United States Department of Agriculture
Animal and Plant Health Inspection Service/Wildlife Services
National Wildlife Research Center

PROTOCOL COVER PAGE

Study Title:	An evaluation of the long-term effectiveness of a mouse repellent
NWRC Study Director:	Gary Witmer
Approved NWRC Project:	DEVELOPMENT OF METHODS TO CONTROL RODENT POPULATIONS AND DAMAGE WITH AN EMPHASIS ON INVASIVE HOUSE MICE AND NATIVE VOLES

PROTOCOL CLASSIFICATION

1 ☐	NWRC staff are not involved in study design, data collection, experiments, or animal studies, **and** there is generally no commitment of NWRC resources other than personnel time, **and** activities are not regulated research activities. Complete & Submit: ☐ Cover Page ☐ Part 1 (Signature Page) ☐ Part 3 (Description of Activities)	Examples: • Writing or collaborating on review papers and synthesis reports • Student committee participation • Analyzing or writing up data collected under operational or other contexts
2 ☐	NWRC staff are not involved in study design, data collection or experiments, **but** the activity involves regulated research activities*. Complete & Submit: ☐ Cover Page ☐ Part 1 (Signature Page) ☐ Part 3 (Description of Activities) ☐ Attach the NWRC or collaborating institution's appropriate regulated documentation (IACUC, Biosafety, NEPA, ESA) & approval as applicable. ☐ Attach the NWRC Material Transfer Agreement [Standard Form (intellectual property) or Animal/Animal Tissue Transfer Form, as applicable]	Examples: • Training programs requiring the use of animals • Providing intellectual property to other organizations for their research purposes (standard Material Transfer Agreement required) • Providing animals, tissues or samples to other organizations for their research purposes (Material Transfer Agreement for animal/animal tissue required)
3 ☐	NWRC staff actively participate in all or some aspects of the research, **and** the study involves NWRC facilities and staff, **but** the NWRC portion of the study does not include regulated research activities*. Complete & Submit: ☐ Cover Page ☐ Part 1 (Signature Page) ☐ Part 4 (full NWRC Study Protocol) ☐ Attach the collaborating institution's appropriate regulated documentation (IACUC, Biosafety, NEPA, ESA) & approval if necessary.	Examples: • Collaborating on study design, data analysis, or economic analysis. • Minor participation on a regulated study at the collaborating host institution • A study that does not include animal use, etc.
4 X	NWRC staff actively participate in all or some aspects of the research, **and** the study involves NWRC facilities and staff, **and** the study includes regulated research activities*. Complete & Submit: X Cover Page X Part 1 (Signature Page) X Part 2 (Regulatory Considerations) X Part 4 (full NWRC Study Protocol) X Complete and attach any appendices required under Part 2 including collaborating institution's appropriate regulated documentation (IACUC, Biosafety, NEPA, ESA) & approval if necessary.	Examples: • A typical NWRC led study • Major NWRC staff participation in regulated activity • Study takes place on NWRC facilities

* Regulated research activities include the use of animals, controlled materials, microbiological/biohazardous agents, test material/device; impacts historical resources, the environment or endangered species. See the Animal Use Appendix for a definition of "animal" and "animal use".

PART ONE: SIGNATURE PAGE

Study Director: _____ Date: _____

Position (check one):

☐ Biologist/Chemist/Technician
Supervisor signature required:

_____ Date_____ ☐ Res. Scientist ☐ Proj. Leader

☐ Research Scientist

X Project Leader

☐ Visiting Scientist: NWRC Representative/Contact:_____

☐ Student: NWRC Representative/Contact:_____

Concur:
NWRC Research Project Leader _____ Date _____

Review and Processing:
QAU:_____ Date _____

Concur:
NWRC Assistant Director _____ Date _____

Approved:
NWRC Director _____ Date _____

Note: Additional approvals are located in the attached appendices.

PART TWO: REGULATORY CONSIDERATIONS

NO	YES	Item
Animal Use		
☐	X	Will study include the use of animals? An "Animal" is defined as any vertebrate. "Use" includes manipulating the behavior of wild animals in their natural habitat, as well as capturing and/or handling animals. X NWRC is responsible for all or part of live animal phase; attach **NWRC Animal Use Appendix** ☐ Collaborating institution is responsible for all or part of live animal phase; attach **IACUC protocol & approval** ☐ Animal samples will be incidentally collected and received from existing WS operations. NWRC personnel are not involved in collection or design of the operation.
Microbiological/Biohazardous Materials		
X	☐	Will any Microbiological/Biohazardous Materials be used? If yes, please complete and attach **Microbiological/Biohazardous Materials Use Appendix**.
Permits		
☐	X	Will permits be required (e.g., collecting, marking, banding, or sampling permit)? If yes, list all pertinent the State and Federal animal use/scientific collection permits, Migratory Bird Treaty Act or Endangered Species Act permits, Animal Health certificate, chemical experimental use permits, agreements, permit for controlled organisms, etc. Include all required permit numbers and approval dates. Colorado Scientific Collecting Permit ____ XXXXX ____ ____ Permit(s) description ____ Number ____ Date ____
National Environmental Policy Act (NEPA) and Endangered Species Act (ESA)		
☐	X	Will study result in mortality, removal, live-capture/release, harassment of animals from/in the wild, impact their natural habitat (including application of test materials/devices) or impact non-target animal populations (i.e., could or may result in their death or serious injury)? If yes, complete the **NEPA & ESA Appendix.**
X	☐	Could study result in the disturbance, capture or death of a state or a federally listed threatened or endangered species or the possible incidental take of eagles? If yes, complete the **NEPA & ESA Appendix**. Contact QA/NEPA staff for ESA or eagle incidental take requirements.
X	☐	Does this study involve interstate transport of live wildlife? If yes, contact QA/NEPA staff for Lacey Act requirements.
X	☐	Will this involve the international import or export of animal tissues or specimens? If yes, add permit information above.
Regulatory Standard and Test Guidelines		
☐	X	Does this study have the potential to be part of a product registration data submission? If yes, date of consult with Registration Manager: July 7, 2011
X	☐	Will this study be conducted under any regulatory standard? If yes please check: ☐ *CFR Title 40, Part 160: Good Laboratory Practice Standards (EPA FIFRA)* ☐Other:____
X	☐	Will this study be conducted under any testing guideline (e.g., EPA Testing Guidelines)? If yes, please list the guideline:
Test, Control and Reference Material/Devices		
☐	X	Will this study include the testing of any article, material or device? If yes, attach the **Test, Control and Reference Material/Devices Formulation and Use Appendix**. We will be testing a mouse repellent already registered with the EPA and sold commercially. The repellent is briefly described in the protocol
Historical Resources		
X	☐	Does the research involve any major ground disturbance, loud noises, or other activity that has the potential to adversely affect historic resources (e.g. placing exclusion devices/noises around historic places)? If yes, provide information and consult with the State Historic Preservation Office.
Material Transfer Agreement		
X	☐	Does the research involve the transfer of materials (intellectual property, controlled materials, animals, animal tissues, etc.) to another facility? If yes, complete the appropriate **Material Transfer Agreement**.
Analytical Chemistry		
X	☐	Will any chemical analysis be required of the NWRC Analytical Chemistry Project (ACP)? If yes, attach **Analytical Chemistry Appendix**.

PART FOUR: FULL NWRC STUDY PROTOCOL

1. Key Personnel

Name	Organization	Role in Study
Gary Witmer	NWRC, Fort Collins CO	Study Director and Project Leader
Other Investigators, Collaborators, Cooperators, and Consultants		
Kari Warberg	EarthKind, Inc., Bismarck, ND	Funds study, provides repellent

2. Testing Facilities

Name	Address	Role in Study
USDA NWRC	4101 Laporte Ave., Fort Collins CO	Pen study with captive deer mice

3. Sponsor

Name	Address	Contract No.
Kari Warberg	EarthKind, Inc., Bismarck, ND	TBA

4. Schedule

Proposed Experimental Start Date: September 15, 2011
Proposed Experimental Termination Date: December 31, 2011
Proposed Study Completion/Archive Date: March 31, 2012

5. Background and Justification

Rodents can cause substantial damage and losses to agriculture (Witmer and Singleton 2010). Deer mice (*Peromyscus spp.*) and house mice (*Mus musculus*) can cause considerable damage when they occupy buildings or vehicles (Timm and Howard 1994). Generally, lethal control is used, including rodenticides and snap traps. However, repellents can provide a non-lethal damage reduction method if they are effective in repelling the rodents from the structure (e.g., Witmer et al. 2001). EarthKind, Inc., produces a mouse repellent called "Fresh Cab" that contains a variety of organic, natural ingredients, although the EPA registration label (EPA Registration No. 82016-1) lists the active ingredient as 2% balsam fir oil. This compound is considered to be a botanical pesticide. The EPA label makes the claim that the product (a sachet packet) lasts up to 30 days, however, the manufacturer believes that the product is effective up to 90 days. The objective of this study is to determine whether or not the product is still effective at 75 and 90 days.

6. Related Protocols

None.

7. Assurance of Non-Duplication of Studies

This study is an efficacy of a registered product for which the manufacturer needs a data set showing efficacy lasting to 75 days or longer. The manufacturer does not have such a data set and has requested that the NWRC conduct a repellency efficacy trial with wild-caught deer mice. Hence, we do not believe that this study duplicates any previous study with this EPA-registered product.

8. Objective/Hypotheses

The objective of this study is to test the efficacy of a mouse repellent after having been "aged" (i.e., in use) 75 and 90 days. This will be determined by having mice living freely in 2 adjoining sheds that are joined by 2 tunnels at floor level, allowing full access to both buildings. We hypothesize that mice will spend significantly less time in the treated shed than in the non-treated (control) shed.

9. Methods/Procedures

Deer mice will be live-trapped in the Fort Collins area. They will be dusted with an insecticide to kill eco-parasites before being brought to NWRC for a 2-week quarantine (or such time period as deemed adequate by the Attending Veterinarian) in individual shoebox cages in an Outdoor Rodent Building (ORB) or an animal room if assigned. Animals will be fed rodent chow, a slice of apple or vegetable, and will be provided with water, bedding and a den tube or box.

A pair of sheds will be temporarily set up in each ORB. These will be constructed of wood or plastic and will have floor dimensions of at least 6 by 4 feet. The paired sheds will be interconnected by two tunnels (e.g., PVC tubes) at the floor level along the 2 parallel walls of the sheds allowing access to both sheds by the mice. Each shed will have 2 mouse den boxes with a bedding material and 2 feeding stations (containing rodent chow pellets), and a water station. Ten mice (approximately even split of sexes, but this will depend on the sex of mice available) will be introduced to each of the connected pairs of sheds. The mice will be allowed to acclimate to the sheds for at least 3 days before aged repellent sachets are added to 1 of the paired sheds (treated shed) while the other connected shed (control) will not contain the sachets. Mice occurrence in the paired sheds will be documented by use of motion-sensitive, Infrared digital cameras as well as video cameras. Mice will be monitored for at least 5 days after the placement of the repellent sachets. At that time, the mice will be live-trapped and returned to individual cages. The sheds will be ventilated by use of fans for at least 2 days and then will be set up, as before, for the next group of mice. All procedures will be repeated for each replication.

The sachets used will be "aged" to the appropriate number of days (75 or 90 days) before being used in the trials. Aging will occur in the warehouse or other appropriate structure (e.g., shed or garage). For the first set of trials, 2 sets of paired of sheds will be used for sachets aged 75 days. The third pair of sheds will not contain repellent sachets and will serve as a control to document the amount of use of the sheds by the group of mice: presumably both sheds will be used to a substantial extent.

When these 2 runs are completed, we will repeat the procedure using repellent sachets that have been aged 90 days. Depending on the outcome of this series of trials, additional runs may be required.

10. Experimental Design and Statistical Analyses

The analyses of the data set will involve a comparison of the number of mouse counts (from camera and video recordings) in treated versus untreated paired sheds using t-tests. We will also estimate the time in which mice are

observed in each treated versus untreated sheds from the video cameras using t-tests.

11. Standard Operating Procedures (SOPs) and Analytical Methods

SOP/Method No.	Title
HS 004.01	Personal Protective Equipment
FP-031.00	Live-trapping, transportation to research facility, handling, and processing of *Rattus* spp.
AC/CO 008.00	Euthanasia with CO2

12. List of Records to be Maintained

A. Protocol and Amendments
B. Correspondence, telephone logs and related records
C. Data records including:
   a. Mouse capture date, assigned individual ID number, sex, weight
   b. Shed and repellent sachet descriptions
   c. Trial result (number of mice per shed, time mice observed in each shed)
   d. Digital photos from motion-sensitive cameras and video DVDs from video cameras
D. Final Report

13. Cost Estimate for Each Fiscal Year

	FY-11/12			
A. Salary and Benefits	$18,000			
B. Travel costs	$2,500			
C. Equipment (e.g., sheds)	$5,000			
D. Supplies	$1,500			
E. Animal Care Costs	$1,000			
F. Indirect costs (16.5%)	$4,620			
TOTAL	$36,620			

14. Human Health and Safety

This study involves studying foraging behavior by wild-caught deer mice. Because some of the wild-caught deer mice may be infected with hantavirus, additional safety measures will be implemented. The safety measures listed below will be followed by all study personnel:

- Handling time and frequency with deer mice will be kept to the bare minimum necessary to complete the study.
- Deer mice will only be kept in an open-air Outdoor Rodent Building (ORB) to assure good ventilation.
- Upon entering the antechamber room of the ORB, staff will put on safety equipment/clothing that includes latex gloves, a respirator (≥ N-95 level of protection), rubber boots, and an over garment that covers the front of the staff person from the neck to the level of the rubber boots.
- The soil in the ORB will be dampened periodically so that it remains moist and, thus, there is less stirring up

of dust by breezes and by employees walking in the ORB. Personnel will wear their protective gear while performing this watering task.

- There will be a foot bath containing bleach or other appropriate disinfectant solution that employees will step in before entering and upon exiting the inner part of the ORB.
- There will be covered trash can in the ORB antechamber for disposal of used latex gloves and hand cleanser-disinfectant will be available and used before exiting the antechamber.
- There will be a coat rack for placement of respirators and garments before exiting the ORB antechamber.
- Rubber boots will be removed and left in the antechamber before exiting.
- At the conclusion of the study, the sheds used in the study will be disinfected over time by chemical treatment (spraying at least twice a few days apart with a 10% bleach solution).

15. Staff Qualifications

All study participants have documentation on file, which verifies their training and qualifications for the work they will perform in this study, including SOP training logs. All SOPs and study specific training logs will be completed and documented in study or personnel records prior to participation in that aspect of the study.

16. Archiving

All raw data, documentation, records, protocols, specimens, correspondence and other documents relating to interpretation and evaluation of data, and final reports generated as a result of this study will be retained in the archives of the National Wildlife Research Center at Fort Collins, Colorado.

17. Protocol Amendments

Any changes in this protocol will be documented on the Study Protocol Amendment Form, reviewed by appropriate personnel (e.g., IACUC, IBC, ACP, QA, etc.), and signed and dated by the Study Director, Project Leader, Assistance Director, and for regulated studies the Sponsor. Amendments will be distributed to all study participants as appropriate.

18. References

Timm, R., and W. Howard. 1994. White-footed and deer mice. Pages B-47 – B-51 In: Prevention and Control of Wildlife Damage, S. Hygnstrom, R. Timm, and G. Larson, eds. Cooperative Extension Service, University of Nebraska, Lincoln.

Witmer, G., A. Hakim, and B. Moser. 2001. Investigations of methods to reduce damage by voles. Proc. Eastern Wildl. Damage Control Conf. 9:357-365.

Witmer, G. W., and G. R. Singleton. 2010. Sustained agriculture: the need to manage rodent damage. Pages 1-39 *in* Agricultural Production, F. Wager, editor. Nova Science Publications, New York, New York.

19. Appendices

Indicate none or check attached appendices:

☐ None
x Animal Use Appendix
☐ Analytical Chemistry Appendix
☐ Column E Explanation
☐ Material Transfer Agreement
☐ Microbiological/Biohazardous Materials Formulation and Use Appendix
x NEPA and ESA Appendix
x Test, Control and Reference Material/Device Use Appendix
☐ Other: _____

☐ Collaborating institution is responsible for live animal phase; IACUC protocol & approval attached

Animal Use Appendix

A. Animal Description

1) Species: deer mouse (*Peromyscus maniculatus*)
2) Strain and substrain: wild-caught
3) Number and Sex: 65; mixed sex
4) Body weight range: 12-28 g
5) Age: subadult to adult

B. Rationale for involving animals, for appropriateness of species, and for numbers:

1) This study will determine the efficacy of a registered mouse repellent after 75 days in use. This can only be determined by exposing mice to the replellent in a shed and and monitoring their use of adjoining sheds (treated and non-treated. Wild-caught mice will be used because rodents used in this study must exhibit approximately normal activity and foraging behaviors.
2) Mice cause damage when they occupy buildings and vehicles. Effective methods are needed to prevent building/vehicle occupation by mice, especially from fall to spring when they tend to seek shelter in human structures. An effective repellent is on the market, but the duration of repellency is not known. This study will determine if the repellency last 75+ days.
3) We will assess the effectiveness of the mouse repellent using wild-caught mice. We will use groups of 10 mice per trial involving 2 connected sheds. There will be 3 pairs of connected sheds. We will replicate the trial 23 times. We will also require a few extra mice to serve as back-ups should there be some mortality or individuals requiring euthanasia. Hence we will need 60 test animals plus 6 back-ups for a total of 66 deer mice.

C. Source:
Deer mice will be live-trapped in the Fort Collins area under a scientific collecting permit of the Colorado Division of Wildlife and with permission of landowners.

D. Method of identification of animals:
Animals will be maintained in individually numbered shoebox cages. Animals will be assigned the same number as the cage. Individual identification will not be tracked once the mice are placed as a group in a pair of sheds for a trial. At that point, we will only know the number and sex of animals in the sheds. Individual identification is not considered essential to achieving the objectives of the study.

E. Trapping/Collecting:
Mice will be live-trapped using Sherman live traps. Each trap will contain cotton balls for bedding and insulation and a ball of peanut butter and oatmeal as a source of food along with a small piece of apple for moisture. Traps will be set in the morning and checked in the late afternoon. Empty traps in the late afternoon will be left open for the overnight period. Traps will not be set so as to have direct exposure to the sun. Trapping will not be conducted in cold (<35 degrees) or very hot (>80 degree) weather. Upon capture, mice will be lightly dusted with an appropriate insecticide powder to kill any ecto-parasites that may be present. Any non-target animals that are captured will be released near the trap site.

F. Transport:

Mice will be transported in their individual capture cages inside the back of a pick-up truck with a canopy which will shelter the animals from direct sunlight and inclement weather. Trapping and transporting will not be conducted in cold (<35 degrees) or very hot (>80 degree) weather. The trip to NWRC should not take more than an hour; hence, animals will not need additional supplies (food, moisture) until placed in individual shoebox cages at NWRC.

G. Handling/restraint:
Mice will be handled only as necessary (i.e., when weighing and determining sex or when transferring from one cage to another). Personnel will use latex or leather gloves and a cloth sack or plastic bag may be used to facilitate handling and to assure safety (HS 004.01). Because some of the wild-caught deer mice may be infected with hantavirus, additional safety measures will be implemented as described in the Employee and Public Safety Section of the protocol.

H. Quarantine:
Upon capture, deer mice will be dusted with an insecticide to control ecto-parasites. Upon arrival at NWRC, they will be brought into an ORB open air building (or assigned animal room0 and placed in individual plastic shoebox cages for a 2-week quarantine period or such period as determined by the Attending Veterinarian.

I. Housing/maintenance:
Mice will be housed in individual plastic shoebox cages in an ORB open air building and provided commercial laboratory rodent chow, an apple or vegetable slice, bedding, a den tube, and water ad libitum (SOP AC/CO 005.01). Because some of the wild-caught deer mice may be infected with hantavirus, additional safety measures will be implemented as described in the Employee and Public Safety Section of the protocol.

Because the sheds trials will involve a mix of female and male mice, it is likely that some females will become pregnant during the course of the trials. We will try to prevent litters from being born in the sheds by limiting the time a group of mice are in the sheds to no more than 10 days. Hence, any litters that are born should occur after the females have been placed back in their individual shoebox cages at the end of a shed trial. If litters are born, they may be used for another approved study; otherwise they will be euthanized as described below.

J. Dietary contaminant exposure:

N/A.

K. Disposition of animals:

Any animals found dead or euthanized during the study will be weighed, the date recorded and animal number recorded on a zip-lock bag which will be frozen until incineration. Surviving animals at the end of the study will be used in another study or euthanized with an approved method of the AVMA (2007), such as with CO2 (AC/CO 008.00) or by combined use with an inhalant anesthesia as deemed appropriate by the Attending Veterinarian. Ultimately, all carcasses will be incinerated at NWRC.

L. Duplication of prior studies:

This study is an efficacy of a registered product for which the manufacturer needs a data set showing efficacy lasting to 75 days or longer. The manufacturer does not have such a data set and has requested that the NWRC conduct a repellency efficacy trial with wild-caught deer mice. Hence, we do not believe that this study duplicates any previous study with this EPA-registered product.

M. Pain or distress:

Consultation with Attending Veterinarian:

This study is not expected to cause any pain or distress to the mice used in the repellent trial. If any animal observed, in the opinion of research or animal care staff, is experiencing more than momentary pain or distress, they will contact the Study Director, his designee, or the Attending Veterinarian to have the animal euthanized.

Name of Attending Veterinarian: Dr. Gordon Gathright

Date of Consultation: _____

Has the Attending Veterinarian determined that this study is expected to cause more than momentary or slight pain or distress?

Yes:_____ No, it will not: X

1) Alternative procedures: N/A

2) Sedatives, analgesics, or anesthetics: N/A

3) Surgery: N/A

N. Euthanasia:

Animals will be euthanized with an approved method of the AVMA (2007), such as with CO2 (AC/CO 008.00) or by combined use with an inhalant anesthesia as deemed appropriate by the Attending Veterinarian. Ultimately, all carcasses will be incinerated at NWRC.

O. IACUC approval:

Date of IACUC Approval Letter:_____

NEPA and ESA Appendix

A categorical exclusion (CE) is based on consideration of all environmental issues relevant to this study, including consideration of cumulative impacts on wild animals and other environmental parameters, such as removal caused by the study combined with other reasonably foreseeable removals by other causes (e.g., sport harvest, wildlife damage management actions, and any other known causes of mortality) pursuant to APHIS NEPA Implementing Procedures at 7 CFR Part 372.5(c)(2)(i). Examples of projects which would likely require more than a CE include, field trials that will have future effects (the registration of chems.), projects that result in death of a large number of animals or a large proportion of the population, projects which may adversely affect T&E species, and projects with uncertain environmental impacts.

This study qualifies for a Categorical Exclusion because:

☐ It is a research and development activity that will be carried out in laboratories, facilities, or other areas designed to eliminate the potential for harmful environmental effects--internal or external--and to provide for lawful waste disposal and does not include the use of free-ranging wildlife.

☐ It is a routine measures activity, such as surveys, sampling that does not cause physical alteration of the environment

X It includes the lawful use of chemicals, pesticides, or other potentially hazardous or harmful substances, materials, and target-specific devices or remedies, however such use will:

- X A) be localized or contained in areas (<10 acres) where humans are not likely to be exposed, and is limited in terms of quantity
- X B) not cause contaminants to enter water bodies
- X C) not adversely affect any federally protected species or critical habitat
- X D) not cause bioaccumulation

☐ This study does <u>not</u> qualify for a Categorical Exclusion.

Will this activity occur anyway even without involvement by NWRC?

X No

☐ Yes If yes, describe why this activity will occur and attach written confirmation from those conducting activity.

A relatively small number of deer mice (~65) will be used in this pen study. This number is not expected to significantly affect the source population of free-ranging deer mice.

Any non-target animals caught in live traps set for deer mice to be used in this pen study will be released on site.

Effects on T&E species and eagles:
Could study result in the disturbance, harassment, capture or death of a state or a federally listed threatened or endangered species or the possible incidental take of eagles? X No ☐ Yes If yes, describe species, potential impact and measures to be taken to minimize impact:
Consultations:
Did you consult with a state or federal agency specifically on this action. ☐ No X Yes If yes, describe the date/mode/contact person and outcome of this consultation: The Colorado Division of Wildlife was contacted for permission to collect deer mice for this study.
Landowner Permission: Do you have an agreement or permission to conduct the action on property owned or managed by a land manager or landowner. ☐ No X Yes Landowner permission will be received before trapping on properties.

Test, Control and Reference Material/Devices Formulation and Use Appendix

A. Describe the test material/devices

As appropriate, for each material provide the chemical, bait or device

1) Fresh Cab mouse repellent (EPA Registration No. 82016-1)
   EarthKind, Inc.
   2910 East Broadway
   Warehouse #19
   Bismarck, ND 58501

B. Describe any control or reference materials/devices

N/A

C. Carriers, mixtures and material preparation

N/A

D. Route of administration

N/A

E. Dosage

N/A

F. Test, control, and reference substance accountability

N/A

G. Material verification

N/A