESEARCH AND EDUCATION PROGRAMS ON LYME DISEASE IN WISCONSIN	wildlife	Title change, + nonsurgical	REV

Dual School Log

PI	Prot #	Rec'd	Project Title	Species	Add'l ACUC

Veterinary Verification and Consultation (VVC)

PI	Prot #	Rec'd	Project Title	Species	Summary of change

University of Wisconsin-Madison Institutional Animal Care and Use Committee (IACUC) IACUC Protocol Application	Protocol # : Date Approved : Expiration date :

PROTOCOL BASICS

1. **Protocol title**
   Give your protocol a title.
   * Blank Agricultural Protocol

2. **PI name**
   Click Change to choose a different name. If you can't find the name you want, email arrow_help@arc.wisc.edu.
   *

3. **PI Status**
   Is the named PI (select one):
   *
   - ○ Faculty
   - ○ Emeritus appointment
   - ● Other

4. **PI department**
   Enter the PI's department name.
   *

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@arc.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@arc.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
There are no items to display

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@arc.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 (FRJXXX)	Start Date	End Date	Grant Status	Sponsor (Source)
There are no items to display						

3. **Public Health Service (PHS) funding**
   Are 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.
   *

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.
   *

EXPERIMENTAL NARRATIVE

1. **Experimental narrative**
   In language that scientific colleagues outside your discipline would understand, 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.

   DO NOT include experimental details here, such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc. Later in the protocol, you will enter those details.

   DO NOT describe animal housing arrangements or other standard husbandry practices. Later in the protocol you will enter those details. In the later section, only describe practices that differ from those 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 veterinerian, 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

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. **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

ATTENTION: Questions regarding each species can be found in the Species Details section of the protocol. Click on the Species Details button next to the species you would like to work on.

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									

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@arc.wisc.edu
   *

Name	Office phone	Lab phone	Cell phone	Email

View

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]
   *

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**

Name	
Species	
Surgeries	
RARC Classes	
Education	
Experience	
Painful nonsurgical procedures	
Physical euthanasia methods	

View

2. **Protocol-specific experience/training not included above for any study team member may be included here.**

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.)
   *

- [x] Biological hazards (zoonotic agents, human or animal pathogens, human cells, prions, etc.)
- [x] Chemical hazards (carcinogens, flammables, highly reactive, corrosives, etc.)
- [x] Physical hazards (UV light, magnetic fields, noise, electric shock, temperature, etc.)
- [x] Radiation and/or radioactive materials (administration of radionuclides, etc.)
- [x] Recombinant materials (Transgenic animals and/or recombinant materials [viral vectors, microbes, cells, etc.] administered to animals)
- [x] Wildlife hazards
- [x] 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.

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?
   *

   BH-OBS number
   If yes, please provide the OBS protocol number(s)

2. **Biohazard table**
   The table below lists biohazards that have been added.
   *

View

Biohazard details
Biohazard name
Species
Biosafety level
Biohazard Risk
Containment animals
PPE needed
Waste
Carcasses

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

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
Species
Containment Animals
PPE needed
Waste
Carcasses
Chemical Risk
Chemical SDS

3. **Chemical safety signage**
   Upload any chemical safety signage associated with this protocol.
   There are no items to display

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?
   *

   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?
   *

   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

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?
   *

   OBS number
   If yes, please provide the OBS protocol number(s).

2. **Recombinant materials table**
   The following recombinant materials were added.
   *

Recombinant material details

	Recomb material
	Biosafety level
	Recombinant hazard animal
	Containment animals
	PPE needed
	Waste
View	Carcasses

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

JUSTIFY SPECIES CHOICE

1. **Justify species choice**
   Why is this species the most appropriate for your protocol?
   *

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 will use? Include control and replacement animals, breeding colony animals, all preweaned animals used for tissue samples, and euthanized animals.
   *

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

AGRICULTURE SPECIES SOURCE

Check all sources that apply for this species.

1. **UW or affiliated sources**

	Ag Species Source
☑	[redacted] Unit
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	[redacted]
☐	Other UW source

2. **Non-UW sources**

Ag Species Source

- [ ] Capture or collection from wild (free-living) population
- [ ] Commercial vendor
- [ ] Private herd or flock
- [ ] Other non-UW source

3. **Ag other source**
If the source is other UW or other non-UW source, list it here.

4. **Transmissible disease determination**
How will you determine that these animals are free of transmissible disease?

- [x] UW resident herd animals are tested/monitored as per facility SOPs for transmissible disease.
- [ ] RARC veterinary staff will be notified of pending purchase/acquisition two weeks in advance to develop and implement appropriate testing and quarantine strategies.
- [ ] Donated animals will be placed into quarantine until RARC veterinarians approve health status.
- [ ] Not applicable.
- [ ] Other. Describe below.

Transmissible disease determination other

: 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, permanant physiologic alteration, or substantial impairment on a previous protocol are not eligible for major surgical procedures on subsequent protocols.

GENETICALLY MODIFIED Y/N

1. **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

GENETICALLY MODIFIED OR TRANSGENIC ANIMALS

1. **GM title**

Provide the type, name or a brief description of the types of genetic modifications. For example: targeted deletions of genes controlling iron metabolism
Note: Inbred and mutant strains may have genetic characteristics that could interfere with primary research goals. Please consult with an RARC veterinarian if needed.
*

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.

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 research substances.
*

- [x] analgesics/anesthetics/sedatives to relieve pain or distress caused by nonsurgical and/or surgical procedures
- [x] euthanasia substance(s)
- [x] all other substances
- [x] feed study
- [ ] I will not administer any substances.

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

SUBSTANCE ADMIN: EUTHANASIA

If a substance is used to euthanize this species, it should be entered here. Include CO_2.

1. **Euthanasia substance table**

*

Regimens

View

regimen
Drugs and Compounds
description

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/distressful?
anesthesia/analgesia regimen

SUBSTANCE ADMIN: FEED STUDY

1. **Feed study table**

*

Feed Study Regimens

View

Name Of Regimen
Proposed Length Of Study
Why And How
Nutrients Outside NRC Reference Range
What Outside Range And Monitoring Plan

SPECIAL SUBSTANCES

1. **Special substances**

*

- [x] cells, cell lines, tissues, or tissue products (animal and/or human)
- [x] complete Freund's adjuvant (CFA)
- [x] controlled substances (requiring DEA registration)
- [x] nonpharmaceutical-grade compounds
- [x] paralytic agents
- [ ] none of the above

CELL ADMINISTRATION

1. **Cell selection**

Select the substances that are cells, cell lines, or tissue products.

*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

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

Complete Freund's Adjuvant

1. **Complete Freund's Selection**
   Select the substances that are Complete Freund's Adjuvant.
   *

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

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.
   *

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
☑			Domestic cattle temperate-type
☐			
☐			

2. **DEA registrant**
   Name the DEA registrants for the controlled substances.
   *

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
☑			
☐			
☐			

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

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
☑			
☐			
☐			

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
☑			

AGENTS

1. **Agents**
*

- [x] rDNA
- [x] bacteria
- [x] virus
- [x] prion
- [x] human-derived
- [x] genetically altered
- [x] toxin
- [x] carcinogen
- [x] mutagen
- [x] teratogen
- [x] radioactive
- [ ] none of the above

rDNA AGENTS ADMINISTRATION

1. **rDNA selection**
Select the substances that are rDNA agents.
*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

2. **rDNA files**
Attach file(s).

File

There are no items to display

Bacteria Agents Administration

1. **Bacteria selection**
Select the substances that are bacteria agents.
*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

2. **Bacteria files**
Attach file(s).

File

There are no items to display

Virus Agents Administration

1. **Virus selection**
Select the substances that are virus agents.
*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

2. **Virus files**
Attach file(s).

File

There are no items to display

site-type : Prion Agents Administration

1. **Prion selection**
Select the substances that are prion agents.
*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

2. **Prion files**
Attach file(s).

File
There are no items to display

Human Derived Agents Administration

1. **Human derived selection**
   Select the substances that are human derived agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Human derived files**
   Attach file(s).

File
There are no items to display

Genetically Altered Agents Administration

1. **Genetically altered selection**
   Select the substances that are genetically altered agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Genetically altered files**
   Attach file(s).

File
There are no items to display

Toxin Agents Administration

1. **Toxin selection**
   Select the substances that are toxin agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Toxin files**
   Attach file(s).

File
There are no items to display

Carcinogen Agents Administration

1. **Carcinogen selection**
   Select the substances that are carcinogen agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Carcinogen files**
   Attach file(s).

File
There are no items to display

Domestic cattle temperate-type : Mutagen Agents Administration

1. **Mutagen selection**
   Select the substances that are mutagen agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Mutagen files**
   Attach file(s).

File
There are no items to display

Teratogen Agents Administration

1. **Teratogen selection**
   Select the substances that are taratogen agents.
   *

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Teratogen files**
   Attach file(s).

File
There are no items to display

Radioactive Agents Administration

1. **Radioactive selection**
   Select the substances that are radioactive agents.
   *

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Radioactive files**
   Attach file(s).

File
There are no items to display

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.
- ☑ **Forced exercise**
  Exercise that includes any negative stimuli
- ☑ **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.**

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. single draw vol. (percent)	
# samples	
Interval	
Blood terminal?	
Painful/Distressful?	
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.
   *

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
☑			

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

NSP: FORCED EXERCISE

1. **Forced exercise table**

   For each forced exercise regimen, click "Add" to answer questions about it.

   *

View	Title	
	Describe	
	Monitor	
	Justify	
	Analgesic regimen	

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/Distressful	
	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

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	
contrast	
duration	
freq./animal	
description/monitoring	
painful/distressful?	
imaging analgesia/anesthesia	

: 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	
max. duration	
max. single dose/animal	
max. total dose/animal	
freq./animal	
description	
painful/distressful?	
Analgesic/Anesthetic regimen	

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.

For more information on the definition of physical restraint, selection of restraint type, accustoming animals to restraint devices, and the monitoring of restrained animals, please see: Physical Restraint of Animals 1997-004-v.

1. **Restraint table**
*

View

type of restraint	
max. duration	
acclimatization	
monitoring	
scientific justification	
painful/distressful?	
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

Click "Add" to answer questions about nonsurgical procedures you haven't already described.

1. **Other nonsurgical table**
*

View

title	
max. no. of animals	
pre and post care and/or treatment	
description	
frequency	
painful/distressful?	
Files	
Analgesic/Anesthetic regimen	

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

SURGERY AND POSTSURGERY SUMMARY

For each surgical procedure for this species or group, click "Add" to provide details.

1. **Surgery table**
*

View

title	
survivel type	Minor survivel
max. no. of animals	*No Value Entered*
Analgesic/Anesthesia regimen	
Euthanasia regimen	
Physical Euthanasia	
presurgery fasting	
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."

*

- [x] 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
[x]			

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

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.

	title	
	surgery selection	
	max. no. of animals	
	description	
View	justification	

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.

	title	
	surgery selection	
View	max. no. of animals	
	description	
	justification	

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**
- **Non Surgical Procedures with Pain**

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen
There are no items to display		

- **Surgical Procedures**

Surgery title	Survival Procedures	Anesthesia/analgesia regimens

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. **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.
   *

Domestic cattle temperate-type : 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 (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) and how will the complications be managed?
   *
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.

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

EUTHANASIA

The PARC 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 non-study-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
☑		

4. **Plan for unanticipated euthanasia**
   Select all applicable euthanasia methods for unanticipated events or non-study-related health issues.

Regimen/Substance	Drugs and Compounds	Species
☑		

5. **Plans for physical methods of euthanasia (i.e. exsanguination, captive bolt)**
Please note: Due to animal welfare concerns, some physical methods of euthanasia will require special training. Contact your RARC veterinarian to discuss your specific plans. You may complete and submit the protocol while you make these arrangements.

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.
*

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:
*

- [x] 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.

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.

Don't describe the use of wire bottom caging here if non-avian animals will be on wire-bottomed caging for less than 12 hours. That should be included in the EXPERIMENTAL NARRATIVE.

1. **Nonstandard husbandry**
Check all non-standard conditions that apply to this species.

- [x] **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.
- [x] **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.
- [x] **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.
- [x] **Enrichment withholding**
Animals are not provided with the minimum required enrichment as outlined in the facility SOP.
- [x] **Exercise withholding for dogs**
Dogs are not provided with the minimum exercise as required by the facility SOP.
- [x] **Ambient Noise**
Animals will be exposed to white noise that is not part of the standard environmental enrichment for the species.
- [x] **Nonstandard lighting**
Animals will be exposed to lighting paradigm of non-standard wavelength, intensity, or altered light/dark.
- [x] **Vibration**
Animals will be exposed to vibrations of an amplitude and or frequency known to cause clinical effect.
- [x] **Cleaning/sanitation schedule different than facility standard**
- [x] **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.
- [x] **High velocity air**
Animals will be directly exposed to high velocity air that is not a normal part of their husbandry.
- [x] **Bare floor (no bedding) with no structure for resting or sleeping**
- [x] **Wire bottom cage for more than 12 hours (NOT AVIAN)**
- [x] **Temperature outside recommended range**
Animals will be exposed to temperatures outside of the normal reference ranges for the species.
- [x] **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.

HOUSING ANIMALS OUTSIDE DEDICATED ANIMAL FACILITY

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 then 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

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

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?
   *

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?
   *

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?
   *

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 ambient noise?
   *

3. **Ambient noise justify**
   What is your justification for exposing animals to ambient noise?
   *

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?
   *

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?
   *

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?
   *

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?
   *

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?
   *

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?
   *

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?
   *

Domestic cattle temperate-type : 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?
   *

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?

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 usable 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 RoomName Location Type Committee Housing Allowed Procedure Allowed Surgery Level

   View

2. **Locations not found in Q1 -- Request ACUC approval**

   Building Name | Building Address | RoomName

3. **Locations not controlled by UW-Madison or its affiliates**

   Location | Location Address

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	Non Surgical Procedures	Surgical Procedures	Euthanasia

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 Methods**
   Will animals assigned to this protocol be transported or moved between facilities or via transport methods outside of normal management practices? (See help text for more information.)

   ● Yes ○ No

   Order of movement
   If yes, in 2-4 sentences describe animal movement and transport method.

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.

University of Wisconsin-Madison Institutional Animal Care and Use Committee (IACUC) IACUC Protocol Application	Protocol # : Date Approved : Expiration date :

PROTOCOL BASICS

1. **Protocol title**
   Give your protocol a title.
   * BlankBiomedical Protocol
2. **PI name**
   Click Change to choose a different name. If you can't find the name you want, email arrow_help@arc.wisc.edu.
   *
3. **PI Status**
   Is the named PI (select one):
   *
   - ○ Faculty
   - ○ Emeritus appointment
   - ● Other
4. **PI department**
   Enter the PIs department name.
   *
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@arc.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@arc.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 PIs 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
There are no items to display

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@arc.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(FRJXXX)	Start Date	End Date	Grant Status	Sponsor (Source)
There are no items to display						
3. **Public Health Service (PHS) funding**
   Are 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.
   *

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.
   *

EXPERIMENTAL NARRATIVE

1. **Experimental narrative**
   In language that scientific colleagues outside your discipline would understand, 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.

   DO NOT include experimental details here, such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc. Later in the protocol, you will enter those details.

   DO NOT describe animal housing arrangements or other standard husbandry practices. Later in the protocol you will enter those details. In the later section, only describe practices that differ from those 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 veterinerian, 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.
   *

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. **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

ATTENTION: Questions regarding each species can be found in the Species Details section of the protocol. Click on the Species Details button next to the species you would like to work on.

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									

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 [illegible] wise add.

Name	Office phone	Lab phone	Cell phone	Email

View

2. **Study team groups**
   List GROUPS that will work with animals on this protocol (e.g., 4th year veterinary students, SR). 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, contac[redacted]t University Health Service[redacted]

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**

Name

Species

Surgeries

RARC Classes

Education

Experience

View

Painful nonsurgical procedures

Physical euthanasia methods

2. **Protocol-specific experience/training not included above for any study team member may be included here.**
   There are no items to display

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.)

*

- [x] Biological hazards (zoonotic agents, human or animal pathogens, human cells, prions, etc.)
- [x] Chemical hazards (carcinogens, flammables, highly reactive, corrosives, etc.)
- [x] Physical hazards (UV light, magnetic fields, noise, electric shock, temperature, etc.)
- [x] Radiation and/or radioactive materials (administration of radionuclides, etc.)
- [x] Recombinant materials (Transgenic animals and/or recombinant materials [viral vectors, microbes, cells, etc.] administered to animals)
- [x] Wildlife hazards
- [x] 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.

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?

   *

   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
Biosafety level
Biohazard Risk
Containment animals
PPE needed
Waste
Carcasses

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

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 AOUC 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.
   *

   View

   Chemical hazard details

Regimen/Substance	
Drugs and Compounds	
Containment Preparation	No special containment needed
Species	
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

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.

View

Physical hazards list

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?
   *
   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

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?
   *

   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
	Recombinant hazard animal
	Containment animals
	PPE needed
	Waste
	Carcasses

3. **Recombinant material safety signage**
   Upload any recombinant material safety signage associated with this protocol.
   There are no items to display

WILDLIFE HAZARDS

1. **Protective clothing**
   Provide the protective clothing that will be worn while handling wildlife (please check all that apply)
   *

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)
   *

3. **Decontamination procedure**
   Describe decontamination procedures and frequency for equipment that will be used to capture, transport, and contain animals.
   *

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

JUSTIFY SPECIES CHOICE

1. **Justify species choice**
   Why is this species the most appropriate for your protocol?
   *

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.
   *

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 ACARC 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

Laboratory mouse: BIO SPECIES SOURCE

1. **Bio species source**
   Check all sources that apply for this species. Animals arriving from outside the main UW-Madison campus will require a time period of acclimation before use. For details, see Acclimation policy 2015-005-v.
   *

- [x] **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
- [x] **Capture or collection from wild (free-living) population**
- [ ] Herd, flock, etc
- [ ] Client/privately owned animals
- [ ] Other

If source is unapproved vendor or other, describe.

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. **Acclimatization and treatment**
If you plan to house any target animals, describe your acclimatization and treatment plan.

6. **Capture complications**
Please provide information regarding the potential complications that may occur from the trapping method.

7. **Wildlife release**
Will any wild-caught animals be released back into the wild?
* ○ Yes ○ No

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.

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

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?
*

1. **GM title**
Provide the type, name or a brief description of the types of genetic modifications. For example: targeted deletions of genes controlling iron metabolism
Note: Inbred and mutant strains may have genetic characteristics that could interfere with primary research goals. Please consult with an RARC veterinarian if needed.
*

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

If "Yes" is selected for "GM complications", describe the complications and how you will manage them

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

If "Yes" is selected for "GM pain/distress", describe how you will monitor and treat pain or distress.

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.
*
- [x] analgesics/anesthetics/sedatives to relieve pain or distress caused by nonsurgical and/or surgical procedures
- [x] euthanasia substance(s)
- [x] all other substances
- [ ] I will not administer any substances.

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

SUBSTANCE ADMIN: EUTHANASIA

If a substance is used to euthanize this species, it should be entered here. Include CO_2.

1. **Euthanasia substance table**

*

Regimens
View: regimen
Drugs and Compounds
description

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/distressful?
	anesthesia/analgesia regimen

SPECIAL SUBSTANCES

1. **Special substances**

*

- [x] cells, cell lines, tissues, or tissue products (animal and/or human)
- [x] complete Freund's adjuvant (CFA)
- [x] controlled substances (requiring DEA registration)
- [x] nonpharmaceutical-grade compounds
- [x] paralytic agents
- [ ] none of the above

CELL ADMINISTRATION

1. **Cell selection**
Select the substances that are cells, cell lines, or tissue products.

*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

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

Complete Freund's Adjuvant

1. **Complete Freund's Selection**
Select the substances that are Complete Freund's Adjuvant.

*

	Regimen/Substance	Drugs and Compounds	Species
[x]			
[ ]			
[ ]			

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.

*

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
☑	.	.	
☐	.	.	
☐	.	.	

2. **DEA registrant**
   Name the DEA registrants for the controlled substances.

*

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 Pharmacopoea 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
☑	.	.	
☐	.	.	
☐	.	.	

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

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
☑	.	.	
☐	.	.	
☐	.	.	

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
☑	.	.	

AGENTS

1. **Agents**

*

- ☑ rDNA
- ☑ bacteria
- ☑ virus
- ☑ prion
- ☑ human-derived
- ☑ genetically altered
- ☑ toxin
- ☑ carcinogen
- ☑ mutagen
- ☑ teratogen
- ☑ radioactive
- ☐ none of the above

rDNA AGENTS ADMINISTRATION

1. **rDNA selection**
   Select the substances that are rDNA agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **rDNA files**
   Attach file(s).

File

There are no items to display

Bacteria Agents Administration

1. **Bacteria selection**
   Select the substances that are bacteria agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Bacteria files**
   Attach file(s).

File

There are no items to display

Virus Agents Administration

1. **Virus selection**
   Select the substances that are virus agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Virus files**
   Attach file(s).

File

There are no items to display

Prion Agents Administration

1. **Prion selection**
   Select the substances that are prion agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Prion files**
   Attach file(s).

File

There are no items to display

Human Derived Agents Administration

1. **Human derived selection**
   Select the substances that are human derived agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Human derived files**
   Attach file(s).

File

There are no items to display

Genetically Altered Agents Administration

1. **Genetically altered selection**
   Select the substances that are genetically altered agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Genetically altered files**
Attach file(s).

File
There are no items to display

Toxin Agents Administration

1. **Toxin selection**
Select the substances that are toxin agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Toxin files**
Attach file(s).

File
There are no items to display

Carcinogen Agents Administration

1. **Carcinogen selection**
Select the substances that are carcinogen agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Carcinogen files**
Attach file(s).

File
There are no items to display

Mutagen Agents Administration

1. **Mutagen selection**
Select the substances that are mutagen agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Mutagen files**
Attach file(s).

File
There are no items to display

Teratogen Agents Administration

1. **Teratogen selection**
Select the substances that are taratogen agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Teratogen files**
Attach file(s).

File
There are no items to display

Radioactive Agents Administration

1. **Radioactive selection**
Select the substances that are radioactive agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			
☐			
☐			

2. **Radioactive files**
Attach file(s).

File
There are no items to display

SELECT NONSURGICAL PROCEDURES (NSP)

1. **Nonsurgical selection**
   Check all types of nonsurgical procedures that will be performed.
   *

- [x] **Blood collection**
  sampling by nonsurgical procedures
- [x] **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.
- [x] **Forced exercise**
  Exercise that includes any negative stimuli
- [x] **Genotyping/identification**
- [x] **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.
- [x] **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.
- [x] **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.
- [x] **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.**

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

	Regimen
View	Blood collection monitoring
View	Collect site
View	Max. single draw vol. (ml)
View	Max. single draw vol. (percent)
View	# samples
View	Interval
View	Blood terminal?
View	Painful/Distressful?
View	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.
   *

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
☑		

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

NSP: FORCED EXERCISE

1. **Forced exercise table**

For each forced exercise regimen, click "Add" to answer questions about it.

*

Title	
Describe	
View Monitor	
Justify	
Analgesic regimen	

NSP: GENOTYPING AND IDENTIFICATION

1. **Genotyping and identification table**
   For each genotyping or identification regimen, click "Add" to answer questions about it.
   *

Title	
Site	
Description	
View Age of animals	
Is Painful/Distressful	
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

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	
contrast	
duration	
freq./animal	
description/monitoring	
painful/distressful?	
imaging analgesia/anesthesia	

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	
max. duration	
max. single dose/animal	
max. total dose/animal	
freq./animal	
description	
painful/distressful?	
Analgesic/Anesthetic regimen	

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.

For more information on the definition of physical restraint, selection of restraint type, acclimating animals to restraint devices, and the monitoring of restrained animals, please see: Physical Restraint of Animals 1997-004-v.

1. **Restraint table**

View

type of restraint	
max. duration	
acclimatization	
monitoring	
scientific justification	
painful/distressful?	
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

NSP: OTHER NONSURGICAL PROCEDURES

Click "Add" to answer questions about nonsurgical procedures you haven't already described.

1. **Other nonsurgical table**
*

title	
max. no. of animals	
pre and post care and/or treatment	
description	
frequency	
painful/distressful?	
Files	
Analgesic/Anesthetic regimen	

View

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, parcutaneous 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

SURGERY AND POSTSURGERY SUMMARY

For each surgical procedure for this species or group, click "Add" to provide details.

1. **Surgery table**
*

title	
survival type	
max. no. of animals	
Analgesic/Anesthesia regimen	
Euthanasia regimen	
Physical Euthanasia	
presurgery fasting	
duration	
description	

View

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."
*

- [x] 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
☑		

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

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.

	title
	surgery selection
View	**max. no. of animals**
	description
	justification

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.

	title
	surgery selection
View	max. no. of animals
	description
	justification

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**
- **Non Surgical Procedures with pain**

Non-Surgical Procedure With Pain	Procedure Type	Analgesic/Anesthetic regimen
There are no items to display		

- **Surgical Procedures**

Surgery title	Survival Procedures	Anesthesia/analgesia regimens

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. **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.
   *

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 many of your 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) and how will the complications be managed?
   *

2. **Unrelieved pain or distress**
   Will treatment for pain or distress be withheld from many 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

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 Euthenasia 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 euthenasia methods for planned study procedures.

Regimen/Substance	Drugs and Compounds	Species
☑		

4. **Plan for unanticipated euthanasia**
   Select all applicable euthenasia methods for unanticipated events or nonstudy-related health issues.

Regimen/Substance	Drugs and Compounds	Species
☑		

5. **Plans for physical methods of euthanasia (i.e. exsanguination, captive bolt)**
   Please note: Due to animal welfare concerns, some physical methods of euthanasia will require special training. Contact your RARC veterinarian to discuss your specific plans. You may complete and submit the protocol while you make these arrangements.

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 euthenasia 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.
   *

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.

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.

Don't describe the use of wire bottom caging here if non-avian animals will be on wire-bottomed caging for less than 12 hours. That should be included in the EXPERIMENTAL NARRATIVE.

1. **Nonstandard husbandry**
   Check all non-standard conditions that apply to this species.

- [x] **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.
- [x] **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.
- [x] **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.
- [x] **Enrichment withholding**
  Animals are not provided with the minimum required enrichment as outlined in the facility SOP.
- [x] **Exercise withholding for dogs**
  Dogs are not provided with the minimum exercise as required by the facility SOP.
- [x] **Ambient Noise**
  Animals will be exposed to white noise that is not part of the standard environmental enrichment for the species.
- [x] **Nonstandard lighting**
  Animals will be exposed to lighting paradigm of non-standard wavelength, intensity, or altered light/dark.
- [x] **Vibration**
  Animals will be exposed to vibrations of an amplitude and or frequency known to cause clinical effect.
- [x] **Cleaning/sanitation schedule different than facility standard**
- [x] **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.
- [x] **High velocity air**
  Animals will be directly exposed to high velocity air that is not a normal part of their husbandry.
- [x] **Bare floor (no bedding) with no structure for resting or sleeping**
- [x] **Wire bottom cage for more than 12 hours (NOT AVIAN)**
- [x] **Temperature outside recommended range**
  Animals will be exposed to temperatures outside of the normal reference ranges for the species.
- [x] **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.

HOUSING ANIMALS OUTSIDE DEDICATED ANIMAL FACILITY

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 then 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

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

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?
   *

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?
   *

EXERCISE WITHHOLDING

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?
   *

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?
   *

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?
   *

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?
   *

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?
   *

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 then the facility standard.
   *
4. **Smaller enclosure justify**
   What is your justification for exposing animals to enclosure smaller than facility standard?
   *

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?
   *

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?
   *

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?
   *

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?
   *

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?
   *

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 Veterinary Medicine Teaching Hospital (VMTH) space? Enter "SVM_VMTH" in Question 1 and then select the usage area or areas within SVM_VMTH you want to use. Do not choose specific room numbers for VMTH in Question 1. Do not type in specific rooms for VMTH 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 Clinical Sciences Center (CSC) include the building module (e.g. K4/123). 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
View						

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

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	Non Surgical Procedures	Surgical Procedures	Euthanasia

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. A minimum acclimation period is not required for animals intended for use after intra-campus transport or in non-survival procedures; it is however strongly recommended animals receive at least 48 hours post-transport acclimation prior to use in a research protocol. See Acclimation After Transport policy 2015-005-v.

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]**
- ☐ within a building or between connected buildings (animal moves from lab to lab - e.g. [redacted] vivarium to [redacted]
- ☐ between buildings (e.g. [redacted] [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 IRARC 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

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.

University of Wisconsin-Madison Institutional Animal Care and Use Committee (IACUC) IACUC Protocol Application	Protocol # : Date Approved : Expiration date :

PROTOCOL BASICS

1. **Protocol title**
   Give your protocol a title.
   * Blank Wildlife Protocol
2. **PI name**
   Click Change to choose a different name. If you can't find the name you want, email arrow_help@arc.wisc.edu.
   *
3. **PI Status**
   Is the named PI (select one):
   *
   - ○ Faculty
   - ○ Emeritus appointment
   - ● Other
4. **PI department**
   Enter the PIs department name.
   *
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@arc.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@arc.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 PIs 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

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@arc.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(FRJXXX)	Start Date	End Date	Grant Status	Sponsor (Source)
There are no items to display						
3. **Public Health Service (PHS) funding**
   Are 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.
   *

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.
   *

EXPERIMENTAL NARRATIVE

1. **Experimental narrative**
   In language that scientific colleagues outside your discipline would understand, 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.

   DO NOT include experimental details here, such as breeding schemes, blood draw amounts, complete surgical descriptions, euthanasia methods, drug dosages, drug routes, etc. Later in the protocol, you will enter those details.

   DO NOT describe animal housing arrangements or other standard husbandry practices. Later in the protocol you will enter those details. In that later section, only describe practices that differ from those 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

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. **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/EDUCATIONAL DISPLAY ANIMAL

Click the Wildlife/Educational Display Details button below to answer a series of questions about the animals 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/Educational Display Details and go to the applicable page.

To add or edit an entry, check the box ☐

Wildlife/educational display details	Wildlife/educational display common or group name	Max. number	Surgery?	USDA code	Print	Complete?
Species Details						

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 teammember 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 [illegible]

Name	Office phone	Lab phone	Cell phone	Email

View

2. **Study team groups**
   List GROUPS that will work with animals on this protocol (e.g., 4th year veterinary students, SR). 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 a tleast one year of experience, please state who will train and supervise.

5. **Confirm Training**
   Please confirm that all study teammembers have completed the Animal Contact Risk Questionnaire and are medically cleared to handle animals. For assistance, contact [redacted] University Health Services [redacted]

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	Surgeries	RARC Classes	Education	Experience	Painful nonsurgical procedures	Physical euthanasia methods

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)

   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)

   Other

3. **Decontamination procedure**
   Describe decontamination procedures and frequency for equipment that will be used to capture, transport, and contain animals.

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.

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/Educational display 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 ACAFAC 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/Educational display source**
   Check one or both sources.
   *

   - [x] Capture or collection from wild (free-living) population
   - [ ] Other

   Wildlife/Educational display other source
   If other, please describe.

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: WILDLIFE RELEASE

1. **Release disease**
   Explain the precautions that will be taken to manage disease transmission or risk related to release of animals back into the wild.
   *

2. **Release predation**
   Explain the precautions that will be taken to manage increased predation risk to study animals upon release back into the wild.
   *

3. If any substances are administered to animals that are released back into the wild, describe the precautions that will be taken to manage risk of contamination of animal or human food chains.

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.
   *

   - [x] analgesics/anesthetics/sedatives to relieve pain or distress caused by nonsurgical and/or surgical procedures
   - [x] euthanasia substance(s)
   - [x] all other substances
   - [ ] I will not administer any substances.

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 CO_2.

1. **Euthanasia substance table**
*

	Regimens
View	regimen
	Drugs and Compounds
	description

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
	category
	Dosing details
	purpose of use/ monitoring
	painful/distressful?
	anesthesia/analgesia regimen

Wildlife: SPECIAL SUBSTANCES

1. **Special substances**
*

- [x] cells, cell lines, tissues, or tissue products (animal and/or human)
- [x] complete Freund's adjuvant (CFA)
- [x] controlled substances (requiring DEA registration)
- [x] nonpharmaceutical-grade compounds
- [x] paralytic agents
- [ ] none of the above

Wildlife: CELL ADMINISTRATION

1. **Cell selection**
Select the substances that are cells, cell lines, or tissue products.
*

	Regimen/Substance	Drugs and Compounds	Species
[x]	.	.	Wildlife
[ ]	.	.	Wildlife
[ ]	.	.	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**
Select the substances that are Complete Freund's Adjuvant.
*

	Regimen/Substance	Drugs and Compounds	Species
[x]	.	.	Wildlife
[ ]	.	.	Wildlife
[ ]	.	.	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
☑			Wildlife
☐			Wildlife
☐			Wildlife

2. **DEA registrant**
   Name the DEA registrants for the controlled substances.

*

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
☑			Wildlife
☐			Wildlife
☐			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

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
☑			Wildlife
☐			Wildlife
☐			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
☑			Wildlife

Wildlife: AGENTS

1. **Agents**

*

- [x] rDNA
- [x] bacteria
- [x] virus
- [x] prion
- [x] human-derived
- [x] genetically altered
- [x] toxin
- [x] carcinogen
- [x] mutagen
- [x] teratogen
- [x] radioactive
- [ ] none of the above

Wildlife: rDNA AGENTS ADMINISTRATION

1. **rDNA selection**
   Select the substances that are rDNA agents.

*

	Regimen/Substance	Drugs and Compounds	Species
[x]			Wildlife
[ ]			Wildlife
[ ]			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
[x]			Wildlife
[ ]			Wildlife
[ ]			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
[x]			Wildlife
[ ]			Wildlife
[ ]			Wildlife

2. **Virus files**
   Attach file(s).

File

There are no items to display

Wildlife: Prion Agents Administration

1. **Prion selection**
   Select the substances that are prion agents.

*

	Regimen/Substance	Drugs and Compounds	Species
[x]			Wildlife
[ ]			Wildlife
[ ]			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
☑			Wildlife
☐			Wildlife
☐			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
☑			Wildlife
☐			Wildlife
☐			Wildlife

2. **Genetically altered files**
   Attach file(s).

File
There are no items to display

Wildlife: Toxin Agents Administration

1. **Toxin selection**
   Select the substances that are toxin agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			Wildlife
☐			Wildlife
☐			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
☑			Wildlife
☐			Wildlife
☐			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
☑			Wildlife
☐			Wildlife
☐			Wildlife

2. **Mutagen files**
   Attach file(s).

File
There are no items to display

Wildlife: Teratogen Agents Administration

1. **Teratogen selection**
   Select the substances that are teratogen agents.

*

	Regimen/Substance	Drugs and Compounds	Species
☑			Wildlife
☐			Wildlife
☐			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
☑			Wildlife
☐			Wildlife
☐			Wildlife

2. **Radioactive files**
   Attach file(s).

File
There are no items to display

Wildlife: SELECT NONSURGICAL PROCEDURES (NSP)

1. **Nonsurgical selection**
   Check all types of nonsurgical procedures that will be performed.

☑	**Blood collection** sampling by nonsurgical procedures
☑	**Forced exercise** Exercise that includes any negative stimuli
☑	**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, cocyte collection, preferencetests, and more.
☐	**I will not perform any nonsurgical procedures.**

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	
Collect site	
Max. single draw vol. (ml)	
Max. single draw vol. (percent)	
# samples	
Interval	
Blood terminal?	
Painful/Distressful?	
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: FORCED EXERCISE

1. **Forced exercise table**

   For each forced exercise regimen, click "Add" to answer questions about it.

*

View

Title	
Describe	
Monitor	
Justify	
Analgesic regimen	

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	
Is Painful/Distressful	
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	
duration	
freq./animal	
description/monitoring	
painful/distressful?	
imaging analgesia/anesthesia	

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/distressful?	
Analgesic/Anesthetic regimen	

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-handing practices or procedures.

Do **not** include normal wildlife-capturing techniques.

For more information on the definition of physical restraint, selection of restraint type, acclimating animals to restraint devices, and the monitoring of restrained animals, please see: Physical Restraint of Animals 1997-004-v.

1. **Restraint table**
   *

View

type of restraint	
max. duration	
acclimatization	
monitoring	
scientific justification	
painful/distressful?	
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	
description	
frequency	
painful/distressful?	No
Files	
Analgesic/Anesthetic regimen	

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**
   *

	title	.
	survivaltype	Minorsurvival
	max no. of animals	*No Value Entered*
	Analgesic/Anesthesia regimen	.
View	Euthanasia regimen	.
	Physical Euthanasia	Yes -
	presurgeryfasting	
	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."
   *

- [x] 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
[x]	.	.	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

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	

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

- **Surgical Procedures**

Surgery title	Survival Procedures	Anesthesia/analgesia regimens

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. **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.
   *

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 (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) and how will the complications be managed?

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

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
☑		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
☑		Wildlife

5. **Plans for physical methods of euthanasia (i.e. exsanguination, captive bolt)**
   Please note: Due to animal welfare concerns, some physical methods of euthanasia will require special training. Contact your RARC veterinarian to discuss your specific plans. You may complete and submit the protocol while you make these arrangements.

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

8. **Ensure death**
   Describe the methods you'll use to ensure death following euthanasia procedures.
   *

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

View

2. **Locations not found in QI -- 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**
   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. A minimum acclimation period is not required for animals intended for use after intra-campus transport or in non-survival procedures; it is however strongly recommended animals receive at least 48 hours post-transport acclimation prior to use in a research protocol. See Acclimation Area Transport policy 2015-005-v.

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])**

   ☐ 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 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

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.

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

COLLEGE OF AGRICULTURAL AND LIFE SCIENCES ANIMAL CARE AND USE COMMITTEE

We the undersigned voting member of the CALS ACUC verify the attached reports reflect out Spring 2018 Semiannual Review of the program of animal care in the College.

[redacted]

Date of Review: May 22, 2018

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

To: Dr. [redacted], Institutional Official (I.O.)

From: College of Agricultural and Life Sciences Animal Care and Use Committee (CALS ACUC)

Subject: Semi-annual Program Review, Spring 2018

Review performed: May 22, 2018

Date of this report: June 5, 2018

Introduction.

This report summarizes the discussions and findings of the CALS ACUC in the performance of their Spring 2018 semi-annual review. It was performed with the legal requirement that the ACUC inspect all animal use areas and evaluate the Animal Program twice per year.

Process.

On May 22, 2018, the CALS ACUC conducted its semiannual review using the *Guide for the Care and Use of Animals* (*Guide*, 8th ed) and *Care and Use of Agricultural Animals in Agricultural Research and Teaching*, 3rd ed. as a basis for evaluation.

The review was performed by the full committee and included 15 voting members, 8 non-voting members, and 2 invited guests. CALS RARC voting members on the committee included [redacted] (Chair), [redacted], and [redacted] (Vice-Chair).

The following non-voting members were present at the meeting: [redacted], RARC), [redacted] -CALS), [redacted] -CALS), [redacted] -RARC), [redacted] (Post Approval Monitoring-RARC), [redacted], [redacted] -CALS), [redacted], and [redacted] (Trainer-RARC) were invited guests.

To fulfill additional responsibilities, CALS ACUC members inspected program facilities and animal use areas.

To facilitate completion of this report, notes from the semiannual program review were combined in the worksheet described (*Appendix 1*, attached). Additional detailed Program Review Worksheets discussed at the meeting are also attached. The CALS ACUC Chair used these materials to draft the report. The draft report was distributed to ACUC members and other attendees for their comments. A revised final version was then distributed to the CALS ACUC members for signature.

Summary, CALS Animal Care and Use Program

The College of Agricultural and Life Sciences has a strong animal program. The interaction between the ACUC, veterinary staff, biological safety, and the RARC staff is excellent. The CALS program is currently accredited by AAALAC and is preparing for the reaccreditation site visit in Fall 2018.

The following summarizes the discussions that took place within various categories of the *Worksheet* for the CALS animal program. Much of the information can be found in the attached *Worksheet* and select comments and additional detail are added here as appropriate. *No deficiencies in the animal program were noted during the review.*

I. Physical Plant: *No deficiencies were identified.*

The existing facilities in the CALS animal program meet the standards in the *Guide*, and the *Guide for the Care and Use of Agricultural Animals in Research and Teaching*, 3rd ed, with two exceptions. During cold weather, the relative humidity can fluctuate and fall below *Guide* standards. Dr. [redacted] reported that in the past 6 months there have been no clinical issues noted due to low humidity. Secondly, valves controlling reheat coils do not always fail in the closed position, a situation currently under examination by all units at the UW-Madison. Importantly, CALS facilities are monitored by the [redacted] emergency response system which immediately alerts facility personnel whenever heating/cooling and room humidity goes out of specified ranges.

The new [redacted] is under construction with an estimated completion date of January 2019. At the planning stage, the [redacted]) met with Professor [redacted] (Animal Sciences) and with veterinary staff to review plans for the facility. At the appropriate time during the construction process, Dr. [redacted] will schedule a visit to look at the animal holding pens.

Dr. [redacted] has been in contact with the RARC veterinary staff as well as the CALS ACUC on the renovation project to provide additional animal housing and procedure space for the [redacted]. A walk-through of the proposed space was conducted on November 29, 2017 by a subgroup of CALS ACUC members. Notes from that walk-though were provided to the department Chair as well as those in attendance, and a summary was provided verbally at the Dec. 21, 2017 ACUC meeting.

Ms. [redacted] distributed newly developed information to farm managers to address a need for improved signage at agricultural facilities when zoonotic diseases are endemic in the herds.

II. Animal Environment, Housing, and Management: *No deficiencies were identified.*

The ACUC has received no complaints about large animal feed quality in this or the previous review cycle. Dr. [redacted] reported that outside contractors continue to be used to ensure that feed crops and silage are harvested at optimal times for use in animals at agricultural research stations.

[redacted]

The ACUC noted that the rodent cage top sanitization schedule departs from Guide standards. This departure is based on performance data showing that individually ventilated cage tops can be changed every two weeks as opposed to weekly. There have been no reported adverse effects of this departure on animal health.

III. Personnel Qualifications and Training: *No deficiencies were identified.*

Initial training as well as refresher training is very important in maintaining a strong animal program. In addition to required program training components, members of the animal program at the University of Wisconsin-Madison have also shown their dedication and commitment by organizing and/or participating in additional training opportunities.

Faculty and staff training: For the entire University of Wisconsin-Madison animal program, 1881 courses were completed either online or in a hands-on course situation. CALS personnel completed 52 hands-on trainings with 16 of these representing specific requests from CALS personnel for training (*Appendix 2*, Program Review Worksheet Sec. III). One waiver was granted by Dr. [redacted], the chief campus veterinarian, for an individual for horse hands-on training.

Revocations due to training deficiencies: There were 31 CALS revocations due to training deficiencies for animal users on protocols. The majority of these were due to research staff that had been added to protocols but missed the "complete-by" date for the required animal user classes for species-specific training or for surgery training. This may occur because the lab has changed plans regarding the start of the work, and an extension was not requested in a timely fashion. Other reasons include non-removal by PIs of staff from protocols by when they will no longer work with animals, or when staff have left the lab or university.

Refresher training. Dr. [redacted] held extensive SOP refresher training sessions for cattle, swine, sheep and horses handling staff at multiple large animal facilities (see *Appendix 3*).

Dr. [redacted] does annual refresher training with animal research technicians (ARTs) in small animal facilities.

Facility Manager and Staff training: A small animal workshop for facility managers and animal care staff caring for small animals was organized by Ms. [redacted] and held on campus on February 22, 2018. Lab managers from CALS research units were invited to attend any or all sessions of interest. The meeting was similar in intent to the retreat held for livestock managers at Kemp Station in the fall of 2017. The agendas for both meetings are attached (*Appendix 4*). At this meeting, Ms. [redacted] (RARC) reviewed the Animal Program Emergency Plan, Ms. [redacted] (Environmental Health and Safety) presented information on safety, hazard communication and risk communication, and Ms. [redacted] (Occupation Health and Safety) presented information on policy updates and other OHS concerns. This was followed by information on the tracking of staff training presented by Ms. [redacted] (RARC Trainer), and retention rules related to animal records presented by Dr. [redacted] (RARC Program Veterinarian) and records retention presented by Ms. [redacted] (UW Legal services).

Large animal facility managers and crew members have attended additional outside training seminars.

CALS ACUC and RARC Staff Training: ACUC committee training is provided at most monthly ACUC meetings. Monthly training for ACUC and RARC staff includes web seminars. A list of the Committee training and Web seminars presented April-November, 2017 is attached (*Appendix 5*, Program Review Worksheet Sec. VI-C).

In summary, the subcommittee was satisfied with the training aspect of the CALS research animal program.

IV. Occupational Health and Safety: *No deficiencies were identified.*

Ms. [redacted] reported that the compliance rate for completion of the Animal Contact Risk Questionnaire (ACRQ) continues to be high, 95-98% for the entire animal program with 3905 persons enrolled (*Appendix 6*, Program Review Worksheet Sec. IV).

In May of 2018, a questionnaire was implemented for service personnel (Service Personnel Limited Animal Area Access Form or SPLAAAF; Policy Number 2004-025-io, amended 2018). This was developed and implemented in response to a suggestion for improvement (SFI) following the AAALAC visit to other UW-Madison animal programs in the Fall of 2017.

In response to a SFI made by AAALAC when visiting other campus programs in the Fall of 2017, EHS has completed a list of isoflurane users, the spaces in which it is used and the equipment/techniques used to anaesthetize animals. EHS will conduct additional isoflurane monitoring and training with users as appropriate.

V. Veterinary Medical Care: *No deficiencies were identified.*

Veterinary care is strong and veterinary needs of the animal program are well met. Drs. [redacted], and [redacted] were complimented on their strong and collaborative

relationships with PIs, research staff, facility managers and their fellow ACUC members. The ACUC also appreciates the careful attention provided during veterinary pre-review of new and renewal applications.

Dr. [redacted] noted that all rodent users in CALS are now using an electronic animal health reporting system developed by Biomedical Research Model Services. This has enabled rapid reporting and communication between researchers/animal care staff and the veterinary group.

VI. Institutional Animal Care and Use Committee: *No deficiencies were identified.*

Committee composition. The CALS ACUC has 15 voting members, 5 alternate voting members, and 12 non-voting and ex officio members. The voting membership includes representatives from the scientific, veterinary, public, and non-scientific areas.

Protocol review. The CALS-ACUC currently oversees projects described in 207 active protocols. Dr. [redacted] reported on the protocol review statistics for the past six months (*Appendix 7*, Program Review Worksheet Sec. VI-G). A total of 81 protocols were reviewed, with 23 of these representing new or renewal protocols, and 58 were amendments. Of the amendments, 33% were approved by Veterinary Verification and Consultation (VVC). The average number of days (not including veterinary pre-review) for review and approval of new/renewal protocols was 28 days (range 9-59). The average number of days required for review and approval of amendments was 15 days (range 0-75).

Post approval monitoring. Dr. [redacted] reported that in the last six months two CALS protocols underwent routine post-approval monitoring. Both laboratories have an excellent record of compliance and no concerns were identified.

Disciplinary Actions. No protocols were suspended by the CALS ACUC in the last six months.

Inspection of Animal Facilities. Semiannual inspections performed over the last 6 months included 377 facilities, 31 laboratories, and 7 core spaces. The inspection teams spent 50 hours (not including travel time to outlying facilities) conducting regularly-scheduled inspections. No expired drugs intended for use in animals were found. *No significant deficiencies were identified.* Ms. [redacted] reviewed the categories of minor deficiencies found on inspections (detailed below) and reported all have been resolved (*Appendix 8*, Program Review Worksheet Sec. VI-E).

- 9-expired items
  - 0-drugs: anesthetic, analgesia, euthanasia
  - 0-drugs: other
  - 3-other medical materials (saline eyewash expired, expired blood draw tubes)
  - 3-food/treats/supplements (expired food materials)

  - 0-cleaning/disinfectants
  - 3-human first aid (expired antibiotic ointment)
- 11-labels, signage and recordkeeping (unlabeled containers, expiration dates missing, medical record missing or not marked as resolved, incomplete logs, need to update signage)
- 1-housekeeping (rust on railings above tanks)
- 1-safety (sharps container without lid)
- 7-infrastructure (broken electrical outlet, lights burned out, light covers loose, light switches without waterproof covers, ragged barn netting)
- 1-animal welfare (broken gate with sharp protrusion)

Departures from the *Guide*. The Guide allows the ACUC to approve certain departures with appropriate justification. The following categories of protocol departures were approved by the CALS-ACUC. Details on the reasons for approving these departures can be found in *Appendix 9*, Program Review Worksheet Sec. VI-H.

Departures	**Total approved as of April 16, 2018 (#)**
Singly housed animals (research or veterinary reasons)	49
Restraint (> 1 hour)	0
Food or fluid restriction	24
Non-pharmaceutical grade compounds	63

Non-protocol departures include the rodent cage top sanitization schedule approved in January 2013 by all ACUCs. In addition, some buildings do not meet humidity standards in the *Guide* during certain parts of the year, and valves containing reheat coils may fail either in the open or last position to prevent freezing of water pipes. The ACUC has approved all the above non-protocol departures.

VII. Institutional Official: *No deficiencies were identified.*

Dr. [redacted] is a strong Institutional Official (I.O.) and is knowledgeable about the animal program. It was noted that she served as the former chair of the School of Medicine and Public Health (SMPH) ACUC. The committee is impressed with her commitment to the animal program and the time that she has taken to understand the CALS agricultural and small animal programs. The I.O. attends at least one of CALS ACUC meeting each year, and the committee appreciates the insight she provides, and the ability to ask her questions about the campus animal program. Dr. [redacted] also [redacted], and [redacted]) and plans to visit a number of additional CALS facilities in the future.

VIII. Program Integration: *No deficiencies were identified.*

There is excellent integration and communication between the CALS ACUC, RARC, Safety, and CALS administration. The animal program in CALS receives strong support from the RARC administrative and veterinary personnel as well as from the UHS. There is also good cooperation between the various campus ACUCs, as evidenced by dual committee protocol review and sharing of animal housing facilities. The ACAPAC is another important venue for communication between the I.O., animal program leadership, principal investigators, and all ACUCs on campus.

IX. Support of the Institutional Mission: *No deficiencies were identified.*

The CALS animal program strongly supports research, teaching and outreach with animals.

Minority Views: No minority views were expressed.

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UW-Madison Animal Care and Use Program Review Worksheet: Spring 2018 CALS 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 main 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.
Spring 2018 ACUC response: Yes, as evidenced by veterinary input into a rodent facility undergoing renovation. An ACUC subcommittee recently conducted a walk-through of the project.
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.
Spring 2018 ACUC response: Yes. Animal program representatives have been involved in the design and ongoing construction of the meat laboratory. Dr. [redacted] described the current state of the project and said that Mr. [redacted] and veterinary staff had reviewed the plans prior to construction and are continuing to monitor the project to ensure that animal welfare is taken into consideration.
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
Spring 2018 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.
Spring 2018 ACUC response: Yes.
E. Methods exist to monitor and maintain the physical condition of animal facilities to ensure that it remains adequate and appropriate.
Spring 2018 ACUC response: Yes.
F. Departures from The Guide are identified, discussed, and approved by the ACUC.
Spring 2018 ACUC response: Yes. The committee acknowledged there are times when humidity levels in facilities depart from *Guide* standards, primarily during the winter months. Monitoring of humidity-related clinical issues by the veterinary staff will continue with cases or trends reported to the ACUC as needed. No such clinical cases were seen in the past six months. Dr. [redacted] indicated PIs will again be notified of the potential effect of humidity changes on research in the fall. A second departure from the *Guide* is that in some CALS facilities, the valves containing reheat coils fail either in the open or last position to prevent freezing of water pipes. The committee noted that the [redacted] environmental monitoring system is in place in all facilities to provide rapid notification of fluctuations in environmental conditions. The ACUC approved this departure.
G. Procedures exist to identify, communicate, and correct animal facility physical deficiencies.
Spring 2018 ACUC response: Yes.
H. Other criteria that should be used to evaluate physical plant & the animal program?
Spring 2018 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 main 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
Spring 2018 ACUC response: Yes.
B. When providing animal housing the institution considers the appropriateness of behavioral management. That is, 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).

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Spring 2018 ACUC response: Yes. The enrichment devices for swine are being used regularly and staff continue to evaluate new and innovative enrichment options. Dr. [redacted] affirmed that the campus' Animal Social Housing and Enrichment Requirements (ASHER) document and Policy Number 2011-042-v which specifies regulatory-appropriate social housing and enrichment practices for all species are implemented throughout the CALS program.
C. In assuring appropriate management of animals and animal facilities the institution considers: • 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
Spring 2018 ACUC response: Yes. Last year's forage was of high quality.
D. Furthermore, the institution considers: • facility security and biosecurity • preparation of a disaster plan that takes into account both personnel and animals • personnel security (pre-employment screening, etc.)
Spring 2018 ACUC response: Yes. The ACUC has been kept informed of progress on limiting access and enhancing security at one large animal facility and options for improvement are currently under review. The ACUC discussed campus participation in a recent full-scale emergency training exercise that simulated a long-term mass power outage in Wisconsin. Animal program personnel were involved in discussions on management strategies for research animals in this scenario. Those involved agreed that this was a very useful emergency planning exercise.
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.
Spring 2018 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.
Spring 2018 ACUC response: Yes.
G. Departures from The Guide are identified, discussed, and approved by the ACUC.
Spring 2018 ACUC response: Yes. Some feed storage areas in animal facilities cannot maintain temperature and humidity levels as stated in the *Guide*, however, the rate at which feed is used ensures that it is not stored for long enough periods of time for degradation in quality to occur. No clinical cases attributable to food quality have been noted by veterinary staff. The ACUC acknowledged that the rodent cage top sanitization schedule that departs from *Guide* standards continues to be followed with no negative effects on animal well-being. Dr. [redacted] stated that the cage change frequency for individually ventilated racks in CALS facilities is consistent with *Guide* recommendations.
H. Procedures exist to identify, communicate, and correct deficiencies in animal environment, housing, and management.
Spring 2018 ACUC response: Yes. The committee noted that deficiencies identified on semiannual inspections in animal facilities have been minor and are addressed quickly. The committee complimented the responsiveness of the facility staff. The practice of asking facility managers if there is anything the ACUC can do for them is well received, and manager concerns are taken to full committee for discussion.
I. Other criteria that should be used to evaluate animal environment, housing, management & the animal program?
Spring 2018 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.

A. All categories of personnel that constitute the animal research and care community receive adequate and appropriate training, including: • 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

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Spring 2018 ACUC response: Yes. See also attached report on RARC-provided animal user training to CALS staff, students, and researchers and to all campus animal users.
B. As appropriate, each member of the animal research and care community (as listed above) understands: • 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
Spring 2018 ACUC response: Yes.
C. Initial formal and/or on-the-job training in Program goals and the humane care and use of animals is provided.
Spring 2018 ACUC response: Yes. Individuals who fail to complete required species-species and surgery classes are tracked, and RARC trainers follow up to ensure training is completed or individuals are removed from protocols.
D. Personnel using or caring for animals participate regularly in continuing education activities relevant to their responsibilities.
Spring 2018 ACUC response: Yes. See attached reports on veterinary-led and CALS manager and staff training. Dr. [redacted] said that he does annual refresher training with animal research technicians in small animal facilities and has conducted training on the new electronic animal health reporting procedures. Dr. [redacted] reported he has conducted extensive SOP refresher training for staff in large animal facilities. Ms. [redacted] organized a small animal workshop for facility managers and their staff (see attached agenda).
E. Documentation of training exists and is accessible.
Spring 2018 ACUC response: Yes. Facility-specific training is documented in the training records at each facility. Dr. [redacted] is working with Ms. [redacted] to also have the information added to the notes section of an online database that can be accessed by RARC staff.
F. The effectiveness of the initial and continuing training of individuals working with animals is regularly evaluated.
Spring 2018 ACUC response: Yes.
G. Procedures exist to identify, communicate, and correct deficiencies in training.
Spring 2018 ACUC response: Yes.
H. Other criteria that should be used to evaluate training & the animal program?
Spring 2018 ACUC response: Members of the SVM veterinary student small ruminant club and veterinary technician students from Madison Area Technical College (MATC) continue to assist with lambing at the CALS [redacted]. MATC students expanded their collaboration with our animal units to include swine and beef animal handling instruction with the assistance of CALS managers and staff at the [redacted] and [redacted]. These training opportunities benefit the students, the CALS staff, and the animals. RARC trainers continue to be involved in outreach activities promoting animal research through campus visitor's programs, school group presentations, and participation in the Wisconsin Science Festival. The committee commended the initiative taken by Drs. [redacted] and [redacted], Ms. [redacted], and Ms. [redacted] in organizing and conducting training sessions beyond those formally part of the CALS animal program.

(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: • animal care • animal experimentation • teaching using animals • outreach using animals • field studies using wild animals
Spring 2018 ACUC response: Yes. Ms [redacted] presented the report "University Health Serviced Environmental and Occupational Health: Summary Occupational Health Program Status" describing current compliance rates for animal users enrolling in the occupational medicine program ranging from 95-98% over the review period (see report attached). An assessment specific for UW service personnel who enter animal facilities was also instituted in this review cycle.
B. The UW-Madison Occupational Health and Safety Program provides initial and continuing medical evaluation and preventive medicine for personnel with animal contact.
Spring 2018 ACUC response: Yes. The online safety courses are being modified for the campus' move to Canvas from D2L.
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.
Spring 2018 ACUC response: Yes.
D. The UW-Madison Occupational Health and Safety Program monitors animal users, facilities, and procedures.
Spring 2018 ACUC response: Yes. New allergy signage to help improve awareness of allergen risk were distributed

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to facilities and labs. Recorded presentations from the September 2017 seminar on laboratory animal allergens are now available on the EH&S website. The Animal Research Safety (ARS) staff continues to work with University Health Services (UHS) on identifying all isoflurane stations in animal use areas, assessing the vaporizer set-ups, and performing both acute and long-term monitoring of areas deemed high-risk areas. The Biosafety Cabinet certification program now has a dedicated program manager.
E. The ACUC and the institution monitor the effectiveness of the Occupational Health and Safety program.
Spring 2018 ACUC response: Yes.
F. Procedures exist to identify, communicate, and correct deficiencies in the Occupational Health and Safety program.
Spring 2018 ACUC response: Yes.
G. Other criteria that should be used to evaluate the Occupational Health and Safety Program for the animal program?
Spring 2018 ACUC response: Ms. [redacted] shared information on animal-related injury numbers. Injuries from livestock animals have decreased and could be due to improvements in the staff training programs at facilities.

(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). 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.
Spring 2018 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.
Spring 2018 ACUC response: Yes. The electronic animal health reporting system is now being used in all CALS rodent facilities and has been well received by most facility staff and research staff.
C. The Program has access to and meets appropriate performance standards for management of experiment-associated disease, disability, or other sequelae.
Spring 2018 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.
Spring 2018 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. Agents that provide 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.
Spring 2018 ACUC response: Yes.
F. The Program has access to and meets appropriate performance standards for proper selection and conduct of euthanasia.
Spring 2018 ACUC response: Yes.
G. The Program has access to and meets appropriate performance standards for veterinary participation in protocol development and review.
Spring 2018 ACUC response: Yes. Veterinarians are heavily involved in pre-review and consultations for veterinary verification and consultation and post-approval monitoring. Members expressed sincere gratitude to the Drs. [redacted], [redacted], and [redacted] for their efforts.
H. There are a sufficient number of veterinarians and veterinary technicians trained to meet Program needs.
Spring 2018 ACUC response: Yes. RARC has received approval to assign an additional veterinary technician to the large animal program in CALS.
I. There is effective evaluation and mentoring of research animal veterinarians to meet Program needs.
Spring 2018 ACUC response: Yes.
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.
Spring 2018 ACUC response: Yes. The committee believes communication between animal care, research, and veterinary staff is strong. Animal health concerns are reported in a timely manner. Communication in CALS rodent facilities has been enhanced with the use of the animal health reporting system.
K. Mechanisms exist to ensure appropriate veterinary participation in decisions regarding animal husbandry, preventive medicine, and experiment planning and conduct, including surgical and post-surgical care.

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Spring 2018 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.
Spring 2018 ACUC response: Yes.
M. Records document provision of adequate veterinary care to all animals. Veterinarians have access to these records.
Spring 2018 ACUC response: Yes.
N. The institution monitors the effectiveness of the Veterinary Care program.
Spring 2018 ACUC response: Yes, via checking veterinary logbooks and talking with ARTs and PIs on semiannual inspections, and follow-up via veterinarians' reports at ACUC meetings.
O. Procedures exist to identify, communicate, and correct deficiencies in the Veterinary Care program.
Spring 2018 ACUC response: Yes.
P. The veterinary program offers a high quality of care and ethical standards appropriate to the species and the program.
Spring 2018 ACUC response: Yes. Members thanked Dr. [redacted], Dr. [redacted], Dr. [redacted], Dr. [redacted] and Dr. [redacted] for their efforts in veterinary pre-review and their continuing strong support of the research mission.
Q. Other criteria that should be used to evaluate the program of veterinary care within the animal program?
Spring 2018 ACUC response: It was noted that Dr. [redacted] is using his experience and expertise to develop training for agricultural animal research technicians that is comparable to that provided by the American Association for Laboratory Animal Sciences (AALAS) Learning Library for traditional laboratory animal research technicians.

(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.
Spring 2018 ACUC response: Yes.
B. The ACUC members understand the role and responsibilities of the ACUC.
Spring 2018 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.
Spring 2018 ACUC response: Yes. A report on committee training topics covered during the last six months, including distance learning events, was presented by Dr. [redacted] (see attached report).
D. The ACUCs review and evaluate the Animal Program semiannually.
Spring 2018 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.
Spring 2018 ACUC response: Yes. Ms. [redacted] thanked members for their active participation in the inspections and provided information on the most recent inspections period in which there were no significant deficiencies (see attached report).
F. The ACUCs evaluate drug storage and control programs in animal areas.
Spring 2018 ACUC response: Yes.
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 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.
Spring 2018 ACUC response: Yes. Dr. [redacted] led discussion of a report of protocol turnaround review times, and the Veterinary Verified Change (VVC) approvals (see attached report).
H. Departures from The Guide are identified, discussed, and approved by the ACUC.
Spring 2018 ACUC response: Yes. Dr. [redacted] summarized the departures from The Guide currently approved in protocols by the CALS ACUC. The number of approved departures is similar to that in the prior 6-month reporting period (see attached report).
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."
Spring 2018 ACUC response: Yes.

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J. All minority reports submitted by appointed ACUC members with voting privileges were handled in according with applicable OLAW and USDA regulations.
Spring 2018 ACUC response: There were no minority reports submitted in the last six months.
K. The ACUCs have the authority to suspend animal activities that do not comply with regulations and policies.
Spring 2018 ACUC response: Yes. There were no suspensions in the last six months.
L. The ACUCs submit reports to institutional officials.
Spring 2018 ACUC response: Yes.
M. The ACUCs advise and make recommendations to the Institutional Official on any aspect of the Program.
Spring 2018 ACUC response: Yes.
N. The institution backs the authority of the ACUCs.
Spring 2018 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.
Spring 2018 ACUC response: Yes.
P. The ACUCs have adequate administrative support.
Spring 2018 ACUC response: Yes. the committee continues to receive timely and strong support from RARC staff, especially Ms. [redacted], Dr. [redacted], and Ms [redacted] of the IACUC office.
Q. Methods exist to monitor and maintain committee activities and effectiveness in support of the Program.
Spring 2018 ACUC response: Yes. Dr. [redacted] reported that in the last six months, two CALS protocols underwent routine PAM. Both laboratories have an excellent record of compliance and no concerns were identified.
R. Procedures exist to identify, communicate, and correct deficiencies.
Spring 2018 ACUC response: Yes.
S. Other criteria that should be used to evaluate the ACUCs' role in the animal program?
Spring 2018 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.
Spring 2018 ACUC response: True. Dr. [redacted] is an experienced ACUC Chair and understands program structure. Dr. [redacted] has been visiting facilities in the CALS program and the workers appreciate that the I.O. is taking the time to learn about their facilities.
B. The ACUC believes the IO monitors Program functions, including IACUC activities and membership.
Spring 2018 ACUC response: Yes.
C. The ACUC has not identified any deficiencies in the administrative, financial, and legal support for the Program of Animal Care.
Spring 2018 ACUC response: Yes. Campus emergency funds are available to support the College/School's animal programs.
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.
Spring 2018 ACUC response: Yes.
E. The IO has demonstrated authority to enforce Program policies to the ACUC's satisfaction.
Spring 2018 ACUC response: Yes.
F. Annual and other reports are submitted to federal agencies in a timely manner by the IO.
Spring 2018 ACUC response: Yes.
G. Methods exist to monitor and evaluate the effectiveness of the IO.
Spring 2018 ACUC response: Yes.
H. Other criteria that should be used to evaluate the IOs' role in the animal program?
Spring 2018 ACUC response: The committee appreciates that the I.O. attends at least one CALS ACUC meeting annually to provide updates and answer questions.

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.

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(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.
Spring 2018 ACUC response: Yes.
B. There is strong and well-informed administrative coordination of efforts to support the Program.
Spring 2018 ACUC response: Yes. There is excellent support from and communication between members of the RARC, CALS administrative staff, and the Safety groups to assist committee members with the animal program.
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.
Spring 2018 ACUC response: Yes. This communication is seen as a major strength of the CALS animal program.
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.
Spring 2018 ACUC response: Yes. Dr. [redacted] stated the importance of a strong animal program. She thanked members for their participation and recognized the contributions of the ACUC members, facility managers, RARC staff (administration and veterinary staff, assessment specialists and trainers), EHS staff, CALS administration and the I.O. She said that Ms. [redacted], who is assisted by Ms. [redacted], is an invaluable liaison with the CALS administration. Ms. [redacted] and Dr. [redacted] are to be commended for organizing the ACUC Chairs meeting/discussion workgroup allowing ACUC chairs to discuss issues of common interest and work toward best practice for all units on campus.
E. There are sufficient financial, physical, procedural, and human resources to meet Program requirements.
Spring 2018 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.
Spring 2018 ACUC response: Yes.
G. Methods exist to monitor program integration to ensure that all Program elements function well together.
Spring 2018 ACUC response: Yes. The ACUC noted that there is considerable integration between the School of Medicine and Public Health (SMPH), School of Veterinary Medicine (SVM), and CALS in the use of swine and sheep for biomedical research. The CALS [redacted] and [redacted] provide high quality animals of known health status for biomedical research and the [redacted] transports these animals. A swine specialist from CALS has served as a consultant on construction projects involving renovations to campus facilities to house large animals.
H. Procedures exist to identify, communicate, and correct deficiencies in program integration.
Spring 2018 ACUC response: Yes.
I. Other criteria that should be used to evaluate integration of the animal program?
Spring 2018 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.
Spring 2018 ACUC response: Yes. The subcommittee thanked Drs [redacted] and [redacted] for their leadership roles and other contributions to the animal care program.
B. The animal care program enhances research, teaching, and outreach activities that involve animals.
Spring 2018 ACUC response: Yes.
C. Methods exist to monitor and maintain the effectiveness of the program.
Spring 2018 ACUC response: Yes.
D. Other criteria that should be used to evaluate the efficiency and efficacy of animal program in fulfilling its mission?
Spring 2018 ACUC response: None.

Appendix 2 Program Review Worksheet Sec. III

UW-Madison Animal Care and Use Semi-Annual Program Review
Spring 2018 CALS
ACUC III. Personnel Qualifications and Training

RARC Training courses (Nov. 1, 2017 – April 30, 2018)

- 1881 courses completed campus wide
  - 1311 not attached to protocols
  - 570 attached to protocols
- 52 CALS out of 532 total mandatory hands-on trainings completed campus wide
  - Mouse(166), Rat(87), Surgery(87), Primate(66), Zebrafish(22), Guinea Pig(17), Rabbit (16), Cattle(15), Cat(11), Dog(10), Swine(8), Sheep(6), Fish(6), Horse(4), Reptile(4), WildFish(2), Xenopus(2), Aquatics Surgery(1), Ground Squirrel(1), Poultry(1)
- 16 CALS requests out of 100 additional hands-on sessions campus wide
  - Returning students for additional help/refresher
    - Check in with all students 6 weeks post hands-on training
  - Perfusion/Stereotax
  - Requested help with vet staff assisting researchers
- Train the Trainer

Waivers

- 1 CALS waiver granted out of 18 total waivers campus wide
  - Horse

Revocations

- Trainers follow up with each individual
  - If no resolution, then follow up with PI
  - If still no resolution, report to Dr. [redacted] & IACUC Office
  - Last resort, report to ACUC
- Last 6 months 31 CALS out of 189 made it on the revoked list campus wide
  - Cattle (12), Swine (6), Sheep (4), Mouse (3), Poultry (2), Working with Wildlife (2), Goat (1), Horse (1)
- To date 4 CALS individuals revoked out of 30 total campus wide

Meet and Greets

- 14 total campus wide
  - [redacted] – chose not to, already working with [redacted]

Outreach

- Wisconsin Science Festival
- Campus Visitor's Program
  - middle schools and high schools

Other Training Updates

- 2 CALS ARTs out of 13 ARTs enrolled in ALAT Certification Training
  - [redacted] and [redacted]
- [redacted] retiring June 18, PVL posted to fill his position

Appendix 3

Veterinary lead Training session November 2017 thru May 2018

Date	Facility	Topic
12/7/2017	[redacted]	Anesthesia, intubation and monitoring dry run. (Dr [redacted] lab)
1/?/2018	[redacted]	Vet care treatment SOP
1/14/2018	[redacted]	Lambing, neonatal care, (SVM students)
2/7+12/2018	[redacted]	Vet care treatment SOP, preventative care, Dairy cattle health assessment (Dairy Science students- [redacted])
2/15/2018	[redacted]	Instructions on proper injection techniques (Dairy Science students- [redacted])
2/19/2018	[redacted]	Vet Care SOP review
2/20/2018	[redacted]	Dairy cattle health assessment- herdsperson training
2/27/2018	[redacted]	Calvings and calf care
2/26+28/2018,	[redacted]	Milker Training: Procedures and Staph aureus epidemiology
3/5/2018	[redacted]	Dairy cattle health assessment
3/7/2018	[redacted]	Calvings
3/8/2018	[redacted]	Dental lab (Animal Science students-Liv [redacted])
4/9/2018	[redacted]	Calvings and Vet Care SOP review

Appendix 4

AAALAC workshop - Agenda

When: 2/22/18

Where: [redacted] Room [redacted]

Time: 10:30 – 3:30 pm

10:30 am- Welcome
SOP Review sign-up
Program Description review

10:45 am – noon [redacted], **CALS** [redacted] **and** [redacted], **RARC Program Veterinarian**
Review of suggestions for Improvement from past CALS site visits
Review of suggestions for improvement from 2017 AAALAC visit to SMPH, SVM and VCRGE
What will AAALAC focus on during our visit?

Break 12pm-catered lunch Enchilada Bake Buffet (vegetarian option available)

12:30 – 1:00
Animal Program Emergency Plan – [redacted], **RARC**

1:00-1:30 - [redacted], **Environmental Health and Safety**
- Animal Safety training
- Cage wash Safety and training
- Hazard Communications
- Risk Communication in animal facilities
- Ether
- MS222

1:30-2:00 - [redacted], **Occupational Health and Safety**
- ACRQ compliance and policy update
- Hiring Minors for care staff positions/ACRQ
- Isoflurane awareness and exposure limits
- Allergy
- Respiratory protection program

2:00-2:30
Tracking staff Training [redacted], **RARC Trainer**

2:30 – 3:30
Animal Records - [redacted], **RARC Program Veterinarian**

Record Retention - [redacted], **UW Legal Services**

Kemp Station Livestock Mangers Retreat Sept. 28th & 29th 2017 – Agenda

September 28th 11 am check-in at [redacted]

Light Lunch will be available-[redacted]

12:30 pm Welcome – [redacted]

1 – 5:30 pm Building your team: Hiring and Training

1 pm [redacted] and [redacted] –
Writing the Position Description
Interviewing strategies
Performance Management
On Boarding the Staff

2:30 pm Break

2:50 pm RARC Trainer – [redacted]
Training checklist and Species Specific Training
Tracking staff training - a new option for the Facility Manager
Audience discussion – Best Practices Already in Place at your Facility

3:40 pm Safety – [redacted]
Job Assessments – Milker – Feeding Livestock – Clean out
Training online Mandatory and Optional
Zoonosis Handouts

4:30 pm **Building Modules for a Livestock Care Takers Training similar to AAALAS – Drug Withdrawal: Dr.** [redacted] **and Dr.** [redacted]

6:00 pm Evening meal - [redacted]

6:30/7 pm – [redacted]

7:30 pm Campfire

September 29th

8:00– 8:30 Breakfast-[redacted]

Check –out of rooms by 9:00 am

[redacted]

9:00 am Kentucky Symposium Highlights –[redacted]

9:45 am Records Retention –[redacted] and [redacted]

When can you shred them?

Personal notes verse official records

Record Management – Teachable Moments from the ARS-USDA VMO Inspection

10:45 am Break

11:00 Disaster Planning and Emergency Response –[redacted]

12:00 pm 2015 Review of AAALAC site visit –[redacted] and [redacted]

Highlights of the 2015 visit

Safety updates and visits

SOP Review

Updating the Program Description

1:30 pm Lunch-[redacted]

2:00 pm Wrap up

Appendix 5

Program Review Worksheet Sec. VI-C

Committee Training
November, 2017-April, 2018

Committee Training at Monthly Meetings

November: Effective Protocol Review, Demonstration of OBS Animal Safety Review ([redacted])

December: Policy Review: Designated Review, Inspection sign-up refresher

January: Policy Review: Veterinary Verification and Consultation

February: Adverse Event Reporting

March: Questionable VVC Scenario

Web Seminars

OLAW: Adverse Events at Research Facilities- December 7, 2017

NABR: Reducing Burden: Options and Opportunities

NABR: 2017 UDA Inspection Data: Celebrating a New Milestone in Compliance- February 6, 2018

OLAW: Field Euthanasia Methods for Wildlife- March 29, 2018

NABR: Infiltrators- The Inside Threat- April 17, 2018

Archived NABR Web Seminars can be accessed at: http://www.nabr.org/nabr-members-only/webinars/
You will need to create a login, and be verified as being affiliated with a member organization (UW Madison) before you can access the member's only content.

Archived OLAW Web Seminars can be accessed at:
https://grants.nih.gov/grants/olaw/educational_resources.htm#online-seminars

Appendix 6. Program Review Worksheet Sec. IV

UHS | University Health Services
UNIVERSITY OF WISCONSIN–MADISON
ENVIRONMENTAL & OCCUPATIONAL HEALTH

University Health Services Environmental and Occupational Health
Summary Occupational Health Program Status
May 1, 2018

Compliance with Animal Contact Risk Questionnaire
On April 27, 2018 the compliance rate was 96% with 3905 enrolled. During the time period since the last report compliance ranged from 95 to 98% compliance.

Occupational Health Program for Service Personnel
As noted in the response to Fall 2017 AAALAC suggestions for improvement (SFI), University Health Services (UHS) added an occupational health risk assessment specific for UW service personnel in March. UHS, in coordination with Environment, Health and Safety (EHS) and UW Facilities Planning and Management (FPM) developed the Service Personnel Limited Animal Area Access Form (SPLAAAF) and training.

SPLAAAF was implemented in March with in person training and assistance to 339 FPM staff for submitting the electronic form. UWPD is included in the service personnel definition and are scheduled to have training and assistance with the SPLAAAF submission during an annual outreach event coordinated by UHS in late May 2018.

Final action items identified by UHS, EHS and FPM for continued onboarding of FPM staff for SPLAAAF is expected to be complete by the end of May. An outstanding action item is process for UW Health custodial staff cleaning at [redacted].

Implementation of SPLAAAF could not have occurred without significant contribution to partners in particular, [redacted] and UHS Environmental and Occupational Health/Occupational Medicine staff.

Isoflurane Monitoring
Another SFI noted the lack of isoflurane monitoring in specific rooms. UHS has made several attempts to conduct monitoring in 3 rooms, with varying levels of response. UHS participates as a member of an Isoflurane subgroup to address gaps in knowledge, engineering and communication and is excited about the recent progress by the group.

Future
UHS continues to work with the electronic medical record vendor on a regular basis. The owner has provided a demonstration of changes with a goal of improving the user experience. UHS has provided feedback regarding the demonstration.

608.890.1992 | uhs.wisc.edu/eoh
University of Wisconsin–Madison | 333 East Campus Mall, Room 8303 | Madison, WI 53715-1381

Accreditation Association for Ambulatory Health Care, Inc.

Appendix 7 Program Review Worksheet Sec. VI-E

CALS ACUC Spring 2018 Protocol Review Statistics

Number of Protocols Reviewed and Approved in the six-month period preceding program review (10/15/2017 – 4/14/2018)

	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018
New/Renewals	28	32	20	34	34	23
Amendments	52	28	45*	40*	46*	58*
Total	80	60	65	74	80	81

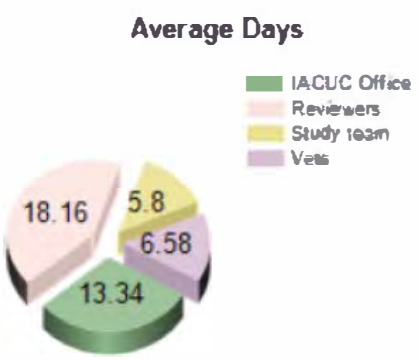
Turn-around time (in Days) for Protocols Reviewed and Approved during this period

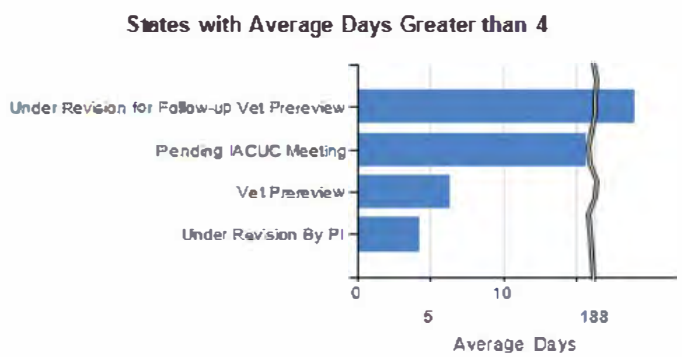
New or Renewals	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Mean	37.1	37.8	30.1	39.4	34.9	28
Median	36	36	28	37	34.5	24
Range	11-103	5-79	8-55	14-81	11-70	9-59

*Includes review time after submission (not including vet pre-review). Average vet pre-review time this cycle was 7 days.

Amendments	Fall 2015	Spring 2016	Fall* 2016	Spring* 2017	Fall* 2017	Spring 2018
Mean	19	16	17	12	14	15
Median	14	14	14	12	10	13
Range	0-130	0-60	0-133	0-35	0-73	0-75

*Includes protocol changes approved through Veterinary Verification and Consultation (VVC) in which the changes may be implemented immediately after vet consultation. 33% of the CALS amendments approved this cycle (and last cycle) were via this process. If VVCs are excluded, average and median amendment turnaround times were 22 and 18 days, respectively.





Appendix 8 Program Review Worksheet Sec. VI-E

CALS Spring 2018 Program Review Report on Semi-Annual Inspections

Number of Inspections

Regularly Scheduled: 15

Time spent by voting members on regularly scheduled inspections

~50 hours

Up from ~42 hours last Fall

(last fall we had more inspections with only 1 voting member)

Number of rooms on inspection list

Total number of rooms = 415

Facility = 377

Labs = 31

Core Units = 7

Minor Deficiencies

Expired Items = 9

Drugs: AAE = 0

Drugs: Other = 0

Other Medical Materials = 3

1 Facility Repeat at [redacted]

Food/Treats/Supplements = 3

Cleaning/Disinfectants = 0

Human First Aid = 3

Slight reduction overall, down from 10 in Fall 2017 and large reduction compared to 23 in Spring 2017.

Labels, Signage and Recordkeeping = 11

Labels: Missing = 1

Labels: Incomplete = 3

Signage = 1

Records = 6 (Includes SOP updates)

Housekeeping = 1

Safety = 1

Infrastructure = 7

Minor maintenance items.

Animal Welfare = 1

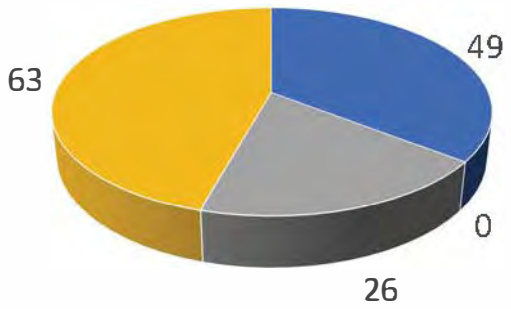
Broken gate with sharp protrusion.

Significant Deficiencies **None**

Appendix 9 Program Review Worksheet Sec. VI-H

Departures from the *Guide* approved in CALS Protocols as of April 26, 2018

(out of 207 approved protocols)



Housing animals individually for experimental or veterinary reasons:

- to control feed intake during dietary studies
- to facilitate administration of pre-operative medications
- to reduce negative interactions between wild-caught hatchling and adult house sparrows
- conditions described in the ASHER document (Policy 2011-042-v)
- other scientific justifications approved by the ACUC in protocols

Restraint for more than one hour

Food or fluid regulation for the following reasons:

- to standardize gastrointestinal tract conditions between two groups of study animals
- to evaluate two different methods of gastrointestinal tract bacterial repletion
- to ensure the full dose of gavaged material is readily absorbed and is not allowed to interact with feed
- to measure the permeability of the intestine after injection with LPS or cecal ligation
- to confirm diabetes by measuring fasting serum glucose levels
- other scientific justifications approved by the ACUC in protocols

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

Fall 2017 program review data for comparison:

- *49 protocols approved for housing animals individually for experimental or veterinary reasons*
- *0 protocols that involve restraint for more than one hour*
- *24 protocols that involve food or fluid regulation*
- *62 protocols use non-pharmaceutical grade compounds*

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

College of Agricultural and Life Sciences Animal Care and Use Committee
Program Review Open Session – May 22, 2018

Present: [redacted]

Absent: [redacted]

Nonvoting: [redacted]

Guests: [redacted]

The meeting convened at 10:30 a.m. Dr. [redacted] explained that today's meeting has been called to perform the semiannual review of the animal program in the College of Agricultural and Life Sciences. Dr. [redacted] said that the program review is one of three activities that both the USDA regulations and PHS Policy require of an IACUC. The committee will discuss each section of the UW-Madison Animal Care and Use Program Review Worksheet (see attached) and identify areas of strengths and deficiencies. She noted the committee's comments from the Fall 2017 program review have been provided in today's Worksheet for reference. After the meeting, she will prepare a letter to the Institutional Official and circulate it to members and guests for feedback. She thanked everyone for attending and asked attendees to introduce themselves.

After introductions, the committee discussed section I ("Physical Plant"). The committee discussed a rodent facility currently undergoing renovation and noted that an ACUC subcommittee recently conducted a walk-though of the project. The committee discussed involvement of animal program members in the design and ongoing construction of the [redacted] Dr. [redacted] described the current state of the project and said that Mr. [redacted] and veterinary staff had reviewed the plans prior to construction and are continuing to monitor the project to ensure that animal welfare is taken into consideration.

The committee acknowledged there are times when humidity levels in facilities depart from *Guide* standards, primarily during the winter months. Monitoring of humidity-related clinical issues by the veterinary staff will continue, with cases or trends reported to the ACUC as needed. No such clinical cases were seen in the past six months. Dr. [redacted] indicated PIs will again be notified of the potential effect of humidity changes on research in the fall.

Dr. [redacted] reminded the committee that another departure from the *Guide* is that in some CALS facilities, the valves containing reheat coils fail either in the open or last position to prevent freezing of water pipes. The *Guide* states that valves containing reheat coils should fail

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

in the closed position to prevent animal loss due to overheating. Dr. [redacted] said that there has been extensive discussion campus-wide since this issue was identified as a suggestion for improvement by AAALAC for other campus programs in the Fall of 2017. The committee noted that the [redacted] environmental monitoring system is in place in all facilities to provide rapid notification of fluctuations in environmental conditions. [redacted] moved to accept this departure. The vote was unanimous.

The committee discussed section II ("Animal Environment, Housing and Management). Dr. [redacted] said that enrichment devices at one swine facility are being used regularly and that staff continue to evaluate new and innovative enrichment options. Dr. [redacted] affirmed that the campus' Animal Social Housing and Enrichment Requirements (ASHER) document specifies regulatory-appropriate social housing and enrichment practices for all species, and the standards are implemented throughout the CALS program.

The ACUC agreed that last year's forage was of high quality. It was noted that some feed storage areas in animal facilities cannot maintain temperature and humidity levels as stated in the *Guide*, however, the rate at which feed is used ensures that it is not stored for long enough periods of time for degradation in quality to occur. No clinical cases attributable to food quality have been noted by veterinary staff. The ACUC acknowledged that the rodent cage top sanitization schedule that departs from *Guide* standards continues to be followed with no negative effects on animal well-being. Dr. [redacted] stated that the cage change frequency for individually ventilated racks in CALS facilities is consistent with *Guide* recommendations.

[redacted] The ACUC discussed campus participation in a recent full-scale emergency training exercise that simulated a long-term mass power outage in Wisconsin. Animal program personnel were involved in discussions on management strategies for research animals in this scenario. Those involved agreed that this was a stressful but very useful emergency planning exercise.

The committee discussed section III ("Personnel Qualifications and Training"). RARC trainer Ms. [redacted] led discussion of her report, presenting information on animal user training provided campus-wide and trainings provided to CALS staff, students, and researchers (see attached). She added that two CALS ARTs recently completed the AALAS ALAT class and are preparing to take the certification exam. Ms. [redacted] described the RARC trainers' process for following up with individuals who fail to attend required training, noting that non-responsive individuals are reported to the PI, then to the Chief Campus Veterinarian, and as a last resort to the ACUC. Ms. [redacted] complimented Ms. [redacted] and other CALS staff for assistance in animal handling training for veterinary students, and noted that the students are receiving better training due to opportunities provided by the CALS program. For example, members of the School of Veterinary Medicine student small ruminant club and veterinary technician students from Madison Area Technical College (MATC) continue to assist with lambing at the CALS [redacted] for the second year in a row. MATC students are also assisting with procedures at the [redacted] and [redacted] Ms. [redacted] closed with a brief overview of the evolution of the RARC training program and thanked the ACUC members for their continuing support of the program.

Dr. [redacted] described veterinary-led training sessions for animal research technicians (ARTs) conducted over the last six months (see attached). Dr. [redacted] said that this training is documented in the training records at each facility, and that he is working with Ms. [redacted] to have the information added to the notes section of an online database that can be accessed by RARC staff. Ms. [redacted] described additional training including the [redacted] retreat and the pre-AAALAC workshop held for CALS managers and staff (see attached).

The committee discussed section IV ("Occupational Health and Safety," OHS), reviewing the report provided by University Health Services (UHS), noting the high compliance rate of animal users enrolling in the occupational medicine program (OMP) (see attached). This rate has been consistent now for the past three semiannual program reviews. Ms. [redacted] reported that she has been involved in upgrading the occupational health training for FP&M employees who enter animal facilities as described in the report, noting a specific individual in the FP&M director's office has been charged with overseeing FP&M employee enrollment compliance. She noted that UWPD staff will also be enrolled in the program.

Ms. [redacted] and the Animal Research Safety (ARS) staff has been working with UHS on identifying all isoflurane stations in animal use areas, assessing the vaporizer set-ups, and performing both acute and long-term monitoring of areas deemed high-risk to ensure worker safety. She noted that the AAALAC site visitors suggested the monitoring be intensified after their visit to three other programs in Fall 2017. Ms. [redacted] said that online animal safety courses are being modified for the campus' move to Canvas from D2L, and a program manager for the biosafety cabinet (BSC) certification program is now on staff. Ms. [redacted] then shared statistics on animal related worker injuries in CALS. Discussion ensued. The ACUC noted the decline in injuries from livestock since 2016 and suggested that the decrease may have resulted from improvements in worker training as well as facility improvements. The ACUC asked to be notified of any changes in trends.

The committee discussed section V ("Veterinary Medical Care"), finding the program of veterinary care exceptional. Dr. [redacted] said that the online health reporting app is now being used in rodent facilities. Dr. [redacted] reported that veterinary staff are reducing barbiturate use for euthanasia to comply with new disposition requirements. All alternate euthanasia methods are in full compliance with the *AVMA Guidelines for Euthanasia*. Dr. [redacted] reported that RARC has received approval to assign another veterinary technician to the large animal program. Members thanked Dr. [redacted] Dr. [redacted] Dr. [redacted] Dr. [redacted] and Dr. [redacted] for their efforts in veterinary pre-review and their continuing strong support of the research mission.

The committee discussed section VI ("Institutional Animal Care and Use Committee. Ms. [redacted] provided information on the most recent inspections period (see attached), noting that the number of deficiencies identified was down slightly and that no deficiencies were classified as significant. Ms. [redacted] thanked the committee members for their active participation in the inspections. Dr. [redacted] provided a report on committee training topics covered during the last six months and on protocol review turnaround (see attached). She noted the number of protocols reviewed and approved over the last six months, and said veterinary pre-review averages about seven days. Dr. [redacted] said that 33 percent of protocol modifications were done using VVC in the last six months. A summary of departures from the *Guide* in protocols

approved by the SMPH ACUC was reviewed, noting no significant changes in the number of departures approved from the previous cycle (see attached).

The ACUC stated that the committee continues to receive timely and strong support from RARC staff, especially Ms. [redacted] Dr. [redacted] and Ms. [redacted] of the IACUC office. Dr. [redacted] reported that in the last six months, two CALS protocols underwent routine PAIM. Both laboratories have an excellent record of compliance and that no concerns were identified.

The committee discussed section VII ("Institutional Official," I.O.), finding the I.O.'s knowledge of and responsiveness to the animal program very strong. Ms. [redacted] reminded the ACUC that Dr. [redacted] has been visiting facilities in the CALS program and the workers appreciate that the I.O. is taking the time to learn about their facilities. The ACUC appreciates that the I.O. attends at least one ACUC meeting each year to provide updates and answer questions.

The committee discussed sections VIII ("Program Integration") and IX ("Support of the Institutional Mission"). Dr. [redacted] noted that ACAPAC meets monthly and the ACUC Chairs meet regularly to discuss cross-program issues. The ACUC noted that there is considerable integration between the School of Medicine and Public Health (SMPH), School of Veterinary Medicine (SVM), and CALS in the use of swine and sheep for biomedical research. The CALS [redacted] and [redacted] provide high quality animals of known health status for biomedical research and the [redacted] transports these animals. A swine specialist from CALS has served as a consultant on construction projects involving renovations to campus facilities to house large animals.

Dr. [redacted] stated the importance of a strong animal program. She thanked members for their participation and recognized the contributions of the ACUC members, facility managers, RARC staff (administration and veterinary staff, assessment specialists, and trainers). She said that there is excellent support from and communication between members of RARC, CALS administration, and the Safety group to assist committee members with the animal program. She said that Ms. [redacted] who is assisted by Ms. [redacted] is an invaluable liaison with the CALS administration. Ms. [redacted] and Dr. [redacted] are to be commended for organizing the ACUC Chairs meeting/discussion working group allowing ACUC Chairs to discuss issues of common interest and work towards best practice for all units on campus. Dr. [redacted] said that she will prepare a draft program review letter to be circulated for edits, and final signatures will be collected at an upcoming ACUC meeting.

Dr. [redacted] announced that Dr. [redacted] will be stepping down as ACUC Chair as of July 1, and that Dr. [redacted] has agreed to serve as the new Chair. Dr. [redacted] thanked Dr. [redacted] for her outstanding leadership and vision that has contributed to a stronger animal program during her tenure. He read from a letter of commendation that was sent to Dr. [redacted] and her Department Chair thanking her for her exemplary service and her contributions to the CALS animal program. Dr. [redacted] said that she has greatly enjoyed her time on the ACUC. She thanked Dr. [redacted] who will remain as Vice Chair. She said she is sure that the Committee will continue to care for animal welfare while not overburdening the researchers. She said that the last meeting showed just how dedicated this committee is in their thorough review and how they dealt with difficult topics. Members thanked Dr. [redacted] for her service. She then asked for final comments on the

program review. Hearing none, [redacted] moved to adjourn the meeting. The vote was unanimous. The meeting was adjourned at 12:34 p.m.

[redacted]

Approved by CALS ACUC
6/21/18

UWMadison College of Agriculture and Life Science
AAALAC Certification HVAC System Information

4/2/2018

	Air Handling Unit and Exhaust Fan Description and System Redundancy	Air Handling Unit Filter MERV Rating	Constant Volume Manually Balanced System	Pressure Independent Air Supply and Exhaust Terminals	Reheat	Reheat Control Valve Failure Position Open/Closd/Last	Central Air Handling Unit Humidification	Local Humidification	Room Pressure Balanced to Supply/Exhaust Volume Offset	Room Pressure Indicator Device: Magnahelic Gauge	Room Pressure Indicator Device: Ball in Tube	Room Pressure Indicator Device: Digital Display	DDC Control with Electric Actuation	DDC control with Pneumatics	Pneumatic Control	Remote Alarming to Building/Lab Manager and Building Automation System: Temperature	Remote Alarming to Building/Lab Manager and Building Automation System: Humidity	Remote Alarming to Building/Lab Manager and Building Automation System: Airflow Failure	Emergency Power supplies Vivarium Mechanical/Electrical Systems
[redacted]	1	14	YES	NO	YES	[redacted]	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	(2)	[redacted]
[redacted]	2	8	YES	NO	YES	[redacted]	YES	NO	YES	NO	NO	NO	NO	NO	YES	YES	YES	(2)	[redacted]
[redacted]	3	8	YES	NO	YES	[redacted]	YES	NO	YES	NO	NO	NO	NO	NO	YES	NO	NO	(2)	[redacted]
[redacted]	4	8	YES	NO	YES	[redacted]	YES	NO	YES	NO	NO	NO	NO	NO	YES	NO	NO	(2)	[redacted]
[redacted]	5	14	NO	YES	YES	[redacted]	YES	(1)	YES	YES	NO	NO	NO	YES	NO	YES	YES	(2)	[redacted]
[redacted]	6	14	YES	NO	YES	[redacted]	YES	NO	YES	NO	NO	NO	NO	NO	NO	(3)	(3)	(2)	[redacted]
[redacted]	7	14	NO	YES	YES	[redacted]	YES	NO	YES	NO	NO	NO	YES	NO	NO	YES	YES	(2)	[redacted]
[redacted]	8	14	NO	YES	YES	[redacted]	YES	NO	YES	NO	YES	NO	YES	NO	NO	YES	YES	(2)	[redacted]
[redacted]	9	14	NO	YES	YES	[redacted]	YES	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	(2)	[redacted]
[redacted]	10	8	YES	NO	YES	[redacted]	NO	YES	YES	YES	NO	NO	NO	NO	YES	YES	YES	(2)	[redacted]
[redacted]	11	11	YES	NO	YES	[redacted]	NO	YES	YES	NO	NO	NO	NO	NO	YES	NO	NO	(2)	[redacted]
[redacted]	12	8	NO	YES	YES	[redacted]	NO	YES	YES	YES	NO	NO	NO	NO	YES	YES	YES	(2)	[redacted]
[redacted]	13	8	YES	NO	YES	[redacted] N	YES	(1)	YES	(4)	NO	NO	NO	NO	YES	YES	YES	(2)	[redacted]
[redacted]	14	14	NO	YES	YES	[redacted]	YES	NO	YES	YES	NO	NO	YES	NO	NO	YES	YES	YES	[redacted]
[redacted]	15	8	YES	NO	NO	N/A	NO	NO	YES	NO	NO	NO	NO	NO	YES	YES	YES	NO	[redacted]
[redacted]	16	8	YES	NO	YES	[redacted]	YES	(1)	YES	(5)	NO	NO	NO	NO	YES	YES	YES	(2)	[redacted]

NOTES:

(1) Animal Housing rooms have local humidification. See room data sheet.

(2) [redacted]

(3) [redacted]

(4) [redacted] have magnahelic gauges displaying room pressure.

(5) [redacted] have magnahelic gauges displaying room pressure.

1. [redacted]
2. [redacted]
3. [redacted]
4. [redacted]
5. [redacted]
6. [redacted]
7. [redacted]
8. [redacted]
9. [redacted]
10. [redacted]
11. [redacted]
12. [redacted]
13. [redacted]
14. [redacted]
15. [redacted]
16. [redacted]

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

A

In the Table below, provide room-specific information requested. For each room within this location, indicate use, including the species for animal housing rooms. *Measurement of air exchange rates and verification of relative pressure within animal housing rooms (excluding rooms housing aquatic species only) and cage washing facilities must be completed* ***within the 12 months preceding completion of this Program Description.*** Air exchange rates may be important to maintain air quality in other areas; *however, measurements may be left at the discretion of the institution*. Information may be provided in another format, providing all requested data is included. **[*Note*: Please remove the examples provided in the Table below.]**

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted] Bldg. No.	F		Alert Hi/Low F	Central			
[redacted]	Housing-rodent	7[redacted]	[redacted]	77/66	Y	-	14.5	2/21/18
[redacted]	Housing-rodent	7[redacted]	[redacted]	77/66	Y	-	17.5	2/21/18
[redacted]	Procedure	7[redacted]	[redacted]	77/66	Y	-	7.2	2/21/18
[redacted]	Food and Equipment storage	None	[redacted]	-	N	-	18.[redacted]	2/21/18
[redacted]	Housing-rodent	7[redacted]	[redacted]	8[redacted]/68	Y	-	15.2	2/21/18
[redacted]	Housing-chicks	75	[redacted]	77/66	Y	-	15.9	2/21/18
[redacted]	Housing-rodent	7[redacted]	[redacted]	77/66	Y	-	14.9	2/21/18
[redacted]	Housing- fish	7[redacted]	[redacted]	77/66	Y	-	17.2	2/21/18
[redacted]	Cage wash/autoclave	-	[redacted]	-	Y	-	8.7	2/21/18
[redacted]	Clean cage storage	-	[redacted]	-	Y	+	7.8	2/21/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

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

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted] Bldg. No. [redacted]			**Alert Hi/Low F**	**Local**			
[redacted]	housing	~70-76°F	[redacted]	68-79°F	Y	-	19.3	2/13/18
[redacted]	Clean equipment storage	NA	[redacted]	NA	N	-	5	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	68-79°F	Y	-	16.4	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	68-79°F	Y	-	20.0	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	68-79°F	Y	-	19.4	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	68-79°F	Y	-	19.4	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	68-79°F	Y	-	23.8	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	68-79°F	Y	+	22.1	2/13/18
[redacted]	Feed storage	< 80°F	[redacted]	NA	N	-	14.8	2/13/18
[redacted]	Cage wash	NA	[redacted]	NA	N	-	17.4	2/13/18
[redacted]	Housing (rodent)	~70-76°F	[redacted]	69-81°F	Y	-	13.7	2/13/18
[redacted]	surgery	NA	[redacted]	NA	N	+	21.2	2/13/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted] Building No.			**Alert Hi/Low F**	**Central**			2/2[redacted]/18
[redacted]	Cage wash	TBD	[redacted]	NA	Y	-	5.7	2/2[redacted]/18
[redacted]	Food storage	TBD	[redacted]	NA	Y	-	7.1	2/2[redacted]/18
[redacted]	Clean cage storage	TBD	[redacted]	NA	Y	+	7.1	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	1[redacted].3	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	11.5	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	1[redacted].5	2/2[redacted]/18
[redacted]	Clean storage	TBD	[redacted]	NA	Y	+	5.5	2/2[redacted]/18
[redacted]	Procedure	TBD	[redacted]	NA	Y	-	1[redacted].6	2/2[redacted]/18
[redacted]	Procedure	TBD	[redacted]	TBD	Y	-	11.4	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	11.[redacted]	2/2[redacted]/18
[redacted]	Procedure	TBD	[redacted]	NA	Y	-	18.6	2/2[redacted]/18
[redacted]	Procedure	TBD	[redacted]	NA	Y	-	11.6	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	12.5	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	14.6	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	13.2	2/2[redacted]/18
[redacted]	Autoclave	TBD	[redacted]	NA	Y	-	2[redacted].3	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	1[redacted].6	2/2[redacted]/18
[redacted]	Housing	TBD	[redacted]	TBD	Y	-	16.5	2/2[redacted]/18
[redacted]	housing	TBD	[redacted]	TBD	Y	-	17.2	2/2[redacted]/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted] Bldg. No. [redacted]			Alert Hi/Low F	Local			
[redacted]	Cagewash—dirty	68-72•F	[redacted]	NA	N	-	15.2	2/26/18
[redacted]	Cagewash—clean	68-72•F	[redacted]	NA	N	+	16.7	2/26/18
[redacted]	Feed/Bedding storage	68-72•F	[redacted]	NA	N	+	16.7	2/26/18
[redacted]	Storage	68-72•F	[redacted]	<60•F and >80•F	Y	-	20.2	2/26/18
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	13.8	2/26/18
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	15.0	2/26/18
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	13.7	2/26/18
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	15.4	2/26/18
[redacted]	Procedure	68-72•F	[redacted]	<60•F and >80•F	N	-	29.6	2/26/18
[redacted]	Storage/Food	68-72•F	[redacted]	<60•F and >80•F	N	+	8.0	2/26/18
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.0	2/26/18
[redacted]	Storage	68-72•F	[redacted]	NA	N	-	17.3	2/26/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	15.9	2/26/18
[redacted]	Procedure/autoclave	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.5	2/26/18
[redacted]	Housing—mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	13.8	2/26/18
[redacted]	Quarantine/procedure	68-72•F	[redacted]	NA	Y	-	41.9	2/26/18
[redacted]	Quarantine--housing	68-72•F	[redacted]	<60•F and >80•F	Y	-	19.1	2/26/18
[redacted]	Glass / Autoclave		[redacted]	NA	N	-	38.1	2/26/18
[redacted]	Housing—frogs	60-76•F	[redacted]	NA	N	-	11.3	2/26/18
								2/26/18
[redacted]	LAB HOUSING Frogs				N	-	10.9	2/26/18
	[redacted] Bldg. No. [redacted]				Central			
[redacted]	Cage wash (clean)	68-72•F	[redacted]	NA	Y	+	21.4	3/22/18
[redacted]	Conventional Housing--rats	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.1	3/22/18
[redacted]	Storage/feed	68-72•F	[redacted]	NA	Y	-	15.8	3/22/18
[redacted]	IVCs Housing--mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.0	3/22/18
[redacted]	Procedure	68-72•F	[redacted]	NA	Y	-	32.6	3/22/18
[redacted]	Procedure	68-72•F	[redacted]	NA	Y	-	11.5	3/22/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
[redacted]	IVCS Housing--mice	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	13.3	3/22/18
[redacted]	IVCS Housing--mice	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	15.1	3/22/18
[redacted]	IVCS Housing--mice	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	12.1	3/22/18
[redacted]	IVCS Housing--mice	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	14.4	3/22/18
[redacted]	Housing (rodent)	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	14.8	3/22/18
[redacted]	IVCS housing--mice	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	13.5	3/22/18
[redacted]	Housing (rodent)	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	13.[redacted]	3/22/18
[redacted]	Bone Density Scanner	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	15.[redacted]	3/22/18
[redacted]	IVCS housing--mice	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	14.1	3/22/18
[redacted]	Conventional housing—rats	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	13.2	3/22/18
[redacted]	Housing (rodent)	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	14.[redacted]	3/22/18
[redacted]	Ante room	68-72•F	[redacted]	NA	Y	-	24.8	3/22/18
[redacted]	Housing (rodent)	68-72•F	[redacted]	<6[redacted]•F and >8[redacted]•F	Y	-	14.9	3/22/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	17.8	3/22/18
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	15.8	3/22/18
[redacted]	Procedure	68-72°F	[redacted]	NA	Y	-	14.4	3/22/18
[redacted]	Procedure	68-72°F	[redacted]	NA	Y	-	44.0	3/22/18
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	16.4	3/22/18
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	16.5	3/22/18
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	18.5	3/22/18
[redacted]	Procedure	68-72°F	[redacted]	NA	Y	-	14.6	3/22/18
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	14.5	3/22/18
[redacted]	Food prep	68-72°F	[redacted]	NA	Y	-	13.3	3/22/18
[redacted]	Food storage minus Vit. D	68-72°F	[redacted]	<60°F and >80°F	Y	-	15.7	3/22/18
[redacted]	Food prep	68-72°F	[redacted]	NA	Y	-	13.2	3/22/18
[redacted]	Ante room	68-72°F	[redacted]	NA	Y	-	29.4	3/22/18
[redacted]	Housing (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	16.4	3/22/18
[redacted]	Procedure	68-72°F	[redacted]	NA	Y	-	15.9	3/22/18
[redacted]	Animal (rodent)	68-72°F	[redacted]	<60°F and >80°F	Y	-	14.6	3/22/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
[redacted]	Ante room	68-72•F	[redacted]	NA	Y	-	28.7	3/22/18
[redacted]	Housing (rodent)	68-72•F	[redacted]	<60•F and >80•F	Y	-	15.2	3/22/18
[redacted]	Ether/procedure	68-72•F	[redacted]	<60•F and >80•F	Y	-	36.5	3/22/18
[redacted]	IVCS housing--mice	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.5	3/22/18
[redacted]	Conventional housing—rats	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.8	3/22/18
[redacted]	Conventional housing—rats	68-72•F	[redacted]	<60•F and >80•F	Y	-	14.3	3/22/18
[redacted]	Conventional housing—rats	68-72•F	[redacted]	<60•F and >80•F	Y	-	16.1	3/22/18
[redacted]	Cage wash dirty	68-72•F	[redacted]	NA	Y	-	20.2	3/22/18
[redacted]	Storage/H20 system	68-72•F	[redacted]	NA	Y	+/_	1.0	3/22/18
[redacted]	Quarantine corridor	68-72•F	[redacted]	NA	Y	-	11.3	3/22/18
[redacted]	Quarantine animal	68-72•F	[redacted]	<60•F and >80•F	Y	-	15.2	3/22/18
[redacted]	Quarantine animal	68-72•F	[redacted]	<60•F and >80•F	Y	-	16.3	3/22/18
[redacted]	Quarantine procedure	68-72•F	[redacted]	NA	Y	-	21.7	3/22/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
[redacted]	Lab housing frogs	6[redacted]-76•F	[redacted]	<59•F and >78•F	Y	-	13.7	3/22/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted] Bldg. No.	F		Alert Hi/Low F	Local			
[redacted]	Housing--Boar	7[redacted]	[redacted]	77/65	Y	-	17.8	2/19/18
[redacted]	procedure	7[redacted]	[redacted]	77/65	Y	-	18.4	2/19/18
[redacted]	Housing—sheep or goats	7[redacted]	[redacted]	77/65	Y	-	16.1	2/19/18
[redacted]	Boar collection	7[redacted]	[redacted]	77/65	Y	-	25.4	2/19/18
[redacted]	Housing--swine	7[redacted]	[redacted]	77/65	Y	-	15.6	2/19/18
[redacted]	Housing—sheep or goats	75	[redacted]	77/65	Y	-	19.6	2/19/18
[redacted]	Housing--swine	7[redacted]	[redacted]	85/65	Y	-	19.3	2/19/18
[redacted]	Housing--swine	7[redacted]	[redacted]	77/65	Y	-	14.9	2/19/18
[redacted]	Housing--swine	64	[redacted]	85/65	Y	-	19.2	2/19/18
[redacted]	Housing--swine	62	[redacted]	77/62	Y	-	18.3	2/19/18
[redacted]	Housing--swine	6[redacted]	[redacted]	77/6[redacted]	Y	-	19.2	2/19/18
[redacted]	Storage		[redacted]	-	Y	+	17.8	2/19/18
[redacted]	Pre-op	7[redacted]	[redacted]	-	Y	+	16.9	2/19/18
[redacted]	Clean storage	7[redacted]	[redacted]	-	Y	+	17.7	2/19/18
[redacted]	Bone Density scanner	7[redacted]	[redacted]	-	Y			
[redacted]	Feed storage		[redacted]	-	Y			
[redacted]	surgery	7[redacted]	[redacted]	-	Y	+	15.2	2/19/18
[redacted]	recovery	7[redacted]	[redacted]	-	Y	+	16.9	2/19/18
[redacted]	Housing--cattle	55	[redacted]	75/5[redacted]	Y	-	19.[redacted]	2/19/18
[redacted]	Housing—sheep or cattle	65	[redacted]	75/5[redacted]	Y	-	18.3	2/19/18
[redacted]	Housing--goats	65	[redacted]	75/5[redacted]	Y	-	2[redacted].8	2/19/18
[redacted]	procedure	7[redacted]	[redacted]	77/66	Y	-	16.8	2/19/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted]	F		Alert Hi/Low F				
[redacted]	Feed mixing	-	[redacted]	-	N			
[redacted]	Brooder cages - chicks	72	[redacted]	8[redacted]/65	N	+	12.9	2/2[redacted]/18
[redacted]	Hatchery	1[redacted]1	[redacted]	1[redacted]2/97	N			
[redacted]	Processing	-	[redacted]	-	N			
[redacted]	Feed storage	-	[redacted]	-	N			
[redacted]I	Cage housed chickens	68	[redacted]	9[redacted]/49	N			
[redacted]	Pen housed chickens	68	[redacted]	9[redacted]/49	N			
[redacted]	Pen Housed chickens	68	[redacted]	9[redacted]/49	N			
[redacted]	Storage	-	[redacted]	-	N			
[redacted]	Processing Cooler	45	[redacted]	5[redacted]/34	N			
[redacted]	Egg Cooler	52	[redacted]	6[redacted]/34	N			

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted]				**Local**			
[redacted]	procedure		[redacted]		N	-	11	2/22/18
[redacted]	Animal-nestlings	95•F	[redacted]	Species and age dependent	Y Additional Humidification to maintain 40-45%	-	21.2	2/22/18
[redacted]	animal	Species and age dependent	[redacted]	Species and age dependent	Y	-	11.9	2/22/18
[redacted]	animal	Species and age dependent	[redacted]	Species and age dependent	Y	-	21.1	2/22/18

Appendix 11: Heating, Ventilation and Air Conditioning (HVAC) System Summary

Room No.	Specific Use	Temperature Set-Point (define units)	Electronic / Emergency Monitoring of Temperatures (Y/N)	Alert/Alarm Temperature Ranges (if applicable; define units)	Humidity Control (Y/N)	Relative Pressure	Air Exchange Rate (per hour)	Date Verified / Measured
		(settings to be verified)					(values to be measured)	
	[redacted] recover spaces only	F						
[redacted]	Surgery	70-72	[redacted]	NA	N	+	19.5	3/29/18
[redacted]	Recovery	70-75 infrared heater	[redacted]	NA	N	-	14.1	3/29/18
[redacted]	Surgery Prep	70-72	[redacted]	NA	N	equal	7.0	3/29/18

Appendix 12: Aquatic Systems Summary (Part I & II)

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)
[redacted]	Perch (E, L, J)	Group	Fresh	City water will run through a carbon in-line filter for water changes.	Static system with 25-50% H2O exchange three-times weekly to daily depending on diet, size, population density.	Pre-treatment	
[redacted]	Xenopus laevis (A)	Group	Fresh		100% Automatic H2O exchange daily	Carbon	
[redacted] room #	Cold & Cool water fish (E, L, J, A)	Groups	Fresh		Flow Through	Carbon	
[redacted]	Yellow Lab Cichlid (E ,L, J, A)	Group	Fresh		Flow Through	Carbon	
[redacted]	Marine (A)	Group	Sea Water		Recirculating system with 25% H2O exchange every3-4 weeks	Protein Skimmer Live Rock	

*Records of equipment maintenance (filter changes, UV bulb changes, probe changes, calibrations, etc.) should be available for review.

Appendix 12: Aquatic Systems Summary (Part I & II)

Aquatic Systems Summary – Part II

Part II

Monitoring *Indicate in the boxes below the frequency of monitoring and method of control for the following parameters. (1)*									
Location (from Part I)	**Temperature**	**Salinity**	**pH**	**NH_4**	**NO_2**	**NO_3**	**Dissolved O_2**	**Total Dissolved gases**	**Other. Please List (2):**
[redacted]	Daily – Room and Water	none	W	none	none	none	None	none	Chlorine is tested twice monthly ammonia is neutralized by up to 3 times daily addition of ClorAm-X
[redacted]	Daily – mixing valve and room	none	W	W	W	W	none	none	Chlorine and Hardness is tested at the water source monthly
[redacted]	Daily – Random fish tank (flow through system)	none	none	none	none	none	none	none	Chlorine monthly, additionally annual water quality standards from city water will be provided
Marine Tank	Daily	W	W	W	W	M	none	none	Clean protein skimmer weekly, alkalinity monthly, total hardness monthly.

(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.

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**
Xenopus laevis ([redacted])	350 L, 221 L, 66 L	1 adult/gallon of water	The Guide, Eighth Edition	Polycarbonate
Zebrafish or Fathead Minnows ([redacted])	1.8 L, 2.8L, 10L	Study and age dependent.	The Guide, Eighth Edition	Polycarbonate
Cool water species ([redacted])	6 L- 30 L	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Glass Aquaria
Cold and Cool water species ([redacted])	30, 60, or 200 gallon tank	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Fiberglass
Marine tank ([redacted])	125 gallon	Species housed vary	The Guide, Eighth Edition	Glass Aquaria

Appendix 13: Primary Enclosures and Animal Space Provisions- Laboratory Animal

Cichlids (WSEL)	125 gallon	Breeding tank, various stages of development	The Guide, Eighth Edition	Glass Aquaria
Rat	18.5" X 10" X 8" (H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Polycarbonate H.T./SS wire bar lids/Micro-isolator tops
Mouse	11.5" X 7.25" X 4.75"(H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Polycarbonate H.T./SS wire bar lids/Micro-isolator tops
Mouse	16" x 9" x 5"(H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Polycarbonate w/ ss wire mesh floor & top
Mouse	16" x 10" x 8"(H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Polycarbonate w/ss wire bar lids/static Micro-isolator tops
Mouse/Rat	15.5" x 10.25" x 7.5"	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Polysufone IVCS
Mouse	8" x9.5" x 7"(H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Wire mesh stainless steel
Rat/Mouse	17" x9.5" x 7"(H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Wire mesh stainless steel
Mouse	9.3 x 5.3 x 5.1(H)	1	The Guide, Eighth Edition	Metabolic cage/polycarb

Other Poultry	24" x 24" x15" (H)	According to the Guide, Eighth Edition	The Guide, Eighth Edition	Stainless steel with ss slatted floor

*For aquatic species, provide tank volume.

**Include descriptors such as open-topped, static microisolator, individually-ventilated cage systems (IVCS).

Appendix 13 – Agricultural Facilities

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**
[redacted] (dairy cows)	51" X 66" Outdoor lot 8000 sq ft	1 20	Ag Guide	84 tie stalls bedded with mattresses and sawdust. Outdoor exercise is grooved concrete, lot is enclosed with painted wood fence.
[redacted] (horses)	(7) 12' X 12' (5) 10' X 14' Round pen 43' Diameter	1 adult or mare with foal	Ag Guide	Stall walls 4' high constructed of wood with vertical metal bars above extending to 7'. Floors covered with three-quarter inch interlocking solid rubber mat. Each stall has a sliding door with a "Dutch" door opening. The round pen is enclosed with painted wood fence, the base is sand. The outdoor lot is enclosed with smooth wire and a mixture of metal and wood post with a concrete pad.
[redacted] (cows)	12' 4" X 39' 5" pens (2) Outdoor lot 182'x44'	16/side Ag Guide/ weight	Ag Guide	Self-locking head gates 16 on each side of indoor pens. Concrete floor, and alleyway with wooden walls and ceilings. Concrete pad, with smooth wire and a mixture of wood and metal posts, gates are wood or metal.

	28” on center X 84” (6)	1		Gestating pigs: slatted metal floor, stainless steel tubular sides, front and rear gates. Equipped with stainless feeder and automatic waterer.
	48” X 48” nursery pigs	1		Nursery pigs: slatted metal floor, fiberglass and painted cinderblock sides, stainless feeder and waterer.
	48” X 96” finishing pigs	4		Finishing pigs: slatted concrete floor, painted cinderblock and moveable fiberglass sides. Rubber covered concrete slats for biomedical pigs.
	Biomedical pigs 48X96	4-5		
[redacted] (swine, sheep, cattle)	Sheep and Goat pens varies dependent upon group size		Guide and the Ag Guide (dependent upon research use)	Square tubular steel and wood, rubber coated stainless steel mesh floor, automatic waterer with a 16” X 16” feeder.
	7’ X 11’ cattle 12’ X 23’ cattle	Dependent on animal weight		Cattle rooms: Two rooms have 7’ X 11” pens with coated mesh floors with tubular steel sides. Auto waterers and feed buckets. One room has 12’ X 23’ pens with rubber covered concrete slat floors, cinder block walls and tubular steel headcatches. Auto waterers and feed alley. Rubber mesh floor, fiberglass panels on the sides-pig metabolism crates

[redacted] (Roosters layers, chicks)	[redacted] 18" X 18" X 12" cages 30" X 28" X 28" [redacted]: floor pens width varies 11.75' X 5.3' 11.75' X 18.9' 11.75 X 8' Chick Room: 11.5" H x 39" L x 13.5 W (brooder Cage) 16.5" H x 26" L x 26" W (grow out) 5 animals/cage	1 2-3 dependent on age 35 ♀/25 ♂ 127 ♀/97♂ 53♀/41♂ 5 broilers or 15 layer 5 broilers or 15 layer	Ag Guide and Guide	Wire mesh cages are constructed of wire, plastic-coated wire or molded plastic mesh floors. Food in wing 1 is provided to layers with a mechanical trough feeder, water is provided using a nipple system, the racks of cages also have a roll away egg basket. Manure is allowed to drop onto a mechanical belt. Roosters in wire cages are feed from stainless steel troughs. Wing [redacted] & [redacted], used for floor housed hens varying in width. Floor pens contain roosts and nest boxes, feed is provided in standard poultry feeders, water is provided via a nipple system. Brooder caging is equipped with heated brooder area, feed trough, and two water nipples, the unit is constructed of stainless steel with stainless steel drop pans. Grow out caging is constructed of painted metal, galvanized flooring, and stainless steel drop pans except for the heated brooder area.
[redacted] (Sheep, cattle, pigs)	Pens are constructed to meet the species space requirements.		Ag Guide	A large arena 66' X 165' with assembled pens is used to house animals for one night, the floor is clay covered with limestone screenings bedding material is provided as well as food and water. If longer accommodations are needed pens are assembled in the basement area, the concrete floors are bedded with shavings or straw. Food and water is provided in buckets, hay provided on the floor. The events that house animals in the [redacted] are sponsored by the Department of Animal Sciences or Dairy Sciences with the greatest length of stay being 4 weeks.

[redacted] (dairy cattle)	2 main freestall barns (986) divided into Barn [redacted] & [redacted]. Barn [redacted] – 57,845 sq. ft. with stalls 48" X 8'. Maternity pens (5) each with 920 sq. ft. Barn [redacted] – 38,760 sq. ft. with stalls 48" X 8.5' Building [redacted] (Dry cow barn) Calf rearing outdoor gravel and sand pad 8,250 sq. ft. With 80 individual Calf-Tel hutches inside dimensions 82" L X 42" W X 48" H And 12 multi-Max hutches inside dimensions 82" L X 102" W X 71" H	200 adults 1 384 adults 100 adults 1 neonate 4 post weaning calves/hutch	Ag Guide	Barn [redacted] is a sand bedded freestall with a head to head stall design and a center drive through feed alley. There are 5 maternity pens in this barn for loose housing of prepartum cows, with a straw bedded pack and a concrete feed alley. There is free access to water for all animals. Barn [redacted] is divided into four sand bedded pens with a tail to tail stall design. Three of these pens have unlimited access to the feed alley, while the fourth pen has access to feed via the RIC Insentec feed trough system. There is free access to water for all animals. Building [redacted] is a 4-row free stall pole barn with alley scrapers, gravity flow manure system and headlocks. Access to four acres of pasture during spring, summer, and fall. Calf rearing pad constructed of sand and gravel utilizes straw bedded hutches for neonates and multi hutches for recently weaned animals. Once heifers are weaned they are transported to the heifer raising facilities at [redacted].

	Building (□) 24 group pens open access to outside paddock Pens- (48) 7' X 11' North-wall	5-8 steer 1 adult steer		Building □ is a wood framed and sided shelter with pens divided by cables or pipe gates. The front half of each pen has concrete flooring. The open side of this building can be closed on days where the wind chill is a factor.
□ (beef cattle)	Building (□) 6 group pens 16' x 36' all have open access to outside paddocks west- 3276 sq.ft. east- 3780 sq.ft.	4-7 steer indoor or 20-25 steer with inside/outside access	Ag Guide	Building □ is wood framed and steel sided, pens are constructed of highway guard rail and wood posts.
	Pasture – front Back	1 acre 2.5 acres		Pastures have electrified fencing and metal posts.

[redacted] (beef cattle, horses)	Building ([redacted]) 4 pens 4500sq.ft/pen	20 adults/pen	Ag Guide	[redacted]-Wood framed and sided with open southern exposure barn with concrete flooring, pens divided with pipe gates.
	Building ([redacted]) 3400 sq.ft. open to concrete outside lot- 3127 sq.ft. Pasture 5 acre.	Equine 10-12		[redacted]-Wood framed and sided with dirt floor with a concrete lot. Open southern exposure
	Building ([redacted]) 3485 sq.ft. with outdoor lot- 2600sq. ft.	12 adults		[redacted]-Wood building with 3 walls, dirt floored with concrete lot. Pens are divided inside by wooden planks and outside by highway guardrail. Open southern exposure
	Building ([redacted]) 3535 sq. ft. 2 outdoor pens: west 3276 sq.ft., east 3780 sq.ft.	6-10		[redacted]- Wood building with 3 walls floor is dirt and concrete. Pens are divided inside and out by highway guardrail. Open southern exposure.
	Building ([redacted]) 3 pens Grass lot adjoining	1 stallion/pen .5 acre		[redacted]-Wood building with full enclosure, pens divided with wood planks, floor is dirt. There is a feed storage area with concrete flooring in this space. Animals on pasture have access to Portable shade enclosures and water is provided continuously in automatic float-controlled tanks or manually filled tanks. Pastures have electrified fencing and metal posts.

				All buildings are non-insulated and have inside/outside access. Water is supplied from the nearby old CALS [redacted] and is provided using automatic water devices and heated stock tank.
	Building ([redacted]) 2,100 sq ft			[redacted]-Pole barn, wood framed with metal exterior siding and concrete floor that slopes to the outside. This building is currently being used by [redacted] for storage.
	Building ([redacted]) 4,700 sq ft separate into 4 pens	4-6 adult sheep		[redacted]-Pole barn, wood framed with metal exterior siding and concrete floor that slopes to the outside. The building has four open access pens that face south. The south side of the barn can be draped down to cover up most of the exposed opening. The pens are large enough to be able to group house animals.
[redacted] (sheep, beef cattle)	Building ([redacted]) 3,894 sq ft	10-15 steer	Guide and the Ag Guide (dependent upon research use)	[redacted]-Pole barn with fieldstone foundation, wood framed with metal exterior siding and concrete floor that slopes to the outside. Most of the exercise yard is dirt. Animals have free access to the south-facing sheltered area. There is enough space for animals to separate from each other.
	Building ([redacted]) 7,728 sq ft separated into 3 pens	10-15 steer/pen		[redacted]-Pole barn, wood framed with metal exterior and concrete floor that slopes to the outside. Most of the exercise yard is concrete. Animals have free access to the sheltered area. Animals also have access to a dirt area. The building has three open access pens that face south.
	Building ([redacted]) 2,500 sq ft			[redacted]-Pole barn, wood framed with metal exterior and concrete floor that slopes to the outside. The top one-third of the walls are translucent panels to allow light to enter. The bottom two-thirds of the west wall is metal and the bottom two-thirds of the east wall has a small diameter stock panel. This building is currently being used by [redacted] for storage.

	Building ([redacted]) 40' X 24' with 40' X 32' lot	30 dry ewes or ewes with lambs or 54 limit-fed lambs or 106 self-fed lambs		[redacted]-Construction is wood framed and steel siding concrete floors with cement bunk feeder and earthen pens bedded with straw. Pens are made of portable metal panels (4' and 5' high) allowing for many different configurations as well as ease of cleaning. Each pen has 1 or 2 auto waterers. Outside lots are earthen with crushed limestone screening for base and slopes away from the building.
	20' X 24' with 20' X 32' Lot 20 ' X 24' with 20' X 32' lot	15 dry ewes or ewes with lambs or 27 limit-fed lambs or 53 self-fed lambs		
[redacted] (sheep)	Building ([redacted]) (14) 6' X 6' jugs South Wing pens (no lots): 15' X 44' 14' X 14' 10' X 14' 14' X 25'	1 ewe with neonate 14 ewe 10 ewe 8 ewe 20 ewe	Ag Guide	[redacted]-Jug area has cement block or rock walls with concrete floors. with straw, water provided in buckets and feed in small feeders. There is a concrete foundation pen floors are earthen with bedded straw, pens are divided with portable panels.

	East Wing pens: 30' X 40' with 32' X 75' lot 32' X 40' with 32' X 75' lot 25' X 40' with 48' X 75' lot West Wing pens: 24' X 25' with 48' X 34' lot 20' X 25' with 48' X 32' lot 20' X 50' with 48' X 32' lot	70 gestating ewes or 100 lambs 45 ewes/pen		East & West Wings-There is a concrete foundation steel siding for walls and roof and dirt floors in the pen and lot areas. Pens are made of portable metal panels (4' and 5' high) allowing for many different configurations as well as ease of cleaning. Each pen has 1 or 2 auto waterers. There are overhead doors between the inside pen and access to the pens lot.
[redacted] Unit (cont.)	Building ([redacted]) 880 sq.ft. Pasture Acres 49.6		Ag Guide	[redacted]-pole barn with steel siding and roof, concrete floor and washboard on lower 4' of wall and is totally enclosed with no outside lot, used for isolation. Pens can be built of various sizes using portable metal panels. Pasture can be subdivided with electrified fencing for rotational grazing studies. Perimeters are of woven net wire.

				All cattle are provided water from tanks or automatic waterers
	Building (▇)	96 animals		▇-pole barn with wood frame and metal siding and roof. Loafing area has dirt floor, cement alleys and exterior cement feed floor. Interior has 8 pens divided by wood planks and metal poled gates.
	Building (▇)	30 animals		▇-short term housing in spring during calving. Constructed with wood frame metal siding and roof, concrete floor.
	Building (▇)	10 animals		▇-wood framed with both metal and wood siding, dirt floor. Short term housing in spring during calving.
▇ (beef cattle)	20 Pastures on 210 acres Windmill pasture has a shelter (▇)	# Dependent upon research	Ag Guide	Spring Windmill pasture is used for second parturition and older cow, calving. The shelter is a wood framed and sided, metal roof, dirt floor building used to provide a warm place for neonates in the event of a cold spring. Summer and Wintering areas have a forest type environment to provide shade and wind block. Pasture fences are constructed from metal wire and wood, posts from metal or plastic, poly-wire is used to electrify perimeters when needed.

[redacted] (swine)	Building ([redacted]) Finishing Pens 5' X 11.5'	14	Guide and the Ag Guide (dependent upon research use)	Both buildings are operated as a Specific Pathogen Free (SPF) facility with mechanical environmental controls. Pens have partial concrete floors and concrete slats with beveled rises in the center and rounded edges. Waterers and feeders are designed to allow easy adjustments to meet the need of the animals. Manure is collected in a pit with scraper system below pen floors.
	Building([redacted])			Building [redacted] is divided into areas according to age. Solid mats are used in the farrowing crates. Concrete slats are designed with "pencil-round" edges to reduce hoof lesions and a crowned surface to prevent pooling of water or urine. All areas except the classroom are flushed by siphon flush tanks with fresh or recycled water from the lagoon system. The classroom has a pull-plug pit.
	Nursery Pen 3' X 5' Finishing " 4.5' X 10' Research Room 5' X 4.5'	6 11 Age and size dependent		Galvanized metal w/steel mesh flooring Concrete slatted flooring, fiberglass gates Concrete partially slatted flooring, galvanized metal pens Painted black steel gates, steel mesh flooring
	Classroom pens 4.5' X 10' 8.5' X 9'	15 19		Fiberglass gates with steel mesh flooring Concrete slatted flooring, fiberglass gates
	Gestation pens 8' X 8' 8' X 9.5'	7 7		Concrete partially slatted flooring, galvanized metal gates
	Farrowing Crate 9' X 5'	1 adult + up to 20 piglets		Galvanized metal crate and creep dividers, epoxy coated flooring with matt.
	Stalls: 7'1" X 22" X 42" 7'1" X 26" X 46" 7'1" x 24" X 42"	1 gilt 1 boar 1 sow		Galvanized metal crate, slatted concrete flooring.

	Calf Barn (▇) (4 pens) 16' X 16'	8/pen		This building has an insulated roof, concrete floor and tongue and groove wood planks as pen dividers. Each pen has self-locking head gates and a feed bunk constructed of wood.
	Heifer Barn (▇) (40 pens) 28' X 14'	8/pen		Animals are loose housed with a bedded resting area. Drover's lane runs the length of each side of the barn. Bunk space has adjustable neck rails to accommodate growth. Building is constructed of wood frame, metal siding and roof, a grooved concrete floor. Pens are divided with wood and metal pipes.
	Heifer Freestall (▇) (28 pens) 26' x 35"	8/pen		Houses 15-26 month old heifers. Construction wood framed, metal wall sand bedded and mattress bedded stalls and curtained side walls for ventilation. There are 28 water stations, a central feed alley, and headlocks for restraint. The mechanical manure scraper moves manure toward a channel where an auger moves the manure to an onsite handling facility.
▇ (dairy cattle)	Dairy Cow Freestall (▇) 4 pens 85.5 x 37'	32/pen	Ag Guide	The dairy cow freestall barn housed lactating cows. Wood frame construction with metal walls, roof, and grooved concrete floors. Bedding consists of sand and mattresses. Curtained sidewalls. Each pen contains 40 headlocks, 2 heated waterers, and 32 stalls. The barn is fitted with 4 manure channels, a central feed alley, and one alley that crosses the width of the barn (facilitates animal movement to the parlor).
	Animal Health Barn (▇) (2) pens 20' x 34.8' (2) Tx area 10' X 34.8' Pasture (42 acres)	8/pen		Animal health barn is a metal constructed building containing 16 head locks, scrape alley, two head restraints (within each pen), grooved concrete floors, and four waterers. Pasture is surrounded by a permanent perimeter fence and a 1200ft. crowned and ditched lane to support repeated animal movement.
	Calf Hutches 82"L x 42"W x 48"H (7)	1		Calf rearing site is constructed of sand and gravel. Straw bedding is used for neonates.

	Barn [redacted] Heifers (pen H29-33 & H35 maternity summer), 40x50 (2) 80X50	 40 40		[redacted]- pole barn constructed of wood and steel, floor consists of limestone screenings bedded with chopped corn stover. The feed area is concrete. Pens are divided with wooden fencing.
	Heifer [redacted] Barn (4) pens 20x50	 24/pen		[redacted] Barn-Construction wood and steel concrete floor and curtained side walls. Stalls are concrete bedded with composted solids or chopped straw. Pens are divided with metal poles and gates, front of pens facing the alley have self-locking headlocks.
[redacted] (dairy cattle)	Barn [redacted]-freestall (40) 4.2'x7' Dry cows	 40	Ag Guide	[redacted] Barn-Construction wood and steel, concrete alley and sand bedded stalls with curtained side walls. Feed alley is lined with self-locking head gates. Two acre pasture area is fenced with woven or stretched barbed-wire.
	Lactating cows [redacted] Barn (72) 57"x72" tie stalls [redacted] Barn (60) 52"x78" tie stalls and [redacted] Barn (maternity pens winter) (11) 12'x12'	 1/ stall 1adult/stall 1/pen or stall		[redacted] and [redacted] Barns-Construction wood and steel, concrete center alley with gutters and a concrete feed alley on both sides of the barn. Cattle restrained in tie stalls, with neck collar and snap, each stall has a rubber mattress. Removable panels on the side walls are removed when night time lows are above freezing, during the winter barns are ventilated with wall fans to maintain temperatures between 40 – 55 degrees F. Barn [redacted] maternity is constructed of wood and steel, concrete center alley with gutters and individual pens on both sides. Each pen has drinking cup, feed bunk and head lock. This barn is used as overflow space. The Maternity pens have negative pressure mechanical ventilation with thermostat control and is used in the coldest months for newborn calves

[redacted] (cont.)	[redacted] Barn freestall (4) pens of 48 stalls or (8) pens of 24 stalls Dimension of stall acres 2,[redacted]7, used for crops and pasture		Ag Guide	[redacted] Barn-Construction wood and steel curtained side walls. Stalls have rubber mattresses and are bedded daily with chopped straw, waste is removed 3 times daily. Cattle are feed in a center feed alley That has self-locking head gates. Barn curtains are mechanically controlled to maintain adequate air exchanges.

*For aquatic species, provide tank volume.
Housing Density may vary depending on breeding and for housing younger animals. Numbers provided are based on number of adults.
**Include descriptors such as open-topped, static microisolator, individually-ventilated cage systems (IVCS).

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment-Laboratory Animal

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: [redacted]

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used	Other Comments (e.g., autoclaved)
	Micro-environment			
Solid-bottom cages (static)	Mechanical Washer(MW)	Weekly	Alkaline/acid wash detergent	More often if needed
Solid-bottom cages (IVC)	MW	1-2X/wk		[redacted] only
Suspended wire-bottom or slotted floor cages	MW	Rodent-q 2 weeks		Paper liner changed weekly
Cage lids (wire)	MW	Biweekly		
Filter tops	MW	q 12 weeks mice, q 8 weeks rat		[redacted] - q 6 weeks
Cage racks and shelves (static)	MW or hand washing	q 4 weeks or as needed	Virkon S or 5-6% bleach solution as needed between	Always between groups
Cage racks (IVC)	MW	Bi-annually	Virkon S or 5-6% bleach solution	[redacted] only
Cage pans under suspended cages	MW or hand washing	Biweekly	MW detergent	
Play pens, floor pens, stalls, etc.	None			
Corrals for primates or outdoor paddocks for livestock	None			
Aquatic, amphibian, and reptile tanks and enclosures	Hand washing	As specified in facility SOP	Chloramine-T	Tanks are sanitized after emptied.

Feeders Rodent	MW	At least-biweekly	MW detergent	[redacted] – Feed cups MW after each feeding.
Watering Devices	Hand washing or bottle washer	Weekly	Alkaline / Acid Detergent	[redacted] – rats semi-weekly
Exercise devices and manipulanda used in environmental enrichment programs, etc.	MW	Mice – biweekly Rats – biweekly	MW alkaline detergent	Frogs [redacted] –plastic plants soaked in 5% acetic acid solution then soaked in 70% alcohol – biweekly. Plastic floats discarded and replaced.
Transport cages	MW	After each use	MW, or hand wash with virkon S or Bleach solution	
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	None			
Euthanasia Chambers	MW or hand wash	After use	Virkon S	[redacted], chambers wiped out after each use.

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used	Other Comments
	Macro-Environment			
ANIMAL ROOMS				
Floors	Swept Hosed down w/water Disintected - mopped	Daily As needed Weekly	Simple Green (Quatricide) or Clorox	

Walls	Sponge mop & disinfect when occupied Hose with soap dispenser	As needed Prior to new animal arrival	Simple Green (Quatricide) or Clorox	
Ceilings	Swept (dry) while occupied Hose with soap dispenser	As needed Prior to new animal arrival	Simple Green (Quatricide) or Clorox	[redacted] under review
Ducts/Pipes	Swept or hosed Hose with soap dispenser	Monthly Prior to new animals		[redacted] under review
Fixtures	Sponge mop with disinfectan	As needed		[redacted] under review
CORRIDORS				
Floors	Swept and mopped	Weekly	Simple Green (Quatricide) or Clorox	
Walls	Sponge mop with disinfectan	As needed	Simple Green (Quatricide) or Clorox	
Ceilings	Swept (dry)	As needed		
Ducts/Pipes	Sponge mop with disinfectan	As needed		
Fixtures	Sponge mop with disinfectan	As needed		
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:	Surgery/Procedure Rm:			
Floors	Swept and mopped	As needed	Simple Green (Quatricide) or Clorox	
Walls	Hand wash	As needed	Simple Green (Quatricide) or Clorox	
Ceilings	Hand wash	As needed		
Ducts/Pipes	Hand wash	As needed		
Fixtures	Hand wash	As needed		

SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:	Cage, food, bedding storage rm.			
Floors	Swept and mopped	weekly	Simple Green (Quatricide) or Clorox	
Walls	Hand wash	As needed	Simple Green (Quatricide) or Clorox	
Ceilings	Hand wash	As needed		
Ducts/Pipes	Hand wash	As needed		
Fixtures	Hand wash	As needed		
SUPPORT AREAS (e.g., surgery, procedure rooms, etc.) Complete for each area:	Other support areas			
Floors	Swept and mopped	As needed	Simple Green (Quatricide) or Clorox	
Walls	Hand wash	As needed	Simple Green (Quatricide) or Clorox	
Ceilings	Hand wash	As needed		
Ducts/Pipes	Hand wash	As needed		
Fixtures	Hand wash	As needed		
IMPLEMENTS (note whether or not shared)				
Mops – Shared BSL1 Dedicated BSL2	Disinfected	After each use	Simple Green (Quatricide) or Clorox	
Mop buckets – Shared BSL1 Dedicated BSL2	Disinfected	After each use	Simple Green (Quatricide) or Clorox	New solution at start of each day.
Aquaria nets	Disinfected	After each use	Chloramine-T or Virkon	
Dust pan & Broom – Dedicated to each room	Dust pan- MW	As needed		

●THER				
Vehicle(s)	None			
●ther transport equipment (list)				

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment – Ag Facilites

Cleaning and Disinfection of the Micro- and Macro-Environment

Agricultural Facilities: [redacted] = [redacted], [redacted] = [redacted] *and* [redacted] = [redacted], [redacted] = [redacted]. [redacted] = [redacted], [redacted] = [redacted] = [redacted], [redacted] = [redacted], [redacted] = [redacted]

Please describe the cleaning and disinfection methods in the Table below. Note the washing/sanitizing frequency and method for each of the following:

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used	Other Comments
	Micro-environment			
Solid-bottom cages (static)	N/A			
Solid-bottom cages (IVC)	N/A			
Suspended wire-bottom or slotted floor cages	[redacted]-hand washing (brooder batteries	6-8 weeks sooner if groups are moved	Cleaning: Simple Green Sanitizing: Mark E II (Didecyl dimethyl Ammonium chloride)	Other suspended cages are pressure washed annually
Cage lids	N/A			
Filter tops	N/A			
Cage racks and shelves	N/A			
Cage pans under suspended cages	[redacted]-hand washed	6-8 weeks sooner if groups are moved	Cleaning: Simple Green Sanitizing: Didecyl dimethyl Ammonium chloride (10-15 min. contact)	
Play pens, floor pens, stalls, etc.	Dairy facilities scrape manure automatically or manually in alleyways	Several times daily		

	[redacted] and [redacted]t-picked daily, fresh bedding 1-2 times a week	Clean out every 2-3 months		
	[redacted]-jugs manure removed daily, pressure wash at end of lambing season	Disinfected between ewe/lamb	2% Nolvasan solution	
	Earthen pens	1 time/yr or as needed		
	[redacted]-pressure wash	Between new groups	Rotate between the following: Virocid, Synergize, DC&R	
	[redacted] - scraped	As needed		
	[redacted] – scraped or picked daily	Freestall scraped daily, pens washed and sanitized following use or as needed		Calf pens and hutches washed and sanitized following use with a bleach solution.
Play pens, floor pens, stalls, etc. (cont.)	[redacted]-picked daily	Disinfected & hand washed annually	Disinfectant: 5% bleach solution	
	[redacted]-scraped or hosed	Daily	Cleaning between new animals, Simple Green and disinfected with Mark II	
	[redacted] picked daily [redacted] indoor scraped daily	Clean out after event	Simple Green	
	[redacted] pressure wash wings 1, 2, & 3	Clean out post event Annual clean out on rotation	Simple Green, disinfected with Mark E II	Bedding is added as needed to keep birds clean and dry

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment – Ag Facilites

Corrals for primates or outdoor paddocks for livestock	[redacted]-scraped, skid steer	2 times a week		
	[redacted]-scraped, skid steer	Weekly		
	Round Pen	Picked daily		
	[redacted]-scraped, skid steer	2 times/wk		
		As needed		Settling ponds
	[redacted] crushed lime pack, scraped [redacted] and [redacted]-scraped, skid steer	As needed		Manure bunker
	[redacted]-scraped, skid steer	As needed		
Corrals for primates or outdoor paddocks for livestock (cont.)	[redacted]-bedded pack, winter	As needed or Spring clean out		
	[redacted]-scraped, skid steer	2-3 times weekly or as needed		Fresh bedding 2-3/x/week
	[redacted]-scraped, skid steer	2 times/wk		
Aquatic	N/A			
Feeders	Livestock facilities not specifically mentioned below-broom or shovel, and hose or pressure wash feeders with mild detergents	Daily removal of grain/haylage refusal		Hay refusal removed between bales
	[redacted]-chick battery hand wash	Every 6-8 weeks	Cleaning: Simple Green Disinfect: Mark E II	Feeders cleaned sooner if groups are moved
	Fixed feeders in floor pen, laying battery, rooster cages-	Annually		

Feeders (cont.)	pressure wash with disinfectant. Portable feeders in above areas hand washed with disinfectant	As needed		
	[redacted] and [redacted] bunkers [redacted] round bale feeders	As needed As needed		[redacted] uses bunker and round bale feeders-cleaned as needed
	[redacted]-pressure wash with disinfectant when room emptied	Every 1-3 mos.	Rotate: Virocid, Synergize, or DC&R	
	[redacted]-sanitized	Between groups	Mark E II	
	[redacted]-hand washed	After event		
	[redacted]-collapsible feeders set on concrete scraped with skid loader	1-2x weekly to remove refusal		
	[redacted] bunks	As needed		
Watering Devices	[redacted]- water cups brushed	2x/week		
	[redacted]-buckets & outdoor waterer brushed	Once/week		
	[redacted]-water cups-brushed; water nipples-pressure washed	Daily Disinfected when de-populated		
	[redacted]-poultry fount is hand washed; water nipples-pressure washed	Cleaned after use Annually	Simple Green	

Watering Devices (cont.)	[redacted]-water nipples-pressure washed	Disinfected when de-populated	Bleach solution	
	[redacted]-water tanks-brushed	Every 3 months and disinfected prior to refilling		
	[redacted]-waterers & tanks-flushed daily	Cleaned daily in non-freezing weather		
	Calf buckets-brushed	Daily		
	[redacted]-brushed	Cleaned every 2 weeks or as needed and debris removed daily		
	[redacted]-tanks emptied and brushed	Every 2 weeks	With chlorine solution	
	Jug buckets	Cleaned between each ewe/lamb		
	[redacted] cups, brushed;	Daily		
	waterers, flushed & brushed [redacted]	As needed		
	[redacted] – waterers, tanks brushed	2x/week summer, weekly winter		
	Calf buckets brushed	daily		
	[redacted]-buckets and tanks-scrubbed	After each event		

Exercise devices and manipulanda used in environmental enrichment programs, etc.	[redacted] and [redacted]	Cleaned after room change over		
Transport cages	[redacted]-hosed with disinfectant [redacted]-hosed with disinfectant	After each use After each use	Mark E II Mark E II	
Operant Conditioning & Recording Chambers, Mechanical Restraint Devices (chairs, slings, etc.)	[redacted] – emissions chamber power washed Swept	Annually 2x/day while in use		
Euthanasia Chambers	N/A			

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment – Ag Facilites

Area	Washing/Sanitizing Method (mechanical washer, hand washing, high-pressure sprayers, etc.)	Washing/ Sanitizing Frequency	Chemical(s) Used	Other Comments
	Macro-Environment ***Most facilities are barns and do not have animal rooms. Barn floors are scraped and/or swept as needed. The following facilities have additional cleaning procedures.***			
ANIMAL R●●MS				
Floors	[redacted]-swept; hosed [redacted]-hosed [redacted]-hosed [redacted]- pressure wash	Daily Weekly Daily Weekly When empty	disinfectant rotated between Synergize, DC&R and Virocid	
Floors (cont.)	[redacted]-swept daily during event			
Walls	[redacted]-pressure wash [redacted]-pressure wash [redacted]-pressure wash [redacted]-swept or blown [redacted]-pressure wash	2x/yr When empty Annually Annually When empty		

Ceilings	[redacted]-pressure wash [redacted]-pressure wash [redacted]-pressure wash [redacted]-swept or blown [redacted]-pressure wash	2x/yr When empty Annually Annually When empty		
Ducts/Pipes	[redacted]-pressure wash [redacted]-pressure wash [redacted]-swept or blown [redacted]-pressure wash	When empty Annually Annually When empty		
Fixtures	[redacted]-pressure wash [redacted]-pressure wash [redacted]-pressure wash [redacted]-swept or blown [redacted]	2x/yr When empty Annually Annually When empty		
C●RRID●RS				
Floors	[redacted]-hosed [redacted]-swept & hosed [redacted]-hosed [redacted]-pressure wash	Weekly Weekly As needed As needed		
Walls	[redacted]-pressure wash [redacted]-hosed [redacted]-air blower [redacted]-pressure wash	As needed As needed 4x/yr As needed		
Ceilings	[redacted]-pressure wash [redacted]-hosed [redacted]-air blower [redacted]-pressure wash	2x/yr As needed 4x/yr As needed		

Ducts/Pipes	[redacted]-pressure wash [redacted]-hosed	2x/yr As needed		
Fixtures	[redacted]-hosed	As needed		
SUPP●RT AREAS- **Procedure** (e.g., surgery, procedure rooms, etc.) Complete for each area:				
Floors Floors (cont.)	[redacted]-hosed [redacted]-mopped or pressure washed [redacted]-hosed [redacted]-hosed [redacted]-pressure wash [redacted]-pressure wash [redacted]-hosed [redacted]-pressure wash or hose [redacted] – swept, power washed	After use After use After use After use As needed After use, disinfected every 1-3 mos. After use After use After use As needed	Mark E II	
Walls	[redacted]-scrub/hosed [redacted]-pressure wash [redacted]-hosed [redacted]-hosed [redacted]-pressure wash [redacted]-pressure wash [redacted]-hosed	After use 2x/yr After use As needed As needed As needed After use After use		

	[redacted]-pressure wash or hose			
Ceilings	[redacted]-cleaned and painted [redacted]-pressure washed [redacted]-hosed [redacted]-hosed [redacted]-hosed [redacted]-hosed [redacted]-pressure wash	As needed 2x/yr As needed		
Ducts/Pipes	[redacted]-pressure wash [redacted]-hosed	2x/yr As needed		
Fixtures	[redacted]-hosed [redacted]-pressure wash [redacted]-hand wash [redacted]-hand wash [redacted]-pressure washed [redacted] –hand wash [redacted]-hand wash [redacted]-hand wash	As needed 2x/yr As needed As needed As needed As needed As needed As needed		
SUPP●RT AREAS- **Surgery** (e.g., surgery, procedure rooms, etc.) Complete for each area:				

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment – Ag Facilites

Floors	[redacted]-all surfaces wiped with sanitizer and floor is mopped with sanitizer [redacted]-mop or pressure wash	As needed As needed prior to use	Disinfected: Lemon quat 64	
Walls	[redacted] and [redacted]-mop or pressure wash	As needed		
Ceilings	[redacted] and [redacted]-brush or pressure wash	As needed		
Ducts/Pipes	[redacted] and [redacted]-brush or pressure wash	As needed		
Fixtures	[redacted] and [redacted]-brush or pressure wash	As needed		
IMPLEMENTS (note whether or not shared)				
Mops & buckets	Dairy Facilities [redacted]-shared, except the Surgery room has dedicated cleaning utensils [redacted]-shared	Separate buckets used for manure removal and feed delivery. Disinfected after use MARK E II Cleaned after use		
Brooms, scrapers, shovels	All Facilities: Hosed, shared within facility	As needed		
Aquaria nets				
Other				
OTHER				

Appendix 14: Cleaning and Disinfection of the Micro- and Macro-Environment – Ag Facilites

Vehicle(s)				
Other transport equipment (list) Trailer	[redacted] pressure wash and disinfect [redacted]-biomedical [redacted] pressure wash All other Ag sites-swept and scraped All other Ag sites-pressure washed	After use After use As needed (minimum bi-monthly) As needed As needed		[redacted], and [redacted] trailer's used for over road transport [redacted] and [redacted] share a trailer

Appendix 15: Facilities and Equipment for Sanitizing Materials

In the Tables below, summarize the facilities and equipment used to sanitize animal related equipment (tunnel washer, bottle washer, rack washer, bulk autoclave, hand-washing area, bedding dispensing unit, *etc.*). Note that some descriptions may be combined if all share identical features (e.g., all rack washers).

[*Note*: Please remove the examples provided in the Table below.]

Building	Room No.	Equipment Type	Safety Feature(s)	Methods of Monitoring Effectiveness
[redacted]	[redacted]	Rack washer Bottle washer Autoclave Hand-washing area	Emergency "off" button; de-energizing cord on inside, instructional signage	Guarantee 180-degree hot water rinse; temperature-sensitive tape used weekly; ATP-based luminescence swab, caging tested quarterly Verify® Steam Test Pack with Self Contained Biological Indicator tested monthly
[redacted]	[redacted]	Rack washer Hobart bottle washer	Emergency "off" button; instructional signage; de-energizing cord on inside	Temperature-sensitive tape used weekly; ATP-based luminescence swabs performed quarterly for rack-washer and bottle washer.
[redacted]		Rack washer	To be refurbished before occupancy	TBD
[redacted]	[redacted]	Rack washer Autoclave	Emergency "off" button; de-energizing cord on inside	Guarantee 180-degree hot water rinse; temperature-sensitive tape used weekly; ATP-based luminescence swabs caging tested quarterly

Building	Room No.	Equipment Type	Safety Feature(s)	Methods of Monitoring Effectiveness
				Verify® Steam Test Pack with Self Contained Biological Indicator tested monthly
[redacted]	[redacted]	Rack washer Autoclave	Emergency "off" button; de-energizing cord inside, signage	Guarantee 180-degree hot water rinse; temperature-sensitive tape used weekly; Verify® Steam Test Pack with Self Contained Biological Indicator monthly testing
[redacted]		None – Hand washing	Limited to PPE	Visual assessment; ATP-based luminescence swabs caging tested quarterly
[redacted]		None – hand-washing area	Limited to PPE	Visual assessment;
[redacted] Frog Housing		None -- Hand-washing	Limited to PPE	Visual assessment;
[redacted]		None -- Hand-washing	Limited to PPE	Visual assessment;

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Appendix 16: Lighting Summary – Lab Animals & Aquatics

[redacted] **Bldg.#** [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Rodent Holding Rooms (7)	165-256 lux	Recessed fluorescent, water proof	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off switch at each holding room entry
Procedure Room (1)	230 lux	Recessed fluorescent, water proof	N/A	N/A	N/A
Quarantine	230 lux	Recessed fluorescent, water proof	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off switch at each holding room entry
Autoclave	278 lux	Recessed fluorescent, water resistant	N/A	N/A	N/A
Storage	198 lux	Recess fluorescent, water resistant	N/A	N/A	N/A
Frog Holding	201 lux	Surface mounted fluorescent, water resistant	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off switch at each holding room entry
Frog Surgery (2)	Not measured				

[redacted] Bldg.# [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Rodent Holding Rooms (27)	228-325 lux	Fluorescent recessed, water proof UV lighting	12:12 Study dependent	Automatic via building management system-Monitored with Acuity Controls Light Sensor View Manual	Mechanical on/off switch at each holding room entry
Procedure Rooms (7)	300-400 lux	Recessed fluorescent, water proof	N/A	N/A	N/A
Storage (3)	265 lux	Recessed fluorescent, water proof	N/A	N/A	N/A
Food Prep (2)	Not measured	Recessed fluorescent, water proof	N/A	N/A	N/A
Clean/Dirty Cage-Washing Room	196/168 lux	Recessed fluorescent, water proof	N/A	N/A	N/A
Quarantine	250 lux	Recessed fluorescent, water proof	12:12	Automatic via building management system-Monitored with Acuity Controls Light Sensor View	Mechanical on/off switch at each holding room entry

[redacted] Bldg.# [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Rodent Holding Rooms	239.6-368 lux	Fluorescent lighting throughout facility, recessed and surface mounted, waterproof	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off switch at entrance to each holding room
Fish Holding Room	Not Measured	Fluorescent lighting, surface mounted, waterproof	Study dependent	Automatic control via wall mounted timer box at the entrance to each holding room	Mechanical on/off switch at entrance to each holding room
Procedure	410 lux	Fluorescent lighting, recessed, waterproof	N/A	N/A	N/A
Cage-Washing Room/Autoclave	229.2 lux	Fluorescent lighting, recessed, waterproof	N/A	N/A	N/A

[redacted] Bldg.# [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Rodent Holding Rooms (9)	243 - >325 lux	Surface mounted fluorescent, water resistant	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off switch at entrance to each holding room
Food Storage (1)	N/A	Surface mounted fluorescent, water resistant	N/A	Wall switch	none
Surgery	700 lux	Surface mounted fluorescent, water resistant; arm-mounted, water resistant	N/A	N/A	N/A
Cage-Washing Room	N/A	Surface mounted fluorescent, water resistant	N/A	N/A	N/A

[redacted] **Bldg. #** [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Rodent Holding Rooms	130 - >325 lux	Surface mounted fluorescent, water resistant	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off switch at entrance to each holding room
Procedure (3)	280 - >325 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A
Cage-Washing Room	314 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A

[redacted] Bldg. #[redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Animal Holding Rooms (3)	107.8-173.7 lux	Fluorescent lighting, surface mounted, water resistant	Study dependent	Automatic via wall-mounted timer box	Mechanical on/off switch at the entry of each animal holding room.
Procedure	168.8 lux	Fluorescent lighting, downrod mounted, not water resistant	N/A	Manual on/off switch	N/A

[redacted] Bldg. #: [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Aquatic Tank Rooms [redacted]	102 - >388 lux	Surface mounted LED & fluorescent, water resistant	18:6	Automatic via wall-mounted timer box	Mechanical on/off switch in main laboratory
Lab (Procedure) [redacted]	Not measured	Surface mounted, fluorescent, water resistant	12:12	Automatic via wall-mounted timer box	Mechanical on/off switch in main laboratory

Appendix 16: Lighting Summary – Agricultural Animal

[redacted]: Bldg #	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Swine Housing Rooms	471-662 lux	Surface mounted fluorescent, water resistant	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical over-ride switch in each room to allow adjustments to the automatic management system
Sheep or Goat Rooms	387-420 lux	Surface mounted fluorescent, water resistant	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical over-ride switch in each room to allow adjustments to the automatic management system
Cattle Rooms	303.2-512 lux	Surface mounted fluorescent, water resistant	12:12	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical over-ride switch in each room to allow adjustments to the automatic management system
Surgery (Rm [redacted])	462.2 lux	Surface mounted fluorescent, water resistant; arm-mounted, water resistant	N/A	N/A	N/A
Procedure (Rm [redacted], Rm [redacted])	412-414 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A
Recovery (Rm [redacted])	218.3 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A
Procedure/Classroom (Rm [redacted])	369.2 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A

[redacted] : Bldg # [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Tie-stalls (cattle) Rm. [redacted]	115.1-324.6 lux	Surface mounted fluorescent and incandescent, water resistant and ambient lighting	16:8	Manual on/off switch	N/A
Milking parlor	79.5-326.4 lux	Surface mounted fluorescent and incandescent, water resistant and some ambient lighting	N/A	Manual on/off switch	N/A
Surgery	892 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A
Arena	447.8 lux	Surface mounted fluorescent and incandescent, water resistant and ambient lighting	N/A	N/A	N/A

[redacted] : Bldg. #: [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Stallion stalls (Rm [redacted])	149.2 lux	Surface mounted fluorescent and incandescent, water resistant; some ambient lighting	Natural	Manual on/off switch	N/A
Mare stalls/procedure space (Rm [redacted])	1735 lux	Surface mounted fluorescent and incandescent, water resistant; ambient lighting	Varies to induce reproductive cycle	Automatic via wall-mounted timer box	Mechanical on/off
Cattle procedure space (Rm [redacted])	173.1 lux	Surface mounted incandescent and ambient lighting	Natural	Manual on/off switch	N/A

[redacted]: Bldg # [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Animal Holding Room (Lower Level)	89.3 – 134.2 lux	Surface mounted incandescent and fluorescent, water resistant	N/A	Manual on/off switch	N/A
Arena	767 lux	Cable suspended high pressure sodium, water resistant	N/A	Manual on/off switch	N/A

[redacted]: Bldg #[redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Chick room (Rm [redacted])	132-192 lux	Surface mounted fluorescent, water/dust resistant	24:0	Automatic control via wall mounted timer box at the entrance to each holding room.	Mechanical on/off
Floor pen housing ([redacted])	67.7-155.4 lux	Surface mounted fluorescent, water/dust resistant; ambient light	16:8	Automatic control via wall mounted timer box at the entrance to each holding room.	Manual on/off in each wing
Cage housing ([redacted])	135.7-215.8 lux	Surface mounted fluorescent, water/dust resistant; ambient light	16:8	Automatic control via wall mounted timer box at the entrance to each holding room.	Manual on/off in each wing
Processing room	404 lux	Surface mounted fluorescent, water resistant	N/A	N/A	N/A

[redacted]: Bldg #[redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Swine Gestation & Breeding ([redacted])	164 lux	Surface mounted fluorescent, water proof	16:8	Automatic via wall-mounted timer box	Manual on/off switch
Swine Holding Rooms (classroom area)	271-285 lux	Surface mounted fluorescent, water proof	12:12	Automatic via wall-mounted timer box	Manual on/off switch
Swine holding Farrowing ([redacted])	74-84 lux	Surface mounted fluorescent, water proof	12:12	Automatic via wall-mounted timer box	Manual on/off switch
Swine holding Nursery ([redacted])	226-247 lux	Surface mounted fluorescent, water proof	12:12	Automatic via wall-mounted timer box	Manual on/off switch
Swine holding Growing ([redacted])	80-85 lux	Surface mounted fluorescent, water proof	12:12	Automatic via wall-mounted timer box	Manual on/off switch
[redacted] (Bldg# [redacted])	219-232 lux	Some natural light, Surface mounted incandescent, water proof	12:12	Automatic via wall-mounted timer box	Manual on/off switch
Surgery	464 lux	Surface mount fluorescent, water proof; arm-mounted, water resistant	NA	N/A	N/A
Recovery	379 lux	Surface mounted fluorescent, water proof	NA	N/A	N/A

[redacted] Bldg. #: [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Horse Barn (Building [redacted])	112.8-303.2 lux	Surface mounted incandescent, not water resistant; ambient lighting	N/A	Manual on/off switch	N/A
Cattle Barn (Building [redacted])	287.7-360.8 lux	Surface mounted incandescent, not water resistant; ambient lighting	N/A	Manual on/off switch	N/A
Cattle or Horse Barn (Building [redacted])	103.1-135.2 lux	Surface mounted incandescent, not water resistant; ambient lighting	N/A	Manual on/off switch	N/A
Cattle Barns (Buildings [redacted])	Not measured	Surface mounted incandescent, not water resistant; ambient lighting	N/A	Manual on/off switch	N/A
Processing/Treatment Room (Building [redacted])	250.7-395 lux	Surface mounted incandescent, water resistant; some ambient lighting	N/A	Manual on/off switch	N/A

[redacted]: Bldg # [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Cattle Barns (#[redacted], #[redacted])	240.8-1096 lux	Surface mounted incandescent, not water proof; ambient lighting	N/A	N/A	N/A
Procedure Room w/Squeeze Chute (#[redacted])	84.2-282.8 lux	Surface mounted incandescent, not water proof; some ambient lighting	N/A	N/A	N/A

[redacted] : Bldg# [redacted]	

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Animal Barn with pens with concrete pad (#[redacted])	Not measured	Surface mounted incandescent, not water resistant; ambient lighting	N/A	Manual on/off switch	N/A
Animal Barn with concrete pad (#[redacted])	N/A	Surface mounted incandescent, not water resistant; ambient lighting	N/A	N/A	N/A
Animal Barn with feed bunks (#[redacted])	N/A	Surface mounted incandescent, not water resistant; ambient lighting	N/A	N/A	N/A

[redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Sheep Barns ([redacted])	50.9-69.5 lux	Surface mounted incandescent, not water proof; ambient light	N/A	Manual on/off switch	N/A
Lambing Room/Procedure Room ([redacted])	230.8 lux	Surface mounted incandescent, not water proof; ambient light	N/A	Manual on/off switch	N/A
Sheep Barns ([redacted])	297.4-360.2 lux	Surface mounted incandescent and high pressure sodium, not water proof; ambient light	N/A	Manual on/off switch	N/A
Lambing Pens ([redacted])	414-646 lux	Surface mounted fluorescent, not water proof; ambient light	N/A	Manual on/off switch	N/A
Quarantine Shed ([redacted])	Not measured	Surface mounted incandescent, not water proof; mostly ambient lighting	N/A	Manual on/off switch	N/A

[redacted]: Bldg # [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Milking Parlor ([redacted])	250.9-365.7 lux	Surface mounted fluorescent, water resistant; some ambient light	NA	Manual on/off switch	N/A
Freestall Barns ([redacted])	430-1104 lux	Surface mounted, water resistant; ambient light	16:8	Manual on/off switch	N/A
Veterinary/treatment Room ([redacted])	396 lux	Surface mounted fluorescent, water resistant; stand lights and ambient light	N/A	N/A	N/A
Dry Cow housing ([redacted])	455-1376 lux	Surface mounted, water resistant; some ambient light 2 Dusk-to Dawn lights	16:8	Automatic timer	N/A
Calf hutch pad	Not measured	Dusk to Dawn yard lighting	N/A	N/A	N/A

[redacted]: Bldg# [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Animal Barn ([redacted]-Heifer)	868 lux	Surface mounted LED, water resistant; some ambient light	16:8	Manual on/off switch	N/A
Animal Barn ([redacted]-Calf)	2270 lux	Surface mounted fluorescent, water resistant; some ambient light	16:8	Manual on/off switch	N/A
Animal Barn ([redacted]-Heifer)	533 lux	Surface mounted 400-W metal halide, water resistant; some ambient light	16:8	Manual on/off switch	N/A
Animal Barn ([redacted]-Dairy)	694 lux	Surface mounted fluorescent incandescent, LED and high pressure sodium, water resistant; ambient light	16:8	Manual on/off switch	N/A
Animal Barn ([redacted]-Pens Maternity/Hospital)	651-950 lux	Surface mounted fluorescent incandescent, LED, High pressure sodium, water resistant; ambient light	16:8	Manual on/off switch	N/A
Milking Parlor ([redacted])	180-332 lux	Surface mounted fluorescent, water resistant	N/A	Manual on/off switch	N/A
Surgery Room ([redacted])	301 lux	Surface mounted fluorescent, water resistant	N/A	Manual on/off switch	N/A
Calf Hutch Pad	Not measured	Dusk to Dawn yard lighting	N/A	N/A	N/A

[redacted]: Bldg # [redacted]

Room Type[a]	Light Intensity Range	Lighting Fixture Construction Features[b]	Photo-period (hrs)[c]	Photoperiod and Lighting Control	Override Mechanisms (if applicable)
Quonset ([redacted]-Calving)	131.1 - 416 lux	Surface mounted incandescent, not water resistant; ambient light	N/A	Manual on/off switch	N/A
Animal Barn ([redacted]-Heifers and steers)	184.4 – 1035 lux	Surface mounted incandescent, not water resistant; ambient light	N/A	Manual on/off switch	N/A
Animal Barn ([redacted]-Calving overflow or quarantine as needed)	62.5 – 352.6 lux	Surface mounted incandescent, not water resistant; ambient light	N/A	Manual on/off switch	N/A
Animal Barn ([redacted] -Cows and newborn calves)	80.3 – 112.9 lux	Surface mounted incandescent, not water resistant; ambient light	N/A	Manual on/off switch	N/A
Squeeze Chute (Procedure area)	Not measured	Ambient light only	N/A	N/A	N/A

[redacted]: Bldg #[redacted] (Barns [redacted]), #[redacted] (Barns [redacted] & [redacted])					
Room Type[a]	**Light Intensity Range**	**Lighting Fixture Construction Features[b]**	**Photo-period** (hrs)[c]	**Photoperiod and Lighting Control**	**Override Mechanisms** (if applicable)
Barn [redacted] (Maternity Pens)	69.3-104.2 lux	Pens. Surface mounted fluorescent, water resistant; some ambient light	18:6	Manual on/off switch	N/A
Barn [redacted] (Lactating Cows)	102-425 lux	Comfort stall; Freestall. Surface mounted fluorescent, water resistant; some ambient light	18:6	Manual on/off switch	N/A
Barn [redacted] (young Heifers)	60.1-86.1 lux	Freestall; Pens. Surface mounted high pressure sodium, water resistant, some ambient light	N/A	Manual on/off switch	N/A
Milking Parlor (Barn [redacted])	380 lux	Surface mounted fluorescent, water resistant	N/A	Manual on/off switch	N/A
Hospital Room (Barn [redacted])	164 lux	Surface mounted fluorescent, water resistant	N/A	Manual on/off switch	N/A
Barn [redacted] (Pens [redacted] 3 & [redacted] Maternity)	Not measured	Pole Barn. Surface mounted LED, water resistant; ambient light	N/A	Manual on/off switch	N/A
Barn [redacted] (Dry Cows)	Not measured	Freestall. Surface mount incandescent, not water resistant; ambient light	N/A	Manual on/off switch	N/A
Super Hutches	Not measured	Dusk to Dawn yard lighting	N/A	N/A	N/A

Appendix 17: Satellite Housing Facilities

Note: In the Program Description Section 2. IV. (Physical Plant), item C., describe the criteria used to determine a "Satellite Animal Holding Area." In the Table below, summarize these animal housing areas. Note that each of these must also be included in the Heating, Ventilation, and Air Conditioning (HVAC) Summary (**Appendix 11**) and Lighting Systems Summary (**Appendix 16**).

Building	Room(s)	Person Responsible	Species Used	Approximate Area (ft^2 or m^2) Devoted to Housing	Maximum Period of Stay	Purpose / Rationale / Justification	Construction Features and Finishes
[redacted]	[redacted]	[redacted]	Frogs	90 sq.ft.	5-7 days	Oocyte collection and recovery period post procedure This space has not been used in the last 6 months.	Painted cement block walls. Vinyl flooring.
[redacted]	[redacted]	[redacted]	Frogs	90 sq.ft.	5-7 days	Oocyte collection and recovery period post procedure.	Painted cement block walls and vinyl flooring.