

16 NOV 2017

Addendum to the FY2017 APHIS Form 7023 Submission for North Carolina State University USDA Registration #55-R-0005 /842

Exceptions to Standards Report for the Reporting Period of October 1, 2016 through September 30, 2017

Species: Cat Number Affected: 24

Exceptions to Standards: Multiple Survival Surgeries: 2 Lymph Node Biopsies

Standard: 9CFR Ch.1. Pt.2, Subpt. C. Sec. 2.31 (d) (x) No animal will be used in more than one major operative procedure from which it is allowed to recover, unless: (A) Justified for scientific reasons by the principal investigator, in writing; (B) Required as routine veterinary procedure or to protect the health or well-being of the animal as determined by the attending veterinarian; or (C) In other special circumstances as determined by the Administrator on an individual basis.

Justification: 2 survival lymph node biopsies were approved to allow for longitudinal analysis of the immune response in an individual animal and to minimize the total number of animals used. These are minimally invasive and associated with only mild and transient discomfort. Not more than 2 lymph node sites were taken at each time point.

Species: Cat Number affected: 24

Exception to Standards: Cats must be on reduced rations while undergoing behavioral testing.

Standard: 9CFR Ch.1. Pt.2, Subpt. C. Sec. 2.38 (f) (2) (ii) - Deprivation of food or water shall not be used to train, work, or otherwise handle animals; Provided, however: That the short-term withholding of food or water from animals, when specified in an IACUC-approved activity that includes a description of monitoring procedures, is allowed by these regulations.

Justification: Caloric restriction will be utilized to ensure willingness to perform trained tasks for food reward and positive reinforcement. Current weights will be obtained immediately prior to the testing period. A food reduction to 60-70% of their metabolic needs will be made. Cats will receive once a day feeding following testing. The cats will be weighed once a week; reduction of 10% body weight or more will result in a gradual increase (10% increments) in food volume until weight loss is stopped. Any cat exhibiting such loss will be weighed 2x a week until stabilized. Water will not be withheld. In addition, food rewards will be provided during the testing as motivation for performance and to provide additional calories.

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Species: Pig **Number Affected:** 2

Exception to Standards: Multiple major survival surgeries performed. An initial embryo transfer procedure was performed to place transgenic embryos unto the uterus of a recipient, and, approximately 40 days later, a second surgery to access the uterus and inject the developing fetuses with test cells was performed.

Standard: 9CFR Ch.1. Pt.2, Subpt. C. Sec. 2.31 (d) (x) No animal will be used in more than one major operative procedure from which it is allowed to recover, unless: (A) Justified for scientific reasons by the principal investigator, in writing; (B) Required as routine veterinary procedure or to protect the health or well-being of the animal as determined by the attending veterinarian; or (C) In other special circumstances as determined by the Administrator on an individual basis.

Justification: There is no suitable alternative to this double surgery procedure based on a literature search. The investigators were concerned that non-surgical embryo transfer in swine is highly inefficient with less than 10% success compared to surgically induced rates, resulting in the need for using more swine recipients. Such a low efficiency for success with transgenic embryos, combined with the use of clones, would not allow reliable establishment of pregnancy. There are no known other methods of successful engraftment of cells into developing pig fetuses.

Species: Pig **Number Affected:** 2

Exception to Standards: Large sows recovering from abdominal surgery are housed in a stall measuring 3 x 10 feet. Animals are housed singly until the surgical wound is completely healed (maximum 3-4 weeks), after which time, they are returned to standard housing generally consisting of two sows per 10 x 10 foot pen during the gestation period.

Standard: 9CFR Ch.1. Pt.2, Subpt. F. Sec. 3.128 - Enclosures shall be constructed and maintained so as to provide sufficient space to allow each animal to make normal postural and social adjustments with adequate freedom of movement. Inadequate space may be indicated by evidence of malnutrition, poor condition, debility, stress, or abnormal behavior patterns.

Justification: The investigators request the exception in order to minimize movement of the animal while the incision is healing and to more closely monitor appetite and recovery. Additionally, this mitigates the concern of fecal contamination of the incision site and post-operative infection.