PROTOCOL NUMBER: G0590607001A117

PROJECT NUMBER: 0607-059-0157

STUDY TITLE

EVALUATION OF THE EFFICACY OF PERSONAL REPELLENTS AGAINST MOSQUITOES IN THE LABORATORY

EPA DATA REQUIREMENT

Product Performance Test Guidelines: OPPTS Draft 810.3700

STUDY INITIATION DATE: July 25, 2007

IN-LIFE COMPLETION DATE: March 4, 2008

STUDY COMPLETION DATE: April 4, 2008

AUTHOR/STUDY DIRECTOR
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STUDY ASSOCIATES
Timothy Foard, William Gaynor, Robert Kilbourn, Gloria Stevens and Fouad Zgidou

SPONSOR
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Avon Place
Suffern, NY 10901-5605

TESTING FACILITY
ICR, Inc.
1330 Dillon Heights Avenue
Baltimore, MD 21228-1199

STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

This claim of no data confidentiality supersedes any and all other claims of data confidentiality or no confidentiality which may appear elsewhere in this document.

No claim of confidentiality is made for any information contained in this study on the basis of its falling within the scope of FIFRA §10(d)(1)(A), (B), or (C). No supplemental claim of confidentiality is made for any information in this study on the basis of FIFRA § 10(a) or (b). This document, however, is proprietary to Avon Products, Inc. and is considered to be confidential and trade secret information in all other countries and for all purposes other than those enunciated in FIFRA §§ 3 and 10; information contained herein should not be reviewed, abstracted or used by persons without the express written consent of Avon Products, Inc. except as required to carry out the requirements of FIFRA.

Company: Avon Products, Inc.

Company Agent: J. M. Kelley

Signature: [signature] Date: April 8, 2008

Title: Authorized Representative for Avon

GOOD LABORATORY PRACTICES STATEMENT

This study was conducted in accordance with Good Laboratory Practices as set forth in 40 CFR Part 160.

The sponsor provided sample characterization information for both of the test articles used in this study. However, the characterization of these samples was not conducted under GLP.

Study Director: _____ Date: 4-4-08

Sponsor's Representative: _____ Date: 4/8/08

Study Submitter: _____ Date: 4/8/08

QUALITY ASSURANCE STATEMENT

Project Number: 0607-059-0157

Sponsor: Avon Products, Inc.

Protocol Number: G0590607001A117

Study Initiated: In Life Study Completed:

Study Audit: Critical phases for this study were inspected on:

Phase	Date Inspected	Date Rpted to SD	Date Rpted to MGMT
Sample Weighing and Log-In	2-21-08	2-21-08	2-21-08
Test Preparation	2-26-08	2-29-08	2-29-08
Sample Identity of Sample Log-In	3-3-08	3-3-08	3-3-08
Test Conduct	3-4-08	3-4-08	3-4-08
QA Review of final report	4-4-08	4-4-08	

Any findings of deviation from standard operating procedure or protocol were immediately reported to the Study Director and to management.

The Quality Assurance Report for each phase was submitted to the Study Director and management at the dates indicated above.

The results shown in this report accurately reflect the raw data records.

Ellen Quinn Date 4/4/08
Chief, Quality Assurance Unit

A TRUE COPY WHEN STAMPED IN RED
INITIALS 4/4/08 DATE

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OBJECTIVE

The objective of the study is to fulfill the EPA requirement for a confirmatory laboratory efficacy study on a West Nile vector species. Therefore ICR conducted this laboratory study to assess repellency of these test articles against *Culex quinquefasciatus* mosquitoes.

STUDY RATIONALE

This laboratory study is a confirmatory study to fulfill the Agency's request of a study to support a West Nile Virus (WNV) claim by testing on an additional WNV vector.

TEST ARTICLES

	Product Name	Specific Gravity	Application Rate	Application/250cm^2
A.	TA# 1001108-030 (A) Currently Marketed EPA registered product	0.96	1.67 mg/cm^2 (EPA Reg. No. 806-29)	417.5 mg
B.	TA# 1004024-010 (B) Currently Marketed EPA registered product	0.96	1.67 mg/cm^2 (EPA Reg. No. 806-31)	417.5 mg

MATERIALS AND METHODS

Materials and methods were as described in protocol G0590607001A117 (Appendix I).

There was one deviation from the protocol:

> The protocol states that subjects will be treated in pairs and the treatment time will be when the application of the second test article begins. However, six subjects were treated sequentially with one test article and the treatment time was recorded when the application of the second test article began. This was done to minimize confusion among the treated subjects regarding when they were required to enter the insectary for the next half hourly exposure to mosquitoes.

There was no impact on this study from this deviation.

RESULTS AND DISCUSSION

Thirteen subjects (7 men and 6 women), all between the ages of 18 and 70, were recruited to participate in this study. Two substances were evaluated simultaneously; one substance applied

to the right arm and the other to the left arm. One male subject acted as the untreated control and verified mosquito landing rates in each of the six test cages.

The test articles were applied to the test subjects with disposable syringes. Each treated subject received 0.42 ml. of TA# 1001108-030 (A) on their right arm and 0.42 ml. of TA# 1004024-010 (B) on their left arm.

The test duration was ten hours. One control subject selected by lot verified mosquito activity in each cage prior to each ½ hour exposure period of the treated subjects. Prior to the 2.5 hour exposure period, the control subject did not receive the required number of landings in one of the six test cages (5 landings within one minute). An additional 200 female mosquitoes were added to each of the six test cages before the 2.5 hour exposure period.

All test subjects proved attractive to the caged mosquitoes. The times for 5 landings on the untreated arms ranged from 5 to 30 seconds.

Subject #49 received a confirmed bite at +3-hours on right arm treated with test article "A". This bite resulted in product breakdown for one subject.

Subject #41 received an unconfirmed bite at +2.5 hours on the arm treated with test article "A".

Subject #42 received an unconfirmed bite at +7 hours on the arm treated with test article "A".

Subject # 43 received an unconfirmed bite at +10 hours on the arm treated with test article "A"
No other bites occurred on arms treated with test article "A"

Subject #41 and #43 both had a confirmed bite at +8-hours on the arm treated with test article "B". This resulted in product breakdown for two subjects.

Subject #43 received an unconfirmed bite at +7 hours on the arm treated with test article "B".

Subject #27 received an unconfirmed bite at +10 hours on the arm treated with test article "B".

There were no other bites for either test article during the test period.

The data was analyzed using SPSS statistical software using the Kaplin-Meyer product-limit technique (pgs.75-79). Mean breakdown times and the 95% confidence intervals were determined. The results from this analysis are shown in Tables A for TA# 1001108-030 (A) and B for TA# 1004024-010 (B). No median values were established by this analysis as fewer than 50% of the subjects experienced product breakdown, therefore there is no middle value to calculate.

Table A. Means and Median survival times for TA# 1001108-030 (A) (EPA Reg. No. 806-29)

Means and Medians for Survival Time

Mean[a]				Median			
		95% Confidence Interval				95% Confidence Interval	
Estimate	Std. Error	Lower Bound	Upper Bound	Estimate	Std. Error	Lower Bound	Upper Bound
9.417	0.558	8.322	10.511	.	.	.	.

a. Estimation is limited to the largest survival time if it is censored.

Table B. Means and Median survival times for TA#1004024-010 (B) (EPA Reg. No. 806-31)

Means and Medians for Survival Time

Mean[a]				Median			
		95% Confidence Interval				95% Confidence Interval	
Estimate	Std. Error	Lower Bound	Upper Bound	Estimate	Std. Error	Lower Bound	Upper Bound
9.667	0.215	9.245	10.088	.	.	.	.

a. Estimation is limited to the largest survival time if it is censored.

CONCLUSIONS

A Kaplan-Meier Product Limit analysis for TA# 1001108-030 (A) indicates that this product provided a mean protection time of 9.417 hours from the first confirmed bite, with a lower bound of 8.322 hours and an upper bound of 10.511 hours.

A Kaplan-Meier Product Limit analysis for TA# 1004024-010 (B) indicates that this product provided a mean protection time of 9.667 hours from the first confirmed bite, with a lower bound of 9.245 hours and an upper bound of 10.088 hours.

In a discussion of power in the statistical plan (pg. 20 of protocol), it was decided that any estimate of product protection would confirm to the values presented by Rutledge and Gupta (1999). As such these results support the conclusion with 95% confidence that both TA# 1001108-030 (A) and TA# 1004024-010 (B) provided protection times from the first confirmed bite of 8 hours +/- 2 hours.

APPENDIX I: PROTOCOL, AMENDMENT AND DEVIATION

PROTOCOL NUMBER: G0590607001A117

PROJECT NUMBER:
0607-059-0157

PROTOCOL TITLE:
EVALUATION OF THE EFFICACY OF PERSONAL REPELLENTS AGAINST MOSQUITOES IN THE LABORATORY

PROTOCOL VERSION DATE
February 8, 2008

PROPOSED LABORATORY INITIATION DATE
TBD

PROPOSED LABORATORY CONDUCT COMPLETION DATE
TBD

STUDY DIRECTOR
Niketas C. Spero

STUDY ASSOCIATES
Timothy Foard, William Gaynor, Robert Kilbourn, Gloria Stevens, and Fouad Zgidou

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APPROVED
FEB 18 2008
Essex Institutional Review Board, Inc.

WHEN
STAMPED IN RED

RECEIVED
FEB 15 2008
Essex Institutional Review Board, Inc.

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Mosquitoes make enjoyment of outdoor activities unpleasant in many parts of the U.S.A. There are few effective, registered active ingredients available as insect repellents. Certain species of mosquitoes can vector the West Nile Virus (WNV) and few repellent products provide protection from mosquitoes that may carry WNV. This laboratory cage study will evaluate the effectiveness of two currently registered insect repellent products in repelling mosquitoes that may transmit West Nile Virus.

HYPOTHESIS

The repellent products in this study are expected to provide 8 hours of personal protection from *Culex quinquefasciatus* mosquitoes, a West Nile Virus vector, in the laboratory.

OBJECTIVE

The objective of the study is to fulfill the Agency's requirement of a confirmatory laboratory efficacy study on a West Nile Virus vector species. Therefore ICR will conduct a laboratory study to assess repellency of these test articles against *Culex quinquefasciatus* mosquitoes.

STUDY RATIONALE

This laboratory study is a confirmatory study to fulfill the Agency's request of a study to support a West Nile Virus (WNV) claim by testing on an additional WNV vector. The test articles in this study are registered repellent products that have been tested in the field and have shown to be effective at repelling mosquitoes from the genera *Ochlerotatus, Aedes,* and *Psorophora.* A significant number of the mosquitoes repelled and collected during the field studies conducted for these products were *Psorophora ferox,* classified as a vector of WNV by the Center for Disease Control (CDC) and the American Mosquito Control Association (AMCA), and *Ochlerotatus taeniorhynchus,* classified as a vector of WNV by AMCA. This laboratory cage study is intended to evaluate the efficacy of two currently EPA registered picaridin-containing insect repellent products (EPA Reg. No. 806-29 and 806-31) against laboratory raised *Culex quinquefasciatus*. It is well documented that Culex sp. are known as primary vectors of WNV in the wild. This is in contrast to the lab, where disease transmission is not possible since these laboratory raised mosquitoes have never been exposed to any arboviruses. Based on this reasoning, the EPA has recommended that laboratory data with uninfected mosquitoes can be used to support the addition of WNV product label claims. Therefore, this laboratory cage study (utilizing disease free mosquitoes) is being specifically conducted to support additional label claims that the above mentioned EPA registered products repel mosquitoes that may transmit West Nile Virus.

Presently there are approximately 15 picaridin-based insect repellent products registered under FIFRA. The products range from 5% picaridin to 20% picaridin and include pump spray, aerosol, lotion, and towelette application products. ICR has previously evaluated Picaridin-based repellents in both the laboratory and in the field for efficacy. We have found these types of repellents to be efficacious against other species of mosquitoes in the laboratory as well as in field studies for up to and beyond 8 hours. It is also endorsed by the CDC as effective against WNV vectors. In previous studies we have seen no indication of any type of reaction from these repellents, or cause for concern regarding safety issues.

Laboratory studies, such as the one requested, have been considered by the scientific community to be a reliable method for testing the performance of a topically applied insect repellent product. Under FIFRA, EPA requires submission of such human efficacy study data (EPA/OPPTS Guideline 810.3300/3700) in support of insect repellent product registration. Each new insect repellent formulation must have product performance studies conducted on human subjects to substantiate the product label claims.

Each product is unique and will provide different protection times for different pests depending on both its percent active ingredient and formula composition. The incorporation of film formers, fragrances, and other ingredients may significantly influence the duration of repellency against target pests.

The prominent risks associated with the proposed laboratory study to assess the performance of these insect repellents are the potential for allergic or irritation responses to the test material and to mosquito bites. These laboratory colonies of mosquitoes have been raised in the laboratory for many generations and have not been exposed to outside blood sources of the West Nile virus or other mosquito borne diseases. Therefore, there is no risk of contracting a mosquito or other insect borne disease. The risk of skin reactions and the lack of disease threat were significant factors that were considered in detail and addressed in the development of the proposed study design.

With regard to the potential for irritation or allergic reactions to the test material, this risk has been greatly reduced by careful consideration of the components of the test material and avoidance of the use of known sensitizers and irritants. As an added precaution, interested study participants with a history of reaction to insect bites, insect repellents, and skin care products will be excluded from the study. Further, the study subjects will be closely monitored during the study for signs of significant skin reactions and prompt medical attention will be obtained should an adverse reaction be experienced.

While the above risks are a concern to the study sponsor and the conducting laboratory, there are currently no viable alternatives to such human studies for determination of the performance characteristics of insect repellents. EPA requires that efficacy data collected from human studies be submitted for review in order to obtain approval for an insect repellent registration and product marketing claims. These data must substantiate the public health protection claims made on the product's labeling. Specifically, data are required to both substantiate the repellency of specific insect pests and provide the user realistic expectations of the complete protection time provided from each of those pests by the product.

In the case of this study, the test materials are EPA-registered products that have label claims of effectiveness against mosquitoes. This study will evaluate the effectiveness of these repellents against the mosquitoes that can transmit WNV. It is important to bring insect repellent products into the consumer market that are effective in repelling mosquitoes that can carry WNV because of the emerging threat of this disease.

ICR prefers to evaluate repellency based on protection from bites rather than landings while conducting laboratory studies. In addition, using confirmed bites as a measurement of repellency

is consistent with the test parameters used when these repellents were evaluated in the field. Disease transmission by laboratory raised mosquitoes that have not been exposed to any arboviruses is not possible. Therefore, there is no risk of disease transmission to any of the test subjects.

In this study efficacy is defined as the Complete Protection Time (CPT). The CPT is the time interval between the application of the repellent and the First Confirmed Bite (FCB). A bite is defined as the ingestion of blood by a mosquito while it is on a repellent-treated area of skin, as evidenced by an enlarged, blood filled abdomen of the mosquito. The FCB is a bite which is followed by another bite within the same exposure period or in the next subsequent exposure period.

According to the EPA OPPTS Guideline No. 810.3700 "Product Performance of Skin-Applied Repellents of Insect and Other Arthropods", there exists no alternative to evaluating topical repellents on human subjects; therefore, field or laboratory testing of repellents is necessary.

STUDY OVERVIEW

- ICR will recruit candidates via telephone from our database of potential study participants. An appropriate amount of contacts will be made to individuals who would be interested and who may be available for participation.

Potential study participants who are interested in learning more will have an ICD mailed to them for review at their leisure. Candidates may also visit ICR to review the ICD with the Principal Investigator. They will be instructed to contact the Principal Investigator with any ICD or study related questions.

- During the recruitment process all candidates will be properly informed of the risks of the study and study parameters via telephone communication with the Principal Investigator, the mailed ICD, and visits to the ICR facility during the informed consent process. Candidates are encouraged to schedule a time to review the ICD with the Principal Investigator in person at ICR.

- When candidates have had adequate time to review the material they will contact ICR to express interest. At this time, Candidates will either come to ICR to sign the informed consent or provide verbal confirmation they intend to sign the ICD the day of the study.

- When a sufficient number of candidates have expressed interest, and given a verbal confirmation they intend to sign the ICD either on a visit to ICR prior to the study, or on the day of the study, recruitment will stop.

- All study participants will meet at the ICR laboratory on the designated test day.

- *Those individuals who were unable to schedule a visit to ICR to discuss the ICD with the Principal Investigator will have the opportunity to review the ICD with the P.I. and sign the ICD at this time to enroll as a study subject.*
- *All females test subjects will take an OTC pregnancy test.*
- *The pregnancy tests will be read by a female ICR staff member to verify the outcome of the test and ensure that no test subject is pregnant according to the OTC test.*
- *The study parameters will be explained to everyone.*

- *Any subjects found to be ineligible for any reason or who decline to participate will be allowed to leave at this time. They will be compensated for the time used at the hourly rate.*
- *Unscented soap will be provided to each test subject.*
- *Treated and control test subjects will be identified.*
- *Treated and control subjects will wash their arms.*
- *ICR staff will measure, and establish the treatment area and untreated Control area on test subjects' arms.*
- *Treatment and control areas will be bandaged and taped.*
- *Test subjects will proceed to the insectary to be tested for attractancy to mosquitoes. When the test for attractancy is completed the test subjects will return to the laboratory for treatment.*
- *Test articles will be applied to the test subjects.*
- *All test subjects return to the insectary for repellent testing.*
- *ICR staff verifies adequate mosquito activity using the control subject.*
- *Exposure begins for the treated test subjects.*
- *Treatment exposure ends either through breakdown or end of study duration*
- *ICR staff helps subjects remove bandages, clean off repellent and treat bites.*

MATERIALS

TEST ARTICLE NOMENCLATURE

	Product Name	Specific Gravity	Application Rate	Application/250cm^2
A.	TA# 1001108-030 (A) Currently marketed EPA registered product	0.96	1.67 mg/cm^2 (EPA Reg. No. 806-29)	417.5 mg.
B.	TA# 1004024-010 (B) Currently marketed EPA registered product	0.96	1.67 mg/cm^2 (EPA Reg. No. 806-31)	417.5 mg.

A Material Safety Data Sheet (MSDS) shall be provided for each test, control, and/or reference sample, which will include any hazardous information of the samples. In addition, the EPA accepted product labels will also be provided as attachments to the Protocol (see Appendix II). The percentage of all active ingredients and any hazardous constituents must be included in all MSDSs.

A chain of custody letter must accompany all test, control, and/or reference samples.

NOTICE: Sample characterization is a key GLP (Good Laboratory Practices) requirement detailed in 40 CFR Part 160. The sponsor is solely responsible for conducting the complete test article, control sample, and any reference sample characterizations according to GLPs, and for providing ICR with this characterization data prior to the experimental start date of this study. This characterization must define the identity, strength, purity, and composition of the batch(es) or lot(s) of test articles. If any of the test, control and/or reference samples are

currently available for consumer use and/or purchased in the marketplace, ICR will need the same characterization information provided by the sponsor prior to the experimental start date of this study. If documentation of this characterization is not provided prior to the experimental start date, this will be noted as a non-compliance item in the GLP compliance statement. This sample characterization information will be retained in the ICR archives, and a statement identifying this location will be included in the final report.

According to GLP, the study sponsor shall provide the ICR Study Director with the confidential disclosure of the entire compositions of the test articles prior to the experimental start date. These insect repellent formulations use the active ingredient, Picaridin®, which was first registered by the US EPA under FIFRA on December 7, 2000. As required under FIFRA, registration of Picaridin® as an active ingredient is supported by an extensive data package that includes toxicity test data that demonstrate low acute and chronic toxicity. This active ingredient has been successfully used without significant incident by the study sponsor and other insect repellent formulators (and millions of consumers).

For currently registered products containing the same concentration of Picaridin® as the active ingredient (a.i.), in the test articles, the US EPA risk assessment assumes that each application of insect repellent products is applied to a skin surface area of 4,538 cm^2 for adults. In the proposed tests for mosquito repellent efficacy, the formulated product is applied once to adults on the test day over a surface area of only 500 cm^2 (*i.e.*, two patch areas of 250 cm^2 each). Consequently, the test subjects in this study will only be exposed over an area of approximately 11 percent of that previously reviewed and approved by EPA for products with the same active ingredient concentration. Further, the label directions of these registered products allow for up to two applications per day, while the efficacy study will employ only one. A 100-fold margin of exposure (MOE) is considered to be the target for the determination of acceptable risk from systemic exposure. The MOE is based on the No Observed Adverse Effect Level (NOAEL) for systemic effects, the concentration of active ingredient in the formulation, frequency and rate of application, skin surface area and body weight, and dermal absorption. The MOE for the test subjects in this efficacy study will substantially exceed the minimum 100-fold target and is, therefore, considered acceptable under widely recognized scientific standards.

The stability of the test, control, and/or reference samples shall be determined by the sponsor prior to the experimental start date. When relevant to the conduct of this study, the **solubility** of each test, control, and/or reference sample shall be determined prior to the experimental start date.

Methods of synthesis, fabrication, or derivation of the test, control, and/or reference samples shall be documented by the sponsor, and the location of such documentation shall be specified by the sponsor in a letter to the Study Director. The stability of test, control, and/or reference samples stored under the test site conditions shall be known for all studies.

All unused test articles will be returned to the sponsor within 30 days after the final report is sent to the sponsor. The sponsor will be responsible for all costs for the return of the samples, including any costs associated with hazardous materials shipping.

TEST ORGANISM

Two hundred (200) female *Culex quinquefasciatus*, (3-8 days of age) will be released into each test cage. These test mosquitoes will have been deprived of their normal diet of 10% sucrose twelve hours prior to their utilization in the study and will never have received a blood meal.

TEST CAGES

There will be six test cages, two subjects per cage. The aluminum test cage measures 2 x 2 x 2 feet with two sleeved entry ports on each of two opposite sides of the cage (4 entry ports/cage). The sides and top of the cage are screened. The bottom is equipped with a mirror to facilitate observations, and a hand rest is in the center of the cage.

SUBJECTS

Human subjects are required for this study because they represent the feeding target of the mosquitoes. The purpose of these repellents is to prevent mosquitoes from biting humans. There are no satisfactory substitute models for testing repellency to mosquitoes. While there has been experimental work on product repellency accomplished using mice or guinea pigs, the data did not give reliable results when compared to data gathered from human subjects.[1]

ICR, Inc., (ICR) complies with the final rule and adheres to 40 C.F.R. Part 26 Subparts K and L, when human volunteers are used.

ICR uses the following IRB:

Essex Institutional Review Board, Inc.
121 Main Street
Lebanon, NJ 08833

This IRB is accredited by PHRP (Partnership for Human Research Protection Inc.), and is currently in the process of obtaining accreditation from AAHRPP (Association for the Accreditation of Human Research Protection Programs).

Approval of all documentation for human subject testing must be obtained from EIRB, EPA, and the HSRB before such testing can occur.

ICR has developed a pool of male and female test subjects from years of conducting efficacy studies for insect repellents. The test subjects we recruit represent a diverse group including

[1] Busvine, James R. 1971, A Critical Review of the Techniques for Testing Insecticides, Commonwealth Agricultural Bureaux, England, p 233-245

professionals such as working teachers, business owners and engineers, as well as students, housewives and others.

ICR will exclude pregnant and breastfeeding women from this study due to ethical concerns. We will also exclude children under the age of 18 for the same reason. Individuals unable to read, speak, and understand English will be excluded to ensure comprehension and understanding of the ICD and test parameters. Employees or relatives of employees, of ICR, Inc., the sponsor, or other interested parties will be excluded to ensure that coercion is not an issue. Individuals sensitive to mosquito bites, insect repellents, or skin care products will be excluded to avoid placing them at risk. Although the groups of people that ICR would exclude as test subjects would certainly represent individuals that could use repellents, we feel justified for not including them for the reasons that are mentioned above.

The database of candidates that we select potential test subjects from, is as representative of potential repellent users as we are able to make it in terms of both practical and ethical considerations. Our test subjects need to be in good health to withstand the rigors of testing. We will accept individuals between the ages of 18 to 70. This age group represents a large portion of the population who through their diverse activities would both encounter mosquitoes and could have a need to use insect repellents. Since there is no risk of arthropod-borne disease, it is justified not to exclude individuals above 55, but not over 70.

ICR will select individuals from our candidate database of potential test subjects. This will be accomplished by drawing numbers that correspond to a particular candidate number in the database. We will attempt to select even numbers of male and female candidates in order to eliminate any gender bias in this test.

REMUNERATION

Study subjects will be paid $11/hour for the first 9 hours and $17.50 for each additional hour. The duration of this study is 10 hours with an additional hour of prep time (11 hours total).The total payment of $134 will paid to each test subject for the day. Payment will be mailed to the subjects on the 15th or 30th of the month.

All candidates will review and sign an Informed Consent Document prior to acceptance as study subjects. The Informed Consent Document (ICD) will be formally explained to all candidates before the study is scheduled to begin. A candidate may visit ICR to review and sign the ICD or the ICD can be mailed to the candidate for their review. If mailed, the Principal Investigator will phone the candidate to answer any questions regarding the ICD. If any candidate refuses to sign after learning the details of the document, they will not be allowed to participate in the study. After the ICD is fully described to the candidate, he or she may then sign the ICD in the presence of an ICR staff and a copy of the ICD will be made and returned to the candidate. He or she will then be notified within one week if they have been selected as a subject in the study. The Informed Consent Document will have been approved by an Institutional Review Board before it is presented to the candidates for the study.

NEGATIVE CONTROL

One untreated arm of the control subject will serve as a negative control. The control will be selected from the total pool of test subjects by drawing a name by lot. The control landing rates will serve to establish and maintain the aggressiveness of the mosquitoes at the beginning and throughout the study. No comparison will be made between the control landing rate and the treated subjects.

The control test subject will expose his/her untreated forearm in each of the test cages to confirm the aggressiveness of the mosquitoes prior to each exposure period. The acceptable level of aggressiveness will be at least 5 landings in 60 seconds. If fewer than 5 mosquitoes land in 60 seconds, a new group of 200 mosquitoes will be released into all of the cages. Mosquitoes will not be allowed to bite. ICR staff will count the landings as they occur and instruct subjects how to shake away any landed mosquitoes to prevent any landings from turning into bites.

The negative controls will not be exposed to any test material related risk.

POSITIVE CONTROLS

Sufficient biting pressure (i.e., mosquito landing rates of at least 5 landings in 60 seconds in a 250 cm^2 area on an exposed untreated control arm) will be confirmed at the commencement of the study and throughout the study at the beginning of each exposure period. A positive control is intentionally excluded from the proposed study protocol for several reasons. Data on a positive control group serves no purpose in this study to confirm the mosquito repellency of the test materials and determine a reliable protection period under laboratory conditions. Putting additional subjects at risk, however minimal, to include a positive control group is not necessary.

SUPPORT STAFF

Additional ICR staff members will support the Study Director and test subjects in their activities. These ICR staff members, along with the study director, will record all test data. Test subjects will not record any data. The study results would be difficult to defend in an EPA audit or in a court of law if a test subject records data.

MISCELLANEOUS SUPPLIES

Syringe, (minus the needle), micropipette and tips, Q-tip®s, latex or vinyl gloves, clip boards, data record forms, scissors, elastic bandages, Elastikon® tape, pencils, marking pens (e.g. Sharpie®), hygrothermograph, unscented Neutrogena® soap, paper towels and a stop watch.

RECORDS TO BE MAINTAINED

All study notes, data collection sheets (true copies), SOPs (originals), Chain of Custody letters (true copies), Sample Log and Sample Record of Use Forms (true copies), the protocol (true copy) and signed Informed Consent documents will be maintained in the ICR archives (original).

documents will be provided to the sponsor for archiving with the exception of SOPs, Master Schedules, signed Informed Consent documents, test article characterization, and personnel files.

RISK CHARACTERIZATION AND MINIMIZATION

The subjects will be exposed to four types of risk:

1. Testing environment

During the testing exposure time, subjects will sit in a room maintained at 70-85 °F and 70- 85% relative humidity, which are conditions that may be uncomfortably warm for some individuals. However, the subjects will only be exposed to this environment for 5 minutes every half hour and be able to be in other more comfortable areas during the rest of the day.

Although adverse reactions to the testing environment are not anticipated, ICR staff will visually monitor subjects for reaction to elevated temperature. If this environment proves too stressful to any subjects, he or she will be escorted to cooler areas of the laboratory and water and ice will be available to help the subject to cool down. If the subject begins to experience symptoms of heat exhaustion, he or she will be attended to by First Aid qualified staff members, and if necessary, be transported to the selected local hospital by ambulance or ICR staff. He or she will also be excluded from any further testing.

2. Test articles.

The EPA has classified the two test repellents as having low to mild toxicity based on eye irritation. The test articles, EPA Reg. No. 806-29 and 806-31 are classified as Tox. Category III and Tox. Category II, respectively, because they are mild eye irritants. The EPA has approved the use of these test articles as insect repellents based on the safety and efficacy information submitted in support of their respective registrations.

There is minimal risk for subjects to experience an adverse reaction to the insect repellents being tested. The study sponsor that developed the test materials has over 120 years of experience formulating and producing a wide variety of cosmetics with worldwide sales. This company is strongly protective of its reputation, which it knowingly stakes on every product that it puts into commerce; that is, extreme care is taken in the development and production of safe and reliable products that are intended for direct application to the skin.

These proposed insect repellents use the active ingredient, Picaridin®, which was first registered by the US EPA under FIFRA on December 7, 2000. As required under FIFRA, registration of Picaridin® as an active ingredient is supported by an extensive data package that includes toxicity test data that demonstrate low acute and chronic toxicity. This active ingredient has been successfully used without significant incident by the study sponsor and other insect repellent formulators (and millions of consumers). All of the inert ingredients used in the finished insect

repellent products have a long history of safe use in various cosmetics. The sponsor has used these ingredients safely in numerous cosmetic products applied directly to the skin.

While there is low concern for the toxicity potential for the test materials to induce an adverse reaction in the test subjects, they will be monitored throughout the study and prompt medical attention will be obtained if any adverse reaction is observed among the subjects on test. Those individuals who are known to have allergies to mosquito bites, insect repellents, or skin care products will be excluded from participation in the study.

3. Bites from target mosquitoes.

The typical reaction to a bite from a mosquito can vary from person to person. Most people will experience a small area of redness, swelling and itching that usually goes away within 24 hours. In more sensitive individuals, the area of swelling and itching can be much larger and last for several days. In extremely rare cases, a serious reaction to a bite results in swelling of the throat, hives and wheezing. This condition (anaphylaxis) could be life-threatening and requires immediate medical attention.

All subjects known to have severe reactions to mosquito bites will be excluded from this study.

All subjects will be issued latex or vinyl gloves. Only a small portion (250 $cm^{2)}$ of bare skin on each arm will be exposed. All other parts of the body will be covered with the subject's personal clothing. Immediately upon receiving a FCB on an arm, that arm will be withdrawn from the test and not be exposed to the caged mosquitoes again. Caladryl® or Calamine® lotion and rubbing alcohol will be available for use to mitigate any reaction to mosquito bites.

4. Arthropod-borne diseases

There will be no risk from arthropod-borne diseases. The mosquitoes being used in this test are commonly called the southern house mosquito, which is one of the most common species throughout the southeastern United Sates, ranging as far north as the District of Columbia, and west to Missouri, Utah, New Mexico and California. This species can carry the West Nile Virus, St. Louis encephalitis, and both Western and Venezuelan equine encephalitis.

This ICR strain of mosquito has been laboratory colonized for many years and has not been exposed to outside blood sources. None of the mosquitoes used in this test will have had a blood meal prior to their introduction into the test cages. All mosquitoes used in the study will be destroyed either through starvation, freezing or exposure to carbon dioxide after use in this study. Once a group of mosquitoes has been used in a study, it will not be re-used in another study. Therefore, transmission of a blood borne disease by these mosquitoes is not possible.

All of the above factors combined will minimize the risks from any reaction to the test materials and reaction to bites. Also the subjects will only need to receive two bites within the same 5 minute exposure period or a second bite during the subsequent 5 minute exposure period to confirm breakdown, after which the test arm will not be exposed to the mosquitoes again.

MEDICAL MANAGEMENT OF POTENTIAL RISKS

Although every precaution has been taken to minimize risks in the study, in the unlikely event an adverse event occurs ICR will be prepared to respond accordingly. In addition to the precautions taken to minimize the risks of environmental concern there will be First Aid qualified staff members on site, and First Aid supplies will be available at the test site at all times in case any unexpected adverse events occur. A selected local hospital will receive prior notification of this study and on-site staff will have cell phones to make emergency calls if necessary. In the case of medical emergency, people will be transported to the selected local hospital, St. Agnes Hospital, by either ICR staff or professional ambulance. The hospital is 7 miles from the laboratory and is located at 900 S. Caton Ave., Baltimore, MD. 21229. The telephone number is 410-368-2389. If any test subjects need medical attention, their medical care will be paid by ICR.

DISCOMFORT AND HAZARD

The primary discomforts and hazards in this study are from mosquito bites, and risk of reaction to mosquito bites or test materials as described in more detail in the risk characterization and minimization section. Throughout the course of the study, ICR staff will be visually monitoring all subjects for any signs of stress. In the event that study related injury or illness should occur after the conclusion of the study, test subjects would be instructed to seek medical attention through a health care provider, at ICR's expense. Test subjects would be instructed to submit study related bills to ICR. ICR will incur the cost of any study related bills. The principal investigator will contact all test subjects by telephone, two weeks after the conclusion of the study to enquire if they have experienced any adverse effects. Test subjects will also be instructed to phone the Principal Investigator at any time after the study if he or she believes that they have experienced an adverse effect as a result of their participation in the study.

BENEFITS

The sponsor, Avon Products, Inc. will gain the most direct benefit from the conduct of this study, which is expected to support additional marketing claims that the tested products effectively repel mosquitoes which can carry West Nile Virus, and increase potential sales.

Some benefit is also likely to result for society at large through demonstrating the effectiveness of these products in repelling a potentially important public health pest. This, in turn, will allow a greater selection of products to consumers that are effective in repelling mosquitoes that can transmit West Nile Virus.

BALANCE OF RISKS AND BENEFITS

The primary risks associated with participation in this study are reaction to the insect repellent products being tested and skin irritation and/or reaction to mosquito bites. The Sponsor and ICR believe these risks to be appropriately minimized through the use of repellent products having minimal potential for reacting with the skin and having OTC lotions/creams and rubbing alcohol to lessen the reaction to mosquito bites. Certain eligibility factors are in place to exclude individuals from participating in the study if they are sensitive to cosmetic products and

mosquito bites. The benefits of this study will be to provide data on the efficacy of two Picaridin insect repellent products as repellents for mosquitoes that may carry WNV. The data from this study will be used to support additional label claims of repellency against mosquitoes that may carry WNV on these existing Picaridin products providing a greater selection of insect repellent products into the consumer markets that are capable of repelling mosquitoes that may transmit West Nile Virus.

These risks mentioned above are balanced with the expectation that the results of this study will provide a greater selection of insect repellent products capable of repelling mosquitoes that can carry West Nile Virus to consumers who may live, work, and/or participate in recreational activities in mosquito populated areas.

TEST SUBJECTS

Inclusion Criteria:

Sex:	No exclusion
Age:	18 to 70
Race:	No exclusions
Literacy:	Must be able to read, speak, and understand English
Health:	Must consider yourself to be in good health Test subjects must be attractive to mosquitoes, as evidenced by at least 5 landings of caged mosquitoes on an untreated forearm within one minute.

Exclusion Criteria:

1. Test subjects can not participate if they are pregnant or breastfeeding.
2. Test subjects can not be an employee or a relative of an employee of ICR Inc., the sponsor, toXcel, LLC, or any interested party.
3. Test subjects must not be sensitive to mosquito bites.
4. Test subjects must have no known sensitivity to insect repellents or skin care products.

If an individual elects to participate in the study, he or she must agree to the following:

1. To follow the directions of the Principal Investigator and other ICR staff.
2. To abstain from the use of tobacco, alcohol, and all scented cosmetic products after 8 p.m. the night before the study, and on the day of the study until it is concluded.
3. To wear proper protective clothing such as blue jeans, heavy socks, long sleeve shirt, and gloves (gloves provided by ICR).

Number of Subjects and Rationale for Sample Size
The EPA Guideline (EPA/OPPTS Guideline 810.3700) recommends at least six test subjects be used. Because of the cost of performing repellent studies, it is prudent to ensure data collected

will give a good representation of the repellency of the test formulations. In a published paper[2] the number of subjects required to achieve estimated among-subjects standard deviation for specific times of 0.5 hours to 2.0 hours was calculated for complete protection times from 1 hour to 8 hours. The number of subjects required to achieve an estimated among-subjects standard deviation of 2.0 hours at a 95% confidence level for an 8 hour complete protection time was calculated to be between 10 and 11 subjects. This study, therefore, will use twelve treated test subjects. There will be an additional control subject, plus two additional treated test subjects to replace anyone that either drops out or is ineligible to participate due to a positive pregnancy test or other unforeseen circumstances. These additional two treated test subjects will help to ensure a minimum "n" of ten and will aid in protecting the privacy of any subject who drops out.

Test Subject Recruitment

ICR has been conducting repellent studies for over twenty years. During this time ICR has amassed a large list of potential study participants. These individuals also refer friends and colleagues to us. When a repellent study date has been established, ICR will contact individuals in our data base by telephone and briefly discuss the study, the date of the study, and facility.

ICR uses the following initial telephone script to recruit test subjects:

"ICR will be conducting a repellent project on these dates, (Month, Day(s), and Year); at (exact study site) would you be available to participate in this study?"

If the candidate is available, the inclusion/exclusion criteria will be discussed in detail and verified whether the candidate would qualify to participate. The ICD will also be discussed with the candidate at this time. In addition, ICR will mail a copy of the ICD to each interested candidate for their review. He or she will be instructed to contact the P.I. to verify receipt of the ICD and to ask any ICD or study related questions they may have.

The P.I. will contact all interested persons by phone several days after receipt of the ICD to fully explain the ICD with them. We will discuss every line of the ICD with them. All contacted individuals will be offered the opportunity to come to ICR to go through the consent process in person by reviewing the ICD with the P.I.. During the recruitment process all candidates will be properly informed of the risks of the study and study parameters via telephone communication with the Principal Investigator, the mailed ICD, and visits to the ICR facility during the informed consent process. Candidates are encouraged to schedule a time to review the ICD with the Principal Investigator in person at ICR. When candidates have had adequate time to review the material they will contact ICR to express interest. At this time, Candidates will either come to ICR to sign the informed consent or provide verbal confirmation they intend to sign the ICD the day of the study. When a sufficient number of candidates have expressed interest, and given verbal confirmation they intend to sign the ICD either on a visit to ICR prior to the study, or on the day of the study, recruitment will stop. All contacted individuals will be encouraged to visit ICR to meet individually with the P.I. to review the ICD; however, if anyone is unable to visit

[2] L.C. Rutledge and R. K. Gupta, 1999, Variation in The Protection Periods of Repellents on Individual Human Subjects: An Analytical Review, Journal of the American Mosquito Control Association, 15(3):348-355

our office prior to the study date, they must subsequently sign the ICD on the morning of the study day at the ICR laboratory if they still wish to participate in the study.

In the event that an interested study participant declines to sign an informed consent document, they will not be permitted to participate in the study.

There is no coercion for any individual to participate. The inclusion/exclusion criteria are clear, as well as the methods of compensation. Potential study participants are informed of the conditions and risks they will likely encounter and what is expected of them. Each consenting test subject will be informed that they may drop out of the study at any time. Further, they may leave as soon as practical after early withdrawal from the test.

METHODS

Experimental Design
This is a subject-blinded study. The delineated areas on the arms of subjects will be treated and used as test areas. Only arms are being treated in this study, since arms are quite easy to monitor for mosquito activity. Therefore there will be twelve test arms for each treatment. Each test subject will have one arm treated with one of the two test materials and the other arm will be treated with the other test material.

Test location:
This test will be conducted in the insectary at ICR. The insectary is maintained at 70% RH ± 15% RH and 70° F ± 15°F.

Dose
The standard application rate of 1.67 mg/cm^2 will be used for this study to remain consistent with the field studies that support the registration of these products. This is the dose for these product forms as recommended in the EPA guidelines for mosquito efficacy testing and the dose that was used during the field efficacy studies that were conducted on these two EPA registered products.

Blinding of the Study
The test articles will be coded as "A" and "B". During the test these codes will be the only test article designation referred to or that the test subjects will see. The Study Director and members of the ICR staff will know the actual test articles, but will refrain from such identifications in the presence of test subjects.

Treatment Groups
There will be two groups: a treated group of twelve subjects (inclusive of two more than required to allow for subject withdrawal from the study) whose arms will be treated, and one untreated (control) test subject whose arms will be untreated. Subjects will be given a subject number. They will be assigned to the groups by lottery selection of the subject number.

Personnel preparation
All interested test participants will review and sign the Informed Consent Document prior to acceptance as a test subject.

Females will be required to perform an over the counter pregnancy test that will be supplied by ICR. They will do this the morning of the test. The results will be verified by a female ICR staff member. They may not participate if they are pregnant or breastfeeding. The results of this pregnancy test will be kept confidential and will not be disclosed to anyone other than the test subject and the P. I.

All test subjects will wash their arms with unscented Neutrogena® soap. The test subject's arms will then be measured in the following manner for the demarcation of the 250 cm^2test area:

The subject's elbow will be placed on a flat rigid surface with the forearm held perpendicular to that surface. A mark will be made on the upper forearm 3" from the flat surface. A second mark will be made on the lower forearm at a point just below the wrist bone. The circumference of the arm will be measured at each of these points. The average of the two circumferences will be calculated. This represents the approximate circumference at the center point between the two marks. A third mark will be made at the center point between the two marks. The average circumference will be divided into 250cm^2, the total exposed surface area required for the test. This will yield the length of arm required to be exposed. The end points of this length of exposure area will be marked on the forearm so that each end point is equidistant from the center point. The endpoint measurements from the center point will be recorded so that they may be duplicated in the laboratory. The distance from the tip of the little finger to the center point will be measured and also recorded so that the center point may be duplicated at another time.

The above mentioned measurements will be recorded on an arm measurement form. If a test subject has been previously measured, the existing measurements will be used.

The test subjects and the control subject will have 250 cm^2 areas delineated around their forearms and these arms will be prepared for treatment. The skin above and below the target area will be protected with elastic bandages and or Velcro® straps held in place with Elastikon® tape. Arms will be protected by shirt sleeves. Latex or vinyl gloves will be given to the subjects to protect their hands. The control test subject will then be selected by lot by drawing a subject's code number.

Determination of Attractancy to Mosquitoes
Test subjects will then be taken to the insectary. They will then place their right forearm into a test cage and the number of mosquitoes landing on their arms will be counted. The required landings will be at least 5 mosquitoes in 60 seconds to qualify a subject as being attractive to the mosquitoes. Volunteers will repeat the qualifying exposure as above using the left arm. The procedure will be repeated if the subject fails to qualify. If a subject again fails to qualify after repeated exposure, that subject may be replaced.

After qualification the test subjects will return to the laboratory for the application of the test repellent.

Treatment Application
The repellents will be coded as "A" or "B", and each arm will be labeled on the protective wrap with the code corresponding to the repellent applied. Each test subject will be treated on the right arm with repellent "A" and on their left arm with repellent "B".

The test articles will be applied to the test subjects using a syringe (minus needle). The amount of test article applied will be the standard dose of 1.67 mg/cm^2. The hands will be protected with gloves. The control subject will receive no treatment.

The test articles will be shaken thoroughly to ensure that they are adequately mixed. Each aerosol can will be dispensed into a dedicated labeled glass jar, from which the materials will be applied. A syringe minus the needle will be inserted into the labeled jar and the appropriate amount of material will be drawn into the syringe. The material will be evenly applied to each test subject's treatment area. This will be accomplished by pushing the needle plunger evenly over the treatment area while another ICR staff spreads the material over the skin to ensure even and complete coverage of the entire treatment area of the arm.

Subjects will be treated in pairs. Both members of a pair will be treated with one test article and then they will be treated with the other test sample. The time of treatment will be the time when the application of the second test article begins. This time will represent the starting time used for calculation of the complete protection times afforded by the test articles.

Testing
The aggressiveness of the caged mosquitoes during the test day will be determined from the landing rate on the control's arm before each test exposure. Once the landing rate has been confirmed (5 landings in 60 seconds) the counts will cease. The landing rate verification will be conducted before each exposure of the treated test subjects. If fewer than the required number of mosquitoes land in 60 seconds, an additional group of 200 mosquitoes will be released into all of the cages.

The study director or technician will assist the test subjects in inserting their arms into the test cages, taking care not to rub them on the cloth sleeve. The test subjects will expose their treated forearms to the mosquitoes in these test cages for 5 minutes. The subjects will then remove their arms from the cages with assistance from an ICR staff member. Exposures to the mosquitoes will be repeated every 30 minutes until the formulation on any given forearm is determined to be no longer effective or until 10 hours have elapsed, whichever occurs first.

The test data to be recorded will be bites (blood is ingested, as evidenced by abdominal swelling and color change). Test data will be recorded on a Repellency Test Data Sheet.

Criteria for Test End Point
Efficacy will be evaluated by intermittent exposure of the test subjects' arms. The treated test subjects will expose their treated arms to the caged mosquitoes for 5 minutes at approximately 30 minute intervals. The test subjects will expose treated arms until the FCB (when two bites occur on the same arm in the same exposure period, or one bite occurs in each of two consecutive exposure periods, the first bite being the confirmed bite) or until 10 hours have

elapsed, whichever occurs first. For the purposes of this test, a bite is defined as a mosquito penetrating the skin with its proboscis and taking sufficient blood to cause its abdomen to swell. When the two bites have occurred as noted above, the test will terminate on that arm. This study will use bites as the test end point to remain consistent with the field studies that support the registration of these products.

When the testing is terminated for an arm, test subjects will roll down their sleeves to cover the exposed area on such discontinued arms. The test will be terminated on a treated arm when a bite is followed by one additional bite (the initial bite and one confirming bite). If the bites do not occur within the specified time, the number of bites required will begin anew.

Once a confirmed bite occurs, the test subjects will stop exposing that arm to mosquitoes. They will then be able to remove the bandages and tape, scratch and wash that arm. If desired rubbing alcohol will be provided and may be used to help stop the itching from the bites they may have received. Caladryl® or Calamine® lotion will also be available for use.

CONFIDENTIALITY

The information obtained from test subjects taking part in this test may be used by ICR and its sponsor and may become part of a report. This report will be kept as confidential as possible under local, state and federal law. The test subjects' first and last initial and their dedicated identity number only may be referenced. However, we cannot guarantee that their identity will be kept confidential; the sponsor, personnel associated with the study, a regulatory agency such as the Environmental Protection Agency (EPA), and the Essex Institutional Review Board (EIRB) all have a right to review your records.

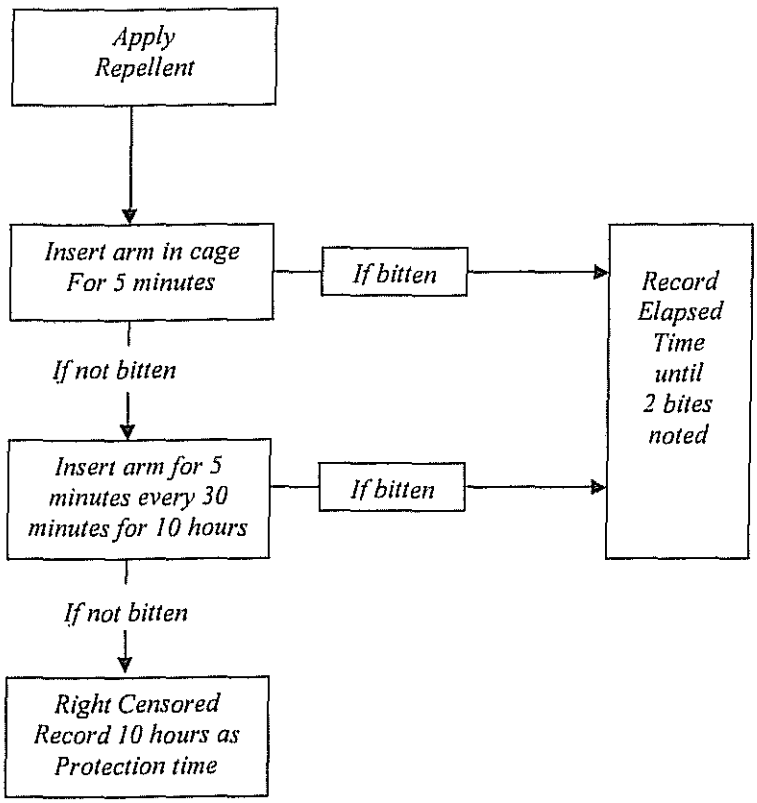
DATA ANALYSIS

Goals

The purpose of this study is to fulfill the Agency's requirement of a confirmatory laboratory efficacy study on a West Nile Virus vector species. ICR will conduct this study to assess repellency of the test articles against *Culex quinquefasciatus* mosquitoes. The repellent will be considered degraded if either of these two conditions is met: a) two mosquito bites are noticed in a single 5 minute observation period; or, b) a single bite in two adjacent observation periods is noted. The goal of the study is to provide an estimated length of protection time that a specific repellent provides.

Methodology

Individuals will have repellent applied to a specific area of their forearms. Then, their arms will be exposed to live mosquitoes for five minutes. If two bites are noted in this time period, this case will be considered a "bite". If no bites are noted, the arm will be removed from the cage and re-exposed 30 minutes later for another 5 minutes. This process will continue either until two bites are noted or 10 hours have elapsed. The methodology is graphically presented below:



Subjects will be assessed for product efficacy every 30 minutes over the 10 hour study interval. Thus for each complete subject, there will be 20 assessments of protection efficacy (2 assessments per hour X 10 hours).

Statistical Procedures:

Power. Based on a meta-analysis of studies of this type, Rutledge and Gupta (1999) provide power tables for determining the number of subjects needed to determine protection times up to 8 hours with varying confidence limits and two-tail levels of significance. Using information from their Table 4 (a portion of which is reproduced below), 11 subjects would be necessary in order to have a 95 % confidence interval for assessing protection up to 8 hours with a ± 2 hour confidence limit. *In order to maintain this level of precision in estimating protections times, this study will employ 12 test subjects.*

Analyses. Data will be analyzed using SPSS statistical software, v. 16. The Kaplan-Meier (KM) product-limit technique will be used to describe and analyze the length of time to product degradation. KM allows for the presence of right censored data and provides survival proportions as well as mean survival times with corresponding confidence intervals. Because the KM is nonparametric in nature (i.e., it relies on proportions for plotting its results), having a normal distribution for survival times is not essential. From the KM analysis we will take the mean and median survival times along with their 95% confidence intervals (where appropriate) as the final

result of this study. In no instance, however, will the final conclusion of protection time exceed 8 hours, ± 2 hours.

In the event that *all* subjects right censor (i.e., last the entire 10 hours without any bites), we will conclude, with 95% confidence, that the product can provide protection for up to 8 hours, ± 2 hours.

In the event that *2 or more* subjects drop out during the study, final estimates of protection time will be made that are consistent with the power parameters stated above. For example, assume that 3 people terminate during the study, bringing the final sample size to 9. According to Rutledge and Gupta (see below), this study would then have sufficient power to detect, with 95% confidence, protection times up to *7 hours* with a ± 2 hour confidence limit. If our observed survival time is 8.50 hours, then the final conclusion for protection time will be consistent with this level of confidence (e.g., conclude a 7 hour protection time with a ± 2 hour confidence limit). However, if the observed protection time is *less than* 7 hours, then we will use the actual mean and confidence interval estimates provided by the KM analysis as the final results.

Table 1
Abridged Table 4 from Rutledge and Gupta (1999): Numbers of subjects needed to determine protection periods of 1 – 8 hours with confidence limits of ±1 – 2 hours at the 95% level of confidence.

Protection Period hours	**D = 1.0 h**	**D = 1.5 h**	**D = 2.0 h**
1	3	1	1
2	5	3	2
3	9	4	3
4	13	6	4
5	19	9	5
6	25	11	7
7	33	15	9
8	41	19	11

The following pages will provide an overview of these analyses for two sets of sample data.

Example 1
The first data set, presented in Table 2, contains 12 individuals with no drop-outs and 6 subjects lasting the entire 10 hour trial.

Table 2
First hypothetical data set containing 12 subjects, no drop-outs and 6 subjects right censoring.

Time	# at risk	# censored	At risk At end	#bitten	Prop Survive	Cum Prop
4.5	12	0	12	1	.92	.92
5.0	11	0	11	1	.91	.84
5.5	10	0	10	0	1.0	.84
6.0	10	0	10	0	1.0	.84
6.5	10	0	10	2	.80	.67
7.0	8	0	8	0	1.0	.67
7.5	8	0	8	2	.75	.50
8.0	6	0	6	0	1.0	.50
8.5	6	0	6	0	1.0	.50
9.0	6	0	6	0	1.0	.50
9.5	6	0	6	0	1.0	.50
10.0	6	6	6	0	1.0	.50

The information presented in Table 2 contains a descriptive analysis of the data set. The last 2 columns provide "survival" rates for the subjects over time. These rates are based on the number of individuals who are "at risk" (i.e., are still involved in the study and are exposed to the mosquitoes) at each assessment interval. As can be seen, overall, individuals had a 50% probability of surviving the entire 10 hour interval. Submitting these data to the Kaplan-Meier (K-M) analysis using SPSS provides the following output:

Case Processing Summary

Total N	N of Events	Censored N	Censored Percent
12	6	6	50.0%

This table indicates that there were 12 subjects, and that 6 bites were observed over the course of the 10 hour study. The following table breaks down the observations over each trial.

Survival Table

	Time	Status	Cumulative Proportion Surviving at the Time		N of Cumulative Events	N of Remaining Cases
			Estimate	Std. Error		
1	4.500	1.00	.917	.080	1	11
2	5.000	1.00	.833	.108	2	10
3	6.500	1.00	.	.	3	9
4	6.500	1.00	.667	.136	4	8
5	7.500	1.00	.	.	5	7
6	7.500	1.00	.500	.144	6	6
7	10.000	.00	.	.	6	5
8	10.000	.00	.	.	6	4
9	10.000	.00	.	.	6	3
10	10.000	.00	.	.	6	2
11	10.000	.00	.	.	6	1
12	10.000	.00	.	.	6	0

This table mirrors information presented in Table 2 above. The final table provides estimates for the mean protection time for the product.

Means and Medians for Survival Time

	Mean[a]				Median			
		95% Confidence Interval				95% Confidence Interval	
Estimate	Std. Error	Lower Bound	Upper Bound	Estimate	Std. Error	Lower Bound	Upper Bound
8.125	.590	6.969	9.281	7.500	.	.	.

a. Estimation is limited to the largest survival time if it is censored. If more than 50% of the subjects right censor there will be no median to calculate.

As can be seen, the average protection time was 8.125 hours with a 95% confidence interval of between 6.97 and 9.28 hours.

Given the power estimates for this study presented above, *OUR FINAL CONCLUSION FROM THESE DATA WOULD BE THAT THE PRODUCT WAS ABLE TO PROVIDE PROTECTION, ON AVERAGE, FOR 8 HOURS, WITH A 95% CONFIDENCE INTERVAL OF 7 TO 9 HOURS.*

Example 2

The second set of data is presented in Table 3 and contains a set of 12 individuals with three subjects dropping out and two subjects right censoring. These data are presented in Table 3 below.

Table 3
Hypothetical data set containing 12 subjects with 3 dropping out and 2 right censoring.

Time	# at risk	# censored	At risk At end	#bitten	Prop Survive	Cum Prop
4.5	12	0	12	1	.92	.92
5.0	11	0	11	1	.91	.84
5.5	10	0	10	0	1.0	.84
6.0	10	0	10	0	1.0	.84
6.5	10	0	10	2	.80	.67
7.0	8	0	8	0	1.0	.67
7.5	8	0	8	2	.75	.50
8.0	6	0	6	0	1.0	.50
8.5	6	1	5	0	1.0	.50
9.0	5	1	4	0	1.0	.50
9.5	4	1	3	1	.67	.34
10.0	2	2	2	0	1.0	.34

Again, the information presented contains a descriptive analysis of the data set. The last 2 columns provide "survival" rates for the subjects over time. These rates are based on the number of individuals who are "at risk" (i.e., are still involved in the study and are exposed to the mosquitoes) at each assessment interval. As can be seen, overall, individuals had a 34% probability of surviving the entire 10 hour interval. Submitting these data to the Kaplan-Meier (K-M) analysis using SPSS provides the following output:

Case Processing Summary

Total N	N of Events	Censored N	Censored Percent
12	7	5	41.7%

From this table, it indicates that 7 bites were noted for the sample. Five subjects were censored, as shown in Table 3, three of these subjects dropped out of the study and the other two right censored. The following table describes the data:

Survival Table

	Time	Status	Cumulative Proportion Surviving at the Time		N of Cumulative Events	N of Remaining Cases
			Estimate	Std. Error		
1	4.500	1.00	.917	.080	1	11
2	5.000	1.00	.833	.108	2	10
3	6.500	1.00	.	.	3	9
4	6.500	1.00	.667	.136	4	8
5	7.500	1.00	.	.	5	7
6	7.500	1.00	.500	.144	6	6
7	8.500	.00	.	.	6	5
8	9.000	.00	.	.	6	4
9	9.500	1.00	.375	.153	7	3
10	9.500	.00	.	.	7	2
11	10.000	.00	.	.	7	1
12	10.000	.00	.	.	7	0

Again, this table mirrors information presented in Table 3. The final table provides information on mean protection time for this sample:

Means and Medians for Survival Time

Mean[a]				Median			
		95% Confidence Interval				95% Confidence Interval	
Estimate	Std. Error	Lower Bound	Upper Bound	Estimate	Std. Error	Lower Bound	Upper Bound
8.062	.576	6.934	9.191	7.500	1.485	4.590	10.410

a. Estimation is limited to the largest survival time if it is censored.

As can be seen, the product provided protection for an average of 8.06 hours, with a 95% confidence interval between 6.93 and 9.19 hours.

However, it should be noted that 3 subjects did drop out, reducing the entire sample size to 9 subjects. Given the power table values presented above, a sample of this size is not able to make inferences of product durability of 8 hours. Rather, a sample of 9 subjects can provide a 95% confidence estimate for a seven hour duration. As such, *OUR CONCLUSION FROM THESE DATA WOULD BE THAT WE ARE 95% CONFIDENT IN THIS PRODUCT'S ABILITY TO PROVIDE PROTECTION FOR 7 HOURS, WITH A 95% CONFIDENT INTERVAL OF ± 2 HOURS.*

It should be pointed out that in all instances, final conclusions regarding duration of protection time provided by the product will be consistent with the power guidelines established by Rutledge and Gupta (1999) which afford 95% confidence intervals for up to 8 hours with a 2 hour confidence limit. As noted in the above two examples, this final conclusion may be *less than* the actual protection time observed in the sample, depending upon the *actual number of subjects* who complete the 10 hour study. Doing this will enable a more *conservative approach* to estimating actual protection time. Overall, as noted previously, the Kaplan-Meier analysis will derive the mean and median survival times along with their 95% confidence intervals to determine the results of the study. If the complete protection time is observed to be greater than 7 hours, the analysis of power per Rutledge and Gupta in the above examples will be applied to derive a more conservative estimate.

QAU AND DATA ARCHIVING

Good Laboratory Practices, as outlined in 40 CFR §160 will be followed throughout the study. The QAU representative will observe and write phase report(s) for this study. All data will be archived.

SCHEDULE OF EVENTS

DATE	PROCEDURE
Time Zero	Test Conducted
At End of Test	Verbal Report
After The Laboratory Test Conduct	Written Report
After Final Report Has Been Issued	Samples Returned

STATEMENT OF AMENDMENT OR DEVIATION

Any amendments to this protocol must be discussed with and approved by the Sponsor. Any amendments to, or deviations from, this protocol will be documented in the final report.

Robin G. Todd 2/19/08
Director, ICR, Inc. Date

[signature] 12/14/08
QAU Representative Date

[signature] 2-14-08
Study Director Date

Chris Bath TRUE COPY 12/12/08
Sponsor's Representative Date
STAMPED IN RED WHEN

KAB 4/4/08
INITIALS DATE
PAGE 0035 OF 0098

References Cited

[1] Busvine, James R. 1971, A Critical Review of the Techniques for Testing Insecticides, Commonwealth Agricultural, Bureaux, England, p 233-245

[2] L.C. Rutledge and R. K. Gupta, 1999, Variation in The Protection Periods of Repellents on Individual Human Subjects: An Analytical Review, Journal of the American Mosquito Control Association, 15(3):348-355

APPENDIX I: DATA COLLECTION SHEETS

PRE- TEST LANDING RATE DATA COLLECTION SHEET

DATE:_____
STUDY DIRECTOR: Nick C. Spero
STUDY ASSOCIATES: T. Foard W. Gaynor R. Kilbourn G. Stevens F. Zgirdou

Species: *Culex quinquefasciatus*

SUBJECT Int/#	TIME REQUIRED FOR 5 LANDINGS	
	RIGHT	LEFT

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WHEN
STAMPED IN RED

KAB 4/4/08
INITIALS DATE

Raw Data Collection Sheet

Sponsor: 059 Date: Start Time:
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./#		SUBJ int./#		CONTROL INITIALS:_____	
					LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						
Fail time						

Signatures of Study Associates Recording data on this sheet/date: _____

Study Director's Signature/Date _____

Test Subject's Initials/Date

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INITIALS 4/4/08 DATE

PAGE 0039 OF 0094

Repellent Measurements–Arm

SUBJECT INT/#:

DATE:

LEFT ARM

LOWER ARM = _____ cm.

AVG = _____ cm. $\frac{250\text{ cm}}{2}$ = _____ = _____ cm

UPPER ARM = _____ cm.

CENTER POINT = DISTANCE FROM LARGE TO SMALL CIRCUMFERENCE $\frac{\text{_____ cm.}}{2}$ = _____ cm.

DISTANCE FROM CENTER POINT TO TIP OF LITTLE FINGER _____ cm.

DISTANCE FROM EITHER SIDE OF CENTER POINT _____ cm.

RIGHT ARM

LOWER ARM = _____ cm.

AVG = _____ cm. $\frac{250\text{ cm.}}{2}$ = _____ = _____ cm.

UPPER ARM = _____ cm.

CENTER POINT = DISTANCE FROM LARGE TO *SMALL CIRCUMFERENCE* $\frac{\text{_____ cm.}}{2}$ = _____ cm.

DISTANCE FROM CENTER POINT TO TIP OF LITTLE FINGER _____ cm.

DISTANCE FROM EITHER SIDE OF CENTER POINT _____ cm.

DATA TRANSFER VERIFIED BY: _____ DATE: _____

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INITIALS 4/4/08 DATE

PAGE 0040 OF 0095

APPENDIX II: PRODUCT LABELS

[Bracketed and parenthetical text is additional product information, which may or may not appear on final product label]

FRONT OF CONTAINER:

AVON
SKIN-SO-SOFT
S
S
S
BUG GUARD PLUS
PICARIDIN
INSECT REPELLENT

[ALTERNATE BRAND NAME #1:]
AVON
SKIN-SO-SOFT
S
S
S
PICARIDIN
INSECT REPELLENT

[ALTERNATE BRAND NAME#2:]
AVON
BUG GUARD PLUS
PICARIDIN
INSECT REPELLENT

[Strong repellency against mosquitoes, deer ticks, black flies, gnats, no-seeums, sand flies and biting midges]
[Strong and long-lasting repellency against mosquitoes up to 6 hours and deer ticks up to 7 hours]
[Strong repellency against mosquitoes and deer ticks]
[Repels mosquitoes up to 6 hours and deer ticks up to 7 hours]
[Repels mosquitoes up to 6 hours]
[Repels deer ticks up to 7 hours]
[Repels deer ticks that may (carry) (transmit) Lyme Disease up to 7 hours]
[Repels deer ticks that may (carry) (transmit) Lyme Disease]

[OUTDOOR COOL™ SCENT]

[with vitamin E]

KEEP OUT OF REACH OF CHILDREN
CAUTION
See back panel for additional precautionary statements

A TRUE COPY WHEN STAMPED IN RED
YAB INITIALS 4/4/08 DATE

ACTIVE INGREDIENT:	
Picaridin[*]	10.0%
OTHER INGREDIENTS:	90.0%
TOTAL:	100.0%

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[*Bayrepel™]

4 OZ. (113.4 g) [6 OZ. (170.1g)] [2 OZ. (56.7g)]

[Bracketed and parenthetical text is additional product information, which may or may not appear on final product label]

BACK OF CONTAINER:

REPELLENCY – [Avon's exclusive formula (with Picaridin) (with Bayrepel™) repels mosquitoes up to 6 hours and deer ticks up to 7 hours.] [Patented technology that] Provides strong [and dependable] repellency against mosquitoes, deer ticks, black flies, gnats, no-seeums, sand flies and biting midges.

SUITABLE FOR THE ENTIRE FAMILY – [Pleasantly scented.] [Non-oily spray.] [Light feel.] [Non-greasy spray.] [Pleasantly scented, (non-oily) (non-greasy) (light feeling) spray.] Provides the whole family with an effective broad-spectrum outdoor (bug) (insect) repellent. [Contains Vitamin E.]

DIRECTIONS FOR USE: It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read and follow all directions and precautions on this product label. Hold container 6 to 8 inches from skin and spray with a slow sweeping motion liberally and evenly. Do not spray in enclosed areas. Do not apply under clothing, on cuts, wounds, freshly shaved, excessively sunburned or irritated skin. TO APPLY TO FACE: Spray palm of hand and rub on, avoiding the eye and lip area. Use sparingly around ears. Use just enough repellent to cover exposed skin. Avoid over application of product. Do not allow children to handle this product. When applying to children, apply to your own hands and then put it on the child. Do not apply directly to children's hands. FOR CONTINUED PROTECTION from deer ticks, gnats, no-seeums, sand flies and biting midges reapply after 7 hours; for mosquitoes reapply after 6 hours; for black flies reapply after 3 hours. Do not exceed 2 applications per day.

STORAGE: Store in cool, dry place away from heat or flame.
DISPOSAL: Do Not Puncture or Incinerate! **If empty:** Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency for disposal instructions.

PRECAUTIONARY STATEMENTS: Hazards to Humans. Caution: Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes and do not spray on face. Wash thoroughly with soap and water after handling, returning indoors, and before eating, drinking, chewing gum, or using tobacco. Wash treated clothing before wearing again. Discontinue use and consult a doctor if irritation or rash occurs.

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to by a poison control center or doctor. • Do not give anything to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-FOR-AVON for emergency medical treatment information.

PHYSICAL HAZARDS - FLAMMABLE: Contents under pressure. Keep away from heat, sparks and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting. Keep treated surface away from fire or flame until dry. [Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal.]

[Bracketed and parenthetical text is additional product information, which may or may not appear on final product label]

BACK OF CONTAINER- continued:

[Will not harm most plastics or synthetic fabrics.]
[May damage painted or varnished surfaces(, including nail polish).]

To order, see an Avon Representative, or call 1-800-FOR-AVON. www.avon.com
[Not for sale or use after expiration date.]
[Bayrepel™ is a trademark of (Bayer Corporation) (Lanxess)]
EPA Reg. No. 806-29 EPA Est. No. [013891-IN-001] [054487-GA-001] [33590-MA-003]
AVON PRODUCTS, INC., DISTR.
1251 AVE. OF THE AMERICAS, NY, NY 10020

[U.S. Patent Nos. 6,719,959, 6,969,521 and 7,150,878]

Bottom of Container:
Julian Day Lot Code Number
Exp. Month/ Y

FRONT OF CONTAINER:

AVON
SKIN-SO-SOFT
S
S
S
BUG GUARD PLUS
PICARIDIN
INSECT REPELLENT SPRAY

[ALTERNATE BRAND NAME #1:]
AVON
SKIN-SO-SOFT
S
S
S
PICARIDIN
INSECT REPELLENT SPRAY

[ALTERNATE BRAND NAME#2:]
AVON
BUG GUARD PLUS
PICARIDIN
INSECT REPELLENT SPRAY

[ALTERNATE BRAND NAME#3:]
AVON
SKIN-SO-SOFT
S
S
S
BUG GUARD PLUS
PICARIDIN
DEER TICK REPELLENT SPRAY

KEEP OUT OF REACH OF CHILDREN
WARNING
See back panel for additional precautionary statements

ACTIVE INGREDIENT:	
Picaridin	10.0%
OTHER INGREDIENTS:	90.0%
TOTAL:	100.0%

0.85 FL. OZ. (25 ml) through 16 FL OZ. (473.1 ml)

[Text within brackets is optional and may appear on the back of container label]

BACK OF CONTAINER:

DIRECTIONS FOR USE: It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read and follow all directions and precautions on this product label. Hold container 6 to 8 inches from skin and spray with a slow sweeping motion liberally and evenly. Do not spray in enclosed areas. Do not apply under clothing, on cuts, wounds, freshly shaved, excessively sunburned or irritated skin. TO APPLY TO FACE: Spray palm of hand and rub on, avoiding the eye and lip area. Use sparingly around ears. Use just enough repellent to cover exposed skin. Avoid over application of product. Do not allow children to handle this product. When applying to children, apply to your own hands and then put it on the child. Do not apply directly to children's hands. [FOR CONTINUED PROTECTION from deer ticks reapply after 12 hours, and for mosquitoes reapply after 8 hours, and for gnats, no-seeums, sand flies and biting midges reapply after 6 hours.] [FOR CONTINUED PROTECTION from deer ticks reapply after 12 hours.] Do not exceed 2 applications per day.

STORAGE: Store in cool, dry place away from heat or flame.
DISPOSAL: **If empty:** Do not reuse this container. Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency for disposal instructions. Never place any unused product down any indoor or outdoor drain.

PRECAUTIONARY STATEMENTS: Hazards to Humans. Warning: Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes. Wash thoroughly with soap and water after handling, returning indoors, and before eating, drinking, chewing gum, or using tobacco. Wash treated clothing before wearing again. Discontinue use and consult a doctor if irritation or rash occurs.

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to by a poison control center or doctor. • Do not give anything to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-FOR-AVON for emergency medical treatment information.	

PHYSICAL HAZARDS - Flammable. Keep away from heat and open flame.

To order, see an Avon Representative, or call 1-800-FOR-AVON. www.avon.com
[Not for sale or use after expiration date.]
EPA Reg. No. 806-31 EPA Est. No. 806-OH-001
AVON PRODUCTS, INC., DISTR.
1251 AVE. OF THE AMERICAS, NY, NY 10020

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INITIALS 4/4/08 DATE

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Bottom of Container:

Julian Day Lot Code Number
Exp. Month/ Year

[Note to reviewer: The following statements, including those within brackets, are optional AND may appear on the product label AND / OR in marketing collateral materials AND the use of punctuation marks for each statement is optional]

Contains Vitamin E

With Vitamin E

Vitamin E

Contains Aloe

With Aloe

Aloe

Contains Vitamin E & Aloe

[Contains] Bayrepel®

Bayrepel® is a registered trademark of Lanxess

U.S. Patent Nos. 6,719,959 and 7,150,878

Gentle Breeze™ Scent

Gentle Breeze™

Pleasantly scented

Easy to apply

Sprays at any angle

Light feeling spray

Non-oily

Not oily

Non-greasy

Not greasy

Light feel

Quick drying

Fast drying

Will not harm most plastics or synthetic fabrics

May damage painted or varnished surfaces, including nail polish

For active [family] lifestyles

All day protection against mosquitoes

All day protection against deer ticks

All day protection against mosquitoes and deer ticks

Suitable for the [entire] [whole] family

Provides the whole family with an effective [broad-spectrum] outdoor insect repellent

Protection for the [entire] [whole] family

Strong protection for the [entire] [whole] family

[Strong] [Dependable] Protection

Effective, dependable protection

Provides strong and dependable [protection] [repellency]

[Repellency –] Avon's exclusive formula [with Picaridin] provides strong and dependable [repellency] [protection] against deer ticks, mosquitoes, gnats, no-seeums, sand flies and biting midges

[Repellency -] Patented technology that provides strong and dependable [repellency] [protection] against deer ticks, mosquitoes, gnats, no-seeums, sand flies and biting midges

[Repellency –] Avon's exclusive formula [with Picaridin] provides strong and dependable [repellency] [protection] against [mosquitoes] [deer ticks]

[Repellency -] Patented technology that provides strong and dependable [repellency] [protection] against [mosquitoes] [deer ticks]

Exclusive patented technology

Exclusive patented enhanced duration technology

Exclusive patented time-release technology

Patented time-release technology

Time-release formula

Time-release

Patented controlled-release technology

Controlled-release formula

Controlled-release

Creates an effective barrier of protection to repel [insects] [mosquitoes] [deer ticks] [mosquitoes and deer ticks] [gnats, no-seeums, sand flies and biting midges]

Strong and long-lasting [repellency] [protection] against mosquitoes [for] [up to] 8 hours

Strong and long-lasting [repellency] [protection] against deer ticks [for] [up to] 12 hours

Strong and long-lasting [repellency] [protection] against mosquitoes [for] [up to] 8 hours and deer ticks [for] [up to] 12 hours

Strong [repellency] [protection] against deer ticks, mosquitoes, gnats, no-seeums, sand flies and biting midges

Long-lasting [repellency] [protection] against deer ticks, mosquitoes, gnats, no-seeums, sand flies and biting midges

Strong and long-lasting [repellency] [protection] against deer ticks, mosquitoes, gnats, no-seeums, sand flies and biting midges

Strong [repellency] [protection] against mosquitoes

Long-lasting [repellency] [protection] against mosquitoes

Prevents mosquitoes from biting [for 8 hours]

Strong [repellency] [protection] against deer ticks

Long-lasting [repellency] [protection] against deer ticks

Strong [repellency] [protection] against mosquitoes and deer ticks

Repels mosquitoes

Repels mosquitoes up to 8 hours

Repels mosquitoes for 8 hours

Repels deer ticks

Repels deer ticks up to 12 hours

Repels deer ticks for 12 hours

Repels deer ticks that may [carry] [transmit] Lyme Disease up to 12 hours

Repels deer ticks that may [carry] [transmit] Lyme Disease for 12 hours

Repels deer ticks that may [carry] [transmit] Lyme Disease

Made in the USA

ICR, INC
1330 Dillon Heights Avenue
Baltimore, MD 21228
Telephone: (410) 747-4500
Fax: (410) 747-4928

Protocol Amendment

Project Number:	0607-059-0157
Protocol Number:	G0590607001A117 Version Date February 8, 2008
	Amended as Version Date February 8, 2008
Sponsor:	Avon Products, Incorporated
Test Article(s):	TA# 1001108-030 (A)
	TA# 1004024-010 (B)
GLP Compliance:	40 CFR 160
Amendment:	Protocol G0590607001A117 version date June 12, 2007 was approved by Essex Institutional Review Board August 6, 2007. This protocol was amended as per changes requested by the EPA and the HSRB during the October 2007 review. These changes are incorporated in the protocol with version date February 8, 2008.

Impact On The Study: These changes improve the clarity of the protocol.

Submitted by: Nikita Chin Date 2-13-08

Acknowledged by QA: Date 2/13/08

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INITIALS 4/4/08 DATE

ICR, INC
1330 Dillon Heights Avenue
Baltimore, MD 21228
Telephone: (410) 747-4500
Fax: (410) 747-4928

Protocol Deviation

Project Number: 0607-059-0157

Protocol Number: G0590607001A117

Sponsor: Avon Products, Incorporated

Test Article(s): TA# 1001108-030

TA# 1004024-010

GLP Compliance: 40 CFR 160

Deviation: The protocol states that subjects will be treated in pairs and the treatment time will be when the application of the second test article begins. However, six subjects were treated sequentially and the treatment time was recorded when the application of the second test article began. This was done to minimize confusion among treated subjects regarding when they were required to enter the insectary for the next half hourly exposure to mosquitoes.

Impact On The Study: There is no impact on the study.

Submitted by: [signature] 3-13-08 Date

Acknowledged by QA: [signature] 3/13/08 Date

Acknowledged by: Sponsor Representative [signature] 3/6/08 Date

APPENDIX II: INFORMED CONSENT DOCUMMENT

PROTOCOL: EVALUATION OF THE EFFICACY OF PERSONAL REPELLENTS AGAINST MOSQUITOES IN THE LABORATORY

INFORMED CONSENT AUTHORIZATION TO PARTICIPATE IN AN ICR, INC. MOSQUITO REPELLENT EVALUATION IN THE LABORATORY

Principal Investigator: Niketas C Spero
Address: ICR, Inc. 1330 Dillon Heights Ave. Baltimore, MD
Telephone Number: 410-747-4500
24 Hour Emergency Number: 410-371-7223

Introduction

You are being asked to participate in a research study. Before agreeing to participate in this study, it is important that you read this form. This form, called an informed consent document, describes the purpose, procedures, benefits, financial payment, risks, and discomforts of the study. It also describes the alternative procedures that are available to you and your right not to participate or to withdraw from the study at any time. Please ask as many questions as you need to so that you can decide whether you want to be in the study. After reading this form and and having all questions answered, if you decide to participate, you should return this form to the study director's office , sign this form on the last page, initial and date each prior page in the presence of the study staff. You may refuse to participate in this study and this decision will not be held against you.

Purpose of Study

We (ICR, Inc.) have been contracted by Avon Products, Inc. to conduct a research study in our laboratory on two mosquito repellent products containing the active ingredient picaridin, to find out how well they repel a species of mosquito that can carry West Nile Virus (WNV). The mosquitoes used in this study are laboratory-reared and disease-free. The repellent products to be tested are Avon Skin-So-Soft SSS Bug Guard Plus Picaridin Insect Repellent and Avon Skin-So-Soft SSS Bug Guard Plus Picaridin Insect Repellent Spray.

This study will take place in the ICR, Inc. lab with mosquitoes confined in cages. This document will explain the study to you so that you can make a free choice whether or not to participate.

Test subject's initials:.....

Date:.....

We will review this document with you to make sure you understand what would be expected of you if you participate, and to explain the risks you would face through your participation. Please ask us about anything you do not understand. If you have come into our office to review the document, you may take it home with you if you need more time to think about whether to participate.

We will apply the eligibility standards listed on the next page to determine if you qualify to participate in the study. If you qualify, we will ask you to consider signing this document to indicate your consent to participate. Your signing indicates your willingness to participate in this study, but you would still be free to withdraw from the study at any time, without having to give a reason. If you decide you would like to participate, initial each page of this form and sign the last page in the presence of the ICR staff. The Principal Investigator will sign the form as well, and you will be given a copy with both signatures. We will notify you by phone within one week whether you have been selected for the study.

Eligibility for the Study

To participate in this study you must meet the following conditions:

- Sex: No exclusions
- Age: You must be at least 18 and not over 70
- Race: No exclusions
- Health: Must consider yourself to be in good health.
- Literacy: You must be able to read, speak, and understand English
- You must be attractive to mosquitoes, as evidenced by at least 5 landings of caged mosquitoes on your untreated forearm within one minute.
- You must not be pregnant or breastfeeding. If you are female, you will be required to perform an over-the-counter urine pregnancy test on the morning of the study. ICR will provide the test kit, and a female ICR staff member will verify the results. ICR will keep the results of the pregnancy test confidential from everyone except you and the Principal Investigator.

Test subject's initials:...

Date:.....

- You must not be an employee or a relative of an employee of ICR Inc., Avon Products, Inc., toXcel, LLC, or any other party with an interest in this research.

- You must have no known sensitivity to mosquito bites, to insect repellents, or to skin care products

If you choose to participate in this study and are selected to be a study subject, you must also agree:

- To follow the directions of the Principal Investigator and other ICR staff.

- Not to use tobacco, alcohol, or any scented cosmetic products after 8 p.m. the night before study, and on the day of the study until it is concluded.

- To wear proper protective clothing on the day of the study: blue jeans or other sturdy trousers, heavy socks, long sleeve shirts, and gloves. Gloves will be provided by ICR.

Laboratory Repellent Phase Summary

Thirteen subjects will participate in this one-day laboratory study over a period of about 11 hours. One of you will be selected by lot to serve as the "control subject", and will not be treated with the test repellents. The other 12 subjects will be "treated subjects", and will be treated with both of the repellents, one on each forearm.

Every 30 minutes during the test, the untreated control subject will put one untreated forearm into each test cage containing 200 mosquitoes for one minute. If fewer than 5 mosquitoes land within one minute, 200 more mosquitoes will be added to each cage to ensure enough activity for a valid test.

After the untreated control subject has verified adequate mosquito activity, the 12 treated subjects will carefully put both forearms into their assigned cage with the mosquitoes for five minutes.

This pattern will be continued every half hour until you receive either two mosquito bites on the same arm in the same 5-minute exposure period, or one bite in each of two consecutive 5-minute exposure periods, or until ten hours after your treatment, whichever happens first.

Procedures

Test subject's initials:.....

Date:.....

On the day of the study, before the test begins:

- We will review this document with you and answer any additional questions you may have since you have signed it.
- You will wash your arms with unscented Neutrogena soap.
- We will measure and mark a 3 to 5 inch wide test area around each of your forearms as described in detail below.
- After we have measured your arms and protected the skin outside the test area we will determine your attractiveness to mosquitoes as described below.
- Unless you are selected as the untreated control subject, we will treat both your arms with test repellents and the study will begin.

Here is how that will work in detail:

Laboratory Study Details

1. One of you will be selected by lot to be the untreated control subject.
2. We will measure the distance around your arm at the wrist and the elbow, and calculate how wide a band is needed for the standard test area on your arm. This 3 - 5 inch wide band will be wider on thinner arms; narrower on bigger arms. We will then use a felt-tip pen to mark the location of the band around each of your forearms. The control subject will be measured and marked on only one forearm.
3. We will protect the skin above and below the marked test area from mosquito bites with multiple layers of elastic bandages and or Velcro® straps held in place with adhesive tape.
4. We will verify that you are attractive to mosquitoes. You will put one forearm into a test cage containing 200 mosquitoes, and we will count the number of mosquitoes landing on your arm. We will show you how to shake landing mosquitoes off your

arm before they have a chance to bite you. If 5 mosquitoes land on your arm in a minute or less you will qualify as "attractive". You will then repeat the same procedure with your other arm. If you are not attractive after one attempt, you may repeat the process a second time. If you fail to attract mosquitoes in two trials you will not be eligible to participate in the study.

5. If you are a treated subject, we will apply one of the repellents to the test area on each of your forearms, using a syringe without the needle. The amount of repellent applied will be a standardized "typical consumer dose". If you are the untreated control subject, you will receive no treatment.

6. With a fingertip of a latex or vinyl glove we will spread the repellent evenly over the test areas. Once your arms have been treated, you must be careful not to rub them against anything, as this could rub off some of the test repellent and change the results of the study.

7. We will mark your bandages with a letter identifying the repellent applied to that arm. We will not identify the repellents to you.

8. You will go to the test laboratory and wait for your repellents to dry for about one-half hour. Then you will put on gloves to protect your hands from bites, ready for your first 5-minute exposure period of the day.

9. ICR staff will show you which cage to use. Treated subjects will work in pairs. When you see a mosquito land on your own or your partner's arm, notify ICR staff.

10. Every 30 minutes after the test begins, the untreated control subject will put one arm into each of the six test cages in turn, to verify mosquito activity. As soon as 5 mosquitoes land, the control subject will remove his or her arm from the cage. If fewer than 5 mosquitoes land on the control subject's arm within one minute, 200 fresh mosquitoes will be added to each cage. ICR staff will show the control subject how to shake landing mosquitoes off before they have time to bite. Nonetheless it is likely that the control subject will get some bites during the course of the study.

11. Every 30 minutes after the study begins, after the activity of the mosquitoes in their

assigned cage has been verified, each pair of treated subjects will carefully put both their arms into the cage for 5 minutes. During the 5-minute exposure period we will count the number of mosquitoes (up to two) that bite the treated skin of either of your arms. When you receive two bites on the same arm in one exposure period, or one bite in each of two consecutive exposure periods, you will remove that arm from the cage and from the study. We will call this "breakdown", and once you reach breakdown on one of your arms you will no longer expose that arm for the rest of the day's study. You can then remove the bandages and tape from this arm, and scratch if you choose. Caladryl®, Calamine® lotion and rubbing alcohol will be provided to help stop the itching from bites you received. When you reach breakdown on both arms, you will have finished your part in the study and may go home.

12. After each 5-minute exposure period you may leave the insectary, but you must remain in the lab. You can go to the restroom if you need to, and the Study Director will call breaks every few hours. You may either bring your own lunch or pay to have lunch ordered.

13. After preparation and treatment of subjects, which will take about one hour, the day's study will include up to twenty 5-minute exposure periods at 30 minute intervals over 10 hours. The study will end after 10 hours or when all treated test subjects have reached breakdown on both arms, whichever comes first.

Discomfort and Hazard

1. Testing environment

The testing environment isn't hazardous, but it will be warm and humid and may be uncomfortable for some of you. The test exposures will take place in a room kept at a temperature between 70 and 85°F and at relative humidity between 70 and 85%, however, between 5-minute exposure periods, you will be able to rest in other more comfortable areas of the laboratory. ICR staff will be visually monitoring all subjects for any signs of a reaction to the elevated temperature and humidity of the insectary. If you become uncomfortable with the physical conditions, tell a member of the staff immediately.

Test subject's initials:...

Date:.....

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HAB INITIALS 4/4/08 DATE

APPROVED
Essex Institutional Review Board, Inc.

2. Mosquito bites or probes

A bite occurs when a mosquito takes blood. A probe occurs when a mosquito pierces your skin but does not take blood. Similar irritation can result from either a bite or a probe. A mosquito bite or probe may cause itching, redness or swelling that will usually disappear within a couple of days. In severe cases, a bite or probe may cause the development of large bumps on your skin, difficulty breathing, sweating and/or a rapid pulse. For some people this could be life-threatening.

You will be exposed to mosquitoes for at least 2 minutes to verify attractiveness to mosquitoes. Although they try to shake landing mosquitoes off before they bite, you may be bitten.

Treated subjects will expose their forearms to mosquitoes for five minutes every half hour. Although they will not expose an arm further if they receive two bites on it in one exposure, or one bite in two consecutive exposure periods, they may receive more than two bites on each arm during the test. A bite which is not followed by another bite in the same or the next exposure will be disregarded. If you are a treated subject, you will still need to receive at least two more bites on that arm to reach breakdown. The untreated control subject will be exposed to mosquitoes every half hour for up to one minute in each of six test cages. Although he or she will try to shake landing mosquitoes off before they bite, the control subject is likely to be bitten by some of them. We will minimize the irritation from bites or probes you receive by making Caladryl® or Calamine® lotion or rubbing alcohol available at the study site for use after the study is completed.

3. Reaction to the test repellents

You may have a reaction to the test repellents.

The Sponsor has minimized this possibility by choosing an active ingredient (picaridin) that has demonstrated low acute oral, skin, and inhalation toxicity. The Environmental Protection Agency (EPA) has classified it as low toxicity for acute inhalation toxicity and primary skin irritation. EPA has classified the two test repellents as having low to mild toxicity based on eye irritation. For this reason it is important not to rub your eyes with your treated arms. The Sponsor has selected the non-repellent ingredients in the

formulations because they are widely used in cosmetics and have a long history of safe use. ICR staff will be monitoring all subjects for any signs of a reaction to the test repellents. If you think you may be having such a reaction, tell a member of the staff immediately.

4. Mosquito-borne disease

The species of mosquito being used in this study is capable of transmitting West Nile Virus in the field, but the mosquitoes used in this study will be laboratory-reared and disease-free, and they will never have had a blood meal. There is no risk of your contracting any mosquito-borne disease as a result of participation in this study.

Should you have any medical problems, we will have First- Aid qualified staff members and supplies on site. Throughout the course of the study, ICR staff will be visually monitoring all subjects for any signs of stress. We will have cell phones to make emergency calls if necessary. In the case of medical emergency, we will transport you to a selected local hospital at our expense. We will pay all of your medical bills for study-related illnesses and injuries. The Principal Investigator will contact you by telephone, two weeks after the study to ask if you have experienced any adverse effects. You should contact the Principal Investigator any time after the study if you experience any study-related adverse effects, either before or after this follow up call.

Financial Consideration

We will pay you $11/hour for the first 9 hours and $17.50 for each additional hour that you spend on the day of the study. The study will last about 10 hours with an additional hour of prep time (11 hours total), with a total payment of $134. This payment will be mailed to you on the 15th or the last day of the month. If we ask you to drop out of the test, and you have complied with all of our requests, you will still receive full payment. If we ask you to drop out of the test because you have not followed all of our directions, or if you choose to drop out of the test, we will compensate you for time up to that point at the rate of $11 per hour.

Costs

Test subject's initials:.....

Date:.....

There are no financial costs to you for participating in this study.

Benefits

You will get no personal benefit from participating in this study.

Some benefit may result for society at large through demonstrating the effectiveness of these products in repelling a potentially important public health pest. This, in turn, will allow a greater selection of products to consumers that are effective in repelling mosquitoes that can transmit West Nile Virus.

Your Rights

We will give you an opportunity to discuss with us any aspects of this document or of the study it describes that are not clear to you, so that you fully understand the nature of the study, its purpose, and the procedures to be used, as well as the discomforts, and risks you may experience during or after the study. You are encouraged to ask questions at any time, before or after you consent to participate, and before, during, or after the study day itself. Your participation is entirely voluntary. You may decide not to take part in this study, and if you decide you would like to participate, you are free to change your mind at any time without having to explain, and without penalty or loss of benefits to which you may be otherwise entitled.

Alternative

The only alternative is not to participate.

New Information

You will be informed verbally or in writing of any significant new findings discovered during the course of this study which may influence your continued participation.

Voluntary Participation/Withdraw

Test subject's initials:.....

Date:.....

You may be withdrawn from the study even if you want to continue. This could happen if (1) the study director believes it is in your best interest for you to stop being in the study, (2) or if you do not follow instructions for the study, (3) or if the sponsor stops the study for administrative or any other reasons.

Questions

If you have any questions about this study or suffer a reaction you think might be associated with the study, call us at 410-747-4500. If you have any questions about your rights as a research participant, or any related concerns or complaints, you may contact the Essex Institutional Review Board (IRB), 121 Main Street, Lebanon, NJ 08833, telephone 908-236-7735. The Essex IRB is a committee that has reviewed this research project to help ensure that the rights and welfare of the participants are protected and that the study is designed and carried out ethically. Review of this study by the Essex IRB is not an endorsement of the study or its outcome.

Research Participation Information

You can obtain information about participating in research studies from a number of sources. A few are:

- Center for Information and Study on Clinical Research Participation (CISCRP): www.ciscrp.org
- Food and Drug Administration (FDA): www.fda.gov
- Office for Human Research Protections (OHRP): www.hhs.gov/ohrp
- National Institute of Health: clinical trials.gov
- National Cancer Institute: wwwnci.nih.gov
- CenterWatch: www.centerwatch.com
- Various large university websites
- Various associations and societies concerned with specific disease websites

Confidentiality

Test subject's initials:.....

Date:.....

We and the sponsor or its agents may use the information obtained from your taking part in this test, and this information may become part of a report. We will keep your participation as confidential as possible referring to you in the study data and reports only by your initials or an arbitrary ICR identification. However, we cannot guarantee that your identity will be kept confidential; the sponsor, personnel associated with the study, a regulatory agency such as the Environmental Protection Agency (EPA), and the Essex Institutional Review Board (EIRB) all have a right to review your records.

Consent

I voluntarily agree to participate in this study. I will be given a copy of this signed form.
By signing this form I have not given up any of my legal rights.

_____
Signature of Subject Date

_____
Printed Name of Subject Date

_____
Signature of Person Obtaining Consent Date

_____
Signature of Principal Investigator Date

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STAMPED IN RED
INITIALS 4/4/08 DATE

Test subject's initials:.....

Date:.....

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Essex Institutional Review Board, Inc.

APPENDIX III: RAW DATA

Mosquito Laboratory Repellent Test
Protocol No.: G0590607001A117
ICR Project No.: 0607-059-0157

Raw Data Collection Sheet

Sponsor: 059 Date: 3/4/08 Start Time: 8:35 AM
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./# GM 27		SUBJ int./# PV 49		CONTROL INITIALS: GW 47	
	A	B	A	B	LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5	0	0	0	0	5	10"
1.0	0	0	0	0	5	15"
1.5	0	0	0	0	5	10"
2.0	0	0	0	0	5	11"
2.5	0	0	0	0	5	8"
3.0	0	0	1	0	5	06"
3.5	0	0	1	0	5	16"
4.0	0	0		0	5	15"
4.5	0	0		0	5	12"
5.0	0	0		0	5	18"
5.5	0	0		0	5	15"
6.0	0	0		0	5	14"
6.5	0	0		0	5	19"
7.0	0	0		0	5	20"
7.5	0	0		0	5	16"
8.0	0	0		0	5	15"
8.5	0	0		0	5	15"
9.0	0	0		0	5	18"
9.5	0	0		0	5	20"
10.0	0	1		0	5	15"
Fail time	>10.0	>10.0	3.0	>10.0		

A TRUE COPY WHEN STAMPED IN RED INITIALS

Signatures of Study Associates Recording data on this sheet/date:
Edward Zagladen 3-4-08
3/4/08

Study Director's Signature/Date
3-4-08

Test Subject's Initials/Date
EPM March 08
3-4-08

Mosquito Laboratory Repellent Test
Protocol No.: G0590607001A117
ICR Project No.: 0607-059-0157

Raw Data Collection Sheet

Sponsor: 059 Date: 3/4/08 Start Time: 8:50 AM
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./# MG 14		SUBJ int./# BS 42		CONTROL INITIALS: GW 47	
	A	B	A	B	LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5	0	0	0	0	5	12"
1.0	0	0	0	0	5	11"
1.5	0	0	0	0	5	15"
2.0	0	0	0	0	5	15"
2.5	0	0	0	0	5	09"
3.0	0	0	0	0	5	07"
3.5	0	0	0	0	5	10"
4.0	0	0	0	0	5	16"
4.5	0	0	0	0	5	15"
5.0	0	0	0	0	5	16"
5.5	0	0	0	0	5	17"
6.0	0	0	0	0	5	15"
6.5	0	0	0	0	5	15"
7.0	0	0	1	0	5	17"
7.5	0	0	0	0	5	18"
8.0	0	0	0	0	5	26"
8.5	0	0	0	0	5	20"
9.0	0	0	0	0	5	19"
9.5	0	0	0	0	5	21"
10.0	0	0	0	0	5	28"
Fail time	>10.0	>10.0	>10.0	>10.0		

A TRUE COPY WHEN STAMPED IN RED

Signatures of Study Associates Recording data on this sheet/date: 3/4/08
Fonad Zgliczon 3-4-08

Study Director's Signature/Date 3-4-08

Test Subject Initials/Date INITIALS DATE BAS 3/04/08
M.D.P. 3/04/08

Raw Data Collection Sheet

Sponsor: 059 Date: 3/4/08 Start Time: 8:50 AM
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./# RT 44		SUBJ int./# MT 43		CONTROL INITIALS: GW 47	
	A	B	A	B	LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5	0	0	0	0	5	07"
1.0	0	0	0	0	5	07"
1.5	0	0	0	0	5	09"
2.0	0	0	0	0	5	18"
2.5	0	0	0	0	5	09"
3.0	0	0	0	0	5	07"
3.5	0	0	0	0	5	09"
4.0	0	0	0	0	5	10"
4.5	0	0	0	0	5	14"
5.0	0	0	0	0	5	16"
5.5	0	0	0	0	5	12"
6.0	0	0	0	0	5	13"
6.5	0	0	0	0	5	13"
7.0	0	0	0	1	5	10"
7.5	0	0	0	0	5	15"
8.0	0	0	0	2	5	17"
8.5	0	0	0		5	16"
9.0	0	0	0		5	18"
9.5	0	0	0		5	23"
10.0	0	0	1		5	29"
Fail time	>10.0	>10.0	>10.0	8.0		

Signatures of Study Associates Recording data on this sheet/date:
3/4/08
Fouad Zyidou 3.4.08

Study Director's Signature/Date
3-4-08

Test Subject's Initials/Date
INITIALS 3/4/08 DATE
3-4-08

Raw Data Collection Sheet

Sponsor: 059 Date: 3/4/08 Start Time: 8 30 AM
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./# CS 41		SUBJ int./# SC 50		CONTROL INITIALS: GW 97	
	A	B	A	B	LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5	0	0	0	0	5	11"
1.0	0	0	0	0	5	09"
1.5	0	0	0	0	5	06"
2.0	0	0	0	0	5	13"
2.5	1	0	0	0	5	8"
3.0	0	0	0	0	5	07"
3.5	0	0	0	0	5	19"
4.0	0	0	0	0	5	14"
4.5	0	0	0	0	5	17"
5.0	0	0	0	0	5	19"
5.5	0	0	0	0	5	16"
6.0	0	0	0	0	5	15"
6.5	0	0	0	0	5	14"
7.0	0	0	0	0	5	28"
7.5	0	0	0	0	5	21"
8.0	0	1	0	0	5	23"
8.5	0	1	0	0	5	19"
9.0	0	5	0	0	5	20"
9.5	0		0	0	5	18"
10.0	0		0	0	5	20"
Fail time	> 10.0	8.0	> 10.0	> 10.0		

A TRUE COPY WHEN STAMPED IN RED

Signatures of Study Associates Study Director's Signature/Date Test Subject's Initials/Date
Recording data on this sheet/date:
Fouad Zyiadeh 3-4-08 Nikki Spero 3-4-08 INITIALS 4-4-08 DATE
3/4/08 CRA 3-4-08

Mosquito Laboratory Repellent Test
Protocol No.: G0590607001A117
ICR Project No.: 0607-059-0157

Raw Data Collection Sheet

Sponsor: 059 Date: 3/4/08 Start Time: 5:50 AM
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./# MK 18		SUBJ int./# MK 19		CONTROL INITIALS: GW 47	
	A	B	A	B	LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5	0	0	0	0	5	12"
1.0	0	0	0	0	5	08"
1.5	0	0	0	0	5	10"
2.0	0	0	0	0	5	14"
2.5	0	0	0	0	5	07"
3.0	0	0	0	0	5	07"
3.5	0	0	0	0	5	10"
4.0	0	0	0	0	5	19"
4.5	0	0	0	0	5	18"
5.0	0	0	0	0	5	20"
5.5	0	0	0	0	5	18"
6.0	0	0	0	0	5	26"
6.5	0	0	0	0	5	19"
7.0	0	0	0	0	5	13"
7.5	0	0	0	0	5	16"
8.0	0	0	0	0	5	15"
8.5	0	0	0	0	5	20"
9.0	0	0	0	0	5	18"
9.5	0	0	0	0	5	25"
10.0	0	0	0	0	5	26"
Fail time	>10.0	>10.0	>10.0	>10.0		

A TRUE COPY WHEN STAMPED IN RED

Signatures of Study Associates Recording data on this sheet/date:
3-4-08
3/4/08

Study Director's Signature/Date
3-4-08

Test Subject's Initials/Date
INITIALS 4/4/08 DATE
MFK 3/4/08

Raw Data Collection Sheet

Sponsor: 059 Date: 3/4/08 Start Time: 8 35 AM
S D/TECH: Nick C Spero SPECIES: *C. quinquefasciatus* FORMULATION APPLIED BY: N.C.S

COMP	SUBJ Int./# RB 5		SUBJ int./# KD 48		CONTROL INITIALS: GW 47	
	A	B			LAND	TIME
TIME	RIGHT	LEFT	RIGHT	LEFT		
	BITE	BITE	BITE	BITE		
0.5	0	0	0	0	5	06"
1.0	0	0	0	0	5	07"
1.5	0	0	0	0	5	08"
2.0	0	0	0	0	5	14"
2.5	0	0	0	0	5	1'23"
3.0	0	0	0	0	5	19"
3.5	0	0	0	0	5	21"
4.0	0	0	0	0	5	19"
4.5	0	0	0	0	5	20"
5.0	0	0	0	0	5	21"
5.5	0	0	0	0	5	22"
6.0	0	0	0	0	5	16"
6.5	0	0	0	0	5	31"
7.0	0	0	0	0	5	30"
7.5	0	0	0	0	5	22"
8.0	0	0	0	0	5	30"
8.5	0	0	0	0	5	26"
9.0	0	0	0	0	5	25"
9.5	0	0	0	0	5	21"
10.0	0	0	0	0	5	31"
Fail time	>10.0	>10.0	>10.0	>10.0	A TRUE COPY WHEN STAMPED IN RED	

Signatures of Study Associates Recording data on this sheet/date: 3/4/08
Fouad Zeydan 3-4-08

Study Director's Signature/Date: 3-4-08

Test Subject's Initials/Date: INITIALS 4/4/08 DATE
3-4-08

PRE- TEST LANDING RATE DATA COLLECTION SHEET

DATE: 3-4-08
STUDY DIRECTOR: Nick C. Spero
STUDY ASSOCIATES: T. Foard W. Gaynor R. Kilbourn G. Stevens F. Zpidou

Species: *Culex quinquefasciatus*

SUBJECT Int/#	TIME REQUIRED FOR 5 LANDINGS	
	RIGHT	LEFT
GM 27	13"	11"
PV 49	06"	13"
RB 5	09"	09"
KD 48	17"	12"
CS 41	05"	07"
SC 50	13"	07"
MG 14	10"	09"
BS 42	12"	12"
MK 18	30"	11"
MK 19	05"	05"
RT 44	11"	09"
MT 43	20"	19"
GW 47	05"	05"

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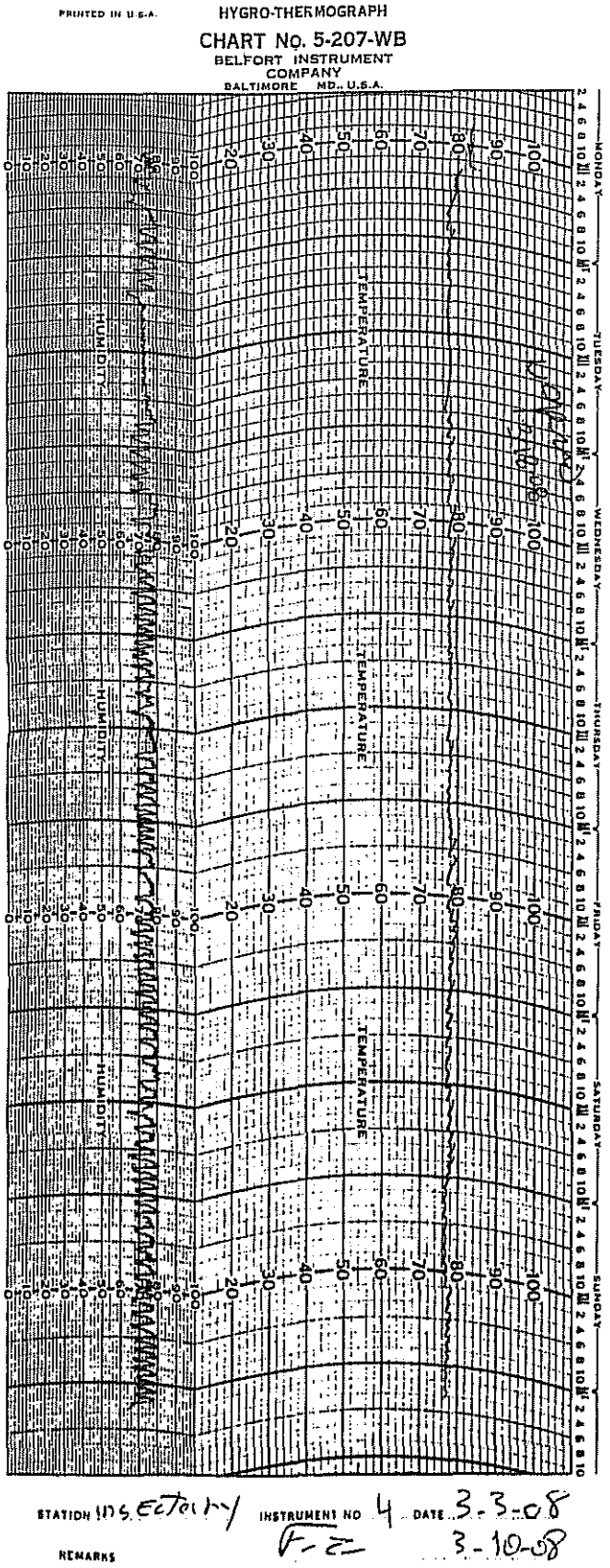
INITIALS 4/4/08

ENVIRONMENTAL CONDITIONS OF TESTING AREA



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INITIALS 4/4/08 DATE

APPENDIX IV: STATISTICAL ANAYLSIS

Results

Twelve subjects (6 men and 6 women), all between the ages of 18 and 70, were recruited to participate in the current study. Two substances were evaluated simultaneously; one substance applied to the right arm and the other to the left. The results for each substance will be discussed separately.

Substance A (TA# 1001108-030).

An examination of the data indicated that three subjects experienced a single bite during an assessment interval (MT43 at 10 hours, BS42 at 7 hours, and CS41 at 2.5 hours). As per our a priori definition, the identification of a single bite that was not followed up with a confirming bite either in the same assessment interval or in the following interval would not be considered sufficient for identifying product failure.

A Kaplan-Meier Product Limit analysis was used to organize and describe the data collected for this study. Table 1 presents the overall findings for Substance A.

Table 1
Kaplan-Meier Generated Survival Table for Participants Using Substance A.

Survival Table

	Time	Status	Cumulative Proportion Surviving at the Time: Estimate	Cumulative Proportion Surviving at the Time: Std. Error	N of Cumulative Events	N of Remaining Cases
1	3.000	1	.917	.080	1	11
2	10.000	0	.	.	1	10
3	10.000	0	.	.	1	9
4	10.000	0	.	.	1	8
5	10.000	0	.	.	1	7
6	10.000	0	.	.	1	6
7	10.000	0	.	.	1	5
8	10.000	0	.	.	1	4
9	10.000	0	.	.	1	3
10	10.000	0	.	.	1	2
11	10.000	0	.	.	1	1
12	10.000	0	.	.	1	0

As can be seen, only 1 individual experienced product breakdown over the course of the study. Product failure for this person occurred after 3 hours of exposure. All remaining individuals completed the study interval without incident (i.e., right censored). Descriptive statistics for these data are presented in Table 2 below.

Table 2
Kaplan-Meier Generated Descriptive Statistics for Participants using Substance A.

Means and Medians for Survival Time

Mean[a]				Median			
		95% Confidence Interval				95% Confidence Interval	
Estimate	Std. Error	Lower Bound	Upper Bound	Estimate	Std. Error	Lower Bound	Upper Bound
9.417	0.558	8.322	10.511	.	.	.	.

a. Estimation is limited to the largest survival time if it is censored.

As can be seen, the average length of protection was 9.417 hours. Given the earlier discussion of power, it was decided that any estimate of product protection would conform to the values presented by Rutledge and Gupta (1999). As such, these results support the conclusion, with 95% confidence, that **Substance A** (TA# 1001108-030) afforded protection for 8 hours, ± 2hours. Please note that no median value was obtained in this analysis. This is because fewer than 50% of the subjects experienced a product failure. As such, there is no middle value to calculate.

Substance B (TA# 1004024-010).

An examination of the data indicated that two participants experienced a single bite during an assessment interval (MT43 at 7 hours and GM27 at 10 hours). As noted above, this was insufficient evidence for product failure.

A Kaplan-Meier Product Limit analysis was used to organize and describe the data collected for this study. Table 3 presents the overall findings for Substance B.

As can be seen, two individuals experienced product breakdown over the course of the study, with failure occurring in both instances after 8 hours of exposure. All remaining individuals completed the study interval without incident (i.e., right censored). Descriptive statistics for these data are presented in Table 4 below.

Table 3
Kaplan-Meier Generated Survival Table for Participants Using Substance B.

Survival Table

	Time	Status	Cumulative Proportion Surviving at the Time		N of Cumulative Events	N of Remaining Cases
			Estimate	Std. Error		
1	8.000	1	.	.	1	11
2	8.000	1	.833	.108	2	10
3	10.000	0	.	.	2	9
4	10.000	0	.	.	2	8
5	10.000	0	.	.	2	7
6	10.000	0	.	.	2	6
7	10.000	0	.	.	2	5
8	10.000	0	.	.	2	4
9	10.000	0	.	.	2	3
10	10.000	0	.	.	2	2
11	10.000	0	.	.	2	1
12	10.000	0	.	.	2	0

Table 4.
Kaplan-Meier Generated Descriptive Statistics for Participants using Substance B.

Means and Medians for Survival Time

Mean[a]				Median			
		95% Confidence Interval				95% Confidence Interval	
Estimate	Std. Error	Lower Bound	Upper Bound	Estimate	Std. Error	Lower Bound	Upper Bound
9.667	0.215	9.245	10.088	.	.	.	.

a. Estimation is limited to the largest survival time if it is censored.

As can be seen, the average length of protection was 9.667 hours. Given discussion of power noted above, these results support the conclusion, with 95% confidence, that **Substance B** (TA# 1004024-010) afforded protection for 8 hours, ± 2hours. Please note again that no median value was obtained in this analysis because fewer than 50% of the subjects experienced product failure.

APPENDIX V: SAMPLE RECORD OF USE AND LOG FORMS

SAMPLE LOG FORM

SAMPLE REC'D: 2-21-08

POINT OF ORIGIN: AVON PRODUCTS INC.

PRODUCT FORMULATION: N/A
TA 1001108-030

PRODUCT CODE: NB# 6709-43 1 OF 2

PROJECT #: 0607-059-0157

PROTOCOL #: G059060700 1A117

QUANTITY (WEIGHT): 158.90g

SPECIAL HANDLING: N/A

SAMPLE CUSTODIAN:

STUDY DIRECTOR:

Q.A.U.:

A TRUE COPY WHEN STAMPED IN RED

INITIALS 4/4/08 DATE

SAMPLE RECORD OF USE

TA1001108-030
NB#6709-43

Sample: 1 OF 2

Date Received: 2-21-08

Project Number: 0607-059-0157

Company: AVON PRODUCTS IN

DATE USED	AMOUNT USED	REASON	INITIALS
	158.90g		
3-4-08	-143.01	GLP MOSQUITO REPELLENT	UCS
		STUDY	
	15.89g USED		

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UCS INITIALS 4/4/08 DATE

SAMPLE LOG FORM

SAMPLE REC'D: 2-21-08

POINT OF ORIGIN: AVON PRODUCTS INC.

PRODUCT FORMULATION: N/A
TA 1001108-030

PRODUCT CODE: NB# 6709-43 2 OF 2

PROJECT #: 0607-059-0157

PROTOCOL #: G059D607001A117

QUANTITY (WEIGHT): 159.18g

SPECIAL HANDLING: N/A

SAMPLE CUSTODIAN: NCH

STUDY DIRECTOR: NCH

Q.A.U.:

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INITIALS 4/4/08 DATE

SAMPLE RECORD OF USE

TA 1001108-030
NB#6709-43

Sample: 2 OF 2

Date Received: 2-21-08

Project Number: 0607-059-0157

Company: AVON PRODUCTS I

DATE USED	AMOUNT USED	REASON	INITIALS

THIS SAMPLE NOT USED NCJ 3-4-08

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CAS 4/4/08
INITIALS DATE

SAMPLE LOG FORM

SAMPLE REC'D: 2-21-08

POINT OF ORIGIN: AVON PRODUCTS INC.

PRODUCT FORMULATION: N/A

PRODUCT CODE: TA 1004024-010
NB# 8782-19 1 OF 2

PROJECT #: 0607-059-0157

PROTOCOL #: G059060700 1A117

QUANTITY (WEIGHT): 117.92 g

SPECIAL HANDLING: N/A

SAMPLE CUSTODIAN: NC

STUDY DIRECTOR: NC

Q.A.U.:

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INITIALS 4/4/08 DATE

SAMPLE RECORD OF USE

TA 1004024-010
NB # 8782-19

Sample: 1 OF 2

Date Received: 2-21-08

Project Number: 0607-059-0157

Company: AVON PRODUCTS I

DATE USED	AMOUNT USED	REASON	INITIALS
3-4-08	117.42g 112.51g	GLP MOSQUITO REPELLENT	(JC)
	5.41g USED	STUDY	

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INITIALS 4/4/08 DATE

SAMPLE LOG FORM

SAMPLE REC'D: 2-21-08

POINT OF ORIGIN: AVON PRODUCTS INC.

PRODUCT FORMULATION: N/A

PRODUCT CODE: TA 1004024-010
NB# 8782-19 2 OF 2

PROJECT #: 0607-059-0157

PROTOCOL #: G059060700 1A117

QUANTITY (WEIGHT): 118.57g

SPECIAL HANDLING: N/A

SAMPLE CUSTODIAN: N Chro

STUDY DIRECTOR: N Chro

Q.A.U.:

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KAB 4/4/08
INITIALS DATE

SAMPLE RECORD OF USE

TA 1004024-010
NB # 8702-19

Sample: 2 OF 2

Date Received: 2-21-08

Project Number: 0607-059-0157

Company: AVON PRODUCTS I

DATE USED	AMOUNT USED	REASON	INITIALS

THIS SAMPLE NOT USED NCS 3-4-08

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YAS 4/4/08
INITIALS DATE

APPENDIX VI: IRB APPROVAL

Essex Institutional Review Board, Inc.
121 Main Street • Lebanon, New Jersey 08833
Telephone (908) 236-7735 • Fax (908) 236-2027
www.essexirb.com

August 2, 2007

Niketas C. Spero
Insect Control & Research, Inc.
1330 Dillon Heights Avenue
Baltimore, MD 21228

Dear Mr. Spero:

On July 30, 2007, the Essex Institutional Review Board met and reviewed the Avon Products, Inc. clinical research project, "Evaluation of the Efficacy of Personal Repellents Against Mosquitoes in the Laboratory" (G0590607001A117, 6/12/07).

The **Protocol** (dated 6/12/07) reviewed by a full board, was conditionally approved pending the following modifications recommended by the board:

Page 3:

- Under section **HYPOTHESIS**, line 2 – Please delete the word "a" after the word "mosquitoes".

Page 6:

- **Bullet 3**, line 2 – Please verify what is completed before the test subjects return to the laboratory.

Page 10:

- Under section **RENUMERATION**, 2nd paragraph, line 5 – Please replace the words "on the telephone, **and**" with the words "on the telephone, **or**".
- Under section **NEGATIVE CONTROL**, 1st paragraph – Please verify that the test subjects will be selected "**by drawing a name**" as opposed to "**a flip of a coin**" as stated on page 18 of the protocol.
- Under section **NEGATIVE CONTROL**, 2nd paragraph, line 4 – Please verify the manner in which the "mosquitoes will not be allowed to bite."

Page 11:

- Section title **MISCELLANEOUS** – Please add the word "**SUPPLIES**" after the words "MISCELLANEOUS".

Page 18:

- 3rd paragraph, line 5 - Please verify that the test subjects will be selected "**by a flip of a coin**" as opposed to "**by drawing a name**" as stated on page 10 of the protocol (See comment for page 10, section NEGATIVE CONTROL).

NOTE: When making the revisions to the Protocol, please remember to update the version date before re-submitting.

The **Consent Form** (dated 7/17/07) reviewed by a full board, was conditionally approved pending the following modifications recommended by the board:

Page 1:

- Under section **Suitability Checklist for the Study**. Item 3, line 4 – Please replace the initial "P.I." with the words "Principal Investigator (P.I.)".

Page 2:

- Item 8, top of page – Please delete the word "that" after the words "your reaction to".
- Under section **Laboratory Repellent Phase Volunteers**, line 2 – Please replace the words "will receive no **treatment. You will** place" with the words "will receive no **treatment and will** place"
- Under section **Laboratory Repellent Phase Volunteers**, line 4 – Please replace the words "must land **on your arm**" with the words "must land **on the exposed arm**".
- Under section **Laboratory Repellent Phase Volunteers**, - Please verify what 12 of the 13 subjects will be doing while the one control subject has the exposed arm in the test cage.
- Under section **Laboratory Repellent Phase Volunteers**, line 5 – Please replace the words "**one day**." with the words "**one day, approximately 9 hours**."

Page 3:

- Under section **Laboratory Study Details** – Please verify that lunch will be provided to the test subjects and breaks during the day are allowed.
- Under section **Laboratory Study Details**, Item 9, line 1 – Please replace the words "Control subjects: you will sequentially insert your untreated arm" with the words "Control subject will insert an untreated arm".
- Under section **Laboratory Study Details**, Item 9, line 2 – Please replace the words "**five-minute exposure period.**" With the words "**five-minute exposure period for one minute, every half hour.**"
- Under section **Laboratory Study Details,** Item 9, line 4 – Please replace the words "we will **add more** mosquitoes" with the words "we will **add 100 more** mosquitoes".

Page 4:

- Under section **Discomfort and Hazard**, Item 1, 1st paragraph, line 6 – After the words "and/or a rapid pulse." please add the sentence "This could be life-threatening."
- Under section **Discomfort and Hazard**, Item 1, 3rd paragraph, line 2 – Please replace the words "If you are **a**" with the words "If you are **the**".
- Under section **Discomfort and Hazard**, Item 1, 3rd paragraph, line 6 – Please replace the words "The mosquitoes we **us**" with the words "The mosquitoes we use".

Page 5:

- Under **Item 2**, top of page, 2nd paragraph, line 3 – Please delete the words "Toxicity Category IV" after the words "classified it as".
- Under **Item 2**, top of page, 2nd paragraph, line 5 – Please delete the words "Toxicity Category III" after the words "classified it as". Also, please replace the words "for **ocular** irritation." with the words "for **eye** irritation."

Page 5 (continued):

- Under section **Financial Consideration,** line 5 – Please replace the words "**up to that point.**" with the words "**up to that point at the rate of $11 per hour.**"
- After the section **Financial Consideration** – Please add a new section titled "**Costs**" and verify that they are no costs to the participants.

NOTE: When making the revisions to the Consent, please remember to update the version date before re-submitting.

Glenn P. Lambert, MD, FAAP is authorized to review the protocol and consent form and issue letters of approval, provided the returned documentation is in order specified by the Board. All meeting votes were unanimous with a vote of 5:0. There were no controverted issues and there was no conflict of interest for any of the Board members in attendance. Approvals will be for one year from date of site notification.

Please be reminded that the study may not commence any research activity (including scheduling) until formal, written approval and a stamped consent form is received by the research site.

We look forward to receiving your revised consent form and responses to the questions raised by the Board. Thank you for the opportunity to work with you on this project.

Sincerely,

Glenn P. Lambert, MD

Glenn Lambert, MD
Chairman

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INITIALS

4/4/08
DATE

klr

Essex Institutional Review Board, Inc.
121 Main Street • Lebanon, New Jersey 08833
Telephone (908) 236-7735 • Fax (908) 236-2027
www.essexirb.com

August 7, 2007

Niketas C. Spero
Insect Control & Research, Inc.
1330 Dillon Heights Avenue
Baltimore, MD 21228

Dear Dr. Spero:

The Essex Institutional Review Board, Inc. reviewed the Avon Products, Inc. clinical research project, "Evaluation of the Efficacy of Personal Repellents Against Mosquitoes in the Laboratory" (G0590607001A117, 6/12/07, Amends. #1-8, 8/2/07).

The Protocol (dated 6/12/07) reviewed by a full board, was conditionally approved on July 30, 2007. The Amendments to the Protocol, #1-8 (dated 8/2/07) were approved on August 6, 2007. The Essex Institutional Review Board, Inc. has determined that the proposal meets the IRB requirements for safety and ethical standards. Approval to conduct the study expires on August 6, 2008 based on the degree of risk.

Your Informed Consent (dated 8/2/07) reviewed by a full board, and Research Site located at 1330 Dillon Heights Avenue, , Baltimore, MD were approved on August 7, 2007. Approval for this site expires on August 7, 2008.

Risks to subjects were determined to be reasonable and minimized, based on review of the study design, anticipated results, Investigator's Brochure (if it was submitted), reports of any data and safety monitoring (if available) and balancing research versus therapeutic activities and potential benefits to the participants.

Essex requests that you forward a study summary, including adverse reactions, within 90 days of study termination. In any event, reports must be made at intervals not exceeding one year. Any serious or unexpected experiences must be reported to the Board promptly. Enclosed is our brochure detailing your responsibilities associated with this research study.

The Essex Institutional Review Board is in compliance with the federal regulations of the National Institute of Health and Office of Human Research Protection (OHRP) effective August 19, 1991 (45 CFR 46). The Board is also in compliance with the federal regulations of the Food and Drug Administration effective July 27, 1981, and with all amendments thereto, contained in Title 21 of the Code of Federal Regulations, Parts 50 and 56. The OHRP Assurance Number is 1742. A Statement of Compliance and Board Member listing are attached for your files.

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KMB 4/4/08
INITIALS DATE

Sincerely,

Loretta P. Szczepanski, RN.

Loretta P. Szczepanski, RN
Vice-Chairperson

PAGE 0093 OF 0095

klr

Essex Institutional Review Board, Inc.
121 Main Street • Lebanon, New Jersey 08833
Telephone (908) 236-7735 • Fax (908) 236-2027
www.essexirb.com

February 26, 2008

Niketas C. Spero,
Insect Control & Research, Inc.
1330 Dillon Heights Avenue
Baltimore, MD 21228

Dear Dr. Spero:

On February 18, 2007, Essex Institutional Review Board, Inc. reviewed and approved Protocol **Amendment No. 9** (dated 2/8/2008), submitted in connection with Avon Products, Inc. clinical research project, "Evaluation of the Efficacy of Personal Repellents Against Mosquitoes in the Laboratory" (G0590607001A117, 6/12/07, Amends. #1-8, 8/2/07, Amend. #9, 2/8/08).

On February 25, 2008, Essex Institutional Review Board, Inc. reviewed and approved your **Revised Consent Form** (dated 2/20/08), which incorporates the changes as indicated in the Protocol Amendment.

Please be aware that the Revised Consent Form (dated 2/20/08) must be signed by any new or currently enrolled participants in the study.

Sincerely,

Glenn P. Lambert, MD

Glenn P. Lambert, MD, FAAP
Chairman

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4/4/08
DATE

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APPENDIX VII: SAMPLE CHARACTERIZATION

AVON

MEMORANDUM

TO: Nick Spero (ICR, Study Director)

FROM: Chris Bartlett (Sponsor, Toxicologist II)

DATE: February 29, 2008

SUBJECT: SAMPLE CHARACTERIZATION – ADDITONAL INFORMATION
Mosquitoes West Nile Virus Efficacy, Cage Study

The following additional characterization records of the test sample(s) identified in Protocol No.: **G0590607001A117,** Project No.: **0607-059-0157 ,** are enclosed.

- Laboratory Notebook pages for formulation
- CoA for active
- Revised CoA for formulations

These characterizations were not carried out in GLP.

All other characterization records will reside at the Research and Development Division of Avon Products Inc., Avon Place, Suffern NY, 10901, as per 21 CFR subpart F, 58.105 and 40 CFR subpart F, 160.105.

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INITIALS 4/4/08 DATE

Certificate of Analysis

Test Article Identification: FN 1001108-030, NB 6709-43, D.O.M. 1/31/08

Test Description	Test Results
*pH @ 25°C :	7.76 (pH meter)
*Specific Gravity @25°C:	0.91 (pycnometer)
*Viscosity @ 25°C:	<100 cps (Brookfield viscometer, #3@20)
Odor:	Fragrant ethanolic (olfactory)
Color:	Water white (visual)
Appearance:	Aerosol mist (visual)
[illegible]w Picaridin:	10.25 (Ref. AJN 3383, APAM 9.522, 8874-133, 2/4/08)
Expiration:	1/31/10 (Ref. MRID # 46753901)

*Measurement taken on the liquid formulation minus propellant (ref. FN 1001108-029, NB 8782-17, D.O.M. 1/29/08).

Vincent T. Polywoda 2-29-08

Vincent T. Polywoda
Senior Chemist
Avon Products, Inc.

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VTP 4/4/08
INITIALS DATE

Certificate of Analysis

Test Article Identification: FN 1004024-010, NB 8782-19, D.O.M. 1/29/08

Test Description	Test Results
pH @ 25°C (10% in demineralized water):	6.75 (pH meter)
Specific Gravity @25°C:	0.90 (pycnometer)
Viscosity @ 25°C:	<100 cps (Brookfield viscometer, #3@20)
Odor:	Fragrant ethanolic (olfactory)
Color:	Slightly hazy white(visual)
Appearance:	Free flowing liquid (visual)
% w/w Picaridin:	10.37 (Ref. AJN 3383, APAM 9.522, 8874-133, 2/4/08)
Expiration:	1/29/10 (Ref. MRID # 46751902)

Vincent T. Polywoda 2-29-08

Vincent T. Polywoda
Senior Chemist
Avon Products, Inc.

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INITIALS 4/4/08 DATE