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The Cummings School of Veterinary Medicine
 Tufts University
 200 Westboro Road
 North Grafton, Massachusetts
 2014-2015 Annual Report of Research Facility
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Summary of Exceptions to the regulations and standards:

1. Use of non-pharmaceutical grade substances.
 - a. Regulation: Policy #3: Pharmaceutical-Grade Substances
 - b. Description: Some novel test materials are not available in USP formulation. Novel compounds will be chemically related to one or more comparator compounds and given at comparable doses. Safety review is obtained for each novel compound before use.
 - c. Species: Swine: Number: 5 Dog: Number: 6
2. Non-standard housing, sanitation,
 - a. Regulation: 3.128 Space requirements
Regulation: 3.131 Sanitation.
 - b. Description: White footed mice are gregarious, particularly during the winter months, and our experience suggests that keeping 4-6 mice (one male, several females) in a shoebox cage or 12-18 mice of mixed sex allows for sufficient breeding with intrinsic regulation of the numbers of offspring produced. In this manner, we produce only enough for adequate turnover of the colony, but do not experience breeding that needs frequent culling. Although a 1:3 ratio of males to females is optimal, having nondominant males within the cage does not affect breeding. Fighting is minimal among males. In addition, we find that cleaning cages less frequently (one cage change every 2-3 weeks) enhances breeding, probably because of pheromone marking of the cage. Finally, although gravid females could be separated, we have found that such litters survive less frequently than do those allowed to remain with the other mice. The colony has been maintained differently and very successfully with no need to introduce new field-derived individuals.
 - c. Species: *Peromyscus* Number: 131
3. Non-standard housing
 - a. Regulation: 3.128 Space requirements
 - b. Description: Calves inoculated with *Cryptosporidium* sp. begin shedding oocysts usually 3-5 days following inoculation, at which time, they will be transferred to a free-standing stanchion. These stanchions have a raised

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grate flooring to facilitate collection of feces (typically watery diarrhea) containing the oocysts and for the protection of personnel.

- c. Species: Cattle Number: 1

4. Non-standard housing/husbandry

- a. Regulation: 3.126 Facilities, indoor. (a) *Ambient temperatures*.
Regulation: 3.131 Sanitation (a) *Cleaning of enclosures*.
- b. Description: Gnotobiotic piglets will be housed in sterile isolators in rooms maintained at 90°F to prevent hypothermia. The elevated temperature is needed because newborn piglets are unable to regulate their body temperature. The isolator units are required to protect the gnotobiotic piglets from external microbes and to protect personnel from the infectious agents that the piglets are inoculated with. Isolator units (including caging) are cleaned and sanitized following removal of piglets. Piglets will be housed within an individual cage or isolator bay for no more than 2 weeks. Thus, sanitization will occur at 2 week intervals. Daily cleaning of isolator units and caging is limited by the fact that these are sealed units designed to protect piglets from external pathogens and to protect personnel from pathogens being utilized within the isolators. In an effort to minimize waste build-up, isolator units and caging are constructed such that waste falls through the grated flooring; trays underneath caging is emptied twice daily; and food bowls in both caging and isolator bays are emptied and wiped out if milk remains at feeding time.
- c. Species: Swine Number: 146

5. Non-standard housing

- a. Regulation: 3.25 Facilities, general. (a) *Structural strength*
- b. Description: Animals that have been infested with ticks are held in standard microisolator cages, but the entire cage is held within a pan or larger cage containing one inch of water, so that ticks cannot escape. This cage within a moat has proven to be the most reliable way to ensure that ticks cannot escape. When there are ticks infesting hamsters, microisolator tops need to be slightly ajar so that ticks can crawl out of the cage and be trapped in the water moat for collection. In addition, cages should not be cleaned for at least 3 days after tick feeding to ensure that all ticks have crawled out of the cage.
- c. Species: Hamster Number: 26