

**Attachment 2**  
**Column E Explanation Referencing APHIS Form 7023**  
**2012 Annual Report of Research Facility**  
**December 18, 2012**

**1. Registration Number 47-R-0004**

**2. Number of Animals Used in the Study:**

Nineteen (19) used in protocol #522, Hemoglobin Variation in High and Low Altitude Pika (Genus: Ochotona)

**3. Species (common name) of Animals Used in the Study:**

Pika (Genus: Ochotona)

**4. Explanation of Procedure Producing Pain and/or Distress:**

The basic experimental design involves trapping wild pika in Sherman live traps baited with peanut butter and oatmeal, and containing bedding material, apple slices and water. The pika are removed from the traps before 10 hours after setting the traps and taken to camp where they are immediately placed in a metabolic chamber to measure summit metabolic rate. Non-target species are set free. Cold-induced metabolic rate is measured in an open-circuit respiratory chamber while exposed to a helox mixture of 79% helium and 21% oxygen. Oxygen consumption is measured continuously as the ambient temperature within the chamber is reduced at a rate of 0.5 to 1.0 C/minute. Metabolic rate measurements end when oxygen consumption rate remains stable or declines with decreasing temperature. A rectal probe is used to monitor body temperature, and experimentation is ended if evidence of hypothermia is observed.

**5. Scientific Justification as to Why Pain and/or Distress Could Not be Relieved**

The use of anesthetics, analgesics or tranquilizers would potentially alter the animals' ability to regulate and maintain normal body temperature. The risk of frost bite and hypothermia is minimized, but not eliminated by the use of the helox mixture. Thus, the procedures are considered category E classification.

Initials: (b) (6), (b) (7)(C)

Date: 18 December 2012