American Petroleum Institute

STEP Strategies for Today's Environmental Partnership

A RANGE-FINDING DEVELOPMENTAL INHALATION TOXICITY STUDY OF UNLEADED GASOLINE VAPOR CONDENSATE IN RATS AND MICE VIA WHOLE-BODY EXPOSURES

AN INHALATION DEVELOPMENTAL TOXICITY STUDY OF UNLEADED GASOLINE VAPOR CONDENSATE IN THE RAT VIA WHOLE-BODY EXPOSURE

Health and Environmental Sciences Department
Publication Numbers TR 412 and TR 414
April 1998

American Petroleum Institute

STEP Strategies for Today's Environmental Partnership

American Petroleum Institute Environmental, Health, and Safety Mission and Guiding Principles

MISSION

The members of the American Petroleum Institute are dedicated to continuous efforts to improve the compatibility of our operations with the environment while economically developing energy resources and supplying high quality products and services to consumers. We recognize our responsibility to work with the public, the government, and others to develop and to use natural resources in an environmentally sound manner while protecting the health and safety of our employees and the public. To meet these responsibilities, API members pledge to manage our businesses according to the following principles using sound science to prioritize risks and to implement cost-effective management practices:

PRINCIPLES

- To recognize and to respond to community concerns about our raw materials, products and operations.
- To operate our plants and facilities, and to handle our raw materials and products in a manner that protects the environment, and the safety and health of our employees and the public.
- To make safety, health and environmental considerations a priority in our planning, and our development of new products and processes.
- To advise promptly, appropriate officials, employees, customers and the public of information on significant industry-related safety, health and environmental hazards, and to recommend protective measures.
- To counsel customers, transporters and others in the safe use, transportation and disposal of our raw materials, products and waste materials.
- To economically develop and produce natural resources and to conserve those resources by using energy efficiently.
- To extend knowledge by conducting or supporting research on the safety, health and environmental effects of our raw materials, products, processes and waste materials.
- To commit to reduce overall emission and waste generation.
- To work with others to resolve problems created by handling and disposal of hazardous substances from our operations.
- To participate with government and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.
- To promote these principles and practices by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of similar raw materials, petroleum products and wastes.

A Range-Finding Developmental Inhalation Toxicity Study of Unleaded Gasoline Vapor Condensate in Rats and Mice via Whole-Body Exposures

Health and Environmental Sciences Department

API PUBLICATION NUMBER TR 412

PREPARED UNDER CONTRACT BY:

HUNTINGDON LIFE SCIENCES
METTLERS ROAD
PO BOX 2360
EAST MILLSTONE, NJ 08875-2360

APRIL 1998

American Petroleum Institute

FOREWORD

API PUBLICATIONS NECESSARILY ADDRESS PROBLEMS OF A GENERAL NATURE. WITH RESPECT TO PARTICULAR CIRCUMSTANCES, LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS SHOULD BE REVIEWED.

API IS NOT UNDERTAKING TO MEET THE DUTIES OF EMPLOYERS, MANUFACTURERS, OR SUPPLIERS TO WARN AND PROPERLY TRAIN AND EQUIP THEIR EMPLOYEES, AND OTHERS EXPOSED, CONCERNING HEALTH AND SAFETY RISKS AND PRECAUTIONS, NOR UNDERTAKING THEIR OBLIGATIONS UNDER LOCAL, STATE, OR FEDERAL LAWS.

NOTHING CONTAINED IN ANY API PUBLICATION IS TO BE CONSTRUED AS GRANTING ANY RIGHT, BY IMPLICATION OR OTHERWISE, FOR THE MANUFACTURE, SALE, OR USE OF ANY METHOD, APPARATUS, OR PRODUCT COVERED BY LETTERS PATENT. NEITHER SHOULD ANYTHING CONTAINED IN THE PUBLICATION BE CONSTRUED AS INSURING ANYONE AGAINST LIABILITY FOR INFRINGEMENT OF LETTERS PATENT.

ACKNOWLEDGMENTS

THE FOLLOWING PEOPLE ARE RECOGNIZED FOR THEIR CONTRIBUTIONS OF TIME AND EXPERTISE DURING THIS STUDY AND IN THE PREPARATION OF THIS REPORT:

API STAFF CONTACT

Richard Rhoden, Health and Environmental Sciences Department

MEMBERS OF THE DEVELOPMENTAL TOXICITY WORKGROUP

Linda Roberts, Chevron Research and Technology Company

Quang Bui, Unocal Corporation

Wayne Daughtrey, Exxon Biomedical Sciences Inc.

Francis Koschier, ARCO

Susan Rodney, Texaco, Inc.

David Steup, Shell Oil Company

PREFACE

This abridged publication consists of the full text and pertinent data from an initial range-finding study, *A Range-Finding Developmental Inhalation Toxicity Study of Regular Unleaded Gasoline in Rats and Mice via Whole Body Exposure*. The study was conducted by Huntingdon Laboratories under contract to API to determine the appropriate rodent species and exposure levels to be used in a second study. The complete appendices are too voluminous for distribution on a routine basis. The Table of Contents indicates omitted appendices in italics. The complete report is available through the API Information Specialist, 1220 L Street, Washington D.C., 20005.

ABSTRACT

This range-finding study was conducted for the American Petroleum Institute to determine concentration levels appropriate to assess the potential maternal toxicity and developmental toxicity of Unleaded Gasoline Vapor Condensate (API 94-02) administered by inhalation (whole-body exposure) to mated rats during the Day 6-19 gestation interval and to mated mice during the Day 6-17 gestation interval. Exposure levels were 0 (filtered air), 300, 1000, 3000 and 9000 ppm. These data will be used to identify the appropriate rodent species and exposure levels to be used in a definitive inhalation developmental toxicity study. In this study, no maternal or developmental toxicity in either rats or mice was seen up to an exposure level of 3000 ppm. At the highest exposure level evaluated (9000 ppm), maternal toxicity was seen only in the rat (reduced body weights, weight gain and food consumption during the treatment period). No evidence of developmental toxicity was seen in either species at the 9000 ppm exposure level.

Italicized sections in the Table of Contents have been omitted from this publication. These sections are on file at API and may be obtained by contacting the API Information Specialist, 1220 L St.,Washington, D.C., 20005.

TABLE OF CONTENTS

Italicized sections in the Table of Contents have been omitted from this publication. These sections are on file at API and may be obtained by contacting the API Information Specialist, 1220 L St.,Washington, D.C., 20005.

Italicized sections in the Table of Contents have been omitted from this publication. These sections are on file at API and may be obtained by contacting the API Information Specialist, 1220 L St.,Washington, D.C., 20005.

LIST OF TABLES

LIST OF APPENDICES

Italicized sections in the Table of Contents have been omitted from this publication. These sections are on file at API and may be obtained by contacting the API Information Specialist, 1220 L St.,Washington, D.C., 20005.

Italicized sections in the Table of Contents have been omitted from this publication. These sections are on file at API and may be obtained by contacting the API Information Specialist, 1220 L St.,Washington, D.C., 20005.

Italicized sections in the Table of Contents have been omitted from this publication. These sections are on file at API and may be obtained by contacting the API Information Specialist, 1220 L St.,Washington, D.C., 20005.

LABORATORY TITLE PAGE

STUDY NO. 95-6082

API STUDY NO. 08200-0601-SH9343

A RANGE-FINDING DEVELOPMENTAL INHALATION TOXICITY STUDY OF UNLEADED GASOLINE VAPOR CONDENSATE (API 94-02) IN RATS AND MICE VIA WHOLE-BODY EXPOSURE

LABORATORY

Huntingdon Life Sciences
Mettlers Road
P.O. Box 2360
East Millstone, N.J. 08875-2360

SPONSOR

American Petroleum Institute
Health and Environmental Sciences Department
1220 L Street, N.W.
Washington, D.C. 20005

FINAL REPORT

date final report is produced

LABORATORY SIGNATURE PAGE

This report constitutes a true and faithful account of the procedures adopted and the results obtained in the performance of this study.

Raymond E. Schroeder, M.S., D.A.B.T.
Study Director

29 September 97
Date

Carol S. Auletta, B.A., D.A.B.T.
Senior Director, Toxicology

29 Sept 97
Date

Ward R. Richter, D.V.M., M.S.,
Diplomate, A.C.V.P.
Vice President, Research and Pathology

29 Sep 97
Date

LABORATORY INDIVIDUAL SIGNATURE PAGE

Gary M. Hoffman, B.A., D.A.B.T.
Inhalation Toxicologist

29 Sept 97
Date

Arpad J.Madarasz, D.V.M., D.A.B.T.
Pathologist

26 Sep 97
Date

Howard L. Carpenter, B.A.
Scientist, Analytical Services

26 Sept 97
Date

Dari Dadgar, Ph.D.
Vice President, Analytical Services

26/Sept/97
Date

Laura V. Cojocaru, B.S. Chem. Eng.
Manager, Analytical Services

26 Sept. 1997
Date

LABORATORY QUALITY ASSURANCE STATEMENT

Listed below are the dates that this study was inspected by the Quality Assurance Unit of Huntingdon Life Sciences, East Millstone, New Jersey, and the dates that findings were reported to the Study Director and Management.

Type of Inspection	Date(s) of Inspection(s)	Reported to Study Director	Reported to Management
GLP Protocol Review	8 Jun 95	09 Jun 95	19 Jun 95 and 30 Jun 95
Mating Observations	27 Jun 95	27 Jun 95	3 Jul 95 and 14 Jul 95
Exposure and Monitoring	26 Jun 95	27 Jun 95	30 Jul 95 and 23 Aug 95
Gestation Body Weights and Feeder Weights	7 Jul 95	7 Jul 95	14 Jul 95 and 23 Aug 95
Terminal Sacrifice	10 Jul 95	10 Jul 95	14 Jul 95 and 23 Aug 95
Final Analytical Report	16 Oct 95 to 19 Oct 95	19 Oct 95	20 Oct 95
Final In-Life and Pathology Report	16 Oct 95 to 20 Oct 95	20 Oct 95	20 Oct 95
Report Revisions	2 Apr 97	2 Apr 97	2 Apr 97
Report Revisions	26 Jun 97 to 1 Jul 97	7 Jul 97	7 Jul 97

Jane Nelson
Quality Assurance Senior Auditor

26 Sep 97
Date

LABORATORY COMPLIANCE STATEMENT

This study was conducted in compliance with the United States Environmental Protection Agency's Good Laboratory Practice Standards 40 CFR Part 792.

Raymond E. Schroeder, M.S., D.A.B.T.
Study Director

17 Mar 98
Date

Lorraine E. Twerdok, Ph.D.
Sponsor Representative

3/30/98
Date

GOLDMAN ASSOCIATES INTERNATIONAL, INC.

Quality Assurance Statement

Study No. 08200-0601-SH9343

In accordance with the Good Laboratory Practice regulations published at 40 CFR 792, this study was monitored on behalf of the Sponsor, the American Petroleum Institute.

A Range Finding Developmental Inhalation Toxicity Study of Regular Unleaded Gasoline in Rats and Mice via Whole Body Exposure.

was monitored on	and reported to Sponsor on
June 6, 1995	June 6, 1995
June 30, 1995	July 6, 1995
July 12, 1995	July 29, 1995
July 22, 1995	July 22, 1995

Dexter S. Goldman, Ph.D., President

P.O. Box 3374 • Gaithersburg, Maryland 20885-3374 • Voice: 301.963.0142 • Fax: 301.963.6713
200 Twelve Oaks Drive • Gaithersburg, Maryland 20878
Internet: dexterg@GLPMavenGAI.com http:// www.GLPMavenGAI.com

Section 1

SUMMARY

This inhalation study was performed to provide range-finding information on the maternal and developmental toxicity of Unleaded Gasoline Vapor Condensate (API 94-02) in rats and mice. Data from this study will be used to identify the appropriate rodent species and exposure levels to use in a definitive inhalation developmental toxicity study. Unleaded Gasoline Vapor Condensate (API 94-02) was administered as a vapor, via inhalation (whole-body) exposure, 6 hours/day to 40 mated rats (10/group) during Days 6-19 of gestation and to 40 mated mice (10/group) during Days 6-17 of gestation. Exposure levels were 300, 1000, 3000, and 9000 ppm. Ten mated rats and ten mated mice, which served as controls, were chamber-housed and received filtered room air only, 6 hours/day over the same treatment intervals.

Study animals were observed twice daily for mortality/morbidity and for obvious pharmacologic and/or toxicological effects. In addition, each animal was removed from its cage and given a detailed physical examination on Day 0 of gestation, daily both pre- and post-exposure during the treatment period and at terminal sacrifice. Body weights were recorded on Days 0, 3, 6, 9, 12, 15, 18, and 20 of gestation in the rat and Days 0, 3, 6, 9, 12, 15, and 18 of gestation in the mouse. Food consumption was recorded on Days 0-3, 3-6, 6-9, 9-12, 12-15, 15-18, and 18-20 of gestation for the rats and Days 0-3, 3-6, 6-8, 8-10, 10-12, 12-14, 14-16, and 16-18 of gestation for the mice.

Chamber exposure concentrations were evaluated daily using infrared spectrophotometry (hourly), gas chromatography (single grab sample, daily) and analysis of charcoal tubes (four samples/day). The latter were analyzed to monitor the ratio of the ten major components of the test material.

At terminal sacrifice (Day 18 of gestation for the mouse and Day 20 of gestation for the rat), animals were given a macroscopic postmortem examination. The gravid uterus with the ovaries attached was removed, weighed intact and evaluated for the number of fetuses and resorption sites. The number of *corpora lutea* on the ovaries was also recorded. Fetuses were removed from the uterus, weighed, sexed externally and evaluated for external irregularities. The fetuses were then sacrificed with an overdose of inhaled carbon dioxide and discarded.

The mean daily total hydrocarbon concentrations ± standard deviations from the infrared spectrophotometric evaluation over the entire exposure period for the 300, 1000, 3000 and 9000 ppm groups were 314 ± 31, 1034 ± 63, 3073 ± 146 and 9025 ± 417 ppm, respectively. Gas chromatograph analyses of syringe and charcoal tube samples of the exposure atmospheres, demonstrated a similarity among all exposure groups and a stability of the test material during each exposure day. In these data, nine major components of the test material were expressed as a ratio to isopentane, the largest component.

No mortality occurred in the control or treated animals for either species.

In the mouse, no maternal or developmental toxicity was seen at any exposure level of Unleaded Gasoline Vapor Condensate (API 94-02) evaluated.

In the rat, no maternal or developmental toxicity was seen at exposure levels up to and including 3000 ppm. At the 9000 ppm exposure level, the following statistically significant changes were seen in comparison to control data and were considered indicative of maternal toxicity: reduced body weights on Days 12, 15 and 20 of gestation; reduced weight gain over the Day 6-20 gestation interval using the actual Day 20 gestation weight; and reduced food consumption over the Day 6-9 gestation interval. No developmental toxicity was seen in the rat at the 9000 ppm exposure level.

Section 2

INTRODUCTION

The procedures and results obtained from a range-finding inhalation toxicity study of Unleaded Gasoline Vapor Condensate (API 94-02) in rats and mice via whole body exposure are presented in this report. This study was conducted at Huntingdon Life Sciences, Mettlers Road, P.O. Box 2360, East Millstone, New Jersey 08875-2360.

This inhalation study was performed to provide range-finding information on the maternal and developmental toxicity of Unleaded Gasoline Vapor Condensate (API 94-02) in rats and mice. Data from this study will be used to identify the appropriate rodent species and exposure levels to use in a definitive inhalation developmental toxicity study. Unleaded Gasoline Vapor Condensate (API 94-02) was administered as a vapor, via inhalation (whole-body) exposure, 6 hours/day to 40 mated rats (10/group) during Days 6-19 of gestation and to 40 mated mice (10/group) during Days 6-17 of gestation. Exposure levels were 300, 1000, 3000, and 9000 ppm. Ten mated rats and ten mated mice which served as controls, were chamber-housed and received filtered room air only, 6 hours/day over the same treatment intervals.

Procedures used during the study are presented in the Materials and Methods/References section of the report. Maternal and developmental toxicity data for the rat are presented in Appendices A through J and similar data for the mouse are presented in Appendices K through T. Data regarding the inhalation exposures are presented in Appendix U. Results, as well as methods used, for the chamber analyses performed by the Testing Facility's Metabolism and Analytical Department are presented in Appendix V. Historical control data for both rats and mice are presented in Appendix W. A copy of the study protocol and protocol amendments are presented in Appendix X.

Section 3

MATERIALS AND METHODS/REFERENCES

REGULATORY REFERENCES

Good Laboratory Practices

This study was conducted in compliance with Part 792 of 40 CFR (EPA Good Laboratory Practices - TSCA).

Animal Welfare Act Compliance

This study complied with all appropriate parts of the Animal Welfare Act Regulations: 9 CFR Parts 1 and 2 Final Rules, Federal Register, Volume 54, No. 168, August 31, 1989, pp. 36112-36163 effective October 30, 1989 and 9 CFR Part 3 Animal Welfare Standards; Final Rule, Federal Register, Volume 56, No. 32, February 15, 1991, pp. 6426-6505 effective March 18, 1991.

Facilities Management/Animal Husbandry

Currently acceptable practices of good animal husbandry were followed, e.g., Guide for the Care and Use of Laboratory Animals; DHHS Publication No. (NIH) 86-23, Revised 1985. Huntingdon Life Sciences, East Millstone, New Jersey is fully accredited by the American Association for Accreditation of Laboratory Animal Care (AAALAC).

STUDY MANAGEMENT

Sponsor

American Petroleum Institute
Health and Environmental Sciences Department
1220 L Street, N.W.
Washington, D.C. 20005

Sponsor Representative

Richard A. Rhoden, Ph.D.

Testing Facility

Huntingdon Life Sciences
Mettlers Road
P.O. Box 2360
East Millstone, New Jersey 08875-2360

Study Director

Raymond E. Schroeder, M.S., D.A.B.T.

EXPERIMENTAL DESIGN

Group	Test Material	Exposure Level (ppm)	Treatment Schedule[a]		Number of Animals				Proportion of Fetuses/Litter Evaluated for External Malformations and/or Variations
					Mated		Sacrificed[b]		
			Rats (GD)	Mice (GD)	Rats	Mice	Rats (GD 20)	Mice (GD 18)	
I	Control	0	6-19	6-17	10	10	10	10	All
II	Unleaded Gasoline Vapor Condensate (API 94-02)	300	6-19	6-17	10	10	10	10	All
III	Unleaded Gasoline Vapor Condensate (API 94-02)	1000	6-19	6-17	10	10	10	10	All
IV	Unleaded Gasoline Vapor Condensate (API 94-02)	3000	6-19	6-17	10	10	10	10	All
V	Unleaded Gasoline Vapor Condensate (API 94-02)	9000[c]	6-19	6-17	10	10	10	10	All

[a]Exposures were 6 hours/day.

[b]Complete gross postmortem evaluations were performed on all animals.

GD = gestation day

[c]The Lower Explosive Limit (LEL) for Unleaded Gasoline Vapor Condensate (API 94-02) as reported in the American Petroleum Institute DTI Report 2509 was 1.25% (12,500 ppm). The high-exposure level of 9000 ppm represents approximately 75% of the LEL.

STUDY DATES

Study Initiation (Date Study Director signed the Protocol)

14 June 1995

Initiation of Mating (Experimental Start Date)

Rats: 19 June 1995

Mice: 21 June 1995

Initiation of Exposure

Rats: 26 June 1995

Mice: 28 June 1995

Termination of Exposure

Rats: 19 July 1995

Mice: 13 July 1995

Terminal Sacrifice

Rats: 10-20 July 1995

Mice: 10-14 July 1995

Experimental Termination (Date of Last Data Collection)

Rats: 20 July 1995

Mice: 14 July 1995

Study Termination

29 September 1997

TEST MATERIAL INFORMATION

TEST MATERIAL	LOT NO.	PURITY	DESCRIPTION	DATE RECEIVED	EXPIRATION DATE
Unleaded Gasoline Vapor Condensate (API 94-02)	API 94-02	Considered 100%	Clear liquid	6 March 1995	December 1999

Supplier

Chevron Research and Technology Company
100 Chevron Way
Richmond, California 94802-0627

Analysis

Documentation of the identity, strength, purity, composition; and synthesis, fabrication, and/or derivation of the test material was the responsibility of the Sponsor.

Stability

Documentation of the stability of the test material was the responsibility of the Sponsor.

Storage

Upon receipt, the test material was stored at ambient temperature in an outdoor solvent shed. When transferred indoors for use, the test material was stored at room temperature except during atmosphere generation when it was kept frozen at a temperature of -20°C.

Archival Sample

A sample of approximately 10 mL of test material is stored in the Archives of the Testing Facility.

Disposition

The unused portion of the test material, and any empty test material containers, are being retained at the Testing Facility until completion of the definitive study.

TEST ANIMAL INFORMATION

Test Animals

Rats: Albino (Outbred) VAF/Plus®

Strain: Sprague-Dawley derived (CD®) [Crl: CD® BR]

Mice: Albino

Strain: CD-1™ [Crl: CD-1®(ICR) BR]

Justification for Animal Selection

The rat and mouse are rodent animal models commonly used in developmental toxicity studies as recommended in the EPA-TSCA guidelines. In addition, historical control data are available for these species in this laboratory for comparative evaluation.

Number of Animals Purchased

Rats: 75 females

Mice: 90 females

All purchased animals were nulliparous and non-pregnant.

Number of Animals Placed On Test

Rats: 50 females

Mice: 50 females

Supplier - Males and Females

Charles River Laboratories
Portage, Michigan 49081

Date Received - Females

Rats and Mice: 22 May 1995

Date Received - Males

Rats and Mice: 1 May 1995

For rats, proven breeders were used solely for mating purposes (in-house breeding colony).

For mice, young males were received and used strictly for mating this study.

Age at Receipt - Females

Rats and Mice: 57 days old

Age at Receipt - Males

Rats: 50 days old

Mice: 43 days old

Age at Initiation of Mating - Females

Rats: 85 days old

Mice: 87 days old

Age at Initiation of Mating - Males

Rats: 99 days old

Mice: 92 days old

Weight of Mated Females Used on Test (Gestation Day 0)

	Mean (grams)	Range (grams)
Rats:	260	219-293
Mice:	29	25-34

Acclimation Period - Females

Rats: 28 days

Mice: 30 days

SELECTION

More females than required for the study were purchased and acclimated. Animals considered unsuitable for the study on the basis of pretest physical examinations were eliminated prior to initiation of mating.

MATING

Rats

Females selected for mating were placed with male rats nightly in a 1:1 ratio. Vaginal smears were taken early in the morning following intervals of nightly cohabitation and females were considered to have mated if sperm was noted microscopically in the vaginal rinse and/or a plug was observed in the vaginal opening. The day on which evidence of mating was observed was defined as Day 0 of gestation. The evenings for cohabitation of males with females were scheduled to provide females at Day 20 gestation sacrifice during the Monday-to-Friday work week.

Mating was conducted on nine nights, 19-23, 26-29 June 1995.

Mice

Females selected for mating were placed with male mice nightly in a 1:1 ratio. In the morning, following the nightly interval of cohousing, females were evaluated for the presence of a vaginal copulatory plug . The day on which evidence of mating was observed was defined as Day 0 of gestation. The evenings for cohabitation of males with females were scheduled to provide females at Day 18 gestation sacrifice during the Monday-to-Friday work week.

Mating was conducted on five nights, 21-25 June 1995.

GROUP ASSIGNMENT

Females which mated were assigned to the groups daily in such a way as to provide an equal distribution of mated females among groups and equalize, as best possible, the Day 0 gestation mean body weights between groups.

ANIMAL IDENTIFICATION

Each female was assigned a temporary identification number upon receipt. Each mated female animal sorted into test groups was identified with a metal ear tag (rats) or a tail tattoo (mice) bearing its assigned animal number. This individual animal number plus the study number comprised a unique identification for each animal. Mated animals were either eartagged or tail tattooed on the day they were sorted into test groups, which was Day 0 of gestation. Each non-exposure cage was provided with a card that was color coded for exposure level identification, and contained the study number and animal number.

ANIMAL HUSBANDRY - NON-EXPOSURE

Housing

Rats were housed individually, except during mating, in elevated, stainless steel suspended cages with wire mesh floors and fronts.

Two mice of the same sex were housed together in stainless steel, suspended cages with wire mesh floors and fronts for the first week of acclimation. Thereafter, except during mating, animals were housed individually.

Food

Certified Rodent Diet, No. 5002; (Meal) (PMI Feeds, Inc., St Louis, MO) was available without restriction. Each animal's cage was fitted to retain a glass feeder jar with a stainless steel lid. During the acclimation period, fresh feed was provided weekly to the rats while the mice received fresh feed every three to four days. During gestation, fresh food was presented to the rats on Days 0, 6 and 12. The mice were provided with fresh food on Days 0, 3, 6, 10 and 14 of gestation. (Note: For the mice, one animal each from the control, 300, 1000 and 3000 ppm groups and two animals from the 9000 ppm groups were not provided with fresh feeders on Day 3 of gestation due to an oversight. This oversight was not considered to have compromised the validity or integrity of the study as the feeders contained sufficient feed for the animals to Day 6.)

Analyses of Feed

Analyses of each feed lot used during this study were performed by the PMI Feeds, Inc. These data are maintained on file at the Testing Facility.

Water

Tap water was available without restriction (supplier - Elizabethtown Water Company, Westfield, New Jersey, Raritan-East Millstone Plant) and provided to individual cages by an automated water delivery system.

Monthly Water Analyses

Monthly analyses of water supplied to this facility were provided by the Supplier. These data are maintained on file at the Testing Facility.

Biannual Water Analyses

Biannual chemical and microbiological analyses of water samples collected from representative rooms in the Testing Facility were conducted to assure that the water being provided met standards specified under the EPA National Primary Drinking Water Regulations (40 CFR Part 141). These data are maintained on file at the Testing Facility.

Contaminants

There were no known contaminants in the feed or water which were considered capable of interfering with the results of this study.

Environmental Conditions

Twelve hour light/dark cycle via automatic timer. During acclimation, the light cycle in the animal room was approximately 0700 to 1900 hours. On Day 6 of gestation, animals were transferred to a different room for the remainder of the study. In this room the light cycle was approximately 0600 to 1800 hours.

Temperature was monitored and recorded twice daily; relative humidity was monitored and recorded once daily.

	Desired	Actual
Temperature:	18 to 26°C	20 to 24°C
Relative Humidity:	40 to 70%	42 to 74%

ANIMAL HUSBANDRY DURING EXPOSURE

Housing

Animals were individually housed in wire mesh, stainless steel cages within a 1000 liter glass and stainless steel exposure chamber (see Appendix U for details).

Food and Water

None

Environmental Conditions

Chamber temperature and humidity were monitored and recorded every half hour during exposure and maintained, to the maximum extent possible, within the ranges presented below. See Appendix U for monitoring equipment details.

	Desired	Actual
Temperature:	20 to 24°C	21 to 26°C
Relative Humidity:	40 to 60%	42 to 68%

TEST MATERIAL ADMINISTRATION

Route of Administration

Inhalation, as a vapor, via whole-body exposure.

Justification for Route of Administration

The inhalation route is one of the potential routes of human exposure to the test material.

Frequency and Duration Of Exposure

Rats were exposed for 6 hours daily over the Day 6-19 gestation period. Mice were exposed for 6 hours daily over the Day 6-17 gestation period.

Dates of Exposure

Day 6 of gestation. Rats: 26 June - 6 July 1995

Mice: 28 June - 2 July 1995

Day 19 of gestation. Rats: 9-19 July 1995

Day 17 of gestation. Mice: 9-13 July 1995

Prestudy Trials

Trials were performed to evaluate the optimal set of equipment and operating conditions to generate a stable atmosphere at the targeted exposure levels. See Appendix U, pages 23 and 24 for details of prestudy trials.

Chamber Operation

Chamber operation procedures as well as the chamber's airflow rate, time for air change and 99% equilibrium time (T_{99}) for each group are presented in Appendix U.

TEST MATERIAL PREPARATION

The test material was used as received.

EXPOSURE PROCEDURES

Complete exposure procedures for all groups, both species, are presented in Appendix U.

EXPOSURE CHAMBER SAMPLING

Total hydrocarbon levels were measured six times/exposure for the 300, 1000, 3000 and 9000 ppm groups and once daily for the controls using infrared spectrophotometry.

One sample/exposure for the 300, 1000, 3000 and 9000 ppm groups was analyzed using a syringe grab sample and a gas chromatographic (GC) procedure to characterize airborne vapor components. The ten major components listed below were identified for analysis: isopentane, n-Butane; N-Pentane; *trans*-2 Pentene; 2-Methyl-2-butene; 2,3 Dimethylbutane; 2-Methylpentane; 3-Methylpentane; n-Hexane; Toluene.

Four samples/exposure for the 300, 1000, 3000 and 9000 ppm groups were collected in charcoal tubes and analyzed to monitor the ratio of the major components. The ten major components listed above were identified for analysis. Details of the actual sampling procedures are presented in Appendix U.

Nominal Concentration

A nominal exposure concentration was calculated daily for the 300, 1000, 3000, and 9000 ppm groups. The flow of air through the chamber was monitored using appropriate calibrated equipment. The test material consumed during the exposure was divided by the total volume of air passing through the chamber (volumetric flow rate multiplied by total exposure time) to give the nominal concentration using the following calculation:

$$\text{Nominal concentration (ppm)} = \frac{\Delta \text{ wt (g)}}{\text{Vol (L)}} \times \frac{24.457 \text{ L/mole}}{\text{MW (g/mole)}} \times 10^6 \text{ µl/L.}$$

Particle Size Distribution Analysis

Particle size distribution measurements were performed once during each exposure to characterize the aerodynamic particle size distribution of any aerosol present. This measurement determined whether any aerosol present was due to background aerosol vs. test material aerosol. Complete procedural information is presented in Appendix U.

EXPERIMENTAL EVALUATIONS

Observations

Viability Checks (In-Cage). Observations for mortality, general appearance and signs of severe toxic or pharmacologic effects were made twice daily (morning and afternoon) on both species.

Physical Examinations. Each rat was removed from its cage and given a detailed physical examination on Days 0, 6-19 and 20 of gestation. In the mouse, these detailed examinations were performed on Days 0, 6-17 and 18 of gestation. During the exposure period, animals were evaluated both pre-exposure and post-exposure. The latter examination was performed approximately a half hour after exposures ceased when animals were removed from the chamber. Control animals were also removed from the chamber and examined at the same time as the test animals.

Body Weights

Each rat was weighed on Days 0, 3, 6, 9, 12, 15, 18 and 20 of gestation using a Mettler Balance, Model PE4000 (Mettler Instrument Corporation, Hightstown, New Jersey). Day 20 gestation body weights are presented as actual and corrected (the actual Day 20 gestation body weight minus the weight of the gravid uterus) values.

Each mouse was weighed on Days 0, 3, 6, 9, 12, 15 and 18 of gestation using a Sartorious Electric Top Loading Balance, Model Number U3600 (Sartorious Corporation, Edgewood, New York). Day 18 gestation body weights are presented as actual and corrected (the actual Day 18 gestation body weight minus the weight of the gravid uterus) values.

Food Consumption

Rats were presented with weighed feeders on Days 0, 3, 6, 9, 12, 15 and 18 of gestation. Feeders were removed on Days 3, 6, 9, 12, 15, 18 and 20 of gestation and weighed. All feeder weights were measured using a Mettler Balance, Model PE4000 (Mettler Instrument Corporation, Hightstown, New Jersey).

Mice were presented with weighed feeders on Days 0, 3, 6, 8, 10, 12, 14 and 16 of gestation. Feeders were removed on Days 3, 6, 8, 10, 12, 14, 16 and 18 of gestation and weighed. All feeder weights were measured using a Sartorious Electric Top Loading Balance, Model U3600 (Sartorious Corporation, Edgewood, New York).

Calculations. The resulting weight of the feeder at the end of the measurement interval was subtracted from the initial feeder weight. The resulting value represented the grams of feed consumed/interval. The following formula was used to calculate grams of feed per kilogram of body weight per day (g/kg/day).

$$\text{g/kg/day} = \frac{\text{grams of feed consumed}}{\text{previous body weight (kilograms)}} \div \text{Number of days}$$

Measurement intervals (i.e., the number of days over which food consumption was measured) and the body weight used to calculate food consumption are as follows:

Rats
Day 0-3 = 3-day interval using Day 0 body weight.
Day 3-6 = 3-day interval using Day 3 body weight.
Day 6-9 = 3-day interval using Day 6 body weight.
Day 9-12 = 3-day interval using Day 9 body weight.
Day 12-15 = 3-day interval using Day 12 body weight.
Day 15-18 = 3-day interval using Day 15 body weight.
Day 18-20 = 2-day interval using Day 18 body weight.

Mice
Day 0-3 = 3-day interval using Day 0 body weight.
Day 3-6 = 3-day interval using Day 3 body weight.
Day 6-8 = 2-day interval using Day 6 body weight.
Day 8-10 = 2-day interval using Day 6 body weight.
Day 10-12 = 2-day interval using Day 9 body weight.
Day 12-14 = 2-day interval using Day 12 body weight.
Day 14-16 = 2-day interval using Day 12 body weight.
Day 16-18 = 2-day interval using Day 15 body weight.

Body weights and feeder weights were recorded to the nearest tenth of a gram and are presented in this report as a rounded whole number; the reported g/kg/day of food consumption was calculated using the unrounded body weights and feeder weights.

MATERNAL POSTMORTEM EXAMINATIONS

Macroscopic Postmortem Examinations

Complete macroscopic postmortem examinations were performed on all test animals. This included examination of all surfaces, all orifices, the cranial cavity, carcass, the external surface of the spinal cord and sectioned surfaces of the brain, nasal cavity and paranasal sinuses, the thoracic, abdominal and pelvic cavities and their viscera and the cervical tissues and organs. The carcass of each female was discarded at completion of the macroscopic postmortem examination. Only gross lesions were saved in 10% neutral buffered formalin.

Animals Sacrificed

All animals were exsanguinated following anesthesia with inhaled carbon dioxide. Rats were sacrificed on Day 20 of gestation during the period of 10-20 July 1995 and mice were sacrificed on Day 18 of gestation during the period of 10-14 July 1995.

Reproductive System

The intact uterus (ovaries attached) was removed from the abdominal cavity and weighed. The ovaries were dissected free to be examined for the presence and number of *corpora lutea*. The uteri were dissected longitudinally along the antimesometrial border and the number and location of the following were recorded for each horn: live fetuses (movement in response to touch); dead fetuses (absence of movement in response to touch with no visible degeneration); late resorptions (recognizable dead fetus undergoing degeneration regardless of size); early resorptions (evidence of implantation but no recognizable fetus); and implantation sites (total of live, dead and resorbed fetuses).

When no uterine implants were grossly apparent, the uterus was stained with ammonium sulfide (Salewski, 1964). When no uterine foci were visualized poststaining, the female was considered not pregnant.

FETAL EVALUATIONS

External Evaluations

All rat fetuses were weighed, using a Mettler Balance, Model No. PE4000 (Mettler Instrument Corporation, Hightstown, New Jersey) and all mouse fetuses were weighed using an AND Electronic Balance Model FX3200 (A&D Engineering, Inc., Milpitas, California). All fetuses were sexed externally (ano-genital distance) and given a macroscopic external examination for malformations and variations that included observations for palatal defects.

Following these examinations, all fetuses were euthanized via an overdose of carbon dioxide and discarded. Only fetuses with external malformations were saved in 10% neutral buffered formalin at the discretion of the Study Director.

Resorptions

Late resorptions were weighed, examined macroscopically for external malformations and discarded.

STATISTICAL ANALYSES

Continuous Data

The following parameters were analyzed statistically:

Rats

Mean body weights during gestation: Days 0, 3, 6, 9, 12, 15, 18 and 20.

Mean body weight change during gestation: Days 0-3, 3-6, 6-9, 9-12, 12-15, 15-18, 18-20 and cumulative to include Days 0-6 and 6-20. A cumulative weight gain for the Gestation Day 6-20 interval was also calculated for each animal using the corrected Day 20 gestation weights.

Mean food consumption values during gestation: Days 0-3, 3-6, 6-9, 9-12, 12-15, 15-18 and 18-20.

Mice

Mean body weights during gestation: Days 0, 3, 6, 9, 12, 15 and 18.

Mean body weight change during gestation: Days 0-3, 3-6, 6-9, 9-12, 12-15, 15-18 and cumulative to include Days 0-6 and 6-18. A cumulative weight gain for the Gestation Day 6-18 interval was also calculated for each animal using the corrected Day 18 gestation weights.

Mean food consumption values during gestation: Days 0-3, 3-6, 6-8, 8-10, 10-12, 12-14, 14-16, and 16-18.

Reproduction Data (both species)

Mean number of *corpora lutea*
Mean number of uterine implantation sites per female
Mean number of live and dead fetuses per female
Mean number of resorptions per female
Mean pre-implantation loss ratio (*corpora lutea* - implantations/*corpora lutea*)
Mean resorption/implant ratio
Mean number of male and female fetuses per female
Mean fetal weight (composite of both sexes and distinguished by sex).

Incidence Data

Females with resorptions
Pregnancy rates
Females with viable fetuses
Females that deliver prematurely
Incidence of fetuses with external malformations
Incidence of litters containing fetuses with external malformations

STATISTICAL ANALYSES/CONTINUOUS DATA

Interval Data - Multiple Group (Method A)

Statistical evaluation of equality of means was made by the appropriate one-way analysis of variance technique, followed by a multiple comparison procedure, if needed. First, Bartlett's test (Snedecor and Cochran, 1967) was performed to determine if groups had equal variance. If the variances were equal, parametric procedures were used; if not, nonparametric procedures were used. The parametric procedures were the standard one-way ANOVA (Snedecor and Cochran, 1967) using the F distribution to assess significance. If significant differences among the means were indicated, Dunnett's test (Dunnett, 1955; Dunnett, 1964) was used to determine which means were significantly different from the control. If a nonparametric procedure for testing equality of means was needed, the Kruskal-Wallis test (Hollander and Wolfe, 1973) was used, and if differences were indicated, a summed rank test (Dunn) (Hollander and Wolfe, 1973) was used to determine which treatments differed from control.

A statistical test for trend in the dose levels was also performed. In the parametric case (i.e., equal variance), standard regression techniques with a test for trend and lack-of-fit were used (Snedecor and Cochran, 1967). In the nonparametric case, Jonckheere's test (Hollander and Wolfe, 1973) for monotonic trend was used.

All ratios were transformed via Bartlett's transformation followed by the arc-sine transformation (Snedecor and Cochran, 1967) prior to analysis. Data are presented untransformed.

The test for equal variance (Bartlett's) was conducted at the 1% two-sided risk level. All other statistical tests were conducted at the 5% and 1%, two-sided risk levels.

Key to Statistical Symbols - Interval Data - Multiple Group (Method A)

STATISTICAL SYMBOL			STATISTICAL STATEMENT
No Sig	p≤0.05	p≤0.01	
	Parametric		
A-			No statistical differences among the means (parametric ANOVA).
	A	A+	The means differ significantly (parametric ANOVA).
L-			The response is not linearly related to the dose levels.
	L	L+	The response is linearly related to the dose levels.
	Q	Q+	The response shows a lack-of-fit.
	*	**	Significantly different from control (Dunnett's).
NT			Not tested due to lack of variability.
	Nonparametric		
K-			No statistical differences among the means (Kruskal-Wallis, nonparametric).
	K	K+	The means differ significantly (Kruskal-Wallis nonparametric).
J-			There is not an ordered response to dosage.
	J	J+	There is an ordered response to dosage.
	*	**	Significantly different from control (Dunn's Rank Sum).
NT			Not tested due to lack of variability.

Statistical symbols are presented on the mean and summary tables of the report.

STATISTICAL ANALYSES/INCIDENCE DATA

Incidence Data - Method B

Statistical analysis of incidence data was performed using contingency tables. First, a standard Chi-square analysis (Snedecor and Cochran, 1971) was performed to determine if the proportion of incidences differed between the groups tested. Next, each treatment group was compared to the control group using a 2x2 Fisher Exact Test (Bradley, J. V., 1968); the significance level was corrected via the Bonferroni inequality (Miller, R. G., Jr., 1966) to assure an overall test of the stated significance level. Thirdly, Armitage's test (Armitage, P., 1955) for linear trend in the dosage groups was performed. In keeping with standard statistical practice, if any one cell had an expected value of less than 5, the Chi-square and Armitage's tests were not reported. When this occurred, only the Fisher Exact test (corrected via Bonferroni inequality) was performed and reported.

All tests were reported at the 5% and 1% level of significance.

Key to Statistical Symbols - Incidence Data - (Method B)

STATISTICAL SYMBOL			STATISTICAL STATEMENT
No Sig	$p \leq 0.05$	$p \leq 0.01$	
C-			No statistical differences among the groups (chi-square).
	C	C+	The groups differ significantly (chi-square).
	*	**	Significantly different from control (Fisher Exact Test).
	A	A+	The response is linearly related to the dose levels (Armitage Test).
	F	F+	The response shows a lack of fit.
NS			No statistical differences from control (Fisher Exact Test, when any one cell had an expected value less than 5).
NT			Not tested due to lack of variability.
(FE)			Indicates significance by the Fisher Exact Test when any one cell had an expected value less than 5. An asterisk (*) will appear next to the treated group which is significantly different from the control group.

Statistical symbols are presented on the mean and summary tables of the report.

PROTOCOL DEVIATION

The following protocol deviation occurred during the study but was not considered to have compromised the validity or integrity of the study:

The percent isopentane was assayed by the analytical chemistry department. This value was used to calculate chamber concentrations by gas chromatography for comparison to the MIRAN® values. This procedure was for comparison only. It was not required by protocol and was not reported.

Section 4

RESULTS AND DISCUSSION/CONCLUSION

CHAMBER MONITORING (APPENDIX U)

Exposure Levels

The complete chamber monitoring results are presented in Appendix U. These results include total hydrocarbon exposure levels obtained from a MIRAN® infrared spectrophotometer and GC (gas chromatography) fingerprints obtained from both syringe and charcoal tube samples. The GC syringe samples allowed for the most accurate analysis of the components in the test material because capture and retention of the test material mixture's most volatile components on charcoal tubes were subject to inaccuracies caused by vapor leakage. Because of the time necessary for elution of the GC samples, one GC syringe sample was taken each day to confirm composition and stability of the test material among exposure groups and over the course of the study. The multiple daily charcoal tube samples confirmed stability of the test material composition during the 6 hour exposure day.

Prestudy chamber trials were conducted to determine the optimum conditions for producing the target exposure levels. These trials also included distribution analyses (page U-24) which showed the test material was evenly distributed within each chamber.

The target, mean total hydrocarbon, and nominal concentrations for this study are summarized below (Table 1):

Table 1: Summary of Concentrations

Group	Target Concentration (ppm)	Miran Analytical Concentration (ppm)	Nominal Concentration (ppm)
		Mean ± S.D.	Mean ± S.D.
I	0	0	-
II	300	314 ± 31	331± 50
III	1000	1034 ± 63	1121± 75
IV	3000	3073 ± 146	3354± 215
V	9000	9025 ± 417	9218± 452

The achieved mean exposure concentration for each group was very close to the respective target and nominal concentrations. Chamber environmental conditions averaged 23°C and 55% relative humidity.

Syringe Samples

The results of the GC syringe sample fingerprints of the exposure atmospheres are summarized in Table 2 on the following page. The results, which present the ratio of nine major components to isopentane, the largest component, showed similarity among all exposure groups. The only exception was for toluene, for which the ratio generally decreased with increasing exposure level. In addition, the individual syringe sample data show minimal variation, as reflected in the standard deviation, over the course of the study.

Table 2: Summary of GC Syringe Sample Fingerprints of Exposure Atmosphere Results: Ratio of each of the following nine major components to isopentane

	N-Butane Ratio	N-Pentane Ratio	Trans-2-Pentene Ratio	2-Methyl -2-Butene Ratio	2,3-Dimethyl Butane Ratio	2-Methyl Pentane Ratio	3-Methyl Pentane Ratio	N-Hexane Ratio	Toluene Ratio
GROUP II - 300 ppm									
MEAN	0.604	0.255	0.074	0.106	0.089	0.243	0.128	0.078	0.102
S.D.	0.069	0.005	0.001	0.002	0.005	0.014	0.008	0.005	0.054
GROUP III - 1000 ppm									
MEAN	0.692	0.248	0.073	0.104	0.083	0.230	0.119	0.073	0.072
S.D.	0.011	0.013	0.002	0.002	0.008	0.005	0.003	0.003	0.005
GROUP IV - 3000 ppm									
MEAN	0.621	0.258	0.077	0.107	0.086	0.246	0.125	0.081	0.075
S.D.	0.111	0.007	0.002	0.004	0.008	0.023	0.012	0.009	0.015
GROUP V - 9000 ppm									
MEAN	0.717	0.252	0.077	0.105	0.079	0.225	0.113	0.072	0.056
S.D.	0.028	0.002	0.001	0.001	0.002	0.005	0.003	0.002	0.006

Charcoal Tube Samples

The results of the charcoal tube sample fingerprints are summarized in Table 3 on the following page. These results show that the composition of the test material was stable from sample to sample during the exposure day. Therefore, the test animals were exposed to a test material of uniform composition over the course of the study.

Table 3: Charcoal Tube Samples - Summary of Daily Mean Ratios

	N-Butane Ratio	N-Pentane Ratio	Trans-2-Pentene Ratio	2-Methyl -2-Butene Ratio	2,3-Dimethyl Butane Ratio	2-Methyl Pentane Ratio	3-Methyl Pentane Ratio	N-Hexane Ratio	Toluene Ratio
Group II - 300 ppm Sample No.									
1	0.566	0.267	0.080	0.114	0.095	0.270	0.141	0.093	0.097
2	0.568	0.266	0.080	0.113	0.093	0.267	0.139	0.093	0.095
3	0.567	0.267	0.080	0.113	0.094	0.268	0.139	0.091	0.095
4	0.562	0.267	0.080	0.114	0.092	0.270	0.140	0.093	0.097
MEAN	**0.566**	**0.267**	**0.080**	**0.114**	**0.093**	**0.269**	**0.140**	**0.092**	**0.096**
SD	**0.003**	**0.000**	**0.000**	**0.000**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
Group III - 1000 ppm Sample No.									
1	0.661	0.259	0.078	0.110	0.087	0.249	0.129	0.083	0.084
2	0.657	0.260	0.079	0.111	0.086	0.251	0.119	0.088	0.087
3	0.657	0.261	0.079	0.111	0.087	0.251	0..128	0.088	0.088
4	0.654	0.261	0.079	0.111	0.087	0.252	0.134	0.086	0.086
MEAN	**0.657**	**0.260**	**0.079**	**0.111**	**0.086**	**0.251**	**0.127**	**0.086**	**0.086**
SD	**0.003**	**0.001**	**0.000**	**0.000**	**0.002**	**0.001**	**0.008**	**0.002**	**0.002**
Group IV - 3000 ppm Sample No.									
1	0.581	0.267	0.080	0.115	0.093	0.269	0.140	0.095	0.097
2	0.586	0.266	0.081	0.114	0.092	0.266	0.138	0.092	0.093
3	0.586	0.267	0.081	0.114	0.093	0.267	0.139	0.092	0.099
4	0.587	0.266	0.081	0.114	0.091	0.266	0.138	0.091	0.094
MEAN	**0.585**	**0.266**	**0.080**	**0.114**	**0.092**	**0.267**	**0.139**	**0.092**	**0.096**
SD	**0.003**	**0.000**	**0.000**	**0.001**	**0.001**	**0.001**	**0.001**	**0.002**	**0.002**
Group V - 9000 ppm Sample No.									
1	0.668	0.261	0.079	0.111	0.086	0.251	0.130	0.086	0.087
2	0.665	0.261	0.079	0.111	0.089	0.252	0.131	0.086	0.087
3	0.667	0.261	0.079	0.111	0.087	0.251	0.130	0.085	0.087
4	0.671	0.260	0.079	0.111	0.086	0.249	0.129	0.085	0.085
MEAN	**0.668**	**0.261**	**0.079**	**0.111**	**0.087**	**0.251**	**0.130**	**0.086**	**0.087**
SD	**0.003**	**0.000**	**0.000**	**0.000**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**

Note: Sample numbers: Four samples were taken, approximately 60 minutes apart, during each exposure.

Particle Sizing

Particle size distribution measurements of the background aerosol from all the exposure groups are summarized below (Table 4):

Table 4: Summary of Particle Size Distribution Measurements

Group	Mass Median Aerodynamic Diameter (μm)	Geometric Standard Deviation	Total Mass Concentration (mg/m^3)
I	1.7	1.7	5.96×10^{-3}
II	1.6	1.9	5.67×10^{-3}
III	1.6	1.9	5.58×10^{-3}
IV	1.8	1.8	5.95×10^{-3}
V	1.4	1.9	5.27×10^{-3}

The similarity of concentration and particle size of the background aerosol among all of these groups indicated that there was no measurable test material aerosol present.

MATERNAL DATA

Mortality (Appendix A - Rats; Appendix K - Mice)

No adverse effect of treatment from exposure to Unleaded Gasoline Vapor Condensate (API 94-02) was indicated from mortality data as all treated animals (rats and mice) survived to scheduled sacrifice.

Pregnancy Rates (Appendix G - Rats; Appendix Q - Mice)

Pregnancy rates in the Unleaded Gasoline Vapor Condensate (API 94-02) treated groups for both rats and mice were comparable to control data and no adverse effect of treatment was indicated from these data.

Pregnancy rates are summarized below (Table 5):

Table 5: Pregnancy Rates

Group (ppm)	Pregnancy Rate	
	No. pregnant [a]	%
Rats		
I (0)	10	100
II (300)	10	100
III (1000)	10	100
IV (3000)	10	100
V (9000)	9	90
Mice		
I (0)	8	80
II (300)	8	80
III (1000)	10	100
IV (3000)	9	90
V (9000)	10	100

[a]Each group contained 10 mated females.

Gestation Body Weight and Weight Gain Data (Figure 1 and Appendices B, C and D - Rats; Figure 3 and Appendices L, M and N - Mice)

Rats. Mean maternal body weights and weight gain data during gestation for the groups treated at the 300, 1000, and 3000 ppm levels were comparable to control and no adverse effect of treatment was indicated.

At the 9000 ppm exposure level, mean maternal body weights were lower than control throughout the treatment period and these differences were statistically significant on Gestation Days 12, 15 and 20. A statistically significant reduction in weight gain over the Day 6-20 gestation interval using the actual Day 20 gestation weights, was also seen in the 9000 ppm group in comparison to the control data. The reduction in gestation body weights and weight gain data during the treatment period at the 9000 ppm level was assumed to be an adverse response to treatment, since the definitive study does not seem to bear out the earlier finding.

Mice. Mean body weights and weight gain data during gestation in the Unleaded Gasoline Vapor Condensate-treated groups were comparable to control data and no adverse effect of treatment was indicated from these data.

Food Consumption Data - Gestation Period (Figure 2 and Appendix E - Rats; Figure 4 and Appendix O - Mice)

Rats. Mean food consumption data during the treatment period (Days 6-9, 9-12, 12-15, 15-18 and 18-20) for animals treated with Unleaded Gasoline Vapor Condensate (API 94-02) at exposure levels of 300, 1000 and 3000 ppm were comparable to control and no adverse effect of treatment was indicated from these data. At the 9000 ppm exposure level, a statistically significant reduction in food consumption was seen over the Day 6-9 gestation interval. For the remainder of the treatment period mean food consumption for this group was comparable to control data.

Mice. Mean maternal food consumption data during gestation in the Unleaded Gasoline Vapor Condensate-treated groups were comparable to control data and no adverse effect of treatment was indicated from these data.

Physical Observation Data (Appendix F - Rats; Appendix P - Mice)

No adverse effect of treatment from exposure to Unleaded Gasoline Vapor Condensate (API 94-02) was indicated in either the rats or mice from the detailed physical examinations.

Corpora lutea and Uterine Implantation Data (Appendix G - Rats and Appendix Q - Mice):
Rats. No adverse effect of treatment with Unleaded Gasoline Vapor Condensate (API 94-02) was evident from uterine implantation data. No females delivered prematurely. The number of *in utero* litters recovered at Day 20 gestation maternal sacrifice from the control, 300, 1000, 3000 and 9000 ppm groups was ten, ten, ten, ten and nine, respectively. The mean numbers of *corpora lutea*, uterine implantation sites, live fetuses and resorptions per female for the treated groups were comparable to control data. Likewise, the mean pre- and post-implantation loss indices for the treated groups were comparable to control data. No dead fetuses were recovered from the control or treated groups.

Mice. One control female (Animal No. 1518) delivered prematurely on Day 18 of gestation. This female was noted with 13 live pups and one partially cannibalized pup. At sacrifice, 14 uterine implantation scars were seen. No premature deliveries were seen among the treated females.

No adverse effect of treatment with Unleaded Gasoline Vapor Condensate (API 94-02) was evident from uterine implantation data. The number of *in utero* litters recovered at Day 18 gestation maternal sacrifice from the control, 300, 1000, 3000 and 9000 ppm groups was seven, eight, ten, nine and ten, respectively. The mean number of *corpora lutea*, uterine implants, and live fetuses per female and the mean pre-implantation loss indices for the treated groups were comparable to control data. One dead fetus was recovered in the control and 1000 ppm treated group. No dead fetuses were seen in the remaining groups. Resorption data (mean number of resorption per female, the resorption/implant ratio and incidence of females with resorptions) were greater in the unleaded gasoline-treated groups in comparison to control data. This was not considered to represent a treatment-related response but was attributed to unusually low resorption data in the control group. The mean number of resorptions per female, the mean resorption/implant ratio and the incidence of females with resorptions in the control group

were outside the range of historical control data for this laboratory (0.6-1.7, 0.048-0.149, and 46.4%-69.2%, respectively, See Appendix W, pages W-10 - W-12). These same data for the treated groups were generally within the range of these historical data. Differences in resorption data for the treated groups were not statistically significant in comparison to control data and not dose-responsive. Therefore, this increase in resorption data in the treated groups was not considered treatment-related.

Macroscopic Postmortem Evaluations (Appendix I - Rats; Appendix S - Mice):

All animals in both species were examined postmortem for the presence of macroscopic abnormalities. Those observed occurred sporadically and were considered incidental and not related to the test material.

FETAL DATA

Fetal Body Weight Data (Appendix G - Rats and Appendix Q - Mice)

No adverse effect of treatment was indicated from fetal weight data in either rats or mice. For both species, mean fetal weights distinguished by sex and for both sexes combined in the treated groups were considered comparable to control data and generally within the range of historical control data for this laboratory (combined ranges were 3.28-3.76 and 1.30-1.34, respectively, See Appendix W, pages W-4 and W-10).

Fetal Sex Distribution Data (Appendix G - Rats and Appendix Q - Mice)

No adverse effect of treatment was indicated from fetal sex distribution data. For both species, the mean number of male and female fetuses per female was comparable to control data. Likewise, in both species the ratio of total male to female fetuses for the treated groups was considered similar to control data.

Fetal External Examination Data (Appendix J - Rats and Appendix T - Mice)

Rats. No external malformations were seen among fetuses recovered from the treated groups. The numbers of fetuses/litters evaluated in each of the treated groups were as follows: 300 ppm group - 148 fetuses from ten litters; 1000 ppm group - 163 fetuses from ten litters; 3000 ppm group - 152 fetuses from ten litters; and 9000 ppm group - 130 fetuses from nine litters.

In the control group, one fetus from the litter of Female No. 1501 had a filamentous tail. No other malformations were seen in the remaining 157 fetuses from a total of ten litters evaluated in the control group.

Mice. The incidences of fetuses with external malformations in the control, 300, 1000, 3000 and 9000 ppm groups were 0% (89 fetuses evaluated), 0% (96 fetuses evaluated), 0.8% (1/131 fetuses affected), 0% (100 fetuses evaluated) and 0.8 % (1/120 fetuses affected), respectively. The litter incidences for these same groups were 0% (seven litters evaluated), 0% (eight litters evaluated), 10% (1/10 litters affected), 0% (nine litters evaluated) and 10% (1/10 litters affected), respectively.

Hindlimb flexure was seen in one fetus from the 1000 ppm group (Female No. 3511) and unilateral open eye was seen in one fetus at the 9000 ppm group (Female No. 5515). The low incidence of these dissimilar malformations within the treated groups was not considered indicative of a treatment-related response.

Cleft palate was seen in one of 13 intact pups recovered from the prematurely delivered litter of control Female No. 1518.

CONCLUSION

In this range-finding inhalation developmental toxicity study with Unleaded Gasoline Vapor Condensate (API 94-02), no developmental toxicity was seen in either rats or mice at exposure levels up to and including 9000 ppm (75% of the lower explosive limit). No evidence of maternal toxicity was observed in the mouse at any dose level. In the rat, evidence of maternal toxicity (reduced body weights, weight gain and food consumption) was seen at 9000 ppm; no maternal effects occurred at 3000 ppm.

Section 5

REFERENCES

Armitage, P. 1955. Tests for Linear Trends in Proportions and Frequencies. *Biometrics*. Sept.:375-386.

Bradley, J.V. 1968. *Distribution Free Statistical Tests*. Prentice-Hall, Englewood Cliffs, New Jersey.

Dunnett, C.W. 1955. *Journal American Statistical Association*. 50:1096-1121.

Dunnett, C.W. 1964. *Biometrics*. 20:482-491.

Hollander, M. and Wolfe, D.A. 1973. *Nonparametric Statistical Methods*. John Wiley and Sons, New York, New York.

Miller, R.G., Jr., 1966. *Simultaneous Statistical Inference*. McGraw-Hill Book Company, New York, New York.

Salewski, E. 1964. Farbemethode zum Makroskopischen Nachweis von Implantations Stellen am Uterus der Ratte. *Archiv.fur Pharmakologie und Experimentelle Pathologie,* 247:367.

Snedecor, G.W. and Cochran, W.G., 1967. *Statistical Methods*, 6th edition. Iowa State University Press, Ames, Iowa.

Snedecor, G.W. and Cochran, W.G., 1971. *Statistical Methods*, 7th edition. Iowa State University Press, Ames, Iowa.

Section 6

LOCATION OF SPECIMENS, RAW DATA AND FINAL REPORT

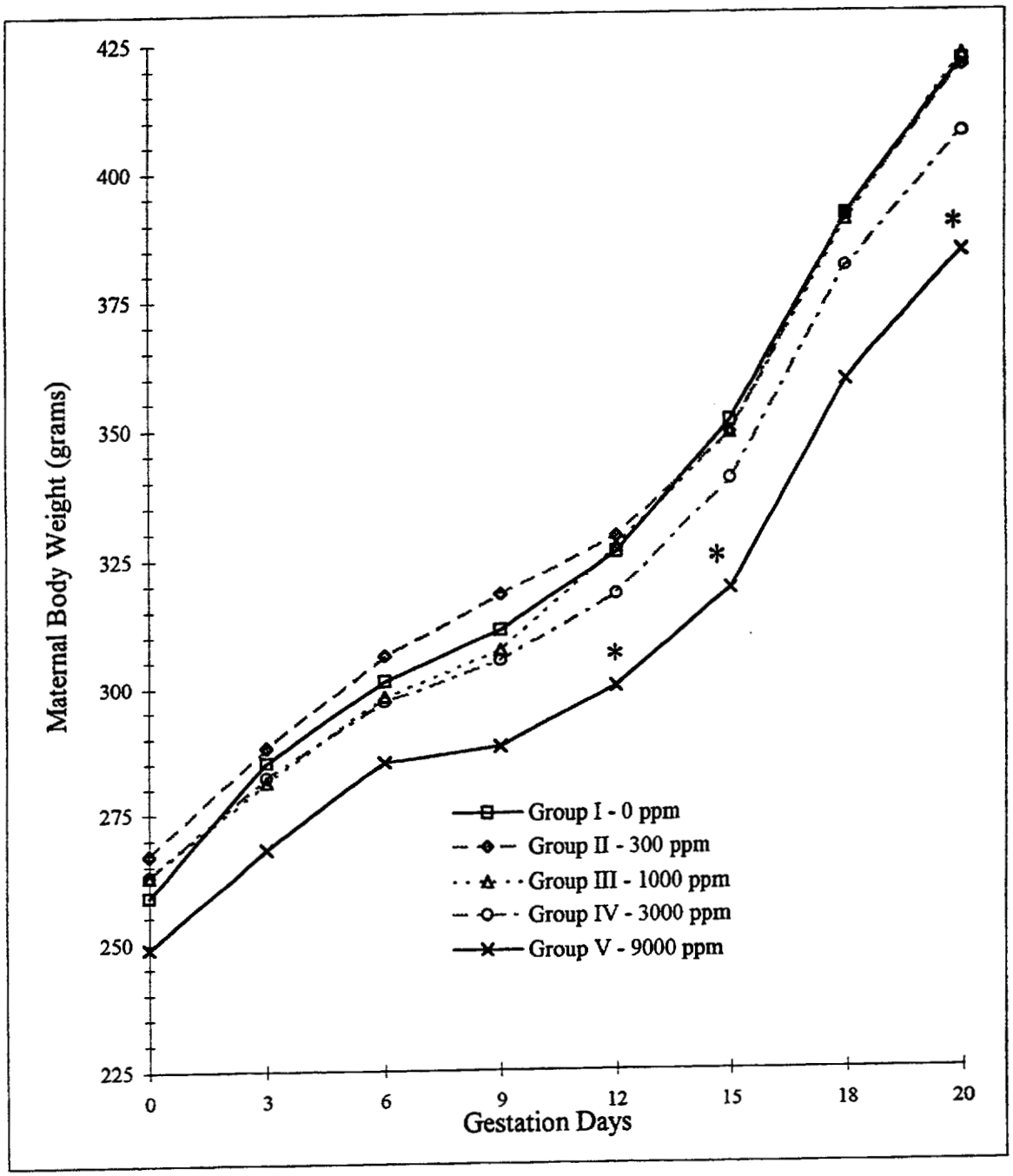
All data documenting experimental details, study procedures and observations were recorded and maintained as raw data.

All raw data, preserved specimens, and retained samples, as well as the original study protocol and the original final report are to be maintained in the Archives of the Testing Facility upon completion of the study.

Section 7

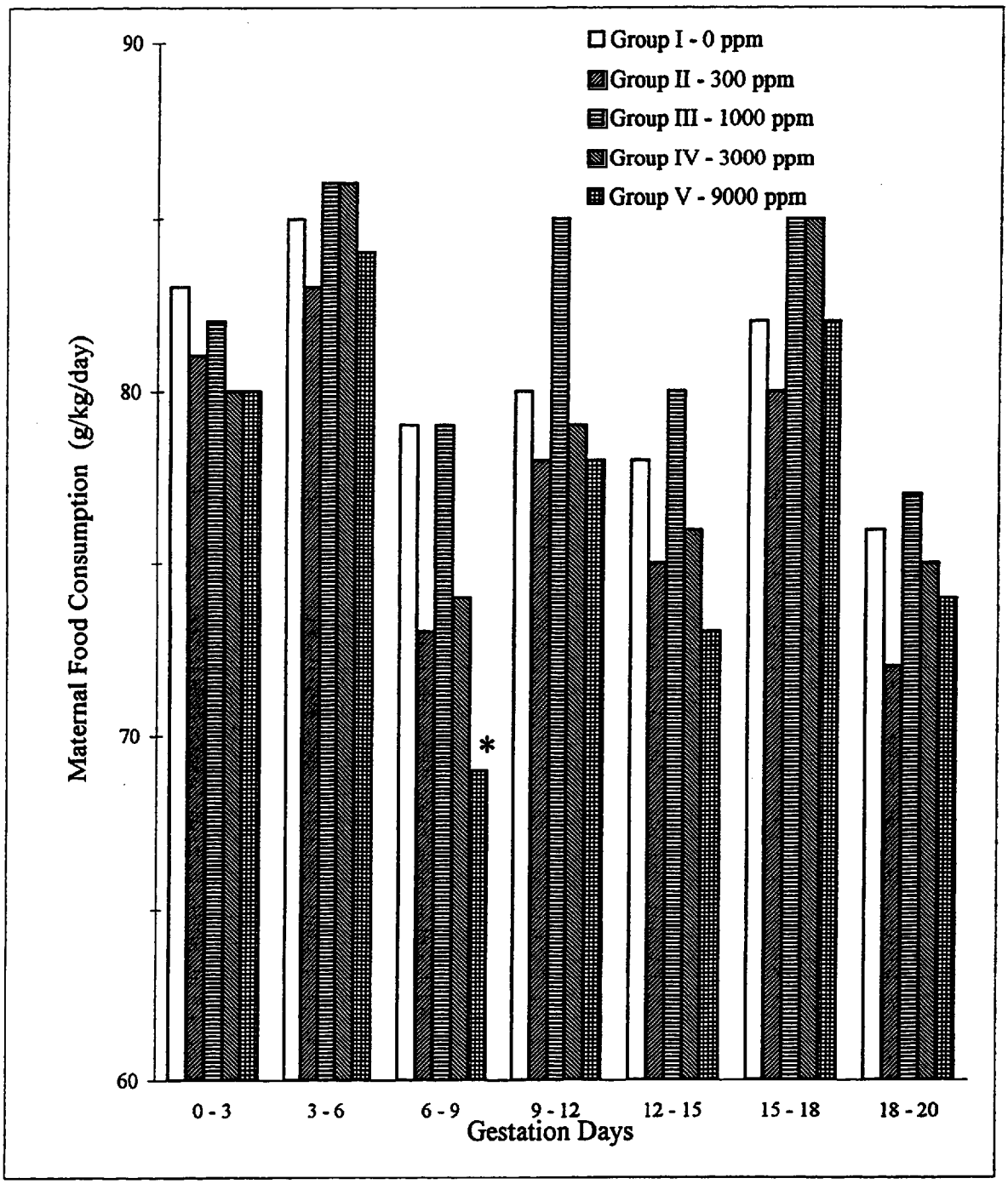
FIGURES

Figure 1: Mean Maternal Body Weights During Gestation - Rats



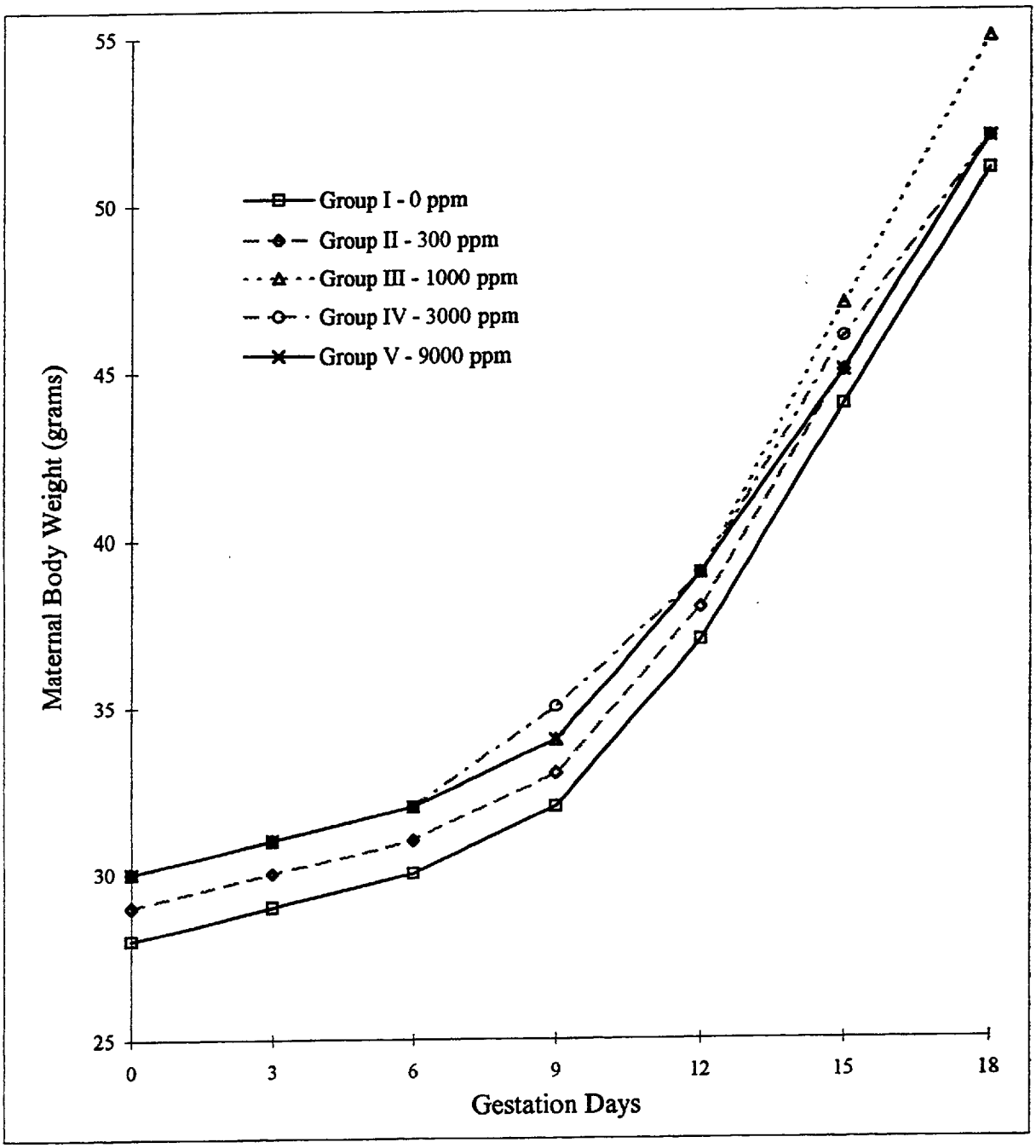
*Significantly different from control mean; p≤0.05 (Dunnett's).

Figure 2: Mean Maternal Food Consumption During Gestation - Rats



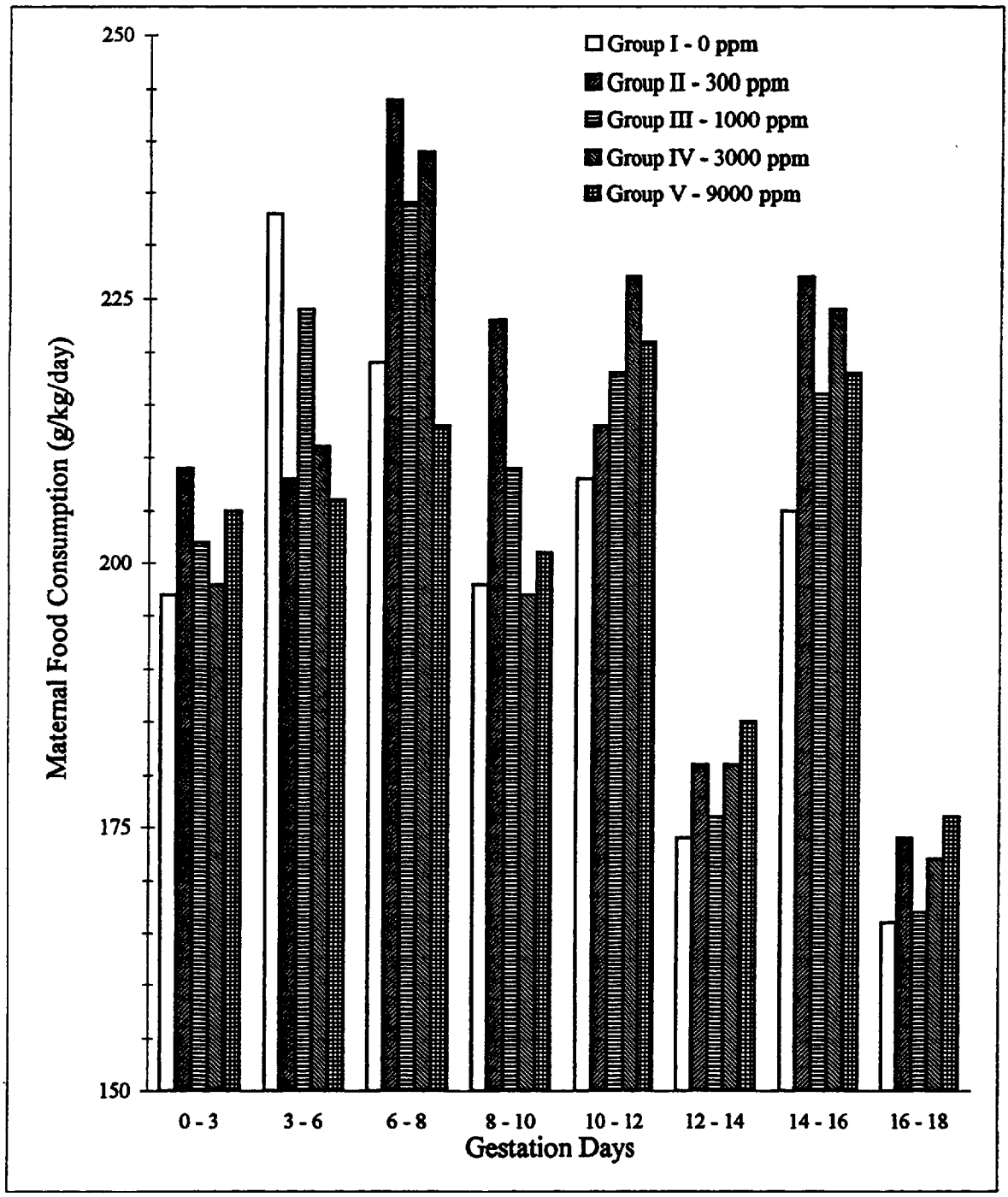
*Significantly different from control mean p≤0.05 (Dunnett's).

Figure 3: Mean Maternal Body Weights During Gestation - Mice



No statistically significant differences.

Figure 4: Mean Maternal Food Consumption During Gestation - Mice



No statistically significant differences.

APPENDIX G

FEMALE REPRODUCTION AND MEAN FETAL WEIGHT DATA

RATS

Appendix G

SUMMARY OF REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA RATS

	EXPOSURE LEVELS (ppm)					
	0	300	1000	3000	9000	STAT SYMBOL
# Females Mated	10	10	10	10	10	
# Pregnant (%)	10 (100.0)	10 (100.0)	10 (100.0)	10 (100.0)	9 (90.0)	NS
# Pregnancies Aborted	0	0	0	0	0	NT
# Premature Births	0	0	0	0	0	NT
# Litters with Viable Fetuses	10	10	10	10	9	NT
Female Mortality #	0	0	0	0	0	NT
# *Corpora Lutea*	188	175	174	175	154	
Mean ± S.D.	18.8 ± 3.1	17.5 ± 1.3	17.4 ± 1.9	17.5 ± 2.1	17.1 ± 3.1	A-L-
# Implantation Sites	167	154	169	162	133	
Mean ± S.D.	16.7 ± 2.0	15.4 ± 2.3	16.9 ± 1.5	16.2 ± 2.4	14.8 ± 2.2	A-L-
Preimplantation Loss Index						
Mean ± S.D.	.103 ± .092	.118 ± .130	.027 ± .036	.076 ± .073	.116 ± .168	A-L-
# Viable Fetuses	158	148	163	152	130	
# Dead Fetuses	0	0	0	0	0	NT
Mean Litter Size + S.D.	15.8 ± 1.8	14.8 ± 2.5	16.3 ± 1.5	15.2 ± 2.6	14.4 ± 2.6	A-L-
Mean # Males ± S.D.	9.6 ± 3.1	8.1 ± 3.0	7.8 ± 1.9	7.7 ± 2.3	8.0 ± 3.3	A-L-
Mean # Females ± S.D.	6.2 ± 2.4	6.7 ± 1.4	8.5 ± 2.6	7.5 ± 1.8	6.4 ± 1.7	A-L-
# Resorptions	9	6	6	10	3	
Mean ± S.D.	0.9 ± 1.0	0.6 ± 0.7	0.6 ± 0.7	1.0 ± 1.1	0.3 ± 0.7	A-L-
Resorptions/Implants Ratios						
Mean ± S.D.	.052 ± .057	.041 ± .047	.035 ± .041	.063 ± .074	.026 ± .053	A-L-
# Litters with Resorptions (%)	5 (50.0)	5 (50.0)	5 (50.0)	6 (60.0)	2 (22.2)	NS
Mean Body Weight (g)						
of Viable Fetuses ± S.D.	3.62 ± 0.25	3.74 ± 0.28	3.58 ± 0.18	3.56 ± 0.26	3.50 ± 0.27	A-L-
Male Fetuses	3.73 ± 0.28	3.87 ± 0.26	3.72 ± 0.19	3.69 ± 0.24	3.58 ± 0.26	A-L
Female Fetuses	3.47 ± 0.27	3.61 ± 0.27	3.48 ± 0.23	3.43 ± 0.29	3.40 ± 0.29	A-L-
Ratio of Viable Fetuses						
Total Males/Total Females	1.5	1.2	0.9	1.0	1.2	

Note: Preimplantation Loss = $\frac{\textit{Corpora lutea} - \text{implants}}{\textit{Corpora lutea}}$

No statistically significant differences.

Appendix G

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA RATS

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	FETUSES LIVE	FETUSES DEAD	FETUSES TOTAL	SEX M	SEX F	AVERAGE FETAL B.W. (GRAMS) M	AVERAGE FETAL B.W. (GRAMS) F	AVERAGE FETAL B.W. (GRAMS) BOTH
GROUP I - 0 PPM													
1501	14	13	0	0	0	13	0	13	9	4	4.0	3.7	3.9
1502	17	16	0	0	0	16	0	16	12	4	3.5	3.3	3.5
1503	16	16	2	0	2	14	0	14	2	12	4.0	3.3	3.4
1504	17	16	1	0	1	15	0	15	7	8	3.2	3.3	3.3
1505	19	15	0	0	0	15	0	15	10	5	3.8	3.7	3.8
1506	25	18	2	0	2	16	0	16	11	5	3.8	3.7	3.7
1507	20	17	2	0	2	15	0	15	10	5	3.4	2.9	3.2
1508	21	20	2	0	2	18	0	18	12	6	3.9	3.5	3.8
1509	20	17	0	0	0	17	0	17	11	6	4.0	3.6	3.9
1510	19	19	0	0	0	19	0	19	12	7	3.7	3.7	3.7
MEAN	18.8	16.7	0.9	0.0	0.9	15.8	0.0	15.8	9.6	6.2	3.7	3.5	3.6
S.D.	3.1	2.0	1.0	0.0	1.0	1.8	0.0	1.8	3.1	2.4	0.3	0.3	0.3
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP II - 300 PPM													
2501	18	16	0	0	0	16	0	16	7	9	3.6	3.2	3.3
2502	15	14	1	0	1	13	0	13	6	7	4.2	3.8	4.0
2503	19	15	0	0	0	15	0	15	10	5	3.9	3.7	3.9
2504	17	16	1	0	1	15	0	15	9	6	3.8	3.8	3.8
2505	16	16	0	0	0	16	0	16	9	7	4.2	4.0	4.1
2506	18	10	1	0	1	9	0	9	2	7	4.2	3.9	4.0
2507	17	15	0	0	0	15	0	15	6	9	3.7	3.4	3.5
2508	19	19	0	0	0	19	0	19	13	6	3.9	3.5	3.8
2509	18	17	2	0	2	15	0	15	10	5	3.5	3.3	3.4
2510	18	16	1	0	1	15	0	15	9	6	3.7	3.5	3.6
MEAN	17.5	15.4	0.6	0.0	0.6	14.8	0.0	14.8	8.1	6.7	3.9	3.6	3.7
S.D.	1.3	2.3	0.7	0.0	0.7	2.5	0.0	2.5	3.0	1.4	0.3	0.3	0.3
N	10	10	10	10	10	10	10	10	10	10	10	10	10

B.W.= BODY WEIGHT; M=MALE; F=FEMALE.

Appendix G

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA RATS

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	FETUSES LIVE	FETUSES DEAD	FETUSES TOTAL	SEX M	SEX F	AVERAGE FETAL B.W. (GRAMS) M	AVERAGE FETAL B.W. (GRAMS) F	AVERAGE FETAL B.W. (GRAMS) BOTH
GROUP III - 1000 PPM													
3501	17	17	0	0	0	17	0	17	9	8	3.7	3.3	3.5
3502	16	16	0	0	0	16	0	16	9	7	3.3	3.1	3.2
3503	21	19	1	0	1	18	0	18	6	12	3.7	3.5	3.5
3504	16	16	0	0	0	16	0	16	7	9	3.7	3.3	3.5
3505	18	18	1	0	1	17	0	17	4	13	4.0	3.8	3.8
3506	14	14	0	0	0	14	0	14	8	6	3.6	3.4	3.5
3507	18	17	1	0	1	16	0	16	11	5	3.7	3.4	3.6
3508	19	19	0	0	0	19	0	19	9	10	3.9	3.5	3.7
3509	17	16	1	0	1	15	0	15	8	7	3.9	3.8	3.8
3510	18	17	2	0	2	15	0	15	7	8	3.7	3.7	3.7
MEAN	17.4	16.9	0.6	0.0	0.6	16.3	0.0	16.3	7.8	8.5	3.7	3.5	3.6
S.D.	1.9	1.5	0.7	0.0	0.7	1.5	0.0	1.5	1.9	2.5	0.2	0.2	0.2
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP IV - 3000 PPM													
4501	21	18	2	0	2	16	0	16	9	7	3.6	3.5	3.5
4502	14	12	0	0	0	12	0	12	6	6	3.9	3.7	3.8
4503	16	14	0	0	0	14	0	14	8	6	4.0	3.8	3.9
4504	19	19	1	0	1	18	0	18	12	6	3.5	3.4	3.5
4505	18	18	1	0	1	17	0	17	9	8	3.2	2.8	3.0
4506	19	18	0	0	0	18	0	18	7	11	3.6	3.3	3.4
4507	16	13	3	0	3	10	0	10	4	6	3.8	3.3	3.5
4508	19	17	1	0	1	16	0	16	8	8	3.6	3.3	3.5
4509	17	17	2	0	2	15	0	15	5	10	3.9	3.7	3.8
4510	16	16	0	0	0	16	0	16	9	7	3.8	3.5	3.7
MEAN	17.5	16.2	1.0	0.0	1.0	15.2	0.0	15.2	7.7	7.5	3.7	3.4	3.6
S.D.	2.1	2.4	1.1	0.0	1.1	2.6	0.0	2.6	2.3	1.8	0.2	0.3	0.3
N	10	10	10	10	10	10	10	10	10	10	10	10	10

B.W.= BODY WEIGHT; M=MALE; F=FEMALE.

Appendix G

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA RATS

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	FETUSES LIVE	FETUSES DEAD	FETUSES TOTAL	SEX M	SEX F	AVERAGE FETAL B.W. (GRAMS) M	AVERAGE FETAL B.W. (GRAMS) F	AVERAGE FETAL B.W. (GRAMS) BOTH
GROUP V - 9000 PPM													
5501	14	13	0	0	0	13	0	13	5	8	3.5	3.3	3.4
5502	18	18	0	0	0	18	0	18	13	5	3.6	3.4	3.6
5503	15	15	0	0	0	15	0	15	6	9	3.6	3.4	3.5
5504	15	13	0	0	0	13	0	13	6	7	4.0	3.9	3.9
5505	23	16	0	0	0	16	0	16	11	5	3.3	3.2	3.3
5506 NP													
5507	17	17	0	0	0	17	0	17	12	5	4.0	3.7	3.9
5508	17	16	0	0	0	16	0	16	9	7	3.4	3.3	3.3
5509	14	14	2	0	2	12	0	12	4	8	3.5	3.5	3.5
5510	21	11	1	0	1	10	0	10	6	4	3.3	2.9	3.1
MEAN	17.1	14.8	0.3	0.0	0.3	14.4	0.0	14.4	8.0	6.4	3.6	3.4	3.5
S.D.	3.1	2.2	0.7	0.0	0.7	2.6	0.0	2.6	3.3	1.7	0.3	0.3	0.3
N	9	9	9	9	9	9	9	9	9	9	9	9	9

B.W.= BODY WEIGHT; M=MALE; F=FEMALE; NP=NOT PREGNANT (NO UTERINE FOCI VISUALIZED AFTER STAINING).

APPENDIX H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA

RATS

Appendix H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA
RATS

ANIMAL NUMBER	IMPLANT NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GROUP I - 0 PPM																				
1501	MA	FA	MA	FA	MA	MA	MA/	MA	FA	FA	MA	MA	MA							
1502	MA	MA	MA	MA	FA	MA	MA/	MA	MA	MA	FA	FA	MA	MA	MA	FA				
1503	FA	MA	FA	FA	MA	FA	FA/	FA	FA	E	FA	FA	E	FA	FA	FA				
1504	FA	MA	MA	FA	E	MA	FA	FA/	FA	MA	MA	MA	FA	MA	FA	FA				
1505	FA	FA	MA	MA	MA	FA	FA	MA/	MA	MA	MA	MA	MA	MA	FA					
1506	MA	FA	MA	FA	MA	MA	MA	FA	MA/	E	E	MA	FA	MA	MA	MA	MA	FA		
1507	MA	MA	MA	MA	MA	FA	FA/	MA	MA	FA	FA	MA	MA	FA	MA	E	E			
1508	MA	MA	FA	MA	MA	E	MA	FA	MA	MA/	MA	MA	FA	MA	FA	FA	MA	FA	MA	E
1509	FA	MA	MA	FA	FA	MA	MA	FA	MA	MA/	FA	MA	MA	MA	FA	MA	MA			
1510	FA	FA	MA	FA	MA	FA	MA	MA/	MA	MA	FA	MA	MA	MA	MA	FA	MA	FA	MA	
GROUP II - 300 PPM																				
2501	FA	FA	FA	FA	MA	FA	MA	FA	FA/	MA	MA	MA	MA	MA	FA	FA				
2502	FA	MA	FA	MA	FA	FA	MA	MA/	FA	MA	FA	FA	E	MA						
2503	MA	FA	MA	MA	FA	FA	MA	MA	FA	MA	MA/	MA	FA	MA	MA					
2504	FA	E	MA	FA	FA	MA	MA/	FA	MA	FA	MA	MA	FA	MA	MA	MA				
2505	FA	MA	FA	FA	MA	MA	/MA	FA	MA	FA	MA	MA	FA	MA	FA	MA				
2506	MA	FA	FA	FA	MA	FA	FA	FA	E/	FA										
2507	MA	FA	FA	FA	FA	FA	MA	FA/	MA	FA	FA	MA	MA	MA	FA					
2508	FA	MA	MA	FA	MA	MA	FA	FA	MA	MA	FA	MA	FA/	MA	MA	MA	MA	MA	MA	
2509	MA	MA	E	MA	MA	MA	MA	E	FA	MA	FA	FA/	FA	MA	MA	FA	MA			
2510	MA	MA	FA	MA	FA	MA	MA	MA	E	MA	FA/	FA	FA	MA	FA	MA				
GROUP III - 1000 PPM																				
3501	FA	MA	MA	FA	MA	MA	MA	FA	MA	FA	MA	MA	FA/	MA	FA	FA	FA			
3502	FA	MA	FA	MA	FA	MA	MA	MA	MA	MA	MA/	FA	MA	FA	FA	FA				
3503	MA	FA	FA	MA	FA	FA	E	MA	FA	FA	MA	FA	MA/	FA	FA	MA	FA	FA	FA	
3504	FA	FA	MA	FA	FA	FA	MA/	MA	MA	FA	FA	FA	FA	MA	MA	MA				
3505	FA	MA	MA	MA	FA	FA	FA	FA	FA/	FA	FA	MA	FA	E	FA	FA	FA	FA		
3506	FA	MA	FA	FA	FA	MA	/MA	MA	MA	FA	MA	MA	FA	MA						
3507	MA	FA	MA	E	MA	MA	MA	MA	FA	MA/	MA	FA	MA	FA	MA	MA	FA			
3508	MA	MA	FA	FA	FA	FA	FA	MA	FA	MA	MA	MA	FA/	MA	MA	FA	FA	FA	MA	
3509	E	MA	MA	MA	MA	MA	FA	FA/	MA	MA	FA	FA	FA	MA	FA	FA				
3510	MA	FA	FA	E	FA	FA	E	MA	MA	FA	FA/	MA	FA	MA	MA	MA	FA			

M=MALE; F=FEMALE; A=ALIVE; E=EARLY RESORPTION; / DENOTES POSITION OF CERVIX.

Appendix H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA RATS

ANIMAL NUMBER	IMPLANT NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GROUP IV - 3000 PPM																				
4501	MA	MA	MA	MA	MA	FA	FA/	FA	FA	E	FA	FA	E	MA	FA	MA	MA	MA		
4502	FA	FA	MA	FA	MA	MA	MA/	FA	FA	FA	MA	MA								
4503	MA	MA	FA	MA	FA	/MA	FA	MA	MA	MA	MA	FA	FA	FA						
4504	MA	MA	MA	MA	FA	MA	MA	MA	MA	MA	FA	MA/	FA	FA	MA	MA	FA	E	FA	
4505	FA	MA	FA	MA	FA	MA	MA	FA/	E	MA	MA	MA	MA	FA	FA	FA	MA	FA		
4506	FA	MA	FA	MA	FA	FA	FA	MA	FA/	FA	FA	MA	MA	MA	FA	FA	FA	MA		
4507	E	MA	FA	FA	E	/FA	FA	E	MA	FA	MA	FA	MA							
4508	FA	FA	MA	MA	FA	MA	MA	FA	FA	FA/	FA	MA	MA	E	FA	MA	MA			
4509	E	FA	MA	MA	FA	FA	MA	MA	FA	E	FA	FA	FA/	MA	FA	FA	FA			
4510	MA	MA	MA	FA	MA	MA	FA	FA	MA	MA/	FA	MA	MA	FA	FA	FA				
GROUP V - 9000 PPM																				
5501	FA	FA	MA	FA	FA	FA	/MA	MA	MA	FA	FA	FA	MA							
5502	MA	MA	FA	MA	MA	MA	MA	MA	MA/	FA	FA	FA	MA	MA	MA	MA	MA	FA		
5503	MA	FA	FA	FA	MA	FA	MA	FA/	MA	MA	FA	FA	FA	MA	FA					
5504	FA	FA	FA	MA	FA	MA	MA/	MA	MA	FA	FA	MA	FA							
5505	MA	MA	MA	MA	MA	MA	MA	FA	FA/	MA	FA	FA	MA.	MA	MA	FA				
5507	FA	MA	MA	MA	MA	FA	FA	MA	MA	MA	MA/	FA	MA	FA	MA	MA	MA			
5508	MA	FA	MA	FA	MA	MA	FA	FA	MA	MA/	MA	FA	FA	FA	MA	MA				
5509	E	MA	FA	FA	MA	FA	FA/	FA	FA	E	MA	FA	FA	MA						
5510	MA	MA	E	MA	FA	MA	MA/	FA	MA	FA	FA									

M=MALE; F=FEMALE; A=ALIVE; E=EARLY RESORPTION; / DENOTES POSITION OF CERVIX.

APPENDIX I

PATHOLOGY
MACROSCOPIC POSTMORTEM OBSERVATIONS

RATS

Appendix I

PATHOLOGY - MACROSCOPIC POSTMORTEM OBSERVATIONS
RATS

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP I - 0 PPM		
1501	364.2	NOA
1502	397.8	NOA
1503	382.2	NOA
1504	422.3	NOA
1505	403.3	NOA
1506	444.0	NOA
1507	394.9	NOA
1508	473.8	NOA
1509	445.4	NOA
1510	478.2	NOA
GROUP II - 300 PPM		
2501	392.0	NOA
2502	428.0	NOA
2503	387.2	NOA
2504	407.3	NOA
2505	436.7	NOA
2506	374.1	SWOLLEN L FOREPAW (S) WITH SCAB
2507	450.5	NOA
2508	456.1	NOA
2509	400.2	NOA
2510	463.6	NOA
GROUP III - 1000 PPM		
3501	456.7	NOA
3502	436.8	NOA
3503	411.1	NOA
3504	404.2	NOA
3505	433.9	NOA
3506	369.5	NOA
3507	449.7	NOA
3508	447.7	NOA
3509	402.4	NOA
3510	404.7	NOA

NOA=NO OBSERVABLE ABNORMALITIES; L=LEFT; S=SLIGHT.

Appendix I

PATHOLOGY - MACROSCOPIC POSTMORTEM OBSERVATIONS
RATS

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP IV - 3000 PPM		
4501	406.3	NOA
4502	381.6	NOA
4503	388.8	NOA
4504	393.3	NOA
4505	388.9	NOA
4506	440.4	NOA
4507	416.1	EXTREMETIES/SNOUT: HAIR ABSENT (M)
4508	425.9	NOA
4509	412.7	NOA
4510	415.6	NOA
GROUP V - 9000 PPM		
5501	362.0	NOA
5502	394.4	NOA
5503	377.2	NOA
5504	381.6	NOA
5505	412.0	NOA
5506	292.9	LIVER: ALL LOBES DISCOLORED RED (M)
5507	373.0	NOA
5508	395.0	NOA
5509	384.8	NOA
5510	380.4	NOA

NOA=NO OBSERVABLE ABNORMALITIES; M=MODERATE.

APPENDIX J

FETAL EXTERNAL EXAMINATION DATA

RATS

Appendix J

SUMMARY OF FETAL EXTERNAL MALFORMATIONS
RATS

			EXPOSURE LEVELS				
			0	300	1000	3000	9000
LITTERS EVALUATED		N	10	10	10	10	9
FETUSES EVALUATED		N	158	148	163	152	130
LIVE		N	158	148	163	152	130
DEAD		N	0	0	0	0	0
FILAMENTOUS TAIL							
FETAL INCIDENCE		N(%)	1(0.6)	0	0	0	0
LITTER INCIDENCE		N(%)	1(10.0)	0	0	0	0
	STAT SYMBOL						
TOTAL EXTERNAL MALFORMATIONS							
FETAL INCIDENCE	NS	N(%)	1(0.6)	0	0	0	0
LITTER INCIDENCE	NS	N(%)	1(10.0)	0	0	0	0

No statistically significant differences.

KEY: N=NUMBER

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1501	1	M	4.1	NO REMARKABLE OBSERVATIONS
	2	F	3.9	NO REMARKABLE OBSERVATIONS
	3	M	3.6	NO REMARKABLE OBSERVATIONS
	4	F	3.6	M FILAMENTOUS TAIL MEASURES 10 MM IN LENGTH
	5	M	4.1	NO REMARKABLE OBSERVATIONS
	6	M	3.6	NO REMARKABLE OBSERVATIONS
	7	M	4.1	NO REMARKABLE OBSERVATIONS
	8	M	4.2	NO REMARKABLE OBSERVATIONS
	9	F	3.9	NO REMARKABLE OBSERVATIONS
	10	F	3.5	NO REMARKABLE OBSERVATIONS
	11	M	3.8	NO REMARKABLE OBSERVATIONS
	12	M	4.3	NO REMARKABLE OBSERVATIONS
	13	M	3.8	NO REMARKABLE OBSERVATIONS
1502	1	M	3.4	NO REMARKABLE OBSERVATIONS
	2	M	3.8	NO REMARKABLE OBSERVATIONS
	3	M	3.8	NO REMARKABLE OBSERVATIONS
	4	M	3.9	NO REMARKABLE OBSERVATIONS
	5	F	3.2	NO REMARKABLE OBSERVATIONS
	6	M	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.2	NO REMARKABLE OBSERVATIONS
	8	M	3.5	NO REMARKABLE OBSERVATIONS
	9	M	3.4	NO REMARKABLE OBSERVATIONS
	10	M	3.6	NO REMARKABLE OBSERVATIONS
	11	F	3.2	NO REMARKABLE OBSERVATIONS
	12	F	3.4	NO REMARKABLE OBSERVATIONS
	13	M	3.2	NO REMARKABLE OBSERVATIONS
	14	M	3.3	NO REMARKABLE OBSERVATIONS
	15	M	3.5	NO REMARKABLE OBSERVATIONS
	16	F	3.3	NO REMARKABLE OBSERVATIONS
1503	1	F	3.9	NO REMARKABLE OBSERVATIONS
	2	M	4.1	NO REMARKABLE OBSERVATIONS
	3	F	3.8	NO REMARKABLE OBSERVATIONS
	4	F	3.4	NO REMARKABLE OBSERVATIONS
	5	M	3.9	NO REMARKABLE OBSERVATIONS
	6	F	3.8	NO REMARKABLE OBSERVATIONS
	7	F	3.6	NO REMARKABLE OBSERVATIONS
	8	F	3.6	NO REMARKABLE OBSERVATIONS
	9	F	2.1	NO REMARKABLE OBSERVATIONS

OBSERVATION CODE: M=MALFORMATION.

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1503	10			EARLY RESORPTION
	11	F	3.4	NO REMARKABLE OBSERVATIONS
	12	F	3.1	NO REMARKABLE OBSERVATIONS
	13			EARLY RESORPTION
	14	F	3.0	NO REMARKABLE OBSERVATIONS
	15	F	2.8	NO REMARKABLE OBSERVATIONS
	16	F	3.6	NO REMARKABLE OBSERVATIONS
1504	1	F	3.6	NO REMARKABLE OBSERVATIONS
	2	M	3.3	NO REMARKABLE OBSERVATIONS
	3	M	3.2	NO REMARKABLE OBSERVATIONS
	4	F	3.4	NO REMARKABLE OBSERVATIONS
	5			EARLY RESORPTION
	6	M	3.1	NO REMARKABLE OBSERVATIONS
	7	F	3.3	NO REMARKABLE OBSERVATIONS
	8	F	3.2	NO REMARKABLE OBSERVATIONS
	9	F	3.2	NO REMARKABLE OBSERVATIONS
	10	M	3.1	NO REMARKABLE OBSERVATIONS
	11	M	3.3	NO REMARKABLE OBSERVATIONS
	12	M	3.2	NO REMARKABLE OBSERVATIONS
	13	F	3.4	NO REMARKABLE OBSERVATIONS
	14	M	3.3	NO REMARKABLE OBSERVATIONS
	15	F	3.1	NO REMARKABLE OBSERVATIONS
	16	F	3.3	NO REMARKABLE OBSERVATIONS
1505	1	F	3.5	NO REMARKABLE OBSERVATIONS
	2	F	3.5	NO REMARKABLE OBSERVATIONS
	3	M	3.9	NO REMARKABLE OBSERVATIONS
	4	M	3.6	NO REMARKABLE OBSERVATIONS
	5	M	4.0	NO REMARKABLE OBSERVATIONS
	6	F	4.0	NO REMARKABLE OBSERVATIONS
	7	F	3.8	NO REMARKABLE OBSERVATIONS
	8	M	3.9	NO REMARKABLE OBSERVATIONS
	9	M	3.9	NO REMARKABLE OBSERVATIONS
	10	M	4.0	NO REMARKABLE OBSERVATIONS
	11	M	3.8	NO REMARKABLE OBSERVATIONS
	12	M	3.9	NO REMARKABLE OBSERVATIONS
	13	M	3.6	NO REMARKABLE OBSERVATIONS
	14	M	3.8	NO REMARKABLE OBSERVATIONS
	15	F	3.6	NO REMARKABLE OBSERVATIONS
1506	1	M	3.6	NO REMARKABLE OBSERVATIONS
	2	F	3.7	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1506	3	M	3.7	NO REMARKABLE OBSERVATIONS
	4	F	3.6	NO REMARKABLE OBSERVATIONS
	5	M	3.4	NO REMARKABLE OBSERVATIONS
	6	M	3.8	NO REMARKABLE OBSERVATIONS
	7	M	3.9	NO REMARKABLE OBSERVATIONS
	8	F	3.6	NO REMARKABLE OBSERVATIONS
	9	M	4.1	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11			EARLY RESORPTION
	12	M	4.0	NO REMARKABLE OBSERVATIONS
	13	F	3.7	NO REMARKABLE OBSERVATIONS
	14	M	4.0	NO REMARKABLE OBSERVATIONS
	15	M	3.6	NO REMARKABLE OBSERVATIONS
	16	M	3.8	NO REMARKABLE OBSERVATIONS
	17	M	3.7	NO REMARKABLE OBSERVATIONS
	18	F	3.7	NO REMARKABLE OBSERVATIONS
1507	1	M	3.4	NO REMARKABLE OBSERVATIONS
	2	M	3.6	NO REMARKABLE OBSERVATIONS
	3	M	2.5	NO REMARKABLE OBSERVATIONS
	4	M	3.6	NO REMARKABLE OBSERVATIONS
	5	M	3.4	NO REMARKABLE OBSERVATIONS
	6	F	3.2	NO REMARKABLE OBSERVATIONS
	7	F	3.1	NO REMARKABLE OBSERVATIONS
	8	M	3.4	NO REMARKABLE OBSERVATIONS
	9	M	3.4	NO REMARKABLE OBSERVATIONS
	10	F	3.0	NO REMARKABLE OBSERVATIONS
	11	F	2.7	NO REMARKABLE OBSERVATIONS
	12	M	3.6	NO REMARKABLE OBSERVATIONS
	13	M	3.6	NO REMARKABLE OBSERVATIONS
	14	F	2.5	NO REMARKABLE OBSERVATIONS
	15	M	3.4	NO REMARKABLE OBSERVATIONS
	16			EARLY RESORPTION
	17			EARLY RESORPTION
1508	1	M	3.6	NO REMARKABLE OBSERVATIONS
	2	M	3.7	NO REMARKABLE OBSERVATIONS
	3	F	3.5	NO REMARKABLE OBSERVATIONS
	4	M	4.1	NO REMARKABLE OBSERVATIONS
	5	M	3.9	NO REMARKABLE OBSERVATIONS
	6			EARLY RESORPTION

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1508	7	M	4.0	NO REMARKABLE OBSERVATIONS
	8	F	3.2	NO REMARKABLE OBSERVATIONS
	9	M	4.4	NO REMARKABLE OBSERVATIONS
	10	M	4.2	NO REMARKABLE OBSERVATIONS
	11	M	4.1	NO REMARKABLE OBSERVATIONS
	12	M	3.9	NO REMARKABLE OBSERVATIONS
	13	F	3.6	NO REMARKABLE OBSERVATIONS
	14	M	3.7	NO REMARKABLE OBSERVATIONS
	15	F	3.7	NO REMARKABLE OBSERVATIONS
	16	F	3.5	NO REMARKABLE OBSERVATIONS
	17	M	3.5	NO REMARKABLE OBSERVATIONS
	18	F	3.3	NO REMARKABLE OBSERVATIONS
	19	M	3.6	NO REMARKABLE OBSERVATIONS
	20			EARLY RESORPTION
1509	1	F	3.7	NO REMARKABLE OBSERVATIONS
	2	M	4.1	NO REMARKABLE OBSERVATIONS
	3	M	4.2	NO REMARKABLE OBSERVATIONS
	4	F	3.6	NO REMARKABLE OBSERVATIONS
	5	F	3.7	NO REMARKABLE OBSERVATIONS
	6	M	4.0	NO REMARKABLE OBSERVATIONS
	7	M	4.1	NO REMARKABLE OBSERVATIONS
	8	F	3.4	NO REMARKABLE OBSERVATIONS
	9	M	4.0	NO REMARKABLE OBSERVATIONS
	10	M	3.7	NO REMARKABLE OBSERVATIONS
	11	F	3.7	NO REMARKABLE OBSERVATIONS
	12	M	4.0	NO REMARKABLE OBSERVATIONS
	13	M	3.7	NO REMARKABLE OBSERVATIONS
	14	M	4.3	NO REMARKABLE OBSERVATIONS
	15	F	3.8	NO REMARKABLE OBSERVATIONS
	16	M	4.0	NO REMARKABLE OBSERVATIONS
	17	M	3.7	NO REMARKABLE OBSERVATIONS
1510	1	F	3.8	NO REMARKABLE OBSERVATIONS
	2	F	3.5	NO REMARKABLE OBSERVATIONS
	3	M	3.8	NO REMARKABLE OBSERVATIONS
	4	F	3.8	NO REMARKABLE OBSERVATIONS
	5	M	3.8	NO REMARKABLE OBSERVATIONS
	6	F	3.6	NO REMARKABLE OBSERVATIONS
	7	M	3.7	NO REMARKABLE OBSERVATIONS
	8	M	3.8	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1510	10	M	3.3	NO REMARKABLE OBSERVATIONS
	11	F	3.4	NO REMARKABLE OBSERVATIONS
	12	M	3.8	NO REMARKABLE OBSERVATIONS
	13	M	3.5	NO REMARKABLE OBSERVATIONS
	14	M	3.8	NO REMARKABLE OBSERVATIONS
	15	M	3.8	NO REMARKABLE OBSERVATIONS
	16	F	3.9	NO REMARKABLE OBSERVATIONS
	17	M	3.7	NO REMARKABLE OBSERVATIONS
	18	F	3.8	NO REMARKABLE OBSERVATIONS
	19	M	3.7	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2501	1	F	3.0	NO REMARKABLE OBSERVATIONS
	2	F	3.1	NO REMARKABLE OBSERVATIONS
	3	F	3.8	NO REMARKABLE OBSERVATIONS
	4	F	3.5	NO REMARKABLE OBSERVATIONS
	5	M	3.1	NO REMARKABLE OBSERVATIONS
	6	F	3.0	NO REMARKABLE OBSERVATIONS
	7	M	3.6	NO REMARKABLE OBSERVATIONS
	8	F	3.0	NO REMARKABLE OBSERVATIONS
	9	F	3.1	NO REMARKABLE OBSERVATIONS
	10	M	3.6	NO REMARKABLE OBSERVATIONS
	11	M	3.5	NO REMARKABLE OBSERVATIONS
	12	M	3.6	NO REMARKABLE OBSERVATIONS
	13	M	3.7	NO REMARKABLE OBSERVATIONS
	14	M	3.9	NO REMARKABLE OBSERVATIONS
	15	F	3.0	NO REMARKABLE OBSERVATIONS
	16	F	3.0	NO REMARKABLE OBSERVATIONS
2502	1	F	3.7	NO REMARKABLE OBSERVATIONS
	2	M	4.1	NO REMARKABLE OBSERVATIONS
	3	F	3.4	NO REMARKABLE OBSERVATIONS
	4	M	4.0	NO REMARKABLE OBSERVATIONS
	5	F	3.9	NO REMARKABLE OBSERVATIONS
	6	F	3.7	NO REMARKABLE OBSERVATIONS
	7	M	4.3	NO REMARKABLE OBSERVATIONS
	8	M	4.5	NO REMARKABLE OBSERVATIONS
	9	F	4.1	NO REMARKABLE OBSERVATIONS
	10	M	4.1	NO REMARKABLE OBSERVATIONS
	11	F	3.9	NO REMARKABLE OBSERVATIONS
	12	F	4.1	NO REMARKABLE OBSERVATIONS
	13			EARLY RESORPTION
	14	M	4.3	NO REMARKABLE OBSERVATIONS
2503	1	M	4.0	NO REMARKABLE OBSERVATIONS
	2	F	3.5	NO REMARKABLE OBSERVATIONS
	3	M	3.8	NO REMARKABLE OBSERVATIONS
	4	M	3.8	NO REMARKABLE OBSERVATIONS
	5	F	3.8	NO REMARKABLE OBSERVATIONS
	6	F	3.8	NO REMARKABLE OBSERVATIONS
	7	M	3.8	NO REMARKABLE OBSERVATIONS
	8	M	3.7	NO REMARKABLE OBSERVATIONS
	9	F	3.4	NO REMARKABLE OBSERVATIONS
	10	M	3.8	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2503	11	M	4.1	NO REMARKABLE OBSERVATIONS
	12	M	4.1	NO REMARKABLE OBSERVATIONS
	13	F	4.1	NO REMARKABLE OBSERVATIONS
	14	M	4.1	NO REMARKABLE OBSERVATIONS
	15	M	4.0	NO REMARKABLE OBSERVATIONS
2504	1	F	3.5	NO REMARKABLE OBSERVATIONS
	2			EARLY RESORPTION
	3	M	3.8	NO REMARKABLE OBSERVATIONS
	4	F	4.1	NO REMARKABLE OBSERVATIONS
	5	F	3.9	NO REMARKABLE OBSERVATIONS
	6	M	3.8	NO REMARKABLE OBSERVATIONS
	7	M	3.8	NO REMARKABLE OBSERVATIONS
	8	F	4.2	NO REMARKABLE OBSERVATIONS
	9	M	4.0	NO REMARKABLE OBSERVATIONS
	10	F	3.7	NO REMARKABLE OBSERVATIONS
	11	M	4.1	NO REMARKABLE OBSERVATIONS
	12	M	4.2	NO REMARKABLE OBSERVATIONS
	13	F	3.4	NO REMARKABLE OBSERVATIONS
	14	M	3.4	NO REMARKABLE OBSERVATIONS
	15	M	3.3	NO REMARKABLE OBSERVATIONS
	16	M	3.6	NO REMARKABLE OBSERVATIONS
2505	1	F	4.0	NO REMARKABLE OBSERVATIONS
	2	M	4.2	NO REMARKABLE OBSERVATIONS
	3	F	4.2	NO REMARKABLE OBSERVATIONS
	4	F	3.7	NO REMARKABLE OBSERVATIONS
	5	M	3.6	NO REMARKABLE OBSERVATIONS
	6	M	4.5	NO REMARKABLE OBSERVATIONS
	7	M	4.3	NO REMARKABLE OBSERVATIONS
	8	F	4.3	NO REMARKABLE OBSERVATIONS
	9	M	4.3	NO REMARKABLE OBSERVATIONS
	10	F	3.7	NO REMARKABLE OBSERVATIONS
	11	M	4.3	NO REMARKABLE OBSERVATIONS
	12	M	4.3	NO REMARKABLE OBSERVATIONS
	13	F	3.9	NO REMARKABLE OBSERVATIONS
	14	M	4.1	NO REMARKABLE OBSERVATIONS
	15	F	4.0	NO REMARKABLE OBSERVATIONS
	16	M	4.0	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2506	1	M	4.2	NO REMARKABLE OBSERVATIONS
	2	F	4.2	NO REMARKABLE OBSERVATIONS
	3	F	3.9	NO REMARKABLE OBSERVATIONS
	4	F	3.9	NO REMARKABLE OBSERVATIONS
	5	M	4.1	NO REMARKABLE OBSERVATIONS
	6	F	3.9	NO REMARKABLE OBSERVATIONS
	7	F	3.7	NO REMARKABLE OBSERVATIONS
	8	F	4.2	NO REMARKABLE OBSERVATIONS
	9			EARLY RESORPTION
	10	F	3.8	NO REMARKABLE OBSERVATIONS
2507	1	M	3.4	NO REMARKABLE OBSERVATIONS
	2	F	3.2	NO REMARKABLE OBSERVATIONS
	3	F	3.5	NO REMARKABLE OBSERVATIONS
	4	F	3.5	NO REMARKABLE OBSERVATIONS
	5	F	3.2	NO REMARKABLE OBSERVATIONS
	6	F	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.5	NO REMARKABLE OBSERVATIONS
	8	F	3.3	NO REMARKABLE OBSERVATIONS
	9	M	3.8	NO REMARKABLE OBSERVATIONS
	10	F	3.4	NO REMARKABLE OBSERVATIONS
	11	F	3.5	NO REMARKABLE OBSERVATIONS
	12	M	3.7	NO REMARKABLE OBSERVATIONS
	13	M	4.2	NO REMARKABLE OBSERVATIONS
	14	M	3.6	NO REMARKABLE OBSERVATIONS
	15	F	3.1	NO REMARKABLE OBSERVATIONS
2508	1	F	3.3	NO REMARKABLE OBSERVATIONS
	2	M	3.9	NO REMARKABLE OBSERVATIONS
	3	M	3.9	NO REMARKABLE OBSERVATIONS
	4	F	3.5	NO REMARKABLE OBSERVATIONS
	5	M	4.0	NO REMARKABLE OBSERVATIONS
	6	M	4.2	NO REMARKABLE OBSERVATIONS
	7	F	3.4	NO REMARKABLE OBSERVATIONS
	8	F	3.4	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS
	10	M	3.7	NO REMARKABLE OBSERVATIONS
	11	F	3.9	NO REMARKABLE OBSERVATIONS
	12	M	3.9	NO REMARKABLE OBSERVATIONS
	13	F	3.7	NO REMARKABLE OBSERVATIONS
	14	M	4.0	NO REMARKABLE OBSERVATIONS
	15	M	3.4	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2508	16	M	3.9	NO REMARKABLE OBSERVATIONS
	17	M	4.2	NO REMARKABLE OBSERVATIONS
	18	M	4.2	NO REMARKABLE OBSERVATIONS
	19	M	4.0	NO REMARKABLE OBSERVATIONS
2509	1	M	3.7	NO REMARKABLE OBSERVATIONS
	2	M	3.1	NO REMARKABLE OBSERVATIONS
	3			EARLY RESORPTION
	4	M	3.5	NO REMARKABLE OBSERVATIONS
	5	M	3.7	NO REMARKABLE OBSERVATIONS
	6	M	3.7	NO REMARKABLE OBSERVATIONS
	7	M	3.7	NO REMARKABLE OBSERVATIONS
	8			EARLY RESORPTION
	9	F	3.0	NO REMARKABLE OBSERVATIONS
	10	M	3.4	NO REMARKABLE OBSERVATIONS
	11	F	3.4	NO REMARKABLE OBSERVATIONS
	12	F	3.4	NO REMARKABLE OBSERVATIONS
	13	F	3.5	NO REMARKABLE OBSERVATIONS
	14	M	3.5	NO REMARKABLE OBSERVATIONS
	15	M	3.4	NO REMARKABLE OBSERVATIONS
	16	F	3.4	NO REMARKABLE OBSERVATIONS
	17	M	3.2	NO REMARKABLE OBSERVATIONS
2510	1	M	3.8	NO REMARKABLE OBSERVATIONS
	2	M	3.5	NO REMARKABLE OBSERVATIONS
	3	F	3.5	NO REMARKABLE OBSERVATIONS
	4	M	3.6	NO REMARKABLE OBSERVATIONS
	5	F	3.9	NO REMARKABLE OBSERVATIONS
	6	M	3.9	NO REMARKABLE OBSERVATIONS
	7	M	3.8	NO REMARKABLE OBSERVATIONS
	8	M	3.8	NO REMARKABLE OBSERVATIONS
	9			EARLY RESORPTION
	10	M	3.9	NO REMARKABLE OBSERVATIONS
	11	F	3.8	NO REMARKABLE OBSERVATIONS
	12	F	3.4	NO REMARKABLE OBSERVATIONS
	13	F	3.3	NO REMARKABLE OBSERVATIONS
	14	M	4.0	NO REMARKABLE OBSERVATIONS
	15	F	3.4	NO REMARKABLE OBSERVATIONS
	16	M	3.1	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3501	1	F	4.0	NO REMARKABLE OBSERVATIONS
	2	M	3.6	NO REMARKABLE OBSERVATIONS
	3	M	4.0	NO REMARKABLE OBSERVATIONS
	4	F	3.7	NO REMARKABLE OBSERVATIONS
	5	M	3.4	NO REMARKABLE OBSERVATIONS
	6	M	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.6	NO REMARKABLE OBSERVATIONS
	8	F	3.1	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS
	10	F	2.9	NO REMARKABLE OBSERVATIONS
	11	M	3.8	NO REMARKABLE OBSERVATIONS
	12	M	3.8	NO REMARKABLE OBSERVATIONS
	13	F	2.7	NO REMARKABLE OBSERVATIONS
	14	M	4.1	NO REMARKABLE OBSERVATIONS
	15	F	3.4	NO REMARKABLE OBSERVATIONS
	16	F	3.2	NO REMARKABLE OBSERVATIONS
	17	F	3.7	NO REMARKABLE OBSERVATIONS
3502	1	F	2.7	NO REMARKABLE OBSERVATIONS
	2	M	3.1	NO REMARKABLE OBSERVATIONS
	3	F	2.7	NO REMARKABLE OBSERVATIONS
	4	M	3.3	NO REMARKABLE OBSERVATIONS
	5	F	3.1	NO REMARKABLE OBSERVATIONS
	6	M	3.4	NO REMARKABLE OBSERVATIONS
	7	M	3.0	NO REMARKABLE OBSERVATIONS
	8	M	3.4	NO REMARKABLE OBSERVATIONS
	9	M	3.3	NO REMARKABLE OBSERVATIONS
	10	M	3.1	NO REMARKABLE OBSERVATIONS
	11	M	3.4	NO REMARKABLE OBSERVATIONS
	12	F	3.6	NO REMARKABLE OBSERVATIONS
	13	M	3.6	NO REMARKABLE OBSERVATIONS
	14	F	3.4	NO REMARKABLE OBSERVATIONS
	15	F	3.1	NO REMARKABLE OBSERVATIONS
	16	F	3.1	NO REMARKABLE OBSERVATIONS
3503	1	M	3.3	NO REMARKABLE OBSERVATIONS
	2	F	3.6	NO REMARKABLE OBSERVATIONS
	3	F	3.8	NO REMARKABLE OBSERVATIONS
	4	M	3.8	NO REMARKABLE OBSERVATIONS
	5	F	3.5	NO REMARKABLE OBSERVATIONS
	6	F	3.6	NO REMARKABLE OBSERVATIONS
	7			EARLY RESORPTION

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3503	8	M	3.6	NO REMARKABLE OBSERVATIONS
	9	F	3.2	NO REMARKABLE OBSERVATIONS
	10	F	3.0	NO REMARKABLE OBSERVATIONS
	11	M	3.5	NO REMARKABLE OBSERVATIONS
	12	F	3.2	NO REMARKABLE OBSERVATIONS
	13	M	3.9	NO REMARKABLE OBSERVATIONS
	14	F	3.6	NO REMARKABLE OBSERVATIONS
	15	F	3.8	NO REMARKABLE OBSERVATIONS
	16	M	3.9	NO REMARKABLE OBSERVATIONS
	17	F	3.5	NO REMARKABLE OBSERVATIONS
	18	F	3.5	NO REMARKABLE OBSERVATIONS
	19	F	3.5	NO REMARKABLE OBSERVATIONS
3504	1	F	3.6	NO REMARKABLE OBSERVATIONS
	2	F	2.9	NO REMARKABLE OBSERVATIONS
	3	M	3.9	NO REMARKABLE OBSERVATIONS
	4	F	3.6	NO REMARKABLE OBSERVATIONS
	5	F	3.5	NO REMARKABLE OBSERVATIONS
	6	F	3.1	NO REMARKABLE OBSERVATIONS
	7	M	3.9	NO REMARKABLE OBSERVATIONS
	8	M	3.7	NO REMARKABLE OBSERVATIONS
	9	M	3.5	NO REMARKABLE OBSERVATIONS
	10	F	3.6	NO REMARKABLE OBSERVATIONS
	11	F	3.3	NO REMARKABLE OBSERVATIONS
	12	F	3.0	NO REMARKABLE OBSERVATIONS
	13	F	3.3	NO REMARKABLE OBSERVATIONS
	14	M	3.8	NO REMARKABLE OBSERVATIONS
	15	M	3.3	NO REMARKABLE OBSERVATIONS
	16	M	3.8	NO REMARKABLE OBSERVATIONS
3505	1	F	3.4	NO REMARKABLE OBSERVATIONS
	2	M	4.1	NO REMARKABLE OBSERVATIONS
	3	M	4.0	NO REMARKABLE OBSERVATIONS
	4	M	4.1	NO REMARKABLE OBSERVATIONS
	5	F	3.9	NO REMARKABLE OBSERVATIONS
	6	F	3.7	NO REMARKABLE OBSERVATIONS
	7	F	3.7	NO REMARKABLE OBSERVATIONS
	8	F	3.7	NO REMARKABLE OBSERVATIONS
	9	F	4.0	NO REMARKABLE OBSERVATIONS
	10	F	4.1	NO REMARKABLE OBSERVATIONS
	11	F	4.1	NO REMARKABLE OBSERVATIONS
	12	M	3.9	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3505	13	F	3.6	NO REMARKABLE OBSERVATIONS
	14			EARLY RESORPTION
	15	F	3.9	NO REMARKABLE OBSERVATIONS
	16	F	3.7	NO REMARKABLE OBSERVATIONS
	17	F	3.7	NO REMARKABLE OBSERVATIONS
	18	F	3.7	NO REMARKABLE OBSERVATIONS
3506	1	F	3.2	NO REMARKABLE OBSERVATIONS
	2	M	3.7	NO REMARKABLE OBSERVATIONS
	3	F	3.6	NO REMARKABLE OBSERVATIONS
	4	F	3.4	NO REMARKABLE OBSERVATIONS
	5	F	3.3	NO REMARKABLE OBSERVATIONS
	6	M	3.6	NO REMARKABLE OBSERVATIONS
	7	M	3.7	NO REMARKABLE OBSERVATIONS
	8	M	3.6	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS
	10	F	3.4	NO REMARKABLE OBSERVATIONS
	11	M	3.7	NO REMARKABLE OBSERVATIONS
	12	M	3.3	NO REMARKABLE OBSERVATIONS
	13	F	3.3	NO REMARKABLE OBSERVATIONS
	14	M	3.6	NO REMARKABLE OBSERVATIONS
3507	1	M	3.5	NO REMARKABLE OBSERVATIONS
	2	F	3.2	NO REMARKABLE OBSERVATIONS
	3	M	3.6	NO REMARKABLE OBSERVATIONS
	4			EARLY RESORPTION
	5	M	3.7	NO REMARKABLE OBSERVATIONS
	6	M	3.8	NO REMARKABLE OBSERVATIONS
	7	M	3.7	NO REMARKABLE OBSERVATIONS
	8	M	3.9	NO REMARKABLE OBSERVATIONS
	9	F	3.4	NO REMARKABLE OBSERVATIONS
	10	M	3.8	NO REMARKABLE OBSERVATIONS
	11	M	4.0	NO REMARKABLE OBSERVATIONS
	12	F	4.0	NO REMARKABLE OBSERVATIONS
	13	M	3.3	NO REMARKABLE OBSERVATIONS
	14	F	3.1	NO REMARKABLE OBSERVATIONS
	15	M	4.1	NO REMARKABLE OBSERVATIONS
	16	M	3.8	NO REMARKABLE OBSERVATIONS
	17	F	3.2	NO REMARKABLE OBSERVATIONS
3508	1	M	3.9	NO REMARKABLE OBSERVATIONS
	2	M	4.2	NO REMARKABLE OBSERVATIONS
	3	F	3.4	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3508	4	F	3.8	NO REMARKABLE OBSERVATIONS
	5	F	3.6	NO REMARKABLE OBSERVATIONS
	6	F	2.3	NO REMARKABLE OBSERVATIONS
	7	F	3.8	NO REMARKABLE OBSERVATIONS
	8	M	3.9	NO REMARKABLE OBSERVATIONS
	9	F	3.7	NO REMARKABLE OBSERVATIONS
	10	M	3.8	NO REMARKABLE OBSERVATIONS
	11	M	3.7	NO REMARKABLE OBSERVATIONS
	12	M	3.6	NO REMARKABLE OBSERVATIONS
	13	F	3.8	NO REMARKABLE OBSERVATIONS
	14	M	4.2	NO REMARKABLE OBSERVATIONS
	15	M	3.7	NO REMARKABLE OBSERVATIONS
	16	F	3.5	NO REMARKABLE OBSERVATIONS
	17	F	3.5	NO REMARKABLE OBSERVATIONS
	18	F	3.8	NO REMARKABLE OBSERVATIONS
	19	M	3.8	NO REMARKABLE OBSERVATIONS
3509	1			EARLY RESORPTION
	2	M	3.6	NO REMARKABLE OBSERVATIONS
	3	M	4.0	NO REMARKABLE OBSERVATIONS
	4	M	3.8	NO REMARKABLE OBSERVATIONS
	5	M	4.0	NO REMARKABLE OBSERVATIONS
	6	M	3.9	NO REMARKABLE OBSERVATIONS
	7	F	3.7	NO REMARKABLE OBSERVATIONS
	8	F	3.7	NO REMARKABLE OBSERVATIONS
	9	M	3.9	NO REMARKABLE OBSERVATIONS
	10	M	3.9	NO REMARKABLE OBSERVATIONS
	11	F	3.9	NO REMARKABLE OBSERVATIONS
	12	F	3.8	NO REMARKABLE OBSERVATIONS
	13	F	4.1	NO REMARKABLE OBSERVATIONS
	14	M	4.0	NO REMARKABLE OBSERVATIONS
	15	F	3.7	NO REMARKABLE OBSERVATIONS
	16	F	3.6	NO REMARKABLE OBSERVATIONS
3510	1	M	3.7	NO REMARKABLE OBSERVATIONS
	2	F	3.6	NO REMARKABLE OBSERVATIONS
	3	F	3.6	NO REMARKABLE OBSERVATIONS
	4			EARLY RESORPTION
	5	F	3.5	NO REMARKABLE OBSERVATIONS
	6	F	3.9	NO REMARKABLE OBSERVATIONS
	7			EARLY RESORPTION
	8	M	4.0	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3510	9	M	3.9	NO REMARKABLE OBSERVATIONS
	10	F	3.7	NO REMARKABLE OBSERVATIONS
	11	F	3.9	NO REMARKABLE OBSERVATIONS
	12	M	3.2	NO REMARKABLE OBSERVATIONS
	13	F	3.6	NO REMARKABLE OBSERVATIONS
	14	M	3.7	NO REMARKABLE OBSERVATIONS
	15	M	4.0	NO REMARKABLE OBSERVATIONS
	16	M	3.7	NO REMARKABLE OBSERVATIONS
	17	F	3.5	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4501	1	M	3.5	NO REMARKABLE OBSERVATIONS
	2	M	3.6	NO REMARKABLE OBSERVATIONS
	3	M	3.5	NO REMARKABLE OBSERVATIONS
	4	M	3.8	NO REMARKABLE OBSERVATIONS
	5	M	3.4	NO REMARKABLE OBSERVATIONS
	6	F	3.0	NO REMARKABLE OBSERVATIONS
	7	F	3.5	NO REMARKABLE OBSERVATIONS
	8	F	3.8	NO REMARKABLE OBSERVATIONS
	9	F	3.4	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11	F	3.7	NO REMARKABLE OBSERVATIONS
	12	F	3.6	NO REMARKABLE OBSERVATIONS
	13			EARLY RESORPTION
	14	M	3.7	NO REMARKABLE OBSERVATIONS
	15	F	3.5	NO REMARKABLE OBSERVATIONS
	16	M	3.8	NO REMARKABLE OBSERVATIONS
	17	M	3.5	NO REMARKABLE OBSERVATIONS
	18	M	3.4	NO REMARKABLE OBSERVATIONS
4502	1	F	3.8	NO REMARKABLE OBSERVATIONS
	2	F	3.9	NO REMARKABLE OBSERVATIONS
	3	M	3.9	NO REMARKABLE OBSERVATIONS
	4	F	3.5	NO REMARKABLE OBSERVATIONS
	5	M	3.9	NO REMARKABLE OBSERVATIONS
	6	M	3.7	NO REMARKABLE OBSERVATIONS
	7	M	3.9	NO REMARKABLE OBSERVATIONS
	8	F	3.8	NO REMARKABLE OBSERVATIONS
	9	F	3.7	NO REMARKABLE OBSERVATIONS
	10	F	3.7	NO REMARKABLE OBSERVATIONS
	11	M	4.0	NO REMARKABLE OBSERVATIONS
	12	M	3.7	NO REMARKABLE OBSERVATIONS
4503	1	M	3.7	NO REMARKABLE OBSERVATIONS
	2	M	4.1	NO REMARKABLE OBSERVATIONS
	3	F	3.8	NO REMARKABLE OBSERVATIONS
	4	M	3.8	NO REMARKABLE OBSERVATIONS
	5	F	3.7	NO REMARKABLE OBSERVATIONS
	6	M	4.0	NO REMARKABLE OBSERVATIONS
	7	F	3.8	NO REMARKABLE OBSERVATIONS
	8	M	4.0	NO REMARKABLE OBSERVATIONS
	9	M	4.2	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4503	10	M	4.0	NO REMARKABLE OBSERVATIONS
	11	M	4.0	NO REMARKABLE OBSERVATIONS
	12	F	3.7	NO REMARKABLE OBSERVATIONS
	13	F	3.8	NO REMARKABLE OBSERVATIONS
	14	F	3.8	NO REMARKABLE OBSERVATIONS
4504	1	M	3.3	NO REMARKABLE OBSERVATIONS
	2	M	3.1	NO REMARKABLE OBSERVATIONS
	3	M	3.5	NO REMARKABLE OBSERVATIONS
	4	M	3.3	NO REMARKABLE OBSERVATIONS
	5	F	3.2	NO REMARKABLE OBSERVATIONS
	6	M	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.6	NO REMARKABLE OBSERVATIONS
	8	M	3.5	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS
	10	M	3.7	NO REMARKABLE OBSERVATIONS
	11	F	3.1	NO REMARKABLE OBSERVATIONS
	12	M	3.6	NO REMARKABLE OBSERVATIONS
	13	F	3.9	NO REMARKABLE OBSERVATIONS
	14	F	3.6	NO REMARKABLE OBSERVATIONS
	15	M	3.6	NO REMARKABLE OBSERVATIONS
	16	M	3.5	NO REMARKABLE OBSERVATIONS
	17	F	3.3	NO REMARKABLE OBSERVATIONS
	18			EARLY RESORPTION
	19	F	3.4	NO REMARKABLE OBSERVATIONS
4505	1	F	2.7	NO REMARKABLE OBSERVATIONS
	2	M	2.7	NO REMARKABLE OBSERVATIONS
	3	F	2.9	NO REMARKABLE OBSERVATIONS
	4	M	3.3	NO REMARKABLE OBSERVATIONS
	5	F	3.2	NO REMARKABLE OBSERVATIONS
	6	M	3.2	NO REMARKABLE OBSERVATIONS
	7	M	3.2	NO REMARKABLE OBSERVATIONS
	8	F	3.0	NO REMARKABLE OBSERVATIONS
	9			EARLY RESORPTION
	10	M	3.5	NO REMARKABLE OBSERVATIONS
	11	M	3.0	NO REMARKABLE OBSERVATIONS
	12	M	3.3	NO REMARKABLE OBSERVATIONS
	13	M	3.3	NO REMARKABLE OBSERVATIONS
	14	F	2.8	NO REMARKABLE OBSERVATIONS
	15	F	2.8	NO REMARKABLE OBSERVATIONS
	16	F	2.9	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4505	17	M	3.0	NO REMARKABLE OBSERVATIONS
	18	F	2.3	NO REMARKABLE OBSERVATIONS
4506	1	F	3.4	NO REMARKABLE OBSERVATIONS
	2	M	3.6	NO REMARKABLE OBSERVATIONS
	3	F	3.4	NO REMARKABLE OBSERVATIONS
	4	M	3.5	NO REMARKABLE OBSERVATIONS
	5	F	3.1	NO REMARKABLE OBSERVATIONS
	6	F	3.4	NO REMARKABLE OBSERVATIONS
	7	F	3.4	NO REMARKABLE OBSERVATIONS
	8	M	3.6	NO REMARKABLE OBSERVATIONS
	9	F	3.5	NO REMARKABLE OBSERVATIONS
	10	F	3.3	NO REMARKABLE OBSERVATIONS
	11	F	3.4	NO REMARKABLE OBSERVATIONS
	12	M	3.5	NO REMARKABLE OBSERVATIONS
	13	M	3.8	NO REMARKABLE OBSERVATIONS
	14	M	3.6	NO REMARKABLE OBSERVATIONS
	15	F	3.2	NO REMARKABLE OBSERVATIONS
	16	F	3.0	NO REMARKABLE OBSERVATIONS
	17	F	3.5	NO REMARKABLE OBSERVATIONS
	18	M	3.6	NO REMARKABLE OBSERVATIONS
4507	1			EARLY RESORPTION
	2	M	4.0	NO REMARKABLE OBSERVATIONS
	3	F	3.6	NO REMARKABLE OBSERVATIONS
	4	F	3.8	NO REMARKABLE OBSERVATIONS
	5			EARLY RESORPTION
	6	F	2.5	NO REMARKABLE OBSERVATIONS
	7	F	3.7	NO REMARKABLE OBSERVATIONS
	8			EARLY RESORPTION
	9	M	3.9	NO REMARKABLE OBSERVATIONS
	10	F	3.7	NO REMARKABLE OBSERVATIONS
	11	M	3.6	NO REMARKABLE OBSERVATIONS
	12	F	2.3	NO REMARKABLE OBSERVATIONS
	13	M	3.7	NO REMARKABLE OBSERVATIONS
4508	1	F	3.3	NO REMARKABLE OBSERVATIONS
	2	F	3.3	NO REMARKABLE OBSERVATIONS
	3	M	3.7	NO REMARKABLE OBSERVATIONS
	4	M	3.6	NO REMARKABLE OBSERVATIONS
	5	F	3.4	NO REMARKABLE OBSERVATIONS
	6	M	3.6	NO REMARKABLE OBSERVATIONS
	7	M	3.6	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4508	8	F	3.2	NO REMARKABLE OBSERVATIONS
	9	F	3.3	NO REMARKABLE OBSERVATIONS
	10	F	3.4	NO REMARKABLE OBSERVATIONS
	11	F	3.4	NO REMARKABLE OBSERVATIONS
	12	M	3.4	NO REMARKABLE OBSERVATIONS
	13	M	3.6	NO REMARKABLE OBSERVATIONS
	14			EARLY RESORPTION
	15	F	3.5	NO REMARKABLE OBSERVATIONS
	16	M	3.7	NO REMARKABLE OBSERVATIONS
	17	M	3.6	NO REMARKABLE OBSERVATIONS
4509	1			EARLY RESORPTION
	2	F	3.7	NO REMARKABLE OBSERVATIONS
	3	M	3.6	NO REMARKABLE OBSERVATIONS
	4	M	3.6	NO REMARKABLE OBSERVATIONS
	5	F	3.8	NO REMARKABLE OBSERVATIONS
	6	F	3.6	NO REMARKABLE OBSERVATIONS
	7	M	4.0	NO REMARKABLE OBSERVATIONS
	8	M	4.1	NO REMARKABLE OBSERVATIONS
	9	F	3.9	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11	F	3.7	NO REMARKABLE OBSERVATIONS
	12	F	3.6	NO REMARKABLE OBSERVATIONS
	13	F	3.5	NO REMARKABLE OBSERVATIONS
	14	M	4.2	NO REMARKABLE OBSERVATIONS
	15	F	3.6	NO REMARKABLE OBSERVATIONS
	16	F	3.8	NO REMARKABLE OBSERVATIONS
	17	F	3.6	NO REMARKABLE OBSERVATIONS
4510	1	M	3.6	NO REMARKABLE OBSERVATIONS
	2	M	4.0	NO REMARKABLE OBSERVATIONS
	3	M	3.9	NO REMARKABLE OBSERVATIONS
	4	F	3.4	NO REMARKABLE OBSERVATIONS
	5	M	3.8	NO REMARKABLE OBSERVATIONS
	6	M	3.9	NO REMARKABLE OBSERVATIONS
	7	F	3.6	NO REMARKABLE OBSERVATIONS
	8	F	3.6	NO REMARKABLE OBSERVATIONS
	9	M	3.4	NO REMARKABLE OBSERVATIONS
	10	M	3.9	NO REMARKABLE OBSERVATIONS
	11	F	3.7	NO REMARKABLE OBSERVATIONS
	12	M	4.2	NO REMARKABLE OBSERVATIONS
	13	M	3.6	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4510	14	F	3.5	NO REMARKABLE OBSERVATIONS
	15	F	3.4	NO REMARKABLE OBSERVATIONS
	16	F	3.5	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5501	1	F	3.2	NO REMARKABLE OBSERVATIONS
	2	F	2.8	NO REMARKABLE OBSERVATIONS
	3	M	3.5	NO REMARKABLE OBSERVATIONS
	4	F	3.1	NO REMARKABLE OBSERVATIONS
	5	F	3.2	NO REMARKABLE OBSERVATIONS
	6	F	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.5	NO REMARKABLE OBSERVATIONS
	8	M	3.3	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS
	10	F	3.4	NO REMARKABLE OBSERVATIONS
	11	F	3.5	NO REMARKABLE OBSERVATIONS
	12	F	3.5	NO REMARKABLE OBSERVATIONS
	13	M	3.5	NO REMARKABLE OBSERVATIONS
5502	1	M	3.5	NO REMARKABLE OBSERVATIONS
	2	M	3.8	NO REMARKABLE OBSERVATIONS
	3	F	3.5	NO REMARKABLE OBSERVATIONS
	4	M	3.8	NO REMARKABLE OBSERVATIONS
	5	M	3.9	NO REMARKABLE OBSERVATIONS
	6	M	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.6	NO REMARKABLE OBSERVATIONS
	8	M	3.4	NO REMARKABLE OBSERVATIONS
	9	M	3.5	NO REMARKABLE OBSERVATIONS
	10	F	3.8	NO REMARKABLE OBSERVATIONS
	11	F	3.2	NO REMARKABLE OBSERVATIONS
	12	F	3.6	NO REMARKABLE OBSERVATIONS
	13	M	3.6	NO REMARKABLE OBSERVATIONS
	14	M	3.6	NO REMARKABLE OBSERVATIONS
	15	M	3.4	NO REMARKABLE OBSERVATIONS
	16	M	3.9	NO REMARKABLE OBSERVATIONS
	17	M	3.8	NO REMARKABLE OBSERVATIONS
	18	F	3.0	NO REMARKABLE OBSERVATIONS
5503	1	M	3.6	NO REMARKABLE OBSERVATIONS
	2	F	3.6	NO REMARKABLE OBSERVATIONS
	3	F	3.6	NO REMARKABLE OBSERVATIONS
	4	F	3.3	NO REMARKABLE OBSERVATIONS
	5	M	3.7	NO REMARKABLE OBSERVATIONS
	6	F	3.5	NO REMARKABLE OBSERVATIONS
	7	M	3.6	NO REMARKABLE OBSERVATIONS
	8	F	3.3	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5503	9	M	3.7	NO REMARKABLE OBSERVATIONS
	10	M	3.8	NO REMARKABLE OBSERVATIONS
	11	F	3.3	NO REMARKABLE OBSERVATIONS
	12	F	3.4	NO REMARKABLE OBSERVATIONS
	13	F	3.5	NO REMARKABLE OBSERVATIONS
	14	M	3.5	NO REMARKABLE OBSERVATIONS
	15	F	3.4	NO REMARKABLE OBSERVATIONS
5504	1	F	4.0	NO REMARKABLE OBSERVATIONS
	2	F	3.8	NO REMARKABLE OBSERVATIONS
	3	F	3.8	NO REMARKABLE OBSERVATIONS
	4	M	4.0	NO REMARKABLE OBSERVATIONS
	5	F	3.6	NO REMARKABLE OBSERVATIONS
	6	M	3.9	NO REMARKABLE OBSERVATIONS
	7	M	4.1	NO REMARKABLE OBSERVATIONS
	8	M	4.1	NO REMARKABLE OBSERVATIONS
	9	M	4.1	NO REMARKABLE OBSERVATIONS
	10	F	3.9	NO REMARKABLE OBSERVATIONS
	11	F	4.1	NO REMARKABLE OBSERVATIONS
	12	M	3.9	NO REMARKABLE OBSERVATIONS
	13	F	3.9	NO REMARKABLE OBSERVATIONS
5505	1	M	3.1	NO REMARKABLE OBSERVATIONS
	2	M	3.3	NO REMARKABLE OBSERVATIONS
	3	M	3.1	NO REMARKABLE OBSERVATIONS
	4	M	3.3	NO REMARKABLE OBSERVATIONS
	5	M	3.6	NO REMARKABLE OBSERVATIONS
	6	M	3.6	NO REMARKABLE OBSERVATIONS
	7	M	3.4	NO REMARKABLE OBSERVATIONS
	8	F	3.4	NO REMARKABLE OBSERVATIONS
	9	F	2.9	NO REMARKABLE OBSERVATIONS
	10	M	3.2	NO REMARKABLE OBSERVATIONS
	11	F	3.2	NO REMARKABLE OBSERVATIONS
	12	F	3.2	NO REMARKABLE OBSERVATIONS
	13	M	3.4	NO REMARKABLE OBSERVATIONS
	14	M	3.3	NO REMARKABLE OBSERVATIONS
	15	M	3.3	NO REMARKABLE OBSERVATIONS
	16	F	3.3	NO REMARKABLE OBSERVATIONS
5507	1	F	3.8	NO REMARKABLE OBSERVATIONS
	2	M	4.0	NO REMARKABLE OBSERVATIONS
	3	M	4.1	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5507	4	M	3.9	NO REMARKABLE OBSERVATIONS
	5	M	4.1	NO REMARKABLE OBSERVATIONS
	6	F	3.0	NO REMARKABLE OBSERVATIONS
	7	F	3.7	NO REMARKABLE OBSERVATIONS
	8	M	3.8	NO REMARKABLE OBSERVATIONS
	9	M	4.0	NO REMARKABLE OBSERVATIONS
	10	M	3.7	NO REMARKABLE OBSERVATIONS
	11	M	4.0	NO REMARKABLE OBSERVATIONS
	12	F	3.8	NO REMARKABLE OBSERVATIONS
	13	M	4.0	NO REMARKABLE OBSERVATIONS
	14	F	4.0	NO REMARKABLE OBSERVATIONS
	15	M	4.0	NO REMARKABLE OBSERVATIONS
	16	M	4.0	NO REMARKABLE OBSERVATIONS
	17	M	4.3	NO REMARKABLE OBSERVATIONS
5508	1	M	3.3	NO REMARKABLE OBSERVATIONS
	2	F	3.4	NO REMARKABLE OBSERVATIONS
	3	M	3.3	NO REMARKABLE OBSERVATIONS
	4	F	3.3	NO REMARKABLE OBSERVATIONS
	5	M	3.5	NO REMARKABLE OBSERVATIONS
	6	M	3.4	NO REMARKABLE OBSERVATIONS
	7	F	3.3	NO REMARKABLE OBSERVATIONS
	8	F	3.1	NO REMARKABLE OBSERVATIONS
	9	M	3.3	NO REMARKABLE OBSERVATIONS
	10	M	3.4	NO REMARKABLE OBSERVATIONS
	11	M	3.4	NO REMARKABLE OBSERVATIONS
	12	F	2.9	NO REMARKABLE OBSERVATIONS
	13	F	3.3	NO REMARKABLE OBSERVATIONS
	14	F	3.5	NO REMARKABLE OBSERVATIONS
	15	M	3.5	NO REMARKABLE OBSERVATIONS
	16	M	3.6	NO REMARKABLE OBSERVATIONS
5509	1			EARLY RESORPTION
	2	M	3.5	NO REMARKABLE OBSERVATIONS
	3	F	3.5	NO REMARKABLE OBSERVATIONS
	4	F	3.4	NO REMARKABLE OBSERVATIONS
	5	M	3.8	NO REMARKABLE OBSERVATIONS
	6	F	3.2	NO REMARKABLE OBSERVATIONS
	7	F	3.4	NO REMARKABLE OBSERVATIONS
	8	F	3.6	NO REMARKABLE OBSERVATIONS
	9	F	3.5	NO REMARKABLE OBSERVATIONS

Appendix J

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
RATS

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5509	10			EARLY RESORPTION
	11	M	3.5	NO REMARKABLE OBSERVATIONS
	12	F	3.4	NO REMARKABLE OBSERVATIONS
	13	F	3.6	NO REMARKABLE OBSERVATIONS
	14	M	3.3	NO REMARKABLE OBSERVATIONS
5510	1	M	3.0	NO REMARKABLE OBSERVATIONS
	2	M	3.3	NO REMARKABLE OBSERVATIONS
	3			EARLY RESORPTION
	4	M	3.2	NO REMARKABLE OBSERVATIONS
	5	F	2.2	NO REMARKABLE OBSERVATIONS
	6	M	3.4	NO REMARKABLE OBSERVATIONS
	7	M	3.1	NO REMARKABLE OBSERVATIONS
	8	F	3.1	NO REMARKABLE OBSERVATIONS
	9	M	3.6	NO REMARKABLE OBSERVATIONS
	10	F	3.4	NO REMARKABLE OBSERVATIONS
	11	F	2.9	NO REMARKABLE OBSERVATIONS

APPENDIX Q

FEMALE REPRODUCTION AND MEAN FETAL WEIGHT DATA

MICE

Appendix Q

SUMMARY OF REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA MICE

	EXPOSURE LEVELS (ppm)					
	0	300	1000	3000	9000	STAT SYMBOL
# Females Mated	10	10	10	10	10	
# Pregnant (%)	8 (80.0)	8 (80.0)	10 (100.0)	9 (90.0)	10 (100.0)	NS
# Pregnancies Aborted	0	0	0	0	0	NT
# Premature Births	1	0	0	0	0	NS
# Litters with Viable Fetuses	7	8	10	9	10	NS
Female Mortality #	0	0	0	0	0	NT
# *Corpora Lutea*	105	118	150	129	153	
Mean ± S.D.	15.0 ± 1.7	14.8 ± 2.1	15.0 ± 2.1	14.3 ± 1.5	15.3 ± 2.4	A-L-
# Implantation Sites	93	104	140	113	132	
Mean ± S.D.	13.3 ± 1.5	13.0 ± 4.4	14.0 ± 1.6	12.6 ± 3.3	13.2 ± 2.1	A-L-
Preimplantation Loss Index						
Mean ± S.D.	.109 ± .094	.139 ± .247	.062 ± .062	.132 ± .210	.131 ± .110	A-L-
# Viable Fetuses	88	96	130	100	120	
# Dead Fetuses	1	0	1	0	0	NS
Mean Litter Size + S.D.	12.7 ± 1.1	12.0 ± 4.1	13.1 ± 1.7	11.1 ± 3.1	12.0 ± 3.2	A-L-
Mean # Males ± S.D.	6.0 ± 1.2	4.6 ± 2.3	5.8 ± 1.6	5.1 ± 2.5	5.8 ± 1.8	A-L-
Mean # Females ± S.D.	6.6 ± 1.4	7.4 ± 2.8	7.2 ± 2.3	6.0 ± 1.9	6.2 ± 1.9	A-L-
# Resorptions	4	8	9	13	12	
Mean ± S.D.	0.6 ± 1.1	1.0 ± 1.4	0.9 ± 1.0	1.4 ± 1.1	1.2 ± 1.4	A-L-
Resorptions/Implants Ratios						
Mean ± S.D.	.039 ± .073	.067 ± .094	.063 ± .069	.109 ± .094	.104 ± .133	A-L-
# Litters with Resorptions (%)	2 (28.6)	4 (50.0)	5 (50.0)	8 (88.9)	6 (60.0)	NS
Mean Body Weight (g) of Viable Fetuses ± S.D.	1.19 ± 0.07	1.28 ± 0.14	1.29 ± 0.10	1.33 ± 0.15	1.29 ± 0.11	A-L-
Male Fetuses	1.24 ± 0.10	1.31 ± 0.12	1.30 ± 0.12	1.37 ± 0.17	1.32 ± 0.14	A-L-
Female Fetuses	1.14 ± 0.05	1.25 ± 0.14	1.27 ± 0.11	1.29 ± 0.15	1.28 ± 0.11	A-L-
Ratio of Viable Fetuses Total Males/Total Females	0.9	0.6	0.8	0.9	0.9	

Note: Preimplantation Loss = $\frac{\textit{Corpora lutea} - \text{implants}}{\textit{Corpora lutea}}$

No statistically significant differences.

Appendix Q

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA MICE

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	FETUSES LIVE	FETUSES DEAD	FETUSES TOTAL	SEX M	SEX F	AVERAGE FETAL B.W. (GRAMS) M	AVERAGE FETAL B.W. (GRAMS) F	AVERAGE FETAL B.W. (GRAMS) BOTH
GROUP I - 0 PPM													
1511	15	14	0	0	0	13	1	14	7	6	1.2	1.1	1.1
1512	17	16	1	2	3	13	0	13	7	6	1.1	1.1	1.1
1514	14	12	0	0	0	12	0	12	6	6	1.2	1.1	1.2
1515	13	12	1	0	1	11	0	11	6	5	1.4	1.2	1.3
1516	13	13	0	0	0	13	0	13	7	6	1.2	1.1	1.2
1517 NP													
1518	DELIVERED												
1519	16	14	0	0	0	14	0	14	5	9	1.3	1.2	1.2
1520 NP													
1521	17	12	0	0	0	12	0	12	4	8	1.3	1.2	1.2
MEAN	15.0	13.3	0.3	0.3	0.6	12.6	0.1	12.7	6.0	6.6	1.2	1.1	1.2
S.D.	1.7	1.5	0.5	0.8	1.1	1.0	0.4	1.1	1.2	1.4	0.1	0.1	0.1
N	7	7	7	7	7	7	7	7	7	7	7	7	7
GROUP II - 300 PPM													
2511	15	14	0	0	0	14	0	14	2	12	1.3	1.3	1.3
2512	12	12	1	0	1	11	0	11	5	6	1.2	1.2	1.2
2513 NP													
2514	16	15	4	0	4	11	0	11	4	7	1.4	1.2	1.3
2515	11	3	0	0	0	3	0	3	1	2	1.5	1.5	1.5
2516 NP													
2517	16	16	2	0	2	14	0	14	5	9	1.4	1.3	1.3
2518	16	16	1	0	1	15	0	15	7	8	1.3	1.2	1.3
2519	17	16	0	0	0	16	0	16	8	8	1.1	1.0	1.0
2520	15	12	0	0	0	12	0	12	5	7	1.3	1.3	1.3
MEAN	14.8	13.0	1.0	0.0	1.0	12.0	0.0	12.0	4.6	7.4	1.3	1.3	1.3
S.D.	2.1	4.4	1.4	0.0	1.4	4.1	0.0	4.1	2.3	2.8	0.1	0.1	0.1
N	8	8	8	8	8	8	8	8	8	8	8	8	8

B.W.= BODY WEIGHT; M=MALE; F=FEMALE; NP=NOT PREGNANT (NO UTERINE FOCI VISUALIZED AFTER STAINING).

Appendix Q

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA MICE

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	FETUSES LIVE	FETUSES DEAD	FETUSES TOTAL	SEX M	SEX F	AVERAGE FETAL B.W. (GRAMS) M	AVERAGE FETAL B.W. (GRAMS) F	AVERAGE FETAL B.W. (GRAMS) BOTH
GROUP III - 1000 PPM													
3511	17	17	0	0	0	17	0	17	5	12	1.2	1.1	1.2
3512	11	11	0	0	0	11	0	11	5	6	1.3	1.3	1.3
3513	18	16	2	0	2	14	0	14	5	9	1.3	1.3	1.3
3514	14	14	2	0	2	12	0	12	5	7	1.2	1.2	1.2
3515	15	14	0	0	0	13	1	14	8	5	1.3	1.3	1.3
3516	14	13	0	0	0	13	0	13	8	5	1.4	1.3	1.4
3517	14	14	0	0	0	14	0	14	7	7	1.3	1.3	1.3
3518	17	14	2	0	2	12	0	12	5	7	1.4	1.4	1.4
3519	16	14	2	0	2	12	0	12	7	5	1.1	1.1	1.1
3520	14	13	1	0	1	12	0	12	3	9	1.5	1.4	1.4
MEAN	15.0	14.0	0.9	0.0	0.9	13.0	0.1	13.1	5.8	7.2	1.3	1.3	1.3
S.D.	2.1	1.6	1.0	0.0	1.0	1.7	0.3	1.7	1.6	2.3	0.1	0.1	0.1
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP IV - 3000 PPM													
4511	14	12	4	0	4	8	0	8	1	7	1.4	1.3	1.3
4512	13	13	1	0	1	12	0	12	4	8	1.3	1.3	1.3
4513	14	13	1	0	1	12	0	12	5	7	1.3	1.2	1.2
4514	14	14	1	0	1	13	0	13	7	6	1.4	1.4	1.4
4515 NP													
4516	14	14	1	0	1	13	0	13	7	6	1.3	1.2	1.3
4517	12	4	0	0	0	4	0	4	2	2	1.8	1.6	1.7
4518	15	14	1	1	2	12	0	12	6	6	1.2	1.1	1.2
4519	17	14	1	0	1	13	0	13	9	4	1.3	1.2	1.3
4520	16	15	2	0	2	13	0	13	5	8	1.3	1.3	1.3
MEAN	14.3	12.6	1.3	0.1	1.4	11.1	0.0	11.1	5.1	6.0	1.4	1.3	1.3
S.D.	1.5	3.3	1.1	0.3	1.1	3.1	0.0	3.1	2.5	1.9	0.2	0.2	0.2
N	9	9	9	9	9	9	9	9	9	9	9	9	9

B.W.= BODY WEIGHT; M=MALE; F=FEMALE; NP=NOT PREGNANT (NO UTERINE FOCI VISUALIZED AFTER STAINING).

Appendix Q

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA MICE

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	FETUSES LIVE	FETUSES DEAD	FETUSES TOTAL	SEX M	SEX F	AVERAGE FETAL B.W. (GRAMS) M	AVERAGE FETAL B.W. (GRAMS) F	AVERAGE FETAL B.W. (GRAMS) BOTH
GROUP V - 9000 PPM													
5511	14	13	0	0	0	13	0	13	8	5	1.4	1.2	1.3
5512	16	16	0	0	0	16	0	16	6	10	1.1	1.1	1.1
5513	19	17	1	0	1	16	0	16	8	8	1.2	1.2	1.2
5514	16	15	0	0	0	15	0	15	8	7	1.2	1.2	1.2
5515	12	12	2	0	2	10	0	10	4	6	1.3	1.3	1.3
5516	13	12	0	0	0	12	0	12	6	6	1.3	1.3	1.3
5517	16	12	3	0	3	9	0	9	4	5	1.4	1.4	1.4
5518	19	13	0	1	1	12	0	12	6	6	1.3	1.3	1.3
5519	13	10	4	0	4	6	0	6	3	3	1.6	1.5	1.5
5520	15	12	1	0	1	11	0	11	5	6	1.4	1.3	1.3
MEAN	15.3	13.2	1.1	0.1	1.2	12.0	0.0	12.0	5.8	6.2	1.3	1.3	1.3
S.D.	2.4	2.1	1.4	0.3	1.4	3.2	0.0	3.2	1.8	1.9	0.1	0.1	0.1
N	10	10	10	10	10	10	10	10	10	10	10	10	10

B.W.= BODY WEIGHT; M=MALE; F=FEMALE.

APPENDIX R

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA

MICE

Appendix R

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA
MICE

ANIMAL	IMPLANT NUMBER																
NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
GROUP I - 0 PPM																	
1511	MA	FA	FA	MA	MA	FA	FA	MA /	MA	FA	MD	MA	FA	MA			
1512	L	MA	MA	FA	MA	FA /	MA	FA	FA	MA	FA	MA	L	MA	FA	E	
1514	MA	FA	FA	MA	MA	FA	MA	FA /	MA	FA	MA	FA					
1515	FA	FA	MA	MA	FA /	MA	MA	FA	MA	MA	FA	E					
1516	MA	FA	FA	MA	FA	FA	FA	MA /	MA	MA	MA	FA	MA				
1519	FA	FA	FA	MA	FA	FA	FA /	FA	MA	MA	MA	FA	MA	FA			
1521	FA	FA	FA	MA /	MA	MA	MA	FA	FA	FA	FA	FA					
GROUP II - 300 PPM																	
2511	MA	FA	FA	FA	FA	FA	FA	MA	FA	FA /	FA	FA	FA	FA			
2512	MA	FA	FA	FA	MA	MA /	FA	FA	MA	E	MA	FA					
2514	E	FA	MA	MA	FA	MA	FA	FA	FA	MA /	E	E	FA	E	FA		
2515	/ FA	MA	FA														
2517	FA	FA	FA	FA	E	FA	FA	E	MA /	MA	MA	FA	FA	FA	MA	MA	
2518	MA	FA	FA	FA	MA	MA	MA	MA /	MA	FA	E	FA	MA	FA	FA	FA	
2519	FA	FA	MA	FA	MA	MA	MA /	MA	MA	FA	MA	FA	FA	FA	FA	MA	
2520	MA	MA	FA	FA	FA /	FA	FA	MA	FA	FA	MA	MA					
GROUP III - 1000 PPM																	
3511	MA	FA	FA	FA	FA	MA	FA	FA	MA	FA	FA /	FA	MA	FA	FA	FA	MA
3512	FA	FA	MA	MA	MA	FA /	FA	MA	MA	FA	FA						
3513	E	MA	FA	FA	FA	FA	FA /	MA	E	MA	MA	FA	FA	FA	FA	MA	
3514	FA	FA	MA	E	MA	FA	E /	MA	FA	FA	MA	FA	MA	FA			
3515	MA	MA	MA	FA	MA	MA	FA /	MA	MA	FA	MA	FD	FA	FA			
3516	FA	FA	MA	FA	MA	MA /	FA	MA	MA	MA	FA	MA	MA				
3517	MA	MA	MA	FA	MA	FA	MA /	FA	MA	FA	FA	FA	FA	MA			
3518	FA	FA	MA	MA	E	MA	MA	E /	FA	FA	FA	FA	MA	FA			
3519	FA	MA	FA	FA	MA	E	MA	MA	E	MA /	MA	MA	FA	FA			
3520	FA	MA	MA	FA	FA /	FA	FA	MA	FA	E	FA	FA	FA				

M=MALE; F=FEMALE; A=ALIVE; E=EARLY; L=LATE RESORPTION; D=DEAD FETUS; / DENOTES POSITION OF CERVIX.

Appendix R

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA
MICE

ANIMAL NUMBER	IMPLANT NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
GROUP IV - 3000 PPM																	
4511	FA	MA	FA	E	FA	FA /	FA	E	E	E	FA	FA					
4512	MA	FA	MA	FA	MA	FA /	FA	FA	E	FA	FA	MA	FA				
4513	FA	FA	FA	MA	FA /	FA	FA	MA	FA	MA	MA	E	MA				
4514	MA	FA	MA	FA	FA	MA	MA	FA /	MA	E	MA	MA	FA	FA			
4516	MA	E	FA	FA	MA	MA	FA	MA	FA	MA /	FA	FA	MA	MA			
4517	FA	MA	FA	MA /													
4518	MA	FA	FA	MA	MA	FA /	L	E	FA	MA	FA	MA	FA	MA			
4519	MA	MA	MA	MA	FA /	MA	FA	MA	MA	E	MA	FA	FA	MA			
4520	MA	MA	MA	FA	FA	FA	MA	E	MA	FA /	FA	FA	E	FA	FA		
GROUP V - 9000 PPM																	
5511	MA	MA	MA	MA /	FA	FA	MA	FA	FA	MA	FA	MA	MA				
5512	FA	MA	FA	MA	FA	MA	FA	FA	MA	FA /	FA	MA	FA	MA	FA	FA	
5513	FA	FA	MA	E	MA	FA	FA	MA	MA	MA	MA /	FA	MA	FA	FA	MA	FA
5514	FA	FA	MA	MA	MA	FA /	MA	MA	FA	MA	MA	FA	FA	FA	MA		
5515	MA	MA	FA	MA /	E	FA	E	FA	FA	FA	FA	MA					
5516	MA	MA	FA	MA	FA /	MA	FA	FA	FA	MA	MA	FA					
5517	E	MA	E	FA	E	FA	MA	MA	FA /	MA	FA	FA					
5518	FA	L	MA	MA	MA	FA /	MA	FA	FA	FA	FA	MA	MA				
5519	FA	MA	FA	MA	E	E	E	E /	MA	FA							
5520	FA	MA	E	FA	FA	FA	MA /	FA	MA	MA	MA	FA					

M=MALE; F=FEMALE; A=ALIVE; E=EARLY; L=LATE RESORPTION; ; / DENOTES POSITION OF CERVIX.

APPENDIX S

PATHOLOGY
MACROSCOPIC POSTMORTEM OBSERVATIONS

MICE

Appendix S

PATHOLOGY - MACROSCOPIC POSTMORTEM OBSERVATIONS
MICE

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP I - 0 PPM		
1511	52.2	NOA
1512	51.1	NOA
1514	47.3	NOA
1515	50.6	NOA
1516	52.4	NOA
1517	31.6	NOA
1518	34.7	NOA
1519	54.4	NOA
1520	30.0	NOA
1521	50.4	NOA
GROUP II - 300 PPM		
2511	56.5	NOA
2512	48.6	NOA
2513	29.9	NOA
2514	51.4	NOA
2515	37.9	NOA
2516	32.2	NOA
2517	58.7	NOA
2518	56.6	NOA
2519	54.2	NOA
2520	54.2	NOA
GROUP III - 1000 PPM		
3511	56.6	STOMACH: GLANDULAR MUCOSA - DISCOLORED RED AREA (0.1-0.5 CM DIAMETER)
3512	49.3	NOA
3513	55.1	NOA
3514	53.1	NOA
3515	55.8	NOA
3516	55.1	NOA
3517	56.2	STOMACH: GLANDULAR MUCOSA - RED DISCOLORED FOCI (0.2 CM DIAMETER)
3518	55.0	NOA
3519	53.2	NOA
3520	58.3	NOA

NOA=NO OBSERVABLE ABNORMALITIES.

Appendix S

PATHOLOGY - MACROSCOPIC POSTMORTEM OBSERVATIONS
MICE

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP IV - 3000 PPM		
4511	46.4	NOA
4512	53.7	NOA
4513	52.6	NOA
4514	55.4	NOA
4515	28.3	LIVER: ALL LOBES DISCOLORED RED (E)
4516	55.8	NOA
4517	47.2	NOA
4518	47.9	NOA
4519	54.3	NOA
4520	57.0	NOA
GROUP V - 9000 PPM		
5511	56.7	NOA
5512	59.3	NOA
5513	56.1	NOA
5514	54.0	NOA
5515	45.7	NOA
5516	52.2	NOA
5517	48.2	NOA
5518	51.2	NOA
5519	45.8	NOA
5520	49.2	NOA

NOA=NO OBSERVABLE ABNORMALITIES; E=EXTREME.

APPENDIX T

FETAL EXTERNAL EXAMINATION DATA

MICE

Appendix T

SUMMARY OF FETAL EXTERNAL MALFORMATIONS
MICE

			EXPOSURE LEVELS (PPM)				
			0	300	1000	3000	9000
LITTERS EVALUATED		N	7	8	10	9	10
FETUSES EVALUATED		N	89	96	131	100	120
LIVE		N	88	96	130	100	120
DEAD		N	1	0	1	0	0
HINDLIMB FLEXURE							
FETAL INCIDENCE		N(%)	0	0	1(0.8)	0	0
LITTER INCIDENCE		N(%)	0	0	1(10.0)	0	0
OPEN EYE							
FETAL INCIDENCE		N(%)	0	0	0	0	1(0.8)
LITTER INCIDENCE		N(%)	0	0	0	0	1(10.0)
	STAT SYMBOL						
TOTAL EXTERNAL MALFORMATIONS							
FETAL INCIDENCE	NS	N(%)	0	0	1(0.8)	0	1(0.8)
LITTER INCIDENCE	NS	N(%)	0	0	1(10.0)	0	1(10.0)

No statistically significant differences.

KEY: N=NUMBER

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1511	1	M	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.1	NO REMARKABLE OBSERVATIONS
	3	F	1.1	NO REMARKABLE OBSERVATIONS
	4	M	1.1	NO REMARKABLE OBSERVATIONS
	5	M	1.1	NO REMARKABLE OBSERVATIONS
	6	F	1.0	NO REMARKABLE OBSERVATIONS
	7	F	1.1	NO REMARKABLE OBSERVATIONS
	8	M	1.1	NO REMARKABLE OBSERVATIONS
	9	M	1.2	NO REMARKABLE OBSERVATIONS
	10	F	1.1	NO REMARKABLE OBSERVATIONS
	11	M	1.0	DEAD FETUS
				NO REMARKABLE OBSERVATIONS
	12	M	1.1	NO REMARKABLE OBSERVATIONS
	13	F	1.1	NO REMARKABLE OBSERVATIONS
	14	M	1.1	NO REMARKABLE OBSERVATIONS
1512	1			LATE RESORPTION
				NO REMARKABLE OBSERVATIONS
	2	M	1.1	NO REMARKABLE OBSERVATIONS
	3	M	1.2	NO REMARKABLE OBSERVATIONS
	4	F	1.1	NO REMARKABLE OBSERVATIONS
	5	M	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.1	NO REMARKABLE OBSERVATIONS
	7	M	1.1	NO REMARKABLE OBSERVATIONS
	8	F	1.1	NO REMARKABLE OBSERVATIONS
	9	F	1.1	NO REMARKABLE OBSERVATIONS
	10	M	1.1	NO REMARKABLE OBSERVATIONS
	11	F	1.1	NO REMARKABLE OBSERVATIONS
	12	M	1.1	NO REMARKABLE OBSERVATIONS
	13			LATE RESORPTION
				NO REMARKABLE OBSERVATIONS
	14	M	1.1	NO REMARKABLE OBSERVATIONS
	15	F	1.0	NO REMARKABLE OBSERVATIONS
	16			EARLY RESORPTION
1514	1	M	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.2	NO REMARKABLE OBSERVATIONS
	3	F	1.1	NO REMARKABLE OBSERVATIONS
	4	M	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.2	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1514	7	M	1.1	NO REMARKABLE OBSERVATIONS
	8	F	1.0	NO REMARKABLE OBSERVATIONS
	9	M	1.1	NO REMARKABLE OBSERVATIONS
	10	F	1.1	NO REMARKABLE OBSERVATIONS
	11	M	1.2	NO REMARKABLE OBSERVATIONS
	12	F	1.2	NO REMARKABLE OBSERVATIONS
1515	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	M	1.4	NO REMARKABLE OBSERVATIONS
	4	M	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	M	1.4	NO REMARKABLE OBSERVATIONS
	7	M	1.4	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	F	1.2	NO REMARKABLE OBSERVATIONS
	12			EARLY RESORPTION
1516	1	M	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.1	NO REMARKABLE OBSERVATIONS
	3	F	1.1	NO REMARKABLE OBSERVATIONS
	4	M	1.2	NO REMARKABLE OBSERVATIONS
	5	F	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.2	NO REMARKABLE OBSERVATIONS
	7	F	1.1	NO REMARKABLE OBSERVATIONS
	8	M	1.2	NO REMARKABLE OBSERVATIONS
	9	M	1.2	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	M	1.2	NO REMARKABLE OBSERVATIONS
	12	F	1.2	NO REMARKABLE OBSERVATIONS
	13	M	1.1	NO REMARKABLE OBSERVATIONS
1519	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	M	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.2	NO REMARKABLE OBSERVATIONS
	8	F	1.2	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP I - 0 PPM				
1519	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	M	1.2	NO REMARKABLE OBSERVATIONS
	11	M	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.1	NO REMARKABLE OBSERVATIONS
	13	M	1.2	NO REMARKABLE OBSERVATIONS
	14	F	1.2	NO REMARKABLE OBSERVATIONS
1521	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.2	NO REMARKABLE OBSERVATIONS
	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	M	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.3	NO REMARKABLE OBSERVATIONS
	6	M	1.3	NO REMARKABLE OBSERVATIONS
	7	M	1.3	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	F	1.2	NO REMARKABLE OBSERVATIONS
	10	F	1.2	NO REMARKABLE OBSERVATIONS
	11	F	1.2	NO REMARKABLE OBSERVATIONS
	12	F	1.1	NO REMARKABLE OBSERVATIONS

Premature delivery - Day 18 of gestation - one partially cannibalized and 13 viable pups.

ANIMAL NUMBER	PUP NUMBER	SEX	WEIGHT (GRAMS)		GROSS OBSERVATIONS
1518	1	F	1.4		NO REMARKABLE OBSERVATIONS
	2	M	1.5		NO REMARKABLE OBSERVATIONS
	3	M	1.4		NO REMARKABLE OBSERVATIONS
	4	F	1.4		NO REMARKABLE OBSERVATIONS
	5	F	1.1		NO REMARKABLE OBSERVATIONS
	6	F	1.4		NO REMARKABLE OBSERVATIONS
	7	F	1.1		NO REMARKABLE OBSERVATIONS
	8	M	1.4		NO REMARKABLE OBSERVATIONS
	9	F	1.3		NO REMARKABLE OBSERVATIONS
	10	F	1.3		NO REMARKABLE OBSERVATIONS
	11	F	1.3	M	CLEFT PALATE
	12	F	1.4		NO REMARKABLE OBSERVATIONS
	13	F	1.2		NO REMARKABLE OBSERVATIONS
	14	M	-		PARTIALLY CANNIBALIZED

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2511	1	M	1.4	NO REMARKABLE OBSERVATIONS
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	F	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.1	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8	M	1.3	NO REMARKABLE OBSERVATIONS
	9	F	1.2	NO REMARKABLE OBSERVATIONS
	10	F	1.2	NO REMARKABLE OBSERVATIONS
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.3	NO REMARKABLE OBSERVATIONS
	13	F	1.2	NO REMARKABLE OBSERVATIONS
	14	F	1.3	NO REMARKABLE OBSERVATIONS
2512	1	M	1.3	NO REMARKABLE OBSERVATIONS
	2	F	1.2	NO REMARKABLE OBSERVATIONS
	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	F	1.3	NO REMARKABLE OBSERVATIONS
	5	M	1.1	NO REMARKABLE OBSERVATIONS
	6	M	1.2	NO REMARKABLE OBSERVATIONS
	7	F	1.2	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11	M	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.3	NO REMARKABLE OBSERVATIONS
2514	1			EARLY RESORPTION
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	M	1.5	NO REMARKABLE OBSERVATIONS
	5	F	1.2	NO REMARKABLE OBSERVATIONS
	6	M	1.4	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8	F	1.1	NO REMARKABLE OBSERVATIONS
	9	F	1.2	NO REMARKABLE OBSERVATIONS
	10	M	1.4	NO REMARKABLE OBSERVATIONS
	11			EARLY RESORPTION
	12			EARLY RESORPTION
	13	F	1.4	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2514	14			EARLY RESORPTION
	15	F	1.2	NO REMARKABLE OBSERVATIONS
2515	1	F	1.5	NO REMARKABLE OBSERVATIONS
	2	M	1.5	NO REMARKABLE OBSERVATIONS
	3	F	1.5	NO REMARKABLE OBSERVATIONS
2517	1	F	1.4	NO REMARKABLE OBSERVATIONS
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	F	1.2	NO REMARKABLE OBSERVATIONS
	5			EARLY RESORPTION
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8			EARLY RESORPTION
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	M	1.4	NO REMARKABLE OBSERVATIONS
	11	M	1.4	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
	13	F	1.3	NO REMARKABLE OBSERVATIONS
	14	F	1.3	NO REMARKABLE OBSERVATIONS
	15	M	1.4	NO REMARKABLE OBSERVATIONS
	16	M	1.4	NO REMARKABLE OBSERVATIONS
2518	1	M	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	F	1.1	NO REMARKABLE OBSERVATIONS
	4	F	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.4	NO REMARKABLE OBSERVATIONS
	6	M	1.3	NO REMARKABLE OBSERVATIONS
	7	M	1.3	NO REMARKABLE OBSERVATIONS
	8	M	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.4	NO REMARKABLE OBSERVATIONS
	10	F	1.3	NO REMARKABLE OBSERVATIONS
	11			EARLY RESORPTION
	12	F	1.2	NO REMARKABLE OBSERVATIONS
	13	M	1.3	NO REMARKABLE OBSERVATIONS
	14	F	1.2	NO REMARKABLE OBSERVATIONS
	15	F	1.2	NO REMARKABLE OBSERVATIONS
	16	F	1.3	NO REMARKABLE OBSERVATIONS
2519	1	F	1.0	NO REMARKABLE OBSERVATIONS
	2	F	1.0	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP II - 300 PPM				
2519	3	M	1.0	NO REMARKABLE OBSERVATIONS
	4	F	0.8	NO REMARKABLE OBSERVATIONS
	5	M	1.2	NO REMARKABLE OBSERVATIONS
	6	M	1.1	NO REMARKABLE OBSERVATIONS
	7	M	1.0	NO REMARKABLE OBSERVATIONS
	8	M	1.2	NO REMARKABLE OBSERVATIONS
	9	M	1.1	NO REMARKABLE OBSERVATIONS
	10	F	1.0	NO REMARKABLE OBSERVATIONS
	11	M	1.1	NO REMARKABLE OBSERVATIONS
	12	F	1.1	NO REMARKABLE OBSERVATIONS
	13	F	1.0	NO REMARKABLE OBSERVATIONS
	14	F	1.0	NO REMARKABLE OBSERVATIONS
	15	F	0.8	NO REMARKABLE OBSERVATIONS
	16	M	1.0	NO REMARKABLE OBSERVATIONS
2520	1	M	1.3	NO REMARKABLE OBSERVATIONS
	2	M	1.4	NO REMARKABLE OBSERVATIONS
	3	F	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.2	NO REMARKABLE OBSERVATIONS
	8	M	1.3	NO REMARKABLE OBSERVATIONS
	9	F	1.3	NO REMARKABLE OBSERVATIONS
	10	F	1.1	NO REMARKABLE OBSERVATIONS
	11	M	1.2	NO REMARKABLE OBSERVATIONS
	12	M	1.3	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)		GROSS OBSERVATIONS
GROUP III - 1000 PPM					
3511	1	M	1.2		NO REMARKABLE OBSERVATIONS
	2	F	1.2		NO REMARKABLE OBSERVATIONS
	3	F	1.1		NO REMARKABLE OBSERVATIONS
	4	F	1.2		NO REMARKABLE OBSERVATIONS
	5	F	1.1		NO REMARKABLE OBSERVATIONS
	6	M	1.2		NO REMARKABLE OBSERVATIONS
	7	F	1.0		NO REMARKABLE OBSERVATIONS
	8	F	1.1		NO REMARKABLE OBSERVATIONS
	9	M	1.1	M	HINDLIMB FLEXURE LEFT
	10	F	1.1		NO REMARKABLE OBSERVATIONS
	11	F	1.1		NO REMARKABLE OBSERVATIONS
	12	F	1.1		NO REMARKABLE OBSERVATIONS
	13	M	1.2		NO REMARKABLE OBSERVATIONS
	14	F	1.1		NO REMARKABLE OBSERVATIONS
	15	F	1.2		NO REMARKABLE OBSERVATIONS
	16	F	1.2		NO REMARKABLE OBSERVATIONS
	17	M	1.3		NO REMARKABLE OBSERVATIONS
3512	1	F	1.3		NO REMARKABLE OBSERVATIONS
	2	F	1.3		NO REMARKABLE OBSERVATIONS
	3	M	1.3		NO REMARKABLE OBSERVATIONS
	4	M	1.4		NO REMARKABLE OBSERVATIONS
	5	M	1.2		NO REMARKABLE OBSERVATIONS
	6	F	1.3		NO REMARKABLE OBSERVATIONS
	7	F	1.3		NO REMARKABLE OBSERVATIONS
	8	M	1.1		NO REMARKABLE OBSERVATIONS
	9	M	1.3		NO REMARKABLE OBSERVATIONS
	10	F	1.4		NO REMARKABLE OBSERVATIONS
	11	F	1.1		NO REMARKABLE OBSERVATIONS
3513	1				EARLY RESORPTION
	2	M	1.4		NO REMARKABLE OBSERVATIONS
	3	F	1.3		NO REMARKABLE OBSERVATIONS
	4	F	1.3		NO REMARKABLE OBSERVATIONS
	5	F	1.3		NO REMARKABLE OBSERVATIONS
	6	F	1.3		NO REMARKABLE OBSERVATIONS
	7	F	1.3		NO REMARKABLE OBSERVATIONS
	8	M	1.3		NO REMARKABLE OBSERVATIONS
	9				EARLY RESORPTION
	10	M	1.2		NO REMARKABLE OBSERVATIONS

OBSERVATION CODE: M=MALFORMATION.

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	
GROUP III - 1000 PPM				
3513	11	M	1.5	NO REMARKABLE OBSERVATIONS
	12	F	1.3	NO REMARKABLE OBSERVATIONS
	13	F	1.3	NO REMARKABLE OBSERVATIONS
	14	F	1.3	NO REMARKABLE OBSERVATIONS
	15	F	1.3	NO REMARKABLE OBSERVATIONS
	16	M	1.0	NO REMARKABLE OBSERVATIONS
3514	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.3	NO REMARKABLE OBSERVATIONS
	3	M	1.1	NO REMARKABLE OBSERVATIONS
	4			EARLY RESORPTION
	5	M	1.3	NO REMARKABLE OBSERVATIONS
	6	F	1.1	NO REMARKABLE OBSERVATIONS
	7			EARLY RESORPTION
	8	M	1.2	NO REMARKABLE OBSERVATIONS
	9	F	1.1	NO REMARKABLE OBSERVATIONS
	10	F	1.2	NO REMARKABLE OBSERVATIONS
	11	M	1.1	NO REMARKABLE OBSERVATIONS
	12	F	1.2	NO REMARKABLE OBSERVATIONS
	13	M	1.2	NO REMARKABLE OBSERVATIONS
	14	F	1.3	NO REMARKABLE OBSERVATIONS
3515	1	M	1.4	NO REMARKABLE OBSERVATIONS
	2	M	1.3	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.3	NO REMARKABLE OBSERVATIONS
	5	M	1.4	NO REMARKABLE OBSERVATIONS
	6	M	1.2	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8	M	1.4	NO REMARKABLE OBSERVATIONS
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	F	1.3	NO REMARKABLE OBSERVATIONS
	11	M	1.2	NO REMARKABLE OBSERVATIONS
	12	F	1.1	DEAD FETUS
				NO REMARKABLE OBSERVATIONS
	13	F	1.2	NO REMARKABLE OBSERVATIONS
	14	F	1.3	NO REMARKABLE OBSERVATIONS
3516	1	F	1.3	NO REMARKABLE OBSERVATIONS
	2	F	1.4	NO REMARKABLE OBSERVATIONS
	3	M	1.5	NO REMARKABLE OBSERVATIONS
	4	F	1.3	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3516	5	M	1.3	NO REMARKABLE OBSERVATIONS
	6	M	1.5	NO REMARKABLE OBSERVATIONS
	7	F	1.4	NO REMARKABLE OBSERVATIONS
	8	M	1.4	NO REMARKABLE OBSERVATIONS
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	F	1.2	NO REMARKABLE OBSERVATIONS
	12	M	1.3	NO REMARKABLE OBSERVATIONS
	13	M	1.4	NO REMARKABLE OBSERVATIONS
3517	1	M	1.3	NO REMARKABLE OBSERVATIONS
	2	M	1.4	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.4	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	M	1.3	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.4	NO REMARKABLE OBSERVATIONS
	10	F	1.3	NO REMARKABLE OBSERVATIONS
	11	F	1.1	NO REMARKABLE OBSERVATIONS
	12	F	1.3	NO REMARKABLE OBSERVATIONS
	13	F	1.3	NO REMARKABLE OBSERVATIONS
	14	M	1.3	NO REMARKABLE OBSERVATIONS
3518	1	F	1.4	NO REMARKABLE OBSERVATIONS
	2	F	1.4	NO REMARKABLE OBSERVATIONS
	3	M	1.4	NO REMARKABLE OBSERVATIONS
	4	M	1.4	NO REMARKABLE OBSERVATIONS
	5			EARLY RESORPTION
	6	M	1.5	NO REMARKABLE OBSERVATIONS
	7	M	1.4	NO REMARKABLE OBSERVATIONS
	8			EARLY RESORPTION
	9	F	1.5	NO REMARKABLE OBSERVATIONS
	10	F	1.4	NO REMARKABLE OBSERVATIONS
	11	F	1.4	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
	13	M	1.4	NO REMARKABLE OBSERVATIONS
	14	F	1.4	NO REMARKABLE OBSERVATIONS
3519	1	F	1.1	NO REMARKABLE OBSERVATIONS
	2	M	1.2	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP III - 1000 PPM				
3519	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	F	1.0	NO REMARKABLE OBSERVATIONS
	5	M	1.1	NO REMARKABLE OBSERVATIONS
	6			EARLY RESORPTION
	7	M	1.0	NO REMARKABLE OBSERVATIONS
	8	M	1.2	NO REMARKABLE OBSERVATIONS
	9			EARLY RESORPTION
	10	M	1.2	NO REMARKABLE OBSERVATIONS
	11	M	1.2	NO REMARKABLE OBSERVATIONS
	12	M	1.2	NO REMARKABLE OBSERVATIONS
	13	F	1.1	NO REMARKABLE OBSERVATIONS
	14	F	1.1	NO REMARKABLE OBSERVATIONS
3520	1	F	1.5	NO REMARKABLE OBSERVATIONS
	2	M	1.5	NO REMARKABLE OBSERVATIONS
	3	M	1.4	NO REMARKABLE OBSERVATIONS
	4	F	1.4	NO REMARKABLE OBSERVATIONS
	5	F	1.4	NO REMARKABLE OBSERVATIONS
	6	F	1.4	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8	M	1.5	NO REMARKABLE OBSERVATIONS
	9	F	1.4	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11	F	1.4	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
	13	F	1.5	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4511	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	M	1.4	NO REMARKABLE OBSERVATIONS
	3	F	1.3	NO REMARKABLE OBSERVATIONS
	4			EARLY RESORPTION
	5	F	1.1	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8			EARLY RESORPTION
	9			EARLY RESORPTION
	10			EARLY RESORPTION
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
4512	1	M	1.3	NO REMARKABLE OBSERVATIONS
	2	F	1.2	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.4	NO REMARKABLE OBSERVATIONS
	6	F	1.2	NO REMARKABLE OBSERVATIONS
	7	F	1.2	NO REMARKABLE OBSERVATIONS
	8	F	1.4	NO REMARKABLE OBSERVATIONS
	9			EARLY RESORPTION
	10	F	1.2	NO REMARKABLE OBSERVATIONS
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	M	1.3	NO REMARKABLE OBSERVATIONS
	13	F	1.3	NO REMARKABLE OBSERVATIONS
4513	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.1	NO REMARKABLE OBSERVATIONS
	3	F	1.3	NO REMARKABLE OBSERVATIONS
	4	M	1.4	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.1	NO REMARKABLE OBSERVATIONS
	8	M	1.2	NO REMARKABLE OBSERVATIONS
	9	F	1.2	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	M	1.2	NO REMARKABLE OBSERVATIONS
	12			EARLY RESORPTION
	13	M	1.3	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4514	1	M	1.4	NO REMARKABLE OBSERVATIONS
	2	F	1.4	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	M	1.4	NO REMARKABLE OBSERVATIONS
	7	M	1.4	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11	M	1.5	NO REMARKABLE OBSERVATIONS
	12	M	1.3	NO REMARKABLE OBSERVATIONS
	13	F	1.3	NO REMARKABLE OBSERVATIONS
	14	F	1.4	NO REMARKABLE OBSERVATIONS
4516	1	M	1.2	NO REMARKABLE OBSERVATIONS
	2			EARLY RESORPTION
	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	F	1.1	NO REMARKABLE OBSERVATIONS
	5	M	1.2	NO REMARKABLE OBSERVATIONS
	6	M	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8	M	1.3	NO REMARKABLE OBSERVATIONS
	9	F	1.2	NO REMARKABLE OBSERVATIONS
	10	M	1.4	NO REMARKABLE OBSERVATIONS
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.3	NO REMARKABLE OBSERVATIONS
	13	M	1.1	NO REMARKABLE OBSERVATIONS
	14	M	1.4	NO REMARKABLE OBSERVATIONS
4517	1	F	1.5	NO REMARKABLE OBSERVATIONS
	2	M	1.7	NO REMARKABLE OBSERVATIONS
	3	F	1.7	NO REMARKABLE OBSERVATIONS
	4	M	1.8	NO REMARKABLE OBSERVATIONS
4518	1	M	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.1	NO REMARKABLE OBSERVATIONS
	3	F	1.3	NO REMARKABLE OBSERVATIONS
	4	M	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.0	NO REMARKABLE OBSERVATIONS
	6	F	1.1	NO REMARKABLE OBSERVATIONS
	7			LATE RESORPTION
				NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP IV - 3000 PPM				
4518	8			EARLY RESORPTION
	9	F	1.1	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	F	1.2	NO REMARKABLE OBSERVATIONS
	12	M	1.3	NO REMARKABLE OBSERVATIONS
	13	F	0.9	NO REMARKABLE OBSERVATIONS
	14	M	1.3	NO REMARKABLE OBSERVATIONS
4519	1	M	1.3	NO REMARKABLE OBSERVATIONS
	2	M	1.4	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	M	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.2	NO REMARKABLE OBSERVATIONS
	6	M	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.2	NO REMARKABLE OBSERVATIONS
	8	M	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.2	NO REMARKABLE OBSERVATIONS
	10			EARLY RESORPTION
	11	M	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.3	NO REMARKABLE OBSERVATIONS
	13	F	1.3	NO REMARKABLE OBSERVATIONS
	14	M	1.4	NO REMARKABLE OBSERVATIONS
4520	1	M	1.5	NO REMARKABLE OBSERVATIONS
	2	M	1.2	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	F	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.2	NO REMARKABLE OBSERVATIONS
	7	M	1.4	NO REMARKABLE OBSERVATIONS
	8			EARLY RESORPTION
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	F	1.3	NO REMARKABLE OBSERVATIONS
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
	13			EARLY RESORPTION
	14	F	1.3	NO REMARKABLE OBSERVATIONS
	15	F	1.3	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5511	1	M	1.5	NO REMARKABLE OBSERVATIONS
	2	M	1.5	NO REMARKABLE OBSERVATIONS
	3	M	1.3	NO REMARKABLE OBSERVATIONS
	4	M	1.3	NO REMARKABLE OBSERVATIONS
	5	F	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	M	1.3	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	F	1.2	NO REMARKABLE OBSERVATIONS
	10	M	1.4	NO REMARKABLE OBSERVATIONS
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	M	1.4	NO REMARKABLE OBSERVATIONS
	13	M	1.3	NO REMARKABLE OBSERVATIONS
5512	1	F	1.1	NO REMARKABLE OBSERVATIONS
	2	M	1.1	NO REMARKABLE OBSERVATIONS
	3	F	0.8	NO REMARKABLE OBSERVATIONS
	4	M	1.0	NO REMARKABLE OBSERVATIONS
	5	F	1.1	NO REMARKABLE OBSERVATIONS
	6	M	1.1	NO REMARKABLE OBSERVATIONS
	7	F	1.1	NO REMARKABLE OBSERVATIONS
	8	F	1.2	NO REMARKABLE OBSERVATIONS
	9	M	1.1	NO REMARKABLE OBSERVATIONS
	10	F	1.2	NO REMARKABLE OBSERVATIONS
	11	F	1.1	NO REMARKABLE OBSERVATIONS
	12	M	1.2	NO REMARKABLE OBSERVATIONS
	13	F	1.1	NO REMARKABLE OBSERVATIONS
	14	M	1.2	NO REMARKABLE OBSERVATIONS
	15	F	1.1	NO REMARKABLE OBSERVATIONS
	16	F	1.1	NO REMARKABLE OBSERVATIONS
5513	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2	F	1.1	NO REMARKABLE OBSERVATIONS
	3	M	1.2	NO REMARKABLE OBSERVATIONS
	4			EARLY RESORPTION
	5	M	1.2	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.3	NO REMARKABLE OBSERVATIONS
	8	M	1.3	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)		GROSS OBSERVATIONS
GROUP V - 9000 PPM					
5513	9	M	1.3		NO REMARKABLE OBSERVATIONS
	10	M	1.2		NO REMARKABLE OBSERVATIONS
	11	M	1.2		NO REMARKABLE OBSERVATIONS
	12	F	1.2		NO REMARKABLE OBSERVATIONS
	13	M	1.2		NO REMARKABLE OBSERVATIONS
	14	F	1.2		NO REMARKABLE OBSERVATIONS
	15	F	1.1		NO REMARKABLE OBSERVATIONS
	16	M	1.2		NO REMARKABLE OBSERVATIONS
	17	F	1.2		NO REMARKABLE OBSERVATIONS
5514	1	F	1.2		NO REMARKABLE OBSERVATIONS
	2	F	1.2		NO REMARKABLE OBSERVATIONS
	3	M	1.3		NO REMARKABLE OBSERVATIONS
	4	M	1.3		NO REMARKABLE OBSERVATIONS
	5	M	1.2		NO REMARKABLE OBSERVATIONS
	6	F	1.2		NO REMARKABLE OBSERVATIONS
	7	M	1.2		NO REMARKABLE OBSERVATIONS
	8	M	1.2		NO REMARKABLE OBSERVATIONS
	9	F	1.1		NO REMARKABLE OBSERVATIONS
	10	M	1.2		NO REMARKABLE OBSERVATIONS
	11	M	1.2		NO REMARKABLE OBSERVATIONS
	12	F	1.1		NO REMARKABLE OBSERVATIONS
	13	F	1.1		NO REMARKABLE OBSERVATIONS
	14	F	1.2		NO REMARKABLE OBSERVATIONS
	15	M	1.3		NO REMARKABLE OBSERVATIONS
5515	1	M	1.3		NO REMARKABLE OBSERVATIONS
	2	M	1.3		NO REMARKABLE OBSERVATIONS
	3	F	1.3		NO REMARKABLE OBSERVATIONS
	4	M	1.2		NO REMARKABLE OBSERVATIONS
	5				EARLY RESORPTION
	6	F	1.3		NO REMARKABLE OBSERVATIONS
	7				EARLY RESORPTION
	8	F	1.4	M	OPEN EYE RIGHT
	9	F	1.3		NO REMARKABLE OBSERVATIONS
	10	F	1.3		NO REMARKABLE OBSERVATIONS
	11	F	1.2		NO REMARKABLE OBSERVATIONS
	12	M	1.3		NO REMARKABLE OBSERVATIONS
5516	1	M	1.4		NO REMARKABLE OBSERVATIONS
	2	M	1.3		NO REMARKABLE OBSERVATIONS

OBSERVATION CODE: M=MALFORMATION.

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5516	3	F	1.2	NO REMARKABLE OBSERVATIONS
	4	M	1.4	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	M	1.3	NO REMARKABLE OBSERVATIONS
	7	F	1.1	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	F	1.4	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	M	1.3	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
5517	1			EARLY RESORPTION
	2	M	1.5	NO REMARKABLE OBSERVATIONS
	3			EARLY RESORPTION
	4	F	1.5	NO REMARKABLE OBSERVATIONS
	5			EARLY RESORPTION
	6	F	1.4	NO REMARKABLE OBSERVATIONS
	7	M	1.5	NO REMARKABLE OBSERVATIONS
	8	M	1.4	NO REMARKABLE OBSERVATIONS
	9	F	1.4	NO REMARKABLE OBSERVATIONS
	10	M	1.5	NO REMARKABLE OBSERVATIONS
	11	F	1.4	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS
5518	1	F	1.2	NO REMARKABLE OBSERVATIONS
	2			LATE RESORPTION
				NO REMARKABLE OBSERVATIONS
	3	M	1.2	NO REMARKABLE OBSERVATIONS
	4	M	1.2	NO REMARKABLE OBSERVATIONS
	5	M	1.4	NO REMARKABLE OBSERVATIONS
	6	F	1.2	NO REMARKABLE OBSERVATIONS
	7	M	1.4	NO REMARKABLE OBSERVATIONS
	8	F	1.2	NO REMARKABLE OBSERVATIONS
	9	F	1.3	NO REMARKABLE OBSERVATIONS
	10	F	1.3	NO REMARKABLE OBSERVATIONS
	11	F	1.3	NO REMARKABLE OBSERVATIONS
	12	M	1.3	NO REMARKABLE OBSERVATIONS
	13	M	1.4	NO REMARKABLE OBSERVATIONS
5519	1	F	1.5	NO REMARKABLE OBSERVATIONS
	2	M	1.5	NO REMARKABLE OBSERVATIONS
	3	F	1.3	NO REMARKABLE OBSERVATIONS

Appendix T

INDIVIDUAL FETAL EXTERNAL EXAMINATION DATA
MICE

ANIMAL NUMBER	FETUS NUMBER	SEX	WEIGHT (GRAMS)	GROSS OBSERVATIONS
GROUP V - 9000 PPM				
5519	4	M	1.6	NO REMARKABLE OBSERVATIONS
	5			EARLY RESORPTION
	6			EARLY RESORPTION
	7			EARLY RESORPTION
	8			EARLY RESORPTION
	9	M	1.7	NO REMARKABLE OBSERVATIONS
	10	F	1.5	NO REMARKABLE OBSERVATIONS
5520	1	F	1.3	NO REMARKABLE OBSERVATIONS
	2	M	1.3	NO REMARKABLE OBSERVATIONS
	3			EARLY RESORPTION
	4	F	1.2	NO REMARKABLE OBSERVATIONS
	5	F	1.3	NO REMARKABLE OBSERVATIONS
	6	F	1.3	NO REMARKABLE OBSERVATIONS
	7	M	1.4	NO REMARKABLE OBSERVATIONS
	8	F	1.3	NO REMARKABLE OBSERVATIONS
	9	M	1.3	NO REMARKABLE OBSERVATIONS
	10	M	1.3	NO REMARKABLE OBSERVATIONS
	11	M	1.5	NO REMARKABLE OBSERVATIONS
	12	F	1.4	NO REMARKABLE OBSERVATIONS