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.

An Inhalation Developmental Toxicity Study of Unleaded Gasoline Vapor Condensate in the Rat via Whole-Body Exposure

Health and Environmental Sciences Department

API PUBLICATION NUMBER TR 414

PREPARED UNDER CONTRACT BY:

HUNTINGDON LIFE SCIENCES
METTLERS ROAD
PO BOX 2360
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APRIL 1998

American Petroleum Institute

FOREWORD

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ACKNOWLEDGMENTS

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

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PREFACE

This abridged publication consists of the full text and pertinent data from the study, *An Inhalation Developmental Toxicity Study of Unleaded Gasoline Vapor Condensate (API 94-02) in the Rat via Whole Body Exposure*. The study was conducted by Huntingdon Laboratories under contract to API. 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 study was conducted for the American Petroleum Institute to assess the potential maternal toxicity and developmental toxicity of Unleaded Gasoline Vapor Condensate (API 94-02) administered via inhalation (whole-body exposure) to mated rats (24/group) 6 hours/day during the Day 6-19 gestation interval. Exposure levels were 0 (filtered air), 1000, 3000 and 9000 ppm. In this study, no maternal or developmental toxicity was seen in rats at an exposure level up to and including 9000 ppm.

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.

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LIST OF TABLES

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LABORATORY TITLE PAGE

STUDY NO. 95-6083

API STUDY NO. 08200-0601-SH9343

AN INHALATION DEVELOPMENTAL TOXICITY STUDY OF UNLEADED GASOLINE VAPOR CONDENSATE (API 94-02) IN THE RAT 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
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29 Sept 97
Date

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Vice President, Analytical Services

Date

26 Sept. 1997

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

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	25 Sep 95	25 Sep 95	27 Sep 95 and 4 Oct 95
Mating Observations	29 Sep 95	29 Sep 95	4 Oct 95 and 20 Oct 95
Exposure and Monitoring	3 Oct 95	5 Oct 95	10 Oct 95 and 20 Oct 95
Gestation Body Weights and Feeder Weights	5 Oct 95	5 Oct 95	16 Oct 95 and 20 Oct 95
Terminal Sacrifice	16 Oct 95	16 Oct 95	19 Oct 95 and 20 Oct 95
Final Analytical Report	7, 8 and 15 Mar 96	15 Mar 96	5 Apr 96
Final In-Life and Pathology Report	1 Apr 96 to 5 Apr 96	5 Apr 96	5 Apr 96
Report Revisions	22, 24 and 25 Apr 97	25 Apr 97	25 Apr 97
Report Revisions	1 Jul 97	1 Jul 97	1 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.

An Inhalation Developmental Toxicity Study of Regular Unleaded Gasoline in the Rat via Whole Body Exposure.

was monitored on	and reported to Sponsor on
September 7 and 17-19, 1995	October 14, 1995
October 30-31, 1995	November 22, 1995
July 15-17, 1996	September 5, 1996

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Section 1

SUMMARY

This inhalation study was performed to provide information on the maternal and developmental toxicity of Unleaded Gasoline Vapor Condensate (API 94-02) in rats. Unleaded Gasoline Vapor Condensate (API 94-02) was administered as a vapor, via inhalation (whole-body) exposure, 6 hours/day to 72 mated rats (24/group) during Days 6-19 of gestation. Exposure levels were 1000, 3000 and 9000 ppm. Twenty-four mated rats 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 (Day 20 of gestation). Body weights were recorded on Days 0, 3, 6, 9, 12, 15, 18, and 20 of gestation. Food consumption was recorded on Days 0-3, 3-6, 6-9, 9-12, 12-15, 15-18, and 18-20 of gestation.

Chamber exposure concentrations were evaluated daily using infrared spectrophotometry (hourly) and gas chromatography (single grab sample, daily). The latter were analyzed to monitor the ratio of the 11 major components of the test material in comparison to its largest component, isopentane.

At terminal sacrifice (Day 20 of gestation), 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 intact fetuses were processed for either soft tissue or skeletal examinations. Approximately one-half of the fetuses in each litter were decapitated and

processed for soft tissue examinations using a microdissection procedure. The heads of these fetuses were fixed in Bouin's solution and evaluated using a razor blade sectioning procedure. The remaining fetuses in each litter were left intact, sacrificed with an overdose of inhaled carbon dioxide, eviscerated and processed for staining of the skeletal structures with Alizarin Red S. These fetuses were then evaluated for skeletal malformations and ossification variations.

The mean daily total hydrocarbon concentrations ± standard deviations from the infrared spectrophotometric evaluation over the entire exposure period for the 1000, 3000 and 9000 ppm groups were 1015 ± 35, 2984 ± 147 and 8993 ± 278 ppm, respectively. Gas chromatograph analyses of syringe samples from the chambers demonstrated a similarity among all exposure groups, and a stability of the test material during each exposure day. In these data 11 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. No maternal or developmental toxicity was seen at an exposure level up to and including 9000 ppm.

Section 2

INTRODUCTION

Presented in this report are the procedures used and the results obtained from an inhalation developmental toxicity study of Unleaded Gasoline Vapor Condensate (API 94-02) in rats via whole body exposure. 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 information on the maternal and developmental toxicity of Unleaded Gasoline Vapor Condensate (API 94-02) in rats when administered as a vapor, via whole-body exposure, 6 hours/day to 72 mated rats (24/group) on Days 6-19 of gestation. Exposure levels were 1000, 3000, and 9000 ppm. Twenty-four mated rats which served as controls were chamber-housed and received filtered room air only, 6 hours/day over the same interval.

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 L. Data regarding the inhalation exposures are presented in Appendix M. Results, as well as methods used, for the chamber analyses performed by the Testing Facility's Analytical Department are presented in Appendix N. Recent historical control data for this strain of rat in teratology/developmental toxicity studies conducted at this laboratory are presented in Appendix O. Feed and water analyses are presented in Appendix P. A copy of the study protocol and amendments is presented in Appendix Q.

Section 3

MATERIALS AND METHODS/REFERENCES

REGULATORY REFERENCES

Test Guideline

This study was designed to meet or exceed the requirements of the EPA (Environmental Protection Agency) TSCA (Toxic Substances Control Act) Test Guideline No. 798-4350: Inhalation Developmental Toxicity Study published in the Federal Register Vol. 50, No. 188 (September 27, 1985) pgs. 39426-39428 (and with revisions Federal Register Vol. 52, No. 97-May 20, 1987). Reference was also made to the EPA draft developmental toxicity study guidelines (870.300., July 1994) in determining the dosing schedule.

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. The laboratory of 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
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Study Director

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

EXPERIMENTAL DESIGN

Group	Exposure Level[a] (ppm)	Treatment Schedule[b] (GD)	Number of Animals: Mated	Number of Animals: Sacrificed GD 20[c]	Proportion of Gestation Day 20 Fetuses/Litters Evaluated for Malformations and/or Variations: External	Soft-Tissue	Skeletal
I	0	6-19	24	24	All	1/2	1/2
II	1000	6-19	24	24	All	1/2	1/2
III	3000	6-19	24	24	All	1/2	1/2
IV	9000[d]	6-19	24	24	All	1/2	1/2

[a]Exposure levels were established on the basis of data from a range-finding study (Huntingdon Life Sciences Study No. 95-6082).
[b]Exposures were 6 hours/day. Groups II-IV received Unleaded Gasoline Vapor Condensate (API 94-02). Control animals received filtered room air only.
[c]Complete macroscopic postmortem evaluations were performed on all animals.
[d]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.
GD = gestation day

STUDY DATES

Study Initiation (Date Study Director signed the Protocol)

26 September 1995

Initiation of Mating (Experimental Start Date)

25 September 1995

Initiation of Exposure

2 October 1995

Termination of Exposure

31 October 1995

Terminal Sacrifice

16-20, 23-27, 30-31 October and 1 November 1995

Experimental Termination (Date of Last Data Collection)

7 December 1995

Study Termination

29 September 1997

TEST MATERIAL INFORMATION

TEST MATERIAL	LOT NO.	PURITY	DESCRIPTION	DATES RECEIVED	EXPIRATION DATE
Unleaded Gasoline Vapor Condensate (API 94-02)	API 94-02	Considered 100%	Clear liquid	First Shipment - 6 March 1995 Second Shipment - 25 October 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 were the responsibility of the Sponsor.

Stability

Documentation of the stability of the test material over the use interval of this study was the responsibility of the Sponsor.

Storage

Upon receipt, the test material was stored at ambient temperature in an outdoor solvent shed. During generations it was kept frozen at a temperature of -20°C. At other times the test material was stored indoors at room temperature.

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, will be returned to the Sponsor following submission of the final report.

TEST ANIMAL INFORMATION

Rats

Albino (Outbred) VAF/Plus®

Strain

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

Justification for Animal Selection

The rat is a rodent animal model commonly utilized in developmental toxicity studies as recommended in the EPA-TSCA guidelines. In addition, a tabulation of recent historical control data is available for this species in this laboratory for comparative evaluation with study data (Appendix U).

Number of Animals Purchased

140 females. All females were nulliparous and non-pregnant.

Number of Animals Placed On Test

96 females

Supplier - Males and Females

Charles River Laboratories
Portage, Michigan 49081

Date Received - Females

11 September 1995

Date Received - Males

1 May and 21 August 1995

Proven breeders were used solely for mating purposes (in-house breeding colony).

Age at Receipt - Females

71 days old

Age at Receipt - Males (Breeders)

49 days old from 1 May 1995 shipment and 56 days old from the 21 August 1995 shipment received.

Age at Initiation of Mating - Females

85 days old

Age at Initiation of Mating - Males (Breeders)

147 days old (1 May shipment); and 91 days old (21 August shipment)

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

	Mean (grams)	Range (grams)
Rats:	262	219-318

Acclimation Period - Females

13 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

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. The number of females caged nightly with males was also controlled to limit the number of mated females available for sorting into groups on a particular day. In this study, the maximum number of females sorted into groups on a particular day was 12. When the number of females mated after an evening exceeded the number to be sorted among the groups that day, females were excluded from the sorting procedure using a random numbers table and the female's temporary cage card number.

Mating was conducted on 13 nights, 25-29 September and 2-6, 9-11 October 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 sorted into test groups was identified with a metal ear tag bearing its assigned animal number. This individual animal number plus the study number comprised a unique identification for each animal. Mated animals were eartagged on the day they were sorted into test groups which was Day 0 of gestation. Each non-exposure cage contained 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.

Food

Certified Rodent Diet, No. 5002; (Meal) (PMI Feeds, Inc., St Louis, MO) was available without restriction. Each animal's cage was designed to retain a glass feeder jar with a stainless steel lid. During the acclimation period, fresh feed was provided weekly to the rats. During gestation, fresh food was presented to the animals on Days 0, 6, 12 and 18. Note: On Day 18 some animals in each of the four groups were not presented with fresh feed. These animals were considered to have sufficient feed in their feeders to last to Day 20 gestation terminal sacrifice.

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. Photocopies of analyses of feed lots used on study are included in Appendix P in the final report.

Water

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

Monthly Water Analyses

Monthly analyses of water supplied to this facility were provided by the Supplier. Photocopies of these analyses are included in Appendix P in the final report.

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). Photocopies of these analyses will be included in Appendix P in the final report.

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 0600 to 1800 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 also 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%	38 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 M for details).

Food and Water

None during exposure

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 M for monitoring equipment details.

	Desired	Actual
Temperature:	20 to 24°C	20 to 25°C
Relative Humidity:	40 to 60%	34 to 70%

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 and is the route specified in the referenced guidelines.

Frequency and Duration of Exposure

Animals were exposed for six hours daily over the Day 6-19 gestation period.

Dates of Exposure

Day 6 of gestation. 2 - 18 October1995

Day 19 of gestation. 15 - 31 October 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 M , pages M-22 and M-23 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 M, page M-3.

TEST MATERIAL PREPARATION

The test material was used as received.

EXPOSURE PROCEDURES

Complete exposure procedures for all groups are presented in Appendix M, page M-6.

EXPOSURE CHAMBER SAMPLING

Total hydrocarbon levels were measured six times/exposure day for the 1000, 3000 and 9000 ppm groups and once daily for the controls using infrared spectrophotometry.
One sample/exposure for either the 1000, 3000 or 9000 ppm groups was analyzed rotating among the three exposure groups daily throughout the study, using a syringe grab sample and a gas chromatographic (GC) procedure to characterize airborne vapor components. The ratios of eleven major components to isopentane, the primary component of the test material, were analyzed. The twelve major components were: n-butane, isopentane, n-pentane, *trans*-2-pentene, 2-methyl-2-butene, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, n-hexane, benzene, 2,2,4-trimethylpentane and toluene.

Details of the actual sampling procedures are presented in Appendix N.

Nominal Concentration

A nominal exposure concentration was calculated daily for the 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.

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 M.

EXPERIMENTAL EVALUATIONS

Observations

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

Physical Examinations. Each rat was removed from its cage and given a detailed physical examination on Days 0, 6-19 and 20 of gestation. During the Day 6-19 period, animals were evaluated both pre- 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 animal 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.

Food Consumption

Animals 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).

Calculations. To determine the amount of feed consumed, the weight of the feeder at the end of the measurement interval (feeder-out weight) was subtracted from the initial feeder weight (feeder-in weight). The resulting value represented the grams of feed consumed/interval. The following formula was used to calculate grams of feed consumed 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 grams of feed consumed/kg body weight are as follows:

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.

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 on Day 20 of gestation during the period of 16-31 October and 1 November 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 fetuses were weighed, using a Mettler Balance, Model No. PE4000 (Mettler Instrument Corporation, Hightstown, New Jersey). In addition, all fetuses were sexed externally (general observation of ano-genital distance) and given a macroscopic external examination for malformations and variations that included observations for palatal defects.

Soft Tissue Evaluations

Approximately one-half of the fetuses in each litter (alternating fetuses within the litter) were evaluated for soft-tissue malformations/variations using a microdissection procedure similar to that described by Staples (1974). Evaluations were performed on the fresh fetal specimens shortly after removal from the uterus. Fetuses designated for soft tissue evaluation were decapitated (head placed in appropriately labelled tissue bags [i.e., teabags] and fixed in Bouin's solution for later evaluation). The decapitated fetal specimens were then secured beneath a dissecting microscope and dissected so as to permit evaluation of tissues in the thoracic, abdominal and pelvic cavities. At the completion of the fetal examination, the fetuses with viscera intact were placed in individual plastic cassettes and stored in a 10% neutral buffered formalin solution. Following a period of fixation, the fetal heads were sectioned using a razor blade. The serial, transverse sections generated during this procedure were evaluated for malformations of the palate, eyes and brain under a dissecting microscope. Following evaluation, head sections were placed in plastic cassettes for storage (one litter/jar) in a 70% ethanol solution.

Fetal Skeletal Evaluations

The remaining fetuses in each litter were killed via an overdose of inhaled carbon dioxide. The intact fetuses were eviscerated (internally sexed by inspection of the gonads) and processed for staining of the skeletal structures with Alizarin Red S using a staining procedure of Crary as modified by the Testing Facility as follows: 1. Specimens were not air dried but were placed in a 0.5% potassium hydroxide solution immediately following evisceration; 2. There was a provision for a separate Alizarin Red S staining step; 3. There was a provision for a separate destaining step using a 20% glycerin aqueous solution which contained a small amount of potassium

hydroxide (0.01%) to remove excess stain from the specimens; 4. Specimens were cleared in a process of moving through graded solutions of glycerin (50%, 80% and 100%); 5. Specimens were stored in 100% glycerin to which several crystals of thymol have been added. Fetal skeletal specimens were evaluated under a dissecting microscope for malformations and ossification variations.

Resorptions

Late resorptions were weighed, examined macroscopically for external malformations and discarded. Only late resorptions with obvious external malformations were saved (10% neutral buffered formalin). Early resorptions were discarded.

STATISTICAL ANALYSES

Continuous Data

The following parameters were analyzed statistically:

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

Reproduction Data

Mean number of *corpora lutea*
Mean number of uterine implantation sites per female
Mean litter size (number of live fetuses per female)
Mean number of resorptions per female
Mean preimplantation loss ratio (*corpora lutea* minus 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
Incidence of litters with resorptions
Incidence of fetuses with malformation/variations (external, soft tissue and skeletal)
Incidence of litters containing fetuses with malformations/variations (external, soft tissue and skeletal).

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. When parametric procedures were appropriate (i.e., equal variance), standard regression techniques with a test for trend and lack-of-fit were used (Snedecor and Cochran, 1967). When nonparametric were appropriate, Jonckheere's test (Hollander and Wolfe, 1973) for monotonic trend was used.

All ratios (pre- and post-implantation loss indices) 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 DEVIATIONS

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

1. Due to a technician error, no GC analyses were performed on 29 Oct. 95 for the mid-dose exposure (Group III). This deviates from Section 10.6 of the study protocol which states that "one fingerprint will be analyzed daily rotating among the three exposure groups throughout the exposure period." On the following day, a GC analysis was performed for the mid-dose exposure along with the scheduled analysis.
2. Because the number of components analyzed in the GC fingerprint was revised after the study had begun, one component, 2,2,4-trimethylpentane, was not included in these analysis until the fourth exposure day.

Section 4

RESULTS AND DISCUSSION/CONCLUSION

CHAMBER MONITORING (APPENDIX M)

Exposure Levels

The complete chamber monitoring results are presented in Appendix M. These results include total hydrocarbon exposure levels obtained from a MIRAN® infrared spectrophotometer and GC (gas chromatography) fingerprints obtained from syringe samples. Each day, one GC syringe sample was taken from the exposure chamber for either Group II (1000 ppm), III (3000 ppm) or IV (9000 ppm), to confirm composition and stability of the test material among exposure groups and over the course of the study.

Prestudy chamber trials were conducted to determine the optimum conditions for producing the target exposure levels. These trials also included distribution analyses (Appendix M, page M-23) 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

	Target Concentration (ppm)	**Miran Analytical Concentration (ppm)**	**Nominal Concentration (ppm)**
		Mean ± S.D.	Mean ± S.D.
I	0	0	-
II	1000	1015 ± 35	1018± 117
III	3000	2984 ± 147	3227± 208
IV	9000	8993 ± 278	9033± 368

The achieved mean exposure concentration for each group was very close to the respective target and nominal concentrations. Chamber environmental conditions averaged 22°C and 54% relative humidity.

Syringe Samples

The results of the GC syringe sample fingerprints of the exposure atmospheres are summarized below (Table 2). The results, which present the ratio of eleven major components to isopentane, the largest component, showed similarity among all exposure groups as well as reasonable comparison to the neat liquid test material. In addition, the individual syringe sample data showed minimal variation, as reflected in the standard deviation, over the course of the study. A new shipment of test material (Lot No. API 94-02) was used for exposures of Groups II and IV for the last four exposure days (Group II Animal Nos. 2521 and 2522 and Group IV Animal Nos. 4521 and 4522 [Days 18-19]; Group II Animal No 2523 [Days 17-19]; Group II Animal No. 2524 and Group IV Animal Nos. 4523 and 4524 [Days 16-19]). This may account for any shift in the component ratios over this period.

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

	n-Butane	n-Pentane	*trans*-2-Pentene	2-Methyl-2-butene	2,3-Dimethyl-butane	2-Methyl-pentane	3-Methyl-pentane	n-Hexane	Benzene	2,2,4-Tri-methyl pentane	Toluene
Neat Liquid											
Mean	0.534	0.240	0.0649	0.0944	0.0876	0.254	0.130	0.0817	0.0536	-	0.0737
Group II - 1000 ppm											
Mean	0.459	0.274	0.0813	0.115	0.0985	0.293	0.152	0.101	0.0844	0.043	0.1075
S.D.	0.1190	0.0140	0.00438	0.00868	0.0144	0.0448	0.0245	0.0199	0.0146	0.00962	0.023
Group III - 3000 ppm											
Mean	0.639	0.257	0.0768	0.108	0.0837	0.246	0.127	0.0835	0.0682	0.0334	0.0851
S.D.	0.0433	0.00359	0.00101	0.00163	0.00236	0.00788	0.00440	0.00358	0.00258	0.00163	0.00372
Group IV - 9000 ppm											
Mean	0.593	0.259	0.0775	0.109	0.0865	0.255	0.132	0.0856	0.0713	0.0345	0.0873
S.D.	0.0787	0.00585	0.00195	0.00313	0.00520	0.0159	0.00894	0.00624	0.00529	0.00324	0.00934

Particle Sizing

Particle size distribution measurements of the background aerosol from all the exposure groups are summarized on the next page (Table 3):

Table 3: Summary of Particle Size Distribution Measurements

Group	Mass Median Aerodynamic Diameter (μm)	Geometric Standard Deviation	Total Mass Concentration (mg/m^3)
I	2.8	2.1	3.08×10^{-3}
II	2.5	2.1	4.18×10^{-3}
III	2.2	2.0	2.95×10^{-3}
IV	2.0	1.9	2.77×10^{-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)

No mortality occurred among the control or treated groups as all animals survived to scheduled sacrifice.

Pregnancy Rates (Appendix G)

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

Pregnancy rates are summarized below (Table 4):

Table 4: Pregnancy Rates

Group (ppm)	Pregnancy Rate	
	No. pregnant [a]	Percent
I (0)	24	100
II (1000)	22	91.7
III (3000)	22	91.7
IV (9000)	21	87.5

No statistically significant differences from control (see Appendix G, page G-1).
[a]Each group contained 24 mated females.

Gestation Body Weight and Weight Gain Data (Figure 1 and Appendices B, C and D)

Mean maternal body weights and weight gain data during gestation were not adversely affected by treatment. Mean weight gain over the entire treatment period (Days 6-20 of gestation) for the treated groups was slightly higher than control data: these values for the control, low-, mid- and high-dose groups were 112, 120, 121 and 118 grams, respectively. Mean weight gain for the treated groups over the Day 6-20 gestation interval using the corrected Day 20 gestation weights, were comparable to control data; these values for the control, low-, mid- and high-dose groups were 31.2, 30.5, 31.6 and 28.1 grams, respectively.

Food Consumption Data - Gestation Period (Figure 2 and Appendix E)

Mean food consumption data during the pre-treatment (Days 0-3 and 3-6) and treatment period (Days 6-9, 9-12, 12-15, 15-18 and 18-20) for the Unleaded Gasoline Vapor Condensate-treated groups were comparable to control data and no adverse effect of treatment was indicated.

Physical Observation Data (Pre- and post-exposure data - Appendix F)

No adverse effect of treatment from exposure to Unleaded Gasoline Vapor Condensate (API 94-02) was indicated from the detailed physical examinations performed both pre- and post-exposure during the treatment period. The types of observations seen among the treated groups occurred at low incidence or with comparable frequency to the control group and were not considered to be related to treatment.

Corpora lutea and Uterine Implantation Data (Appendices G and H)

No adverse effect of treatment with Unleaded Gasoline Vapor Condensate (API 94-02) was evident from uterine implantation data. No aborted pregnancies or premature deliveries occurred among the control or treated groups. The number of litters containing viable fetuses recovered at Day 20 gestation maternal sacrifice for the control, low-, mid- and high-dose groups was 24, 22, 22 and 21, respectively.

The mean numbers of *corpora lutea*, uterine implantation sites, live fetuses and resorptions per pregnant 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.

Macroscopic Postmortem Evaluations (Appendix I)

All animals 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 (Appendices G and J)

No adverse effect of treatment was indicated from fetal weight data. Mean fetal weights, distinguished by sex and as a composite for both sexes, for the Unleaded Gasoline Vapor Condensate-treated groups were comparable to control data. Fetal weights for the treated and control groups were within the range of recent historical control data for this laboratory (Appendix O, page O-4).

Fetal Sex Distribution Data (Appendices G and J)

No adverse effect of treatment was indicated from fetal sex distribution data. The mean number of male and female fetuses per pregnant female and the ratio of total male to female fetuses for the Unleaded Gasoline Vapor Condensate-treated groups were comparable to control data.

Fetal External Examination Data (Appendix J)

No external malformations or variations were seen among fetuses recovered from the control or Unleaded Gasoline Vapor Condensate-treated groups. The numbers of fetuses and litters evaluated were as follows: control group - 327 fetuses from 24 litters; low-dose group - 334 fetuses from 22 litters; mid-dose group - 336 fetuses from 22 litters; and high-dose group - 325 fetuses from 21 litters.

Fetal Soft Tissue Examination Data (Appendix K)

Soft Tissue Malformations. The incidences of fetuses with soft tissue malformations for the control, low-, mid- and high-dose groups were 0% (168 fetuses), 0.6% (1/172), 0% (174 fetuses) and 0% (169 fetuses), respectively. The incidences of litters containing fetuses with soft tissue malformations for these same groups were 0% (24 litters), 4.5% (1/22), 0% (22 litters) and 0% (21 litters), respectively. In the absence of soft tissue malformations among the mid- and high-dose fetuses, the single malformation seen in the low-dose group was not considered indicative of a treatment-related response.

Unilateral microphthalmia (left eye) was seen in one fetus at the low-dose level. This malformation has been seen at low incidence in this laboratory as indicated from recent historical control data (Appendix O, page O-8). In the absence of similar malformations among fetuses at the higher dose levels, the low incidence in occurrence of this finding in the low-dose group was not considered indicative of a treatment-related response.

Soft Tissue Variations. Soft tissue variations are findings that involve subtle changes in size, shape or appearance of the visceral organs/tissues. These types of observations are considered to represent transient developmental stages. Such subtle changes are not considered indicative of malformation but an increase in incidence of fetuses with certain soft tissue variations when seen to occur in a dose-related pattern may be indicative of a response to treatment (i.e., delayed maturation).

The incidences of fetuses with soft tissue variations for the control, low-, mid- and high-dose groups were 0% (168 fetuses), 0.6% (1/172), 0.6% (1/174) and 0% (169 fetuses), respectively. The incidences of litters containing fetuses with soft tissue variations for these same groups were 0% (24 litters), 4.5% (1/22), 4.5% (1/22) and 0% (21 litters), respectively. These incidences for the Unleaded Gasoline Vapor Condensate-treated groups, on both a per fetus and per litter basis, did not differ statistically from control data and were not considered indicative of a treatment-related response.

The only soft tissue variation seen during this study was tortuous ureters. This was seen in one fetus each from the low- and mid-dose groups. This soft tissue variation is seen commonly in this laboratory in the Day 20 gestation fetal rat as indicated from recent historical control data (Appendix O, page O-9 to O-11). The incidence of this finding in the low- and mid-dose groups was within the range of these historical control data and no adverse effect of treatment was indicated from its low incidence of occurrence in this study.

Fetal Skeletal Examination Data (Appendix L)

Skeletal Malformations. The incidences of fetuses with skeletal malformations for the control, low-, mid- and high-dose groups were 1.3% (2/160), 0% (162 fetuses), 0.6% (1/162) and 1.3% (2/156), respectively. The incidences of litters containing fetuses with skeletal malformations for these same groups were 8.3% (2/24), 0% (22 litters), 4.5% (1/22) and 4.8% (1/21), respectively.

Fourteenth rib or rib pair and 27 presacral vertebrae (seven cervical, 14 thoracic and six lumbar vertebrae) were seen in one fetus each from the control and mid-dose groups and two fetuses from one litter in the high-dose group. These incidences, on both a per fetus and per litter basis, for the mid- and high-dose groups were considered similar to control data and no adverse effect of treatment was indicated. This finding (i.e., 27 presacral vertebrae rather than the normal 26 verterbrae) is seen at low incidence historically in this laboratory (Appendix O, page O-12).

The only other skeletal malformation seen during the study was the presence of five lumbar vertebrae. This was seen in one control fetus.

Ossification Variations. Ossification variations may represent delays in the ossification process (retarded ossification) or slight ossification irregularities which may or may not be present in the adult specimen. Ossification variations are not considered representative of malformation. Increases in the incidences of fetuses and/or litters containing fetuses with particular ossification variations in relation to the concurrent control data and/or recent historical control data (Appendix O, pages O-13 to O-14) may be indicative of retarded ossification.

The incidences of fetuses with one or more ossification variations for the control, low-, mid- and high-dose groups were 71.9% (115/160), 72.8% (118/162), 66.7% (108/162) and 69.9% (109/156), respectively. The incidences of litters containing fetuses with ossification variations for these same groups were 95.8% (23/24), 100.0% (22/22), 95.5% (21/22) and 100.0% (21/21), respectively. These incidences, on both a per fetus and per litter basis, for the treated groups were comparable to control data.

The only ossification variation noted with increased incidence in the treated groups was rudimentary rib(s). This finding is seen frequently in the Day 20 gestation rat fetus in this laboratory as indicated from the tabulation of recent historical control (presented in Appendix O, page O-14 and summarized below Table 5).

Table 5: Study Incidence of the Ossification Variation " Rib(s) - 1st Lumbar Rudimentary" in Comparison to Recent Laboratory Historical Control Data

	Group (ppm)				Laboratory's Recent Historical Control Data[a]
	I (0)	II (1000)	III (3000)	IV (9000)	
Number of Fetuses (Litters) Examined:	160(24)	162(22)	162(22)	156(21)	
Rib(s) - 1st Lumbar Rudimentary:					
Fetal Incidence (%)	17(10.6)	27(16.7)	33(20.4)	33(21.2)	Mean: 5.4% Max: 18.5%
Litter Incidence (%)[b]	9(37.5)	15(68.2)	13(59.1)	16(76.2)	Mean: 21.1% Max: 63.6

[a]Represents data for 18 developmental toxicity studies conducted over the 1989-1994 period.
[b]Total number of litters containing at least one fetus with a rudimentary rib, either unilateral or bilateral.

While the incidence data for this finding in the concurrent control group were within this historical control range, the incidences for the treated groups were at or just outside these data. These incidence data were also compared to the recently published data on the CD rat from MARTA (Middle Atlantic Reproduction and Teratology Association) and MTA (Midwest Teratology Association). The incidence of rudimentary rib in these historical data (MARTA/MTA, 1995) are summarized below (Table 6) in comparison to the incidence of rudimentary rib seen among the control and treated groups in this study. The finding has been distinguished as unilateral or bilateral to better compare with the MARTA/MTA data. The incidences of rudimentary rib on both a per fetus and per litter basis in the present study were generally within the range of these historical control data.

Table 6: Incidence of the Ossification Variation " Rib(s) - 1st Lumbar Rudimentary" in Comparison to MARTA/MTA data base

	Group (ppm)				MARTA/MTA Historical Control Data
	I (0)	II (1000)	III (3000)	IV (9000)	
Number of Fetuses (Litters) Examined:	160(24)	162(22)	162(22)	156(21)	
Rib(s) - 1st Lumbar Rudimentary[a]:					
Fetal Incidence (%):					
Unilateral:	14(8.8)	21(13.0)	18(11.1)	19(12.2)	Av.: 0.5%; Max: 7.3%
Bilateral:	3(1.9)	6(3.7)	15(9.3)	14(9.0)	Av.: 0.7%; Max: 15.8%
Litter Incidence (%):					
Unilateral:	9(37.5)	13(59.1)	10(45.5)	16(76.2)	Av.: 4.1%; Max: 55.0%
Bilateral:	2(8.3)	5(22.7)	9(40.9)	7(33.3)	Av.: 3.9%; Max: 55.0%

[a]Referred to in MARTA/MTA data as "Rib Supernumerary". This is considered to represent the same observation as rudimentary rib noted in this report.

When reviewed in conjunction with all the ossification data for this study, the slight increase in rudimentary rib seen among the treated groups was not considered biologically significant. The increase in incidence on both a per fetus and per litter basis was not dose-responsive and the incidence data for other ossification variations seen during this study in the treated groups were similar to or slightly lower than the concurrent control data. Additionally, there were several other ossification variations seen during this study (e.g., incompletely ossified vertebral transverse processes [cervical and sacral], unossified vertebral processes [sacral and caudal] and unossified sternebrae [2nd and 6th] that occurred with notably lower frequency in fetuses from the treated groups than in control fetuses. Thus, the slight increase in incidence of rudimentary rib(s) in this study in the treated groups was not considered toxicologically significant because:

- other ossification variations seen in this study occurred with similar or increased frequency in the control group;
- it was not dose-responsive;
- it is not unusual to see this type of variation in ossification among groups in these types of studies; and
- there were no statistically significant differences between the control and treated groups in overall incidence of fetuses or litters containing fetuses with ossification variations.

CONCLUSION

Thus, in this inhalation developmental toxicity study with Unleaded Gasoline Vapor Condensate (API 94-02), no maternal or developmental toxicity was seen in rats at an exposure level up to and including 9000 ppm.

Section 5

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Section 6

LOCATION OF SPECIMENS, RAW DATA AND FINAL REPORT

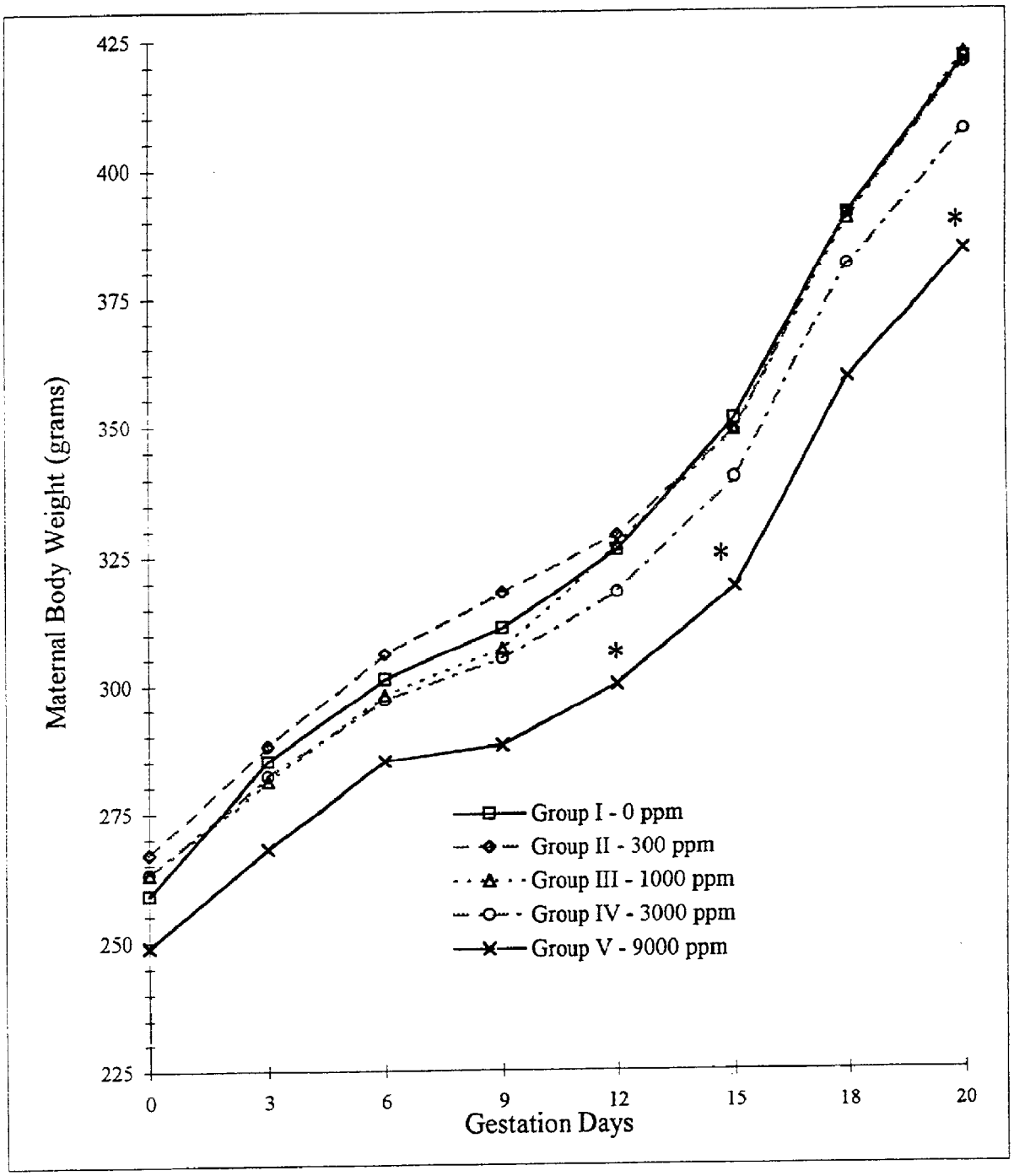
All data documenting experimental details, study procedures and observations were recorded and maintained as raw data.

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

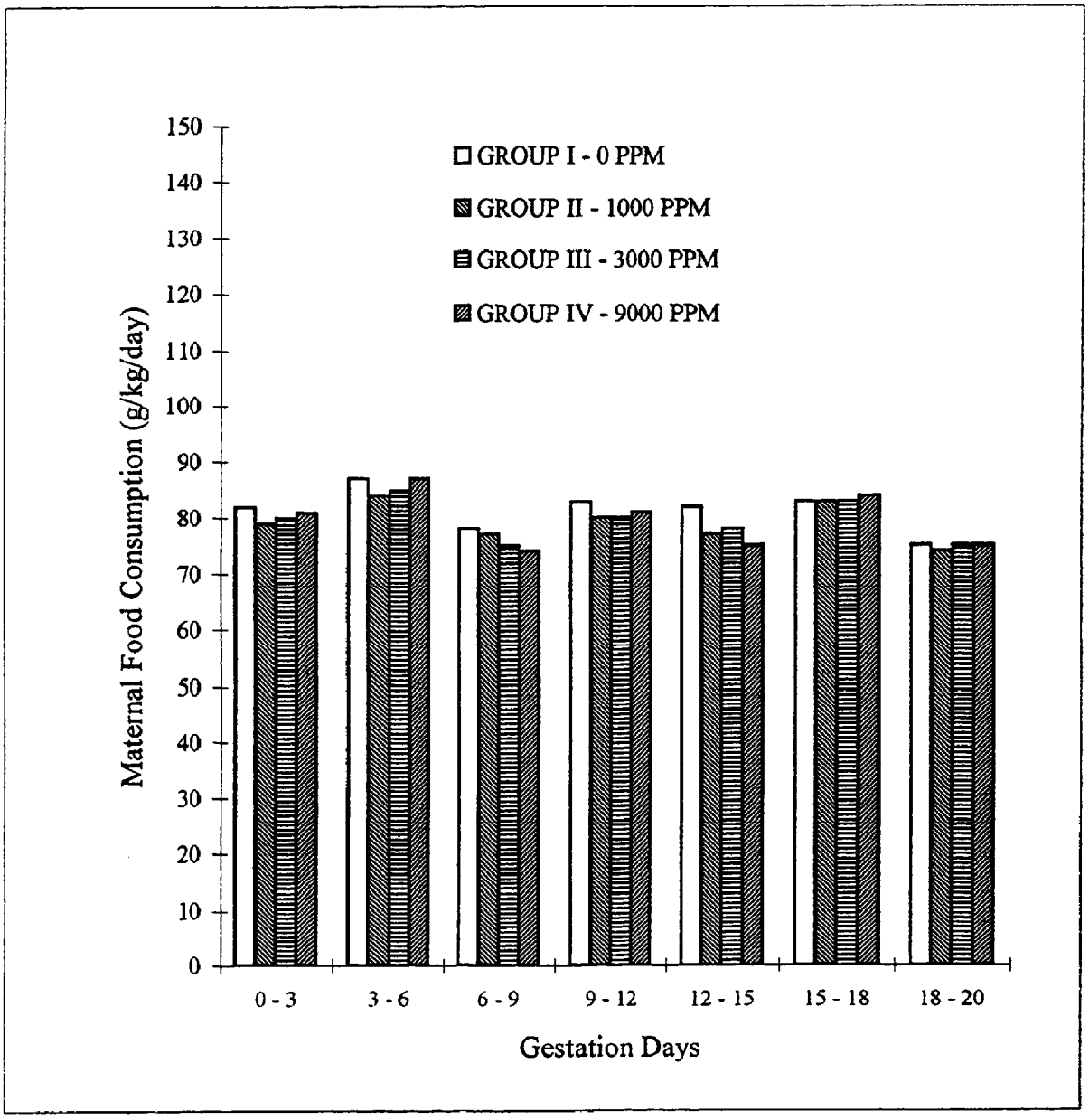
FIGURES

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



No statistically significant differences.

APPENDIX G

FEMALE REPRODUCTION AND MEAN FETAL WEIGHT DATA

Appendix G

SUMMARY OF REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA

	EXPOSURE LEVELS (ppm)				STAT
	0	1000	3000	9000	SYMBOL
No. Females Mated	24	24	24	24	
No. Pregnant (%)	24 (100.0)	22 (91.7)	22 (91.7)	21(87.5)	NS
No. Pregnancies Aborted	0	0	0	0	NT
No. Premature Births	0	0	0	0	NT
No. Litters with Viable Fetuses	24	22	22	21	NT
Female Mortality No.	0	0	0	0	NT
No. *Corpora Lutea*	401	398	381	363	
Mean ± S.D.	16.7 ± 3.9	18.1 ± 2.1	17.3 ± 2.9	17.3 ± 2.0	K-J-
No. Implantation Sites	355	355	354	339	
Mean ± S.D.	14.8 ± 4.5	16.1 ± 2.7	16.1 ± 3.1	16.1 ± 2.4	A-L-
Preimplantation Loss Index					
Mean ± S.D.	.121 ± .193	.104 ± .131	.071 ± .118	.063 ± .1 07	A-L-
No. Viable Fetuses	327	334	336	325	
No. Dead Fetuses	0	0	0	0	NT
Mean Litter Size ± S.D.	13.6 ± 5.0	15.2 ± 2.6	15.3 ± 3.4	15.5 ± 2.3	K-J-
Mean No. Males ± S.D.	7.0 ± 3.2	7.5 ± 2.6	8.0 ± 2.7	7.6 ± 2.7	A-L-
Mean No. Females ± S.D.	6.6 ± 3.0	7.7 ± 2.3	7.3 ± 3.3	7.9 ± 2.0	A-L-
No. Resorptions	28	21	18	14	
Mean ± S.D.	1.2 ± 2.7	1.0 ± 0.8	0.8 ± 1.0	0.7 ± 0.7	K-J-
Resorptions/Implants Ratios					
Mean ± S.D.	.075 ± .0171	.058 ± .054	.055 ± .063	.041 ± .044	K-J-
No. Litters with Resorptions (%)	10 (41.7)	14 (63.6)	11 (50.0)	11 (52.4)	C-
Mean Body Weight (grams) of Viable Fetuses ± S.D.	3.66 ± 0.33	3.71 ± 0.30	3.68 ± 0.17	3.66 ± 0.32	A-L-
Male Fetuses	3.75 ± 0.36	3.80 ± 0.28	3.78 ± 0.20	3.82 ± 0.34	A-L-
Female Fetuses	3.61 ± 0.24	3.64 ± 0.36	3.54 ± 0.20	3.54 ± 0.32	A-L-
Ratio of Viable Fetuses Total Males/Total Females	1.1	1.0	1.1	1.0	

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

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS			FETUSES			SEX		AVERAGE FETAL B.W. (GRAMS)		
			EARLY	LATE	TOTAL	LIVE	DEAD	TOTAL	M	F	M	F	BOTH
GROUP I - 0 PPM													
1501	18	16	0	0	0	16	0	16	11	5	3.9	3.8	3.9
1502	18	18	1	0	1	17	0	17	9	8	4.0	3.7	3.8
1503	20	20	0	0	0	20	0	20	12	8	3.8	3.5	3.7
1504	4	4	0	0	0	4	0	4	2	2	4.1	4.0	4.0
1505	16	14	0	0	0	14	0	14	8	6	4.2	3.8	4.0
1506	16	16	0	0	0	16	0	16	5	11	3.6	3.3	3.4
1507	18	18	2	0	2	16	0	16	8	8	3.9	3.8	3.8
1508	20	19	2	0	2	17	0	17	5	12	3.7	3.5	3.6
1509	14	14	1	0	1	13	0	13	7	6	3.7	3.3	3.5
1510	20	16	13	0	13	3	0	3	1	2	3.7	3.8	3.8
1511	16	15	0	0	0	15	0	15	8	7	4.1	3.6	3.9
1512	18	17	1	0	1	16	0	16	4	12	3.9	3.5	3.6
1513	21	20	0	0	0	20	0	20	11	9	3.5	3.2	3.3
1514	15	14	4	0	4	10	0	10	5	5	4.2	3.9	4.0
1515	17	12	0	0	0	12	0	12	8	4	3.8	3.7	3.8
1516	17	16	0	0	0	16	0	16	8	8	3.3	3.3	3.3
1517	11	1	0	0	0	1	0	1	1	0	2.6	-	2.6
1518	16	16	0	0	0	16	0	16	7	9	3.6	3.6	3.6
1519	17	15	2	0	2	13	0	13	7	6	3.8	3.7	3.8
1520	16	13	0	0	0	13	0	13	5	8	3.2	3.3	3.3
1521	15	15	0	0	0	15	0	15	8	7	3.6	3.5	3.6
1522	16	11	1	0	1	10	0	10	5	5	3.8	3.7	3.8
1523	16	15	1	0	1	14	0	14	10	4	4.2	4.1	4.2
1524	26	20	0	0	0	20	0	20	13	7	3.7	3.4	3.6
MEAN	16.7	14.8	1.2	0.0	1.2	13.6	0.0	13.6	7.0	6.6	3.8	3.6	3.7
S.D.	3.9	4.5	2.7	0.0	2.7	5.0	0.0	5.0	3.2	3.0	0.4	0.2	0.3
N	24	24	24	24	24	24	24	24	24	24	24	23	24

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

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INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS			FETUSES			SEX		AVERAGE FETAL B.W. (GRAMS)		
			EARLY	LATE	TOTAL	LIVE	DEAD	TOTAL	M	F	M	F	BOTH
GROUP II - 1000 PPM													
2501	21	19	2	0	2	17	0	17	10	7	3.6	3.2	3.4
2502	18	18	1	0	1	17	0	17	11	6	3.9	3.7	3.8
2503	16	14	2	0	2	12	0	12	6	6	4.0	3.8	3.9
2504	17	17	1	0	1	16	0	16	8	8	4.0	4.0	4.0
2505 NP													
2506	16	16	2	0	2	14	0	14	5	9	3.6	3.6	3.6
2507	18	17	0	0	0	17	0	17	11	6	4.1	3.8	4.0
2508	16	15	0	0	0	15	0	15	10	5	3.7	3.6	3.7
2509	16	16	2	0	2	14	0	14	8	6	3.6	3.3	3.5
2510	20	15	0	0	0	15	0	15	9	6	3.5	3.5	3.5
2511	20	9	0	0	0	9	0	9	5	4	4.3	4.3	4.3
2512	17	12	2	0	2	10	0	10	5	5	3.1	2.5	2.8
2513	20	19	2	0	2	17	0	17	5	12	4.1	3.7	3.8
2514	19	18	0	0	0	18	0	18	10	8	3.8	3.6	3.7
2515	22	21	2	0	2	19	0	19	11	8	3.8	3.7	3.7
2516	18	17	1	0	1	16	0	16	5	11	3.9	3.7	3.8
2517	20	15	0	0	0	15	0	15	8	7	3.8	3.7	3.8
2518	17	16	1	0	1	15	0	15	8	7	3.7	3.5	3.6
2519	18	15	1	0	1	14	0	14	4	10	3.7	3.8	3.8
2520	18	17	0	0	0	17	0	17	6	11	3.4	3.3	3.3
2521	14	14	0	0	0	14	0	14	7	7	4.0	3.8	3.9
2522 NP													
2523	21	20	1	0	1	19	0	19	10	9	3.8	3.9	3.8
2524	16	15	1	0	1	14	0	14	2	12	4.2	4.0	4.0
MEAN	18.1	16.1	1.0	0.0	1.0	15.2	0.0	15.2	7.5	7.7	3.8	3.6	3.7
S.D.	2.1	2.7	0.8	0.0	0.8	2.6	0.0	2.6	2.6	2.3	0.3	0.4	0.3
N	22	22	22	22	22	22	22	22	22	22	22	22	22

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

Appendix G

INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS			FETUSES			SEX		AVERAGE FETAL B.W. (GRAMS)		
			EARLY	LATE	TOTAL	LIVE	DEAD	TOTAL	M	F	M	F	BOTH
GROUP III - 3000 PPM													
3501 NP													
3502 P	17	16	1	0	1	15	0	15	8	7	3.7	3.4	3.6
3503 P	16	16	2	0	2	14	0	14	7	7	3.9	3.7	3.8
3504 P	18	18	2	0	2	16	0	16	4	12	3.8	3.5	3.6
3505 P	13	12	0	0	0	12	0	12	9	3	3.5	3.2	3.5
3506 P	16	16	2	0	2	14	0	14	8	6	4.0	3.5	3.8
3507 P	15	15	0	0	0	15	0	15	5	10	4.1	3.7	3.8
3508 P	20	18	0	0	0	18	0	18	13	5	3.4	3.4	3.4
3509 P	20	20	2	0	2	18	0	18	8	10	3.7	3.6	3.7
3510 P	20	18	0	0	0	18	0	18	13	5	4.1	3.9	4.0
3511 P	19	19	0	0	0	19	0	19	5	14	3.7	3.4	3.5
3512 P	16	16	2	1	3	13	0	13	8	5	3.5	3.4	3.5
3513 P	19	13	2	0	2	11	0	11	7	4	3.9	3.5	3.8
3514 NP													
3515 P	21	21	0	0	0	21	0	21	8	13	4.0	3.8	3.9
3516 P	16	16	1	0	1	15	0	15	10	5	3.9	3.8	3.8
3517 P	12	7	1	0	1	6	0	6	2	4	3.8	3.6	3.7
3518 P	12	12	1	0	1	11	0	11	6	5	3.9	3.7	3.8
3519 P	19	18	1	0	1	17	0	17	11	6	3.8	3.6	3.8
3520 P	22	17	0	0	0	17	0	17	6	11	3.9	3.5	3.7
3521 P	14	14	0	0	0	14	0	14	11	3	3.7	3.8	3.8
3522 P	19	19	0	0	0	19	0	19	10	9	3.8	3.3	3.6
3523 P	18	18	0	0	0	18	0	18	8	10	3.5	3.2	3.4
3524 P	19	15	0	0	0	15	0	15	8	7	3.6	3.4	3.5
MEAN	17.3	16.1	0.8	0.0	0.8	15.3	0.0	15.3	8.0	7.3	3.8	3.5	3.7
S.D.	2.9	3.1	0.9	0.2	1.0	3.4	0.0	3.4	2.7	3.3	0.2	0.2	0.2
N	22	22	22	22	22	22	22	22	22	22	22	22	22

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

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INDIVIDUAL FEMALE REPRODUCTION DATA AND MEAN FETAL WEIGHT DATA

ANIMAL NUMBER	*CORPORA LUTEA*	IMPLANT SITES	RESORPTIONS			FETUSES			SEX		AVERAGE FETAL B.W. (GRAMS)		
			EARLY	LATE	TOTAL	LIVE	DEAD	TOTAL	M	F	M	F	BOTH
GROUP IV - 9000 PPM													
4501 P	16	15	0	0	0	15	0	15	4	11	4.1	3.7	3.8
4502 P	18	18	0	1	1	17	0	17	10	7	3.6	3.3	3.4
4503 P	17	17	0	0	0	17	0	17	10	7	4.0	3.8	3.9
4504 P	15	14	1	0	1	13	0	13	6	7	3.8	3.5	3.6
4505 P	15	15	0	0	0	15	0	15	4	11	3.3	3.2	3.2
4506 NP													
4507 NP													
4508 P	18	16	0	0	0	16	0	16	8	8	3.7	3.6	3.6
4509 P	15	15	0	0	0	15	0	15	8	7	4.5	4.1	4.3
4510 P	20	20	2	0	2	18	0	18	11	7	3.5	3.3	3.4
4511 P	18	17	1	0	1	16	0	16	10	6	3.9	3.6	3.8
4512 P	20	20	2	0	2	18	0	18	10	8	3.3	2.9	3.1
4513 P	16	15	0	0	0	15	0	15	8	7	3.6	3.5	3.6
4514 P	18	16	0	0	0	16	0	16	6	10	4.5	4.2	4.3
4515 NP													
4516 P	14	13	1	0	1	12	0	12	5	7	3.6	3.4	3.5
4517 P	20	19	1	0	1	18	0	18	9	9	3.6	3.2	3.4
4518 P	14	14	1	0	1	13	0	13	8	5	3.9	3.4	3.7
4519 P	19	18	1	0	1	17	0	17	8	9	4.0	3.7	3.8
4520 P	18	17	0	0	0	17	0	17	6	11	4.1	3.9	4.0
4521 P	20	10	1	0	1	9	0	9	3	6	3.6	3.3	3.4
4522 P	17	16	2	0	2	14	0	14	3	11	4.1	3.7	3.8
4523 P	17	17	0	0	0	17	0	17	11	6	3.5	3.3	3.4
4524 P	18	17	0	0	0	17	0	17	12	5	4.0	3.8	3.9
MEAN	17.3	16.1	0.6	0.0	0.7	15.5	0.0	15.5	7.6	7.9	3.8	3.5	3.7
S.D.	2.0	2.4	0.7	0.2	0.7	2.3	0.0	2.3	2.7	2.0	0.3	0.3	0.3
N	21	21	21	21	21	21	21	21	21	21	21	21	21

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

Appendix H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA

ANIMAL NUMBER	IMPLANT NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
GROUP I - 0 PPM																					
1501	MA	FA	MA	MA	MA	FA	MA	MA	MA	FA/	MA	MA	FA	FA	MA	MA					
1502	MA	MA	MA	FA	MA	FA	FA	FA	FA	FA	FA/	MA	MA	MA	FA	E	MA	MA			
1503	FA	MA	MA	MA	MA	FA	MA	FA	MA	FA	FA	MA/	MA	MA	FA	MA	MA	FA	MA	FA	
1504	MA	FA	FA/	MA																	
1505	FA	FA	FA	MA	MA	MA	MA	FA/	MA	MA	MA	MA	FA	FA							
1506	FA	FA	FA	MA	MA	FA/	FA	MA	MA	MA	FA	FA	FA	FA	FA	FA					
1507	MA	E	MA	MA	FA	FA	MA	FA	FA	MA/	FA	MA	MA	MA	E	FA	FA	FA			
1508	FA	FA	E	FA	FA	E	FA	FA	MA	MA/	FA	MA	FA	FA	MA	FA	FA	MA	FA		
1509	MA	E	MA	MA	FA/	FA	FA	MA	MA	MA	FA	FA	MA	FA							
1510	E	FA	E	E	E	MA	E/	E	E	E	E	E	E	E	E	FA					
1511	FA	FA	MA	FA	FA	MA	FA/	MA	MA	FA	MA	MA	MA	MA	FA						
1512	FA	FA	FA	FA	FA	MA/	MA	FA	FA	MA	E	FA	FA	MA	FA	FA	FA				
1513	MA	MA	MA	FA	MA	MA	FA	MA	MA	MA/	FA	MA	FA	FA	FA	MA	FA	FA	MA	FA	
1514	E	MA	FA	E	FA	E	FA	E	MA	MA	FA/	MA	MA	FA							
1515	MA	MA	FA	MA	MA/	MA	FA	FA	FA	MA	MA	MA									
1516	MA	MA	FA	FA	MA	FA	FA	FA	MA/	MA	FA	FA	FA	MA	MA	MA					
1517	MA/																				
1518	MA	MA	FA	FA	MA	FA	FA	MA	FA	MA/	MA	FA	FA	FA	MA	FA					
1519	E	MA	FA	E	MA	MA	MA	FA	MA/	FA	MA	FA	MA	FA	FA						
1520	FA	FA	MA	MA	MA	MA	FA	FA/	FA	FA	FA	MA	FA								
1521	MA	MA	MA	FA	MA	FA	MA	FA	FA	MA	FA/	MA	FA	FA	MA						
1522	E	MA	MA	FA/	MA	MA	FA	FA	FA	FA	MA										
1523	MA	E	FA	MA	MA	MA	MA	MA	MA	MA	FA	FA/	MA	FA	MA						
1524	MA	FA	FA	MA	FA	MA	MA	MA	MA	FA	MA	FA	MA/	MA	MA	FA	MA	MA	FA	MA	

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

Appendix H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA

ANIMAL NUMBER	IMPLANT NUMBER																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
GROUP II - 1000 PPM																					
2501	MA	MA	MA	MA	FA	MA	E	FA	FA	MA/	MA	E	FA	MA	MA	FA	MA	FA	FA		
2502	FA	MA	MA	FA	FA	FA	MA/	MA	MA	MA	MA	MA	MA	MA	E	MA	FA	FA			
2503	FA	MA	MA	MA	FA	FA	MA	MA/	E	E	FA	FA	FA	MA							
2504	MA	E	FA	FA	MA	FA	MA	MA/	MA	FA	MA	FA	FA	FA	MA	MA	FA				
2506	FA	MA	FA	MA	FA	FA	E	FA/	E	FA	FA	FA	MA	MA	FA	MA					
2507	MA	FA	MA	MA	MA	FA/	FA	MA	FA	MA	FA	MA	MA	FA	MA	MA	MA				
2508	FA	MA	FA	MA	FA	MA	FA	MA	MA/	FA	MA	MA	MA	MA	MA						
2509	FA	MA	MA	FA	MA	FA	E	MA	MA	E/	MA	FA	MA	MA	FA	FA					
2510	FA	MA	MA	MA	FA	MA	FA	MA/	MA	MA	FA	MA	FA	FA	MA						
2511	MA	FA	FA	MA	FA/	MA	FA	MA	MA												
2512	MA	MA	MA	FA	FA	E	E/	MA	MA	FA	FA	FA									
2513	FA	FA	FA	FA	FA	FA	MA	MA	E/	FA	FA	FA	FA	MA	MA	FA	E	FA	MA		
2514	FA	MA	FA	MA	MA	MA	FA	FA	MA	MA/	MA	MA	FA	FA	FA	FA	MA	MA			
2515	MA	MA	MA	MA	FA	MA	FA	E	MA	MA	MA	MA	FA/	FA	MA	FA	FA	MA	E	FA	FA
2516	FA	FA	FA	MA	FA	MA	FA	FA	MA	MA	MA	FA/	FA	FA	E	FA	FA				
2517	MA	FA	FA	MA	MA	FA	MA	FA	FA	MA	FA/	FA	MA	MA	MA						
2518	FA	FA	FA	FA	MA	FA	FA	MA	E/	FA	MA	MA	MA	MA	MA	MA					
2519	FA	E	MA	FA	FA	FA	MA/	FA	FA	MA	FA	FA	FA	FA	MA						
2520	MA	FA	MA	FA	FA	FA	MA	FA	FA/	FA	FA	MA	MA	FA	MA	FA	FA				
2521	MA	FA	FA	MA	FA	FA	MA/	MA	MA	FA	MA	MA	FA	FA							
2523	MA	MA	MA	MA	MA	FA	E	FA	MA	FA	FA/	FA	MA	FA	MA	MA	FA	FA	MA	FA	
2524	FA	FA	FA	FA	FA	FA/	FA	FA	FA	MA	E	FA	FA	FA	MA						

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

Appendix H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA

ANIMAL NUMBER	IMPLANT NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
GROUP III - 3000 PPM																					
3502	FA	FA	FA	MA	MA	MA	E	MA	MA/	FA	FA	MA	FA	MA	MA	FA					
3503	FA	MA	FA	MA	MA	FA/	MA	FA	FA	FA	FA	MA	MA	MA	E	E					
3504	FA	FA	FA	MA	MA	MA	FA	FA	FA/	MA	FA	FA	FA	E	FA	E	FA	FA			
3505	MA	MA	MA	MA	MA	MA/	FA	FA	MA	FA	MA	MA									
3506	FA	MA	MA	FA	E	FA	MA	FA	E	MA/	FA	MA	FA	MA	MA	MA					
3507	MA	FA	MA	FA	FA	FA	FA	FA	MA	MA	FA	FA/	MA	FA	FA						
3508	MA	MA	FA	MA	FA	MA	MA	MA	MA	MA	MA/	MA	FA	FA	MA	MA	MA	FA			
3509	FA	MA	MA	FA	E	FA	FA	FA/	FA	MA	MA	MA	E	FA	FA	MA	MA	FA	MA	FA	
3510	MA	MA	FA	MA	FA	MA	MA	FA	MA/	MA	FA	MA	MA	MA	MA	MA	FA	MA			
3511	MA	FA	FA	MA	FA	FA	MA	FA	FA/	FA	MA	FA	FA	FA	FA	FA	FA	MA	FA		
3512	MA	MA	MA	L	MA	MA/	FA	MA	E	MA	E	MA	FA	FA	FA	FA					
3513	FA	E	FA	E	MA	MA	MA	MA	MA/	FA	MA	MA	FA								
3515	MA	FA	MA	FA	FA	FA	FA	FA	MA	MA	MA	FA/	MA	FA	FA	FA	FA	FA	FA	MA	MA
3516	MA	FA	MA	MA	E	MA	MA	MA	FA	MA/	MA	FA	FA	FA	MA	MA					
3517	E	FA/	MA	MA	FA	FA	FA														
3518	FA	FA	FA	FA	MA	MA/	MA	MA	MA	MA	FA	E									
3519	E	MA	MA	MA	MA	MA	MA	FA	MA	FA/	FA	MA	MA	FA	MA	FA	FA	MA			
3520	MA	FA	MA	MA	FA	FA	FA	FA	FA	FA	FA	FA/	MA	MA	MA	FA	FA				
3521	MA	MA	MA	MA	FA	MA	MA/	MA	MA	FA	MA	FA	MA	MA							
3522	FA	FA	MA	MA	MA	MA	FA/	MA	FA	FA	FA	MA	MA	MA	MA	FA	FA	MA	FA		
3523	MA	FA	MA	MA	MA	MA	FA	FA	FA/	FA	FA	FA	MA	FA	MA	FA	FA	MA			
3524	MA	FA	FA	MA	MA	FA	FA/	MA	MA	MA	FA	FA	MA	FA	MA						

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

Appendix H

INDIVIDUAL FETAL STATUS AND UTERINE LOCATION DATA

ANIMAL NUMBER	IMPLANT NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
GROUP IV - 9000 PPM																					
4501	FA	MA	FA	FA	MA	FA	FA	FA	MA	FA/	FA	FA	FA	FA	MA						
4502	FA	FA	FA	MA	FA	MA	L	MA	MA/	MA	FA	FA	MA	MA	FA	MA	MA	MA			
4503	MA	MA	FA	MA	FA	MA	MA	MA	MA	MA	MA/	MA	FA	FA	FA	FA	FA				
4504	FA	MA	MA	MA	MA	FA	E/	FA	FA	MA	FA	FA	FA	MA							
4505	FA	FA	MA	MA	FA	FA	FA	FA	FA	FA	FA	FA/	MA	FA	MA						
4508	MA	MA	FA	MA	MA	FA/	FA	FA	FA	FA	FA	MA	MA	FA	MA	MA					
4509	FA	MA	MA	MA/	FA	MA	FA	MA	FA	MA	MA	FA	FA	FA	MA						
4510	MA	MA	MA	MA	FA	MA	E	MA	MA	MA	E/	FA	FA	FA	MA	MA	FA	MA	FA	FA	
4511	FA	FA	MA	MA	MA	FA	MA	MA	MA/	MA	MA	MA	E	FA	MA	FA	FA				
4512	MA	FA	FA	FA	MA	FA	FA	MA	MA	FA/	FA	MA	MA	MA	MA	E	E	MA	FA	MA	
4513	MA	FA	MA	FA	MA	FA	MA	FA	FA/	MA	MA	FA	FA	MA	MA						
4514	FA	FA	FA	FA	FA	MA	MA	FA	MA	FA/	FA	MA	FA	MA	FA	MA					
4516	FA	MA	FA	FA	FA/	MA	E	MA	FA	FA	MA	MA	FA								
4517	FA	FA	MA	FA	MA	FA	MA	MA	FA	MA/	MA	MA	FA	FA	E	FA	MA	FA	MA		
4518	MA	FA	FA	MA	MA	FA	FA	MA/	MA	MA	MA	MA	E	FA							
4519	MA	FA	MA	MA	FA	FA	MA	FA	MA	FA	FA/	FA	E	MA	MA	FA	MA	FA			
4520	FA	FA	MA	FA	FA	FA	MA	FA	FA	MA	MA/	MA	FA	FA	FA	MA	FA				
4521	/FA	E	FA	FA	MA	MA	FA	MA	FA	FA											
4522	FA	E	MA	FA	FA	FA	FA	MA	FA	FA	FA/	FA	FA	E	MA	FA					
4523	MA	FA	MA	MA	MA	FA	MA	MA/	FA	MA	FA	FA	MA	MA	MA	FA	MA				
4524	MA	MA	MA	MA	FA	FA/	MA	MA	MA	MA	MA	FA	FA	FA	MA	MA	MA				

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

APPENDIX I

PATHOLOGY
MACROSCOPIC POSTMORTEM OBSERVATIONS

Appendix I

PATHOLOGY
SUMMARY OF MACROSCOPIC POSTMORTEM OBSERVATIONS

		NUMBER OF ANIMALS AFFECTED			
	GROUP:	I	II	III	IV
OBSERVATIONS	NUMBER EXAMINED	24	24	24	24
SKIN					
HAIR THIN		4	0	2	3
VAGINA					
FIRM		0	0	0	1
CONSTRICTED		0	0	0	1
NOA		20	24	22	20

NOA=NO OBSERVABLE ABNORMALITIES

Appendix I

PATHOLOGY
INDIVIDUAL MACROSCOPIC POSTMORTEM OBSERVATIONS

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP I - 0 PPM		
1501	398.7	NOA
1502	432.5	SKIN/BOTH FOREPAWS: HAIR THIN (M)
1503	475.0	NOA
1504	364.1	NOA
1505	437.6	NOA
1506	394.5	NOA
1507	436.2	NOA
1508	376.8	NOA
1509	386.2	NOA
1510	348.4	NOA
1511	412.8	NOA
1512	420.4	NOA
1513	448.6	NOA
1514	412.0	SKIN/BOTH FOREPAWS: HAIR THIN (M) SKIN/RIGHT VENTRAL CERVICAL: HAIR THIN (M)
1515	417.1	NOA
1516	436.4	NOA
1517	337.1	NOA
1518	446.7	NOA
1519	406.1	SKIN/LEFT LOWER ABDOMEN: HAIR THIN (E)
1520	402.7	NOA
1521	432.9	NOA
1522	405.5	NOA
1523	415.5	NOA
1524	484.8	SKIN/BOTH FOREPAWS: HAIR THIN (M)

NOA=NO OBSERVABLE ABNORMALITIES; M=MODERATE; E=EXTREME.

Appendix I

PATHOLOGY
INDIVIDUAL MACROSCOPIC POSTMORTEM OBSERVATIONS

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP II - 1000 PPM		
2501	403.9	NOA
2502	445.7	NOA
2503	396.5	NOA
2504	408.5	NOA
2505	296.7	NOA
2506	391.4	NOA
2507	454.1	NOA
2508	390.7	NOA
2509	396.5	NOA
2510	352.2	NOA
2511	405.2	NOA
2512	382.4	NOA
2513	438.5	NOA
2514	421.0	NOA
2515	461.6	NOA
2516	458.5	NOA
2517	463.5	NOA
2518	373.7	NOA
2519	439.2	NOA
2520	380.7	NOA
2521	402.3	NOA
2522	309.4	NOA
2523	482.5	NOA
2524	441.3	NOA

NOA=NO OBSERVABLE ABNORMALITIES

Appendix I

PATHOLOGY
INDIVIDUAL MACROSCOPIC POSTMORTEM OBSERVATIONS

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP III - 3000 PPM		
3501	259.1	SKIN/BOTH FOREPAWS: HAIR THIN (M)
3502	392.3	NOA
3503	422.8	NOA
3504	403.6	NOA
3505	350.6	NOA
3506	385.1	NOA
3507	387.2	NOA
3508	372.0	NOA
3509	464.4	NOA
3510	489.5	NOA
3511	447.4	NOA
3512	379.8	NOA
3513	384.4	NOA
3514	261.3	NOA
3515	503.2	NOA
3516	402.9	NOA
3517	407.6	NOA
3518	361.5	NOA
3519	441.4	NOA
3520	503.8	NOA
3521	420.4	SKIN/ENTIRE CERVICAL AREA: HAIR THIN (E)
3522	459.1	NOA
3523	416.6	NOA
3524	448.5	NOA

NOA=NO OBSERVABLE ABNORMALITIES; M=MODERATE; E=EXTREME.

Appendix I

PATHOLOGY
INDIVIDUAL MACROSCOPIC POSTMORTEM OBSERVATIONS

ANIMAL NUMBER	TERMINAL BODY WEIGHT (grams)	OBSERVATIONS
GROUP IV - 9000 PPM		
4501	420.7	NOA
4502	401.2	NOA
4503	469.4	SKIN/BOTH FOREPAWS: HAIR THIN (M)
4504	345.1	NOA
4505	366.0	NOA
4506	273.0	VAGINA/TOP: FIRM (M) VAGINA/UPPER PORTION LEADING TO CERVIX: CONSTRICTED (E)
4507	290.4	NOA
4508	375.9	NOA
4509	453.6	NOA
4510	438.3	NOA
4511	412.5	NOA
4512	438.2	NOA
4513	399.2	SKIN/VENTRAL SURFACE: HAIR THIN (S)
4514	396.0	NOA
4515	340.4	NOA
4516	342.6	SKIN/BOTH FOREPAWS: HAIR THIN (M)
4517	476.8	NOA
4518	455.3	NOA
4519	461.3	NOA
4520	461.4	NOA
4521	360.4	NOA
4522	464.8	NOA
4523	412.2	NOA
4524	452.7	NOA

NOA=NO OBSERVABLE ABNORMALITIES; S=SLIGHT; M=MODERATE; E=EXTREME.

APPENDIX K

FETAL SOFT TISSUE DATA

Appendix K

SUMMARY OF FETAL SOFT TISSUE MALFORMATIONS

			EXPOSURE LEVELS (PPM)			
			0	1000	3000	9000
LITTERS EVALUATED		N	24	22	22	21
FETUSES EVALUATED		N	168[a]	172	174	169
LIVE		N	168	172	174	169
DEAD		N	0	0	0	0
MICROPHTHALMIA - SMALL EYE(S) PRESENT						
FETAL INCIDENCE		N(%)	0	1(0.6)	0	0
LITTER INCIDENCE		N(%)	0	1(4.5)	0	0
	STAT SYMBOL					
TOTAL VISCERAL MALFORMATIONS						
FETAL INCIDENCE	NS	N(%)	0	1(0.6)	0	0
LITTER INCIDENCE	NS	N(%)	0	1(4.5)	0	0

KEY: N=NUMBER; NS= No Statistical differences from control (Fisher Exact Test).

[a]One fetus from the litter of Group I Female No. 1517, was evaluated for soft tissue irregularities of the thoracic, abdominal and pelvic cavities, the head was left intact and the fetus then processed for staining with Alizarin Red S and evaluation of the skeletal structures.

Appendix K

SUMMARY OF FETAL SOFT TISSUE VARIATIONS

			EXPOSURE LEVELS (PPM)			
			0	1000	3000	9000
LITTERS EVALUATED		N	24	22	22	21
FETUSES EVALUATED		N	168[a]	172	174	169
LIVE		N	168	172	174	169
DEAD		N	0	0	0	0
URETER(S) - TORTUOUS						
FETAL INCIDENCE		N(%)	0	1(0.6)	1(0.6)	0
LITTER INCIDENCE		N(%)	0	1(4.5)	1(4.5)	0
	STAT SYMBOL					
TOTAL VISCERAL VARIATIONS						
FETAL INCIDENCE	NS	N(%)	0	1(0.6)	1(0.6)	0
LITTER INCIDENCE	NS	N(%)	0	1(4.5)	1(4.5)	0

KEY: N=NUMBER; NS= No Statistical differences from control (Fisher Exact Test).

[a]One fetus from the litter of Group I Female No. 1517, was evaluated for soft tissue irregularities of the thoracic, abdominal and pelvic cavities, the head was left intact and the fetus then processed for staining with Alizarin Red S and evaluation of the skeletal structures.

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1501	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
1502	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
1503	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
1504	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
1505	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1505	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
1506	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
1507	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
1508	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
1509	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1509	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
1510	2	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
1511	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
1512	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
1513	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1514	2	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
1515	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
1516	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	GENERAL EXAMINATION	
		LARGE AMOUNT OF DARK BROWN MATERIAL PRESENT ON THE RIGHT SIDE OF THE HEAD, BETWEEN THE CRANIUM AND THE OVERLYING SKIN. CONSIDERED TO BE DUE TO ARTIFACTUAL DAMAGE.	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
1517	1	NO REMARKABLE OBSERVATIONS	
1518	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1519	2	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
1520	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
1521	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
1522	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
1523	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1523	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
1524	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER		OBSERVATIONS	POSITION
GROUP II - 1000 PPM				
2501	1		NO REMARKABLE OBSERVATIONS	
	3		NO REMARKABLE OBSERVATIONS	
	5		NO REMARKABLE OBSERVATIONS	
	8		NO REMARKABLE OBSERVATIONS	
	10		NO REMARKABLE OBSERVATIONS	
	14		NO REMARKABLE OBSERVATIONS	
	16	M	MICROPHTHALMIA - SMALL EYE(S) PRESENT	L
			THE LEFT LENS IS APPROXIMATELY 25% THE SIZE OF THE NORMAL APPEARING RIGHT LENS.	
	18		NO REMARKABLE OBSERVATIONS	
2502	1		NO REMARKABLE OBSERVATIONS	
	3		NO REMARKABLE OBSERVATIONS	
	5		NO REMARKABLE OBSERVATIONS	
	7		NO REMARKABLE OBSERVATIONS	
	9		NO REMARKABLE OBSERVATIONS	
	11		NO REMARKABLE OBSERVATIONS	
	13		NO REMARKABLE OBSERVATIONS	
	16		NO REMARKABLE OBSERVATIONS	
	18		NO REMARKABLE OBSERVATIONS	
2503	1		NO REMARKABLE OBSERVATIONS	
	3		NO REMARKABLE OBSERVATIONS	
	5		NO REMARKABLE OBSERVATIONS	
	7		NO REMARKABLE OBSERVATIONS	
	11		NO REMARKABLE OBSERVATIONS	
	13		NO REMARKABLE OBSERVATIONS	
2504	1		NO REMARKABLE OBSERVATIONS	
	4		NO REMARKABLE OBSERVATIONS	
	6		NO REMARKABLE OBSERVATIONS	
	8		NO REMARKABLE OBSERVATIONS	
	10	V	URETER(S) - TORTUOUS	R
			SLIGHT	

POSITION CODE: R=RIGHT; L=LEFT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: M= MALFORMATION; V=VARIATION

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2504	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
2506	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
2507	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
2508	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
2509	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2509	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
2510	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
2511	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
2512	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
2513	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
2514	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2514	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
2515	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
	21	NO REMARKABLE OBSERVATIONS	
2516	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
2517	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2518	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
2519	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
2520	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
2521	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2523	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
	20	NO REMARKABLE OBSERVATIONS	
2524	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3502	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
3503	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
3504	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
3505	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
3506	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3506	8	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
3507	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
3508	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
3509	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
3510	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3510	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
3511	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
3512	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
3513	1	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
3515	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3515	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
	21	NO REMARKABLE OBSERVATIONS	
3516	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
3517	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
3518	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
3519	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3519	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
3520	1	V URETER(S) - TORTUOUS SLIGHT	L
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
3521	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
3522	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
3523	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3523	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
3524	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4501	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4502	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
4503	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
4504	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4505	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4508	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4509	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4510	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4511	1	NO REMARKABLE OBSERVATIONS	
	3	GENERAL EXAMINATION LARGE AMOUNT OF DARK BROWN MATERIAL PRESENT BETWEEN THE CEREBRAL HEMISPHERES AND THE CRANIUM. DISTORTION PRESENT IN THE CEREBRAL HEMISPHERES. BRAIN TISSUE PRESENT OUTSIDE OF THE CRANIUM ON THE RIGHT SIDE OF THE HEAD. APPEARS TO BE ARTIFACTUAL DAMAGE.	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
4512	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	19	NO REMARKABLE OBSERVATIONS	
4513	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4514	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4514	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4516	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
4517	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
4518	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
4519	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4519	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
4520	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
4521	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
4522	1	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
4523	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

Appendix K

INDIVIDUAL FETAL SOFT TISSUE OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4523	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
4524	1	NO REMARKABLE OBSERVATIONS	
	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	

POSITION CODE: BLANK=POSITION NOT APPLICABLE

APPENDIX L

FETAL SKELETAL DATA

Appendix L

SUMMARY OF FETAL SKELETAL MALFORMATIONS

			EXPOSURE LEVELS (PPM)			
			0	1000	3000	9000
LITTERS EVALUATED		N	24	22	22	21
FETUSES EVALUATED		N	160[a]	162	162	156
LIVE		N	160	162	162	156
DEAD		N	0	0	0	0
PRESENCE OF FIVE LUMBAR VERTEBRAE						
FETAL INCIDENCE		N(%)	1(0.6)	0	0	0
LITTER INCIDENCE		N(%)	1(4.2)	0	0	0
RIB(S) - 14TH SHORT / 27 PRESACRAL VERTEBRAE PRESENT						
FETAL INCIDENCE		N(%)	1(0.6)	0	0	0
LITTER INCIDENCE		N(%)	1(4.2)	0	0	0
14 RIB PAIRS / 27 PRESACRAL VERTEBRAE PRESENT						
FETAL INCIDENCE		N(%)	0	0	1(0.6)	2(1.3)
LITTER INCIDENCE		N(%)	0	0	1(4.5)	1(4.8)
	STAT SYMBOL					
TOTAL SKELETAL MALFORMATIONS						
FETAL INCIDENCE	NS	N(%)	2(1.3)	0	1(0.6)	2(1.3)
LITTER INCIDENCE	NS	N(%)	2(8.3)	0	1(4.5)	1(4.8)

KEY: N=NUMBER; NS= No Statistical differences from control (Fisher Exact Test).

[a]One fetus from the litter of Group I Female No. 1517, was evaluated for soft tissue irregularities of the thoracic, abdominal and pelvic cavities, the head was left intact and the fetus then processed for staining with Alizarin Red S and evaluation of the skeletal structures.

Appendix L

SUMMARY OF FETAL OSSIFICATION VARIATIONS

		EXPOSURE LEVELS (PPM)			
		0	1000	3000	9000
LITTERS EVALUATED	N	24	22	22	21
FETUSES EVALUATED	N	160[a]	162	162	156
LIVE	N	160	162	162	156
DEAD	N	0	0	0	0
INTERPARIETAL - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	9(5.6)	15(9.3)	11(6.8)	7(4.5)
LITTER INCIDENCE	N(%)	6(25.0)	8(36.4)	4(18.2)	5(23.8)
SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	9(5.6)	10(6.2)	8(4.9)	7(4.5)
LITTER INCIDENCE	N(%)	7(29.2)	6(27.3)	4(18.2)	6(28.6)
HYOID - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	29(18.1)	34(21.0)	22(13.6)	26(16.7)
LITTER INCIDENCE	N(%)	13(54.2)	12(54.5)	9(40.9)	12(57.1)
MALAR(S) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	4(2.5)	3(1.9)	7(4.3)	2(1.3)
LITTER INCIDENCE	N(%)	4(16.7)	2(9.1)	1(4.5)	2(9.5)
PARIETAL(S) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	4(2.5)	9 (5.6)	2(1.3)
LITTER INCIDENCE	N(%)	1(4.2)	3(13.6)	2(9.1)	1(4.8)
HYOID - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	3(1.9)	0	3(1.9)	4(2.6)
LITTER INCIDENCE	N(%)	3(12.5)	0	2(9.1)	3(14.3)
SQUAMOSAL(S) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	2(1.3)	3(1.9)	5(3.1)	2(1.3)
LITTER INCIDENCE	N(%)	1(4.2)	3(13.6)	1(4.5)	2(9.5)

KEY: N=NUMBER

[a]One fetus from the litter of Group I Female No. 1517, was evaluated for soft tissue irregularities of the thoracic, abdominal and pelvic cavities, the head was left intact and the fetus then processed for staining with Alizarin Red S and evaluation of the skeletal structures.

Appendix L

SUMMARY OF FETAL OSSIFICATION VARIATIONS

		EXPOSURE LEVELS (PPM)			
		0	1000	3000	9000
MAXILLA(S) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	3(1.9)	6(3.7)	4(2.5)	1(0.6)
LITTER INCIDENCE	N(%)	2(8.3)	3(13.6)	1(4.5)	1(4.8)
PRESPHENOID - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	5(3.1)	0	1(0.6)
LITTER INCIDENCE	N(%)	1(4.2)	3(13.6)	0	1(4.8)
FRONTAL(S) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	0	1(0.6)	3(1.9)	0
LITTER INCIDENCE	N(%)	0	1(4.5)	1(4.5)	0
CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	14(8.8)	4(2.5)	1(0.6)	3(1.9)
LITTER INCIDENCE	N(%)	10(41.7)	2(9.1)	1(4.5)	2(9.5)
CERVICAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	0	0	0
LITTER INCIDENCE	N(%)	1(4.2)	0	0	0
CERVICAL CENTRUM(A) - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	0	0	0
LITTER INCIDENCE	N(%)	1(4.2)	0	0	0
PRESENCE OF CERVICAL OSSIFICATION					
FETAL INCIDENCE	N(%)	0	0	0	1(0.6)
LITTER INCIDENCE	N(%)	0	0	0	1(4.8)
THORACIC CENTRUM(A) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	0	1(0.6)	1(0.6)
LITTER INCIDENCE	N(%)	1(4.2)	0	1(4.5)	1(4.8)
THORACIC CENTRUM(A) - SPLIT					
FETAL INCIDENCE	N(%)	2(1.3)	0	1(0.6)	2(1.3)
LITTER INCIDENCE	N(%)	2(8.3)	0	1(4.5)	2(9.5)

KEY: N=NUMBER

Appendix L

SUMMARY OF FETAL OSSIFICATION VARIATIONS

		EXPOSURE LEVELS (PPM)			
		0	1000	3000	9000
THORACIC CENTRUM(A) - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	0	0	0
LITTER INCIDENCE	N(%)	1(4.2)	0	0	0
LUMBAR CENTRUM(A) - SPLIT					
FETAL INCIDENCE	N(%)	1(0.6)	0	0	0
LITTER INCIDENCE	N(%)	1(4.2)	0	0	0
SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	21(13.1)	11(6.8)	9(5.6)	8(5.1)
LITTER INCIDENCE	N(%)	11(45.8)	6(27.3)	5(22.7)	7(33.3)
SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	7(4.4)	3(1.9)	1(0.6)	3(1.9)
LITTER INCIDENCE	N(%)	6(25.0)	2(9.1)	1(4.5)	3(14.3)
CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	23(14.4)	12(7.4)	12(7.4)	11(7.1)
LITTER INCIDENCE	N(%)	12(50.0)	6(27.3)	6(27.3)	6(28.6)
5TH STERNEBRA - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	58(36.3)	66(40.7)	60(37.0)	64(41.0)
LITTER INCIDENCE	N(%)	20(83.3)	19(86.4)	19(86.4)	18(85.7)
6TH STERNEBRA - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	62(38.8)	64(39.5)	41(25.3)	39(25.0)
LITTER INCIDENCE	N(%)	20(83.3)	20(90.9)	13(59.1)	14(66.7)
4TH STERNEBRA - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	3(1.9)	2(1.2)	2(1.2)	2(1.3)
LITTER INCIDENCE	N(%)	3(12.5)	2(9.1)	2(9.1)	2(9.5)
2ND STERNEBRA - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	6(3.8)	4(2.5)	2(1.2)	1(0.6)
LITTER INCIDENCE	N(%)	4(16.7)	3(13.6)	2(9.1)	1(4.8)
1ST STERNEBRA - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	1(0.6)	2(1.2)	2(1.2)	1(0.6)
LITTER INCIDENCE	N(%)	1(4.2)	2(9.1)	2(9.1)	1(4.8)

KEY: N=NUMBER

Appendix L

SUMMARY OF FETAL OSSIFICATION VARIATIONS

		EXPOSURE LEVELS (PPM)			
		0	1000	3000	9000
3RD STERNEBRA - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	0	1(0.6)	0	0
LITTER INCIDENCE	N(%)	0	1(4.5)	0	0
3RD STERNEBRA - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	0	1(0.6)	0	2(1.3)
LITTER INCIDENCE	N(%)	0	1(4.5)	0	2(9.5)
3RD STERNEBRA - SPLIT					
FETAL INCIDENCE	N(%)	1(0.6)	0	0	0
LITTER INCIDENCE	N(%)	1(4.2)	0	0	0
1ST STERNEBRA - NOT OSSIFIED					
FETAL INCIDENCE	N(%)	0	2(1.2)	0	0
LITTER INCIDENCE	N(%)	0	1(4.5)	0	0
RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)					
FETAL INCIDENCE	N(%)	14(8.8)	21(13.0)	18(11.1)	19(12.2)
LITTER INCIDENCE	N(%)	9(37.5)	13(59.1)	10(45.5)	16(76.2)
RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)					
FETAL INCIDENCE	N(%)	3(1.9)	6(3.7)	15(9.3)	14(9.0)
LITTER INCIDENCE	N(%)	2(8.3)	5 (22.7)	9(40.9)	7(33.3)
RIB(S) - WAVY					
FETAL INCIDENCE	N(%)	0	1(0.6)	1(0.6)	2(1.3)
LITTER INCIDENCE	N(%)	0	1(4.5)	1(4.5)	1(4.8)
RIB(S) - INCOMPLETELY OSSIFIED					
FETAL INCIDENCE	N(%)	0	0	2(1.2)	1(0.6)
LITTER INCIDENCE	N(%)	0	0	1(4.5)	1(4.8)
RIB(S) - THICKENED					
FETAL INCIDENCE	N(%)	0	0	0	1(0.6)
LITTER INCIDENCE	N(%)	0	0	0	1(4.8)

KEY: N=NUMBER

Appendix L

SUMMARY OF FETAL OSSIFICATION VARIATIONS

			EXPOSURE LEVELS (PPM)			
			0	1000	3000	9000
RIB(S) - 13TH SHORT						
FETAL INCIDENCE		N(%)	1(0.6)	0	0	0
LITTER INCIDENCE		N(%)	1(4.2)	0	0	0
RIB(S) - 14TH SHORT / 26 PRESACRAL VERTEBRAE PRESENT						
FETAL INCIDENCE		N(%)	0	0	2(1.2)	0
LITTER INCIDENCE		N(%)	0	0	2(9.1)	0
14 RIB PAIRS / 26 PRESACRAL VERTEBRAE PRESENT						
FETAL INCIDENCE		N(%)	0	0	3(1.9)	1(0.6)
LITTER INCIDENCE		N(%)	0	0	1(4.5)	1(4.8)
METACARPAL(S) - NOT OSSIFIED						
FETAL INCIDENCE		N(%)	0	1(0.6)	0	1(0.6)
LITTER INCIDENCE		N(%)	0	1(4.5)	0	1(4.8)
METATARSAL(S) - NOT OSSIFIED						
FETAL INCIDENCE		N(%)	0	2(1.2)	0	0
LITTER INCIDENCE		N(%)	0	1(4.5)	0	0
PUBIS(ES) - INCOMPLETELY OSSIFIED						
FETAL INCIDENCE		N(%)	6(3.8)	6(3.7)	1(0.6)	0
LITTER INCIDENCE		N(%)	5(20.8)	6(27.3)	1(4.5)	0
PUBIS(ES) - NOT OSSIFIED						
FETAL INCIDENCE		N(%)	0	1(0.6)	1(0.6)	0
LITTER INCIDENCE		N(%)	0	1(4.5)	1(4.5)	0
ISCHIUM(A) - INCOMPLETELY OSSIFIED						
FETAL INCIDENCE		N(%)	0	1(0.6)	0	0
LITTER INCIDENCE		N(%)	0	1(4.5)	0	0
	STAT SYMBOL					
TOTAL SKELETAL VARIATIONS						
FETAL INCIDENCE	C-	N(%)	115(71.9)	118(72.8)	108(66.7)	109(69.9)
LITTER INCIDENCE	NS	N(%)	23(95.8)	22(100.0)	21(95.5)	21(100.0)

KEY: N=NUMBER; C-=No statistical differences among the groups (chi-square); NS= No Statistical differences from control (Fisher Exact Test).

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1501	2	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	6	V HYOID - NOT OSSIFIED	
	8	V 6TH STERNEBRA - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	16	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
1502	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	NO REMARKABLE OBSERVATIONS	
	10	V 6TH STERNEBRA - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	17	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
1503	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V HYOID - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1503	10	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	12	V HYOID - NOT OSSIFIED	
	14	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	16	V 6TH STERNEBRA - NOT OSSIFIED	
	18	NO REMARKABLE OBSERVATIONS	
	20	V CERVICAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 6TH	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
1504	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
1505	2	V THORACIC CENTRUM(A) - SPLIT 13TH	
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 5TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1505	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	V 6TH STERNEBRA - NOT OSSIFIED	
1506	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	16	V 2ND STERNEBRA - NOT OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
1507	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	11	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	13	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1507	16	NO REMARKABLE OBSERVATIONS	
	18	NO REMARKABLE OBSERVATIONS	
1508	2	NO REMARKABLE OBSERVATIONS	
	5	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 6TH	R
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	L
	8	V HYOID - NOT OSSIFIED	
	10	V HYOID - INCOMPLETELY OSSIFIED	
	12	V HYOID - NOT OSSIFIED	
	14	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 6TH	R
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	L
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	16	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 5TH (L) AND 6TH (B)	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 2ND STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	18	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1509	3	NO REMARKABLE OBSERVATIONS	
	5	V HYOID - NOT OSSIFIED	
	7	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	9	V 6TH STERNEBRA - NOT OSSIFIED	
	11	V CERVICAL CENTRUM(A) - NOT OSSIFIED 1ST	
		V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH (B), 5TH (L) AND 6TH (R)	B
		V THORACIC CENTRUM(A) - SPLIT 11TH	
		V THORACIC CENTRUM(A) - NOT OSSIFIED 13TH	
		V LUMBAR CENTRUM(A) - SPLIT 1ST	
		V 1ST STERNEBRA - INCOMPLETELY OSSIFIED	
		V 2ND STERNEBRA - NOT OSSIFIED	
		V 3RD STERNEBRA - SPLIT	
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	13	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	R
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	L
		V HYOID - NOT OSSIFIED	
1510	6	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (L) AND 4TH (B)	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (B) AND 4TH (L)	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1510	6	V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	R
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
1511	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	6	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
	8	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
	14	NO REMARKABLE OBSERVATIONS	
1512	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 13TH SHORT	L
		M PRESENCE OF FIVE LUMBAR VERTEBRAE 25 PRESACRAL (7 CERVICAL, 13 THORACIC AND 5 LUMBAR) VERTEBRAE PRESENT	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	13	NO REMARKABLE OBSERVATIONS	
	15	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V HYOID - NOT OSSIFIED	
	17	NO REMARKABLE OBSERVATIONS	
1513	2	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: M=MALFORMATION; V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1513	4	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (R), 4TH (L) AND 6TH (B)	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 1ST (B) AND 4TH (L)	B
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 2ND STERNEBRA - NOT OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
	10	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 2ND STERNEBRA - NOT OSSIFIED	
	12	V 2ND STERNEBRA - NOT OSSIFIED	
	14	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	16	NO REMARKABLE OBSERVATIONS	
	18	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	20	V 5TH STERNEBRA - NOT OSSIFIED	
1514	3	NO REMARKABLE OBSERVATIONS	
	7	V HYOID - NOT OSSIFIED	
	10	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	B
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
	12	NO REMARKABLE OBSERVATIONS	
	14	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (B), 4TH, 5TH (R) AND 6TH (B)	B

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1515	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V HYOID - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
1516	2	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 6TH	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	R
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
		V HYOID - INCOMPLETELY OSSIFIED	
		V MALAR(S) - INCOMPLETELY OSSIFIED	R

POSITION CODE: B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1516	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
	14	NO REMARKABLE OBSERVATIONS	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
1517	1	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH (B), 5TH (R) AND 6TH (L)	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 3RD (R) AND 4TH (B)	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
1518	2	V 6TH STERNEBRA - NOT OSSIFIED	
	4	V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	V 6TH STERNEBRA - NOT OSSIFIED	
	14	NO REMARKABLE OBSERVATIONS	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
1519	3	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 5TH (L) AND 6TH (R)	B
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1519	3	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	NO REMARKABLE OBSERVATIONS	
	8	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 6TH	L
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	10	NO REMARKABLE OBSERVATIONS	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 5TH	R
1520	2	V THORACIC CENTRUM(A) - INCOMPLETELY OSSIFIED 10TH	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V HYOID - NOT OSSIFIED	
		V MALAR(S) - INCOMPLETELY OSSIFIED	R
	10	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	R
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	12	V 6TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1521	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	L
		V HYOID - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	6	V PRESENCE OF 14 RIB PAIRS	
		M RIB(S) - 14TH SHORT / 27 PRESACRAL VERTEBRAE PRESENT 7 CERVICAL, 14 THORACIC AND 6 LUMBAR VERTEBRAE PRESENT.	R
	8	V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 3RD (L) AND 4TH (B)	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	R
		V 5TH STERNEBRA - NOT OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	R
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	12	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V HYOID - INCOMPLETELY OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
1522	3	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
	5	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	L
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: M=MALFORMATION; V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1522	5	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	R
		V MALAR(S) - INCOMPLETELY OSSIFIED	R
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	R
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
	7	V 6TH STERNEBRA - NOT OSSIFIED	
	9	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V HYOID - NOT OSSIFIED	
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	R
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	B
	11	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 5TH (R) AND 6TH (L)	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
1523	3	V 6TH STERNEBRA - NOT OSSIFIED	
	5	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	7	NO REMARKABLE OBSERVATIONS	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
	11	V 5TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP I - 0 PPM			
1523	13	V 6TH STERNEBRA - NOT OSSIFIED	
	15	V 5TH STERNEBRA - NOT OSSIFIED	
1524	2	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	V 6TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	16	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 6TH	R
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	18	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	20	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2501	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	11	NO REMARKABLE OBSERVATIONS	
	13	V 6TH STERNEBRA - NOT OSSIFIED	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
	19	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
2502	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
	8	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	17	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
2503	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2503	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	14	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
2504	3	NO REMARKABLE OBSERVATIONS	
	5	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V RIB(S) - WAVY	R
		12TH; SUBTLE BEND	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	11	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	13	V 6TH STERNEBRA - NOT OSSIFIED	
	15	V 6TH STERNEBRA - NOT OSSIFIED	
	17	V 6TH STERNEBRA - NOT OSSIFIED	
2506	2	V 6TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
2507	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	8	V HYOID - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	V HYOID - NOT OSSIFIED	

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2507	14	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	16	NO REMARKABLE OBSERVATIONS	
2508	2	NO REMARKABLE OBSERVATIONS	
	4	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V HYOID - NOT OSSIFIED	
	6	V HYOID - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	12	V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
2509	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	9	NO REMARKABLE OBSERVATIONS	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2509	14	V 6TH STERNEBRA - NOT OSSIFIED	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
2510	2	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 6TH	R
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (B) AND 4TH (R)	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 1ST STERNEBRA - NOT OSSIFIED	
		V 2ND STERNEBRA - NOT OSSIFIED	
		V 3RD STERNEBRA - INCOMPLETELY OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - NOT OSSIFIED	B
		V ISCHIUM(A) - INCOMPLETELY OSSIFIED	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	L
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
	4	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 5TH	R
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V 1ST STERNEBRA - NOT OSSIFIED	
		V 2ND STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	

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INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2510	4	V MAXILLA(S) - INCOMPLETELY OSSIFIED	R
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	R
	6	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD AND 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	B
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
	8	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
	12	V HYOID - NOT OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
2511	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B

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OBSERVATION CODE: V=VARIATION

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INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2511	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
2512	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
		V METACARPAL(S) - NOT OSSIFIED 3RD DIGIT	B
		V METATARSAL(S) - NOT OSSIFIED 5TH DIGIT	B
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	L
	10	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH (L), 5TH, 6TH AND 7TH (B)	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 1ST STERNEBRA - INCOMPLETELY OSSIFIED	
		V 2ND STERNEBRA - NOT OSSIFIED	
		V 3RD STERNEBRA - NOT OSSIFIED	
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
		V METATARSAL(S) - NOT OSSIFIED 5TH DIGIT	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2512	12	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (R) AND 5TH (L)	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 2ND, 3RD AND 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	L
2513	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	4	NO REMARKABLE OBSERVATIONS	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	11	V 5TH STERNEBRA - NOT OSSIFIED	
	13	NO REMARKABLE OBSERVATIONS	
	15	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	18	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
2514	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V HYOID - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2514	12	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	14	V 6TH STERNEBRA - NOT OSSIFIED	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	18	NO REMARKABLE OBSERVATIONS	
2515	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	9	NO REMARKABLE OBSERVATIONS	
	11	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	13	NO REMARKABLE OBSERVATIONS	
	15	V 6TH STERNEBRA - NOT OSSIFIED	
	17	NO REMARKABLE OBSERVATIONS	
	20	V 5TH STERNEBRA - NOT OSSIFIED	
2516	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V HYOID - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	V HYOID - NOT OSSIFIED	
	17	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
2517	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L

POSITION CODE: L=LEFT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2517	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
	14	NO REMARKABLE OBSERVATIONS	
2518	2	V HYOID - NOT OSSIFIED	
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	8	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	L
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
	11	V 6TH STERNEBRA - NOT OSSIFIED	
	13	V 6TH STERNEBRA - NOT OSSIFIED	
	15	V 1ST STERNEBRA - INCOMPLETELY OSSIFIED	
		V 2ND STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
2519	3	NO REMARKABLE OBSERVATIONS	
	5	V 5TH STERNEBRA - NOT OSSIFIED	
	7	NO REMARKABLE OBSERVATIONS	
	9	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
	11	NO REMARKABLE OBSERVATIONS	
	13	V 5TH STERNEBRA - NOT OSSIFIED	
	15	NO REMARKABLE OBSERVATIONS	
2520	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2520	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
2521	2	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	12	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2521	14	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (R) AND 4TH (L)	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	L
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	R
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	R
		V MALAR(S) - INCOMPLETELY OSSIFIED	R
		V FRONTAL(S) - INCOMPLETELY OSSIFIED	B
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	R
2523	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	9	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	11	V 5TH STERNEBRA - NOT OSSIFIED	
	13	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	15	V 5TH STERNEBRA - NOT OSSIFIED	
	17	V 5TH STERNEBRA - NOT OSSIFIED	
	19	NO REMARKABLE OBSERVATIONS	

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP II - 1000 PPM			
2524	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	6	NO REMARKABLE OBSERVATIONS	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	13	V 5TH STERNEBRA - NOT OSSIFIED	
	15	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD (R) AND 4TH (L)	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B

POSITION CODE: B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3502	2	NO REMARKABLE OBSERVATIONS	
	4	V 6TH STERNEBRA - NOT OSSIFIED	
	6	NO REMARKABLE OBSERVATIONS	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	11	NO REMARKABLE OBSERVATIONS	
	13	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	15	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
		V RIB(S) - 14TH SHORT / 26 PRESACRAL VERTEBRAE PRESENT	L
3503	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V HYOID - INCOMPLETELY OSSIFIED	
	8	V HYOID - NOT OSSIFIED	
	10	V HYOID - NOT OSSIFIED	
	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
3504	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	R
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
	15	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3504	18	V 2ND STERNEBRA - NOT OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
3505	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
		V RIB(S) - 14TH SHORT / 26 PRESACRAL VERTEBRAE PRESENT	L
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
3506	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	7	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
3507	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
		V HYOID - NOT OSSIFIED	
	8	NO REMARKABLE OBSERVATIONS	
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3507	12	NO REMARKABLE OBSERVATIONS	
	14	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
3508	2	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - INCOMPLETELY OSSIFIED	
	4	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	V 1ST STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - INCOMPLETELY OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	18	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
3509	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	7	NO REMARKABLE OBSERVATIONS	
	9	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD, 4TH, 5TH AND 6TH	B
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
	11	V HYOID - NOT OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
	16	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3509	18	NO REMARKABLE OBSERVATIONS	
	20	V 6TH STERNEBRA - NOT OSSIFIED	
3510	2	NO REMARKABLE OBSERVATIONS	
	4	V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
	8	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V 6TH STERNEBRA - NOT OSSIFIED	
	12	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V 6TH STERNEBRA - NOT OSSIFIED	
	16	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 6TH STERNEBRA - NOT OSSIFIED	
	18	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
3511	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	10	NO REMARKABLE OBSERVATIONS	
	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	14	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	16	V 5TH STERNEBRA - NOT OSSIFIED	
	18	NO REMARKABLE OBSERVATIONS	
3512	2	NO REMARKABLE OBSERVATIONS	
	5	V 1ST STERBEBRA - INCOMPLETELY OSSIFIED	
	7	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3512	10	NO REMARKABLE OBSERVATIONS	
	13	V 5th STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	15	V 5TH STERNEBRA - NOT OSSIFIED	
3513	3	V 5TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
3515	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	6	NO REMARKABLE OBSERVATIONS	
	8	V 6TH STERNEBRA - NOT OSSIFIED	
		M 14TH RIB PAIRS / 27 PRESACRAL VERTEBRAE PRESENT 7 CERVICAL, 14 THORACIC AND 6 LUMBAR VERTEBRAE PRESENT	
	10	NO REMARKABLE OBSERVATIONS	
	12	V 14 RIB PAIRS / 26 PRESACRAL VERTEBRAE PRESENT	
	14	V 6TH STERNEBRA - NOT OSSIFIED	
		V 14 RIB PAIRS / 26 PRESACRAL VERTEBRAE PRESENT	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	18	NO REMARKABLE OBSERVATIONS	
	20	V THORACIC CENTRUM(A) - INCOMPLETELY OSSIFIED 4TH	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V 14 RIB PAIRS / 26 PRESACRAL VERTEBRAE PRESENT	

POSITION CODE: B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: M=MALFORMATION; V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3516	2	V THORACIC CENTRUM(A) - SPLIT	
		13TH	
		V 5TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	7	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	9	NO REMARKABLE OBSERVATIONS	
	11	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	13	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	15	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
3517	3	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED	R
		3RD	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - NOT OSSIFIED	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
	5	V 6TH STERNEBRA - NOT OSSIFIED	
	7	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED	B
		1ST	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
3518	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
3519	3	NO REMARKABLE OBSERVATIONS	
	5	V 5TH STERNEBRA - NOT OSSIFIED	
	7	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3519	11	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	13	V 5TH STERNEBRA - NOT OSSIFIED	
	15	NO REMARKABLE OBSERVATIONS	
	17	V 5TH STERNEBRA - NOT OSSIFIED	
3520	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	V 6TH STERNEBRA - NOT OSSIFIED	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
3521	2	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	L
	4	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	12	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3522	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V HYOID - NOT OSSIFIED	
	4	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V FRONTAL(S) - INCOMPLETELY OSSIFIED	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	R
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	R
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	R
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
	8	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - WAVY 5TH, 6TH, 7TH, 8TH, 9TH, 10TH, AND 11TH. ADDITIONALLY, THESE RIBS EXHIBIT A SUBTLE BEND.	R
		V RIB(S) - INCOMPLETELY OSSIFIED 7TH, 8TH, 9TH, 11TH AND 12TH (R) AND 10TH (B)	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3522	8	V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V FRONTAL(S) - INCOMPLETELY OSSIFIED	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	12	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD AND 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	B
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V RIB(S) - INCOMPLETELY OSSIFIED 7TH AND 9TH	L
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V FRONTAL(S) - INCOMPLETELY OSSIFIED	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
		V MALAR(S) - INCOMPLETELY OSSIFIED	B
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	B

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3522	16	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	R
	18	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V PUBIS(ES) - INCOMPLETELY OSSIFIED	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
		V MALAR(S) - INCOMPLETELY OSSIFIED	R
3523	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	16	V 5TH STERNEBRA - NOT OSSIFIED	
	18	V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP III - 3000 PPM			
3524	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V 2ND STERNEBRA - NOT OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	14	V 5TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; BLANK=POSITION NOT APPLICABLE
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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4501	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	8	V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
4502	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V HYOID - INCOMPLETELY OSSIFIED	
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	6	V HYOID - INCOMPLETELY OSSIFIED	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
	11	V 5TH STERNEBRA - NOT OSSIFIED	
	13	NO REMARKABLE OBSERVATIONS	
	15	V 5TH STERNEBRA - NOT OSSIFIED	
	17	NO REMARKABLE OBSERVATIONS	
4503	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
4504	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	4	NO REMARKABLE OBSERVATIONS	

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OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4504	6	V 5TH STERNEBRA - NOT OSSIFIED	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	11	V 5TH STERNEBRA - NOT OSSIFIED	
	13	NO REMARKABLE OBSERVATIONS	
4505	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V 3RD STERNEBRA - INCOMPLETELY OSSIFIED	
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
	12	NO REMARKABLE OBSERVATIONS	
	14	V HYOID - NOT OSSIFIED	
4508	2	NO REMARKABLE OBSERVATIONS	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	6	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	10	NO REMARKABLE OBSERVATIONS	
	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	

POSITION CODE: B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4509	2	NO REMARKABLE OBSERVATIONS	
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	6	V THORACIC CENTRUM(A) - SPLIT 11TH	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	8	M PRESENCE OF 14 RIB PAIRS / 27 PRESACRAL VERTEBRAE PRESENT 7 CERVICAL, 14 THORACIC AND 6 LUMBAR VERTEBRAE PRESENT	
	10	V THORACIC CENTRUM(A) - INCOMPLETELY OSSIFIED 10TH	
		V HYOID - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 14 RIB PAIRS / 26 PRESACRAL VERTEBRAE PRESENT	
	14	M PRESENCE OF 14 RIB PAIRS / 27 PRESACRAL VERTEBRAE PRESENT 7 CERVICAL, 14 THORACIC AND 6 LUMBAR VERTEBRAE PRESENT	
4510	2	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	9	V 5TH STERNEBRA - NOT OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: M=MALFORMATION; V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4510	16	V HYOID - NOT OSSIFIED	
	18	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	20	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
4511	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	8	V 6TH STERNEBRA - NOT OSSIFIED	
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
	12	NO REMARKABLE OBSERVATIONS	
	15	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	17	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
4512	2	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH, 5TH AND 6TH	B
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	R
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 2ND STERNEBRA - NOT OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4512	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	V 6TH STERNEBRA - NOT OSSIFIED	
	10	V THORACIC CENTRUM(A) - SPLIT 12TH	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	12	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
	18	V 6TH STERNEBRA - NOT OSSIFIED	
	20	NO REMARKABLE OBSERVATIONS	
4513	2	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD	B
		V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	6	V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	NO REMARKABLE OBSERVATIONS	
	10	V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	L
	12	V 6TH STERNEBRA - NOT OSSIFIED	
	14	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4514	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	4	V 5TH STERNEBRA - NOT OSSIFIED	
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	
4516	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	NO REMARKABLE OBSERVATIONS	
	9	NO REMARKABLE OBSERVATIONS	
	11	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	13	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	L
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
4517	2	V 5TH STERNEBRA - NOT OSSIFIED	
	4	V 6TH STERNEBRA - NOT OSSIFIED	
	6	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 3RD AND 4TH	R
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	R
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	8	NO REMARKABLE OBSERVATIONS	
	10	V HYOID - NOT OSSIFIED	

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4517	12	V 5TH STERNEBRA - NOT OSSIFIED	
	14	V PRESENCE OF CERVICAL OSSIFICATION ADJACENT TO THE 7TH TRANSVERSE PROCESS	R
		V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	R
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	R
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	17	V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
	19	NO REMARKABLE OBSERVATIONS	
4518	2	V SACRAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V RIB(S) - THICKENED 5TH, 6TH, 7TH, 8TH (B), 9TH (R) AND 10TH (L)	B
		V RIB(S) - WAVY 10TH (R) WITH A SUBTLE BEND. 11TH AND 12TH (B) WITH EXTREME BENDS.	B
		V RIB(S) - INCOMPLETELY OSSIFIED 10TH	R
		V METACARPAL(S) - NOT OSSIFIED 2 DIGITS	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4518	2	V MALAR(S) - INCOMPLETELY OSSIFIED	R
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	R
	4	V SACRAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH	B
		V CAUDAL TRANSVERSE PROCESS(ES) - NOT OSSIFIED 1ST	B
		V 5TH STERNEBRA - NOT OSSIFIED	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	10	V RIB(S) - WAVY 12TH (B) EXHIBIT EXTREME BENDS.	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V PARIETAL(S) - INCOMPLETELY OSSIFIED	B
	12	V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	R
4519	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
		V HYOID - NOT OSSIFIED	
	4	V HYOID - NOT OSSIFIED	
	6	NO REMARKABLE OBSERVATIONS	
	8	NO REMARKABLE OBSERVATIONS	
	10	NO REMARKABLE OBSERVATIONS	
	12	NO REMARKABLE OBSERVATIONS	
	15	NO REMARKABLE OBSERVATIONS	
	17	NO REMARKABLE OBSERVATIONS	
4520	2	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	4	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	6	V 5TH STERNEBRA - NOT OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
	8	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V HYOID - NOT OSSIFIED	
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B

POSITION CODE: L=LEFT; B=BOTH; R=RIGHT; BLANK=POSITION NOT APPLICABLE
OBSERVATION CODE: V=VARIATION

Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4520	12	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V INTERPARIETAL - INCOMPLETELY OSSIFIED	
		V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
		V MAXILLA(S) - INCOMPLETELY OSSIFIED	B
		V MALAR(S) - INCOMPLETELY OSSIFIED	R
		V SQUAMOSAL(S) - INCOMPLETELY OSSIFIED	R
		V PRESPHENOID - INCOMPLETELY OSSIFIED	
	14	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	16	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
		V HYOID - INCOMPLETELY OSSIFIED	
4521	3	V 6TH STERNEBRA - NOT OSSIFIED	
	5	V SUPRAOCCIPITAL - INCOMPLETELY OSSIFIED	
		V HYOID - NOT OSSIFIED	
	7	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 4TH, 5TH AND 6TH	B
		V 1ST STERNEBRA - INCOMPLETELY OSSIFIED	
		V 3RD STERNEBRA - INCOMPLETELY OSSIFIED	
		V 4TH STERNEBRA - INCOMPLETELY OSSIFIED	
		V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	9	V CERVICAL TRANSVERSE PROCESS(ES) - INCOMPLETELY OSSIFIED 7TH	L
		V 5TH STERNEBRA - NOT OSSIFIED	
		V HYOID - NOT OSSIFIED	
4522	3	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	5	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
	7	V 6TH STERNEBRA - NOT OSSIFIED	
	9	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	11	NO REMARKABLE OBSERVATIONS	
	13	V 6TH STERNEBRA - NOT OSSIFIED	

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Appendix L

INDIVIDUAL FETAL SKELETAL OBSERVATIONS

ANIMAL NUMBER	FETUS NUMBER	OBSERVATIONS	POSITION
GROUP IV - 9000 PPM			
4522	16	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
4523	2	V 5TH STERNEBRA - NOT OSSIFIED	
		V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	4	NO REMARKABLE OBSERVATIONS	
	6	V 5TH STERNEBRA - NOT OSSIFIED	
	8	V 5TH STERNEBRA - NOT OSSIFIED	
	10	V 5TH STERNEBRA - NOT OSSIFIED	
		V 6TH STERNEBRA - NOT OSSIFIED	
		V HYOID - INCOMPLETELY OSSIFIED	
	12	V 5TH STERNEBRA - NOT OSSIFIED	
	14	NO REMARKABLE OBSERVATIONS	
	16	V 5TH STERNEBRA - NOT OSSIFIED	
4524	2	NO REMARKABLE OBSERVATIONS	
	4	NO REMARKABLE OBSERVATIONS	
	6	V RIB(S) - 1ST LUMBAR RUDIMENTARY (UNILATERAL)	L
	8	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	10	V RIB(S) - 1ST LUMBAR RUDIMENTARY (BILATERAL)	B
	12	NO REMARKABLE OBSERVATIONS	
	14	NO REMARKABLE OBSERVATIONS	
	16	NO REMARKABLE OBSERVATIONS	

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