

Meeting Minutes

Meeting of Animal Care and Use Committee

Engineering Research Laboratory Conference Room 111

12:00 PM, April 30th, 2019

- The meeting minutes from the previous meeting on April 27th, 2018, was circulated among IACUC members and received unanimous approval. The minutes along with the biannual report were submitted together to the Office of VCR for record keeping.
- The committee welcome Ms. Karen Towns, the new Compliance Officer.
- Animal care and use protocol review
 - Dr. Paul Nam's study will require bringing post-blast animals back to the ARF. The committee suggested two options. After blast injury is induced, animals will either be kept at an IACUC-approved ventilated connex at the Experimental Mine facilities OR animals will be kept in standard static rat caging with micro-isolated tops in Room 103 of the animal facility (with dedicated ventilation). Cages will only be opened under biosafety cabinet. Animals will be transported in a climate-controlled vehicle.
 - Dr. Jie Gao's protocol needs to provide justification of the number of animals. Dr. Gao's representative also indicated that 1) animals will not leave the facility and 2) animals will be single-housed, instead of being group-housed.
 - Both protocols will be revised according to the committee's suggestions. The revised protocols will be circulated.
 - Dr. Stoecker, a dermatologist in Rolla, will submit an animal care and use protocol to use rabbits for his research.
- HVAC and wall paint repair
 - The wall paint peel-off stems from the inefficiency of the HVAC system. There have been meetings that were held between VCR, IACUC Chair, ARF Director, Compliance Officer, Interim VC for Finance and Operations, and representatives from Physical Plants to address the HVAC inefficiency issue.
- The ARF user fee proposal submitted by Mr. Richard Watters was discussed. The committee unanimously supported the fee plan. The details will be determined by the ARF management team.
- The VA/TBI core facility
 - Two mobile units served as the VA/TBI core facility will be brought to the S&T premises. This is a UM-Columbia initiative for research in traumatic brain injuries.

The UM-C IACUC and this committee will work together to ensure the compliance of animal care and use.

- Impression of the current (04/30/2019) inspection of Animal Research Facility (ARF)
 - The general impression is that the facility looked clean and neat and animals looked healthy. Repair of wall paint peel-off is ongoing. As the space is tight, the job is divided into blocks. The hallway and room 102-B have been repainted.
 - The satellite facility at the S&T Experimental Mine wasn't inspected. Currently, there are no animals housed in this satellite facility.
- Current and newly expired protocols
 - Three animal protocols (#147-16, #148-16, #149-16) were expired on 2/25/2019, 3/8/2019, and 09/30/2018, respectively. The PIs have been informed.
 - Four new protocols were approved since the last semi-annual minutes.
- Institutional program review
 - There is no change in the institutional animal care and use program.
- The next IACUC meeting will be held in November, 2019.

Signatures

Justin Berger		Date: <u>5/8/19</u>
Joel Dittmer	Not Present	Date: _____
Bryan Donnelly		Date: <u>5/16/19</u>
Chen Hou		Date: <u>5/13/2019</u>
Yue-Wern Huang		Date: <u>5/13/2019</u>
Jimmy Rolufs		Date: <u>5/14/2019</u>
Julie Semon		Date: _____
Richard Watters		Date: <u>5/14/2019</u>

Meeting Minutes

Date: May 1st, 2019

Meeting Place: G8 Norwood Hall

RE: Animal Research Facility

Attendees:

Costas Tsatsoulis (Vice Chancellor of Research)

Cuba Plain (Interim Vice Chancellor for Finance and Operations)

Karen Towns (Compliance Manager)

Yue-Wern Huang (Chair, S&T IACUC)

Richard Watters (Director, Animal Research Facility)

Discussion Summary

The purpose of the meeting was to discuss options for improving the air handling capacity in Animal Research Facility (ARF). S&T's Design and Construction Department conducted an initial evaluation of the ARF's HVAC system, and determined that it is doubtful that the infrastructure of the building can withstand the necessary improvements to the HVAC system. Given the age and condition of the ARF, it was also determined that the cost to replace the entire HVAC system is not economic. In addition, it was noted that, according to S&T's long-term plans, the ARF is scheduled for eventual demolition. All of these factors were discussed, and led to the conclusion that S&T needs to explore other options for improving its HVAC system in the ARF. One suggestion was to purchase a modular unit that would meet all of the ARF's requirements. Mr. Richard Watters was asked to provide specifications and explore options of modular units and report to Dr. Tsatsoulis on May 10th.

A meeting to follow up will be scheduled in the near future.

Meeting Minutes

Date: June 19th, 2019
Location: Conference Room 101A-Shared General Services
Subject: TKE Site and Animal Research Facility Modular Vivarium

Recorder: Richard Watters

Attendees: Dr. Yue-Wern Huang (Chair, Missouri S&T IACUC)
Richard Watters (Director, Animal Research Facility)
Fred Stone (Director, Design and Construction)
Patricia Litty (Project Manager)
Alivia Dean (Intern, Design and Construction)

Summary: The purpose of the meeting was to discuss the logistics of preparing a new location for the Missouri S&T Animal Research Facility. Patricia provided a timeline of asbestos abatement, demolition, and site preparation to prepare for a new modular vivarium. Demolition is currently scheduled for the first week in August. Site preparation was discussed and the West side of the TKE house is more amenable to preparation due to its relatively flat elevation and proximity to required utilities. Dimensions of an approved modular vivarium are still unknown, but approximate dimensions were established and discussed. It was conveyed that the lead time for a new modular vivarium ranges from 6-9 months.

Action Items: 1.) Patricia will provide scaled drawings of the identified site to assist Rich in selecting an appropriately sized building.

2.) Rich will contact Art's Way Scientific to help select a modular vivarium that would be appropriate for the allotted size following the TKE demolition.

3.) Rich will provide these minutes, specifications, quotes, and all other pertinent information to Dr. Tsatsoulis, Cuba Plain, Dr. Huang, Fred Stone, and Patricia Litty.

Meeting Minutes- Animal Research Facility Compliance

Date: November 14th, 2019

Location: 204A Parker Hall

Recorder:

Attendees

Dr. Costas Tsatsoulis

Dr. Richard Brow

Dr. Yue-Wern Huang

Mr. Richard Watters

Cuba Plain

Ted Ruth

Fred Stone

Discussion Summary

This meeting was scheduled to obtain clarification on Missouri S&T's Animal Research Facility compliance and to potentially identify solutions to this problem. When asked, Dr. Tsatsoulis stated that we are not in compliance without 10 air changes per hour. The campus's documentation and communication with the Office of Laboratory Animal Welfare (OLAW) provides time to address this issue and identify a viable solution. Dr. Huang provided a brief overview to the problem and outlined his communication with OLAW including their approval of the plan. The original plan of purchasing a modular vivarium was discussed and ultimately rejected due to extensive site preparation and logistical concerns and at the first and second site, respectively. An alternative solution was proposed for the mezzanine in Schrenk East which contains approximately 3,700 square feet with the target space being approximately 3,000 square feet. Mrs. Plain asked about the growth of the animal program versus the cost and Mr. Stone provided cost estimates of \$1.1-\$1.5 million. Logistics of that site, including the future Schrenk east building, were discussed. Mrs. Plain has identified approximately \$600k for the project with Dr. Tsatsoulis and Mr. Ruth identifying approximately \$200-\$250k each. Mr. Stone volunteered to work on a plan for this newly identified space and will try to identify a timeline for the construction. Fred provided a 5-6 months construction timeline, but cautioned that this is a best-case scenario.

Subject: Re: HVAC

Date: Tuesday, September 3, 2019 at 10:40:21 AM Central Daylight Time

From: Watters, Richard J.

To: Mst lacuc

Hi Dr. Huang,

Yes, we meet the regulated 10-15 air changes per hour. Our estimated ACH range is 13.5-15.

For what it's worth, I was not exactly sure how to add our supplemented air changes per hour with the existing HVAC system, so I simply added the two ACH rates together. There might be some technical formula on how to do this, but I could not find anything. My assumption is that our existing HVAC system produces approximately 3.5 air changes per hour. This calculation also assumes that I keep the new air purifiers at the 3rd and 4th setting which should produced 97 cfm and 140 cfm, respectively, if the manual is correct. This puts us approximately in the 13.5-15 ACH range depending on the room size. I'm copying the numbers below:

Floor Plan	Room Number	Sq Ft	Ceiling	Ft ³	Ft ³ (10 ACH)	Ft ³ (15 ACH)	Air Pu Requiremen
Colony Room 1	107	82	8	657.6	6576	9864	110
Colony Room 2	106	82	8	657.6	6576	9864	110
Colony Room 3	105	94	8	753.6	7536	11304	126
Colony Room 4	104	94	8	753.6	7536	11304	126
Quarantine Room	103	227	8	1816	18160	27240	303
Cage Wash	102A	342	8	2735	27346	41020	456
Storage Room/VA	102B	210	8	1680	16800	25200	280

ACH- Air Changes per hour

Thanks,

Richard Watters
 Director, Animal Care and Quality Assurance
 Center for Biomedical Research
 Missouri University of Science and Technology
 110G Schrenk Hall
 400 West 11th St.
 Rolla, MO 65409
 Tel: 573-341-4029
 E-mail: rjwhg6@mst.edu

On Sat, Aug 31, 2019 at 4:11 PM Mst lacuc <lacuc@mst.edu> wrote:

Rich,

Thanks for the detail update. After you install those portable devices, do we meet the standard air changes? What is the current ESTIMATED air change per hour?

Yue-Wern

From: "Watters, Richard J." <wattersr@mst.edu>
Reply-To: "Watters, Richard J." <wattersr@mst.edu>
Date: Monday, August 26, 2019 at 3:32 PM
To: Mst lacuc <iacuc@mst.edu>
Subject: Re: HVAC

Hi Dr.. Huang,

Yes, absolutely. The first priority was getting back into compliance of 10-15 air changes per hour in each colony room down in the animal research facility. Air purifiers were purchased for each colony room which produce at least 10 air changes per hour based on the volume of the room. These air purifiers appears to be helping with the air quality and the animals show no excessive signs of porphyrin production in their eyes and nape of their necks. However, these air purifiers don't help at all with heat dissipation in the room which we knew would be a problem. The humidity, while controlled within 30-70%, is causing condensation in the HVAC duct work which causes occasional dripping. This should go away when the weather becomes slightly cooler and the humidity drops.

The second, more intermediate, goal of moving to a temporary modular units is going well but slow. Art's Way Scientific provided a second floor plan which is approximately 1,736 sq ft. The total cost is approximately \$780,000 but excludes site prep, ramps, parking and interior furnishings. Unfortunately, I don't have any formal paperwork with this floor plan like last time. I'm speaking with them this week to hopefully get a facility which is more in line with what was informally discussed. The cost appears to be approximately \$450/sq ft.

Once I have another quote or speak with them again, which should be this week, I can let you know immediately. For what it's worth, Art'sWay Scientific plans to be in Rolla to help with the UM-Columbia/VA units at some point. Once I know a date I was hoping to pass this along either to you or Dr. Tsatsoulis (whichever you prefer) and hopefully get everybody together.

Respectfully,

Richard Watters
Director, Animal Care and Quality Assurance
Center for Biomedical Research
Missouri University of Science and Technology
110G Schrenk Hall
400 West 11th St.
Rolla, MO 65409
Tel: 573-341-4029

E-mail: rjwhg6@mst.edu

On Sun, Aug 25, 2019 at 9:07 PM Mst Iacuc <iacuc@mst.edu> wrote:

Hi Rich,

Could you please give me an update of the HVAC issue?

Thanks.

YH

ANIMAL CARE AND USE PROTOCOL REVIEW FORM

Principal Investigator: _____ Dept: _____

Project/Course Title: _____

This protocol submission is: () new () renewal () revised submission

Approve	Reject	Revise*	Signature of ACUC Member	Date
()	()	()	_____	_____
()	()	()	_____	_____
()	()	()	_____	_____
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()	()	()	_____	_____

*Comments on revision needed:

Final Recommendation of Committee:

Signature of Chairman: _____ Date: _____

A. ANIMAL DESCRIPTION

1. No. Animals _____

2. Species _____

3. Strain/Stock _____

4. Age/Weight _____

5. Source _____

B. PROJECT DESCRIPTION AND JUSTIFICATION

1. In lay terms, describe the purpose and importance of this study and the role of animal subjects.

2. Justify: (a) use of animals: (b) species chosen; and (c) numbers of animals proposed for use.

C. PROJECT INFORMATION

PI Office Address: _____ Phone: _____

Other Personnel: _____ Dept: _____

Office Address: _____ Phone: _____

Dates of Proposed Animal Use: _____ through _____

D. ANIMAL HUSBANDRY

1. Where will animals be housed? _____
2. Will animals be housed in another area for more than 24 hours? _____
If yes, give the location(s) and reasons.
3. Explain any nonstandard husbandry requirements (feeding, watering, housing, etc.)
4. Explain procedures for monitoring animal health.
5. Explain arrangements for veterinary care.
6. List personnel who will be involved with animal use and briefly describe the animal use qualification/training of each individual listed.

E. DESCRIPTION OF NONSURGICAL PROCEDURES (if YES explain in space below):

Yes	No	Use of RADIOISOTOPES* in live animals
Yes	No	Use of CARCINOGENS** in live animals
Yes	No	Use of INFECTIOUS AGENTS** in live animals
Yes	No	Use of RECOMBINANT DNA in live animals
Yes	No	Use of OTHER SUBSTANCE(S) NOT LISTED ABOVE in live animals.
Yes	No	ANIMAL RESTRAINT lasting more than 30 minutes.
Yes	No	Study of STRESS, PAIN, OR ALTERED BEHAVIOR in animals.
Yes	No	SAMPLE COLLECTION from live animals
Yes	No	TISSUE COLLECTION from euthanized animals

* Attach copy of Radiation Safety Committee authorization for radioisotope use.

** Describe plans for containment and disposal of hazardous agents and indicate if these plans are on file with the Offices of Occupational Health and Environmental Management Services.

F. DESCRIPTION OF SURGICAL PROCEDURES

1. Person(s) performing surgery and postoperative care:

_____ Phone: _____

2. Anesthesia

a. Preanesthetic agent(s): _____ Dosage: _____ Route: _____

b. Anesthetic agent(s): _____ Dosage: _____ Route: _____

c. Do agents/dosages comply with AVMA Panel on Anesthesia guidelines?

3. Description of aseptic surgical procedures:

4. Description of postoperative care:

5. Length of time animal will be kept alive following surgery:

6. Will animals be subjected to more than one survival surgery? IF yes, justify.

G. POTENTIAL PAIN OR DISTRESS IN ANIMAL SUBJECTS

1. Describe the anticipated health effects, and potential side effects of all procedures listed in Sections E and F.

2. Describe the methods (including use of anesthetics, analgesics, and tranquilizers) to be used to minimize potential pain or distress in animal subjects.

3. Indicate name of veterinarian involved in planning methods to be used to minimize pain or distress.

4. If analgesics, anesthetics, or tranquilizers will not be used to control pain or distress (due to potential interference with assay parameters), provide justification for withholding these drugs.

H. EUTHANASIA

1. Euthanasia agent/method: _____ Dose: _____ Route: _____
2. If this method is not approved by the AVMA Panel on Euthanasia, justify its use.
3. Individual responsible for administering euthanasia: _____
4. If animals will not be euthanized at the end of experimentation, describe their disposition.

I. PRINCIPAL INVESTIGATOR ASSURANCES:

1. The information provided herein is accurate to the best of my knowledge.
2. A literature search has been conducted to ensure that the proposed usage of animals will not unnecessarily duplicate previous experiments.
3. The use of alternative models as replacements for animals in this protocol has been considered and found to be unacceptable.
4. Procedures involving animals will be performed only by trained or experienced persons or under the direct supervision of trained or experienced persons (describe in Section of this form).
5. Any changes in this protocol that would affect the welfare of the animals will be promptly forwarded to the UMR Animal Care and Use Committee for review. Such changes will not be implemented until the committee's approval has been obtained.
6. A veterinarian has reviewed this proposed usage of animals.
7. Information sources have been searched for alternatives to each procedure which may cause pain or distress to the animals. (In cases that may involve pain or distress, append a written narrative that includes databases searched or other sources consulted, date of the search, and key words or search strategy used by the Principal Investigator).

Signature of Principal Investigator/Course Director Date

NIH Animal Welfare Assurance #: D16-00250					
PI's Name	Submitted Date	Approved Date	Protocol #	Renewed Date	Project Title
Jie Gao	10/25/19	11/18/19	174-19		Development of Vibrational Spectroscopic Imaging of Traumatic Brain and Spinal Cord Injury
Paul Nam	10/25/19	11/18/19	173-19		Evaluation of Antioxidant Therapy and Oxidative Stress Biomarkers after Blast-Induced Traumatic Brain Injury in Rat Models
Robin Verble	7/20/19	8/21/19	172-19		Use of Mice in Teaching Laboratory Modules for BIO SCI 4001: Animal Behavior
Brow	7/21/19	8/16/19	171-19		Pilot Experiment: Angiogenic Evaluation of Novel Phosphate Glass Compositions using an Ear Sponge Assay
D. Duvernell	5/31/19	6/19/19	170-19		Ichthyology course field collections for lab
Jie Gao	4/23/19	5/16/19	169-19		Development of Vibrational Spectroscopic Imaging of Traumatic Brain and Spinal Cord Injury
Paul Nam	4/23/19	16-May	168-19		Evaluation of Antioxidant Therapy and Oxidative Stress Biomarkers after Blast-Induced Traumatic Brain Injury in Rat Models
Julie Semon	2/6/19	3/8/19	167-19		Angiogenesis Model for Biomaterials
Julie Semon	2/6/19	3/8/19	166-19		Nerve regeneration using borate bioactive glass and fibrin hydrogel
Julie Semon	2/6/19	3/8/19	165-19		Mild Traumatic Brain Injury Model
Zezong Gu	1/9/19	2/5/19	164-19		Neuropathology and Neurobiology of Open-Field Blast-Induced Traumatic Injuries
Ercal	10/16/18	11/5/18	163-18		Enhancing Ocular Uptake of Thiol Antioxidants with Nanodiamonds
Yue-Wern Huang	9/10/18	10/24/18	162-18		Effects of jet fuel exhaust on pulmonary mechanics and functions
Brow	6/13/18	7/24/18	161-18		Subcutaneous Implantation of Biphasic Calcium phosphates (BCP) Microspheres
Semon	4/2/18	5/2/18	160-18		Hair Growth Using Bioactive Glass
Semon	2/12/18	2/20/18	159-18		Bone Regeneration in 3D Printed Bioactive Glass Implants
Ercal	2/14/18	2/20/18	158-18		Enhancing Ocular Uptake of Thiol Antioxidants with Nanodiamonds
Duvernell	1/18/18	2/13/18	157-18		Field Collection of Topminnows for Genetic Study
Ercal	8/4/17	8/30/17	156-17		HPLC Analysis of Medicated Lens Tissues
Huang	1/31/17	2/10/17	155-17		Targeted DNA Nanostructures to Treat Breast Cancer
Huang	11/24/16	11/29/16	154-16		Progenitor cells for treating intervertebral disc degeneration
Expired:					
Ercal	5/20/16	6/10/16	153-16		Cataract reversal through lanosterol and thiol antioxidant treatment
Day	5/13/16	6/10/16	152-16		Bioactive glass to accelerate burn wound healing
Berkman	5/2/16	5/17/16	151-16		Mammal Ecology
Rahaman	5/2/16	5/17/16	150-16		Silicon nitride spinal implants with osteoinductive-like properties