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UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. CERTIFICATE NUMBER: 51-F-0019  
CUSTOMER NUMBER: 452

FORM APPROVED  
OMB NO. 0579-0036

**ANNUAL REPORT OF RESEARCH FACILITY**  
( TYPE OR PRINT )

Edgewood Chemical Biological Center  
ATTN: AMSRD-ECB-RT-TV, Bldg E3150  
Aberdeen Proving Ground, MD 21010-5424

Telephone: (b)(6), (b)(7)c

3. REPORTING FACILITY ( List all locations where animals were housed or used in actual research, testing, or experimentation, or held for these purposes. Attach additional sheets if necessary )

FACILITY LOCATIONS ( Sites ) - See Attached Listing

**REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY ( Attach additional sheets if necessary or use APHIS Form 7023A )**

A. Animals Covered By The Animal Welfare Regulations	B. Number of animal being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquiliz drugs would have adversely affected the procedures, res or interpretation of the teaching, research, experiments, surgery, or tests. ( An explanation of the procedures producing pain or distress in these animals and the reast such drugs were not used must be attached to this report	F. TOTAL NUMBER OF ANIMALS ( COLUMNS C + D + E )
4. Dogs					
5. Cats					
6. Guinea Pigs		108	8	22	138
7. Hamsters					
8. Rabbits		199	32	333	564
9. Non-human Primates					
10. Sheep					
11. Pigs		0	0	80	80
12. Other Farm Animals					
13. Other Animals					
Unregulated Animals					
Mice		196	43	445	684
Rats		215	17	559	791
Fish		85	0	475	560

**ASSURANCE STATEMENTS**

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual res teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and ap Institutional Animal Care and Use Committee (IACUC). A summary of all such exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary inct brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL  
( Chief Executive Officer or Legally Responsible Institutional Official )

SIGNATURE OF C.E.O. OR INSTITUTIONAL OFFICIAL

(b)(6), (b)(7)c

DATE SIGNED

11/29/05

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Column E Explanation

DEC 01 2005

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 51-F-0019

231(mice)/559(rats)/32(rabbits)/80(pigs)/22(guinea pigs)

2. Number \_\_\_\_\_ of animals used in this study.

mice/rats/rabbits/pigs/guinea pigs

3. Species (common name) \_\_\_\_\_ of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Two hundred thirty-one (231) mice, five hundred fifty-nine (559) rats, thirty-two (32) rabbits, eighty (80) mini-pigs, and twenty-two (22) guinea pigs were used to test militarily unique compounds via the inhalation route to establish relative importance of exposure concentration and duration on the probability of toxic and lethal responses. Historically, in studies designed to generate lethal dose-response curves, it has been assumed that approximately half of the exposed animals would be expected to die and that this level of response may potentially be associated with pain, discomfort, and/or distress.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

For these studies, the use of anesthetic/analgesic drugs during exposure may compromise the results of the proposed studies due to the fact that this class of compound may alter the respiratory minute volume and thus the dose of test compound that the animal receives. In addition, the expression of toxic signs may be altered by such treatment. Clement and Coperman (1984) suggest that chemical agent-induced convulsion and death are not necessarily associated with pain. Clement and Coperman (1984) have reported that Soman and Sarin induce a long-lasting naloxone-reversible analgesia in mice, which was not due to physical incapacitation.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency \_\_\_\_\_ CFR \_\_\_\_\_

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1. Registration Number: 51-F-0019

2. Number 301 (rabbits) / 214 (mice) of animals used in this study.

3. Species (common name) rabbits / mice of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Three hundred one (301) rabbits and two hundred fourteen (214) mice were tested with previously untested chemicals of military interest. The materials were tested by intravenous route in mice and by intravenous, intramuscular, dermal, and ocular routes in rabbits.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Animals that either died or suffered convulsive seizures during the test – these severe toxic signs could not be alleviated so that accurate test data could be collected. The data collected were important for several reasons: 1) to establish the toxicological profile of the chemical; 2) establish data to be used for human estimates; 3) establish data from which therapy/prophylaxis could be established; and 4) data would be included in material safety data sheets as a warning to potential users or in support to chemical staff in case of accidental exposures.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency \_\_\_\_\_ CFR \_\_\_\_\_

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1. Registration Number: 51-F-0019

2. Number 475 of animals used in this study.

3. Species (common name) fish of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Seventy-five (75) fish larvae (fathead minnows under 24 hours old) were (exposed to supernatant from filtered carbon fibers, in media) in a range-finding, renewal, 7-day chronic toxicity test consisting of five concentrations and a negative control. Two hundred (200) fish larvae were exposed (to supernatant from filtered carbon fibers, in media) in a definitive, renewal, 7-day chronic toxicity test consisting of five concentrations and negative control. Two hundred (200) fish larvae were exposed (to carbon fibers in media) in a definitive, static, 7-day chronic toxicity test consisting of five concentrations and negative control.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Operculum movement is impaired with anesthetics, nullifying one of the experimental endpoints. Impairing the animal with an anesthetic may increase the effects of the toxicity challenge. Distress and pain are difficult, if not impossible, to judge with aquatic species due to the inability to observe vital signs that are readily obvious in terrestrials.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency \_\_\_\_\_ CFR \_\_\_\_\_