FINAL REPORT

Contents:	Volume 1 of 2 Text, Summary Tables, and Appendices A-G
Study Title:	A Dermal Prenatal Developmental Toxicity Study of Extract, Light Paraffinic Distillate Solvent in Rats
Laboratory Project ID:	WIL-402015
Author:	[redacted]
Test Guideline:	OPPTS 870.3700 OECD Guideline 414
Study Completion Date:	11 July 2012
Performing Laboratory:	WIL Research Laboratories, LLC 1407 George Road Ashland, OH 44805-8946
Sponsor:	American Petroleum Institute 1220 L Street, NW Washington, DC 20005
Total Number of Pages:	429

COMPLIANCE STATEMENT

The following is a detailed description of all differences between the practices used in this study, WIL-402015, and those required by the United States EPA GLP Standards (40 CFR Part 792), 18 September 1989; the OECD Principles of GLP [C(97) 186/Final], 26 November 1997; WIL Research's SOPs; and the protocol as approved by the Sponsor.

- The Sponsor conducted test substance characterization according to non-GLP standards and provided the characterization report to WIL Research (presented in Appendix B).

- The stability of the bulk test substance was not provided; however, it is the professional judgment of the Sponsor that the formulations are considered stable under the conditions of the study. The expiration date for the test substance is unknown.

These exceptions had no effect on the integrity or quality of the study.

The study was conducted in general accordance with the United States EPA Health Effects Test Guidelines OPPTS 870.3700, Prenatal Developmental Toxicity Study, August, 1998 and the OECD Guidelines for Testing of Chemicals Guideline 414, Prenatal Developmental Toxicity Study, 22 January 2001.

[redacted]

11 July 2012
Date

Staff Toxicologist, Developmental
and Reproductive Toxicology
Study Director

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1. SUMMARY

1.1. OBJECTIVE

The objectives of this study were to determine the effects of prenatal, dermal exposure to the test substance on pregnant rats and developing offspring, to provide data to verify/expand the domain of the polycyclic aromatic compounds (PAC) prenatal models for predicting the toxicity of high-boiling petroleum substances from their PAC content, and to further test the hypothesis that developmental toxicity endpoints are more sensitive to effects of high-boiling petroleum substances than other reproductive endpoints, such as fertility or reproductive organ weight and histopathology.

1.2. STUDY DESIGN

The test substance, extract, light paraffinic distillate solvent (CAS no. 64742-05-8), in the vehicle (acetone) was administered by dermal application to the dorsal scapular area (approximately 10% of total body surface area) of 4 groups (Groups 3-6) of 25 bred female Crl:CD(SD) rats once daily from gestation days 0 through 19; animals were exposed to the test substance for 6 hours each day. Exposure levels were 5, 25, 150, and 450 mg/kg/day administered at a dosage volume of 1.5 mL/kg. A concurrent vehicle control group (Group 2) composed of 25 bred females received the vehicle on a comparable regimen. A concurrent sham control group (Group 1) was subjected to the same procedures (*i.e.* shaving, collaring, sham dosing with a glass rod, and removal of residual test substance) as Groups 2-6; however, no vehicle or test substance was applied to these animals. The females were approximately 13 weeks of age at the initiation of test substance exposure. All animals were observed twice daily for mortality and moribundity. Clinical observations, body weights, and food consumption were recorded at appropriate intervals. On gestation day 20, a laparohysterectomy was performed on each surviving female. The uteri, placentae, and ovaries were examined, and the numbers of fetuses, early and late resorptions, total implantations, and corpora lutea were recorded. Gravid uterine weights were recorded, and net body weights and net body weight changes were calculated. Selected organs from all females euthanized *in extremis*

or surviving to the scheduled necropsy were weighed. The fetuses were weighed, sexed, and examined for external, visceral, and skeletal malformations and developmental variations.

1.3. RESULTS

Test substance-related moribundity was noted at 150 and 450 mg/kg/day. In the 150 mg/kg/day group, 1 female was euthanized *in extremis* on gestation day 15. In the 450 mg/kg/day group, 3 females were euthanized *in extremis* on gestation days 14, 16, and 18. Noteworthy clinical findings for these females included yellow and/or red material around the urogenital area, eyes, and/or nose, body pale and/or cool to the touch, and red vaginal discharge. Macroscopic findings for these females consisted of red matting of the skin, dark red contents in the uterus and/or vagina, and/or pale brain, kidneys, and/or pituitary gland. All other females in the sham control, vehicle control, 5, 25, 150, and 450 mg/kg/day groups survived to the scheduled necropsy.

Test substance-related clinical findings were noted in the 25, 150, and/or 450 mg/kg/day groups at the daily examinations and/or 1 to 2 hours following dose administration. In the 150 and 450 mg/kg/day groups, these findings consisted of yellow and red material on the urogenital area and body pale and/or cool to the touch. In addition, red vaginal discharge was noted in the 25, 150, and 450 mg/kg/day groups. The yellow and red material findings on the urogential area were generally noted throughout gestation, whereas the other test substance-related findings (body pale and/or cool to the touch) were noted primarily during the latter half of gestation (gestation days 10-20). No remarkable clinical findings were noted at the daily examinations and/or 1 to 2 hours following dose administration in the 5 mg/kg/day group. Higher incidences of desquamation were noted in the 25, 150, and 450 mg/kg/day groups compared to the vehicle control group generally throughout the treatment period. No remarkable dermal observations were noted at 5 mg/kg/day.

Test substance-related lower mean food consumption was noted in the 25, 150, and 450 mg/kg/day groups. Corresponding mean body weight losses were noted in the 25, 150, and 450 mg/kg/day groups at the start of the treatment period (gestation days 0-3). Mean body weight losses and lower mean body weight gains were noted for the remainder of the treatment period in the 450 mg/kg/day group and resulted in a mean body weight loss when the entire treatment period (gestation days 0-20) was evaluated. In the 150 mg/kg/day group, mean body weight gains were similar to the vehicle control group during gestation days 3-9, followed by lower mean body weight gains for the remainder of the treatment period (gestation days 9-20); these differences were considered test substance-related. Mean body weight gains in the 25 mg/kg/day group were generally similar to the vehicle control group during gestation days 3-18. A lower mean body weight gain was noted in this group during gestation days 18-20 and resulted in a lower mean body weight gain when the entire treatment period (gestation days 0-20) was evaluated. The reductions in body weight gain in the 25, 150, and 450 mg/kg/day groups correlated with the decreased number of viable fetuses and/or lower fetal weights in these groups, especially during the latter part of gestation. In addition, mean net body weights and net body weight changes in the 150 and 450 mg/kg/day groups and mean gravid uterine weights in the 25, 150, and 450 mg/kg/day groups were lower compared to the vehicle control group; the reduction in mean gravid uterine weights in these groups was attributed to the decreased number of viable fetuses and/or lower fetal weights noted at these exposure levels. Mean maternal body weights, body weight gains, gravid uterine weight, and food consumption at 5 mg/kg/day and net body weights and net body weight changes at 5 and 25 mg/kg/day were unaffected by test substance administration.

In the 150 and 450 mg/kg/day groups, macroscopic findings of small thymus and dark red contents in the uterus, vagina and/or cervix were considered to be related to exposure to the test substance. No remarkable macroscopic findings were noted in the 5 and 25 mg/kg/day groups. Test substance-related, lower mean thymus weights (absolute and relative to brain) were noted in the 25, 150, and 450 mg/kg/day groups compared to the

vehicle control group and corresponded to the macroscopic finding of small thymus noted at 150 and 450 mg/kg/day. No test substance-related mean organ weight changes were noted at 5 mg/kg/day.

In the 450 mg/kg/day group, 21 of the 22 surviving females had entirely resorbed litters (100% early resorptions; 0.0% viable fetuses). The single litter with viable fetuses consisted of 3 low-weight male fetuses. In addition, an increased mean litter proportion of postimplantation loss (primarily early resorptions) and a corresponding lower mean number and mean litter proportion of viable fetuses was noted at 150 mg/kg/day; 2 females in this group had entirely resorbed litters. Mean male, female, and combined fetal weights in the 25 and 150 mg/kg/day groups were lower compared to the vehicle control group. Fetal body weights for the single surviving litter in the 450 mg/kg/day group were also lower compared to the vehicle control group. There were no test substance-related effects on intrauterine growth at 5 mg/kg/day or survival at 5 and 25 mg/kg/day.

Increased mean litter proportions of the skeletal developmental variations of sternebra(e) nos. 5 and/or 6 unossified, reduced ossification of the skull, reduced ossification of the vertebral arches, and sternebra(e) nos. 1, 2, 3, and/or 4 unossified were noted in the 150 mg/kg/day group. A lower incidence and mean litter proportion of cervical centrum no. 1 ossified was noted in the 150 mg/kg/day group. The findings of sternebra(e) nos. 5 and/or 6 unossified, reduced ossification of the skull, and/or sternebra(e) nos. 1, 2, 3, and/or 4 unossified were also noted for 1 or 2 fetuses in the single surviving litter at 450 mg/kg/day. There were no test substance-related malformations noted at 5, 25, 150, and 450 mg/kg/day or developmental variations noted at 5 and 25 mg/kg/day.

The vehicle control group performed similarly to the sham control group during the study, with the exception of an increased incidence of desquamation noted in the vehicle control group compared to the sham control group. The vehicle (acetone) did not produce developmental toxicity during this study.

1.4. CONCLUSIONS

Maternal toxicity was evident in the 25, 150, and 450 mg/kg/day groups with adverse clinical and/or macroscopic findings and a higher incidence of dermal observations at these exposure levels. One and 3 females in the 150 and 450 mg/kg/day groups, respectively, were euthanized *in extremis* between gestation days 14-18 as a result of lower mean food consumption with corresponding mean body weight losses and/or lower mean body weight gains noted in these groups generally throughout the treatment period. Mean thymus weights (absolute and relative to brain) were noted in the 25, 150, and 450 mg/kg/day groups. No evidence of maternal toxicity was noted at 5 mg/kg/day. Developmental effects were noted in the 150 and 450 mg/kg/day groups as evidenced by increased mean litter proportions of postimplantation loss (primarily early resorptions) with a corresponding decrease in the mean numbers and litter proportions of viable fetuses. In addition, lower mean male, female, and combined fetal weights were noted in the 25 and 150 mg/kg/day groups. Lower fetal weights were also noted for the single surviving litter in the 450 mg/kg/day group. Test substance-related fetal developmental variations (sternebra[e] nos. 5 and/or 6 unossified, reduced ossification of the skull, reduced ossification of the vertebral arches, sternebra[e] nos. 1, 2, 3, and/or 4 unossified, and cervical centrum no.1 ossified) were noted in the 150 mg/kg/day group and for surviving fetuses in the 450 mg/kg/day group and were indicators of developmental delay and correlated to lower fetal weights. Intrauterine growth and survival at 5 mg/kg/day and fetal morphology at 5 and 25 mg/kg/day were unaffected by test substance administration.

Based on these results, an exposure level of 5 mg/kg/day was considered to be the no-observed-adverse-effect level (NOAEL) for maternal toxicity and embryo/fetal development when extract, light paraffinic distillate solvent was administered by dermal application to bred Crl:CD(SD) rats.

2. INTRODUCTION

2.1. GENERAL STUDY INFORMATION

This report presents the data from "A Dermal Prenatal Developmental Toxicity Study of Extract, Light Paraffinic Distillate Solvent in Rats." Due to software spacing constraints, the study title is presented as "Dermal Rat Dev Tox Study of Light Paraffinic Distillate Solvent" on the report tables.

The study protocol and deviations from the protocol are presented in Appendix A. A list of abbreviations potentially used in this report is presented in Section 13.

The computer protocol reference number and type of data collected were identified as follows:

Computer Protocol	Type of Data Collected
WIL-402015	Main study data

2.2. KEY STUDY DATES

Date(s) [1]	Event(s)
16 September 2011	Study initiation date (date protocol signed by Study Director)
22 September 2011	Experimental starting date (animal receipt)
4 October 2011	Experimental start date (initiation of test substance exposure; first gestation day 0)
4-27 October 2011	Test substance exposure period
28 October 2011	Last laparohysterectomy
14 December 2011	Experimental termination/completion date (last fetal skeletal examination)

2.3. PARTICIPATING SCIENTISTS

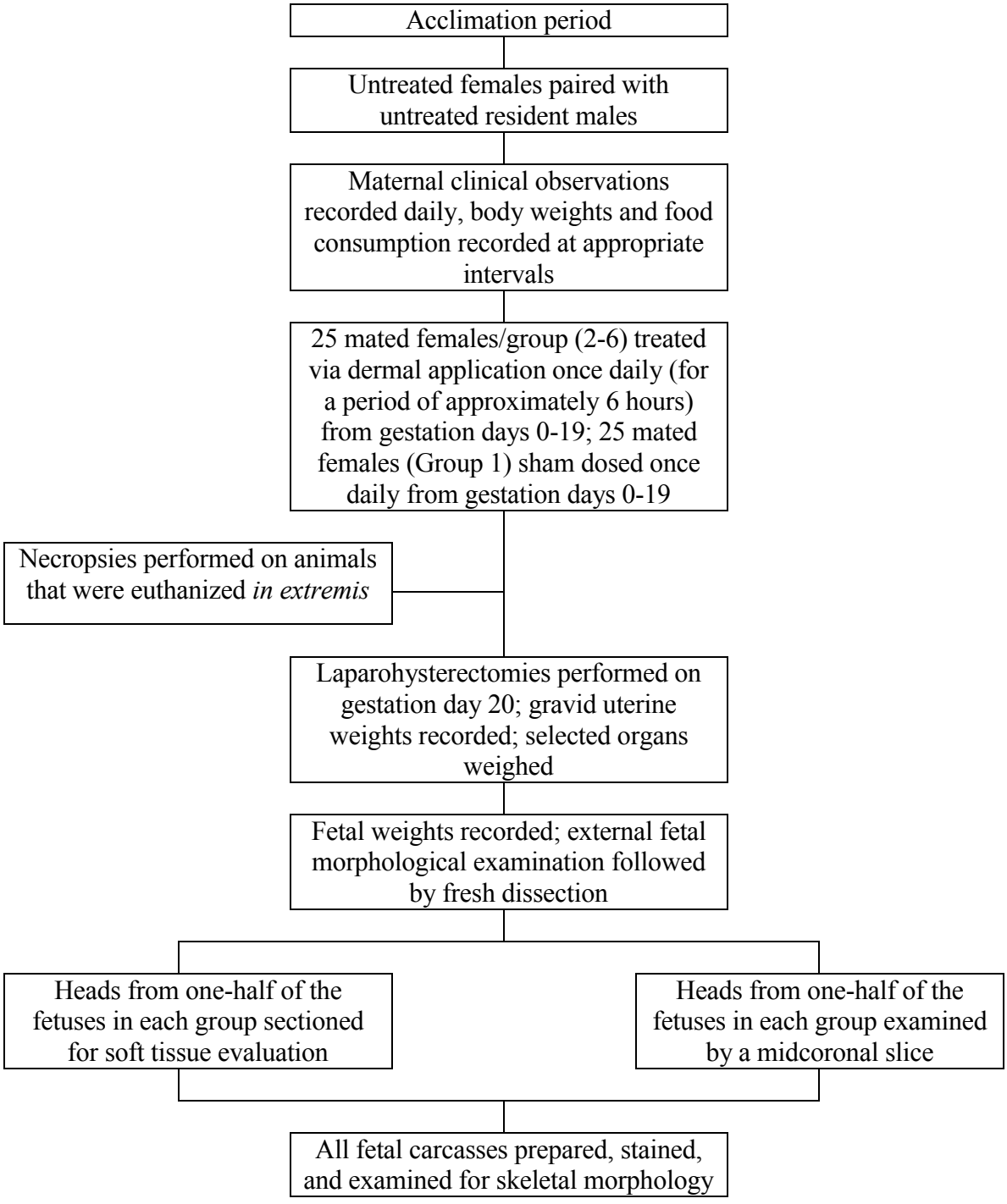
Analytical Chemistry	[redacted]
	WIL Research Laboratories, LLC

[1] Date ranges represent the first and last dates of evaluation.

2.4. WIL RESEARCH KEY STUDY PERSONNEL

[redacted]	Assistant Director, Analytical Chemistry
	Manager, Quality Assurance
	Senior Operations Manager, Vivarium
	Manager, Gross Pathology and Developmental Toxicology Laboratory
	Clinical Veterinarian
	Operations Manager, Developmental, Reproductive, and Neurotoxicology
	Group Manager, Formulations Laboratory
	Vice President, Analytical, Metabolism, & *In Vitro* Toxicology Services
	Director, Operations
	Operations Manager, Reporting & Technical Support Services

3. STUDY DESIGN



4. EXPERIMENTAL PROCEDURES - MATERIALS AND METHODS

4.1. TEST SUBSTANCE AND VEHICLE

4.1.1. TEST SUBSTANCE

The test substance, extract, light paraffinic distillate solvent, was received from EPL Archives Inc., Sterling VA, on behalf of the Sponsor, on 25 August 2011, as follows:

Identification	Physical Description
Extract, light paraffinic distillate solvent (CAS# 64742-05-8; Site #7, Sample #23) [WIL ID no. 110133]	Dark brown, clear viscous liquid

A test substance characterization was provided by the Sponsor and is presented in Appendix B. For purposes of dose calculations, the purity of the test substance was considered to be 100.0%. The test substance was stored at room temperature, protected from light, and was considered stable under these conditions. A reserve sample of the test substance was collected and stored in the WIL Research Archives.

4.1.2. VEHICLE

The vehicle used in preparation of the test substance formulations and for administration to the vehicle control group was acetone, NF (lot no. ZX0140; exp. date: 11 November 2012; manufactured by Spectrum Chemical Manufacturing Corporation, New Brunswick, NJ).

4.1.3. PREPARATION

A sufficient amount of acetone was transferred to a formulation container approximately weekly for administration to the vehicle control group (Group 2); aliquots were prepared for daily dispensation and stored at room temperature, protected from light.

Dosing formulations were prepared at the test substance concentrations indicated in the following table:

Group Number	Treatment	Exposure Level (mg/kg/day)	Test Substance Concentration[a] (mg/mL)
1	Sham Control	NA	NA
2	Vehicle Control	0	0
3	Test Substance[b]	5	3.3
4	Test Substance[b]	25	16.7
5	Test Substance[b]	150	100
6	Test Substance[b]	450	300

[a] = The dosing formulations were not adjusted for purity.
[b] = The test substance used for Groups 3-6 was extract, light paraffinic distillate solvent (CAS no. 64742-05-8).
NA = Not applicable

The test substance formulations were weight/volume (test substance/vehicle) mixtures. The test substance formulations were prepared approximately weekly as single formulations for each exposure level, divided into aliquots for daily dispensation, and stored at room temperature, protected from light. The test substance formulations were stirred continuously throughout the preparation, sampling, and dose administration procedures.

4.1.4. SAMPLING AND ANALYSES

Analyses to determine homogeneity and resuspension homogeneity as well as 10-day room temperature stability at test substance concentrations of 1 and 500 mg/mL were previously conducted (Freer, 2011, WIL-402026) prior to the initiation of dosing. Therefore, resuspension homogeneity and stability were not conducted in this study.

Samples for homogeneity and concentration analysis were collected from the top, middle, and bottom strata of each dosing formulation (including the vehicle control group) prepared for use on the first and last days of dosing. One set of samples from each collection was subjected to the appropriate analyses. The remaining set of samples was stored at room temperature as back-up. All analyses were conducted by the WIL

Research Analytical Chemistry Department using a validated gas chromatography with flame ionization detection method. Details about the methodology and results of these analyses are presented in Appendix C, and the results are summarized in Section 6.1.

4.2. TEST SYSTEM, ANIMAL RECEIPT, AND ACCLIMATION

Sexually mature, virgin female Sprague Dawley [Crl:CD(SD)] rats were used as the test system on this study. This species and strain of animal is recognized as appropriate for developmental toxicity studies. WIL Research has historical control data on the background incidence of fetal malformations and developmental variations in the Crl:CD(SD) rat. This animal model has been proven to be susceptible to the effects of developmental toxicants. The number of animals selected for this study (see Section 4.7.) was based on the United States EPA Health Effects Test Guidelines OPPTS 870.3700, Prenatal Developmental Toxicity Study, August 1998 and the OECD Guidelines for Testing of Chemicals Guideline 414, Prenatal Developmental Toxicity Study, January 2001.

Crl:CD(SD) rats (180 females) were received in good health from Charles River Laboratories, Inc., Portage, MI, on 22 September 2011. The animals were approximately 79 days old upon receipt. Each female was examined by a qualified biologist on the day of receipt. The day following receipt, all animals were weighed and clinical observations were recorded. Each rat was uniquely identified by a Monel® metal ear tag displaying the animal number and housed for 12 days for acclimation purposes. During the acclimation period, the rats were observed twice daily for mortality and changes in general appearance and behavior.

Animals were acclimated to wearing Elizabethan-style collars on an incremental basis, starting with approximately 1 hour and ending with approximately 24 hours of acclimation, starting approximately 1 week prior to the initiation of dose application as outlined below:

Study Day	Approximate Acclimation Period (Hours)
-7	1
-6	4
-5	8
-4	24

4.3. ANIMAL HOUSING

Upon arrival and until pairing, all rats were individually housed in clean, stainless steel wire-mesh cages suspended above cage-board. The cage-board was changed at least 3 times per week. The rats were paired for mating in the home cage of the male. Following positive evidence of mating, the females were returned to individual suspended wire-mesh cages; nesting material was not required as the females were euthanized prior to the date of expected parturition. Animals were maintained in accordance with the *Guide for the Care and Use of Laboratory Animals* (National Research Council, 1996). The animal facilities at WIL Research are fully accredited by AAALAC International.

4.4. DIET, DRINKING WATER, AND MAINTENANCE

The basal diet used in this study, PMI Nutrition International, LLC Certified Rodent LabDiet® 5002, was a certified feed with appropriate analyses performed by the manufacturer and provided to WIL Research. Feed lots used during the study were documented in the study records. The feeders were changed and sanitized once per week. Municipal water supplying the facility was regularly sampled for contaminants according to WIL Research's SOPs. The results of the diet and water analyses are maintained at WIL Research. No contaminants were present in animal feed or water at concentrations sufficient to interfere with the objectives of this study. Reverse osmosis-purified (on-site) drinking water, delivered by an automatic watering system, and the basal diet were provided *ad libitum* throughout the acclimation period and during the study. The animal feed containers were provided without savers and lids to accommodate feeding with collars (see Deviations from the Protocol).

4.5. ENVIRONMENTAL CONDITIONS

All rats were housed throughout the acclimation period and during the study in an environmentally controlled room. The room temperature and humidity controls were set to maintain environmental conditions of 71°F ± 5°F (22°C ± 3°C) and 50% ± 20%, respectively. Room temperature and relative humidity data were monitored continuously and were scheduled for automatic collection on an hourly basis. These data are summarized in Appendix D. Actual mean daily temperature ranged from 70.0°F to 70.6°F (21.1°C to 21.4°C) and mean daily relative humidity ranged from 43.2% to 54.9% during the study. Fluorescent lighting provided illumination for a 12-hour light (0600 hours to 1800 hours)/12-hour dark photoperiod. The light status (on or off) was recorded once every 15 minutes. Air handling units were set to provide a minimum of 10 fresh air changes per hour.

4.6. ASSIGNMENT OF ANIMALS TO TREATMENT GROUPS AND BREEDING PROCEDURES

At the conclusion of the acclimation period, all available females were weighed and examined in detail for physical abnormalities. At the discretion of the Study Director, each animal judged to be in good health and meeting acceptable body weight requirements was placed in a suspended wire-mesh cage with a resident male from the same strain and source for breeding. Resident males were untreated, sexually mature rats utilized exclusively for breeding. These rats were maintained under similar laboratory conditions as the females. A breeding record containing the male and female identification numbers and the dates of cohabitation was maintained. The selected females were approximately 13 weeks old when paired for breeding.

Positive evidence of mating was confirmed by the presence of a vaginal copulatory plug or the presence of sperm in a vaginal lavage and verified by a second biologist. Each mating pair was examined daily. The day on which evidence of mating was identified was termed gestation day 0 and the animals were separated.

The experimental design consisted of 4 test substance-treated groups, 1 vehicle control group, and 1 sham control group composed of 25 rats per group. The bred females were assigned to groups using a WTDMS™ computer program which randomized the animals based on stratification of the gestation day 0 body weights in a block design. Animals not assigned to study were transferred to the WIL Research stock colony. Body weight values ranged from 222 g to 301 g on gestation day 0.

4.7. ORGANIZATION OF TEST GROUPS, EXPOSURE LEVELS, AND TREATMENT REGIMEN

On the day prior to the initiation of dose administration, and as often as necessary thereafter, the hair was clipped (in a manner that would not abrade the skin) from the dorsal scapular area; repeated clippings were performed prior to or at least 2-4 hours after dose administration. A different set of clippers was used for the sham control, vehicle control, and the test substance-treated groups to avoid the potential for cross-contamination; a record of hair removal is retained in the raw data. The vehicle or test substance was applied evenly to the clipped, unabraded skin and spread evenly using a glass rod (to ensure contact with an area of approximately 10% of the total body surface area) once daily (for a period of 6 hours) during gestation days 0-19.

The four corners of the application site were marked with indelible ink to allow proper identification of the treated and untreated skin. Elizabethan-style collars were applied to all animals to minimize ingestion of the test substance. The collars were worn continually during the exposure period and removed only during weighing procedures. At the end of the 6-hour exposure period, the test sites were gently patted using a disposable paper towel in an effort to remove any remaining test substance or vehicle from the skin. When needed, the test site was gently patted with gauze moistened with acetone and then patted again with dry gauze or a dry disposable paper towel. The area of test substance application was measured and recorded once per week for 2 representative (close to mean body weight) animals in each group. The total percentage

of body surface to which the test substance was applied was to be approximately 10% of the total body surface area. The mean area of coverage was calculated as follows:

$$\text{Total body surface area } (cm^2) = K \bullet \text{ body weight (grams)}^{(2/3)}$$

Where:

K = 9 for rats (Freireich *et al*., 1966)

The following table presents the approximate percentages of body surface area covered by the test substance for each group/week.

Percent Coverage (%)

Group	**1**	**2**	**3**	**4**	**5**	**6**
Dosage Level (mg/kg/day)	**NA**	**0**	**5**	**25**	**150**	**450**
Study Week 0	8.9	10.1	8.5	9.4	9.9	8.5
Study Week 1	8.2	8.2	8.0	8.8	7.5	7.6
Study Week 2	7.9	8.7	7.7	8.7	8.3	8.5
Mean Coverage	**8.3**	**9.0**	**8.1**	**8.9**	**8.6**	**8.2**
Standard Deviation	0.5	1.0	0.4	0.4	1.2	0.5

NA = Not applicable

Individual dosages and dose volumes were based on the most recently recorded body weights to provide the correct mg/kg/day dose. All animals were dosed at approximately the same time each day.

The animals in the sham control group were subjected to the same procedures (*i.e*. shaving, collaring, sham dosing with glass rod, and removal of residual test substance) as the vehicle control and test substance-treated animals, but were not exposed to the vehicle or the test substance.

The following table presents the study group assignment:

Group Number	Treatment	Exposure Level (mg/kg/day)	Dose Volume (mL/kg)	Number of Females
1	Sham Control	NA	NA	25
2	Vehicle Control	0	1.5	25
3	Test Substance[a]	5	1.5	25
4	Test Substance[a]	25	1.5	25
5	Test Substance[a]	150	1.5	25
6	Test Substance[a]	400	1.5	25

[a] = The test substance for this study was extract, light paraffinic distillate solvent (CAS no. 64742-05-8)
NA = Not applicable

Dosage levels were determined based on the results of previous studies and were provided by the Sponsor Representative after consultation with the WIL Study Director.

The selected route of administration for this study was dermal as this is a potential route of exposure for humans.

5. PARAMETERS EVALUATED

5.1. MATERNAL OBSERVATIONS DURING GESTATION

5.1.1. CLINICAL OBSERVATIONS AND SURVIVAL

All rats were observed twice daily, once in the morning and once in the afternoon, for moribundity and mortality. Individual clinical observations were recorded from gestation days 0 through 20 (prior to dose administration during the treatment period). Animals were also observed for signs of toxicity at the time of dose administration and approximately 1-2 hours following sham or dose administration. The absence or presence of findings was recorded for individual animals.

5.1.2. DERMAL OBSERVATIONS

The application site was scored daily (prior to dose administration) during the treatment period for erythema and edema in accordance with a 4-step grading system (Draize, 1965) of very slight, slight, moderate, and severe as described in Appendix E. Other remarkable dermal findings, if present, were recorded.

5.1.3. BODY WEIGHTS AND GRAVID UTERINE WEIGHTS

Individual maternal body weights were recorded on gestation days 0, 3, 6, 9, 12, 15, 18, and 20. Group mean body weights were calculated for each of these days. Mean body weight changes were calculated for each corresponding interval and also for gestation days 0-20. When body weights could not be determined for an animal during a given interval (due to an unscheduled death, *etc*.), group mean values were calculated for that interval using the available data. The time periods when body weight values were unavailable for a given animal were designated as "NA" on the individual report tables. Collars were removed from the animals during the collection of body weights.

Gravid uterine weight was collected and net body weight (the gestation day 20 body weight exclusive of the weight of the uterus and contents) and net body weight change (the gestation day 0-20 body weight change exclusive of the weight of the uterus and

contents) were calculated and presented for each gravid female at the scheduled laparohysterectomy.

5.1.4. FOOD CONSUMPTION

Individual food consumption was recorded on gestation days 0, 3, 6, 9, 12, 15, 18, and 20. Food intake was reported as g/animal/day and g/kg/day for the corresponding body weight change intervals. When food consumption could not be determined for an animal during a given interval (due to an unscheduled death, weighing error, food spillage, *etc*.), group mean values were calculated for that interval using the available data. The time periods when food consumption values were unavailable for a given animal were designated as "NA" on the individual report tables.

5.1.5. ANATOMIC PATHOLOGY AND LAPAROHYSTERECTOMY

5.1.5.1. UNSCHEDULED DEATHS

A gross necropsy was performed on females that were euthanized (by carbon dioxide inhalation) *in extremis* during the course of the study. The cranial, thoracic, abdominal, and pelvic cavities were opened and the contents examined. Maternal tissues were retained in 10% neutral-buffered formalin for possible future histopathologic examination and organ weights were collected as described in Section 5.1.5.2. The number and location of implantation sites, corpora lutea, and viable fetuses were recorded. Recognizable fetuses were examined externally and preserved in 10% neutral-buffered formalin for possible future analysis. The females and all remaining products of conception were discarded.

5.1.5.2. GESTATION DAY 20 LAPAROHYSTERECTOMY

Laparohysterectomies and macroscopic examinations were performed blind to treatment group. All surviving females were euthanized on gestation day 20 by carbon dioxide inhalation. The cranial, thoracic, abdominal, and pelvic cavities were opened by a ventral mid-line incision, and the contents were examined. In all instances, the *postmortem* findings were correlated with the *antemortem* comments, and any abnormalities were

recorded. The uterus and ovaries were then exposed and excised. The number of corpora lutea on each ovary was recorded. The trimmed uterus was weighed and opened, and the number and location of all fetuses, early and late resorptions, and the total number of implantation sites were recorded. The placentae were also examined. The individual uterine distribution of implantation sites was documented using the following procedure. All implantation sites, including resorptions, were numbered in consecutive order beginning with the left distal to the left proximal uterine horn, noting the position of the cervix, and continuing from the right proximal to the right distal uterine horn.

The following tissues and organs were collected and placed in 10% neutral-buffered formalin:

Treated skin	Brain
Untreated skin (right hindlimb)	Thymus
Liver (2 sections)	All gross lesions[a]

[a] = Representative sections of corresponding organs from a sufficient number of controls were retained for comparison.

Uteri with no macroscopic evidence of implantation were opened and subsequently placed in 10% ammonium sulfide solution for detection of early implantation loss (Salewski, 1964).

Intrauterine data were summarized using 2 methods of calculation. An example of each method of calculation follows:

1. Group Mean Litter Basis:

$$\text{Postimplantation Loss/Litter} = \frac{\text{No. Dead Fetuses, Resorptions (Early/Late)/Group}}{\text{No. Gravid Females/Group}}$$

2. Proportional Litter Basis:

$$\text{Summation Per Group (\%)} = \frac{\text{Sum of Postimplantation Loss/Litter (\%)}}{\text{No. Litters/Group}}$$

Where:

$$\text{Postimplantation Loss/Litter (\%)} = \frac{\text{No. Dead Fetuses, Resorptions (Early/Late)/Litter}}{\text{No. Implantation Sites/Litter}} \times 100$$

5.1.5.3. ORGAN WEIGHTS

The liver, brain, and thymus were weighed from all animals euthanized *in extremis* or at the scheduled necropsy. Organ to brain weight ratios were calculated.

5.2. FETAL MORPHOLOGICAL EXAMINATION

Fetal examinations were performed blind to treatment group. Each viable fetus was examined externally, individually sexed, weighed, euthanized by a subcutaneous injection of sodium pentobarbital in the scapular region (if necessary), and tagged for identification. Fetal tags contained the WIL Research study number, the female number, and the fetus number. The detailed external examination of each fetus included, but was not limited to, an examination of the eyes, palate, and external orifices, and each finding was recorded. Nonviable fetuses (if the degree of autolysis was minimal or absent) were examined, the crown-rump length measured, weighed, sexed, and tagged individually. Crown-rump measurements and degrees of autolysis were recorded for late resorptions, a gross external examination was performed (if possible), and the tissues were discarded.

Each viable fetus was subjected to a visceral examination using a modification of the Stuckhardt and Poppe fresh dissection technique to include the heart and major blood vessels (Stuckhardt and Poppe, 1984). The sex of each fetus was confirmed by internal examination. Fetal kidneys were examined and graded for renal papillae development (Woo and Hoar, 1972). Heads from approximately one-half of the fetuses in each litter were placed in Bouin's fixative for subsequent soft-tissue examination by the Wilson sectioning technique (Wilson, 1965). The heads from the remaining one-half of the

fetuses were examined by a midcoronal slice. All carcasses were eviscerated and fixed in 100% ethyl alcohol.

Following fixation in alcohol, each fetus was macerated in potassium hydroxide and stained with Alizarin Red S (Dawson, 1926) and Alcian Blue (Inouye, 1976). Fetuses were then examined for skeletal malformations and developmental variations. Visceral and skeletal data for the found dead fetus are presented in Appendix F.

External, visceral, and skeletal findings were recorded as developmental variations (alterations in anatomic structure that are considered to have no significant biological effect on animal health or body conformity and/or occur at high incidence, representing slight deviations from normal) or malformations (those structural anomalies that alter general body conformity, disrupt or interfere with normal body function, or may be incompatible with life).

The fetal developmental findings were summarized by: 1) presenting the incidence of a given finding both as the number of fetuses and the number of litters available for examination in the group; and 2) considering the litter as the basic unit for comparison and calculating the number of affected fetuses in a litter on a proportional basis as follows:

$$\text{Summation per Group (\%)} = \frac{\text{Sum of Viable Fetuses Affected/Litter (\%)}}{\text{No. Litters/Group}}$$

Where:

$$\text{Viable Fetuses Affected/Litter (\%)} = \frac{\text{No. Viable Fetuses Affected/Litter}}{\text{No. Viable Fetuses/Litter}} \times 100$$

5.3. DATA ACQUISITION AND ANALYSIS

5.3.1. ACQUISITION AND REPORTING

Program/System	Description
Archive Management System (AMS)	In-house developed application for storage, maintenance, and retrieval of information for archived materials (*e.g.*, lab books, study data, wet tissues, slides, *etc*.)
InSight® Publisher	Electronic publishing system (output is Adobe Acrobat, PDF)
Master Schedule	Maintains the master schedule for the company.
Metasys DDC Electronic Environmental Control System	Controls and monitors animal room environmental conditions.
Microsoft® Office 2002 and 2007	Used in conjunction with the publishing software to generate study reports.
Provantis Dispense™	Comprehensive system (Instem LSS Limited) to manage test materials, including receipt, formulation instructions, and accountability.
WIL Formulations Dispense System (WFDS)	In-house developed system for use in conjunction with Provantis Dispense™ to ensure proper storage and use of formulations.
WIL Metasys	In-house developed system used to record and report animal room environmental conditions.
WIL Toxicology Data Management System™ (WTDMS™)	In-house developed system used for collection and reporting of in-life and *postmortem* data.

Note: Version numbers of WTDMS™ programs used for the study are presented on the report data tables (reporting programs); version numbers and release dates are otherwise maintained in the study records and/or facility records.

5.3.2. STATISTICAL ANALYSES

All statistical tests were performed using WTDMS™ unless otherwise noted. Analyses were conducted using two-tailed tests (except as noted otherwise) for minimum significance levels of 1% and 5%, comparing each test substance-treated group to the vehicle control group (Group 2). In addition, the vehicle control group (Group 2) was compared separately to the sham control group (Group 1). Each mean was presented with the standard deviation (S.D.), standard error (S.E.), and the number of animals (N)

used to calculate the mean. Data obtained from nongravid animals were excluded from statistical analyses. Due to the use of significant figures and the different rounding conventions inherent in the types of software used, the means and standard deviations on the summary and individual tables may differ slightly. Therefore, the use of reported individual values to calculate subsequent parameters or means will, in some instances, yield minor variations from those listed in the report data tables. Where applicable, the litter was used as the experimental unit.

Mean maternal body weights (absolute and net), body weight changes (absolute and net), and food consumption, organ weights, gravid uterine weights, numbers of corpora lutea, implantation sites, and viable fetuses, and fetal body weights (separately by sex and combined) were subjected to a parametric one-way ANOVA (Snedecor and Cochran, 1980) to determine intergroup differences. If the ANOVA revealed significant ($p<0.05$) intergroup variance, Dunnett's test (Dunnett, 1964) or a 2-sample t-test (Snedecor and Cochran, 1980), as appropriate, was used to compare the test substance-treated groups to the vehicle control group and the vehicle control group to the sham control group. Mean litter proportions (percent per litter) of prenatal data (viable and nonviable fetuses, early and late resorptions, total resorptions, pre- and postimplantation loss, and fetal sex distribution), total fetal malformations and developmental variations (external, visceral, skeletal, and combined) and each particular external, visceral, and skeletal malformation or variation were subjected to the Kruskal-Wallis nonparametric ANOVA test (Kruskal and Wallis, 1952) to determine intergroup differences. If the ANOVA revealed significant ($p<0.05$) intergroup variance, Dunn's test (Dunn, 1964) was used to compare the test substance-treated groups to the vehicle control group and the vehicle control group to the sham control group.

6. RESULTS

6.1. ANALYSES OF DOSING FORMULATIONS

Analyses of Dosing Formulations Report: Appendix C

The analyzed dosing formulations were within WIL Research's SOP range for solutions (90% to 110%) and were homogeneous. Therefore, the protocol-specified dosages of test substance were administered to the animals. The test substance was not detected in the vehicle formulation that was administered to the vehicle control group (Group 2).

Results of the analyses of dosing formulations are summarized below.

Text Table 1. Results of Homogeneity Analyses

	Group 3 (3.3 mg/mL)	Group 4 (16.7 mg/mL)	Group 5 (100 mg/mL)	Group 6 (300 mg/mL)
Homogeneity/Concentration Acceptability Assessment of the 3 October 2011 Formulation Back-Up Samples[a]				
Mean Concentration (mg/mL)	3.39	16.8	101	303
RSD (%)	2.3	1.5	1.2	1.9
Mean % of Target	103	101	101	101
Homogeneity/Concentration Acceptability Assessment of the 19 October 2011 Formulations				
Mean Concentration (mg/mL)	3.44	17.7	105	312
RSD (%)	0.50	0.95	0.79	2.6
Mean % of Target	104	106	105	104

[a] = Back-up samples were processed on 6 October 2011 and stored at room temperature until analyzed. The original formulation samples were processed using an expired solvent and are not reported.

6.2. MATERNAL CLINICAL OBSERVATIONS AND SURVIVAL

Summary Data: Table S1, Table S2, Table S3

Individual Data: Table A1, Table A2, Table A3, Table A4

Test substance-related moribundity was noted at 150 and 450 mg/kg/day. In the 150 mg/kg/day group, female no. 28350 was euthanized *in extremis* on gestation day 15. In the 450 mg/kg/day group, female nos. 28267, 28359, and 28346 were euthanized *in extremis* on gestation days 14, 16, and 18, respectively. All of these females were noted with clinical findings of body pale and/or cool to the touch and red vaginal discharge at the daily examinations and/or 1 to 2 hours following dose administration up to 2 days prior to and/or on the day of euthanasia. Other remarkable clinical findings noted for these females generally from the beginning of treatment through the day of euthanasia included yellow and/or red material around the urogenital area, eyes, and/or nose at the daily examinations and/or 1 to 2 hours following dose administration. All other females survived to the scheduled euthanasia.

Test substance-related increased occurrences of yellow and red material on the urogenital area were noted in the 150 and 450 mg/kg/day groups generally throughout gestation (gestation days 1-20). The red material findings were noted primarily at the daily examinations while the yellow material findings were noted at both the daily examinations and 1 to 2 hours following dose administration. Red vaginal discharge was noted in the 25, 150, and 450 mg/kg/day groups during gestation days 10-20; this finding was noted 1 to 2 hours following dose administration and continued to the daily examinations at 150 and 450 mg/kg/day. Test substance-related findings of body pale and/or cool to the touch were noted at the daily examinations and/or 1 to 2 hours following dose administration at 150 and 450 mg/kg/day during gestation days 13-20.

Red material around the nose and/or eyes was noted at the daily examinations in all groups, including the sham and vehicle control groups, generally throughout the treatment period (gestation days 1-20). Because these findings were found at similar

frequencies across all groups, they were likely the result of the animals' inability to groom and discomfort caused by the collars; therefore, these findings were not attributed to test substance administration.

No other test substance-related clinical findings were noted at the daily examinations or approximately 1 to 2 hours following dose administration at any exposure level. Other findings noted in the treated groups, including hair loss on various body surfaces and red material on the ventral abdominal area, occurred at similar frequencies in the vehicle control group and in a manner that was not dose-related.

6.3. DERMAL OBSERVATIONS

Summary Data: Table S4
Individual Data: Table A5

Higher incidences of desquamation were noted in the 25, 150, and 450 mg/kg/day groups generally throughout the treatment period (gestation days 1-20) compared to the vehicle control group; this dermal observation was considered test substance-related.

No remarkable dermal observations were noted in the 5 mg/kg/day group compared to the vehicle control group. Observations noted in this group occurred at similar frequencies in the vehicle control group.

A slightly higher incidence of desquamation was noted in the vehicle control group generally throughout the treatment period (gestation days 1-20) compared to the sham control group, indicating that the vehicle (acetone) may be a dermal irritant.

6.4. MATERNAL BODY WEIGHTS AND GRAVID UTERINE WEIGHTS

Summary Data: Table S5, Table S6, Table S7
Individual Data: Table A6, Table A7, Table A8

Test substance-related mean body weight losses were noted at the start of the treatment period (gestation days 0-3) in the 150 and 450 mg/kg/day groups. Mean body weight losses and lower mean body weight gains were noted in the 450 mg/k/day group for the

remainder of the treatment period (gestation days 3-20); differences were generally significant ($p<0.05$ or $p<0.01$). In the 150 mg/kg/day group, mean body weight gains were similar to the vehicle control group during gestation days 3-9, but were significantly ($p<0.01$) lower than the vehicle control group throughout the remainder of the treatment period (gestation days 9-20). As a result of the aforementioned mean body weight losses and lower mean body weight gains, a significantly ($p<0.01$) lower mean body weight gain or mean body weight loss was noted at 150 and 450 mg/kg/day, respectively, when the entire treatment period (gestation days 0-20) was evaluated. Mean body weights in the 150 and 450 mg/kg/day groups were significantly ($p<0.01$) lower (up to 18.0% and 36.1%, respectively) than the vehicle control group during gestation days 12-20 and 3-20, respectively. Significantly ($p<0.01$) lower mean net body weights and net body weight changes were also noted in the 150 and 450 mg/kg/day groups. In addition, mean gravid uterine weights in these groups were significantly ($p<0.01$) lower than the vehicle control group and were attributed to the decreased number of viable fetuses and lower fetal weights noted at these exposure levels (see Section 6.6.3.). The decreased number of viable fetuses and lower fetal weights in the 150 and 450 mg/kg/day groups also contributed to the lower body weights and body weight losses/reduced body weight gains in these groups, especially during the latter part of gestation (see Section 6.6.3.).

In the 25 mg/kg/day group, a significant ($p<0.05$) mean body weight loss was noted at the start of the treatment period (gestation days 0-3). Mean body weight gains in this group were generally similar to the vehicle control group during gestation days 3-18, except for a transient, significantly ($p<0.05$) lower mean body weight gain during gestation days 9-12. A significantly ($p<0.01$) lower mean body weight gain was also noted in the 25 mg/kg/day group during gestation days 18-20 and was attributed to the lower mean fetal weights noted in this group (see Section 6.6.3.). The decrements in body weight change noted at the beginning and end of gestation in the 25 mg/kg/day group resulted in a significantly ($p<0.01$) lower mean body weight gain when the entire treatment period (gestation days 0-20) was evaluated. In addition, mean body weight at 25 mg/kg/day was

4.5% lower (not statistically significant) than the vehicle control group on gestation day 20. Mean net body weight and net body weight change at 25 mg/kg/day were similar to the vehicle control group. Mean gravid uterine weight in this group was slightly lower (not statistically significant) than the vehicle control group and was attributed to the lower mean fetal weights noted at 25 mg/kg/day (see Section 6.6.3.).

Mean maternal body weights, body weight gains, net body weight, net body weight gain, and gravid uterine weight in the 5 mg/kg/day group were unaffected by test substance administration. Differences from the vehicle control group were slight and not statistically significant.

Mean maternal body weights, body weight gains, net body weight, net body weight gain, and gravid uterine weight in the vehicle control group were similar to the sham control group. Differences from the sham control group were slight and attributed to biological variability.

6.5. MATERNAL FOOD CONSUMPTION

Summary Data: Table S8, Table S9
Individual Data: Table A9, Table A10

Test substance-related, lower mean food consumption, evaluated as g/animal/day and g/kg/day, was noted in the 150 and 450 mg/kg/day groups generally throughout the treatment period and when the entire treatment period (gestation days 0-20) was evaluated; differences from the vehicle control group were generally significant ($p<0.05$ or $p<0.01$). The lower mean food consumption in these groups corresponded to the mean body weight losses and lower mean body weight gains noted during the treatment period.

Mean food consumption in the 25 mg/kg/day group was similar to the vehicle control group during gestation days 0-18. Lower mean food consumption was noted during gestation days 18-20 and resulted in lower mean food consumption when the entire treatment period (gestation days 0-20) was evaluated; differences from the vehicle

control group reached significance ($p<0.05$ or $p<0.01$) for the g/animal/day values only. The lower mean food consumption in this group corresponded to the lower mean body weight gains noted during the latter part of gestation.

Maternal food consumption in the 5 mg/kg/day group was unaffected by test substance administration. Differences from the vehicle control group were slight and not statistically significant.

Mean food consumption in the vehicle control group was generally similar to the sham control group, with the following exception. A transient, significantly ($p<0.05$) higher g/kg/day mean food consumption value was noted in the vehicle control group during gestation days 18-20 compared to the sham control group. Because there was no effect on the overall treatment interval or corresponding effect on mean body weight in the vehicle control group, this change was attributed to biological variability.

6.6. ANATOMIC PATHOLOGY AND LAPAROHYSTERECTOMY

6.6.1. MACROSCOPIC EXAMINATIONS

Summary Data: Table S10
Individual Data: Table A11

Test substance-related moribundity was noted at 150 and 450 mg/kg/day. In the 150 mg/kg/day group, female no. 28350 was euthanized *in extremis* on gestation day 15; this female was noted internally with dark red contents in the uterus and vagina, pale kidneys and pituitary gland, and had an entirely resorbed litter (13 early resorptions). In the 450 mg/kg/day group, female nos. 28267, 28359, and 28346 were euthanized *in extremis* on gestation days 14, 16, and 18, respectively. At necropsy, female nos. 28267 and 28346 were noted with dark red vaginal or uterine contents; both females had entirely resorbed litters (15 and 17 early resorptions, respectively). In addition, female no. 28346 had a pale brain and pituitary gland. Female no. 28359 was internally normal and had 9 normally developing implantations and 4 early resorptions *in utero*. All 4 females that were euthanized *in extremis* were noted with red matting of the skin on

the urogenital, nasal, buccal, anogenital, and/or ocular areas; this finding correlated with red material clinical findings noted for these females. All other females in the 150 and 450 mg/kg/day groups survived to the scheduled necropsy.

At the scheduled necropsy on gestation day 20, test substance-related macroscopic findings were noted in the 150 and 450 mg/kg/day groups. Dark red contents in the uterus, vagina, and/or cervix were noted for 5 and 4 surviving females in the 150 and 450 mg/kg/day groups, respectively; these findings correlated with the increased number of resorptions noted in the surviving females in these groups (see Section 6.6.3.). Additionally, small thymus was noted for 1 and 6 females in the 150 and 450 mg/kg/day groups, respectively, and corresponded to the lower mean thymus weights noted in these groups (see Section 6.6.2.).

No other test substance-related macroscopic findings were observed at any exposure level. Other macroscopic findings observed in the test substance-treated groups occurred infrequently, in single animals, and/or in a manner that was not dose-related. With the exception of 1 female each in the 25 and 150 mg/kg/day groups, all females were determined to be gravid.

No remarkable macroscopic findings were noted in the vehicle control group compared to the sham control group. Findings noted in the vehicle control group were limited to single females.

6.6.2. ORGAN WEIGHTS

Summary Data: Table S11

Individual Data: Table A12, Table A13, Table A14, Table A15

Test substance-related, significantly ($p<0.05$ or $p<0.01$) lower mean thymus weights (absolute and relative to brain) were noted in the 25, 150, and 450 mg/kg/day groups compared to the vehicle control group. Mean absolute thymus weights at 25, 150, and 450 mg/kg/day were 17.2%, 39.4%, and 74.6% lower, respectively, than the vehicle control group. Mean liver weights (absolute and relative to brain) and absolute brain

weights in the 25, 150, and 450 mg/kg/day groups were similar to the vehicle control group.

No test substance-related effects on organ weights (absolute or relative to brain weight) were observed at 5 mg/kg/day. None of the differences from the vehicle control group were statistically significant.

Mean organ weights (absolute or relative to brain) in the vehicle control group were similar to the sham control group. Differences from the sham control group were slight and not statistically significant.

6.6.3. GESTATION DAY 20 LAPAROHYSTERECTOMY DATA

Summary Data: Table S12, Table S13
Individual Data: Table A16, Table A17, Table A18
Historical Control Data: Appendix G

Test substance-related effects on intrauterine survival were noted at 150 and 450 mg/kg/day. The mean litter proportion of postimplantation loss (primarily early resorptions) in the 150 and 450 mg/kg/day groups (60.9% and 99.1% per litter, respectively) was significantly ($p<0.01$) higher than the vehicle control group (7.1% per litter) and the values exceeded the mean maximum value in the WIL historical control data (9.9% per litter). Corresponding significantly ($p<0.01$) lower mean numbers and litter proportions of viable fetuses were noted in the 150 and 450 mg/kg/day groups (6.0 and 0.1 fetuses per dam, respectively, and 39.1% and 0.9% per litter, respectively) compared to the vehicle control group (14.4 fetuses per dam and 93.0% per litter, respectively). The values in the 150 and 450 mg/kg/day groups were also below the mean minimum values in the WIL historical control data (12.2 fetuses per dam and 90.1% per litter, respectively). With the exception of 1 female that had 3 viable fetuses, all surviving females in the 450 mg/kg/day group had entirely resorbed litters (100% early resorptions with 0.0% viable fetuses). Two females in the 150 mg/kg/day group had 100% post-implantation loss (0.0% viable fetuses).

Comparative statistics were not performed on the mean fetal weights at 450 mg/kg/day because only 1 litter consisting of 3 male fetuses survived to the scheduled necropsy. However, the male fetal weight for this single litter (2.4 g) was lower than the vehicle control group mean (4.0 g) and below the mean minimum value in the WIL historical control data (3.5 g).

In the 25 and 150 mg/kg/day groups, significantly ($p<0.05$ or $p<0.01$) lower mean male (3.8 g and 3.2 g, respectively), female (3.6 g and 2.9 g, respectively), and combined (3.7 g and 3.1 g, respectively) fetal weights were noted compared to the vehicle control group values (4.0 g, 3.8 g, and 3.9 g, respectively). The fetal weight values in the 150 mg/kg/day group were also below the minimum mean male, female, and combined values (3.5 g, 3.4 g, and 3.4 g, respectively) in the WIL historical control data. Intrauterine growth at 5 mg/kg/day and survival at 5 and 25 mg/kg/day were unaffected by test substance administration. The mean numbers of corpora lutea and implantation sites at 5, 25, 150, and 450 mg/kg/day were similar to the vehicle control group.

Intrauterine growth and survival parameters in the vehicle control group were similar to the sham control group. Differences from the sham control group were slight and not statistically significant.

6.7. FETAL MORPHOLOGICAL DATA

Summary Data: Table S14, Table S15, Table S16, Table S17
Individual Data: Table A19
Historical Control Data: Appendix G

The numbers of fetuses (litters) available for morphological evaluation were 377(25), 361(25), 370(25), 329(24), 137(21), and 3(1) in the sham control, vehicle control, 5, 25, 150, and 450 mg/kg/day groups, respectively. Malformations were observed in 1(1), 4(1), 1(1), 1(1), 0(0), and 0(0) fetuses (litters) in these same respective dose groups. Comparative statistics were not performed on fetal morphology at 450 mg/kg/day because only 1 litter consisting of 3 fetuses survived to the scheduled necropsy.

6.7.1. EXTERNAL MALFORMATIONS AND VARIATIONS

There were no external malformations or developmental variations noted for any fetuses in the test substance-treated groups.

No remarkable differences in skeletal malformations or developmental variations were noted when the vehicle control group was compared to the sham control group. One fetus (no. 28404-02) in the sham control group was noted with omphalocele (several loops of the intestine protrude through an opening in the umbilicus, remnants of a membranous sac).

6.7.2. VISCERAL MALFORMATIONS AND VARIATIONS

There were no test substance-related visceral malformations noted for fetuses in the test substance-treated groups. One fetus (no. 28371-13) in the 5 mg/kg/day group was noted with a retroesophageal aortic arch (aortic arch coursed retroesophageally immediately following the left carotid artery and rejoined in normal position adjacent to the ductus arteriosus). Because this finding occurred in a single animal and did not occur in a dose-related manner, it was not considered test substance-related.

No test substance-related visceral developmental variations were noted in the 5, 25, 150, and 450 mg/kg/day groups. Eight, six, and 1 fetuses in the 5, 25, and 150 mg/kg/day groups, respectively, were noted with renal papilla(e) not developed and/or distended ureter(s). This finding was not considered test substance-related as it was also observed for 9 and 2 fetuses in the sham control and vehicle control groups, respectively. Two fetuses each in the 25 (fetus nos. 28320-09 and 28349-10) and 150 mg/kg/day (fetus nos. 28291-14 and 28294-13) groups were noted with a major blood vessel variation (right carotid and right subclavian arteries arose independently from the aortic arch [no brachiocephalic trunk]). Pale spleen was noted for 2 fetuses (nos. 28293-09 and 28293-12) from 1 litter in the 25 mg/kg/day group. The findings of major blood vessel variation and pale spleen did not occur in a dose-related manner and/or were also noted in the sham control group, and therefore were not considered test substance-related.

No significant differences in visceral malformations or developmental variations were noted when the vehicle control group was compared to the sham control group.

One fetus each in the sham control, 5, and 25 mg/kg/day groups (nos. 28282-10, 28389-01, and 28365-16, respectively) were noted with renal papilla(e) not fully developed (Woo and Hoar Grade 1). This finding was not classified as either a malformation or developmental variation, was not included on the summary tables, and was not considered to be test substance-related because it occurred infrequently and in a manner that was not dose-related.

6.7.3. SKELETAL MALFORMATIONS AND VARIATIONS

There were no test substance-related skeletal malformations noted for any fetuses in the test substance-treated groups. One fetus (no. 28293-09) in the 25 mg/kg/day group was noted with a vertebral anomaly without an associated rib anomaly (fused arches). Because this finding was noted in a single fetus and the mean litter proportion was within the WIL historical data control range, it was not considered test substance-related. Four fetuses from a single litter (nos. 28338-01, 28338-02, 28338-04, and 28338-06) in the vehicle control group were noted with only 12 pair of ribs present; additionally, 1 of these fetuses (no. 28338-02) was noted with 24 presacral vertebrae.

Test substance-related skeletal developmental variations occurred in the 150 mg/kg/day group. Increased mean litter proportions of sternebra(e) nos. 5 and/or 6 unossified, reduced ossification of the skull, reduced ossification of the vertebral arches, and sternebra(e) nos. 1, 2, 3, and/or 4 unossified were noted in the 150 mg/kg/day group. The findings of sternebra(e) nos. 5 and/or 6 unossified, reduced ossification of the skull, and/or sternebra(e) nos. 1, 2, 3, and/or 4 unossified were also noted for 2 fetuses in the single surviving litter at 450 mg/kg/day. A lower incidence and mean litter proportion of cervical centrum no. 1 ossified was noted in the 150 mg/kg/day group. While these findings were test substance-related, the aforementioned findings were considered

indicators of developmental delay and correlated to the reduced fetal weights noted at 150 and 450 mg/kg/day.

Other skeletal developmental variations observed in the test substance-treated groups consisted of hyoid unossified, reduced ossification of the 13th rib(s), 7th cervical rib(s), 14th rudimentary rib(s), sternebra(e) malaligned (slight or moderate), pubis unossified, and 27 presacral vertebrae. These findings occurred infrequently or at a frequency similar to the vehicle control group, did not occur in a dose-related manner, and/or the mean litter proportions were within the WIL historical control data range.

No remarkable differences in skeletal malformations or developmental variations were noted when the vehicle control group was compared to the sham control group. Fetus no. 28404-02 in the sham control group was noted with a rib anomaly (fused ribs) and severely malaligned sternebra(e).

6.7.4. SUMMARY OF EXTERNAL, VISCERAL, AND SKELETAL EXAMINATIONS

The numbers of fetuses (litters) available for morphological evaluation were 377(25), 361(25), 370(25), 329(24), 137(21), and 3(1) in the sham control, vehicle control, 5, 25, 150, and 450 mg/kg/day groups, respectively. Malformations were observed in 1(1), 4(1), 1(1), 1(1), 0(0), and 0(0) fetuses (litters) in these same respective dose groups. Comparative statistics were not performed on fetal morphology at 450 mg/kg/day because only 1 litter consisting of 3 fetuses survived to the scheduled necropsy.

When the total malformations and developmental variations were evaluated on a proportional basis, no statistically significant differences from the vehicle control group were noted. Increased mean litter proportions of skeletal developmental variations (sternebra[e] nos. 5 and/or 6 unossified, reduced ossification of the skull, reduced ossification of the vertebral arches, and sternebra[e] nos. 1, 2, 3, and/or 4 unossified) were noted in the 150 mg/kg/day group. A decreased mean litter proportion of cervical centrum no. 1 ossified was also noted at 150 mg/kg/day. The findings of sternebra(e)

nos. 5 and/or 6 unossified, reduced ossification of the skull, and sternebra(e) nos. 1, 2, 3, and/or 4 unossified were also noted for 1 or 2 fetuses in the single surviving litter at 450 mg/kg/day. These findings were considered indicators of developmental delay and correlated to the reduced fetal weights noted in the 150 and 450 mg/kg/day groups. No test substance-related malformations or developmental variations were noted in the 5 and 25 mg/kg/day groups.

No significant differences in fetal malformations or developmental variations were noted when the vehicle control group was compared to the sham control group.

7. DISCUSSION

The objectives of this study were to determine the effects of prenatal, dermal exposure to the test substance on pregnant rats and developing offspring, to provide data to verify/expand the domain of the polycyclic aromatic compounds (PAC) prenatal models for predicting the toxicity of high-boiling petroleum substances from their PAC content, and to further test the hypothesis that developmental toxicity endpoints are more sensitive to effects of high-boiling petroleum substances than other reproductive endpoints, such as fertility or reproductive organ weight and histopathology.

Developmental toxicity was evident at 25, 150, and 450 mg/kg/day. Increased mean litter proportions of postimplantation loss (primarily early resorptions) with corresponding decreases in the mean numbers and litter proportions of viable fetuses were noted at 150 and 450 mg/kg/day. With the exception of 1 female that had 3 viable fetuses, all surviving females in the 450 mg/kg/day group had entirely resorbed litters (100% postimplantation loss with 0.0% viable fetuses). Therefore, comparative statistics were not performed on the mean fetal weights at 450 mg/kg/day. However, the fetal weights for the single litter in the 450 mg/kg/day group were lower than the vehicle control group. Additionally, mean male, female, and combined fetal weights in the 25 and 150 mg/kg/day groups were statistically significantly lower than the vehicle control group. These differences resulted in lower mean gravid uterine weights in the 25, 150, and 450 mg/kg/day groups; differences were statistically significant at 150 and 450 mg/kg/day. Test substance-related skeletal developmental variations (sternebra[e] nos. 5 and/or 6 unossified, reduced ossification of the skull, reduced ossification of the vertebral arches, and sternebra[e] nos. 1, 2, 3, and/or 4 unossified, and cervical centrum no.1 ossified) were noted in the 150 mg/kg/day group. The findings of sternebra(e) nos. 5 and/or 6 unossified, reduced ossification of the skull, and sternebra(e) nos. 1, 2, 3, and/or 4 unossified were also noted for fetuses in the single surviving litter at 450 mg/kg/day. The aforementioned findings were considered indicators of

developmental delay and correlated to the reduced fetal weights noted at 150 and 450 mg/kg/day.

Maternal toxicity was evident at 25, 150, and 450 mg/kg/day as noted by clinical findings (yellow and/or red material on the urogenital area, red vaginal discharge, body pale and/or cool to the touch) at the daily examinations and/or 1 to 2 hours following dose administration and dermal observations of desquamation. One and 3 females in the 150 and 450 mg/kg/day groups, respectively, were euthanized *in extremis* between gestation days 14-18 as a result of lower mean food consumption with corresponding mean body weight losses and/or lower mean body weight gains noted in these groups generally throughout the treatment period; differences were generally statistically significant. Decreased mean food consumption with corresponding decrements in mean body weight gain were noted in the latter part of gestation in the 25 mg/kg/day group and correlated with the lower mean fetal weights noted in this group. Test substance-related macroscopic findings noted in the 150 and 450 mg/kg/day groups included dark red contents in the uterus, vagina, and/or cervix. Additionally, small thymus was noted at these exposure levels and corresponded to the statistically significantly lower mean thymus weights (absolute and relative to brain) noted in the 150 and 450 mg/kg/day groups. Statistically significantly lower mean thymus weights (absolute and relative to brain) were also noted in the 25 mg/kg/day group.

There was no evidence of test substance-related toxicity at the exposure level of 5 mg/kg/day. In addition, intrauterine growth, survival, and fetal morphology at 5 mg/kg/day were unaffected by maternal test substance exposure.

The vehicle control group performed similarly to the sham control group during the study, with the exception of an increased incidence of desquamation noted in the vehicle control group compared to the sham control group. The vehicle (acetone) did not produce developmental toxicity during this study.

8. CONCLUSIONS

Maternal toxicity was evident in the 25, 150, and 450 mg/kg/day groups with adverse clinical and/or macroscopic findings and a higher incidence of dermal observations at these exposure levels. One and 3 females in the 150 and 450 mg/kg/day groups, respectively, were euthanized *in extremis* between gestation days 14-18 as a result of lower mean food consumption with corresponding mean body weight losses and/or lower mean body weight gains noted in these groups generally throughout the treatment period. Mean thymus weights (absolute and relative to brain) were noted in the 25, 150, and 450 mg/kg/day groups. No evidence of maternal toxicity was noted at 5 mg/kg/day. Developmental effects were noted in the 150 and 450 mg/kg/day groups as evidenced by increased mean litter proportions of postimplantation loss (primarily early resorptions) with a corresponding decrease in the mean numbers and litter proportions of viable fetuses. In addition, lower mean male, female, and combined fetal weights were noted in the 25 and 150 mg/kg/day groups. Lower fetal weights were also noted for the single surviving litter in the 450 mg/kg/day group. Test substance-related fetal developmental variations (sternebra[e] nos. 5 and/or 6 unossified, reduced ossification of the skull, reduced ossification of the vertebral arches, sternebra[e] nos. 1, 2, 3, and/or 4 unossified, and cervical centrum no.1 ossified) were noted in the 150 mg/kg/day group and for surviving fetuses in the 450 mg/kg/day group and were indicators of developmental delay and correlated to lower fetal weights. Intrauterine growth and survival at 5 mg/kg/day and fetal morphology at 5 and 25 mg/kg/day were unaffected by test substance administration.

Based on these results, an exposure level of 5 mg/kg/day was considered to be the no-observed-adverse-effect level (NOAEL) for maternal toxicity and embryo/fetal development when extract, light paraffinic distillate solvent was administered by dermal application to bred Crl:CD(SD) rats.

9. REPORT REVIEW AND APPROVAL

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Study Director

11 July 2012
Date

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10. QUALITY ASSURANCE STATEMENT

Date(s) of Inspection(s)	Phase Inspected	Date(s) Findings Reported to Study Director	Date(s) Findings Reported to Management
15-Sep-2011	Protocol Review	15-Sep-2011	25-Oct-2011
06-Oct-2011	Test Article Administration	06-Oct-2011	28-Nov-2011
12-Oct-2011	Food Consumption	12-Oct-2011	28-Nov-2011
24-Oct-2011	Laparohysterectomy and Fetal Examinations	24-Oct-2011	28-Nov-2011
03-Nov-2011	Protocol Amendment 1	03-Nov-2011	20-Dec-2011
09-Nov-2011	Protocol Amendment 2	09-Nov-2011	20-Dec-2011
15-Nov-2011, 16-Nov-2011	Study Records (I-1)	16-Nov-2011	20-Dec-2011
16-Nov-2011	Study Records (I-2)	16-Nov-2011	20-Dec-2011
16-Nov-2011	Study Records (Rx-1)	16-Nov-2011	20-Dec-2011
13-Dec-2011, 14-Dec-2011	Study Records (N-1)	14-Dec-2011	16-Jan-2012
13-Dec-2011, 15-Dec-2011, 16-Dec-2011	Study Records (A-1)	16-Dec-2011	16-Jan-2012
21-Dec-2011, 29-Dec-2011	Analytical Chemistry Report	29-Dec-2011	16-Jan-2012
02-Jan-2012, 03-Jan-2012	Draft Report without Analyses of Dosing Formulations Appendix	03-Jan-2012	23-Feb-2012
09-Jan-2012	Study Records (N-2)	09-Jan-2012	23-Feb-2012
11-Jan-2012	Audited Analytical Report	11-Jan-2012	23-Feb-2012
11-Jan-2012	Audited Draft	11-Jan-2012	23-Feb-2012
09-Jul-2012, 10-Jul-2012	Final Report	10-Jul-2012	10-Jul-2012

This study was inspected in accordance with the United States EPA GLP Standards (40 CFR Part 792), the OECD Principles of GLP [C(97) 186/Final], WIL Research's SOPs, and the Sponsor's protocol and protocol amendments, with the following exception. The data located in Appendix B (Test Substance Characterization) were the responsibility of the Sponsor. A yearly internal facility inspection is conducted by the WIL Research Quality Assurance Department.

This report accurately reflects the data generated during the study. The methods and procedures used in the study were those specified in the protocol, its amendments, and WIL Research's SOPs.

[redacted]

Quality Assurance Representative

11 Jul 2012
Date

11. REFERENCES

Dawson, A.B. A note on the staining of the skeleton of cleared specimens with Alizarin Red S. *Stain Technology* **1926**, *1*, 123-124.

Draize, J.H., The appraisal of the safety of chemicals in food, drugs, and cosmetics. *Dermal Toxicity* **1965**, 46-59.

Dunn, O.J. Multiple comparisons using rank sums. *Technometrics* **1964**, *6(3)*, 241-252.

Dunnett, C.W. New tables for multiple comparisons with a control. *Biometrics* **1964**, *20*, 482-491.

Freer, S.D. Analytical Validation and Stability Study of Extract, Light Paraffinic Distillate Solvent in Acetone Formulations (Study No. WIL-402026). WIL Research Laboratories, LLC, Ashland, OH, **2011**.

Freireich, E.J.; Gehan, E.A.; Rall, D.P.; Schmidt, L.H.; Skipper, H.E. Quantitative Comparison Toxicity of Anticancer Agents in Mouse, Rat, Hamster, Dog Monkey, and Man. *Cancer Chemotherapy Reports* **1966**, *50(4)*, 219-244.

Inouye, M. Differential staining of cartilage and bone in fetal mouse-skeleton by Alcian blue and Alizarin red S. *Congenital Anomalies* **1976,** *16,* 171-173.

Kruskal, W.H.; Wallis, W.A. Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association* **1952**, *47*, 583-621.

National Research Council. *Guide for the Care and Use of Laboratory Animals*, Institute of Laboratory Animal Resources, Commission on Life Sciences; National Academy Press: Washington, DC, **1996**.

Salewski, E. Färbemethode zum makroskopischen Nachweis von Implantationsstellen am Uterus der Ratte. [Staining method for a macroscopic test for implantation sites in the uterus of the rat]. *Naunyn - Schmiedebergs Archiv für Experimentelle Pathologie und Pharmakologie* **1964**, *247*, 367.

Snedecor, G.W.; Cochran, W.G. One-Way Classifications; Analysis of Variance. In *Statistical Methods*, 7th ed.; The Iowa State University Press: Ames, IA, **1980**; pp 215-237.

Stuckhardt, J.L.; Poppe, S.M. Fresh visceral examination of rat and rabbit fetuses used in teratogenicity testing. *Teratogenesis, Carcinogenesis and Mutagenesis* **1984**, *4*, 181-188.

Wilson, J.G. Embryological Considerations in Teratology. In *Teratology: Principles and Techniques;* Wilson, J.G. and Warkany, J., Eds.; The University of Chicago Press: Chicago, IL, **1965**; pp 251-277.

Woo, D.C.; Hoar, R.M. Apparent hydronephrosis as a normal aspect of renal development in late gestation of rats: the effect of methyl salicylate. *Teratology* **1972**, *6*, 191-196.

12. DATA RETENTION

The Sponsor has title to all documentation records, raw data, specimens, or other work product generated during the performance of the study. Any remaining dosing formulation samples were discarded upon issuance of the final report. All remaining work product generated by WIL Research, including raw paper data and specimens, are retained in the WIL Research Archives as specified in the study protocol.

Reserve samples of the test substance, pertinent electronic storage media, and the original final report are retained in the WIL Research Archives in compliance with regulatory requirements.

13. ABBREVIATIONS

The following abbreviations may apply to this report:

µ	-	micro
AAALAC	-	Association for Assessment and Accreditation of Laboratory Animal Care
ANOVA	-	analysis of variance
AVE	-	average response amplitude
cm	-	centimeter
dL	-	deciliter
EPA	-	Environmental Protection Agency
exp.	-	expiration
g	-	gram
GLP	-	Good Laboratory Practices
hr	-	hour(s)
kg	-	kilogram
L	-	liter
M	-	molar
mg	-	milligram
mL	-	milliliter
mm	-	millimeter
ms	-	milliseconds
mM	-	millimolar
NA	-	not applicable
no.	-	number
OECD	-	Organisation for Economic Cooperation and Development
OPPTS	-	Office of Prevention, Pesticides, and Toxic Substances
PAC	-	polycyclic aromatic compounds
RSD	-	Relative standard deviation
SOP	-	standard operating procedure
TSCA	-	Toxic Substances Control Act
WIL Research	-	WIL Research Laboratories, LLC
WTDMS™	-	WIL Toxicology Data Management System
wt.	-	weight
wts.	-	weights

TABLES S1 - S17

TABLE S1

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF MATERNAL SURVIVAL AND PREGNANCY STATUS

DOSE GROUP :	1		2		3		4		5		6	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
FEMALES ON STUDY	25		25		25		25		25		25	
FEMALES THAT ABORTED OR DELIVERED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
FEMALES THAT DIED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
FEMALES THAT ABORTED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NONGRAVID	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
GRAVID	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
FEMALES THAT WERE EUTHANIZED	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	3	12.0
NONGRAVID	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
GRAVID	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	3	100.0
FEMALES EXAMINED AT SCHEDULED NECROPSY	25	100.0	25	100.0	25	100.0	25	100.0	24	96.0	22	88.0
NONGRAVID	0	0.0	0	0.0	0	0.0	1	4.0	1	4.2	0	0.0
GRAVID	25	100.0	25	100.0	25	100.0	24	96.0	23	95.8	22	100.0
WITH RESORPTIONS ONLY	0	0.0	0	0.0	0	0.0	0	0.0	2	8.7	21	95.5
WITH VIABLE FETUSES	25	100.0	25	100.0	25	100.0	24	100.0	21	91.3	1	4.5
TOTAL FEMALES GRAVID	25	100.0	25	100.0	25	100.0	24	96.0	24	96.0	25	100.0

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

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11/21/2011

TABLE S2 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF CLINICAL FINDINGS: TOTAL OCCURRENCE/NO. OF ANIMALS

----- F E M A L E -----

TABLE RANGE:	10-04-11 TO 10-28-11					
GROUP:	1	2	3	4	5	6
NORMAL						
-NO SIGNIFICANT CLINICAL OBSERVATIONS	28/24	31/24	30/24	32/24	33/25	25/22
DISPOSITION						
-SCHEDULED EUTHANASIA; GESTATION DAY 20	25/25	25/25	25/25	25/25	24/24	22/22
-EUTHANIZED IN EXTREMIS	0/ 0	0/ 0	0/ 0	0/ 0	1/ 1	3/ 3
BODY/INTEGUMENT						
-DRIED YELLOW MATERIAL UROGENITAL AREA	119/18	98/16	88/17	134/19	129/21	138/25
-DRIED RED MATERIAL UROGENITAL AREA	2/ 2	5/ 4	6/ 4	15/ 4	103/22	169/24
-HAIR LOSS RIGHT FORELIMB	32/ 5	27/ 6	57/ 6	12/ 3	17/ 5	64/ 9
-HAIR LOSS RIGHT HINDLIMB	5/ 2	0/ 0	3/ 3	0/ 0	1/ 1	3/ 3
-HAIR LOSS LEFT FORELIMB	25/ 3	23/ 3	51/ 6	5/ 3	12/ 2	54/ 7
-WET YELLOW MATERIAL UROGENITAL AREA	0/ 0	1/ 1	3/ 3	2/ 2	3/ 3	4/ 4
-WET RED MATERIAL UROGENITAL AREA	0/ 0	0/ 0	0/ 0	0/ 0	3/ 3	16/10
-HAIR LOSS VENTRAL ABDOMINAL AREA	0/ 0	1/ 1	0/ 0	0/ 0	0/ 0	0/ 0
-DRIED YELLOW MATERIAL VENTRAL ABDOMINAL AREA	7/ 5	4/ 1	13/ 4	16/ 5	15/ 7	2/ 2
-BODY PALE	0/ 0	0/ 0	0/ 0	0/ 0	5/ 2	32/12
-BODY COOL	0/ 0	0/ 0	0/ 0	0/ 0	3/ 2	16/ 9
-WET RED MATERIAL VENTRAL ABDOMINAL AREA	0/ 0	0/ 0	0/ 0	0/ 0	2/ 2	0/ 0
EYES/EARS/NOSE						
-DRIED RED MATERIAL AROUND NOSE	482/25	482/25	477/25	482/25	474/25	467/25

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE S2 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF CLINICAL FINDINGS: TOTAL OCCURRENCE/NO. OF ANIMALS

----- F E M A L E -----

TABLE RANGE:	10-04-11 TO 10-28-11					
GROUP:	1	2	3	4	5	6
EYES/EARS/NOSE						
-DRIED RED MATERIAL AROUND RIGHT EYE	288/23	328/25	342/25	309/25	345/25	367/25
-DRIED RED MATERIAL AROUND LEFT EYE	261/25	335/25	325/24	313/25	344/25	347/25
-WET RED MATERIAL AROUND RIGHT EYE	0/ 0	2/ 2	1/ 1	2/ 2	0/ 0	1/ 1
-WET RED MATERIAL AROUND LEFT EYE	0/ 0	3/ 2	5/ 5	1/ 1	1/ 1	0/ 0
-WET RED MATERIAL AROUND NOSE	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	1/ 1
-HAIR LOSS AROUND NOSE	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	1/ 1
-HAIR LOSS AROUND RIGHT EYE	2/ 1	0/ 0	0/ 0	0/ 0	0/ 0	1/ 1
-HAIR LOSS AROUND LEFT EYE	2/ 1	0/ 0	1/ 1	0/ 0	0/ 0	1/ 1
EXCRETA						
-WET RED VAGINAL DISCHARGE	0/ 0	0/ 0	0/ 0	0/ 0	4/ 4	32/17
SPECIAL II						
-ANIMAL FOUND WITHOUT COLLAR	9/ 4	6/ 6	2/ 2	5/ 3	4/ 3	2/ 2

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE S3

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF POST-DOSE FINDINGS: TOTAL OCCURRENCE/NO. OF ANIMALS

----- F E M A L E -----

TABLE RANGE: 10-04-11 TO 10-27-11 GROUP:	1	2	3	4	5	6
NORMAL						
UNSCHED OBS (OUTSIDE +/- 15 MINUTES OF DOSE)						
-NO SIGNIFICANT CLINICAL OBSERVATIONS	0/0	0/0	0/0	0/0	1/1	0/0
TIME OF DOSE						
-NO SIGNIFICANT CLINICAL OBSERVATIONS	500/25	500/25	496/25	489/25	495/25	490/25
UNSCHED OBS (>0,<420 MINS)						
-NO SIGNIFICANT CLINICAL OBSERVATIONS	0/0	0/0	4/4	5/5	0/0	0/0
1-2 HOURS POST-DOSING						
-NO SIGNIFICANT CLINICAL OBSERVATIONS	499/25	488/25	484/25	462/25	454/25	401/25
UNSCHED OBS (>480 MINS)						
-NO SIGNIFICANT CLINICAL OBSERVATIONS	0/0	0/0	0/0	6/6	0/0	0/0
BODY/INTEGUMENT						
1-2 HOURS POST-DOSING						
-DRIED YELLOW MATERIAL UROGENITAL AREA	0/0	1/1	0/0	1/1	0/0	6/6
-DRIED RED MATERIAL UROGENITAL AREA	0/0	0/0	1/1	0/0	0/0	1/1
-WET YELLOW MATERIAL UROGENITAL AREA	0/0	10/5	14/11	18/12	19/14	28/17
-WET RED MATERIAL UROGENITAL AREA	0/0	1/1	1/1	2/2	0/0	4/4
-BODY PALE	0/0	0/0	0/0	0/0	1/1	2/2
EXCRETA						
1-2 HOURS POST-DOSING						
-WET RED VAGINAL DISCHARGE	1/1	0/0	0/0	17/8	22/14	50/18

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

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12/06/2011

TABLE S4 (DERMAL OBSERVATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF CLINICAL FINDINGS: TOTAL OCCURRENCE/NO. OF ANIMALS

----- F E M A L E -----

TABLE RANGE:	10-04-11 TO 10-28-11					
GROUP:	1	2	3	4	5	6
DERMAL OBS						
-SCORED, NOT REMARKABLE	521/25	511/25	505/25	467/25	472/25	424/25
-NO ERYTHEMA	4/ 4	14/11	20/10	58/19	46/17	87/22
-ERYTHEMA - VERY SLIGHT	0/ 0	0/ 0	0/ 0	0/ 0	2/ 1	0/ 0
-NO EDEMA	4/ 4	14/11	20/10	58/19	48/17	87/22
-DESQUAMATION	4/ 4	14/11	20/10	58/19	48/17	87/22

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

PCSUv4.07
11/21/2011

TABLE S5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF BODY WEIGHTS DURING GESTATION [G]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 0						
MEAN	257.	256.	256.	257.	254.	256.
S.D.	12.6	11.4	15.6	13.1	13.2	12.8
S.E.	2.5	2.3	3.1	2.7	2.7	2.6
N	25	25	25	24	24	25
DAY 3						
MEAN	260.	261.	259.	255.	250.	246.d
S.D.	13.8	13.1	16.1	15.3	14.7	17.0
S.E.	2.8	2.6	3.2	3.1	3.0	3.4
N	25	25	25	24	24	25
DAY 6						
MEAN	274.	274.	273.	271.	265.	253.d
S.D.	13.2	16.0	17.9	16.3	17.1	17.4
S.E.	2.6	3.2	3.6	3.3	3.5	3.5
N	25	25	25	24	24	25
DAY 9						
MEAN	283.	286.	285.	283.	275.	259.d
S.D.	14.5	14.6	18.0	15.8	15.5	18.9
S.E.	2.9	2.9	3.6	3.2	3.2	3.8
N	25	25	25	24	24	25
DAY 12						
MEAN	301.	304.	300.	297.	287.d	273.d
S.D.	16.3	15.9	20.4	16.7	15.5	19.5
S.E.	3.3	3.2	4.1	3.4	3.2	3.9
N	25	25	25	24	24	25

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
d = Significantly different from control group 2 at 0.01 using Dunnett's test
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 15						
MEAN	323.	323.	318.	315.	293.d	263.d
S.D.	17.1	16.7	18.0	18.8	20.1	23.6
S.E.	3.4	3.3	3.6	3.8	4.1	4.8
N	25	25	25	24	24	24
DAY 18						
MEAN	366.	365.	363.	355.	319.d	259.d
S.D.	21.1	20.7	22.6	20.0	26.1	27.5
S.E.	4.2	4.1	4.5	4.1	5.4	5.7
N	25	25	25	24	23	23
DAY 20						
MEAN	399.	399.	399.	381.	327.d	255.d
S.D.	23.3	22.0	24.5	21.7	35.7	26.8
S.E.	4.7	4.4	4.9	4.4	7.4	5.7
N	25	25	25	24	23	22

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
d = Significantly different from control group 2 at 0.01 using Dunnett's test
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

PGBWSUv5.10
11/21/2011

TABLE S6

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF BODY WEIGHT CHANGES DURING GESTATION [G]

GROUP:		0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 0- 3							
	MEAN	3.	5.	2.	-1.c	-4.d	-10.d
	S.D.	7.7	6.6	7.8	6.8	8.2	8.7
	S.E.	1.5	1.3	1.6	1.4	1.7	1.7
	N	25	25	25	24	24	25
DAY 3- 6							
	MEAN	14.	13.	14.	15.	14.	7.c
	S.D.	5.7	10.0	5.6	7.9	6.6	9.0
	S.E.	1.1	2.0	1.1	1.6	1.4	1.8
	N	25	25	25	24	24	25
DAY 6- 9							
	MEAN	9.	13.	12.	13.	10.	6.c
	S.D.	8.2	8.7	6.5	7.6	8.4	10.5
	S.E.	1.6	1.7	1.3	1.6	1.7	2.1
	N	25	25	25	24	24	25
DAY 9- 12							
	MEAN	18.	18.	15.	13.c	12.d	15.
	S.D.	7.6	5.0	7.0	5.7	5.2	5.7
	S.E.	1.5	1.0	1.4	1.2	1.1	1.1
	N	25	25	25	24	24	25
DAY 12- 15							
	MEAN	21.	19.	18.	19.	5.d	-10.d
	S.D.	7.1	6.1	10.3	6.6	11.6	13.3
	S.E.	1.4	1.2	2.1	1.4	2.4	2.7
	N	25	25	25	24	24	24

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
c = Significantly different from control group 2 at 0.05 using Dunnett's test
d = Significantly different from control group 2 at 0.01 using Dunnett's test
MEAN DIFFERENCES CALCULATED FROM INDIVIDUAL DIFFERENCES
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE S6

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM SUMMARY OF BODY WEIGHT CHANGES DURING GESTATION [G]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 15- 18						
MEAN	43.	42.	45.	39.	24.d	-4.d
S.D.	8.0	7.3	9.3	5.9	15.0	8.7
S.E.	1.6	1.5	1.9	1.2	3.1	1.8
N	25	25	25	24	23	23
DAY 18- 20						
MEAN	33.	35.	36.	26.d	8.d	-4.d
S.D.	6.3	4.3	5.9	4.8	13.9	8.1
S.E.	1.3	0.9	1.2	1.0	2.9	1.7
N	25	25	25	24	23	22
DAY 0- 20						
MEAN	143.	143.	142.	124.d	72.d	-1.d
S.D.	19.1	18.5	15.4	16.3	32.1	22.6
S.E.	3.8	3.7	3.1	3.3	6.7	4.8
N	25	25	25	24	23	22

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
d = Significantly different from control group 2 at 0.01 using Dunnett's test
MEAN DIFFERENCES CALCULATED FROM INDIVIDUAL DIFFERENCES
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

PGBWSUv5.10
11/21/2011

TABLE S7

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
INITIAL BODY WT.						
MEAN	257.	256.	256.	257.	255.	256.
S.D.	12.6	11.4	15.6	13.1	13.4	12.6
S.E.	2.5	2.3	3.1	2.7	2.8	2.7
N	25	25	25	24	23	22
TERMINAL BODY WT.						
MEAN	399.	399.	399.	381.	327.d	255.d
S.D.	23.3	22.0	24.5	21.7	35.7	26.8
S.E.	4.7	4.4	4.9	4.4	7.4	5.7
N	25	25	25	24	23	22
GRAVID UTERINE WT.						
MEAN	88.4	84.8	85.9	75.8	35.1d	4.1d
S.D.	14.94	8.30	10.91	11.09	24.19	4.17
S.E.	2.99	1.66	2.18	2.26	5.04	0.89
N	25	25	25	24	23	22
NET BODY WT.						
MEAN	310.8	314.6	312.7	305.0	291.6d	250.6d
S.D.	14.44	18.03	20.64	16.23	22.82	25.12
S.E.	2.89	3.61	4.13	3.31	4.76	5.36
N	25	25	25	24	23	22
NET BODY WT. CHANGE						
MEAN	54.1	58.5	56.5	48.3	36.9d	-5.1d
S.D.	12.89	13.96	11.39	12.83	15.21	20.84
S.E.	2.58	2.79	2.28	2.62	3.17	4.44
N	25	25	25	24	23	22

MODIFIED STATISTICS USED

For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.

d = Significantly different from control group 2 at 0.01 using Dunnett's test

PUTSUv5.07
11/21/2011

TABLE S8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FOOD CONSUMPTION DURING GESTATION [G/ANIMAL/DAY]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 0- 3						
MEAN	19.	19.	19.	18.	16.d	15.d
S.D.	2.1	2.3	2.2	2.2	2.8	2.6
S.E.	0.4	0.5	0.4	0.4	0.6	0.5
N	25	25	25	24	24	25
DAY 3- 6						
MEAN	21.	21.	21.	20.	19.d	16.d
S.D.	2.1	2.6	2.1	2.9	2.8	3.3
S.E.	0.4	0.5	0.4	0.6	0.6	0.7
N	25	25	25	24	24	25
DAY 6- 9						
MEAN	22.	24.	23.	23.	19.d	19.d
S.D.	4.5	2.4	1.9	2.1	5.6	2.6
S.E.	0.9	0.5	0.4	0.4	1.2	0.5
N	25	24	25	24	24	25
DAY 9- 12						
MEAN	25.	25.	23.	23.	21.d	22.c
S.D.	2.8	3.3	3.4	3.9	4.8	3.4
S.E.	0.6	0.7	0.7	0.8	1.0	0.7
N	25	25	25	24	24	25
DAY 12- 15						
MEAN	26.	27.	26.	26.	23.d	20.d
S.D.	3.8	2.8	3.2	3.6	3.2	4.7
S.E.	0.8	0.6	0.6	0.7	0.7	1.0
N	25	25	25	24	24	24

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
c = Significantly different from control group 2 at 0.05 using Dunnett's test
d = Significantly different from control group 2 at 0.01 using Dunnett's test
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 15- 18						
MEAN	30.	30.	30.	29.	27.d	21.d
S.D.	2.5	2.7	3.1	1.6	3.1	5.2
S.E.	0.5	0.5	0.6	0.3	0.6	1.1
N	25	25	25	24	23	23
DAY 18- 20						
MEAN	31.	32.	31.	29.d	26.d	21.d
S.D.	1.9	3.0	2.9	2.2	3.8	3.4
S.E.	0.4	0.6	0.6	0.4	0.8	0.7
N	25	25	25	24	23	22
DAY 0- 20						
MEAN	25.	25.	24.	24.c	22.d	19.d
S.D.	1.8	2.0	1.6	1.7	2.3	2.3
S.E.	0.4	0.4	0.3	0.3	0.5	0.5
N	25	25	25	24	23	22

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
c = Significantly different from control group 2 at 0.05 using Dunnett's test
d = Significantly different from control group 2 at 0.01 using Dunnett's test
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE S9

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 0- 3						
MEAN	74.	75.	73.	72.	65.d	60.d
S.D.	6.5	8.7	8.6	6.8	10.7	8.7
S.E.	1.3	1.7	1.7	1.4	2.2	1.7
N	25	25	25	24	24	25
DAY 3- 6						
MEAN	79.	80.	78.	75.	72.c	64.d
S.D.	7.4	9.6	6.4	10.2	8.8	11.4
S.E.	1.5	1.9	1.3	2.1	1.8	2.3
N	25	25	25	24	24	25
DAY 6- 9						
MEAN	78.	84.	81.	82.	70.d	74.d
S.D.	15.3	8.3	6.3	5.6	20.8	10.3
S.E.	3.1	1.7	1.3	1.1	4.3	2.1
N	25	24	25	24	24	25
DAY 9- 12						
MEAN	86.	84.	78.	79.	76.	82.
S.D.	8.8	10.1	10.1	13.3	16.7	12.0
S.E.	1.8	2.0	2.0	2.7	3.4	2.4
N	25	25	25	24	24	25
DAY 12- 15						
MEAN	85.	87.	84.	84.	80.	75.d
S.D.	11.0	7.7	9.8	10.4	10.1	16.1
S.E.	2.2	1.5	2.0	2.1	2.1	3.3
N	25	25	25	24	24	24

MODIFIED STATISTICS USED

For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.

c = Significantly different from control group 2 at 0.05 using Dunnett's test

d = Significantly different from control group 2 at 0.01 using Dunnett's test

NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE S9

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
DAY 15- 18						
MEAN	88.	88.	89.	88.	89.	79.d
S.D.	6.0	5.2	7.9	4.6	7.5	15.4
S.E.	1.2	1.0	1.6	0.9	1.6	3.2
N	25	25	25	24	23	23
DAY 18- 20						
MEAN	81.	84.a	82.	80.	82.	80.
S.D.	4.9	6.2	6.7	6.4	10.7	12.5
S.E.	1.0	1.2	1.3	1.3	2.2	2.7
N	25	25	25	24	23	22
DAY 0- 20						
MEAN	80.	82.	79.	79.	76.d	73.d
S.D.	4.4	4.6	3.5	4.6	5.8	5.9
S.E.	0.9	0.9	0.7	0.9	1.2	1.2
N	25	25	25	24	23	22

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
a = Significantly different from control group 1 at 0.05 using two-sample t-test
d = Significantly different from control group 2 at 0.01 using Dunnett's test
NONGRAVID WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

PGFWSUv5.16
11/21/2011
R:12/16/2011

TABLE S10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF MATERNAL MACROSCOPIC FINDINGS

GROUP :	1	2	3	4	5	6
NUMBER EXAMINED	25	25	25	25	25	25
NO SIGNIFICANT CHANGES OBSERVED	25	22	24	25	16	10
NONGRAVID -- AMMONIUM SULFIDE NEGATIVE	0	0	0	0	1	0
GRAVID -- AMMONIUM SULFIDE POSITIVE	0	0	0	0	0	1
SKIN: MATTING, RED	0	0	0	0	2	4
UTERUS: CONTENTS, DARK RED	0	0	0	0	6	4
EUTHANIZED GESTATION DAY 14	0	0	0	0	0	1
EUTHANIZED GESTATION DAY 15	0	0	0	0	1	0
VAGINA: CONTENTS, DARK RED	0	0	0	0	3	2
KIDNEYS: PALE	0	0	0	0	1	0
PITUITARY: PALE	0	0	0	0	1	0
EUTHANIZED GESTATION DAY 16	0	0	0	0	0	1
LIVER: AREA(S), WHITE	0	1	1	0	0	1
EUTHANIZED GESTATION DAY 18	0	0	0	0	0	1
BRAIN: PALE	0	0	0	0	0	1
PITUITARY: PALE	0	0	0	0	0	1
OVARIES: PALE	0	0	0	0	0	1
PLACENTAE: ENLARGED	0	0	0	0	0	1
THYMUS: SMALL	0	0	0	0	1	6
BONE: RAISED AREA(S)	0	0	0	0	1	0
KIDNEYS: AREA(S), DEPRESSED	0	1	0	0	0	0
PINEAL BODY: DISCOLORATION, YELLOW	0	0	0	0	1	0
PINEAL BODY: FIRM	0	0	0	0	1	0
PINEAL BODY: CYST(S)	0	0	0	0	1	0
THYMUS: AREA(S), DARK RED	0	0	0	0	0	1
PLACENTAE: FUSED	0	1	0	0	0	0

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GROUP :	1	2	3	4	5	6
NUMBER EXAMINED	25	25	25	25	25	25
CERVIX: CONTENTS, DARK RED	0	0	0	0	1	0
PLACENTAE: PALE	0	0	0	0	1	0
PINEAL BODY: ENLARGED	0	0	0	0	1	0

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE S11

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF ORGAN WEIGHTS AND RELATIVE ORGAN WEIGHTS

FEMALES

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
BRAIN (G)						
MEAN	1.92	1.91	1.90	1.91	1.90	1.85
S.D.	0.068	0.092	0.086	0.091	0.068	0.091
S.E.	0.014	0.018	0.017	0.019	0.014	0.019
N	24	25	25	24	23	22
LIVER (G)						
MEAN	16.51	16.71	16.59	17.29	16.85	15.72
S.D.	0.998	1.249	1.588	0.933	1.667	1.978
S.E.	0.200	0.250	0.318	0.191	0.348	0.422
N	25	25	25	24	23	22
LIVER (G/100 G BRAIN)						
MEAN	857.261	875.306	872.981	905.963	886.537	850.874
S.D.	63.1976	80.1895	79.5067	65.5090	85.5155	93.8943
S.E.	12.9001	16.0379	15.9013	13.3720	17.8312	20.0183
N	24	25	25	24	23	22
THYMUS (G)						
MEAN	0.2564	0.2532	0.2639	0.2097c	0.1535d	0.0643d
S.D.	0.07251	0.07518	0.05673	0.05410	0.04887	0.03170
S.E.	0.01450	0.01504	0.01135	0.01104	0.01019	0.00676
N	25	25	25	24	23	22
THYMUS (G/100 G BRAIN)						
MEAN	13.261	13.262	13.875	10.960c	8.074d	3.491d
S.D.	3.9936	3.9734	2.9309	2.7824	2.5367	1.7274
S.E.	0.8152	0.7947	0.5862	0.5680	0.5289	0.3683
N	24	25	25	24	23	22

MODIFIED STATISTICS USED

For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.

c = Significantly different from control group 2 at 0.05 using Dunnett's test

d = Significantly different from control group 2 at 0.01 using Dunnett's test

NONGRAVID WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

POFBSTv5.26
11/21/2011

TABLE S12

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY

GROUP	SEX M	SEX F	VIABLE FETUSES	DEAD FETUSES	RESORPTIONS EARLY	RESORPTIONS LATE	POST IMPLANTATION LOSS	IMPLANTATION SITES	CORPORA LUTEA	PRE IMPLANTATION LOSS	FETAL WEIGHTS IN GRAMS	NO. OF GRAVID FEMALES
1 TOTAL	188	189	377	0	15	0	15	392	411	19	NA	25
MEAN	7.5	7.6	15.1	0.0	0.6	0.0	0.6	15.7	16.4	0.8	3.9	
S.D.	2.40	2.31	2.71	0.00	0.71	0.00	0.71	2.34	2.26	1.05	0.26	
S.E.	0.48	0.46	0.54	0.00	0.14	0.00	0.14	0.47	0.45	0.21	0.05	
2 TOTAL	183	178	361	0	28	0	28	389	414	25	NA	25
MEAN	7.3	7.1	14.4	0.0	1.1	0.0	1.1	15.6	16.6	1.0	3.9	
S.D.	2.30	2.37	1.50	0.00	1.20	0.00	1.20	1.33	2.75	2.14	0.23	
S.E.	0.46	0.47	0.30	0.00	0.24	0.00	0.24	0.27	0.55	0.43	0.05	
3 TOTAL	185	185	370	0	20	1	21	391	406	15	NA	25
MEAN	7.4	7.4	14.8	0.0	0.8	0.0	0.8	15.6	16.2	0.6	3.8	
S.D.	2.24	2.08	1.87	0.00	0.96	0.20	0.94	1.70	1.83	1.22	0.23	
S.E.	0.45	0.42	0.37	0.00	0.19	0.04	0.19	0.34	0.37	0.24	0.05	
4 TOTAL	175	154	329	0	28	1	29	358	382	24	NA	24
MEAN	7.3	6.4	13.7	0.0	1.2	0.0	1.2	14.9	15.9	1.0	3.7c	
S.D.	2.20	1.67	2.18	0.00	1.55	0.20	1.53	2.21	1.84	1.56	0.23	
S.E.	0.45	0.34	0.44	0.00	0.32	0.04	0.31	0.45	0.38	0.32	0.05	
5 TOTAL	84	53	137	1	204	8	213	350	362	12	NA	23
MEAN	3.7	2.3	6.0d	0.0	8.9	0.3	9.3	15.2	15.7	0.5	3.1d	
S.D.	3.21	2.38	5.00	0.21	5.02	0.78	5.12	1.78	1.76	0.73	0.41	
S.E.	0.67	0.50	1.04	0.04	1.05	0.16	1.07	0.37	0.37	0.15	0.09	

MODIFIED STATISTICS USED

For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.

c = Significantly different from control group 2 at 0.05

d = Significantly different from control group 2 at 0.01

NA = NOT APPLICABLE

MEAN NUMBER OF VIABLE FETUSES, MEAN NUMBER OF IMPLANTATION SITES, MEAN NUMBER OF CORPORA LUTEA, FETAL WEIGHTS COMPARED USING DUNNETT'S TEST OR TWO-SAMPLE T-TEST

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE S12

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY

GROUP	SEX M	SEX F	VIABLE FETUSES	DEAD FETUSES	RESORPTIONS EARLY	RESORPTIONS LATE	POST IMPLANTATION LOSS	IMPLANTATION SITES	CORPORA LUTEA	PRE IMPLANTATION LOSS	FETAL WEIGHTS IN GRAMS	NO. OF GRAVID FEMALES
6 TOTAL	3	0	3	0	341	0	341	344	364	20	NA	22
MEAN	0.1	0.0	0.1d	0.0	15.5	0.0	15.5	15.6	16.5	0.9	2.4	
S.D.	0.64	0.00	0.64	0.00	2.24	0.00	2.24	2.11	2.32	1.54	0.00	
S.E.	0.14	0.00	0.14	0.00	0.48	0.00	0.48	0.45	0.50	0.33	0.00	

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group
NA = NOT APPLICABLE
MEAN NUMBER OF VIABLE FETUSES, MEAN NUMBER OF IMPLANTATION SITES, MEAN NUMBER OF CORPORA LUTEA,
FETAL WEIGHTS COMPARED USING DUNNETT'S TEST

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

PLSUv5.12
11/21/2011
R:12/16/2011

TABLE S13

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
CORPORA LUTEA						
MEAN	16.4	16.6	16.2	15.9	15.7	16.5
S.D.	2.26	2.75	1.83	1.84	1.76	2.32
S.E.	0.45	0.55	0.37	0.38	0.37	0.50
N	25	25	25	24	23	22
IMPLANTATION SITES						
MEAN	15.7	15.6	15.6	14.9	15.2	15.6
S.D.	2.34	1.33	1.70	2.21	1.78	2.11
S.E.	0.47	0.27	0.34	0.45	0.37	0.45
N	25	25	25	24	23	22
VIABLE FETUSES (%)						
MEAN	95.9	93.0	94.6	92.3	39.1d	0.9d
S.D.	4.84	7.43	5.79	9.63	33.35	4.26
S.E.	0.97	1.49	1.16	1.97	6.95	0.91
N	25	25	25	24	23	22
DEAD FETUSES (%)						
MEAN	0.0	0.0	0.0	0.0	0.3	0.0
S.D.	0.00	0.00	0.00	0.00	1.23	0.00
S.E.	0.00	0.00	0.00	0.00	0.26	0.00
N	25	25	25	24	23	22
EARLY RESORPTIONS (%)						
MEAN	4.2	7.1	5.1	7.4	58.6d	99.1d
S.D.	4.85	7.44	5.89	9.76	33.38	4.26
S.E.	0.97	1.49	1.18	1.99	6.96	0.91
N	25	25	25	24	23	22

PROPORTIONAL (%) DATA COMPARED USING DUNN'S TEST
CORPORA LUTEA AND IMPLANTATION SITES COMPARED USING DUNNETT'S TEST OR TWO-SAMPLE T-TEST
MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
d = Significantly different from control group 2 at 0.01

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
LATE RESORPTIONS (%)						
MEAN	0.0	0.0	0.2	0.3	2.1	0.0
S.D.	0.00	0.00	1.18	1.37	4.59	0.00
S.E.	0.00	0.00	0.24	0.28	0.96	0.00
N	25	25	25	24	23	22
TOTAL RESORPTIONS (%)						
MEAN	4.2	7.1	5.4	7.7	60.6d	99.1d
S.D.	4.85	7.44	5.79	9.63	33.09	4.26
S.E.	0.97	1.49	1.16	1.97	6.90	0.91
N	25	25	25	24	23	22
PRE-IMPLANTATION LOSS (%)						
MEAN	4.6	4.9	3.4	6.2	3.3	5.0
S.D.	6.24	8.66	6.65	10.16	4.55	8.35
S.E.	1.25	1.73	1.33	2.07	0.95	1.78
N	25	25	25	24	23	22
POST-IMPLANTATION LOSS (%)						
MEAN	4.2	7.1	5.4	7.7	60.9d	99.1d
S.D.	4.85	7.44	5.79	9.63	33.34	4.26
S.E.	0.97	1.49	1.16	1.97	6.95	0.91
N	25	25	25	24	23	22
MALES (%)						
MEAN	49.6	50.8	49.8	52.7	63.4	100.0
S.D.	14.18	15.61	13.05	11.63	31.15	0.00
S.E.	2.84	3.12	2.61	2.37	6.80	0.00
N	25	25	25	24	21	1

PROPORTIONAL (%) DATA COMPARED USING DUNN'S TEST
MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
d = Significantly different from control group 2 at 0.01

TABLE S13

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

GROUP:	0 MG/KG/DAY SHAM	0 MG/KG/DAY VEH.	5 MG/KG/DAY	25 MG/KG/DAY	150 MG/KG/DAY	450 MG/KG/DAY
FEMALES (%)						
MEAN	50.4	49.2	50.2	47.3	36.6	0.0
S.D.	14.18	15.61	13.05	11.63	31.15	0.00
S.E.	2.84	3.12	2.61	2.37	6.80	0.00
N	25	25	25	24	21	1
MALE FETAL WEIGHTS (g)						
MEAN	4.0	4.0	3.9	3.8c	3.2d	2.4
S.D.	0.23	0.23	0.23	0.26	0.42	0.00
S.E.	0.05	0.05	0.05	0.05	0.10	0.00
N	25	25	25	24	19	1
FEMALE FETAL WEIGHTS (g)						
MEAN	3.8	3.8	3.7	3.6c	2.9d	NA
S.D.	0.28	0.26	0.22	0.26	0.38	
S.E.	0.06	0.05	0.04	0.05	0.10	
N	25	25	25	24	16	
COMBINED FETAL WEIGHTS (g)						
MEAN	3.9	3.9	3.8	3.7c	3.1d	2.4
S.D.	0.26	0.23	0.23	0.23	0.41	0.00
S.E.	0.05	0.05	0.05	0.05	0.09	0.00
N	25	25	25	24	21	1

PROPORTIONAL (%) DATA COMPARED USING DUNN'S TEST
FETAL WEIGHTS COMPARED USING DUNNETT'S TEST OR TWO-SAMPLE T-TEST
MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
c = Significantly different from control group 2 at 0.05
d = Significantly different from control group 2 at 0.01

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11/21/2011
R:12/16/2011

TABLE S14

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FETUSES AND LITTERS WITH MALFORMATIONS [ABSOLUTE NO.]

DAY 20

	FETUSES						LITTERS					
DOSE GROUP:	1	2	3	4	5	6	1	2	3	4	5	6
NUMBER EXAMINED EXTERNALLY	377	361	370	329	137	3	25	25	25	24	21	1
OMPHALOCELE	1	0	0	0	0	0	1	0	0	0	0	0
NUMBER EXAMINED VISCERALLY	377	361	370	329	137	3	25	25	25	24	21	1
RETROESOPHAGEAL AORTIC ARCH	0	0	1	0	0	0	0	0	1	0	0	0
NUMBER EXAMINED SKELETALLY	377	361	370	329	137	3	25	25	25	24	21	1
VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY	0	0	0	1	0	0	0	0	0	1	0	0
RIB ANOMALY	1	0	0	0	0	0	1	0	0	0	0	0
STERNEBRA(E) MALALIGNED (SEVERE)	1	0	0	0	0	0	1	0	0	0	0	0
ONLY 12 PAIR OF RIBS PRESENT	0	4	0	0	0	0	0	1	0	0	0	0
24 PRESACRAL VERTEBRAE	0	1	0	0	0	0	0	1	0	0	0	0
TOTAL NUMBER WITH MALFORMATIONS												
EXTERNAL :	1	0	0	0	0	0	1	0	0	0	0	0
SOFT TISSUE :	0	0	1	0	0	0	0	0	1	0	0	0
SKELETAL :	1	4	0	1	0	0	1	1	0	1	0	0
COMBINED :	1	4	1	1	0	0	1	1	1	1	0	0

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

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01/11/2012

TABLE S15

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED EXTERNALLY		25	25	25	24	21	1
OMPHALOCELE	MEAN	0.3	0.0	0.0	0.0	0.0	0.0
	S.D.	1.33	0.00	0.00	0.00	0.00	0.00
	S.E.	0.27	0.00	0.00	0.00	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

TABLE S15

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED VISCERALLY		25	25	25	24	21	1
RETROESOPHAGEAL AORTIC ARCH	MEAN	0.0	0.0	0.3	0.0	0.0	0.0
	S.D.	0.00	0.00	1.25	0.00	0.00	0.00
	S.E.	0.00	0.00	0.25	0.00	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

TABLE S15

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED SKELETALLY		25	25	25	24	21	1
VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY	MEAN	0.0	0.0	0.0	0.3	0.0	0.0
	S.D.	0.00	0.00	0.00	1.28	0.00	0.00
	S.E.	0.00	0.00	0.00	0.26	0.00	0.00
RIB ANOMALY	MEAN	0.3	0.0	0.0	0.0	0.0	0.0
	S.D.	1.33	0.00	0.00	0.00	0.00	0.00
	S.E.	0.27	0.00	0.00	0.00	0.00	0.00
STERNEBRA(E) MALALIGNED (SEVERE)	MEAN	0.3	0.0	0.0	0.0	0.0	0.0
	S.D.	1.33	0.00	0.00	0.00	0.00	0.00
	S.E.	0.27	0.00	0.00	0.00	0.00	0.00
ONLY 12 PAIR OF RIBS PRESENT	MEAN	0.0	1.0	0.0	0.0	0.0	0.0
	S.D.	0.00	5.00	0.00	0.00	0.00	0.00
	S.E.	0.00	1.00	0.00	0.00	0.00	0.00
24 PRESACRAL VERTEBRAE	MEAN	0.0	0.3	0.0	0.0	0.0	0.0
	S.D.	0.00	1.25	0.00	0.00	0.00	0.00
	S.E.	0.00	0.25	0.00	0.00	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

TABLE S15

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED		25	25	25	24	21	1
TOTAL MALFORMATIONS							
PERCENT PER LITTER WITH EXTERNAL MALFORMATIONS	MEAN	0.3	0.0	0.0	0.0	0.0	0.0
	S.D.	1.33	0.00	0.00	0.00	0.00	0.00
	S.E.	0.27	0.00	0.00	0.00	0.00	0.00
PERCENT PER LITTER WITH SOFT TISSUE MALFORMATIONS	MEAN	0.0	0.0	0.3	0.0	0.0	0.0
	S.D.	0.00	0.00	1.25	0.00	0.00	0.00
	S.E.	0.00	0.00	0.25	0.00	0.00	0.00
PERCENT PER LITTER WITH SKELETAL MALFORMATIONS	MEAN	0.3	1.0	0.0	0.3	0.0	0.0
	S.D.	1.33	5.00	0.00	1.28	0.00	0.00
	S.E.	0.27	1.00	0.00	0.26	0.00	0.00
TOTAL PERCENT PER LITTER WITH MALFORMATIONS	MEAN	0.3	1.0	0.3	0.3	0.0	0.0
	S.D.	1.33	5.00	1.25	1.28	0.00	0.00
	S.E.	0.27	1.00	0.25	0.26	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

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01/11/2012

TABLE S16

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF FETUSES AND LITTERS WITH VARIATIONS [ABSOLUTE NO.]

DAY 20

	FETUSES						LITTERS					
DOSE GROUP:	1	2	3	4	5	6	1	2	3	4	5	6
NUMBER EXAMINED EXTERNALLY	377	361	370	329	137	3	25	25	25	24	21	1
NUMBER WITH FINDINGS	0	0	0	0	0	0	0	0	0	0	0	0
NUMBER EXAMINED VISCERALLY	377	361	370	329	137	3	25	25	25	24	21	1
RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S)	9	2	8	6	1	0	4	2	1	4	1	0
MAJOR BLOOD VESSEL VARIATION	1	0	0	2	2	0	1	0	0	2	2	0
SPLEEN- PALE	0	0	0	2	0	0	0	0	0	1	0	0
NUMBER EXAMINED SKELETALLY	377	361	370	329	137	3	25	25	25	24	21	1
HYOID UNOSSIFIED	1	2	2	0	0	0	1	2	2	0	0	0
STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	46	36	42	39	35	2	17	14	12	12	11	1
14TH RUDIMENTARY RIB(S)	19	42	34	14	5	1	13	12	13	8	3	1
CERVICAL CENTRUM #1 OSSIFIED	59	48	89	34	5	0	16	17	23	11	5	0
REDUCED OSSIFICATION OF THE SKULL	4	1	1	1	3	1	2	1	1	1	3	1
REDUCED OSSIFICATION OF THE VERTEBRAL ARCHES	0	1	1	0	2	0	0	1	1	0	2	0
STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED	1	0	1	0	2	1	1	0	1	0	2	1
7TH CERVICAL RIB(S)	3	3	1	2	0	0	3	3	1	2	0	0
BENT RIB(S)	4	0	0	0	0	0	3	0	0	0	0	0
STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1	1	2	1	1	0	1	1	1	1	1	0
PUBIS UNOSSIFIED	1	0	0	0	1	0	1	0	0	0	1	0
REDUCED OSSIFICATION OF THE 13TH RIB(S)	2	0	3	3	1	0	1	0	3	2	1	0
27 PRESACRAL VERTEBRAE	2	0	0	1	2	0	2	0	0	1	2	0
25 PRESACRAL VERTEBRAE	0	3	0	0	0	0	0	1	0	0	0	0

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

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01/11/2012

TABLE S17

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF VARIATIONS

% PER LITTER DAY 20

DOSE GROUP:	1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED EXTERNALLY	25	25	25	24	21	1
NUMBER OF LITTERS WITH FINDINGS	0	0	0	0	0	0

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

TABLE S17

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF VARIATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED VISCERALLY		25	25	25	24	21	1
RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S)	MEAN	2.4	0.6	1.8	1.9	0.4	0.0
	S.D.	7.14	2.06	8.89	4.96	1.82	0.00
	S.E.	1.43	0.41	1.78	1.01	0.40	0.00
MAJOR BLOOD VESSEL VARIATION	MEAN	0.3	0.0	0.0	0.7	1.2	0.0
	S.D.	1.33	0.00	0.00	2.25	4.05	0.00
	S.E.	0.27	0.00	0.00	0.46	0.88	0.00
SPLEEN- PALE	MEAN	0.0	0.0	0.0	0.5	0.0	0.0
	S.D.	0.00	0.00	0.00	2.55	0.00	0.00
	S.E.	0.00	0.00	0.00	0.52	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

TABLE S17

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF VARIATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED SKELETALLY		25	25	25	24	21	1
HYOID UNOSSIFIED	MEAN	0.3	0.6	0.6	0.0	0.0	0.0
	S.D.	1.25	1.91	2.15	0.00	0.00	0.00
	S.E.	0.25	0.38	0.43	0.00	0.00	0.00
STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	MEAN	12.7	9.9	12.1	11.8	25.1	66.7
	S.D.	17.20	12.14	19.28	22.54	31.87	0.00
	S.E.	3.44	2.43	3.86	4.60	6.95	0.00
14TH RUDIMENTARY RIB(S)	MEAN	5.4	11.5	9.3	4.3	2.1	33.3
	S.D.	7.07	17.00	11.81	6.76	6.27	0.00
	S.E.	1.41	3.40	2.36	1.38	1.37	0.00
CERVICAL CENTRUM #1 OSSIFIED	MEAN	16.8	12.8	24.5	10.7	7.1	0.0
	S.D.	19.22	11.94	21.63	15.55	21.93	0.00
	S.E.	3.84	2.39	4.33	3.17	4.79	0.00
REDUCED OSSIFICATION OF THE SKULL	MEAN	1.0	0.3	0.3	0.3	2.0	33.3
	S.D.	3.46	1.25	1.43	1.28	5.17	0.00
	S.E.	0.69	0.25	0.29	0.26	1.13	0.00
REDUCED OSSIFICATION OF THE VERTEBRAL ARCHES	MEAN	0.0	0.3	0.3	0.0	5.6	0.0
	S.D.	0.00	1.25	1.43	0.00	21.94	0.00
	S.E.	0.00	0.25	0.29	0.00	4.79	0.00
STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED	MEAN	0.4	0.0	0.3	0.0	1.5	33.3
	S.D.	1.82	0.00	1.43	0.00	5.58	0.00
	S.E.	0.36	0.00	0.29	0.00	1.22	0.00
7TH CERVICAL RIB(S)	MEAN	0.8	0.8	0.3	0.7	0.0	0.0
	S.D.	2.38	2.22	1.43	2.46	0.00	0.00
	S.E.	0.48	0.44	0.29	0.50	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

TABLE S17

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM SUMMARY OF LITTER PROPORTIONS OF VARIATIONS

% PER LITTER DAY 20

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED SKELETALLY		25	25	25	24	21	1
BENT RIB(S)	MEAN	1.0	0.0	0.0	0.0	0.0	0.0
	S.D.	3.05	0.00	0.00	0.00	0.00	0.00
	S.E.	0.61	0.00	0.00	0.00	0.00	0.00
STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	MEAN	0.4	0.3	0.5	0.3	0.3	0.0
	S.D.	1.82	1.33	2.35	1.46	1.45	0.00
	S.E.	0.36	0.27	0.47	0.30	0.32	0.00
PUBIS UNOSSIFIED	MEAN	0.3	0.0	0.0	0.0	0.3	0.0
	S.D.	1.25	0.00	0.00	0.00	1.45	0.00
	S.E.	0.25	0.00	0.00	0.00	0.32	0.00
REDUCED OSSIFICATION OF THE 13TH RIB(S)	MEAN	0.4	0.0	0.8	0.8	0.8	0.0
	S.D.	1.90	0.00	2.27	2.88	3.64	0.00
	S.E.	0.38	0.00	0.45	0.59	0.79	0.00
27 PRESACRAL VERTEBRAE	MEAN	0.6	0.0	0.0	0.3	7.1	0.0
	S.D.	1.94	0.00	0.00	1.57	23.90	0.00
	S.E.	0.39	0.00	0.00	0.32	5.22	0.00
25 PRESACRAL VERTEBRAE	MEAN	0.0	0.8	0.0	0.0	0.0	0.0
	S.D.	0.00	3.75	0.00	0.00	0.00	0.00
	S.E.	0.00	0.75	0.00	0.00	0.00	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

DOSE GROUP:		1	2	3	4	5	6
NUMBER OF LITTERS EXAMINED		25	25	25	24	21	1
TOTAL VARIATIONS							
PERCENT PER LITTER WITH EXTERNAL VARIATIONS	MEAN	0.0	0.0	0.0	0.0	0.0	0.0
	S.D.	0.00	0.00	0.00	0.00	0.00	0.00
	S.E.	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT PER LITTER WITH SOFT TISSUE VARIATIONS	MEAN	2.6	0.6	1.8	3.0	1.6	0.0
	S.D.	8.37	2.06	8.89	5.56	4.33	0.00
	S.E.	1.67	0.41	1.78	1.13	0.94	0.00
PERCENT PER LITTER WITH SKELETAL VARIATIONS	MEAN	32.0	33.3	41.8	27.8	38.5	100.0
	S.D.	22.91	20.09	26.14	23.78	36.63	0.00
	S.E.	4.58	4.02	5.23	4.85	7.99	0.00
TOTAL PERCENT PER LITTER WITH VARIATIONS	MEAN	34.4	33.9	43.2	29.4	39.8	100.0
	S.D.	23.14	20.89	26.24	23.25	36.64	0.00
	S.E.	4.63	4.18	5.25	4.75	7.99	0.00

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

MODIFIED STATISTICS USED
For statistical analyses, control group 1 was compared to group 2; control group 2 was compared to groups 3, 4, 5 and 6.
None significantly different from control group

APPENDIX A

Study Protocol and Deviations

DEVIATIONS FROM THE PROTOCOL

This study was conducted in accordance with the protocol and protocol amendments, except for the following.

PLANNED DEVIATIONS

- **Protocol Section 8.5.4** states that all animals would be dosed at approximately the same time each day. Beginning on 10 October 2011, the start of dosing was adjusted gradually to an earlier start time.

  Reason for Deviation: The adjustment in the start time of dosing facilitated study activities during normal business hours of the Testing Facility.

UNPLANNED DEVIATIONS

- **Protocol Section 7.4** states that feed jars would be provided without savers or lids to accommodate feeding with collars. This is generally documented on the Colony Room Log form T1-031 upon animal receipt. However, this documentation was inadvertently omitted on form T1-031. It is presumed that feed jars without savers or lids were used on this study.

  Reason for Deviation: Technician error.

- **Protocol Section 8.1** states that during the quarantine period, each rat would be observed twice daily for changes in general appearance and behavior. There is no documentation that these checks were performed on 24 September 2011; however, the animals were in quarantine during this time and received checks the following day and were found to be in good health.

  Reason for Deviation: Technician error.

- **Protocol Section 8.4** states that a different set of clippers would be used for control and treated animals to avoid potential cross-contamination. On 6 October (gestation day 0, 1, or 2), 7 October (gestation day 0, 1, 2, or 3), and 12 October 2011 (gestation day 4, 5, 6, 7, or 8), documentation of separate clippers being used for control and treated animals was inadvertently omitted, although it is presumed that separate clippers were used.

  Reason for Deviation: Technician error.

- **Protocol Section 8.7.1** states that during the treatment period, each animal would be observed at the time of dosing. On 10 October 2011 (gestation day 6), a dose time of 1055 hours was entered for animal no. 28350 in the 150 mg/kg/day group; however, a 0-hour observation was inadvertently not entered at that time. When the omission was discovered, an observation was recorded and designated as a 0-hour observation at 1848 hours. Per Study Director instructions, this observation was late entered into the 0-hour observation file.

  Reason for Deviation: Technician error.

GLP DEVIATIONS

- A GLP deviation from sections 792.83 of 40 CFR Part 792 and 4.4 of OECD [C(97) 186/Final] occurred on 3 October 2011 when calibration standards and quality control samples were processed with ethyl acetate that had expired on 31 August 2011. This error was discovered on 6 October 2011. Fresh calibration standards, quality control samples, and back-up formulation samples were then processed with non-expired ethyl acetate. The analytical run from 11 October 2011 was valid and met WIL Research SOP criteria.

These deviations did not negatively impact the quality or integrity of the data nor the outcome of the study.

Study Number: WIL-402015

PROTOCOL AMENDMENT 2

Sponsor: American Petroleum Institute

Title of Study:

A Dermal Prenatal Developmental Toxicity Study Of Extract, Light Paraffinic Distillate Solvent Rats

Protocol Modifications:

The following revision to Amendment 1 is added:

1) **10 Statistical Methods:**

   For all statistical analysis, the treated groups (Groups 3, 4, 5 and 6) will be compared to the vehicle group (Group 2), and the vehicle group (Group 2) will be compared to the sham group (Group 1). ~~All analysis~~ **The analysis between Groups 1 and 2** will be conducted using a two sample t-test (Snedecor and Cochran, 1980).

Reasons for Protocol Modification:

1) This modification clarifies the statistics to be performed.

Approval:

Sponsor's approval was obtained via email on 09 Nov 2011.
Date

WIL Research Laboratories, LLC

[redacted] 09 Nov 2011
Date

[redacted] 9 Nov 2011
Date
Senior Director, Developmental and
Reproductive Toxicology

American Petroleum Institute

[redacted] 10 Nov. 2011
Date
Sponsor Representative

Study Number: WIL-402015

PROTOCOL AMENDMENT 1

Sponsor: American Petroleum Institute

Title of Study:

A Dermal Prenatal Developmental Toxicity Study of Extract, Light Paraffinic Distillate Solvent Rats

Protocol Modifications:

The following paragraph is added:

1) **10 Statistical Methods:**

   For all statistical analysis, the treated groups (Groups 3, 4, 5 and 6) will be compared to the vehicle group (Group 2), and the vehicle group (Group 2) will be compared to the sham group (Group 1). All analysis will be conducted using a two sample t-test (Snedecor and Cochran, 1980).

The following section is added:

2) **10.4 Organ Weight Data:**

   Organ weights (relative to brain weights) will be subjected to a parametric ANOVA test (Snedecor and Cochran, 1980) and Dunnett's test (1964) as described above.

Reasons for Protocol Modification:

1) This modification clarifies the statistics to be performed.

2) This modification adds information on the statistics to be performed on the organ weight data.

Approval:

Sponsor's approval was obtained via email on 04 Nov 2011.
Date

WIL Research Laboratories, LLC

[redacted]
Study Director

04 Nov 2011
Date

[redacted]
Senior Director, Developmental and
Reproductive Toxicology

4 Nov 2011
Date

American Petroleum Institute

[redacted]
Sponsor Representative

10 Nov 2011
Date

PROTOCOL

A DERMAL PRENATAL DEVELOPMENTAL TOXICITY STUDY OF EXTRACT, LIGHT PARAFFINIC DISTILLATE SOLVENT IN RATS

(U.S. EPA OCSPP and OECD Guidelines)

WIL Study Number: WIL-402015

Submitted To:

American Petroleum Institute
1220 L Street, NW
Washington, DC 20005

WIL Research Laboratories, LLC
1407 George Road
Ashland, OH 44805-8946

1 OBJECTIVE:

The objectives of this study are to 1) To determine the effects of prenatal, dermal exposure to test material on pregnant rats and developing offspring. 2) To provide data to verify/expand the domain of the PAC (polycyclic aromatic compounds) prenatal models for predicting the toxicity of high-boiling petroleum substances from their PAC content. 3) To further test the hypothesis that developmental toxicity endpoints are more sensitive to effects of high-boiling petroleum substances than other reproductive endpoints, such as fertility or reproductive organ weight and histopathology.

This study will be conducted in accordance with the United States Environmental Protection Agency (EPA) Health Effects Test Guidelines OCSPP 870.3700, Prenatal Developmental Toxicity Study, August, 1998 and the Organisation of Economic Co-operation and Development Guidelines (OECD) for Testing of Chemicals Guideline 414, Prenatal Developmental Toxicity Study, January 2001. This study will be conducted in compliance with the EPA/TSCA and OECD [C(97) 186/Final] Principles of Good Laboratory Practice.

2 PERSONNEL INVOLVED IN THE STUDY:

2.1 Sponsor's Representative:

[redacted]
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
Tel: (202) 682-8344
Email: [redacted]

2.2 Sponsor's Technical Monitor:

[redacted]
Senior Toxicologist
ExxonMobil Biomedical Sciences, Inc.
1545 Route 22 East
Annandale, New Jersey 08801
Tel: (908) 730-1017
Email: [redacted]

2.3 WIL Study Director:

[redacted]
Staff Toxicologist, Developmental
and Reproductive Toxicology
Tel: (419) 289-8700
Fax: (419) 289-3650
Email: [redacted]

2.4 WIL Departmental Responsibilities:

[redacted]
Senior Toxicologist, Developmental
and Reproductive Toxicology
Emergency Contact
Tel: (419) 289-8700
Fax: (419) 289-3650
E-mail: [redacted]

[redacted]
President and Chief Operating Officer

[redacted]
Senior Director, Developmental
and Reproductive Toxicology

[redacted]
Assistant Director, Developmental and
Reproductive Toxicology

[redacted]
Assistant Director, Neurosciences
and Head of Juvenile Toxicology

[redacted]
Director, Operations

[redacted]
Clinical Veterinarian

[redacted]
Manager, Gross Pathology and
Developmental Toxicology Laboratory

[redacted]
Vice President, Pathology

[redacted]
Assistant Director, Analytical Chemistry

[redacted]
Director, Informational Systems

[redacted]
Manager, Quality Assurance

[redacted]
Operations Manager, Reporting and
Technical Support Services

3 STUDY SCHEDULE:

Proposed Experimental Starting (Animal Receipt) Date:	September 22, 2011
Proposed Experimental Start (First Day of Dosing) Date:	October 04, 2011
Proposed Experimental Completion/Termination Date:	October 28, 2011
Proposed Audited Report Date:	January 11, 2012

4 TEST SUBSTANCE DATA:

4.1 Test Substance Shipment:

Test Substance is stored with applicable documentation of characterization at the Testing Facility.

If additional Test Substance is required, applicable documentation of characterization will be shipped under Sponsor's responsibility to:

Formulations Laboratory (WIL-402015; [redacted]
Attn: [redacted]
WIL Research Laboratories, LLC
1407 George Road
Ashland, Ohio 44805-8946
Tel: (419) 289-8700
Fax: (419) 289-3650
Email: [redacted]

4.2 Identification:

Extract, light paraffinic distillate solvent (CAS# 64742-05-8)

Also known as distillate aromatic extract (DAE)

4.3 Lot Number:

7:23

4.4 Expiration/Retest Date:

Retest after five years.

4.5 Purity:

100%

4.6 Stability:

The test substance is considered to be stable under the storage conditions provided by the Sponsor.

4.7 Physical Description:

To be documented by WIL Research Laboratories, LLC.

4.8 Storage Conditions:

Room temperature, protected from light.

4.9 Reserve Samples:

Reserve samples of the test substance will be taken in accordance with WIL Standard Operating Procedures and stored in the Archives at WIL Research Laboratories, LLC indefinitely, unless otherwise specified.

4.10 Personnel Safety:

Routine safety precautions apply. It is the responsibility of the Sponsor to notify the testing facility of any special handling requirements for the test substance. A Material Safety Data Sheet (MSDS) will be provided.

4.11 Test Substance Disposition:

Unless otherwise indicated, all unused test substance will be retained for subsequent studies or returned to the Sponsor's contact listed below:

EPL Archives, Inc.
45610 Terminal Drive
Sterling, VA 20166
Attn: [redacted] (703) 435-8780 x212

5 VEHICLE CONTROL DATA:

5.1 Identification:

Acetone, Min. 99.0% (2-propanone, CAS# 67-64-1, Spectrum Chemical Mfg. Corpl, product code AC115).

5.2 Lot Number:

To be documented by WIL Research Laboratories, LLC.

5.3 Expiration/Retest Date:

To be documented by WIL Research Laboratories, LLC.

5.4 Stability:

The test substance is considered to be stable under the storage conditions provided by the Supplier.

5.5 Storage Conditions:

Room temperature.

6 TEST SYSTEM:

6.1 Species:

Rat

6.2 Strain:

Sprague Dawley Crl:CD(SD)

6.3 Source:

Charles River Laboratories, Inc.
(Facility to be documented in the study records)

6.4 Number on Study:

150 females (maximum of 180 purchased). A sufficient number of sexually mature untreated resident males of the same strain and source will be used to induce pregnancies. Animals not assigned to the study will be transferred to the stock animal colony or will be euthanized by carbon dioxide inhalation and the carcasses discarded.

The number of animals selected for this study is based on the US EPA Health Effects Test Guidelines OCSPP 870.3700, Prenatal Development Toxicity Study, August 1998 and the OECD Guidelines for Testing of Chemicals Guideline 414, Prenatal Developmental Toxicity Study, January 2001.

6.5 Body Weight Range:

A minimum of 220g at initiation of breeding.

6.6 Approximate Age:

80 to 120 days at the initiation of breeding.

6.7 Identification System:

The animals will be uniquely identified by a Monel® metal ear tag displaying the animal number. Individual cage cards will be affixed to each cage and will display the animal number, group number, study number, dosage level and sex of the animal.

6.8 Justification for Selection:

This species and strain of rat has been recognized as appropriate for developmental toxicity studies. WIL Research Laboratories, LLC has historical data on the background incidence of fetal malformations and developmental variations in the Crl:CD(SD) rat. This animal model has been proven to be susceptible to the effects of developmental toxicants.

7 SPECIFIC MAINTENANCE SCHEDULE:

7.1 Animal Housing:

Female rats will be individually housed (except during mating) in clean suspended wire-mesh cages in an environmentally controlled room during the study. The cages will be elevated above cage-board or other suitable material, which will be changed at least three times each week. Nesting material will not be provided, as euthanasia is scheduled prior to anticipated parturition. The cages will be subjected to routine cleaning at a frequency consistent with maintaining good animal health and WIL Standard Operating Procedures. The facilities at WIL Research Laboratories, LLC are accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International).

7.2 Environmental Conditions:

Controls will be set to maintain temperature at 71 ± 5°F (22 ± 3°C) and relative humidity at 50 ± 20%. Temperature and relative humidity will be monitored continuously. Data for these two parameters will be scheduled for automatic collection on an hourly basis. Fluorescent lighting controlled by light timers will provide illumination for a 12-hour light/dark photoperiod. The ventilation rate will be set at a minimum of 10 room air changes per hour, 100% fresh air.

7.3 Drinking Water:

Reverse osmosis-purified water will be available *ad libitum*. Filters servicing the automatic watering system are changed regularly according to WIL Standard Operating Procedures. The municipal water supplying the laboratory is analyzed according to WIL Standard Operating Procedures on a routine basis to ensure that contaminants are not present in concentrations that would be expected to affect the outcome of the study.

7.4 Basal Diet:

PMI Nutrition International, LLC Certified Rodent LabDiet® 5002 will be offered *ad libitum* during the study **and provided without savers and lids to accommodate feeding with collars.** Periodic analyses of the certified feed are performed by the manufacturer to ensure that heavy metals and pesticides are not present at concentrations that would be expected to affect the outcome of the study. Results of the analyses are provided to WIL Research Laboratories, LLC by the manufacturer. Feeders will be changed and sanitized once per week.

8 EXPERIMENTAL DESIGN:

8.1 Animal Receipt and Quarantine:

Each rat will be inspected by a qualified technician upon receipt. Rats judged to be in good health and suitable as test animals will be immediately placed in quarantine for a minimum of 10 days. All rats will be initially weighed, permanently identified with a metal ear tag and receive a clinical observation. During the quarantine period, each rat will be observed twice daily for changes in general appearance and behavior. Body weights may be recorded prior to the initiation of breeding. Prior to the start of the in-life phase, those rats judged to be suitable test subjects will be identified. The animals will be acclimated to the Elizabethan-style collars prior to the mating period. The collars will be affixed to each rat for approximately 1, 4, 8 and at least 24 hours for 4 consecutive days during the quarantine period.

8.2 Breeding Procedure:

At the conclusion of the quarantine period, female rats judged to be suitable test subjects and meeting acceptable body weight requirements will be cohabitated with untreated resident male rats (1:1) of the same strain and source in suspended wire-mesh cages for mating (home cage of the male). Detection of mating will be confirmed by evidence of a copulatory plug in the vagina or by a vaginal lavage for sperm. After confirmation of mating, the female will be returned to an individual suspended wire-mesh cage (assigned to a group), and the day will be designated as day 0 of gestation.

8.3 Randomization:

Mated females will be assigned to groups using a WIL Toxicology Data Management System (WTDMS™) computer program which assigns animals based on stratification of gestation day 0 body weights into a block design to one vehicle control group, one sham control group and four test substance groups of 25 rats each.

Any animal assigned to the study that is found dead, euthanized *in extremis* or exhibits abnormal clinical signs, reduced food consumption or body weight losses prior to the start of dosing may be replaced by an animal of appropriate gestation age when possible. Replacement animals will be arbitrarily assigned (not computer randomized) to the study based on comparable body weights (if possible) with respect to the animal that was replaced.

8.4 Route and Rationale of Test Substance Administration:

The route of administration will be dermal as this is a potential route of exposure for humans.

All animals will be clipped in the dorsal scapular area (covering approximately 10% of the body surface) prior to the start of dose administration and, as needed, thereafter during the administration period (repeated clippings will be performed prior to or at least 2-4 hours after dose administration). A different set of clippers will be used for control and treated animals to avoid potential for cross-contamination. Care will be taken not to abrade the skin. The test article and vehicle will be applied approximately in the center of the clipped area and distributed to avoid running.

Elizabethan-style collars will be used to minimize ingestion of the test material. Collars will be worn continuously during the dosing period. Collars will be fitted on the rats several days prior to the initiation of dosing and replaced as necessary during the dosing period.

8.5 Organization of Test Groups, Dosage Levels and Treatment Regimen:

8.5.1 Organization of Test Groups:

The dosage levels will be determined from results of previous studies and will be provided by the Sponsor Representative after consultation with the WIL Study Director.

The following table presents the study group arrangement.

Group Number	Test Substance	Dosage Level (mg/kg/day)	Dosage Concentration (mg/mL)	Dosage Volume (mL/kg)	Number of Females
1	Sham Control	0	0	0	25
2	Vehicle Control	0	0	1.5	25
3	Test substance[a]	5	3.3	1.5	25
4	Test substance[a]	25	16.7	1.5	25
5	Test substance[a]	150	100	1.5	25
6	Test substance[a]	450	300	1.5	25

a- The test substance used for Groups 3-6 is Extract, light paraffinic distillate solvent.

8.5.2 Sham Control:

The Group 1 sham control animals will be subject to the same procedures (i.e. shaving, collaring, sham dosing with glass rod and removal of residual test substance) as animals in Groups 2-6. However, no vehicle or test substance will be applied to the sham control animals.

8.5.3 Vehicle Control Substance:

Acetone, Min. 99.0% (2-propanone, CAS# 67-64-1, Spectrum Chemical Mfg. Corpl, product code AC115).

8.5.4 Treatment Regimen:

The test article will be administered as a single daily dose, applied over as much of the the clipped dorsal scapular area (approximately 10% of total body surface area) as possible and distributed to avoid running, from implantation through the period of major organogenesis, gestation days 0 through 19. The four corners of the application site will be delineated on each presumed pregnant rat with indelible ink to allow proper identification of the treated and untreated skin. If the test substance does not cover at least 10% of the total body surface, the actual body surface area covered by the test substance will be documented for 2 representative rats/sex/group once weekly.

All animals will be dosed at approximately the same time each day. Following the 6-hour exposure period, the test site will be gently patted using a disposable paper towel in an effort to remove the residual test substance. If needed, the test site can be gently patted with gauze moistened with the vehicle and then again with dry gauze or dry disposable paper towel.

8.5.5 Adjustment of Doses:

Individual dosages will be calculated on the most recent body weight to provide the proper mg/kg/day dosage.

8.6 Preparation and Analysis of Test Substance Formulations:

8.6.1 Method and Frequency of Preparation:

The test substance will be prepared for dosing as a weight-to-volume mixture in acetone. The dosing formulations will be prepared approximately weekly. A complete and detailed description of the methods of test substance preparation will be included in the study records and described in the final report.

8.6.2 Homogeneity, Resuspension Homogeneity, and Stability of Test Substance Formulations

Analyses to demonstrate homogeneity and resuspension homogeneity as well as 10-day room temperature stability for the range of concentrations to be used on this study was conducted by the Analytical Chemistry Department at WIL Research Laboratories, LLC (WIL-402026, Freer, 2011) prior to the initiation of dosing.

8.6.3 Concentration and Homogeneity Analysis

Two sets of duplicate samples will be collected from the top, middle, and bottom stratum of each dosing formulation on the first and last day of preparation. Each sample will be collected using a class A glass volumetric pipette from the middle of each stratum of each formulation. One set of duplicate samples will be stored at room temperature as reserve samples and will be discarded upon the Study Director's approval of results. The other set of samples will be analyzed using a method validated by WIL Research Laboratories, LLC to confirm concentration and homogeneity of the bulk test substance formulations.

An analytical chemistry report will be included as an appendix to the main report.

8.7 Maternal Observations During Gestation:

8.7.1 Appearance and Behavior:

Each rat will be observed twice daily for moribundity and mortality, once in the morning and once in the afternoon from gestation day 0 until euthanasia. Clinical observations will be recorded daily. Mortality and all signs of overt toxicity will be recorded on the day observed. The observations shall include, but are not limited to, evaluation for changes in appearance of skin and fur, eyes, mucous membranes, respiratory and circulatory system, autonomic and central nervous systems, somatomotor activity and behavior. All animals will also be observed on the day of necropsy and any findings will be recorded.

During the treatment period, each animal will be observed at the time of dosing and approximately 1 - 2 hours following each sham and dose administration for findings that are potentially related to treatment or that might change before the next scheduled observation. Additional post-dosing observations may be necessary and will be documented in the study records.

8.7.2 Dermal Observations:

Application sites will be examined for erythema, edema and other dermal findings daily (prior to dose administration) using a four-step grading system in accordance with the method of Draize (Appendix A), and inspected for remarkable changes. Other dermal findings, if present, will be noted.

8.7.3 Body Weights:

Individual body weights will be recorded once prior to breeding and on gestation days 0, 3, 6, 9, 12, 15, 18, and 20. Collars will be removed during collection of body weights.

8.7.4 Food Consumption:

Individual food consumption will be recorded on gestation days 0, 3, 6, 9, 12, 15, 18, and 20. Food intake will be reported as g/animal/day and g/kg/day for each corresponding body weight interval of gestation.

8.7.5 Deaths and Animals Euthanized *in Extremis*:

Females not surviving until the scheduled euthanasia will be necropsied and cause of death recorded, if possible. Rats not expected to survive to the next observation period (moribund) will be euthanized by carbon dioxide inhalation. The cranial, thoracic, abdominal and pelvic cavities will be opened and the organs examined. The number and location of implantation sites and viable fetuses will be recorded. Corpora lutea will also be counted and recorded. Uteri which appear nongravid by macroscopic examination will be opened and placed in a 10% ammonium sulfide solution (Salewski, 1964) for detection of early implantation loss. Carcasses from adult animals will be discarded. Viable fetuses will be euthanized by a subcutaneous injection of sodium pentobarbital in the scapular region. Recognizable fetuses will be examined externally and preserved in 10% neutral-buffered formalin. Maternal tissues will be collected and preserved as described in Section 8.8.2.1 and organ weights will be collected for animals euthanized *in extremis* only as described in Section 8.8.2.2.

8.7.6 Premature Deliveries:

Females that deliver prematurely will be euthanized by carbon dioxide inhalation that day. The cranial, thoracic, abdominal and pelvic cavities will be opened and the organs examined. The number and location of former implantation sites and viable fetuses will be recorded. Corpora lutea will also be counted and recorded. Carcasses from adult animals will be discarded. Viable fetuses or pups will be euthanized by a subcutaneous (scapular region) or intraperitoneal injection of sodium pentobarbital (as appropriate). Recognizable fetuses or pups will be examined externally and preserved in 10% neural buffered formalin. Recognizable fetuses or pups aborted on GD 20 will be examined according to Section 8.8.3, if possible. Maternal tissues will be

collected and preserved as described in Section 8.8.2.1 and organ weights will be collected as described in Section 8.8.2.2.

8.8 Scheduled Necropsy – Gestation Day 20:

8.8.1 Laparohysterectomy and Macroscopic Examination:

Laparohysterectomy and macroscopic examinations will be performed blind to treatment group. All surviving rats will be euthanized by carbon dioxide inhalation on gestation day 20. The cranial, thoracic, abdominal and pelvic cavities will be opened and the organs examined. The uterus of each dam will be excised and its adnexa trimmed. Corpora lutea will be counted and recorded. Gravid uterine weights will be obtained and recorded. The uterus of each dam will be opened and the number of viable and nonviable fetuses, early and late resorptions and total number of implantation sites will be recorded, and the placentae will be examined. The individual uterine distribution will be documented using the following procedure: all implantation sites, including early and late resorptions, will be numbered in consecutive fashion beginning with the left distal uterine horn, noting the position of the cervix and continuing from the proximal to the distal right uterine horn. Uteri which appear nongravid by macroscopic examination will be opened and placed in a 10% ammonium sulfide solution as described by Salewski (Salewski, 1964) for detection of early implantation loss. Maternal tissues listed in section 8.8.2.1 will be preserved for future histopathologic examination in 10% neutral buffered formalin. Representative sections of corresponding organs from a sufficient number of controls will be retained for comparison, if possible, for all gross lesions. The carcasses will be discarded.

8.8.2 Anatomic Pathology:

8.8.2.1 Macroscopic Examination:

At the time of necropsy, the following maternal tissues and organs will be collected and placed in 10% neutral-buffered formalin for possible future analysis:

Treated skin
Untreated skin (right hindlimb)
Liver (2 sections)
Brain
Thymus
All gross lesions[a]

a Representative sections of corresponding organs from a sufficient number of controls will be retained for comparison, if possible.

8.8.2.2 Organ Weights:

The following organs will be weighed from all animals euthanized at scheduled termination, *in extremis*, or delivered prematurely. Organ-to-brain-weight ratios will be calculated.

Liver
Brain
Thymus gland

8.8.3 Fetal Examination:

Fetal examinations will be conducted without knowledge of treatment group. External, internal and skeletal fetal findings will be recorded as developmental variations or malformations. Representative photographs of all malformations, as appropriate, will be included in the study records. Corresponding low magnification photographs, depicting both the malformed fetus and a comparison control fetus, or normal littermate, will also be included in the study records as needed and as appropriate for comparison, when possible. Prenatal data (viable and nonviable fetuses, early and late resorptions, pre- and post-implantation loss and the fetal sex distribution) will be presented on a group mean basis and additionally as proportional data (% per litter).

8.8.3.1 External:

Each viable fetus will be examined in detail, sexed, weighed, euthanized by a subcutaneous injection of sodium pentobarbital in the scapular region and tagged. Nonviable fetuses (the degree of autolysis is minimal or absent) will be examined, crown-rump length measured, weighed, sexed and tagged individually. The crown-rump length of late resorptions (advanced degree of autolysis) will be measured, the degree of autolysis recorded, a gross external examination performed (if possible) and the tissue will be discarded.

8.8.3.2 Visceral (Internal):

Fetuses will be examined for visceral anomalies by dissection in the fresh (non-fixed) state. The thoracic and abdominal cavities will be opened and dissected using a technique described by Stuckhardt and Poppe (1984). Fetal kidneys will be examined and graded for renal papillae development (Woo and Hoar, 1972). This examination will include the heart and major

vessels. The sex of all fetuses will be confirmed by internal examination.

The heads will be removed from approximately one-half of the fetuses in each litter and placed in Bouin's solution for subsequent processing and soft-tissue examination using the Wilson sectioning technique (Wilson, 1965).

The heads from the remaining one-half of the fetuses in each litter will be examined by a mid-coronal slice.

All carcasses, including the carcasses without heads, will be eviscerated, skinned and fixed in 100% ethyl alcohol for subsequent examination of skeletons.

8.8.3.3 Skeletal:

Each eviscerated fetus, following fixation in alcohol, will be macerated in potassium hydroxide and stained with Alizarin Red S and Alcian Blue by a method similar to that described by Dawson (1926) and Inouye (1976). The skeletal examination will be made following this procedure.

9 DURATION OF STUDY:

The quarantine, breeding and gestation phases of the study will require approximately two months. The laparohysterectomy phase of the study and processing and evaluation of the fetal specimens will require approximately four weeks.

10 STATISTICAL METHODS:

All analyses will be two-tailed for significance levels of 5% and 1%. All statistical tests will be performed using a computer with appropriate programming as referenced below. Data from nongravid females will be excluded from calculation of means and from comparative statistics. The litter, rather than the fetus, will be considered as the experimental unit.

10.1 Maternal In-Life Data:

Continuous data variables [mean body weights (absolute and net), body weight gains (absolute and net) and food consumption of each interval] will be subjected to a parametric one-way analysis of variance (ANOVA) (Snedecor and Cochran, 1980) to determine intergroup difference. If the results of the ANOVA are significant ($p<0.05$), Dunnett's test (Dunnett, 1964) will be applied to the data.

10.2 Laparohysterectomy Data:

The group mean numbers of corpora lutea, implantation sites, viable fetuses, maternal gravid uterine weights and mean fetal weight (separately by sex, and combined) will be subjected to a parametric one-way analysis of variance (ANOVA) (Snedecor and Cochran, 1980) and Dunnett's test (1964) as described above. The mean litter proportions of prenatal data (% per litter of viable and nonviable fetuses, early and late resorptions, total resorptions, pre- and post-implantation loss and the fetal sex distribution) will be subjected to the Kruskal-Wallis nonparametric ANOVA test (Kruskal and Wallis, 1952) to determine intergroup difference. If the results of the ANOVA are significant ($p<0.05$), the Dunn's Test (Dunn, 1964) will be applied to the data.

10.3 Fetal Morphology Data:

The mean litter proportion (% per litter) of total fetal malformations and developmental variations (external, visceral, skeletal and combined) and of each particular external, visceral and skeletal malformation or variation will be tabulated. The mean litter proportions of fetal malformations and developmental variations will be subjected to the Kruskal-Wallis nonparametric ANOVA test (1952) followed by the Dunn's Test (1964) (if appropriate) as described above

11 QUALITY ASSURANCE:

The study will be audited by the WIL Quality Assurance Department while in progress to assure compliance with Good Laboratory Practice Regulations, adherence to the protocol and to WIL Standard Operating Procedures. The protocol, protocol amendments, raw data, draft report and final report will be audited by the WIL Quality Assurance Department prior to submission to the Sponsor to assure that the final report accurately describes the conduct and the findings of the study. This study will be conducted in compliance with the EPA/TSCA and OECD [C(97) 186/Final] Principles of Good Laboratory Practice.

This study will be included on the WIL master list of regulated studies.

12 RECORDS TO BE MAINTAINED:

All original raw data records, as defined by WIL SOPs and the applicable GLPs, will be stored as described in Section 13 in the Archives at WIL Research Laboratories, LLC.

13 WORK PRODUCT:

The Sponsor will have title to all documentation records, raw data, specimens and other work product generated during the performance of the study. Any remaining

samples (e.g. formulation) will be discarded after issuance of the Final Report. All work product, including raw paper data, pertinent electronic storage media and specimens, will be retained at no charge for six months following issuance of the final report in the Archives at WIL Research Laboratories, LLC. Thereafter, WIL Research Laboratories, LLC will charge a monthly archiving fee for retention of all work product. All work product will be stored in compliance with regulatory requirements.

Any work product, including documents, specimens, and samples, that are required by this protocol, its amendments, or other written instructions of the Sponsor, to be shipped by WIL Research Laboratories, LLC to another location will be appropriately packaged and labeled as defined by WIL's SOPs and delivered to a common carrier for shipment. WIL Research Laboratories, LLC will not be responsible for shipment following delivery to the common carrier.

14 REPORTS:

The final report will contain a summary, test article information, methods and procedures, appropriate individual animal and summary data tables, WIL Historical Control Data, supporting sub-reports (e.g. analytical chemistry report etc.), a copy of the protocol and amendment(s), if any, and an interpretation and discussion of the study results. The final report will be comprehensive and shall define level(s) inducing toxic effects as well as no-effect level(s) under the conditions of this investigation. The report will contain all information necessary to conform with current EPA OCSPP and OECD specifications.

WIL Research Laboratories, LLC will submit an electronic copy (PDF and MS Word copy of the report text for editing and comments) of the audited draft report in a timely manner upon completion of data collection prior to issuance of the final report. It is expected that the Sponsor will review the draft report and provide comments to WIL Research Laboratories, LLC within a two-month time frame following submission. WIL Research Laboratories, LLC shall provide a revised draft report that incorporates the Sponsor's reasonable revisions and suggestions. One revision will be permitted as part of the cost of the study; additional changes or revisions may be made, at extra cost. WIL Research Laboratories, LLC shall submit the final report within two weeks of receiving authorization to finalize the report from the Sponsor. If the Sponsor's comments and/or authorization to finalize the report have not been received at WIL Research Laboratories, LLC within one year following submission of the draft report, WIL Research Laboratories, LLC may elect to finalize the report following appropriate written notification to the Sponsor. Two electronic copies (PDF) of the final report on CD-R will be provided; requests for paper copies of the final report may result in additional charges.

15 ANIMAL WELFARE ACT COMPLIANCE:

This study will comply with all applicable sections of the Final Rules of the Animal Welfare Act (AWA) regulations (9 CFR Parts 1, 2 and 3). The Sponsor should make particular note of the following:

- The Sponsor Representative's signature on this protocol documents for the Study Director the Sponsor's assurance that the study described in this protocol does not unnecessarily duplicate previous experiments.

- Whenever possible, procedures used in this study have been designed to avoid or minimize discomfort, distress or pain to animals. All methods are described in this study protocol or in written laboratory Standard Operating Procedures.

- Animals that experience severe or chronic pain or distress that cannot be relieved will be painlessly euthanized as deemed appropriate by the veterinary staff and Study Director. The Sponsor will be advised by the Study Director of all circumstances which could lead to this action in as timely a manner as possible.

- Methods of euthanasia used during this study are in conformance with the above-referenced regulation.

- The Sponsor/Study Director has considered alternatives to procedures that may cause more than momentary or slight pain or distress to the animals and has provided a written narrative description (AWA covered species only) of the methods and sources used to determine that alternatives are not available.

16 PROTOCOL MODIFICATION:

Modification of the protocol may be accomplished during the course of this investigation. However, no changes will be made in the study design without the verbal or written permission of the Sponsor. In the event that the Sponsor verbally requests or approves a change in the protocol, such changes will be made by appropriate documentation in the form of a protocol amendment. All alterations of the protocol and reasons for the modification(s) will be signed by the Study Director and the Sponsor Representative.

17 REFERENCES:

Dawson, A.B. A note on the staining of the skeleton of cleared specimens with Alizarin Red S. *Stain Technology* **1926,** *1,* 123-124.

Dunn, O.J. Multiple comparisons using rank sums. *Technometrics* **1964,** *6(3),* 241-252.

Dunnett, C.W. New tables for multiple comparisons with a control. *Biometrics* **1964,** *20,* pp. 482-491.

Freer, S. Analytical Validation and Stability Study of Extract, Light Paraffinic Distillate Solvent in Acetone Formulations (Study No. WIL-402026), WIL Research Laboratories, LLC, Ashland, OH, 2011.

Inouye, M. Differential staining of cartilage and bone in fetal mouse-skeleton by Alcian blue and Alizarin red S. *Congenital Anomalies* **1976,** *16,* 171-173.

Kruskal, W.H.; Wallis, W.A. Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association* **1952,** *47,* 583-621.

Salewski, E. Färbemethode zum makroskopischen Nachweis von Implantationsstellen am Uterus der Ratte. [Staining method for a macroscopic test for implantation sites in the uterus of the rat]. *Naunyn - Schmiedebergs Archiv für Experimentelle Pathologie und Pharmakologie* **1964,** *247,* 367.

Snedecor, G.W.; Cochran, W.G. One Way Classifications; Analysis of Variance. In *Statistical Methods,* 7th ed.; The Iowa State University Press: Ames, IA, **1980;** pp. 215-237.

Stuckhardt, J.L.; Poppe, S.M. Fresh visceral examination of rat and rabbit fetuses used in teratogenicity testing. *Teratogenesis, Carcinogenesis and Mutagenesis* **1984,** *4,* 181-188.

Wilson, J.G. Embryological Considerations in Teratology. In *Teratology: Principles and Techniques;* Wilson, J.G. and Warkany, J., Eds.; The University of Chicago Press: Chicago, IL, **1965;** pp. 251-277.

Woo, D.C.; Hoar, R.M. Apparent hydronephrosis as a normal aspect of renal development in late gestation of rats: the effect of methyl salicylate. *Teratology* **1972;** *6,* 191-196.

18 PROTOCOL APPROVAL:

Sponsor approval received via email on 15 Sept 2011.
Date

American Petroleum Institute

[redacted]
Sponsor Representative

17 Sept 2011
Date

WIL Research Laboratories, LLC

[redacted]
Study Director

16 Sep 2011
Date

[redacted]
Senior Director, Developmental and
Reproductive Toxicology

16 Sept 2011
Date

APPENDIX A

SCORING CRITERIA FOR DERMAL REACTIONS

Evaluation of Dermal Reactions*

Value	Erythema and Eschar Formation	Computer Designation
0	No erythema	No erythema
1	Very slight erythema (barely perceptible, edges of area not well defined)	Very slight erythema
2	Slight erythema (pale red in color and edges definable)	Slight erythema
3	Moderate to severe erythema (definite red in color and area well defined)	Moderate erythema
4	Severe erythema (beet or crimson red) to slight eschar formation (injuries in depth)	Severe erythema

	Edema Formation	Computer Designation
0	No edema	No edema
1	Very slight edema (barely perceptible, edges of area not well defined)	Very slight edema
2	Slight edema (edges of area well defined by definite raising)	Slight edema
3	Moderate edema (raised approximately 1 mm)	Moderate edema
4	Severe edema (raised more than 1 mm and extending beyond area of exposure)	Severe edema

*Draize, J. H., 1965. The Appraisal of the Safety of Chemicals in Foods, Drugs and Cosmetics. Dermal Toxicity, pp. 46-59. Assoc. of Food and Drug Officials of the U.S., Topeka, Kansas.

APPENDIX B

Test Substance Characterization (Sponsor-Provided Data)

Intertek

Report of Analysis

INTERIM

Client: American Petroleum Institute (API)
Job Location: Deer Park, TX, USA
Vessel: API
Our Reference Number: US785-0016850

Client Reference Number:
None

Sample ID: 2009-DRPK-002498-002
Drawn By: Client
Sample Designated As: Various
Representing: Site #7 Sx. #23 (As Received)

Date Taken: 02-March-2009
Date Submitted: 02-March-2009
Date Tested: 12-March-2009

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Relative Density @ 60/60°F	0.9965	
	API Gravity @ 60°F	10.5	°API
ASTM D2887	Boiling Range Distribution of Petroleum Fractions by GC (Simulated Distillation)		
	Boiling Point Distribution	See Attached Report	
AD HOC	Various Methodology		
	Method Name	ASTM_D2007	
	Polar	5.48	Mass %
	Saturates	11.04	Mass %
	Aromatics	83.48	

Intertek

Report of Analysis

INTERIM

Signed: _____ Date: _____

Intertek

This report has been reviewed for accuracy, completeness, and comparison against specifications when available. The reported results are only representative of the samples submitted for testing and are subject to confirmation upon completion of the final report, which may contain warnings, exceptions and terms and conditions which are pertinent to the data supplied herein. It is the position of Intertek that the final report is the prevailing document, and that the use of interim documents by the client is at their own risk. This report shall not be reproduced except in full without written approval of the laboratory.

1114 Seaco Avenue, Deer Park, Texas 77536 USA
Tel.: (713) 844-3200

Simdist-2000
ITS Caleb Brett - Houston

SAMPLE:	09-2498-2 Site #7 Sx. #23	Injection Date:	!0090306104745-0600
		Report Date:	3/6/09 10:49
FILE:	C:\CP32 Instruments\D2887 & D3710\Data\2009\MAR-09\09-2498-2.0004.CDF		
PROCEDURE:	C:\CP32 Instruments\D2887 & D3710\PROCEDURES\D2887-022609.prc		
EXCEL FILE:	C:\CP32 Instruments\D2887 & D3710\Reports\2009\FEB-09\09-2498-2_0004_CDF.xls		

Boiling Point Distribution Report
ASTM D2887 Simulated Distillation

%Off	BP °F	BP °C	%Off	BP °F	BP °C	%Off	BP °F	BP °C
IBP	609.3	320.7	40%	733.7	389.8	80%	799.7	426.5
1%	628.6	331.5	41%	735.2	390.7	81%	801.8	427.7
2%	643.9	339.9	42%	736.8	391.5	82%	804.0	428.9
3%	652.7	344.9	43%	738.3	392.4	83%	806.3	430.1
4%	658.4	348.0	44%	739.8	393.2	84%	808.6	431.5
5%	662.8	350.4	45%	741.3	394.0	85%	811.0	432.8
6%	666.5	352.5	46%	742.9	394.9	86%	813.4	434.1
7%	669.8	354.4	47%	744.4	395.8	87%	816.1	435.6
8%	672.9	356.1	48%	746.0	396.7	88%	819.0	437.2
9%	675.7	357.6	49%	747.7	397.6	89%	822.1	438.9
10%	678.2	359.0	50%	749.2	398.5	90%	825.4	440.8
11%	680.8	360.4	51%	750.9	399.4	91%	829.0	442.8
12%	683.3	361.8	52%	752.4	400.2	92%	833.0	445.0
13%	685.6	363.1	53%	754.0	401.1	93%	837.5	447.5
14%	687.9	364.4	54%	755.6	402.0	94%	842.7	450.4
15%	690.1	365.6	55%	757.2	402.9	95%	848.9	453.8
16%	692.2	366.8	56%	758.7	403.7	96%	856.6	458.1
17%	694.2	367.9	57%	760.2	404.6	97%	867.0	463.9
18%	696.2	369.0	58%	761.7	405.4	98%	881.9	472.1
19%	698.0	370.0	59%	763.3	406.3	99%	909.4	487.4
20%	699.8	371.0	60%	764.9	407.2	FBP	944.3	506.8
21%	701.6	372.0	61%	766.5	408.0			
22%	703.5	373.0	62%	768.0	408.9			
23%	705.3	374.0	63%	769.7	409.8			
24%	707.1	375.0	64%	771.3	410.7			
25%	708.8	376.0	65%	773.0	411.6			
26%	710.6	377.0	66%	774.6	412.6			
27%	712.3	377.9	67%	776.3	413.5			
28%	714.0	378.9	68%	777.9	414.4			
29%	715.7	379.8	69%	779.5	415.3			
30%	717.3	380.7	70%	781.3	416.3			
31%	718.9	381.6	71%	783.0	417.2			
32%	720.5	382.5	72%	784.7	418.2			
33%	722.2	383.4	73%	786.5	419.2			
34%	723.8	384.4	74%	788.4	420.2			
35%	725.5	385.3	75%	790.1	421.2			
36%	727.2	386.2	76%	792.0	422.2			
37%	728.9	387.1	77%	793.8	423.2			
38%	730.5	388.1	78%	795.7	424.3			
39%	732.1	388.9	79%	797.7	425.4			

Start Elution Time (mins):	2.814	**Sample Wt:**	0 g
End Elution Time (mins):	23.42	**Solvent Wt:**	0 g
		Material Balance:	100.0 Wt%
Blank File:	C:\CP32 Instruments\D2887 & D3710\Data\2009\MAR-09\BLANK2-030509.0002.CDF		
Calib File:	D:\CP32 Instruments\D2887 & D3710\DATA\RTMIX-060905.0006.CDF		
Resp Factor:	1.000E+00		

Envantage, Inc.
Simdist-2000

Version 1.0808

PORT ROYAL RESEARCH, LLC

Final Report
PTI Study No. 2009-0203
February 27, 2009

CHARACTERIZATION AND QUANTITATION OF POLYNUCLEAR AROMATIC COMPOUNDS (PAC) IN THREE HPV AROMATIC EXTRACTS BY PRR ("MOBIL" METHOD 2) PAC

Sponsor: American Petroleum Institute

CHARACTERIZATION AND QUANTITATION OF POLYNUCLEAR AROMATIC COMPOUNDS (PAC) IN THREE HPV AROMATIC EXTRACTS BY PRR ("MOBIL" METHOD 2) PAC

STUDY NO.:	2009-0203
MATERIALS TESTED:	3 – HPV Aromatic Extracts
CRU SAMPLE NOs.:	020904 - 020906
REQUESTER:	American Petroleum Institute 1220 L Street, NW Washington, DC 2005-4070
LIAISON:	[redacted]
STUDY PERFORMED BY:	Port Royal Research, LLC 61 S. Port Royal Drive Hilton Head, SC 29928
EXPERIMENTAL START DATE:	February 23, 2009
EXPERIMENTAL TERMINATION DATE:	February 26, 2009

[redacted]

[redacted] 2/27/09
Study Director Date

DISTRIBUTION

Study Director
API Liaison (original)

[redacted]

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:

RESULTS

PRR ("MOBIL" METHOD 2) PAC

The polynuclear aromatics (PAC) were isolated by following PRR Standard Operating Procedure No. A.3.1.. The total weight percent PAC and the group percentages of the total Wt.% are as follows:

TABLE I

Sample Identification		total Wt.%	Group Percentages of total Wt. %						
			I	II	III	IV	V	VI	≥VII
SITE #38	SAMPLE #1	18.4	0	0	20	40	20	10	3
SITE #2	SAMPLE #28	12.2	0	0	20	50	20	10	4
SITE #7	SAMPLE #23	13.6	0	0	40	50	10	2	0

Percentages are reported to one significant figure where groups I through VII represent benzenes and two- through seven-fused ring aromatics, respectively.

Table II below reports these same results as the weight percent of the total in each ring group:

TABLE II

Sample Identification		total Wt.%	Group Wt%						
			I	II	III	IV	V	VI	≥VII
SITE #38	SAMPLE #1	18.4	0.00	0.00	3.68	7.36	3.68	1.84	0.55
SITE #2	SAMPLE #28	12.2	0.00	0.00	2.44	6.10	2.44	1.22	0.49
SITE #7	SAMPLE #23	13.6	0.00	0.00	5.44	6.80	1.36	0.27	0.00

APPENDIX C

Analyses of Dosing Formulations (WIL Research Laboratories, LLC)

A Dermal Prenatal Developmental Toxicity Study of Extract, Light Paraffinic Distillate Solvent in Rats

Analyses of Dosing Formulations

Analytical Chemistry Department

WIL Research Laboratories, LLC

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1. SUMMARY

A gas chromatography method using flame ionization detection for the determination of light paraffinic distillate solvent (LPDS) concentration in acetone formulations and test substance ranging in concentration from 1.00 to 500 mg/mL was validated in a previous study (Freer, 2011, WIL-402026). In the present study, test substance stability was assessed in primary dilution quality control (QC) samples stored at room temperature for 1 day and in calibration standards and processed QC samples stored at room temperature for 10 days. Also in this study, dosing formulations prepared at target concentrations of 3.3, 16.7, 100, and 300 mg LPDS/mL were analyzed to assess test substance homogeneity and concentration acceptability.

The test substance in primary dilution QC samples stored at room temperature for 1 day and in calibration standards and processed QC samples stored at room temperature for 10 days met the WIL Research SOP acceptance criteria for stability, *i.e.*, the post-storage concentration was not <90% of the pre-storage value.

The analyzed formulations used for dose administration met the WIL Research SOP acceptance criteria for homogeneity, *i.e.*, the relative standard deviation (RSD) for the mean concentration was ≤10% at a concentration within the acceptable limits (90% to 110% of the target concentration) and concentration acceptability for solution formulations, *i.e.*, the analyzed concentration was 90% to 110% of the target concentration. No test substance was detected in the analyzed vehicle administered to the control group.

2. INTRODUCTION

This report provides a detailed description of a gas chromatography (GC) method using flame ionization detection (FID) for the determination of light paraffinic distillate solvent (LPDS) concentration in acetone formulations, and test substance ranging in concentration from 1.00 to 500 mg/mL. The method was validated in a previous study (Freer, 2011, WIL-402026) where assay specificity/selectivity, calibration

reproducibility, precision, accuracy, and ruggedness were established. Also in the previous study, the assay was cross-validated for the determination of LPDS concentration in acetone formulations using an ethyl acetate (EtOAc) dilution to replace the hexane dilution as initially validated. Additionally, test substance stability was assessed in calibration standards and QC samples diluted with EtOAc and stored at room temperature for a minimum of 60 hours. Test substance homogeneity and, following 10 days of room temperature storage, resuspension homogeneity and stability were assessed in formulations prepared at target concentrations of 1 and 500 mg LPDS/mL. In the present study, test substance stability was assessed in primary dilution quality control (QC) samples stored at room temperature for 1 day and in calibration standards and processed QC samples stored at room temperature for 10 days. Finally, formulations used for test substance administration were analyzed to verify test substance homogeneity and concentration acceptability.

A list of abbreviations potentially used in this report is presented in Section 8. (Abbreviations).

2.1. WIL RESEARCH KEY STUDY PERSONNEL

[redacted]	Chemist II, Analytical Chemistry
	Chemist III, Analytical Chemistry
	Research Chemist, Analytical Chemistry
	Publishing Specialist, Reporting & Technical Support Services
[redacted]	Group Manager, Reporting & Technical Support Services

2.2. KEY STUDY DATES

Date(s)	Event(s)
3 October 2011	First analysis
29 October 2011	Final date of analysis

3. EXPERIMENTAL PROCEDURES - MATERIALS AND METHODS

3.1. GAS CHROMATOGRAPHY

Instrument:	Agilent 6890 gas chromatograph equipped with a flame ionization detector, autosampler, and Dionex Chromeleon® software, or equivalent system
Column:	Zebron ZB-1HT Inferno column, 15 m × 0.32 mm ID, 0.25-µm film-thickness
Carrier Gas:	Helium
Carrier Gas Flow Rate:	1.5 mL/minute
Injector Temperature:	300°C
Injection Volume:	1 µL, split (5:1)
Detector:	Flame ionization detector at 400°C
Retention Time:	Approximately from 3.8 to 6.4 minutes for LPDS
Run Time:	10.0 minutes
Wash Vial Composition:	EtOAc

3.2. PREPARATION OF CALIBRATION STOCK SOLUTION AND STANDARDS

A calibration stock solution was prepared at a concentration of 2.00 mg LPDS/mL as follows. Approximately 20 mg of LPDS (WIL log no. 110133, no correction for purity) was accurately weighed in a tared glass weigh funnel and transferred to a 10-mL volumetric flask with rinses of EtOAc. The preparation was mixed as necessary to achieve complete dissolution of the test substance. Additional EtOAc was added to obtain the desired concentration, and the solution was thoroughly mixed.

Calibration standards at concentrations of 500, 625, 750, 875, and 1000 µg LPDS/mL were prepared by diluting aliquots of the calibration stock solution with EtOAc in amber autosampler vials. At least single calibration standards at each concentration were prepared for routine analyses.

3.3. PREPARATION OF THE QUALITY CONTROL STOCK SOLUTION AND SAMPLES

A QC stock solution was prepared at a concentration of 20.0 mg LPDS/mL as follows. Approximately 1.00 g of LPDS (WIL log no. 110133, no correction for purity) was accurately weighed in a tared glass weigh funnel and transferred to a 50-mL volumetric flask with rinses of EtOAc. The preparation was mixed as necessary to achieve complete dissolution of the test substance. Additional EtOAc was added to obtain the desired concentration, and the solution was thoroughly mixed.

As detailed in the following table, QC samples were prepared to simulate the processing of formulation samples at concentrations of 1.00, 10.0, 100, and 500 mg LPDS/mL (nominal QC concentrations) by combining aliquots of the QC stock solution, vehicle (acetone), and EtOAc in amber autosampler vials or polypropylene tubes. The processed samples were mixed with vortex action. Portions of the samples were further diluted as necessary with EtOAc in amber autosampler vials. The vials were capped, and the diluted samples were mixed with vortex action. The QC samples were prepared in triplicate at each concentration; a single vehicle blank sample was prepared.

QC Level	Nominal QC Concentration (mg/mL)	Vehicle Volume (mL)	QC Stock Volume (mL)	EtOAc Volume (mL)	Secondary Dilution	Theoretical Final Concentration (µg/mL)
Blank	0	0.500	0	0.300	NA	0
QC1	1.00	0.500	0.025	0.275	NA	625
QC2	10.0	0.500	0.250	7.250	NA	625
QC3	100	0.500	2.500	7.000	6.67-fold	750
QC4	500	0.500	12.50	37.00	6.67-fold	750

NA = Not applicable

3.4. FORMULATION SAMPLE COLLECTION AND PROCESSING

Quadruplicate formulation samples were collected using a class A glass volumetric pipette and placed in polypropylene tubes. Two samples (from each quadruplicate set)

were processed for analysis. The remaining 2 samples (back-up samples) were stored at room temperature and, if not processed for analysis, were discarded after the Study Director's approval of analytical results.

As detailed in the following table, formulation samples were processed by adding EtOAc and mixing with vortex action. Samples were further diluted as necessary with EtOAc in amber autosampler vials. The vials were capped, and the diluted samples were mixed with vortex action.

Dose Group	Target Test Substance Concentration (mg/mL)	Sample Volume (mL)	EtOAc Volume (mL)	Secondary Dilution	Theoretical Final Concentration (µg/mL)
2	0	1.0	3.40	NA	0
3	3.3	1.0	3.40	NA	750
4	16.7	1.0	9.00	2.22-fold	752
5	100	1.0	19.0	6.67-fold	750
6	300	1.0	19.0	20-fold	750

NA = Not applicable

3.5. CALIBRATION AND QUANTITATION

Single injections were made of each calibration standard and processed QC and formulation sample. A calibration curve was constructed for each set of analyses. The LPDS peak areas (y) and the theoretical concentrations (x) of the calibration standards were fit with least-squares regression analysis to the quadratic function:

$$y = ax^2 + bx + c$$

Concentrations were calculated from the results of the regression analysis using Dionex Chromeleon® software. The concentration data were transferred to Microsoft Excel®, where appropriate summary statistics, *i.e.*, mean, standard deviation (SD), relative standard deviation (RSD), and concentration as a percent of target concentration, were calculated and presented in tabular form. The concentrations of QC and formulation

samples were calculated by applying any necessary factors to correct for sample dilution or unit conversion.

4. RESULTS AND DISCUSSION

Under the described chromatographic conditions, the retention time of the test substance peak group was approximately from 3.8 to 6.4 minutes. Figure 1, Figure 2, Figure 3, and Figure 4 are typical chromatograms of a calibration standard, a processed QC sample, a processed formulation sample, and a processed control group formulation sample, respectively. The total analysis time required for each run was 10.0 minutes.

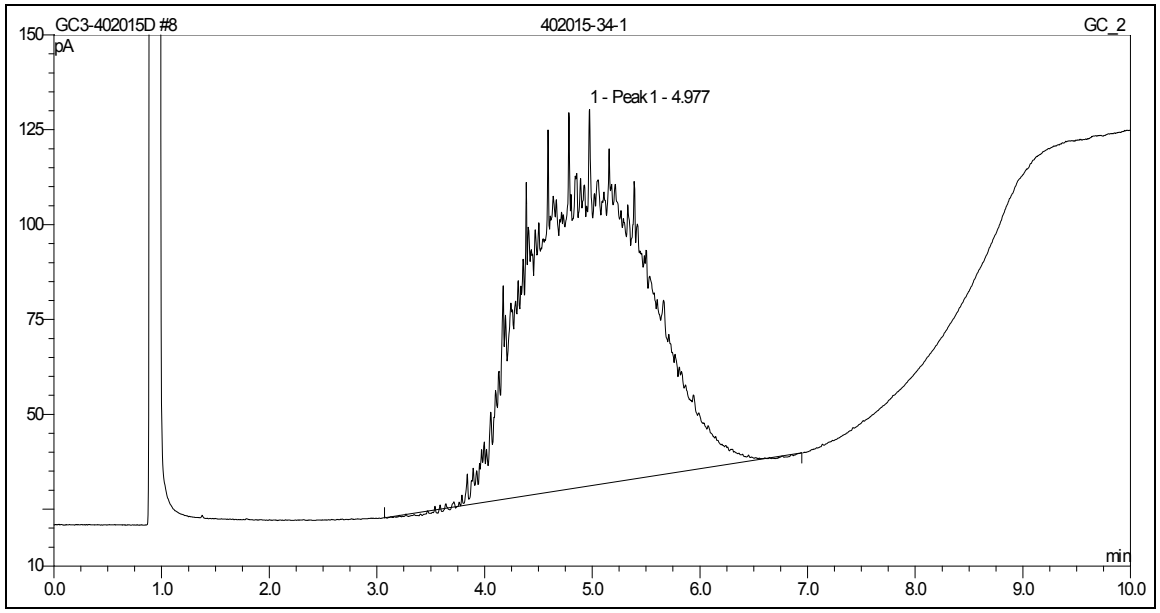

Figure 1: Representative Chromatogram of a 500 µg LPDS/mL Calibration Standard

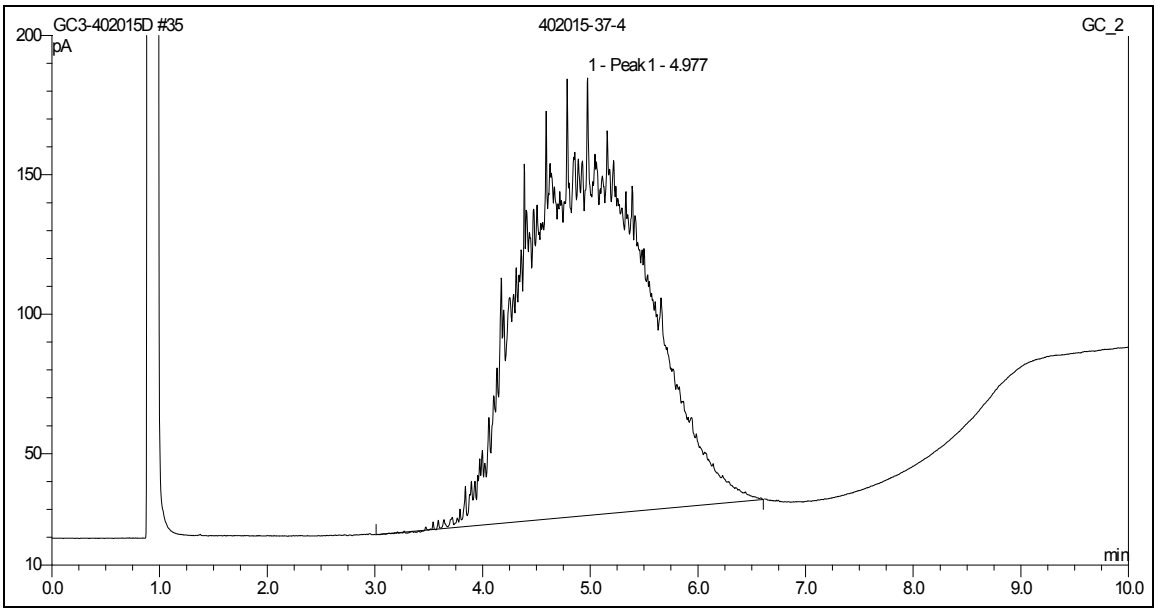

Figure 2: Representative Chromatogram of a Processed 500 mg LPDS/mL Quality Control Sample

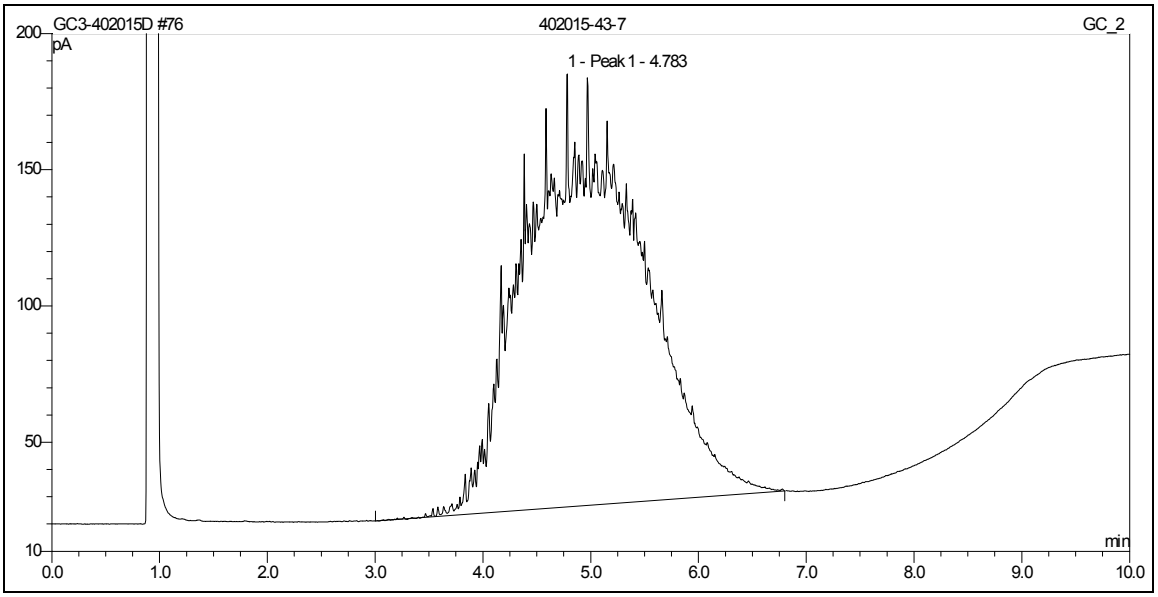

Figure 3: Representative Chromatogram of a Processed 300 mg LPDS/mL Formulation Sample

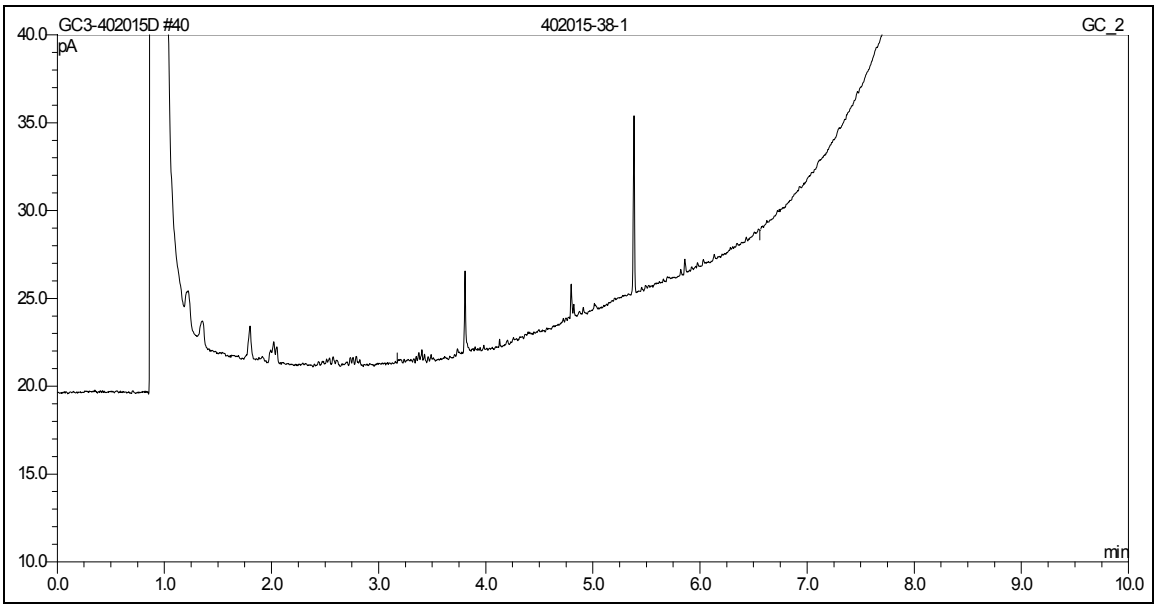

Figure 4: Chromatogram of a Processed Control Group Formulation Sample

4.1. SPECIFICITY/SELECTIVITY

As shown in Figure 4 (and in contrast to the chromatograms shown in Figure 1, Figure 2, and Figure 3), assay specificity/selectivity was confirmed when GC/FID analysis of processed vehicle samples revealed that there were no significant peaks (with signal-to-noise ratio [S/N] >10) at or near the retention time for the test substance peak group (approximately from 3.8 to 6.4 minutes).

4.2. ASSAY ACCEPTABILITY

In addition to the experimental samples, each analytical session consisted of (but was not limited to) calibration standards at 5 concentrations and triplicate QC samples prepared at each of 4 concentrations. In this study, the formulations were prepared at target concentrations of 0, 3.3, 16.7, 100, and 300 mg LPDS/mL, and the QC samples were prepared at nominal concentrations of 1.00, 10.0, 100, and 500 mg LPDS/mL. For an analytical session to be considered valid, at least two-thirds of the calculated QC concentrations with at least 1 sample at each concentration had to be 90% to 110% of the

nominal QC concentration. All reported results were from analytical sessions that met the acceptance criteria.

4.3. TEST SUBSTANCE STABILITY IN PRIMARY DILUTION QC SAMPLES

QC samples at nominal test substance concentrations of 100 and 500 mg/mL were prepared and analyzed on 19 October 2011. The samples were stored at room temperature for 1 day at the primary dilution stage before re-processing (secondary dilution) and analysis to assess test substance stability. The mean post-storage concentrations were 100% of the pre-storage values (Table 1), which met the WIL Research SOP acceptance criteria for stability, *i.e.*, the mean post-storage concentration was ≥90% of the pre-storage value.

4.4. TEST SUBSTANCE STABILITY IN CALIBRATION STANDARDS

Calibration standards prepared at 500, 625, 750, 875, and 1000 µg/mL and analyzed on 19 October 2011 were stored at room temperature for 10 days before re-analysis to assess test substance stability. The mean post-storage concentrations ranged from 99.8% to 100% of the pre-storage values (Table 2), which met the previously stated WIL Research SOP acceptance criteria for stability.

4.5. TEST SUBSTANCE STABILITY IN PROCESSED SAMPLES

QC samples prepared at nominal test substance concentrations of 1.00, 10.0, 100, and 500 mg/mL were processed and analyzed on 19 October 2011. The processed samples were stored at room temperature for 10 days before re-analysis to assess test substance stability. The mean post-storage concentrations ranged from 100% to 105% of the pre-storage values (Table 3), which met the previously stated WIL Research SOP acceptance criteria for stability.

4.6. TEST SUBSTANCE HOMOGENEITY/CONCENTRATION ACCEPTABILITY ASSESSMENT OF FORMULATIONS

Duplicate samples from the top, middle, and bottom strata of formulations used for dose administration and prepared on 3 and 19 October 2011 at target concentrations of 3.3, 16.7, 100, and 300 mg LPDS/mL were analyzed to assess test substance homogeneity/concentration acceptability. Duplicate samples from the top, middle, and bottom stratum of the vehicle control were also collected and analyzed. The results of the homogeneity/concentration acceptability assessments are presented in Table 4 and Table 5, respectively, with the mean concentrations and overall statistics summarized in the following table.

Homogeneity/Concentration Acceptability Assessment of the 3 October 2011 Formulations Back-Up Samples*

Statistics	Group 2 (0 mg/mL)	Group 3 (3.3 mg/mL)	Group 4 (16.7 mg/mL)	Group 5 (100 mg/mL)	Group 6 (300 mg/mL)
Mean Concentration (mg/mL)	ND	3.39	16.8	101	303
SD	NA	0.079	0.25	1.2	5.6
RSD (%)	NA	2.3	1.5	1.2	1.9
Mean Concentration % of Target	NA	103	101	101	101

* = Back-up samples were processed on 6 October 2011 and stored at room temperature until analyzed. The original formulation samples were processed using an expired solvent and are not reported.
ND = No test substance chromatographic peak detected with S/N >10
NA = Not applicable

Homogeneity/Concentration Acceptability Assessment of the 19 October 2011 Formulations

Statistics	Group 2 (0 mg/mL)	Group 3 (3.3 mg/mL)	Group 4 (16.7 mg/mL)	Group 5 (100 mg/mL)	Group 6 (300 mg/mL)
Mean Concentration (mg/mL)	ND	3.44	17.7	105	312
SD	NA	0.017	0.17	0.83	8.2
RSD (%)	NA	0.50	0.95	0.79	2.6
Mean Concentration % of Target	NA	104	106	105	104

ND = No test substance chromatographic peak detected with S/N >10
NA = Not applicable

The analyzed formulations met the WIL Research SOP acceptance criteria for homogeneity, *i.e.*, the RSD for the mean concentration was ≤10% at a concentration within the acceptable limits (90% to 110% of target concentration) and concentration acceptability for solution formulations, *i.e.*, the analyzed concentration was 90% to 110% of the target concentration. No test substance was detected in the analyzed vehicle administered to the control group (Group 2).

5. CONCLUSION

A validated GC method using FID was used for the determination of LPDS concentration in solution formulations containing acetone. Test substance stability in primary dilution QC samples stored at room temperature for 1 day and in calibration standards and processed QC samples stored at room temperature for 10 days were assessed and validated, satisfying WIL Research SOP acceptance criteria. In addition, analyzed formulations used for dose administration met the applicable WIL Research SOP acceptance criteria for test substance homogeneity and concentration acceptability. No test substance was detected in the analyzed vehicle administered to the control group.

6. REPORT REVIEW AND APPROVAL

WIL-402015 Analytical Chemistry Report

Report Approved by:

[redacted]

11 July 2012
Date

Staff Toxicologist, Developmental and
Reproductive Toxicology
Study Director

Report Prepared by:

[redacted]

11 JUL 2012
Date

Research Chemist, Analytical Chemistry

Report Reviewed by:

[redacted]

11 Jul 2012
Date

Assistant Director, Analytical Chemistry

7. REFERENCES

Freer, S.D. Analytical Validation and Stability Study of Extract, Light Paraffinic Distillate Solvent in Acetone Formulations. (Study No. WIL-402026). WIL Research Laboratories, LLC, Ashland, OH, **2011**.

8. ABBREVIATIONS

The following abbreviations may apply to this report:

µ	-	micro
µL	-	microliter
ACN	-	acetonitrile
btm	-	bottom
conc.	-	concentration
DI	-	deionized
DMSO	-	dimethylsulfoxide
ESI+	-	positive electrospray ionization
FA	-	formic acid
g	-	gram
HPLC	-	high performance liquid chromatography
hr	-	hour(s)
IS	-	internal standard
kg	-	kilogram
L	-	liter
LLOQ	-	lower limit of quantitation
MC	-	methylcellulose
MeOH	-	methanol
mg	-	milligram
mL	-	milliliter
mm	-	millimeter
msec	-	milliseconds
MS	-	mass spectrometry
mM	-	millimolar
NA	-	not applicable
ND	-	not detected
ng	-	nanogram
QC	-	quality control
%RE	-	percent relative error
RSD	-	relative standard deviation
SD	-	standard deviation
SOP	-	standard operating procedure
SPE	-	solid phase extraction
UV	-	ultraviolet
v	-	volume
w	-	weight
WIL Research	-	WIL Research Laboratories, LLC

TABLES 1 - 5

Table 1. 1-Day Room Temperature Primary Dilution Stability Analysis of the Quality Control Samples

Date Analyzed	Theo. Conc (mg/mL)	Ref # (402015 -)	Run #	Conc (mg/mL)	Percent of Time Zero (%)	Overall Percent of Time Zero (%)
QC Samples						
19Oct2011	100	37 - 1	258	104	N/A	N/A
		37 - 2	259	105	N/A	
20Oct2011	100	44 - 1	309	105	101	100
		44 - 2	310	103	98.9	
19Oct2011	500	37 - 4	261	507	N/A	N/A
		37 - 5	262	513	N/A	
20Oct2011	500	44 - 3	311	510	101	100
		44 - 4	312	512	99.9	

N/A = Not applicable

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Table 2. 10-Day Room Temperature Sample Stability Data
Calibration Standards

Storage Duration (Days)	Analysis Date	Ref. # (402015-)	Run #	Calculated Concentration (µg/mL)	Mean Conc (µg/mL)	% of Time Zero (%)	Mean % of Time Zero (%)
500 µg/mL Standard							
0	19 Oct 11	34-1	234	496	499	NA	
		34-2	235	497		NA	
		34-3	236	504		NA	
10	29 Oct 11	34-1	323	490	498	98.8	99.9
		34-2	324	501		101	
		34-3	325	503		99.8	
625 µg/mL Standard							
0	19 Oct 11	34-4	237	621	627	NA	
		34-5	238	629		NA	
		34-6	239	630		NA	
10	29 Oct 11	34-4	326	620	629	99.8	100
		34-5	327	635		101	
		34-6	328	631		100	
750 µg/mL Standard							
0	19 Oct 11	34-7	240	748	752	NA	
		34-8	241	753		NA	
		34-9	242	754		NA	
10	29 Oct 11	34-7	329	748	750	100	99.8
		34-8	330	760		101	
		34-9	331	744		98.6	
875 µg/mL Standard							
0	19 Oct 11	34-10	243	870	871	NA	
		34-11	244	876		NA	
		34-12	245	867		NA	
10	29 Oct 11	34-10	332	887	871	102	100
		34-11	333	862		98.4	
		34-12	334	864		99.7	
1000 µg/mL Standard							
0	19 Oct 11	34-13	246	992	1002	NA	
		34-14	247	998		NA	
		34-15	248	1016		NA	
10	29 Oct 11	34-13	335	1009	1002	102	100
		34-14	336	1003		100	
		34-15	337	994		97.8	

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Table 3. 10-Day Room Temperature Processed Sample Stability Data
Quality Control Samples

Storage Duration (Days)	Analysis Date	Ref. # (402015-)	Run #	Calculated Concentration (mg/mL)	Mean Conc (mg/mL)	% of Time Zero (%)	Mean % of Time Zero (%)
1.00 mg/mL Quality Control							
0	19 Oct 11	36-2	252	1.04	1.06	NA	
		36-3	253	1.05		NA	
		36-4	254	1.09		NA	
10	29 Oct 11	36-2	341	1.09	1.09	105	103
		36-3	342	1.08		103	
		36-4	343	1.09		100	
10.0 mg/mL Quality Control							
0	19 Oct 11	36-5	255	10.5	10.4	NA	
		36-6	256	10.4		NA	
		36-7	257	10.4		NA	
10	29 Oct 11	36-5	344	10.5	10.5	100	101
		36-6	345	10.6		102	
		36-7	346	10.5		101	
100 mg/mL Quality Control							
0	19 Oct 11	37-1	258	104	104	NA	
		37-2	259	105		NA	
		37-3	260	104		NA	
10	29 Oct 11	37-1	347	106	104	101	100
		37-2	348	104		99.3	
		37-3	349	103		99.5	
500 mg/mL Quality Control							
0	19 Oct 11	37-4	261	507	500	NA	
		37-5	262	513		NA	
		37-6	263	479		NA	
10	29 Oct 11	37-4	350	530	523	105	105
		37-5	351	522		102	
		37-6	352	518		108	

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Table 4. Homogeneity/Concentration Acceptability Assessment of the 3 October 2011 Formulations Backup Samples
(Analyzed 11 October 2011)

Group	Strata	Dose Conc (mg/mL)	Ref # (-)	Run #	Analyzed Conc (mg/mL)	Percent of Target (%)	Mean Conc (mg/mL)	SD	RSD (%)	Mean Conc % of Target (%)
2	Top	0	23 - 1	197			----------Not Detected----------			
			23 - 2	198			----------Not Detected----------			
	Mid	0	23 - 3	199			----------Not Detected----------			
			23 - 4	200			----------Not Detected----------			
	Btm	0	23 - 5	201			----------Not Detected----------			
			23 - 6	202			----------Not Detected----------			
3	Top	3.3	23 - 7	203	3.46	105	3.39	0.079	2.3	103
			23 - 8	204	3.27	99.0				
	Mid	3.3	23 - 9	205	3.32	101				
			23 - 10	206	3.43	104				
	Btm	3.3	23 - 11	207	3.45	105				
			23 - 12	208	3.41	103				
4	Top	16.7	24 - 1	209	16.8	101	16.8	0.25	1.5	101
			24 - 2	210	16.7	99.7				
	Mid	16.7	24 - 3	211	16.5	98.8				
			24 - 4	212	16.6	99.7				
	Btm	16.7	24 - 5	213	16.9	101				
			24 - 6	214	17.2	103				
5	Top	100	24 - 7	215	101	101	101	1.2	1.2	101
			24 - 8	216	99.7	99.7				
	Mid	100	24 - 9	217	102	102				
			24 - 10	218	100	100				
	Btm	100	24 - 11	219	103	103				
			24 - 12	220	100	100				
6	Top	300	24 - 13	221	296	98.5	303	5.6	1.9	101
			24 - 14	222	299	99.6				
	Mid	300	24 - 15	223	301	100				
			24 - 16	224	308	103				
	Btm	300	24 - 17	225	308	103				
			24 - 18	226	308	103				

Note: Back-up samples were processed on 6 October 2011 and stored room temperature until analyzed. The original formulation samples were processed using expired solvent and will not be reported.

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Table 5. Homogeneity/Concentration Acceptability Assessment of the 19 October 2011 Formulations
(Analyzed 19-20 October 2011)

Group	Strata	Dose Conc (mg/mL)	Ref # (-)	Run #	Analyzed Conc (mg/mL)	Percent of Target (%)	Mean Conc (mg/mL)	SD	RSD (%)	Mean Conc % of Target (%)
2	Top	0	*38 - 1	266			----------Not Detected---------			
			*38 - 2	267			----------Not Detected---------			
	Mid	0	*38 - 3	268			----------Not Detected---------			
			*38 - 4	269			----------Not Detected---------			
	Btm	0	*38 - 5	270			----------Not Detected---------			
			*38 - 6	271			----------Not Detected---------			
3	Top	3.3	*38 - 7	272	3.43	104	3.44	0.017	0.50	104
			*38 - 8	273	3.42	104				
	Mid	3.3	*38 - 9	274	3.43	104				
			*38 - 10	275	3.44	104				
	Btm	3.3	*38 - 11	276	3.43	104				
			*38 - 12	277	3.47	105				
4	Top	16.7	*39 - 1	278	17.5	105	17.7	0.17	0.95	106
			*39 - 2	279	17.6	105				
	Mid	16.7	*39 - 3	280	17.6	105				
			*39 - 4	281	17.6	105				
	Btm	16.7	*39 - 5	282	17.8	106				
			*39 - 6	283	18.0	108				
5	Top	100	^43 - 1	296	105	105	105	0.83	0.79	105
			^43 - 2	297	105	105				
	Mid	100	^43 - 3	298	105	105				
			^43 - 4	299	105	105				
	Btm	100	^43 - 5	300	104	104				
			^43 - 6	301	106	106				
6	Top	300	^43 - 7	302	309	103	312	8.2	2.6	104
			^43 - 8	303	319	106				
	Mid	300	^43 - 9	304	314	105				
			^43 - 10	305	296	98.8				
	Btm	300	^43 - 11	306	318	106				
			^43 - 12	307	315	105				

* Samples were processed and analyzed on 19 October 2011
^ Secondary dilutions were re-performed and the samples were analyzed on 20 October 2011

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APPENDIX D

Animal Room Environmental Conditions

DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

PROJECT NO.:WIL- 402015 TEMPERATURE/HUMIDITY - STUDY SUMMARY REPORT

SPONSOR: 402 - AMERICAN PETROLEUM

STUDY SPECIFICATIONS: 402015 DATE IN 09/22/11 TIME IN 12:00
DATE OUT 10/28/11 TIME OUT 08:00

ROOM SPECIFICATIONS: B ROOM 122 LOW TEMPERATURE °F: 66.0 HIGH TEMPERATURE °F: 76.0 LOW HUMIDITY %RH: 30.0

TEST SYSTEM: RAT LOW TEMPERATURE °C: 18.9 HIGH TEMPERATURE °C: 24.4 HIGH HUMIDITY %RH: 70.0

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
DATE	MEAN (°F)	MEAN (°C)	MEAN (°F)	MEAN (°C)	MEAN (%RH)	MEAN (%RH)
09/22/11	70.0	21.1	69.2	20.7	52.8	53.0
09/23/11	70.4	21.3	69.6	20.9	53.0	53.1
09/24/11	70.5	21.4	69.7	20.9	51.9	51.8
09/25/11	70.5	21.4	69.6	20.9	52.3	52.4
09/26/11	70.2	21.2	69.3	20.7	53.4	53.7
09/27/11	70.4	21.3	69.5	20.8	52.7	52.7
09/28/11	70.3	21.3	69.6	20.9	52.4	52.4
09/29/11	70.6	21.4	69.7	20.9	52.1	52.1
09/30/11	70.3	21.3	69.4	20.8	48.3	48.3
10/01/11	70.4	21.3	69.6	20.9	43.4	43.1
10/02/11	70.3	21.3	69.4	20.8	43.6	43.3
10/03/11	70.2	21.2	69.4	20.8	49.4	49.3
10/04/11	70.2	21.2	69.3	20.7	52.5	52.6
10/05/11	70.3	21.3	69.5	20.8	49.1	49.1
10/06/11	70.3	21.3	69.5	20.8	52.0	52.0
10/07/11	70.1	21.2	69.3	20.7	53.5	53.6
10/08/11	70.2	21.2	69.4	20.8	52.8	52.7
10/09/11	70.2	21.2	69.4	20.8	53.3	53.4
10/10/11	70.4	21.3	69.6	20.9	53.5	53.6

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
DATE	MEAN (°F)	MEAN (°C)	MEAN (°F)	MEAN (°C)	MEAN (%RH)	MEAN (%RH)
10/11/11	70.4	21.3	69.6	20.9	52.4	52.4
10/12/11	70.3	21.3	69.4	20.8	54.9	55.1
10/13/11	70.4	21.3	69.5	20.8	54.3	54.5
10/14/11	70.1	21.2	69.3	20.7	51.0	50.9
10/15/11	70.5	21.4	69.6	20.9	46.4	46.3
10/16/11	70.0	21.1	69.2	20.7	47.9	47.8
10/17/11	70.5	21.4	69.6	20.9	47.0	46.9
10/18/11	70.3	21.3	69.5	20.8	46.9	46.7
10/19/11	70.5	21.4	69.6	20.9	52.1	52.2
10/20/11	70.3	21.3	69.4	20.8	46.5	46.3
10/21/11	70.4	21.3	69.5	20.8	46.4	46.2
10/22/11	70.3	21.3	69.4	20.8	46.7	46.5
10/23/11	70.3	21.3	69.5	20.8	46.7	46.3
10/24/11	70.5	21.4	69.6	20.9	49.1	48.9
10/25/11	70.5	21.4	69.6	20.9	45.6	45.4
10/26/11	70.1	21.2	69.1	20.6	51.0	51.0
10/27/11	70.3	21.3	69.4	20.8	44.8	44.5
10/28/11	70.5	21.4	69.6	20.9	43.2	42.8

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
DATE	MEAN (°F)	MEAN (°C)	MEAN (°F)	MEAN (°C)	MEAN (%RH)	MEAN (%RH)

SUMMARY OF DAILY MEANS	MEAN	MIN	MAX
PRIMARY TEMP °F:	70.3	70.0	70.6
PRIMARY TEMP °C:	21.3	21.1	21.4
SECONDARY TEMP °F:	69.5	69.1	69.7
SECONDARY TEMP °C:	20.8	20.6	20.9
PRIMARY HUM %RH:	49.9	43.2	54.9
SECONDARY HUM %RH:	49.9	42.8	55.1
N DAYS	37		

B ROOM 122 SUMMARY OF HOURLY VALUES

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
MEAN	70.3 °F	21.3 °C	69.5 °F	20.8 °C	49.9 %RH	49.9 %RH
MIN	66.8 °F	19.3 °C	65.8 °F	18.8 °C	37.1 %RH	36.2 %RH
MAX	73.8 °F	23.2 °C	73.7 °F	23.2 °C	61.1 %RH	61.4 %RH
SD	1.92	1.07	2.19	1.22	4.93	5.33
SE	0.07	0.04	0.07	0.04	0.17	0.18
N SAMPLES	853		853		853	853
FIRST DAY	09/22/11					
LAST DAY	10/28/11					
N DAYS	37					

STUDY 402015 SUMMARY OF HOURLY VALUES

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
MEAN	70.3 °F	21.3 °C	69.5 °F	20.8 °C	49.9 %RH	49.9 %RH
MIN	66.8 °F	19.3 °C	65.8 °F	18.8 °C	37.1 %RH	36.2 %RH
MAX	73.8 °F	23.2 °C	73.7 °F	23.2 °C	61.1 %RH	61.4 %RH
SD	1.92	1.07	2.19	1.22	4.93	5.33
SE	0.07	0.04	0.07	0.04	0.17	0.18
N SAMPLES	853		853		853	853
FIRST DAY	09/22/11					
LAST DAY	10/28/11					
N DAYS	37					

APPENDIX E

Scoring Criteria for Dermal Reactions

SCORING CRITERIA FOR DERMAL REACTIONS

Evaluation of Dermal Reactions*

Value	Erythema and Eschar Formation	Computer Designation
0	No erythema	No erythema
1	Very slight erythema (barely perceptible, edges of area not well defined)	Very slight erythema
2	Slight erythema (pale red in color and edges definable)	Slight erythema
3	Moderate to severe erythema (definite red in color and area well defined)	Moderate erythema
4	Severe erythema (beet or crimson red) to slight eschar formation (injuries in depth)	Severe erythema

Value	Edema Formation	Computer Designation
0	No edema	No edema
1	Very slight edema (barely perceptible, edges of area not well defined)	Very slight edema
2	Slight edema (edges of area well defined by definite raising)	Slight edema
3	Moderate edema (raised approximately 1 mm)	Moderate edema
4	Severe edema (raised more than 1 mm and extending beyond area of exposure)	Severe edema

* Draize, J.H. The appraisal of the safety of chemicals in foods, drugs and cosmetics. *Dermal Toxicity* **1965,** 46-59. Assoc. of Food and Drug Officials of the U.S., Topeka, Kansas and the EPA-OPPTS Health Effects Test Guidelines **1998**.

APPENDIX F

Visceral and Skeletal Findings for Found Dead Fetus

Dam No.	Group	Fetus No.	Fetus Sex	Visceral Findings	Skeletal Findings
28260	5	15	F	N	Sternebra(e) nos. 5 and 6 unossified, reduced ossification of the vertebral arches (cervical nos. 3-7, bilateral), and reduced ossification of the skull (supraoccipital and interparietal)
F = Female N = No remarkable observations					

APPENDIX G

WIL Developmental Historical Control Data Version 3.10 [Crl:CD(SD) Rats]

Study Date Range: 4/21/1998-8/27/2010

Mean of Study Means

Endpoint	Total	Mean	S.D.	SEM	Median	Min	Max	25th Quartile	75th Quartile
NO. OF DATASETS	**168**								
Total No. of Animals in the Control Group	4166								
No. of Animals That Died	6								
No. of Animals That Aborted	0								
No. of Animals That Delivered	0								
Percent Pregnant		96.6	4.55	0.35	100.0	76.0	100.0	96.0	100.0
No. Gravid	4026								
No. With Only Resorptions	6								
No. of Dams With Live Fetuses	4015								
No. Nongravid	253								
No. of Animals Examined at Laparohysterectomy	4160								
Mean Gravid Uterine Weight (g)		85.4	3.70	0.29	85.7	72.2	95.4	82.8	88.1
Mean No. Viable Fetuses/Dam		15.1	0.69	0.05	15.1	12.2	17.1	14.7	15.5
Total No. Viable Fetuses	60839								
Viable Fetuses (%/Litter)		95.1	1.57	0.12	95.4	90.1	98.0	94.0	96.2
Mean No. Postimplantation Loss/Dam		0.7	0.22	0.02	0.7	0.3	1.4	0.6	0.9
Total No. of Postimplantation Losses	3025								
Postimplantation Loss (%/Litter)		4.9	1.57	0.12	4.6	2.0	9.9	3.8	6.0
Early Resorptions (%/Litter)		4.8	1.59	0.12	4.5	1.5	9.9	3.6	5.8
Late Resorptions (%/Litter)		0.1	0.19	0.01	0.0	0.0	0.8	0.0	0.2
Dead Fetuses (%/Litter)		0.0	0.05	0.00	0.0	0.0	0.5	0.0	0.0
Mean No. Implantations/Dam		15.9	0.68	0.05	15.9	13.0	17.6	15.4	16.3
Mean No. Corpora Lutea/Dam		17.2	0.83	0.06	17.2	14.5	19.4	16.6	17.7
Mean No. Preimplantation Loss/Dam		1.4	0.59	0.05	1.3	0.3	3.1	0.9	1.7
Total No. Preimplantation Losses	5427								
Preimplantation Loss (%/Litter)		7.3	2.97	0.23	7.1	1.5	15.7	5.2	9.1
Total No. Male Fetuses	30376								
Total No. Female Fetuses	30463								
% Males/Litter1		49.9	2.70	0.21	49.8	43.1	56.7	47.9	51.8
% Females/Litter		50.1	2.70	0.21	50.2	43.3	56.9	48.2	52.1
Mean Fetal Body Weight (g)		3.7	0.11	0.01	3.6	3.4	3.9	3.6	3.7
Mean Male Body Weight (g)		3.8	0.12	0.01	3.7	3.5	4.0	3.7	3.8
Mean Female Body Weight (g)		3.6	0.11	0.01	3.6	3.4	3.8	3.5	3.6

Mean of Study Means

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

MALFORMATIONS (% Per Litter)	**Mean**	**S.D.**	**SEM**	**Median**	**Min**	**Max**	**25th Quartile**	**75th Quartile**
TOTAL EXTERNAL MALFORMATIONS	0.1	0.21	0.02	0.0	0.0	1.3	0.0	0.2
TOTAL VISCERAL MALFORMATIONS	0.1	0.17	0.01	0.0	0.0	0.9	0.0	0.0
TOTAL SKELETAL MALFORMATIONS	0.1	0.23	0.02	0.0	0.0	1.1	0.0	0.3
TOTAL MALFORMATIONS	0.3	0.35	0.02	0.2	0.0	1.6	0.0	0.5
EXTERNAL								
Aglossia	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Anal Atresia	0.0	0.05	0.00	0.0	0.0	0.3	0.0	0.0
Apodia	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Astomia	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Carpal and/or Tarsal Flexure	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Cleft Face	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Cleft Lip	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Cleft Palate	0.0	0.04	0.00	0.0	0.0	0.3	0.0	0.0
Craniorachischisis	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Cyclopia	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Ectromelia	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Exencephaly with or without Open Eyelid(s)	0.0	0.04	0.00	0.0	0.0	0.3	0.0	0.0
Fetal Anasarca	0.0	0.12	0.01	0.0	0.0	1.3	0.0	0.0
Filamentous Tail	0.0	0.04	0.00	0.0	0.0	0.3	0.0	0.0
Gastroschisis	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Hydrocephaly with or without Dome Head	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Mandibular Agnathia	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Mandibular Micrognathia	0.0	0.05	0.00	0.0	0.0	0.3	0.0	0.0
Maxillary Agnathia	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Meningoencephalocele	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0

Mean of Study Means

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

MALFORMATIONS (% Per Litter)	**Mean**	**S.D.**	**SEM**	**Median**	**Min**	**Max**	**25th Quartile**	**75th Quartile**
EXTERNAL								
Micromelia	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Microphthalmia and/or Anophthalmia	0.0	0.09	0.01	0.0	0.0	0.5	0.0	0.0
Omphalocele	0.0	0.05	0.00	0.0	0.0	0.3	0.0	0.0
Open Eyelid(s)	0.0	0.03	0.00	0.0	0.0	0.2	0.0	0.0
Proboscis-Like Nose	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Spina Bifida	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Tail- Short	0.0	0.04	0.00	0.0	0.0	0.3	0.0	0.0
Umbilical Herniation of the Intestine	0.0	0.07	0.01	0.0	0.0	0.8	0.0	0.0
VISCERAL								
Aorta- Narrowed	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Epididymis- Absent	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Heart and/or Great Vessel Anomaly	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Hydrocephaly	0.0	0.08	0.01	0.0	0.0	0.8	0.0	0.0
Interrupted Aortic Arch	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Kidney(s)- Absent	0.0	0.03	0.00	0.0	0.0	0.4	0.0	0.0
Kidney(s) and/or Ureter(s) Absent	0.0	0.04	0.00	0.0	0.0	0.3	0.0	0.0
Lung(s)- Lobular Agenesis	0.0	0.04	0.00	0.0	0.0	0.6	0.0	0.0
Lung(s)- Lobular Dysgenesis	0.0	0.06	0.00	0.0	0.0	0.5	0.0	0.0
Retroesophageal Aortic Arch	0.0	0.05	0.00	0.0	0.0	0.3	0.0	0.0
Situs Inversus	0.0	0.08	0.01	0.0	0.0	0.4	0.0	0.0
Testis- Absent	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Thyroid Gland(s)- Absent	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Transposition of the Great Vessels	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Vessel(s)- Malpositioned	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Vessel(s)- Malpositioned	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0

Mean of Study Means

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

MALFORMATIONS (% Per Litter)	**Mean**	**S.D.**	**SEM**	**Median**	**Min**	**Max**	**25th Quartile**	**75th Quartile**
SKELETAL								
14th Full Rib(s)	0.1	0.16	0.01	0.0	0.0	0.9	0.0	0.0
Bent Limb Bone(s)	0.0	0.08	0.01	0.0	0.0	1.0	0.0	0.0
Bent Scapula	0.0	0.08	0.01	0.0	0.0	1.0	0.0	0.0
Costal Cartilage Anomaly	0.0	0.05	0.00	0.0	0.0	0.3	0.0	0.0
Limb Bone(s)- Small	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Rib Anomaly	0.0	0.08	0.01	0.0	0.0	0.4	0.0	0.0
Rib(s)- Only 11 Pairs Present	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Rib(s)- Only 12 Pairs Present	0.0	0.07	0.01	0.0	0.0	0.5	0.0	0.0
Scapula- Misshapen	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Skull Anomaly	0.0	0.03	0.00	0.0	0.0	0.4	0.0	0.0
Sternebra(e)- Fused	0.0	0.08	0.01	0.0	0.0	1.0	0.0	0.0
Sternebra(e)- Malaligned (Severe)	0.0	0.05	0.00	0.0	0.0	0.4	0.0	0.0
Sternoschisis	0.0	0.07	0.01	0.0	0.0	0.6	0.0	0.0
Vertebral Agenesis	0.0	0.07	0.01	0.0	0.0	0.3	0.0	0.0
Vertebral Anomaly with or without Associated Rib Anomaly	0.0	0.11	0.01	0.0	0.0	0.7	0.0	0.0
Vertebral Centra Anomaly	0.0	0.06	0.00	0.0	0.0	0.5	0.0	0.0

Mean of Study Means

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

VARIATIONS (% Per Litter)	**Mean**	**S.D.**	**SEM**	**Median**	**Min**	**Max**	**25th Quartile**	**75th Quartile**
TOTAL EXTERNAL VARIATIONS	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
TOTAL VISCERAL VARIATIONS	0.5	0.74	0.06	0.3	0.0	4.0	0.0	0.6
TOTAL SKELETAL VARIATIONS	33.7	6.68	0.52	33.6	18.0	50.4	29.7	37.3
TOTAL VARIATIONS	33.9	6.80	0.38	33.7	17.1	51.1	29.7	37.8
EXTERNAL								
Twinning	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
VISCERAL								
Adrenal Gland(s)- Accessory	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Adrenal Gland(s)- Enlarged	0.0	0.11	0.01	0.0	0.0	1.4	0.0	0.0
Adrenal Gland(s)- Pale	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Diaphragm- Thin	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Heart- Small	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Hemorrhagic Iris	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Hemorrhagic Ring Around the Iris	0.0	0.07	0.01	0.0	0.0	0.3	0.0	0.0
Kidney(s)- Small	0.0	0.03	0.00	0.0	0.0	0.3	0.0	0.0
Liver- Accessory Lobule(s)	0.0	0.16	0.01	0.0	0.0	1.6	0.0	0.0
Liver- Pale	0.0	0.04	0.00	0.0	0.0	0.3	0.0	0.0
Liver- Swollen	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Major Blood Vessel Variation	0.1	0.16	0.01	0.0	0.0	0.8	0.0	0.0
Renal Papilla(e) not Developed and/or Distended Ureter(s)	0.3	0.64	0.05	0.0	0.0	4.0	0.0	0.3
Retrocaval Ureter(s)	0.0	0.06	0.00	0.0	0.0	0.8	0.0	0.0
Spleen- Accessory	0.0	0.09	0.01	0.0	0.0	1.0	0.0	0.0
Spleen- Pale	0.0	0.07	0.01	0.0	0.0	0.3	0.0	0.0
Spleen- Small	0.0	0.13	0.01	0.0	0.0	1.4	0.0	0.0

Mean of Study Means

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

VARIATIONS (% Per Litter)	**Mean**	**S.D.**	**SEM**	**Median**	**Min**	**Max**	**25th Quartile**	**75th Quartile**
VISCERAL								
Testis- Small	0.0	0.03	0.00	0.0	0.0	0.2	0.0	0.0
SKELETAL								
14th Rudimentary Rib(s)	7.0	3.15	0.25	6.4	0.0	18.9	4.8	8.7
25 Presacral Vertebrae	0.1	0.30	0.02	0.0	0.0	2.0	0.0	0.0
27 Presacral Vertebrae	0.2	0.27	0.02	0.0	0.0	1.8	0.0	0.3
7th Cervical Rib(s)	0.8	0.80	0.06	0.7	0.0	3.7	0.3	1.1
7th Sternebra	0.0	0.24	0.02	0.0	0.0	2.5	0.0	0.0
Bent Rib(s)	0.2	0.47	0.04	0.0	0.0	4.0	0.0	0.3
Cervical Centrum #1 Ossified	20.4	5.80	0.45	19.7	6.6	35.8	16.5	24.6
Entire Sternum Unossified	0.0	0.07	0.01	0.0	0.0	0.4	0.0	0.0
Extra Site of Ossification Anterior to Cervical Centrum #2	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Extra Site of Ossification Anterior to Rib #5	0.0	0.02	0.00	0.0	0.0	0.2	0.0	0.0
Extra Site of Ossification Anterior to Sternebra #1	0.0	0.04	0.00	0.0	0.0	0.4	0.0	0.0
Extra Site of Ossification Anterior to Sternebra #2	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Extra Site of Ossification Ventral to Cervical Centrum #2	0.0	0.02	0.00	0.0	0.0	0.3	0.0	0.0
Hyoid Unossified	1.3	0.99	0.08	1.2	0.0	4.4	0.4	1.9
Ischium Unossified	0.0	0.06	0.00	0.0	0.0	0.6	0.0	0.0
Pubis Unossified	0.1	0.22	0.02	0.0	0.0	2.3	0.0	0.0
Reduced Ossification of the 13th Rib(s)	0.6	0.67	0.05	0.5	0.0	3.6	0.2	0.8
Reduced Ossification of the Limb Bone(s)	0.0	0.03	0.00	0.0	0.0	0.2	0.0	0.0
Reduced Ossification of the Rib(s)	0.0	0.12	0.01	0.0	0.0	1.2	0.0	0.0
Reduced Ossification of the Skull	0.1	0.19	0.02	0.0	0.0	1.0	0.0	0.0
Reduced Ossification of the Vertebral Arches	0.1	0.19	0.02	0.0	0.0	1.1	0.0	0.2
Skull Bone(s)- Accessory	0.0	0.08	0.01	0.0	0.0	0.7	0.0	0.0
Sternebra(e) #1, #2, #3 and/or #4 Unossified	0.2	0.26	0.02	0.0	0.0	1.3	0.0	0.3

Mean of Study Means

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

VARIATIONS (% Per Litter)	**Mean**	**S.D.**	**SEM**	**Median**	**Min**	**Max**	**25th Quartile**	**75th Quartile**
SKELETAL								
Sternebra(e) #5 and/or #6 Unossified	6.4	5.87	0.46	4.1	0.0	26.1	2.5	8.8
Sternebra(e)- Malaligned (Slight or Moderate)	0.4	0.49	0.04	0.3	0.0	3.0	0.0	0.6
Sternebrae with Thread-Like Attachment	0.0	0.06	0.00	0.0	0.0	0.6	0.0	0.0
Unco-Ossified Vertebral Centra	0.0	0.06	0.01	0.0	0.0	0.5	0.0	0.0
Vertebral Centra Unossified	0.0	0.05	0.00	0.0	0.0	0.4	0.0	0.0

Modal Distribution of Fetal Body Weights

No. of Datasets in Historical Control	**167**
Range of Study Dates	4/21/1998 - 8/27/2010
No. of Dams in Historical Control	4279
No. of Dams with Live Fetuses	4015
Mean Fetal Body Weight Range (g)	3.4 - 3.9

Mean Fetal Body Weight (g)	**3.4**	**3.5**	**3.6**	**3.7**	**3.8**	**3.9**
Total No. Datasets	2	29	55	47	24	10
Mean Litter Size	15.1	15.4	15.2	15.2	14.6	14.5
Litter Size Range	15.0 - 15.1	14.4 - 17.1	13.7 - 16.7	13.7 - 16.6	12.2 - 15.8	13.8 - 15.3

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

	Number	
MALFORMATIONS	**Fetuses**	**Litters**
EXTERNAL		
Microphthalmia and/or Anophthalmia	18	18
Mandibular Micrognathia	7	7
Omphalocele	7	7
Fetal Anasarca	7	5
Umbilical Herniation of the Intestine	6	6
Anal Atresia	5	5
Filamentous Tail	5	5
Cleft Palate	4	4
Exencephaly with or without Open Eyelid(s)	3	3
Tail- Short	3	3
Aglossia	2	2
Carpal and/or Tarsal Flexure	2	2
Cyclopia	2	2
Mandibular Agnathia	2	2
Open Eyelid(s)	2	2
Apodia	1	1
Astomia	1	1
Cleft Face	1	1
Cleft Lip	1	1
Craniorachischisis	1	1
Ectromelia	1	1
Gastroschisis	1	1
Hydrocephaly with or without Dome Head	1	1

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

MALFORMATIONS	**Number Fetuses**	**Litters**
EXTERNAL		
Maxillary Agnathia	1	1
Meningoencephalocele	1	1
Micromelia	1	1
Proboscis-Like Nose	1	1
Spina Bifida	1	1
VISCERAL		
Situs Inversus	14	14
Hydrocephaly	9	9
Lung(s)- Lobular Dysgenesis	7	6
Retroesophageal Aortic Arch	5	5
Kidney(s) and/or Ureter(s) Absent	4	4
Interrupted Aortic Arch	2	2
Thyroid Gland(s)- Absent	2	2
Transposition of the Great Vessels	2	2
Aorta- Narrowed	1	1
Epididymis- Absent	1	1
Heart and/or Great Vessel Anomaly	1	1
Kidney(s)- Absent	1	1
Lung(s)- Lobular Agenesis	1	1
Testis- Absent	1	1
Vessel(s)- Malpositioned	1	1
SKELETAL		
14th Full Rib(s)	45	39

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

	Number	
MALFORMATIONS	**Fetuses**	**Litters**
SKELETAL		
Vertebral Anomaly with or without Associated Rib Anomaly	23	20
Rib Anomaly	11	11
Vertebral Agenesis	10	10
Sternoschisis	10	9
Rib(s)- Only 12 Pairs Present	7	7
Vertebral Centra Anomaly	7	7
Costal Cartilage Anomaly	6	6
Sternebra(e)- Malaligned (Severe)	5	5
Bent Limb Bone(s)	5	3
Bent Scapula	5	3
Sternebra(e)- Fused	2	2
Limb Bone(s)- Small	1	1
Rib(s)- Only 11 Pairs Present	1	1
Scapula- Misshapen	1	1
Skull Anomaly	1	1

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

VARIATIONS	**Number Fetuses**	**Litters**
EXTERNAL		
Twinning	1	1
VISCERAL		
Renal Papilla(e) not Developed and/or Distended Ureter(s)	156	97
Major Blood Vessel Variation	47	45
Liver- Accessory Lobule(s)	16	10
Hemorrhagic Ring Around the Iris	12	12
Spleen- Pale	9	9
Spleen- Accessory	8	5
Spleen- Small	6	6
Adrenal Gland(s)- Enlarged	5	1
Liver- Pale	4	4
Hemorrhagic Iris	2	2
Kidney(s)- Small	2	2
Testis- Small	2	2
Retrocaval Ureter(s)	2	1
Adrenal Gland(s)- Accessory	1	1
Adrenal Gland(s)- Pale	1	1
Diaphragm- Thin	1	1
Heart- Small	1	1
Liver- Swollen	1	1
SKELETAL		
Cervical Centrum #1 Ossified	11969	3004
14th Rudimentary Rib(s)	4154	1710

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS	**165**	
Total No. of Fetuses/Litters Examined Externally	59744	3942
Total No. of Fetuses/Litters Examined Viscerally	59550	3942
Total No. of Fetuses/Litters Examined Skeletally	59537	3941

VARIATIONS	**Number Fetuses**	**Litters**
SKELETAL		
Sternebra(e) #5 and/or #6 Unossified	3908	1415
Hyoid Unossified	767	492
7th Cervical Rib(s)	492	372
Reduced Ossification of the 13th Rib(s)	366	249
Sternebra(e)- Malaligned (Slight or Moderate)	229	204
Sternebra(e) #1, #2, #3 and/or #4 Unossified	114	106
Bent Rib(s)	99	77
27 Presacral Vertebrae	89	71
Reduced Ossification of the Vertebral Arches	67	62
25 Presacral Vertebrae	62	37
Reduced Ossification of the Skull	52	45
Pubis Unossified	42	36
7th Sternebra	24	10
Reduced Ossification of the Rib(s)	20	17
Entire Sternum Unossified	9	9
Skull Bone(s)- Accessory	8	8
Unco-Ossified Vertebral Centra	6	6
Vertebral Centra Unossified	5	5
Ischium Unossified	4	3
Extra Site of Ossification Anterior to Sternebra #1	3	3
Sternebrae with Thread-Like Attachment	3	2
Reduced Ossification of the Limb Bone(s)	2	2
Extra Site of Ossification Anterior to Cervical Centrum #2	1	1

FINAL REPORT

Contents:	Volume 2 of 2 Appendix H
Study Title:	A Dermal Prenatal Developmental Toxicity Study of Extract, Light Paraffinic Distillate Solvent in Rats
Laboratory Project ID:	WIL-402015
Author:	[redacted]
Test Guideline:	OPPTS 870.3700 OECD Guideline 414
Study Completion Date:	11 July 2012
Performing Laboratory:	WIL Research Laboratories, LLC 1407 George Road Ashland, OH 44805-8946
Sponsor:	American Petroleum Institute 1220 L Street, NW Washington, DC 20005
Total Number of Pages:	429

APPENDIX H

Individual Animal Data

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
NO SIGNIFICANT CLINICAL OBSERVATIONS	28301	1	P P
	28352	1	P
	28325	1	P
	28319	1	P
	28279	1	P
	28282	1	P
	28324	1	P
	28248	1	P P
	28257	1	P
	28289	1	P
	28288	1	P
	28384	1	P P P
	28345	1	P
	28404	1	P
	28277	1	P
	28259	1	P
	28341	1	P
	28381	1	P
	28368	1	P
	28417	1	P
	28271	1	P
	28304	1	P
	28250	1	P
	28413	1	P
	28329	2	P P
	28272	2	P
	28318	2	P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NO SIGNIFICANT CLINICAL OBSERVATIONS	28254	2	P																				
	28327	2				P																	
	28344	2	P																				P
	28262	2	P																				
	28299	2	P																				
	28375	2	P																				
	28338	2	P																				
	28286	2	P																				
	28342	2	P																				
	28283	2	P																				
	28400	2	P																				
	28270	2	P																P				
	28312	2	P																				
	28321	2	P																				
	28281	2	P		P																		
	28397	2	P																				
	28378	2	P									P											
	28370	2	P																				
	28388	2	P	P																			
	28357	2	P																				
	28392	2	P	P																			
	28353	3	P																				
	28315	3	P																				
	28314	3	P																				
	28249	3	P																				
	28256	3	P																				
	28402	3	P											P									

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1 1 1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 0
NO SIGNIFICANT CLINICAL OBSERVATIONS	28253	3	P	P P	
	28351	3	P		
	28371	3	P		
	28389	3	P		
	28374	3	P		
	28263	3	P		
	28285	3	P		
	28403	3	P		
	28422	3	P		
	28416	3	P		
	28268	3	P		
	28295	3	P P		
	28358	3	P		
	28333	3	P		
	28407	3	P P		
	28355	3	P		
	28269	3	P P		
	28376	3	P		
	28264	4	P		
	28261	4	P		P
	28287	4	P		
	28356	4	P		
	28349	4	P		
	28265	4	P		
	28361	4	P		
	28365	4	P		
	28320	4	P P	P	

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
NO SIGNIFICANT CLINICAL OBSERVATIONS	28258	4	P
	28395	4	P
	28382	4	P
	28292	4	P P P P
	28293	4	P
	28360	4	P P
	28274	4	P
	28412	4	P
	28276	4	P
	28317	4	P
	28396	4	P
	28334	4	P
	28387	4	P
	28311	4	P
	28418	4	P
	28335	5	P
	28307	5	P
	28310	5	P
	28350	5	P
	28332	5	P P P
	28260	5	P
	28255	5	P P P
	28380	5	P
	28294	5	P
	28298	5	P
	28362	5	P
	28275	5	P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1 2 3 4 5 6 7 8 9	2 0
NO SIGNIFICANT CLINICAL OBSERVATIONS	28426	5	P P			
	28391	5	P P			
	28291	5	P			
	28278	5	P			
	28296	5	P P			
	28390	5	P			
	28427	5	P			
	28379	5	P			
	28337	5	P P			
	28369	5	P			
	28326	5	P			
	28420	5	P			
	28343	5	P			
	28305	6	P			
	28340	6	P			
	28303	6	P			
	28290	6	P			
	28267	6	P			
	28348	6	P			
	28331	6	P			
	28363	6	P P			
	28313	6	P			
	28252	6	P			
	28372	6	P	P		
	28346	6	P			
	28347	6	P			
	28328	6	P			

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 1 1 1 1 1 1 1 1 1 2 0 1 2 3 4 5 6 7 8 9 0
NO SIGNIFICANT CLINICAL OBSERVATIONS	28411	6	P P	
	28323	6	P	
	28336	6	P	
	28364	6	P	
	28405	6	P	
	28251	6	P	
	28373	6	P	
	28359	6	P	
SCHEDULED EUTHANASIA; GESTATION DAY 20	28301	1		P
	28352	1		P
	28325	1		P
	28319	1		P
	28279	1		P
	28282	1		P
	28324	1		P
	28248	1		P
	28257	1		P
	28289	1		P
	28288	1		P
	28384	1		P
	28345	1		P
	28404	1		P
	28277	1		P
	28259	1		P
	28341	1		P
	28309	1		P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
SCHEDULED EUTHANASIA; GESTATION DAY 20	28381	1	P
	28368	1	P
	28417	1	P
	28271	1	P
	28304	1	P
	28250	1	P
	28413	1	P
	28329	2	P
	28272	2	P
	28318	2	P
	28254	2	P
	28327	2	P
	28344	2	P
	28262	2	P
	28299	2	P
	28375	2	P
	28338	2	P
	28286	2	P
	28342	2	P
	28283	2	P
	28400	2	P
	28270	2	P
	28312	2	P
	28321	2	P
	28266	2	P
	28281	2	P
	28397	2	P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
SCHEDULED EUTHANASIA; GESTATION DAY 20	28378	2	P
	28370	2	P
	28388	2	P
	28357	2	P
	28392	2	P
	28316	3	P
	28353	3	P
	28315	3	P
	28314	3	P
	28249	3	P
	28256	3	P
	28402	3	P
	28253	3	P
	28351	3	P
	28371	3	P
	28389	3	P
	28374	3	P
	28263	3	P
	28285	3	P
	28403	3	P
	28422	3	P
	28416	3	P
	28268	3	P
	28295	3	P
	28358	3	P
	28333	3	P
	28407	3	P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 1 1 1 1 1 1 1 1 2 0 1 2 3 4 5 6 7 8 9 0
SCHEDULED EUTHANASIA; GESTATION DAY 20	28355	3		P
	28269	3		P
	28376	3		P
	28264	4		P
	28261	4		P
	28287	4		P
	28356	4		P
	28349	4		P
	28265	4		P
	28361	4		P
	28365	4		P
	28320	4		P
	28258	4		P
	28395	4		P
	28382	4		P
	28292	4		P
	28293	4		P
	28360	4		P
	28274	4		P
	28412	4		P
	28276	4		P
	28273	4		P
	28317	4		P
	28396	4		P
	28334	4		P
	28387	4		P
	28311	4		P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
SCHEDULED EUTHANASIA; GESTATION DAY 20	28418	4	P
	28335	5	P
	28307	5	P
	28310	5	P
	28332	5	P
	28260	5	P
	28255	5	P
	28380	5	P
	28294	5	P
	28298	5	P
	28362	5	P
	28275	5	P
	28426	5	P
	28391	5	P
	28291	5	P
	28278	5	P
	28296	5	P
	28390	5	P
	28427	5	P
	28379	5	P
	28337	5	P
	28369	5	P
	28326	5	P
	28420	5	P
	28343	5	P
	28305	6	P
	28322	6	P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1 2 3 4 5 6 7 8 9	2 0
SCHEDULED EUTHANASIA; GESTATION DAY 20	28340	6				P
	28303	6				P
	28290	6				P
	28348	6				P
	28331	6				P
	28363	6				P
	28313	6				P
	28252	6				P
	28339	6				P
	28372	6				P
	28347	6				P
	28328	6				P
	28411	6				P
	28302	6				P
	28323	6				P
	28336	6				P
	28364	6				P
	28405	6				P
	28251	6				P
	28373	6				P
EUTHANIZED IN EXTREMIS	28350	5			P	
	28267	6			P	
	28346	6				P
	28359	6			P	
DRIED YELLOW MATERIAL UROGENITAL AREA	28325	1	1	1	1 1 1 1 1 1 1 1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED YELLOW MATERIAL UROGENITAL AREA	28279	1																1					
	28282	1																			1	1	1
	28324	1					1	1	1	1			1	1	1	1	1						1
	28248	1														1							
	28289	1														1			1	1	1	1	
	28288	1			1	1	1	1	1	1				1	1								1
	28384	1		1	1												1						
	28345	1			1	1	1	1		1			1	1	1			1	1				
	28404	1				1	1	1	1	1				1									
	28277	1	1																	1			
	28259	1			1	1	1	1					1										
	28381	1			1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1
	28368	1																	1		1		
	28271	1			1	1	1	1	1	1			1	1	1	1	1	1	1				
	28304	1		1	1	1	1	1	1	1			1	1		1	1	1					
	28250	1				1	1		1				1	1			1	1	1				
	28413	1			1	1	1		1														
	28329	2															1		1	1	1	1	1
	28318	2																		1			
	28254	2																					1
	28327	2						1															
	28344	2			1											1			1				
	28262	2			1	1	2	2	2	1	2			2	1	1	1	1	1	1	1		
	28286	2		1	1	1	1	1	1		1			1	1	1	1	1	1	1	1	1	1
	28342	2				1	1	1		1				1									
	28283	2							1														
	28400	2			1	1	1													1		1	

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED YELLOW MATERIAL UROGENITAL AREA	28312	2	1	1	1																		
	28321	2				1	1																
	28266	2		1	1	1	1						1										
	28397	2		1	1	1	1		1														
	28370	2			1	1	1	2	1				2	2	2	1	2	2	2	1	1	1	1
	28357	2			1	1	1		1				1	1	1		1	1	1		1	1	1
	28353	3			1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1
	28315	3					1	1	1							1							1
	28249	3			1			1	1												1	1	1
	28253	3		1			1	1	1														
	28351	3																				1	
	28371	3		1					1													1	
	28374	3				1																	
	28285	3				1									1								
	28416	3			2	1	1																
	28268	3			1		1		1				2	2	1	1	1	1	1	1			
	28295	3		1	1	1	1	1	1				1	1		1		1					
	28358	3		1	1	1	1															1	
	28333	3		1	1	1	1		1												1		
	28407	3		1	1				1														
	28355	3			1																		
	28269	3		1		1		1	1								1	1		1			1
	28376	3																			1	1	1
	28264	4			1			2	1	2	1	1				2	1	1	1	1	2	2	2
	28261	4			1		1	1	1	1		1				1						1	1
	28287	4																				1	1
	28349	4			1	1	2	2	2	2	1	1				1	1	1					

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED YELLOW MATERIAL UROGENITAL AREA	28265	4							1	1	1											1	
	28320	4																				1	
	28258	4		1				1	1		1			1			1		1		1		1
	28395	4									1			2	2	2	1					1	
	28292	4		1			1	1					1	1	1		1						
	28293	4			1	1	1	1	1	1			1	1	1	2	1						
	28360	4		1		1	1	1		1													
	28274	4			1	1	1					1	1	1	1	1	1	1	1				
	28412	4										1	1	1	1	1	1	1	1		1	1	
	28276	4			1	1										1				1			
	28273	4				1																	
	28317	4		1	1	1	1		2			1	1	1	1	1	1	1	1	1			
	28396	4												1									
	28334	4														1						1	
	28418	4		1	1	1		1			1	1	1	1	1	1	1	1	1				
	28335	5			2		1	1	1	1	1	1										1	
	28307	5														1				1			
	28310	5						1	1							2							
	28350	5						1	1	1	1	2			1	1							
	28332	5							1	1						1	1		1				
	28260	5						1	1	1	1	1			1		2						
	28380	5													1		1						
	28298	5									1												
	28362	5		1																		1	
	28275	5		1		1	1	1	1		1		1										
	28426	5												1									
	28391	5							1	1	1			1	1	2	1		1				

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED YELLOW MATERIAL UROGENITAL AREA	28291	5				1	1	1		1			2		1	1	1	1	1	1	1	1	
	28278	5										1	2	1	1	1	1	1		1	1		
	28427	5		1	1	1	1	1	1			1	1	1	1	2					1		
	28379	5		1	1	1	1		1			1	1	1	1		1		1				
	28337	5			1	1	1						1						1				
	28369	5		1	1	1																	
	28326	5					1					1	1	1	1			1					
	28420	5			1	1	1	1	1			1	1	1	1		1	1	1				
	28343	5		1	1	1	1						1										
	28305	6							1	2	1	2											
	28322	6																	1				
	28340	6			1		1	1	1	2	1	2			2		2	1	1				
	28303	6							1			1			2		1	1	1				
	28290	6				2	2	3	3	3	3	3			2	1		1	1	1			
	28267	6			1			1	1	1		1											
	28348	6							1														
	28331	6														1						1	
	28363	6						1	1		1			1									
	28313	6			1			1	1		1				1	1	1	1					
	28252	6						2			1				1								
	28339	6			1		1	1	2	1		3											
	28372	6		1							1			1									
	28346	6				2	1	2	2	2	3			1	2			1					
	28347	6		1		1	1	1	2	2	1			1	1	1	1						
	28328	6		1			1	1			1			1	1		1					1	
	28411	6											1										
	28302	6								1					1		1						

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED YELLOW MATERIAL UROGENITAL AREA	28323	6	2																				
	28336	6		1	1	1	1	2	1				1										
	28364	6		1	1	1	1	1	1				1		2								
	28405	6		1	1	1	1	1	2				1		2								
	28251	6							1				1		1								
	28373	6							1					2	2								
	28359	6		1	1	1	2	2	2				1	2	2	1							
DRIED RED MATERIAL UROGENITAL AREA	28289	1															1						
	28384	1																1					
	28327	2						1															
	28283	2								1													
	28400	2																					1
	28397	2					1	1															
	28374	3				1																	
	28285	3				1																	
	28416	3		1	1	1																	
	28358	3				1																	
	28292	4						1									1	1	1	2	1	2	2
	28293	4						1											1				
	28412	4															1	1	1		1		
	28273	4	1																				
	28307	5														1	1	1	1	1	1	1	1
	28310	5							1							1	1					1	1
	28350	5														1	1						
	28332	5														1	1			1	1	1	1
	28260	5																1	1	1	1	2	2

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1 2 3 4 5 6 7 8 9	2 0
DRIED RED MATERIAL UROGENITAL AREA	28255	5				1 1
	28380	5			2 2	
	28294	5			1	1
	28298	5			1 1 1 1 1	
	28275	5			1 1 1 1	1 1
	28426	5				1 2
	28391	5			1 1 1 1 1 1	1
	28291	5	1 1	1 1 1	1 1 1 1	
	28278	5			1 1 1 1 1	
	28390	5			1 1 1 1 1	1
	28427	5			1 1 1 1 1 1 1	1
	28379	5			1 1 1	1
	28337	5			1 1	
	28369	5	1		1 1 1 1	
	28326	5			1 1 1	1 1
	28420	5			1 1 1	
	28343	5		1	1 1	1
	28305	6			1 3 3 3 3	3
	28340	6			1 1 1 2 2	1 1
	28303	6			1 1 1 1 1 2	1 2
	28290	6			1 1 1 1 1 1	
	28267	6		1 1	2	
	28348	6	1		1 1 1 1 1	2
	28331	6			1 1 1 1 1 1	
	28363	6		1 1	3 2 2 3 3	2
	28313	6	1		1 1 1 1 1 1	
	28252	6			1 1 1 2 2 2	2

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL UROGENITAL AREA	28339	6															2	1	2	2	2	2	2
	28372	6															1	1	2		1	1	
	28346	6													1	2	1	1	1	1	2		
	28347	6															1	1	1	1	2	2	3
	28328	6														1	1	1	2		2	2	2
	28411	6		1									1				2	1	2	2		2	1
	28302	6																			2		
	28323	6															1	1	1	1	1	2	2	1
	28336	6					1	1		1				1	1	2	2	2	2	2	2	3	2
	28364	6												1	1	2		2	3		2	3	3
	28405	6															1	1	2	2	2	2	1
	28251	6																1	1	1	1		1
	28373	6														1	2		3	1	2	2	3	2
	28359	6					1	1		2			1	1	1	1		2	2				
HAIR LOSS RIGHT FORELIMB	28319	1	2			3		2	2	2			2	1	1	1	1	1	1	1	1	1	1
	28279	1																	1				
	28289	1															1						
	28384	1																	1				1
	28309	1	1	1		1	1	1	1					1	1	1	1	1	1		1		
	28327	2							1														
	28283	2									1												
	28400	2																					1
	28321	2														1	1						
	28266	2	1			1	1						1	1	1				1	1	1	1	1
	28378	2					1						1	1	2	2		2	2	2	2	2	2
	28316	3	1			2		1	1	1	1	1	1	1	1	1	1	1	1	1		2	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HAIR LOSS RIGHT FORELIMB	28253	3	1				1	1	1		1	1			1	1	1	1	1			1	1	1
	28374	3					1									1								
	28333	3											1	1	1	1	1	1	1			1	1	
	28407	3				1	1	1	1				1	1	1	1	1			1	1	1	1	1
	28355	3																					1	1
	28382	4																		1				
	28273	4	1		1	1	1		1	1				1									1	1
	28396	4																	1				1	
	28310	5								1														
	28380	5														2		2						
	28298	5										1												
	28337	5				2	2	2	2	1	1	1	1	1	1	1								
	28343	5												1	1									
	28322	6	1				3		1	2	2	2	2		1	1	1	1	1	1	1	1	1	1
	28340	6		1	1				1							1	1		1					
	28348	6								1														
	28313	6			1																			
	28339	6	2		1	3		2	2		2		1		1	2	1	1		1	1			
	28372	6															1	1						
	28347	6															1	1						
	28411	6										1	1			1								
	28302	6	1	2		2	1	2	2	2	1	1	1	2	2	1	2	1	2	2	2	1	2	1
HAIR LOSS RIGHT HINDLIMB	28319	1					3		2			2		1										
	28309	1		1																				
	28316	3					2																	
	28253	3					1																	

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1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HAIR LOSS RIGHT HINDLIMB	28407	3				1																	
	28337	5								1													
	28322	6				3																	
	28339	6			3																		
	28302	6		2																			
HAIR LOSS LEFT FORELIMB	28319	1	2					2	2	2	2	2		1	1	1	1	1	1	1	1		
	28384	1																					1
	28309	1	1		1	1	1							1	1	1	1		1				
	28321	2												1	1								
	28266	2	1			1	1					1	1	1						1	1	1	1
	28378	2					1					1	1	2	2		2	2	2	2	2	2	2
	28316	3	1					1	1	1	1	1		1	1	1	1	1	1		2	1	
	28253	3	1				1	1		1	1			1	1	1	1	1		1	1	1	
	28374	3													1								
	28333	3											1	1	1	1	3	1	1		1	1	
	28407	3				1		1					1	1	1	1	1			1	1	1	1	1
	28355	3																				1	1
	28382	4																	1	1			
	28273	4	1																				
	28396	4																1			1		
	28337	5				2	2	1	2	1	1	1	1	1	1	1							
	28343	5												1									
	28322	6	1						2	2	2	2	2		1	1	1	1	1	1	1	1	1
	28340	6														1	1		1				
	28339	6	2		1			2	2		2		1		1	2	1	1		1	1		
	28372	6															1	1					

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
HAIR LOSS LEFT FORELIMB	28347	6	1 1
	28411	6	1
	28302	6	1 2 1 2 2 2 1 1 1 2 2 1 2 2 2 2 1 2 1
WET YELLOW MATERIAL UROGENITAL AREA	28400	2	1
	28402	3	1
	28374	3	1
	28269	3	1
	28395	4	1
	28292	4	2
	28335	5	1
	28275	5	2
	28337	5	1
	28340	6	1
	28290	6	2
	28339	6	1
	28346	6	1
WET RED MATERIAL UROGENITAL AREA	28350	5	2
	28260	5	2
	28291	5	1
	28305	6	2 3
	28267	6	2 3
	28363	6	2
	28252	6	3
	28339	6	2
	28411	6	2

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
WET RED MATERIAL UROGENITAL AREA	28364	6	2 2 2
	28251	6	1 1
	28373	6	1 1
	28359	6	3
HAIR LOSS VENTRAL ABDOMINAL AREA	28329	2	1
DRIED YELLOW MATERIAL VENTRAL ABDOMINAL AREA	28282	1	1 1
	28324	1	1 1
	28259	1	1
	28381	1	1
	28368	1	1
	28370	2	1 1 1 1
	28249	3	1 1
	28351	3	1 1 1 1 1 1 1
	28268	3	1 1 1
	28295	3	1
	28395	4	1 1 1 2 1 1
	28360	4	1 1 1
	28274	4	1 1 1 1
	28273	4	1
	28317	4	1 1
	28426	5	1
	28391	5	1 1 1 1
	28291	5	1 1 1
	28278	5	1 1
	28427	5	1 1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED YELLOW MATERIAL VENTRAL ABDOMINAL AREA	28337	5																					1
	28326	5																		1	1	1	
	28290	6													2								
	28346	6									1												
BODY PALE	28350	5															P	P					
	28260	5																			P	P	P
	28305	6																P	P	P		P	
	28267	6															P						
	28363	6																P	P	P	P		
	28252	6																			P		
	28339	6																P					
	28346	6																			P		
	28347	6																			P	P	
	28411	6														P	P	P	P	P	P	P	P
	28323	6														P	P		P	P			
	28364	6																		P	P		
	28405	6																		P		P	P
	28359	6																	P				
BODY COOL	28350	5															P	P					
	28260	5																			P		
	28305	6																P	P				
	28363	6																P		P			
	28339	6																P					
	28346	6																			P		
	28411	6														P	P	P	P	P			

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0
BODY COOL	28323	6								P		P		
	28336	6							P					
	28405	6									P			
	28359	6								P				
WET RED MATERIAL VENTRAL ABDOMINAL AREA	28260	5												2
	28391	5												1
DRIED RED MATERIAL AROUND NOSE	28301	1	1 2 1 1 1 1 1 1 1 1	1 1	1 2	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28352	1	2 2 2 2 2 1 1 1 1 1	2 2	2 1	2 1	1 2	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28325	1	2 2 2 2 2 1 1 2 1 2	2 2	1 2	1 2	1 1	2 2	2 2	2 2	2 2	2 2	2 2	2 2
	28319	1	1 2 1 1 1 1 1 1 1 2	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28279	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28282	1	1 2 2 2 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 2
	28324	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 2	1 2	1 2	2 2
	28248	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28257	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 2	1 1	1 1	1 1		
	28289	1	1 1 2 2 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28288	1	1 1 2 2 2 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28384	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28345	1	1 2 2 2 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28404	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28277	1	1 2 1 1 2 2 1 1 1 1	2 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28259	1	1 1 1 1 1 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28341	1	1 2 2 2 2 2 2 1 1 2	1 1	1 1	1 1	1 1	1 1	1 2	1 1	1 1	1 1	1 1	1 1
	28309	1	1 1 2 2 3 3 3 3 3 3	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
	28381	1	1 2 2 2 2 1 1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 2

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND NOSE	28368	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1
	28417	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28271	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28304	1	1	1	2	2	1	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1
	28250	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
	28413	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1
	28329	2	1	2	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28272	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28318	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28254	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1
	28327	2	1	1	2		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28344	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28262	2	1	1	2	2	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
	28299	2	1	2	3	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	2	1
	28375	2	1	1	2	2	2	2	2	2	3	2	2	2	3	2	2	2	2	2	3	3	2
	28338	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28286	2	1	1	2	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28342	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28283	2	1	1	1	1	2	2	1		1	1	1	1	1	1	1	1	1	1	1	1	1
	28400	2	1	1	1	2	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	
	28270	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
	28312	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28321	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28266	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28281	2	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
	28397	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
	28378	2	1	2	1	1	1	1			1	1	1			1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND NOSE	28370	2		1	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1		1	1	1
	28388	2			1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1		1	1
	28357	2		1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28392	2			1	2	2	2	1	1	1	2	1	1	2	1	1	1	1	1		1	1
	28316	3		1	2	2	3	3	2	1	1	1	1	1	1			1	1	1		1	1
	28353	3		1	2	1	2	2	2	1	1	1	1	1	1	1		1	1	1	1	1	
	28315	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28314	3		2	1	2	2	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2
	28249	3		1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28256	3		1	1	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28402	3		1	3	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1
	28253	3		1	1		1	1	1	1	1	1			1	1	1	1	1	1	1		1
	28351	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
	28371	3		1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1
	28389	3		1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28374	3		1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28263	3		1	1	2	1	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1	2
	28285	3		1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
	28403	3		1	2	2	2	1	1	1	1	1	1	1	1	1	1	1		1	1	1		
	28422	3		1	1	1	1	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1
	28416	3		1	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28268	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28295	3			2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28358	3		1	2	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1
	28333	3		1	1	1	1	1	1	1	1	1	1	1	1		1		1	1	1		1	
	28407	3			1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28355	3		1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1		1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND NOSE	28269	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1
	28376	3	1	2	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	1	1
	28264	4	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28261	4	1	2	1	2	2	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
	28287	4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28356	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28349	4	1	2	1	2	2	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1
	28265	4	1	2	2	2	3	3	2	2	1	2	1	1	1	2	1	1	1	1	1	1	2
	28361	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28365	4	1	1	2	1	1	1	1	1	1	1	1	2	1	2	2	1	2	1	2	2	
	28320	4	1	1	1		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
	28258	4	2	2	2	2	1	1	2	1	1	1	1	1	1			1	1			1	
	28395	4	1	1	1	2	2	1	1	2	1	1	1	1	1	1	1	1		1	1	1	
	28382	4	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	28292	4	1	1			2	2			1	1	2	2	2	2	2	1		2	1	1	
	28293	4	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28360	4	1	2		1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	2	
	28274	4	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28412	4	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28276	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28273	4	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28317	4	1	2	1	2	2	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1
	28396	4	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1
	28334	4	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28387	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28311	4	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1		1		1	
	28418	4	1	1	2	2	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND NOSE	28335	5		1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2
	28307	5		1	1	2	2	1	1	2	2	2	1	1	2	2	1	1	1	1	2	2	2
	28310	5		1	2	2	2	2	1		1	1	1	1	1	1	1	1	1	1	1	1	1
	28350	5		1	1	1	2	1	2	1	2	1	1	1	1	1	2	2					
	28332	5		1	1	1	1		1	1	1	1	1	1		1	1	1	1	1	1	1	1
	28260	5		1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
	28255	5		1	1	1			1	2	2		1	1	2	2	2	2	2	2	1	1	2	2
	28380	5		1	1	1	1	1	1	1	1	1	1	1	1	1		1		1	1	1	1	1
	28294	5		1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28298	5		1	1	1	1	1	1	2	1		1	1	1	1	1	1	1	1	1	1	1	1
	28362	5		1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
	28275	5		1	1	2	1	1	2	2	2	2	1	1	2	1	1	1	1	2	1	1	2	
	28426	5		1	1	1		1	1	1	2	1	1	1	1	2	1	1	2	2	2	2	2	
	28391	5		1	1	1		1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	
	28291	5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
	28278	5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2
	28296	5			1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
	28390	5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	
	28427	5		2	2	2	2	2	2	2	1	1	2	2	2	1		2	1	1	1	1	1	
	28379	5		1	2	2	1	2	1	1	1	1	2	1	2	1	1		1	2	1	1	1	
	28337	5			1		2	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	
	28369	5		1		1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	
	28326	5		2	1	1	1	2	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	
	28420	5		1	2	2	2	2	2	1	1	1	1	1	1	1		1	2	1	1	1	1	
	28343	5		1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	2	
	28305	6		1	1	1	2	2	1	1	2	2	2	1	1	2	2	2	2	2	2	1	2	
	28322	6		1	1	1	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND NOSE	28340	6		1	2	2	2	1	1	2	2	2	2	1	1	2		1		1	1	1	1
	28303	6		1	1	1	2	2	2	2	2	1	2	1	1	1	1		2	1	1	2	2
	28290	6		1	2	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	
	28267	6			1	2	2	2	1	2	2	2	2	2	1	2	2						
	28348	6		1	2	2	2	2	1		1	1		1	1	1	1	1	1	1	1	2	2
	28331	6		1	1	1	2	1	2	2	2	2	2	1	1	2	2	1	1	1	1	2	1	1
	28363	6		1	1	1		2	2	2	3	2	1	1	2	2	2	2	1	1	2	2	1	1
	28313	6		1		2	2	1	2	2	2	2	2	1	2	3	2	2	2	1	1	1	1	1
	28252	6		1	1	2	2	2		2	2	2	2	1	1	2		1	2	2	2	2	2	2
	28339	6		1	1	2	1	1	2	2	2	2	2	1	1	2	1	1		1		1	1	1
	28372	6		1	2	1	1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1
	28346	6		1	2	2	3	3	2	3	3	2	2	3	3	2	3	1	2	2	2			
	28347	6		1	1	1	1	2	2	1	2	1	1	2	1	1	1	1	1	1	2	2	1	
	28328	6		2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	28411	6		1		1	1	1	1	1	1			1	1	1	1	2	2	1	2	1	1	
	28302	6		1	1	2	2	2	2	2	1	1	1	1	1	1	1	2	2		1	1	1	
	28323	6		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	
	28336	6		1	1	2	3	3	3	2	2	2	3	2	2	2	1	2	2	1	1	2	2	
	28364	6		2	1	1	2	2	2	2	2	2	1	3	1		2	1	2	3	2	3	1	1
	28405	6		1	1	1	2	2	2	2	1	1	1	2	1	2	1	2	2	2	2	2	1	
	28251	6		2	2	2	2	3	3	3	2	2	3	2	2	1	1	2	1	1	1	1	1	
	28373	6		1	1	1	2	3	3	3	2	3	3	2	2	2	1	2	2	2	2	2	1	
	28359	6		2	1	3	3	3	3	2	1	2	3	2	2	1		2	3					
DRIED RED MATERIAL AROUND RIGHT EYE	28301	1								1			1	1	1	1						1	
	28352	1		1		1	1			1	1	1	1	1	1	1	1				1	1	1	
	28325	1		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND RIGHT EYE	28319	1			1							1	1	1						1		1	
	28279	1		1		1	1	1	1	1	1	1	1	1	1	1			1	1	1		1
	28324	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28248	1		1			1	1		1						1	1	1	1				
	28257	1	1		1	1	1	2	2	2	2	1	2	2	2	1	2	1	1	2	2	2	
	28289	1						1							1								
	28288	1		1							1		1	1							1		
	28384	1					1	1	1	1		1	1	1	1	1		1	1		1		
	28345	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28277	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28259	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28341	1				1			1														1
	28309	1	1		1	1	1	1	1	1			1	1	1	1	1	1		1			
	28381	1				1	1					1	1	1	1	1	1				1	1	
	28368	1				1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1
	28417	1			1	1	1										1						
	28271	1				1	1	1	1	1	1	1		1	1		1					1	1
	28304	1	1		1	1	1		1			1	1		1	1					1	1	1
	28250	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
	28413	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	28329	2	1	2	1		1	1	1	1	1								1	1	1	1	1
	28272	2	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28318	2		1	1	1	1	1	1	2	1	1	1	1	1	1			1	1	1	1	
	28254	2		1	1			1		1	1	1		1	1	1					1	1	1
	28327	2		1	1				1	1	1	1			1	1		1					
	28344	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1					1	1	1
	28262	2					1	1	1					1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND RIGHT EYE	28299	2		1	1	1	1	1	1	1	1	1						1	1	1	1		1
	28375	2		1	1	1	1	1	1	1		1			1	1	1	1	1	1	1	1	1
	28338	2		1			1		1		1						1	1	1	1	1	1	1
	28286	2																	1	1			
	28342	2		1	1	1		1	1	2	1	1	1	1	1	2	2	2	2	1	1	1	1
	28283	2			1		1	1	1	1		1	1	1	1	1	1	1		1	1		
	28400	2		1	1	1	1	1	1		1	1	1	1				1	1	1	1	1	
	28270	2			2	1	1	1							1			1	1	1			
	28312	2				1	1			1	1	1	1		1	1	1	1	1	1	1	1	1
	28321	2								1				1	1	1		1				1	1
	28266	2							1				1	1		1	1	1	1	1	1	1	1
	28281	2					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28397	2		1		1	1	1	1	1	1		1		1	1	1				1	1	1
	28378	2			1			1													1		1
	28370	2			1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	
	28388	2			1	1	1	1	1	1	1	1		1	1	1	1	1	1		1	1	1
	28357	2		1		1	1	1	1	1	1					1			1	1	1	1	
	28392	2			2	2	2	1	2	1	1	1	1	1	2	1	2	2	2	2	1	2	1
	28316	3		1	1	1			1	1	1	1	1	1	1			2	1	1		1	1
	28353	3		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28315	3			1	1	1		1	1	1	1	1	1	1								1
	28314	3			1		1		1	1	1	1	1	1	1	1	1	1	1			1	1
	28249	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1
	28256	3			1	1	1		1	1	1	1	1	1	1	1		1	1	1	1	1	
	28402	3		1	1				1		1	1			1	1		1					1
	28253	3		1	1		1	1	1	1													1
	28351	3		1	1			1							1	1	1		1	1	1		1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND RIGHT EYE	28371	3		1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	1	1	1	1	1	1
	28389	3		1	1					1		1	1	1	1	1	1	1	1	1	1	1	1	1
	28374	3					1	1	2	1	1	1	1	1	1	1	1	1	1	1	1			
	28263	3								1														
	28285	3		1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28403	3					1		1	1	1		1	1						1			1	1
	28422	3		1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28416	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28268	3		1	1	1	1	1	1	1	1	1	1	1	1	1					1	1	1	
	28295	3				1	1	1	1	1	1	1											1	
	28358	3		1		1	1	1	1	1	1	1	1	1				1	1	1	1		1	1
	28333	3				1	1	1						1					1	1	1	1		1
	28407	3				1	1	1	1	1	1	1												1
	28355	3				1	1	1	1	1	1	1	1	1	1		1	1		1		1		1
	28269	3			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28376	3					1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1
	28264	4			1					1	1	1	1	1	1		1		1			1	1	
	28261	4			2	2	1	1	1	1	1	1	1	1	1	1	1		1	1			1	1
	28287	4			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28356	4		1	1	1	1	1		1	1		1								1		1	1
	28349	4			1	1											1		1			1	1	
	28265	4		1	1	1	1	1	1		1		1		1						1		1	1
	28361	4						1				1									1			
	28365	4		1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28320	4			1				1	1											1		1	1
	28258	4		1	1	1		1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28395	4		1	1			1	1	1					1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND RIGHT EYE	28382	4	1			1	1	1		1	1	1	1	1	1	1	1	1	1			1	
	28292	4				1	2				1	1	2	1	2	1		1		1	1	2	
	28293	4	1	1	1	2	1	1	1	1	1	1	1		1		1	1	1			1	1
	28360	4					1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1
	28274	4		1	1	1	2	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1
	28412	4			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
	28276	4				1	1	1	1	1		1	1					1			1		
	28273	4				1			1			1	1	1						1	1	1	
	28317	4	1	1	1	1	1	1	1	1	1	1	1	1		1		1				1	
	28396	4			1	1	1	1	1	1	1									1			
	28334	4			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28387	4			1	1	1	1	1			1	1	1	1	1	1	1	1		1		1
	28311	4																		1	1	1	1
	28418	4		1	1	1						1							1		1	1	
	28335	5		1	1			1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
	28307	5						1	1	1		1		1	1	1	1	1	1	1	1	1	1
	28310	5		1						1					1	1	1	1			1	1	
	28350	5		1					1	1		1			1	1	1						
	28332	5			1					1													
	28260	5	1	1	1	1		1	1	1	1	1		1	1	1	1		1	1			
	28255	5	1	2	1	1		1	1	1			1	1	1	1	1		1	1	1	1	
	28380	5				1	1	1	1	1	1	1	1	2		2		2	1	1	2	1	
	28294	5						1	1		1	1		1	1	1	1	1		1	1	1	
	28298	5														1		1	1	1	1		1
	28362	5	1	1	1	1	1		1	1					1	1		1		1			1
	28275	5	1	1	1		1	1	1		1	1	1	1	1		1	1	1	1	1	1	1
	28426	5					1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND RIGHT EYE	28391	5		1	1	1		1	1					1	1			1	1	1			1
	28291	5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28278	5		1	1	1	1	1	1			1		1	1		1					1	1
	28296	5			1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28390	5				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28427	5			1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1
	28379	5		1	2	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
	28337	5					1		1			1	1	1	1	1	1	1				1	1
	28369	5				1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1
	28326	5				1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1
	28420	5				1	1	1	1	1		1	1	1	1	1			1	1	1	1	1
	28343	5				1	1	1	1			1	1		1	1	1	1	1	1	1	1	1
	28305	6			1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28322	6			1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28340	6			1				1		1	1	1	1	1	1		1		1	1	1	1
	28303	6				1			1			1	1		1	1	1		1	1	1	1	1
	28290	6			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	28267	6			1	1			1	1	2	1	1	1	1	1	1						
	28348	6		1	1	1		1	1		1	1	1	1		1	1	1				1	1
	28331	6		2	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1		
	28363	6						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28313	6		1		1	1	1	1	1	1	2	1	1	1	1	1	1			1	1	1
	28252	6								1		1			1			1	1	1	1	1	1
	28339	6		1														1				1	
	28372	6		1	1	1	1	1	1		1			1				1		1	1	1	1
	28346	6					1	1	1	1	1			1	1	1	1		1	1	1		
	28347	6		1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND RIGHT EYE	28328	6		1		1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
	28411	6				1	1	1	1				1	1	1	1	1	1	1	1	1	1	1
	28302	6			1		1						1	1	1		1		1		1		1
	28323	6		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28336	6		1	1	1	1	1	1				1	1	1	1	1	1	1	1	1	2	2
	28364	6			1		1		1					1		1			1		1	1	
	28405	6	1	2	2	2	2	2	1	1	1	2	1	1	2	1	1	2	1	1	1	1	1
	28251	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
	28373	6	1	2	2	2	2	2	2	1	1	2	2	2	2	1	1	2	1	1	1	1	1
	28359	6			2	2	2	3	3	2	3	3	3	3	3		3	3					
DRIED RED MATERIAL AROUND LEFT EYE	28301	1	1	2	2	2	2	2	1	1	1	1	1	1								1	1
	28352	1								1		1	1	1	1	1	1	1	1				1
	28325	1						1	1							1	1	1	1	1	1	1	1
	28319	1			1																		
	28279	1	1	1		1	1	1	1	1	1	1	1	1	1	1			1	1	1		
	28282	1																				1	1
	28324	1	1	1	1		1	1	1		1	1	1	1	1		1	1	1	1	1	1	1
	28248	1		1							1												1
	28257	1	1			1	1	1	1	1	1	1	1	1	1	1				1	1	1	1
	28289	1									1			1	1			1					1
	28288	1	1	1																			
	28384	1						1	1	1		1	1						1				
	28345	1				1	1	1			1	1	1		1	1	1	1	1	1	1	1	1
	28404	1					1			1													
	28277	1				1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28259	1		1	1	2	2	2	2	1	1	2	2	1	1	1	1		1	1	1	1	

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND LEFT EYE	28341	1		1		1	1	1		1				1		1	1					1	1
	28309	1		1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28381	1				1	1	1					1	1	1	1	1	1	1	1	1	1	1
	28368	1				1	1	1						1	1	1	1	1				1	
	28417	1																				1	
	28271	1					1			1							1	1		1	1		1	1
	28304	1		1		1	1	1		1			1	1			1	1	1	1	1	1	1	1
	28250	1		1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1			
	28413	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	28329	2		1					1	1	1	1	1				1			1	1	1	1	1
	28272	2		1	1	1			1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
	28318	2			1	1					1		1	1		1	1	1	1	1	1	1	1	1
	28254	2							1	1	1		1		1	1	1	1	1	1	1	1		
	28327	2								1	1		1			1	1	1	1	1	1	1	1	1
	28344	2		2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28262	2						1	1			1					1		1	1	1		1	
	28299	2			1	1	1	1	1	1	1	1	1	1	1	1	1				1			
	28375	2		1	1	1	1	1	1	1		1						1	1		1	1		1
	28338	2						1	1	1						1			1	1	1	1		
	28286	2						1							1	1					1			
	28342	2		1	1	1		1	1	2	2	2	1	1	2	2	2	1	2	1	1	1	1
	28283	2			1		1	1	1	1				1	1	1	1	1	1	1	1	1	1	1
	28400	2		1	1	1	1	1	1		1			1	1	1	1	1	1	1		1		
	28270	2			1	1	1	1	1	1									1	1	1	1	1	1
	28312	2				1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1
	28321	2						1					1	1								1		
	28266	2				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND LEFT EYE	28281	2					1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1
	28397	2			1	1	1	1	1				1		1	1	1					1	1
	28378	2		1					1					1		2						1	1
	28370	2		1	1	1	1	1	1	1		1		1	1	1	1	1	1	1	1	1	1
	28388	2		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1
	28357	2	1		1	1	2	1	1	1	1	1	1	1	1	1	1			1	1	1	1
	28392	2		2	2	2	1	2	1	1	2	1	1	2	1	2	2	2	1	1	1	1	1
	28316	3		1	1			1	1	1	1	1	1	1				2	1	1	1	1	1
	28353	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1
	28315	3		1	1	1		1		1		1										1	
	28314	3		1	1			1	1	1		1				1	1	1	1	1	1	1	
	28249	3	1	1	1	1	1	1	1	1		1						1	1				
	28256	3	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1
	28402	3	1														1	1	1	1		1	
	28253	3		1		1	1		1	1	1					1							
	28351	3		1	1		1	1	1	1	1		1	1	1	1			1	1		1	
	28371	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28389	3	1	1			1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
	28374	3					1	1	1	1	1	1				1	1	1	1	1	1	1	1
	28285	3					1	1		1		1	1	1	1	1	1	1	1	1	1	1	1
	28403	3				1	1	1	1	1		1	1	1	1	1	1	1	1	1			1
	28422	3			1	1	1		1	1		1	1	1									
	28416	3	1	1	1	1	1	1	1	1	1	1	1	1		1	2	1	1	1	2	2	2
	28268	3	1	1	1	1	2	1	1	1	1	1	1			1				1	1	1	
	28295	3								1						1							
	28358	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28333	3			1	1	1		1				1	1	1		1	1	1	1	1		1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND LEFT EYE	28407	3			1	1	1	1	1	1			1	1	1				1				1
	28355	3			1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1		1
	28269	3		1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28376	3				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	28264	4		1									1				1	1	1			1	1
	28261	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1						1	1
	28287	4	1	2	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1
	28356	4	1	1	1	1		1	1	1		1		1		1	1	1	1	1	1	1	1
	28349	4	1	1	1			1	1	1												1	
	28265	4	1	1	1				1	1								1	1				
	28361	4	1				1	1	1	1	1								1		1	1	
	28365	4										1				1	1	1	1	1		1	1
	28320	4		1																			1
	28258	4	1	1	1		1	1	2	1	2	1	1	2	1	1	2	2	2	1	2	2	
	28395	4	1				1	1	1		1	1	1	1			1	1		1	1		1
	28382	4	1			1	1	1		1	1			1	1				1		1	1	1
	28292	4					2	2			1	1	2	1	2	2	1	1		2	2	2	
	28293	4	1			1	1	1	1	1	1	1	1	1	1	1	1				1	1	1
	28360	4					1		1	1	1	1	1	1	1	1		1	1	1	1	1	
	28274	4		1	1	1	2	1	1	1	1	1	1	1	1		1	1		1		1	1
	28412	4			1	1	1		1	1			1	1	1		1		1	1	1	1	
	28276	4					1		1				1	1	1	1	1	1			1	1	
	28273	4				1	1	1	1	1	1	1		1	1		1						1
	28317	4	1	1	1	1	1	1	1	1	1	1	1		1		1	1	1	1	1	1	
	28396	4			1	1	1										1	1	1		1	1	
	28334	4			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28387	4			1	1	1		1				1	1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND LEFT EYE	28311	4			1	1	1		1				1					1	1	1	1		1
	28418	4		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28335	5		1	1			1	1	1	1	1	1					1	1	1	1	1	1
	28307	5	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28310	5			1			1		1		1				1	1	1				1	
	28350	5	1	1	1			1	1	1		1				1	1	1					
	28332	5		1	1				1	1		1							1	1			
	28260	5		1	1			1	1	2	1	1	1	1	1	1	1	1	1	1	1		1
	28255	5	1	1	1			1	1	1		1	1	2	1	1	1	1	1	1	1	1	1
	28380	5		1		1	1	1	1	1	2	1	1	3		2		2	2	1	2	1	
	28294	5		1				1	1		1			1	1	1	1			1			
	28298	5					1	1	1	1					1	1	1	1	1	1	1	1	1
	28362	5	1	1	1	1	1	1	2	1	1	1	1	1	1		1			1	1	1	
	28275	5	1	1	1		1	1	1		1			1	1	1	1		1			1	
	28426	5						1										1	1		1		
	28391	5	1		1			1		1			1	1	1	1	1	1	1	1	1	1	1
	28291	5					1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1
	28278	5	1	1	1	1	1	1	1	1	1	1	1	1	1						1	1	1
	28296	5		1	1	1	1						1	1	1	1	1	1	1	1	1		
	28390	5			1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1
	28427	5		1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1		
	28379	5	1	2	2	2	2	1	1	1	1	2	1	1	1	1		1	1	1		1	
	28337	5				1	1					1	1	1	1		1	1	1	1	1		
	28369	5			1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
	28326	5			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28420	5			1	1	1		1		1	1	1	1				1	1		1	1	
	28343	5			1	1	1	1	1		1	1		1	1	1	1	1	1	1	1	1	1

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DRIED RED MATERIAL AROUND LEFT EYE	28305	6			1	1		1	1		1	1						1	1	1	1	1	1
	28322	6			1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28340	6			1	1			1	1	1	1	1	1		1		1		1	1	1	1
	28303	6			1	1			1			1	1		1	1	1		1			1	1
	28290	6			1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	
	28267	6			1	1			1	1	1		1			1	1						
	28348	6			1	1			1		1								1	1	1	1	1
	28331	6		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	28363	6		1	1			1	1	1	1	1	1	1	1	1	1	1	1			1	1
	28313	6		1				1	1	1		1	1	1	1	1	1	1	1			1	
	28252	6																1	1	1	1	1	1
	28339	6		1	1			1	1	1		1		1	1			1					
	28372	6		1	1	1	1	1	1	1	1			1	1			1					
	28346	6		1			1	1	1	1	1		1	1	1	1	1	1		1		1	
	28347	6		1	1	1	1	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1
	28328	6		1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	28411	6					1	1							1	1			1	1	1	1	1
	28302	6				1	1	1		1			1		1	1	1		1		1	1	
	28323	6			1	1	1	1	1	1	1	1	1	1	1	1		1	1		1	1	
	28336	6			1	1	1	2	1	1	1	1	1	1		1	1	1	1	1	1	1	1
	28364	6				1		1		1			1	1		1						1	
	28405	6		1	2	1	1	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1
	28251	6		1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	28373	6		1	2	1	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1
	28359	6				1	2	2	3	2	2	3	3	3	2	2		3	3				
WET RED MATERIAL AROUND RIGHT EYE	28400	2								1													

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1 2 3 4 5 6 7 8 9	2 0
WET RED MATERIAL AROUND RIGHT EYE	28266	2			1	
	28314	3	1			
	28261	4	1			
	28349	4	1			
	28267	6	1			
WET RED MATERIAL AROUND LEFT EYE	28266	2			1	
	28378	2			1	2
	28316	3				1
	28314	3	1			
	28253	3		1		
	28333	3				1
	28407	3				1
	28382	4				1
	28310	5	1			
WET RED MATERIAL AROUND NOSE	28359	6	1			
HAIR LOSS AROUND NOSE	28359	6				1
HAIR LOSS AROUND RIGHT EYE	28301	1				1 1
	28359	6				2
HAIR LOSS AROUND LEFT EYE	28301	1				1 1
	28268	3				1
	28359	6				2
WET RED VAGINAL DISCHARGE	28350	5				P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A1 (DAILY EXAMINATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9	1 0	1 1 2 3 4 5 6 7 8 9	2 0
WET RED VAGINAL DISCHARGE	28260	5				P
	28291	5			P	
	28337	5			P	
	28305	6			P P	
	28340	6			P	
	28290	6		P		
	28267	6			P	
	28331	6			P	
	28363	6		P	P	
	28313	6			P	
	28252	6			P P	
	28339	6			P P	
	28372	6				P
	28346	6			P	
	28328	6			P P P	
	28411	6			P P	
	28364	6			P P P P P P	
	28251	6			P P	
	28373	6			P P P	
	28359	6			P	

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

OBSERVATION	ANIMAL	GROUP	GESTATIONAL DAY 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
ANIMAL FOUND WITHOUT COLLAR	28301	1	P P
	28319	1	P P P P
	28248	1	P
	28384	1	P P
	28329	2	P
	28327	2	P
	28270	2	P
	28281	2	P
	28388	2	P
	28392	2	P
	28407	3	P
	28269	3	P
	28261	4	P
	28292	4	P P P
	28360	4	P
	28255	5	P P
	28426	5	P
	28391	5	P
	28363	6	P
	28411	6	P

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

TABLE A2 (AT TIME OF DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NORMAL																						
NO SIGNIFICANT CLINICAL OBSERVATIONS	28301	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28352	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28325	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28319	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28279	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28282	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28324	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28248	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28257	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28289	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28288	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28384	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28345	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28404	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28277	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28259	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28341	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28309	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28381	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28368	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28417	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28271	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28304	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28250	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28413	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28329	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28272	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28318	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28254	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28327	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A2 (AT TIME OF DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NO SIGNIFICANT CLINICAL OBSERVATIONS	28344	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28262	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28299	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28375	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28338	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28286	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28342	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28283	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28400	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28270	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28312	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28321	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28266	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28281	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28397	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28378	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28370	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28388	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28357	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28392	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28316	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28353	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28315	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28314	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28249	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28256	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28402	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28253	3		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28351	3		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28371	3		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28389	3		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28374	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A2 (AT TIME OF DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NO SIGNIFICANT CLINICAL OBSERVATIONS	28263	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28285	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28403	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28422	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28416	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28268	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28295	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28358	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28333	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28407	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28355	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28269	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28376	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28264	4	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28261	4	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28287	4	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28356	4	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28349	4	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28265	4	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28361	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28365	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28320	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28258	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28395	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28382	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28292	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28293	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28360	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28274	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28412	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28276	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28273	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A2 (AT TIME OF DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NO SIGNIFICANT CLINICAL OBSERVATIONS	28317	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28396	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28334	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28387	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28311	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28418	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28335	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28307	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28310	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28350	5	P	P	P	P	P	P		P	P	P	P	P	P	P	P	P				
	28332	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28260	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28255	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28380	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28294	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28298	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28362	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28275	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28426	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28391	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28291	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28278	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28296	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28390	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28427	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28379	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28337	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28369	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28326	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28420	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28343	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	28305	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28322	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28340	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28303	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28290	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28267	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P					
	28348	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28331	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28363	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28313	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28252	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28339	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28372	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28346	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	28347	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28328	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28411	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28302	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28323	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28336	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28364	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28405	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28251	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28373	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28359	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P					

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NORMAL																						
NO SIGNIFICANT CLINICAL OBSERVATIONS	28301	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28352	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28325	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28319	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28279	1	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	P
	28282	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28324	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28248	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28257	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28289	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28288	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28384	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28345	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28404	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28277	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28259	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28341	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28309	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28381	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28368	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28417	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28271	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28304	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28250	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28413	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28329	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28272	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28318	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28254	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28327	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NO SIGNIFICANT CLINICAL OBSERVATIONS	28344	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28262	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28299	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28375	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28338	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28286	2				P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28342	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28283	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28400	2	P			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28270	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28312	2			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28321	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28266	2			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28281	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28397	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28378	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28370	2			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28388	2		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28357	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28392	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28316	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28353	3	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28315	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28314	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28249	3	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28256	3	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28402	3		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28253	3		P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28351	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28371	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28389	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28374	3	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NO SIGNIFICANT CLINICAL OBSERVATIONS	28263	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28285	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28403	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28422	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28416	3			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28268	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28295	3	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28358	3			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28333	3	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28407	3		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28355	3			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28269	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28376	3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28264	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28261	4	P	P	P			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28287	4	P	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P		P	P
	28356	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28349	4	P					P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28265	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28361	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28365	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28320	4		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P
	28258	4	P	P			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28395	4			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28382	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28292	4	P			P	P	P	P	P	P	P	P	P	P		P				P	
	28293	4	P			P	P	P	P	P	P	P	P	P	P		P	P	P	P		P
	28360	4	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28274	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28412	4	P	P	P	P	P	P	P	P	P	P	P	P	P					P	P	P
	28276	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28273	4			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NO SIGNIFICANT CLINICAL OBSERVATIONS	28317	4	P		P	P	P	P	P	P	P	P	P	P	P	P			P	P	P	P
	28396	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P
	28334	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P
	28387	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28311	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28418	4	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28335	5	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28307	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	28310	5	P	P	P	P		P	P	P	P	P	P	P	P		P	P	P	P		P
	28350	5	P	P	P	P		P	P	P	P	P	P	P	P							
	28332	5	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		
	28260	5	P		P	P	P	P	P	P	P	P	P	P	P		P	P	P	P		
	28255	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28380	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28294	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P
	28298	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P
	28362	5		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28275	5		P	P		P	P	P	P	P	P	P	P	P	P		P		P	P	P
	28426	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P
	28391	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P
	28291	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				P	P
	28278	5		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28296	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28390	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28427	5			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P
	28379	5			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28337	5	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28369	5	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28326	5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P
	28420	5			P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	P
	28343	5			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	28305	6		P	P	P	P	P	P	P	P	P	P	P	P				P	P	P	
	28322	6		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28340	6					P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28303	6		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P
	28290	6					P	P	P	P	P	P	P	P		P	P		P	P	P	
	28267	6		P		P	P	P	P	P	P	P	P		P							
	28348	6			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28331	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28363	6		P	P	P	P	P	P	P	P	P	P	P	P			P	P			P
	28313	6	P		P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28252	6		P	P	P	P	P	P	P	P	P	P	P	P		P		P	P		P
	28339	6		P	P		P	P	P	P	P	P	P	P	P				P	P		P
	28372	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P
	28346	6	P			P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		
	28347	6	P			P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	
	28328	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				P	
	28411	6			P	P	P	P	P	P	P	P	P	P	P					P	P	P
	28302	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P
	28323	6		P	P	P	P	P	P	P	P	P	P	P	P		P		P	P	P	P
	28336	6	P		P	P	P	P	P	P	P	P	P	P	P			P	P	P		P
	28364	6	P		P	P	P	P	P	P	P	P	P	P						P		
	28405	6	P		P	P	P	P	P	P	P	P	P	P				P	P	P	P	P
	28251	6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	28373	6	P		P	P	P	P	P	P	P	P	P	P	P		P		P	P		
	28359	6			P	P	P	P	P	P	P	P	P	P	P	P	P					
BODY/INTEGUMENT																						
DRIED YELLOW MATERIAL UROGENITAL AREA	28286	2			2																	
	28261	4					1															
	28305	6	1																			
	28322	6	1																			

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DRIED YELLOW MATERIAL UROGENITAL AREA	28340	6	2																			
	28303	6	1																			
	28290	6	1																			
	28267	6	2																			
DRIED RED MATERIAL UROGENITAL AREA	28416	3	2																			
	28348	6	1																			
WET YELLOW MATERIAL UROGENITAL AREA	28286	2	1	1																		
	28400	2		1	1																	
	28312	2	1	1																		
	28266	2	1	1																		
	28370	2	2	1																		
	28353	3		1																		
	28249	3				1																
	28256	3		1																		
	28402	3	1																			
	28253	3	1		1																	
	28374	3		1																		
	28416	3		1																		
	28295	3		1																		
	28358	3	2	1																		
	28333	3		1																		
	28355	3	1	1																		
	28261	4				1																
	28287	4					1															
	28349	4		1	1	2	1															
	28361	4	1																			
	28320	4	1																			
	28258	4			1	1																

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9
WET YELLOW MATERIAL UROGENITAL AREA	28395	4	1	1																		
	28292	4		3	1																	
	28293	4			1																	
	28360	4			1																	
	28273	4		1																		
	28317	4		1																		
	28335	5		1																		
	28310	5					1															
	28350	5					1															
	28332	5		1																		
	28260	5		1																		
	28362	5	1																			
	28275	5	1			1																
	28278	5	1																			
	28427	5	2	1																		
	28379	5	2	1																		
	28337	5		1																		
	28369	5		1																		
	28420	5	1	1																		
	28343	5	1	1																		
	28340	6		1	1	1	1															
	28290	6		1	1	3	1															
	28267	6			1																	
	28348	6		1																		
	28363	6	1																			
	28313	6		1		1																
	28252	6	1																			
	28339	6	1			1																
	28346	6		2	1																	
	28347	6		2	1																	
	28411	6		1																		

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
WET YELLOW MATERIAL UROGENITAL AREA	28323	6	2																			
	28336	6		1																		
	28364	6		1																		
	28405	6		1																		
	28373	6		1																		
	28359	6	2	1																		
WET RED MATERIAL UROGENITAL AREA	28388	2	1																			
	28407	3	1																			
	28293	4		1																		
	28273	4	2																			
	28305	6														1						
	28252	6													1							
	28339	6													1							
	28411	6	1																			
BODY PALE	28260	5																		P		
	28411	6																P				
	28364	6																P				
EXCRETA																						
WET RED VAGINAL DISCHARGE	28279	1													P							
	28287	4																	P			
	28320	4																P				
	28292	4													P		P	P	P	P		P
	28293	4													P					P		
	28412	4													P	P	P	P				
	28317	4														P	P					

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A3 (1-2 HOURS POST-DOSING)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9
WET RED VAGINAL DISCHARGE	28396	4															P					
	28334	4																	P			
	28307	5																				P
	28310	5													P						P	
	28350	5													P	P						
	28332	5																			P	P
	28260	5													P						P	P
	28294	5															P					
	28298	5																			P	
	28275	5															P		P			
	28426	5																P				
	28391	5																	P			
	28291	5																P	P	P		
	28427	5																			P	
	28326	5																	P			
	28420	5													P							
	28305	6													P	P	P					P
	28303	6																	P			
	28290	6													P				P			
	28267	6												P								
	28363	6													P	P				P	P	
	28252	6													P		P				P	
	28339	6														P	P				P	
	28372	6																	P			
	28347	6													P							P
	28328	6																P	P	P		P
	28411	6													P	P	P	P				
	28302	6															P					
	28323	6													P		P					
	28336	6														P	P				P	
	28364	6													P	P	P	P	P		P	P

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9
WET RED VAGINAL DISCHARGE	28405	6													P	P	P					
	28373	6														P		P			P	P
	28359	6																P				

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A4 (UNSCHEDULED OBSERVATIONS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL POST-DOSE OBSERVATIONS

- - - F E M A L E S - - -

OBSERVATION	ANIMAL	GD GP	0	1	2	3	4	5	6	7	8	9	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9
NORMAL																						
NO SIGNIFICANT CLINICAL OBSERVATIONS	28253	3	P																			
	28351	3	P																			
	28371	3	P																			
	28389	3	P																			
	28264	4		P																		
	28261	4		P																		
	28287	4		P																		
	28356	4		P																		
	28349	4		P																		
	28265	4		P																		
	28361	4	P																			
	28365	4	P																			
	28320	4	P																			
	28258	4	P																			
	28395	4	P																			
	28350	5								P												

1-0 MG/KG/DAY SHAM 2-0 MG/KG/DAY VEH. 3- 5 MG/KG/DAY 4- 25 MG/KG/DAY 5- 150 MG/KG/DAY 6- 450 MG/KG/DAY

GRADE CODE: P = PRESENT 1 = SLIGHT 2 = MODERATE 3 = SEVERE

TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY SHAM ANIMAL NO. / SEX

GESTATION DAY	28301/F	28352/F	28325/F	28319/F	28279/F	28282/F	28324/F	28248/F	28257/F	28289/F
	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR

+ = REFER TO DRAIZE SCALE FOR DERMAL SCORING CRITERIA

SEX CODE: M = MALE F = FEMALE

SNR = SCORED, NOT REMARKABLE

TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY SHAM ANIMAL NO. / SEX

GESTATION DAY	28288/F	28384/F	28345/F	28404/F	28277/F	28259/F	28341/F	28309/F	28381/F	28368/F
	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY SHAM	ANIMAL NO. / SEX				
	28417/F	28271/F	28304/F	28250/F	28413/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS				
0	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	0/0/d	SNR
9	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY VEH. ANIMAL NO. / SEX

	28329/F	28272/F	28318/F	28254/F	28327/F	28344/F	28262/F	28299/F	28375/F	28338/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
13	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY VEH. ANIMAL NO. / SEX

GESTATION DAY	28286/F	28342/F	28283/F	28400/F	28270/F	28312/F	28321/F	28266/F	28281/F	28397/F
	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
9	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d	0/0/d	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY VEH.	ANIMAL NO. / SEX				
	28378/F	28370/F	28388/F	28357/F	28392/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS				
0	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	0/0/d
20	SNR	SNR	SNR	SNR	0/0/d

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SEX CODE: M = MALE F = FEMALE

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 7

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 5 MG/KG/DAY	ANIMAL NO. / SEX									
	28316/F	28353/F	28315/F	28314/F	28249/F	28256/F	28402/F	28253/F	28351/F	28371/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	0/0/d	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 8

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 5 MG/KG/DAY	ANIMAL NO. / SEX									
	28389/F	28374/F	28263/F	28285/F	28403/F	28422/F	28416/F	28268/F	28295/F	28358/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d
6	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d
7	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR
8	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR

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SEX CODE: M = MALE F = FEMALE

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 5 MG/KG/DAY	ANIMAL NO. / SEX				
	28333/F	28407/F	28355/F	28269/F	28376/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS				
0	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	0/0/d	SNR
19	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	0/0/d

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 25 MG/KG/DAY ANIMAL NO. / SEX

GESTATION DAY	28264/F	28261/F	28287/F	28356/F	28349/F	28265/F	28361/F	28365/F	28320/F	28258/F
	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	0/0/d	0/0/d	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
20	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 11

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 25 MG/KG/DAY	ANIMAL NO. / SEX									
	28395/F	28382/F	28292/F	28293/F	28360/F	28274/F	28412/F	28276/F	28273/F	28317/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
8	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	0/0/d	0/0/d
9	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	0/0/d
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
11	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	0/0/d
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	0/0/d	SNR	0/0/d
18	SNR	SNR	SNR	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d
19	0/0/d	0/0/d	SNR	0/0/d	0/0/d	0/0/d	0/0/d	SNR	0/0/d	0/0/d
20	0/0/d	SNR	SNR	0/0/d	SNR	0/0/d	0/0/d	SNR	SNR	SNR

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SEX CODE: M = MALE F = FEMALE

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 12

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 25 MG/KG/DAY	ANIMAL NO. / SEX				
	28396/F	28334/F	28387/F	28311/F	28418/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS				
0	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR
9	0/0/d	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR
17	0/0/d	SNR	SNR	0/0/d	SNR
18	0/0/d	SNR	0/0/d	0/0/d	SNR
19	0/0/d	SNR	0/0/d	0/0/d	0/0/d
20	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 13

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 150 MG/KG/DAY	ANIMAL NO. / SEX									
	28335/F	28307/F	28310/F	28350/F	28332/F	28260/F	28255/F	28380/F	28294/F	28298/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
9	0/0/d	SNR	SNR	1/0/d	SNR	SNR	SNR	SNR	SNR	SNR
10	0/0/d	SNR	SNR	1/0/d	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR
12	0/0/d	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR
13	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	0/0/d	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR
15	0/0/d	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR
16	0/0/d	SNR	SNR	DEAD	SNR	SNR	SNR	SNR	SNR	SNR
17	0/0/d	SNR	SNR		SNR	SNR	SNR	SNR	SNR	SNR
18	0/0/d	SNR	SNR		SNR	SNR	SNR	SNR	SNR	SNR
19	0/0/d	SNR	SNR		SNR	SNR	0/0/d	SNR	SNR	SNR
20	SNR	0/0/d	SNR		SNR	0/0/d	0/0/d	SNR	0/0/d	SNR

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 150 MG/KG/DAY	ANIMAL NO. / SEX									
	28362/F	28275/F	28426/F	28391/F	28291/F	28278/F	28296/F	28390/F	28427/F	28379/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR
18	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d	0/0/d	SNR	SNR
19	SNR	SNR	SNR	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d	SNR	SNR
20	SNR	SNR	SNR	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d	0/0/d	SNR

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SEX CODE: M = MALE F = FEMALE

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 150 MG/KG/DAY	ANIMAL NO. / SEX				
	28337/F	28369/F	28326/F	28420/F	28343/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS				
0	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR
8	SNR	0/0/d	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	0/0/d	SNR	SNR
13	SNR	SNR	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	0/0/d	SNR	SNR
17	SNR	SNR	SNR	SNR	SNR
18	0/0/d	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	SNR	SNR
20	0/0/d	SNR	0/0/d	0/0/d	0/0/d

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SEX CODE: M = MALE F = FEMALE

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 16

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 450 MG/KG/DAY	ANIMAL NO. / SEX									
	28305/F	28322/F	28340/F	28303/F	28290/F	28267/F	28348/F	28331/F	28363/F	28313/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
8	SNR	0/0/d	SNR	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
10	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
11	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
12	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d	0/0/d
13	0/0/d	0/0/d	SNR	0/0/d	0/0/d	0/0/d	0/0/d	SNR	SNR	0/0/d
14	SNR	0/0/d	SNR	SNR	0/0/d	SNR	0/0/d	SNR	SNR	0/0/d
15	/	0/0/d	SNR	SNR	0/0/d	DEAD	0/0/d	SNR	SNR	0/0/d
16	0/0/d	0/0/d	SNR	SNR	0/0/d		0/0/d	SNR	SNR	0/0/d
17	0/0/d	0/0/d	SNR	SNR	0/0/d		0/0/d	SNR	SNR	0/0/d
18	0/0/d	SNR	SNR	SNR	0/0/d		0/0/d	SNR	SNR	0/0/d
19	SNR	0/0/d	SNR	SNR	0/0/d		SNR	SNR	SNR	SNR
20	0/0/d	0/0/d	0/0/d	SNR	SNR		0/0/d	SNR	0/0/d	0/0/d

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TABLE A5

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 17

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 450 MG/KG/DAY ANIMAL NO. / SEX

GESTATION DAY	28252/F	28339/F	28372/F	28346/F	28347/F	28328/F	28411/F	28302/F	28323/F	28336/F
	ERYTHEMA+/EDEMA+/OTHER FINDINGS									
0	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
6	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
7	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
8	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	0/0/d
9	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
10	SNR	SNR	SNR	SNR	SNR	0/0/d	SNR	0/0/d	SNR	0/0/d
11	SNR	SNR	0/0/d	0/0/d	0/0/d	0/0/d	SNR	SNR	SNR	0/0/d
12	0/0/d	0/0/d	SNR	0/0/d	SNR	0/0/d	SNR	SNR	SNR	0/0/d
13	SNR	SNR	SNR	0/0/d	0/0/d	0/0/d	SNR	SNR	SNR	0/0/d
14	SNR	SNR	SNR	0/0/d	SNR	0/0/d	SNR	SNR	SNR	SNR
15	SNR	SNR	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR
16	SNR	0/0/d	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR
17	SNR	0/0/d	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR
18	0/0/d	0/0/d	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR
19	SNR	SNR	SNR	DEAD	SNR	0/0/d	SNR	SNR	SNR	SNR
20	SNR	0/0/d	0/0/d		SNR	0/0/d	0/0/d	SNR	0/0/d	0/0/d

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SEX CODE: M = MALE F = FEMALE

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GROUP : 450 MG/KG/DAY	ANIMAL NO. / SEX				
	28364/F	28405/F	28251/F	28373/F	28359/F
GESTATION DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS				
0	SNR	SNR	SNR	SNR	SNR
1	SNR	SNR	SNR	SNR	SNR
2	SNR	SNR	SNR	SNR	SNR
3	SNR	SNR	SNR	SNR	SNR
4	SNR	SNR	SNR	SNR	SNR
5	SNR	SNR	SNR	SNR	SNR
6	SNR	SNR	SNR	SNR	SNR
7	SNR	SNR	SNR	SNR	SNR
8	SNR	SNR	SNR	SNR	SNR
9	SNR	SNR	SNR	SNR	SNR
10	SNR	0/0/d	SNR	SNR	SNR
11	SNR	SNR	SNR	SNR	SNR
12	SNR	0/0/d	SNR	SNR	SNR
13	SNR	0/0/d	SNR	SNR	SNR
14	SNR	SNR	SNR	SNR	SNR
15	SNR	SNR	SNR	SNR	SNR
16	SNR	SNR	SNR	SNR	/
17	SNR	SNR	SNR	SNR	DEAD
18	SNR	SNR	SNR	SNR	
19	0/0/d	SNR	SNR	SNR	
20	0/0/d	0/0/d	0/0/d	SNR	

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TABLE A6

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS DURING GESTATION [G]

	PREGNANCY STATUS	DAY 0	3	6	9	12	15	18	20	
DAMS FROM GROUP 1: 0 MG/KG/DAY SHAM										
28248	G	268.	275.	292.	303.	324.	342.	378.	408.	SCHEDULED NECROPSY DAY 20
28250	G	239.	229.	254.	268.	281.	309.	355.	386.	SCHEDULED NECROPSY DAY 20
28257	G	258.	264.	282.	303.	333.	351.	401.	447.	SCHEDULED NECROPSY DAY 20
28259	G	280.	285.	293.	300.	310.	348.	405.	436.	SCHEDULED NECROPSY DAY 20
28271	G	252.	253.	275.	282.	290.	318.	354.	391.	SCHEDULED NECROPSY DAY 20
28277	G	268.	280.	291.	306.	317.	341.	383.	422.	SCHEDULED NECROPSY DAY 20
28279	G	267.	266.	286.	278.	308.	333.	380.	417.	SCHEDULED NECROPSY DAY 20
28282	G	268.	264.	276.	294.	313.	322.	384.	426.	SCHEDULED NECROPSY DAY 20
28288	G	248.	261.	269.	283.	299.	313.	358.	383.	SCHEDULED NECROPSY DAY 20
28289	G	250.	258.	274.	288.	299.	320.	358.	383.	SCHEDULED NECROPSY DAY 20
28301	G	237.	262.	271.	261.	296.	319.	367.	401.	SCHEDULED NECROPSY DAY 20
28304	G	246.	252.	266.	267.	280.	307.	349.	381.	SCHEDULED NECROPSY DAY 20
28309	G	266.	272.	288.	291.	308.	336.	392.	433.	SCHEDULED NECROPSY DAY 20
28319	G	248.	248.	262.	277.	301.	304.	351.	390.	SCHEDULED NECROPSY DAY 20
28324	G	275.	264.	273.	277.	302.	322.	355.	389.	SCHEDULED NECROPSY DAY 20
28325	G	248.	250.	262.	272.	291.	306.	349.	382.	SCHEDULED NECROPSY DAY 20
28341	G	271.	273.	287.	299.	310.	331.	375.	396.	SCHEDULED NECROPSY DAY 20
28345	G	244.	236.	249.	258.	275.	287.	324.	357.	SCHEDULED NECROPSY DAY 20
28352	G	240.	236.	243.	260.	276.	301.	329.	362.	SCHEDULED NECROPSY DAY 20
28368	G	260.	268.	287.	289.	311.	330.	367.	386.	SCHEDULED NECROPSY DAY 20
28381	G	264.	263.	268.	263.	269.	293.	338.	374.	SCHEDULED NECROPSY DAY 20
28384	G	236.	245.	272.	290.	309.	329.	368.	398.	SCHEDULED NECROPSY DAY 20
28404	G	267.	270.	279.	292.	323.	344.	394.	429.	SCHEDULED NECROPSY DAY 20
28413	G	260.	266.	277.	291.	309.	334.	377.	409.	SCHEDULED NECROPSY DAY 20
28417	G	257.	258.	278.	287.	300.	324.	357.	395.	SCHEDULED NECROPSY DAY 20
MEAN		257.	260.	274.	283.	301.	323.	366.	399.	
S.D.		12.6	13.8	13.2	14.5	16.3	17.1	21.1	23.3	
S.E.		2.5	2.8	2.6	2.9	3.3	3.4	4.2	4.7	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

PREGNANCY STATUS	DAY	0	3	6	9	12	15	18	20	
DAMS FROM GROUP 2: 0 MG/KG/DAY VEH.										
28254	G	252.	261.	264.	285.	299.	325.	363.	398.	SCHEDULED NECROPSY DAY 20
28262	G	271.	270.	278.	278.	303.	316.	357.	392.	SCHEDULED NECROPSY DAY 20
28266	G	265.	281.	303.	304.	318.	347.	390.	428.	SCHEDULED NECROPSY DAY 20
28270	G	268.	268.	284.	297.	322.	334.	381.	411.	SCHEDULED NECROPSY DAY 20
28272	G	240.	242.	260.	280.	298.	310.	344.	382.	SCHEDULED NECROPSY DAY 20
28281	G	265.	275.	280.	277.	306.	328.	369.	403.	SCHEDULED NECROPSY DAY 20
28283	G	246.	254.	273.	287.	307.	327.	376.	410.	SCHEDULED NECROPSY DAY 20
28286	G	247.	250.	271.	281.	301.	312.	358.	392.	SCHEDULED NECROPSY DAY 20
28299	G	262.	273.	287.	303.	323.	344.	398.	440.	SCHEDULED NECROPSY DAY 20
28312	G	271.	272.	287.	290.	308.	324.	373.	406.	SCHEDULED NECROPSY DAY 20
28318	G	244.	246.	270.	289.	309.	328.	372.	412.	SCHEDULED NECROPSY DAY 20
28321	G	271.	271.	293.	306.	326.	350.	397.	437.	SCHEDULED NECROPSY DAY 20
28327	G	265.	264.	287.	302.	318.	329.	387.	427.	SCHEDULED NECROPSY DAY 20
28329	G	231.	226.	251.	266.	274.	285.	325.	360.	SCHEDULED NECROPSY DAY 20
28338	G	252.	250.	261.	274.	290.	308.	347.	383.	SCHEDULED NECROPSY DAY 20
28342	G	240.	248.	242.	269.	285.	308.	354.	388.	SCHEDULED NECROPSY DAY 20
28344	G	271.	282.	300.	327.	340.	356.	395.	428.	SCHEDULED NECROPSY DAY 20
28357	G	246.	257.	269.	286.	297.	322.	361.	396.	SCHEDULED NECROPSY DAY 20
28370	G	251.	260.	239.	266.	278.	309.	335.	365.	SCHEDULED NECROPSY DAY 20
28375	G	256.	258.	269.	278.	302.	316.	356.	385.	SCHEDULED NECROPSY DAY 20
28378	G	254.	275.	287.	299.	320.	349.	391.	419.	SCHEDULED NECROPSY DAY 20
28388	G	249.	253.	266.	274.	289.	308.	345.	377.	SCHEDULED NECROPSY DAY 20
28392	G	260.	258.	271.	279.	294.	312.	353.	390.	SCHEDULED NECROPSY DAY 20
28397	G	261.	264.	279.	275.	287.	313.	339.	378.	SCHEDULED NECROPSY DAY 20
28400	G	264.	258.	269.	281.	298.	318.	354.	378.	SCHEDULED NECROPSY DAY 20
MEAN		256.	261.	274.	286.	304.	323.	365.	399.	
S.D.		11.4	13.1	16.0	14.6	15.9	16.7	20.7	22.0	
S.E.		2.3	2.6	3.2	2.9	3.2	3.3	4.1	4.4	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE A6

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS DURING GESTATION [G]

	PREGNANCY STATUS	DAY 0	3	6	9	12	15	18	20	
DAMS FROM GROUP 3: 5 MG/KG/DAY										
28249	G	260.	246.	257.	277.	282.	304.	358.	390.	SCHEDULED NECROPSY DAY 20
28253	G	262.	264.	266.	284.	303.	322.	361.	392.	SCHEDULED NECROPSY DAY 20
28256	G	273.	273.	298.	323.	342.	330.	383.	423.	SCHEDULED NECROPSY DAY 20
28263	G	256.	258.	265.	267.	287.	306.	337.	374.	SCHEDULED NECROPSY DAY 20
28268	G	265.	258.	274.	286.	311.	333.	386.	430.	SCHEDULED NECROPSY DAY 20
28269	G	239.	245.	261.	272.	277.	307.	360.	391.	SCHEDULED NECROPSY DAY 20
28285	G	267.	282.	296.	309.	329.	344.	395.	430.	SCHEDULED NECROPSY DAY 20
28295	G	261.	264.	284.	292.	288.	332.	382.	424.	SCHEDULED NECROPSY DAY 20
28314	G	252.	259.	268.	286.	299.	301.	349.	393.	SCHEDULED NECROPSY DAY 20
28315	G	248.	253.	274.	291.	308.	313.	372.	410.	SCHEDULED NECROPSY DAY 20
28316	G	224.	234.	242.	264.	274.	290.	331.	359.	SCHEDULED NECROPSY DAY 20
28333	G	255.	270.	285.	290.	303.	326.	379.	419.	SCHEDULED NECROPSY DAY 20
28351	G	253.	253.	259.	272.	287.	312.	347.	385.	SCHEDULED NECROPSY DAY 20
28353	G	239.	242.	254.	273.	280.	299.	338.	371.	SCHEDULED NECROPSY DAY 20
28355	G	249.	261.	283.	288.	306.	329.	366.	399.	SCHEDULED NECROPSY DAY 20
28358	G	260.	269.	283.	283.	288.	319.	355.	388.	SCHEDULED NECROPSY DAY 20
28371	G	251.	258.	273.	282.	295.	314.	358.	393.	SCHEDULED NECROPSY DAY 20
28374	G	241.	242.	254.	271.	292.	311.	351.	372.	SCHEDULED NECROPSY DAY 20
28376	G	234.	238.	255.	257.	276.	290.	345.	385.	SCHEDULED NECROPSY DAY 20
28389	G	250.	253.	260.	272.	288.	305.	338.	369.	SCHEDULED NECROPSY DAY 20
28402	G	274.	270.	287.	305.	320.	333.	371.	404.	SCHEDULED NECROPSY DAY 20
28403	G	271.	270.	288.	300.	316.	332.	375.	406.	SCHEDULED NECROPSY DAY 20
28407	G	253.	236.	258.	268.	293.	313.	339.	388.	SCHEDULED NECROPSY DAY 20
28416	G	268.	263.	276.	287.	301.	316.	365.	401.	SCHEDULED NECROPSY DAY 20
28422	G	301.	307.	323.	332.	355.	372.	432.	471.	SCHEDULED NECROPSY DAY 20
MEAN		256.	259.	273.	285.	300.	318.	363.	399.	
S.D.		15.6	16.1	17.9	18.0	20.4	18.0	22.6	24.5	
S.E.		3.1	3.2	3.6	3.6	4.1	3.6	4.5	4.9	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

PREGNANCY STATUS	DAY 0	3	6	9	12	15	18	20	
DAMS FROM GROUP 4: 25 MG/KG/DAY									
28258 G	252.	247.	267.	283.	301.	320.	354.	377.	SCHEDULED NECROPSY DAY 20
28261 G	237.	231.	246.	264.	273.	292.	327.	355.	SCHEDULED NECROPSY DAY 20
28264 G	222.	217.	235.	252.	268.	287.	326.	355.	SCHEDULED NECROPSY DAY 20
28265 G	269.	252.	254.	290.	301.	329.	369.	405.	SCHEDULED NECROPSY DAY 20
28273 G	264.	265.	280.	277.	291.	315.	355.	382.	SCHEDULED NECROPSY DAY 20
28274 G	278.	284.	296.	313.	327.	349.	384.	418.	SCHEDULED NECROPSY DAY 20
28276 G	266.	270.	302.	315.	326.	347.	385.	408.	SCHEDULED NECROPSY DAY 20
28287 G	245.	241.	253.	266.	279.	293.	340.	369.	SCHEDULED NECROPSY DAY 20
28292 G	256.	255.	257.	268.	293.	301.	335.	357.	SCHEDULED NECROPSY DAY 20
28293 G	264.	272.	281.	293.	310.	331.	371.	400.	SCHEDULED NECROPSY DAY 20
28311 G	244.	235.	261.	275.	289.	309.	346.	372.	SCHEDULED NECROPSY DAY 20
28317 G	258.	246.	253.	259.	272.	291.	336.	359.	SCHEDULED NECROPSY DAY 20
28320 G	258.	265.	283.	300.	319.	341.	387.	416.	SCHEDULED NECROPSY DAY 20
28334 G	252.	251.	276.	285.	304.	314.	358.	382.	SCHEDULED NECROPSY DAY 20
28349 G	267.	258.	272.	294.	302.	313.	354.	382.	SCHEDULED NECROPSY DAY 20
28356 G	250.	251.	270.	283.	286.	293.	342.	367.	SCHEDULED NECROPSY DAY 20
28360 G	275.	273.	270.	281.	300.	322.	356.	374.	SCHEDULED NECROPSY DAY 20
28361 G	270.	275.	295.	306.	322.	346.	388.	413.	SCHEDULED NECROPSY DAY 20
28365 G	264.	263.	280.	290.	302.	326.	378.	400.	SCHEDULED NECROPSY DAY 20
28382 G	239.	247.	262.	276.	294.	309.	337.	356.	SCHEDULED NECROPSY DAY 20
28387 G	249.	260.	280.	289.	304.	317.	353.	383.	SCHEDULED NECROPSY DAY 20
28395 NG	241.	241.	252.	269.	278.	261.	261.	268.	SCHEDULED NECROPSY DAY 20
28396 G	255.	253.	270.	274.	276.	292.	323.	344.	SCHEDULED NECROPSY DAY 20
28412 G	268.	266.	284.	283.	284.	320.	359.	395.	SCHEDULED NECROPSY DAY 20
28418 G	258.	253.	267.	283.	298.	311.	345.	370.	SCHEDULED NECROPSY DAY 20
MEAN	257.	255.	271.	283.	297.	315.	355.	381.	
S.D.	13.1	15.3	16.3	15.8	16.7	18.8	20.0	21.7	
S.E.	2.7	3.1	3.3	3.2	3.4	3.8	4.1	4.4	
N	24	24	24	24	24	24	24	24	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

	PREGNANCY STATUS	DAY 0	3	6	9	12	15	18	20	
DAMS FROM GROUP 5: 150 MG/KG/DAY										
28255	G	268.	268.	294.	304.	318.	332.	383.	388.	SCHEDULED NECROPSY DAY 20
28260	G	269.	252.	270.	280.	298.	305.	299.	282.	SCHEDULED NECROPSY DAY 20
28275	G	234.	225.	231.	248.	264.	269.	314.	326.	SCHEDULED NECROPSY DAY 20
28278	G	281.	274.	297.	302.	312.	323.	351.	367.	SCHEDULED NECROPSY DAY 20
28291	G	274.	275.	284.	284.	302.	317.	348.	374.	SCHEDULED NECROPSY DAY 20
28294	G	261.	259.	275.	288.	303.	305.	335.	356.	SCHEDULED NECROPSY DAY 20
28296	NG	267.	269.	279.	269.	267.	276.	267.	269.	SCHEDULED NECROPSY DAY 20
28298	G	251.	249.	259.	266.	281.	289.	298.	301.	SCHEDULED NECROPSY DAY 20
28307	G	240.	238.	249.	266.	279.	271.	300.	299.	SCHEDULED NECROPSY DAY 20
28310	G	245.	248.	262.	287.	288.	289.	311.	320.	SCHEDULED NECROPSY DAY 20
28326	G	247.	236.	257.	266.	268.	280.	279.	279.	SCHEDULED NECROPSY DAY 20
28332	G	254.	252.	272.	287.	298.	299.	303.	288.	SCHEDULED NECROPSY DAY 20
28335	G	235.	230.	248.	263.	269.	287.	325.	339.	SCHEDULED NECROPSY DAY 20
28337	G	254.	262.	282.	280.	292.	304.	342.	364.	SCHEDULED NECROPSY DAY 20
28343	G	228.	226.	235.	240.	253.	257.	263.	241.	SCHEDULED NECROPSY DAY 20
28350	G	249.	241.	246.	271.	284.	246.	NA	NA	GRAVID, EUTHANIZED DAY 15
28362	G	248.	243.	260.	269.	285.	298.	333.	360.	SCHEDULED NECROPSY DAY 20
28369	G	253.	257.	263.	268.	282.	287.	307.	319.	SCHEDULED NECROPSY DAY 20
28379	G	258.	251.	279.	275.	298.	299.	337.	355.	SCHEDULED NECROPSY DAY 20
28380	G	267.	259.	268.	296.	304.	307.	321.	315.	SCHEDULED NECROPSY DAY 20
28390	G	266.	278.	286.	288.	295.	314.	334.	333.	SCHEDULED NECROPSY DAY 20
28391	G	262.	249.	268.	269.	285.	277.	297.	315.	SCHEDULED NECROPSY DAY 20
28420	G	244.	249.	258.	268.	276.	289.	329.	355.	SCHEDULED NECROPSY DAY 20
28426	G	255.	253.	261.	275.	284.	296.	318.	328.	SCHEDULED NECROPSY DAY 20
28427	G	262.	235.	249.	259.	277.	284.	299.	309.	SCHEDULED NECROPSY DAY 20
MEAN		254.	250.	265.	275.	287.	293.	319.	327.	
S.D.		13.2	14.7	17.1	15.5	15.5	20.1	26.1	35.7	
S.E.		2.7	3.0	3.5	3.2	3.2	4.1	5.4	7.4	
N		24	24	24	24	24	24	23	23	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

	PREGNANCY STATUS	DAY 0	3	6	9	12	15	18	20	
DAMS FROM GROUP 6: 450 MG/KG/DAY										
28251	G	247.	242.	257.	254.	271.	278.	271.	268.	SCHEDULED NECROPSY DAY 20
28252	G	245.	252.	259.	261.	279.	264.	243.	257.	SCHEDULED NECROPSY DAY 20
28267	G	270.	247.	270.	280.	285.	NA	NA	NA	GRAVID, EUTHANIZED DAY 14
28290	G	265.	252.	262.	276.	286.	274.	270.	261.	SCHEDULED NECROPSY DAY 20
28302	G	266.	265.	275.	267.	286.	287.	288.	278.	SCHEDULED NECROPSY DAY 20
28303	G	249.	247.	248.	264.	280.	279.	273.	260.	SCHEDULED NECROPSY DAY 20
28305	G	231.	204.	220.	231.	244.	218.	210.	222.	SCHEDULED NECROPSY DAY 20
28313	G	251.	241.	232.	255.	268.	266.	265.	263.	SCHEDULED NECROPSY DAY 20
28322	G	243.	233.	246.	261.	283.	265.	262.	256.	SCHEDULED NECROPSY DAY 20
28323	G	261.	244.	258.	241.	246.	233.	238.	225.	SCHEDULED NECROPSY DAY 20
28328	G	277.	274.	278.	293.	310.	304.	309.	295.	SCHEDULED NECROPSY DAY 20
28331	G	266.	252.	263.	258.	289.	283.	281.	284.	SCHEDULED NECROPSY DAY 20
28336	G	258.	230.	243.	243.	251.	240.	243.	227.	SCHEDULED NECROPSY DAY 20
28339	G	239.	226.	231.	241.	252.	232.	224.	226.	SCHEDULED NECROPSY DAY 20
28340	G	246.	241.	258.	267.	275.	270.	290.	283.	SCHEDULED NECROPSY DAY 20
28346	G	257.	252.	247.	258.	271.	269.	249.	NA	GRAVID, EUTHANIZED DAY 18
28347	G	277.	280.	282.	288.	305.	292.	283.	269.	SCHEDULED NECROPSY DAY 20
28348	G	276.	274.	266.	290.	302.	312.	317.	321.	SCHEDULED NECROPSY DAY 20
28359	G	235.	222.	228.	246.	261.	272.	NA	NA	GRAVID, EUTHANIZED DAY 16
28363	G	257.	249.	258.	267.	285.	255.	248.	245.	SCHEDULED NECROPSY DAY 20
28364	G	257.	238.	243.	245.	263.	247.	235.	235.	SCHEDULED NECROPSY DAY 20
28372	G	252.	236.	222.	217.	238.	251.	245.	246.	SCHEDULED NECROPSY DAY 20
28373	G	246.	239.	248.	239.	251.	239.	234.	228.	SCHEDULED NECROPSY DAY 20
28405	G	250.	238.	250.	249.	264.	242.	231.	225.	SCHEDULED NECROPSY DAY 20
28411	G	267.	261.	278.	276.	288.	247.	237.	230.	SCHEDULED NECROPSY DAY 20
MEAN		256.	246.	253.	259.	273.	263.	259.	255.	
S.D.		12.8	17.0	17.4	18.9	19.5	23.6	27.5	26.8	
S.E.		2.6	3.4	3.5	3.8	3.9	4.8	5.7	5.7	
N		25	25	25	25	25	24	23	22	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A7

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES DURING GESTATION [G]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9- 12	12- 15	15- 18	18- 20	0- 20	
DAMS FROM GROUP 1: 0 MG/KG/DAY SHAM										
28248	G	7.	17.	11.	21.	18.	36.	30.	140.	SCHEDULED NECROPSY DAY 20
28250	G	-10.	25.	14.	13.	28.	46.	31.	147.	SCHEDULED NECROPSY DAY 20
28257	G	6.	18.	21.	30.	18.	50.	46.	189.	SCHEDULED NECROPSY DAY 20
28259	G	5.	8.	7.	10.	38.	57.	31.	156.	SCHEDULED NECROPSY DAY 20
28271	G	1.	22.	7.	8.	28.	36.	37.	139.	SCHEDULED NECROPSY DAY 20
28277	G	12.	11.	15.	11.	24.	42.	39.	154.	SCHEDULED NECROPSY DAY 20
28279	G	-1.	20.	-8.	30.	25.	47.	37.	150.	SCHEDULED NECROPSY DAY 20
28282	G	-4.	12.	18.	19.	9.	62.	42.	158.	SCHEDULED NECROPSY DAY 20
28288	G	13.	8.	14.	16.	14.	45.	25.	135.	SCHEDULED NECROPSY DAY 20
28289	G	8.	16.	14.	11.	21.	38.	25.	133.	SCHEDULED NECROPSY DAY 20
28301	G	25.	9.	-10.	35.	23.	48.	34.	164.	SCHEDULED NECROPSY DAY 20
28304	G	6.	14.	1.	13.	27.	42.	32.	135.	SCHEDULED NECROPSY DAY 20
28309	G	6.	16.	3.	17.	28.	56.	41.	167.	SCHEDULED NECROPSY DAY 20
28319	G	0.	14.	15.	24.	3.	47.	39.	142.	SCHEDULED NECROPSY DAY 20
28324	G	-11.	9.	4.	25.	20.	33.	34.	114.	SCHEDULED NECROPSY DAY 20
28325	G	2.	12.	10.	19.	15.	43.	33.	134.	SCHEDULED NECROPSY DAY 20
28341	G	2.	14.	12.	11.	21.	44.	21.	125.	SCHEDULED NECROPSY DAY 20
28345	G	-8.	13.	9.	17.	12.	37.	33.	113.	SCHEDULED NECROPSY DAY 20
28352	G	-4.	7.	17.	16.	25.	28.	33.	122.	SCHEDULED NECROPSY DAY 20
28368	G	8.	19.	2.	22.	19.	37.	19.	126.	SCHEDULED NECROPSY DAY 20
28381	G	-1.	5.	-5.	6.	24.	45.	36.	110.	SCHEDULED NECROPSY DAY 20
28384	G	9.	27.	18.	19.	20.	39.	30.	162.	SCHEDULED NECROPSY DAY 20
28404	G	3.	9.	13.	31.	21.	50.	35.	162.	SCHEDULED NECROPSY DAY 20
28413	G	6.	11.	14.	18.	25.	43.	32.	149.	SCHEDULED NECROPSY DAY 20
28417	G	1.	20.	9.	13.	24.	33.	38.	138.	SCHEDULED NECROPSY DAY 20
MEAN		3.	14.	9.	18.	21.	43.	33.	143.	
S.D.		7.7	5.7	8.2	7.6	7.1	8.0	6.3	19.1	
S.E.		1.5	1.1	1.6	1.5	1.4	1.6	1.3	3.8	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

PREGNANCY STATUS	DAY	0- 3	3- 6	6- 9	9- 12	12- 15	15- 18	18- 20	0- 20	
DAMS FROM GROUP 2: 0 MG/KG/DAY VEH.										
28254	G	9.	3.	21.	14.	26.	38.	35.	146.	SCHEDULED NECROPSY DAY 20
28262	G	-1.	8.	0.	25.	13.	41.	35.	121.	SCHEDULED NECROPSY DAY 20
28266	G	16.	22.	1.	14.	29.	43.	38.	163.	SCHEDULED NECROPSY DAY 20
28270	G	0.	16.	13.	25.	12.	47.	30.	143.	SCHEDULED NECROPSY DAY 20
28272	G	2.	18.	20.	18.	12.	34.	38.	142.	SCHEDULED NECROPSY DAY 20
28281	G	10.	5.	-3.	29.	22.	41.	34.	138.	SCHEDULED NECROPSY DAY 20
28283	G	8.	19.	14.	20.	20.	49.	34.	164.	SCHEDULED NECROPSY DAY 20
28286	G	3.	21.	10.	20.	11.	46.	34.	145.	SCHEDULED NECROPSY DAY 20
28299	G	11.	14.	16.	20.	21.	54.	42.	178.	SCHEDULED NECROPSY DAY 20
28312	G	1.	15.	3.	18.	16.	49.	33.	135.	SCHEDULED NECROPSY DAY 20
28318	G	2.	24.	19.	20.	19.	44.	40.	168.	SCHEDULED NECROPSY DAY 20
28321	G	0.	22.	13.	20.	24.	47.	40.	166.	SCHEDULED NECROPSY DAY 20
28327	G	-1.	23.	15.	16.	11.	58.	40.	162.	SCHEDULED NECROPSY DAY 20
28329	G	-5.	25.	15.	8.	11.	40.	35.	129.	SCHEDULED NECROPSY DAY 20
28338	G	-2.	11.	13.	16.	18.	39.	36.	131.	SCHEDULED NECROPSY DAY 20
28342	G	8.	-6.	27.	16.	23.	46.	34.	148.	SCHEDULED NECROPSY DAY 20
28344	G	11.	18.	27.	13.	16.	39.	33.	157.	SCHEDULED NECROPSY DAY 20
28357	G	11.	12.	17.	11.	25.	39.	35.	150.	SCHEDULED NECROPSY DAY 20
28370	G	9.	-21.	27.	12.	31.	26.	30.	114.	SCHEDULED NECROPSY DAY 20
28375	G	2.	11.	9.	24.	14.	40.	29.	129.	SCHEDULED NECROPSY DAY 20
28378	G	21.	12.	12.	21.	29.	42.	28.	165.	SCHEDULED NECROPSY DAY 20
28388	G	4.	13.	8.	15.	19.	37.	32.	128.	SCHEDULED NECROPSY DAY 20
28392	G	-2.	13.	8.	15.	18.	41.	37.	130.	SCHEDULED NECROPSY DAY 20
28397	G	3.	15.	-4.	12.	26.	26.	39.	117.	SCHEDULED NECROPSY DAY 20
28400	G	-6.	11.	12.	17.	20.	36.	24.	114.	SCHEDULED NECROPSY DAY 20
MEAN		5.	13.	13.	18.	19.	42.	35.	143.	
S.D.		6.6	10.0	8.7	5.0	6.1	7.3	4.3	18.5	
S.E.		1.3	2.0	1.7	1.0	1.2	1.5	0.9	3.7	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9- 12	12- 15	15- 18	18- 20	0- 20	
DAMS FROM GROUP 3: 5 MG/KG/DAY										
28249	G	-14.	11.	20.	5.	22.	54.	32.	130.	SCHEDULED NECROPSY DAY 20
28253	G	2.	2.	18.	19.	19.	39.	31.	130.	SCHEDULED NECROPSY DAY 20
28256	G	0.	25.	25.	19.	-12.	53.	40.	150.	SCHEDULED NECROPSY DAY 20
28263	G	2.	7.	2.	20.	19.	31.	37.	118.	SCHEDULED NECROPSY DAY 20
28268	G	-7.	16.	12.	25.	22.	53.	44.	165.	SCHEDULED NECROPSY DAY 20
28269	G	6.	16.	11.	5.	30.	53.	31.	152.	SCHEDULED NECROPSY DAY 20
28285	G	15.	14.	13.	20.	15.	51.	35.	163.	SCHEDULED NECROPSY DAY 20
28295	G	3.	20.	8.	-4.	44.	50.	42.	163.	SCHEDULED NECROPSY DAY 20
28314	G	7.	9.	18.	13.	2.	48.	44.	141.	SCHEDULED NECROPSY DAY 20
28315	G	5.	21.	17.	17.	5.	59.	38.	162.	SCHEDULED NECROPSY DAY 20
28316	G	10.	8.	22.	10.	16.	41.	28.	135.	SCHEDULED NECROPSY DAY 20
28333	G	15.	15.	5.	13.	23.	53.	40.	164.	SCHEDULED NECROPSY DAY 20
28351	G	0.	6.	13.	15.	25.	35.	38.	132.	SCHEDULED NECROPSY DAY 20
28353	G	3.	12.	19.	7.	19.	39.	33.	132.	SCHEDULED NECROPSY DAY 20
28355	G	12.	22.	5.	18.	23.	37.	33.	150.	SCHEDULED NECROPSY DAY 20
28358	G	9.	14.	0.	5.	31.	36.	33.	128.	SCHEDULED NECROPSY DAY 20
28371	G	7.	15.	9.	13.	19.	44.	35.	142.	SCHEDULED NECROPSY DAY 20
28374	G	1.	12.	17.	21.	19.	40.	21.	131.	SCHEDULED NECROPSY DAY 20
28376	G	4.	17.	2.	19.	14.	55.	40.	151.	SCHEDULED NECROPSY DAY 20
28389	G	3.	7.	12.	16.	17.	33.	31.	119.	SCHEDULED NECROPSY DAY 20
28402	G	-4.	17.	18.	15.	13.	38.	33.	130.	SCHEDULED NECROPSY DAY 20
28403	G	-1.	18.	12.	16.	16.	43.	31.	135.	SCHEDULED NECROPSY DAY 20
28407	G	-17.	22.	10.	25.	20.	26.	49.	135.	SCHEDULED NECROPSY DAY 20
28416	G	-5.	13.	11.	14.	15.	49.	36.	133.	SCHEDULED NECROPSY DAY 20
28422	G	6.	16.	9.	23.	17.	60.	39.	170.	SCHEDULED NECROPSY DAY 20
MEAN		2.	14.	12.	15.	18.	45.	36.	142.	
S.D.		7.8	5.6	6.5	7.0	10.3	9.3	5.9	15.4	
S.E.		1.6	1.1	1.3	1.4	2.1	1.9	1.2	3.1	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9- 12	12- 15	15- 18	18- 20	0- 20	
DAMS FROM GROUP 4: 25 MG/KG/DAY										
28258	G	-5.	20.	16.	18.	19.	34.	23.	125.	SCHEDULED NECROPSY DAY 20
28261	G	-6.	15.	18.	9.	19.	35.	28.	118.	SCHEDULED NECROPSY DAY 20
28264	G	-5.	18.	17.	16.	19.	39.	29.	133.	SCHEDULED NECROPSY DAY 20
28265	G	-17.	2.	36.	11.	28.	40.	36.	136.	SCHEDULED NECROPSY DAY 20
28273	G	1.	15.	-3.	14.	24.	40.	27.	118.	SCHEDULED NECROPSY DAY 20
28274	G	6.	12.	17.	14.	22.	35.	34.	140.	SCHEDULED NECROPSY DAY 20
28276	G	4.	32.	13.	11.	21.	38.	23.	142.	SCHEDULED NECROPSY DAY 20
28287	G	-4.	12.	13.	13.	14.	47.	29.	124.	SCHEDULED NECROPSY DAY 20
28292	G	-1.	2.	11.	25.	8.	34.	22.	101.	SCHEDULED NECROPSY DAY 20
28293	G	8.	9.	12.	17.	21.	40.	29.	136.	SCHEDULED NECROPSY DAY 20
28311	G	-9.	26.	14.	14.	20.	37.	26.	128.	SCHEDULED NECROPSY DAY 20
28317	G	-12.	7.	6.	13.	19.	45.	23.	101.	SCHEDULED NECROPSY DAY 20
28320	G	7.	18.	17.	19.	22.	46.	29.	158.	SCHEDULED NECROPSY DAY 20
28334	G	-1.	25.	9.	19.	10.	44.	24.	130.	SCHEDULED NECROPSY DAY 20
28349	G	-9.	14.	22.	8.	11.	41.	28.	115.	SCHEDULED NECROPSY DAY 20
28356	G	1.	19.	13.	3.	7.	49.	25.	117.	SCHEDULED NECROPSY DAY 20
28360	G	-2.	-3.	11.	19.	22.	34.	18.	99.	SCHEDULED NECROPSY DAY 20
28361	G	5.	20.	11.	16.	24.	42.	25.	143.	SCHEDULED NECROPSY DAY 20
28365	G	-1.	17.	10.	12.	24.	52.	22.	136.	SCHEDULED NECROPSY DAY 20
28382	G	8.	15.	14.	18.	15.	28.	19.	117.	SCHEDULED NECROPSY DAY 20
28387	G	11.	20.	9.	15.	13.	36.	30.	134.	SCHEDULED NECROPSY DAY 20
28395	NG	0.	11.	17.	9.	-17.	0.	7.	27.	SCHEDULED NECROPSY DAY 20
28396	G	-2.	17.	4.	2.	16.	31.	21.	89.	SCHEDULED NECROPSY DAY 20
28412	G	-2.	18.	-1.	1.	36.	39.	36.	127.	SCHEDULED NECROPSY DAY 20
28418	G	-5.	14.	16.	15.	13.	34.	25.	112.	SCHEDULED NECROPSY DAY 20
MEAN		-1.	15.	13.	13.	19.	39.	26.	124.	
S.D.		6.8	7.9	7.6	5.7	6.6	5.9	4.8	16.3	
S.E.		1.4	1.6	1.6	1.2	1.4	1.2	1.0	3.3	
N		24	24	24	24	24	24	24	24	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9- 12	12- 15	15- 18	18- 20	0- 20	
DAMS FROM GROUP 5: 150 MG/KG/DAY										
28255	G	0.	26.	10.	14.	14.	51.	5.	120.	SCHEDULED NECROPSY DAY 20
28260	G	-17.	18.	10.	18.	7.	-6.	-17.	13.	SCHEDULED NECROPSY DAY 20
28275	G	-9.	6.	17.	16.	5.	45.	12.	92.	SCHEDULED NECROPSY DAY 20
28278	G	-7.	23.	5.	10.	11.	28.	16.	86.	SCHEDULED NECROPSY DAY 20
28291	G	1.	9.	0.	18.	15.	31.	26.	100.	SCHEDULED NECROPSY DAY 20
28294	G	-2.	16.	13.	15.	2.	30.	21.	95.	SCHEDULED NECROPSY DAY 20
28296	NG	2.	10.	-10.	-2.	9.	-9.	2.	2.	SCHEDULED NECROPSY DAY 20
28298	G	-2.	10.	7.	15.	8.	9.	3.	50.	SCHEDULED NECROPSY DAY 20
28307	G	-2.	11.	17.	13.	-8.	29.	-1.	59.	SCHEDULED NECROPSY DAY 20
28310	G	3.	14.	25.	1.	1.	22.	9.	75.	SCHEDULED NECROPSY DAY 20
28326	G	-11.	21.	9.	2.	12.	-1.	0.	32.	SCHEDULED NECROPSY DAY 20
28332	G	-2.	20.	15.	11.	1.	4.	-15.	34.	SCHEDULED NECROPSY DAY 20
28335	G	-5.	18.	15.	6.	18.	38.	14.	104.	SCHEDULED NECROPSY DAY 20
28337	G	8.	20.	-2.	12.	12.	38.	22.	110.	SCHEDULED NECROPSY DAY 20
28343	G	-2.	9.	5.	13.	4.	6.	-22.	13.	SCHEDULED NECROPSY DAY 20
28350	G	-8.	5.	25.	13.	-38.	NA	NA	NA	GRAVID, EUTHANIZED DAY 15
28362	G	-5.	17.	9.	16.	13.	35.	27.	112.	SCHEDULED NECROPSY DAY 20
28369	G	4.	6.	5.	14.	5.	20.	12.	66.	SCHEDULED NECROPSY DAY 20
28379	G	-7.	28.	-4.	23.	1.	38.	18.	97.	SCHEDULED NECROPSY DAY 20
28380	G	-8.	9.	28.	8.	3.	14.	-6.	48.	SCHEDULED NECROPSY DAY 20
28390	G	12.	8.	2.	7.	19.	20.	-1.	67.	SCHEDULED NECROPSY DAY 20
28391	G	-13.	19.	1.	16.	-8.	20.	18.	53.	SCHEDULED NECROPSY DAY 20
28420	G	5.	9.	10.	8.	13.	40.	26.	111.	SCHEDULED NECROPSY DAY 20
28426	G	-2.	8.	14.	9.	12.	22.	10.	73.	SCHEDULED NECROPSY DAY 20
28427	G	-27.	14.	10.	18.	7.	15.	10.	47.	SCHEDULED NECROPSY DAY 20
MEAN		-4.	14.	10.	12.	5.	24.	8.	72.	
S.D.		8.2	6.6	8.4	5.2	11.6	15.0	13.9	32.1	
S.E.		1.7	1.4	1.7	1.1	2.4	3.1	2.9	6.7	
N		24	24	24	24	24	23	23	23	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A7

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES DURING GESTATION [G]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9- 12	12- 15	15- 18	18- 20	0- 20	
DAMS FROM GROUP 6: 450 MG/KG/DAY										
28251	G	-5.	15.	-3.	17.	7.	-7.	-3.	21.	SCHEDULED NECROPSY DAY 20
28252	G	7.	7.	2.	18.	-15.	-21.	14.	12.	SCHEDULED NECROPSY DAY 20
28267	G	-23.	23.	10.	5.	NA	NA	NA	NA	GRAVID, EUTHANIZED DAY 14
28290	G	-13.	10.	14.	10.	-12.	-4.	-9.	-4.	SCHEDULED NECROPSY DAY 20
28302	G	-1.	10.	-8.	19.	1.	1.	-10.	12.	SCHEDULED NECROPSY DAY 20
28303	G	-2.	1.	16.	16.	-1.	-6.	-13.	11.	SCHEDULED NECROPSY DAY 20
28305	G	-27.	16.	11.	13.	-26.	-8.	12.	-9.	SCHEDULED NECROPSY DAY 20
28313	G	-10.	-9.	23.	13.	-2.	-1.	-2.	12.	SCHEDULED NECROPSY DAY 20
28322	G	-10.	13.	15.	22.	-18.	-3.	-6.	13.	SCHEDULED NECROPSY DAY 20
28323	G	-17.	14.	-17.	5.	-13.	5.	-13.	-36.	SCHEDULED NECROPSY DAY 20
28328	G	-3.	4.	15.	17.	-6.	5.	-14.	18.	SCHEDULED NECROPSY DAY 20
28331	G	-14.	11.	-5.	31.	-6.	-2.	3.	18.	SCHEDULED NECROPSY DAY 20
28336	G	-28.	13.	0.	8.	-11.	3.	-16.	-31.	SCHEDULED NECROPSY DAY 20
28339	G	-13.	5.	10.	11.	-20.	-8.	2.	-13.	SCHEDULED NECROPSY DAY 20
28340	G	-5.	17.	9.	8.	-5.	20.	-7.	37.	SCHEDULED NECROPSY DAY 20
28346	G	-5.	-5.	11.	13.	-2.	-20.	NA	NA	GRAVID, EUTHANIZED DAY 18
28347	G	3.	2.	6.	17.	-13.	-9.	-14.	-8.	SCHEDULED NECROPSY DAY 20
28348	G	-2.	-8.	24.	12.	10.	5.	4.	45.	SCHEDULED NECROPSY DAY 20
28359	G	-13.	6.	18.	15.	11.	NA	NA	NA	GRAVID, EUTHANIZED DAY 16
28363	G	-8.	9.	9.	18.	-30.	-7.	-3.	-12.	SCHEDULED NECROPSY DAY 20
28364	G	-19.	5.	2.	18.	-16.	-12.	0.	-22.	SCHEDULED NECROPSY DAY 20
28372	G	-16.	-14.	-5.	21.	13.	-6.	1.	-6.	SCHEDULED NECROPSY DAY 20
28373	G	-7.	9.	-9.	12.	-12.	-5.	-6.	-18.	SCHEDULED NECROPSY DAY 20
28405	G	-12.	12.	-1.	15.	-22.	-11.	-6.	-25.	SCHEDULED NECROPSY DAY 20
28411	G	-6.	17.	-2.	12.	-41.	-10.	-7.	-37.	SCHEDULED NECROPSY DAY 20
MEAN		-10.	7.	6.	15.	-10.	-4.	-4.	-1.	
S.D.		8.7	9.0	10.5	5.7	13.3	8.7	8.1	22.6	
S.E.		1.7	1.8	2.1	1.1	2.7	1.8	1.7	4.8	
N		25	25	25	25	24	23	22	22	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

NA = NOT APPLICABLE

PGBWv4.09

11/21/2011

TABLE A8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

DAM #	PREGNANCY STATUS	INITIAL BODY WT.	TERMINAL BODY WT.	GRAVID UTERINE WT.	NET BODY WT.	NET BODY WT. CHANGE
GROUP 1: 0 MG/KG/DAY SHAM						
28248	G	268.	408.	72.9	335.1	67.1
28250	G	239.	386.	85.8	300.2	61.2
28257	G	258.	447.	120.7	326.3	68.3
28259	G	280.	436.	91.4	344.6	64.6
28271	G	252.	391.	92.5	298.5	46.5
28277	G	268.	422.	109.2	312.8	44.8
28279	G	267.	417.	102.2	314.8	47.8
28282	G	268.	426.	104.0	322.0	54.0
28288	G	248.	383.	80.8	302.2	54.2
28289	G	250.	383.	73.6	309.4	59.4
28301	G	237.	401.	94.7	306.3	69.3
28304	G	246.	381.	86.6	294.4	48.4
28309	G	266.	433.	123.5	309.5	43.5
28319	G	248.	390.	85.7	304.3	56.3
28324	G	275.	389.	83.9	305.1	30.1
28325	G	248.	382.	88.1	293.9	45.9
28341	G	271.	396.	81.6	314.4	43.4
28345	G	244.	357.	57.6	299.4	55.4
28352	G	240.	362.	72.9	289.1	49.1
28368	G	260.	386.	78.2	307.8	47.8
28381	G	264.	374.	84.5	289.5	25.5
28384	G	236.	398.	76.8	321.2	85.2
28404	G	267.	429.	93.1	335.9	68.9
28413	G	260.	409.	90.7	318.3	58.3
28417	G	257.	395.	79.6	315.4	58.4
MEAN		257.	399.	88.4	310.8	54.1
S.D.		12.6	23.3	14.94	14.44	12.89
S.E.		2.5	4.7	2.99	2.89	2.58
N		25	25	25	25	25

G = GRAVID

TABLE A8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

DAM #	PREGNANCY STATUS	INITIAL BODY WT.	TERMINAL BODY WT.	GRAVID UTERINE WT.	NET BODY WT.	NET BODY WT. CHANGE
GROUP 2: 0 MG/KG/DAY VEH.						
28254	G	252.	398.	87.3	310.7	58.7
28262	G	271.	392.	81.6	310.4	39.4
28266	G	265.	428.	90.9	337.1	72.1
28270	G	268.	411.	82.1	328.9	60.9
28272	G	240.	382.	85.2	296.8	56.8
28281	G	265.	403.	84.8	318.2	53.2
28283	G	246.	410.	90.6	319.4	73.4
28286	G	247.	392.	87.0	305.0	58.0
28299	G	262.	440.	93.8	346.2	84.2
28312	G	271.	406.	88.3	317.7	46.7
28318	G	244.	412.	97.2	314.8	70.8
28321	G	271.	437.	87.1	349.9	78.9
28327	G	265.	427.	93.6	333.4	68.4
28329	G	231.	360.	77.5	282.5	51.5
28338	G	252.	383.	87.4	295.6	43.6
28342	G	240.	388.	83.2	304.8	64.8
28344	G	271.	428.	80.0	348.0	77.0
28357	G	246.	396.	77.5	318.5	72.5
28370	G	251.	365.	72.7	292.3	41.3
28375	G	256.	385.	79.5	305.5	49.5
28378	G	254.	419.	98.8	320.2	66.2
28388	G	249.	377.	73.6	303.4	54.4
28392	G	260.	390.	98.2	291.8	31.8
28397	G	261.	378.	73.9	304.1	43.1
28400	G	264.	378.	67.7	310.3	46.3
MEAN		256.	399.	84.8	314.6	58.5
S.D.		11.4	22.0	8.30	18.03	13.96
S.E.		2.3	4.4	1.66	3.61	2.79
N		25	25	25	25	25

G = GRAVID

TABLE A8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

DAM #	PREGNANCY STATUS	INITIAL BODY WT.	TERMINAL BODY WT.	GRAVID UTERINE WT.	NET BODY WT.	NET BODY WT. CHANGE
GROUP 3: 5 MG/KG/DAY						
28249	G	260.	390.	94.9	295.1	35.1
28253	G	262.	392.	86.4	305.6	43.6
28256	G	273.	423.	75.6	347.4	74.4
28263	G	256.	374.	89.8	284.2	28.2
28268	G	265.	430.	103.2	326.8	61.8
28269	G	239.	391.	97.6	293.4	54.4
28285	G	267.	430.	92.8	337.2	70.2
28295	G	261.	424.	93.5	330.5	69.5
28314	G	252.	393.	81.3	311.7	59.7
28315	G	248.	410.	98.1	311.9	63.9
28316	G	224.	359.	77.3	281.7	57.7
28333	G	255.	419.	100.9	318.1	63.1
28351	G	253.	385.	86.9	298.1	45.1
28353	G	239.	371.	67.5	303.5	64.5
28355	G	249.	399.	81.5	317.5	68.5
28358	G	260.	388.	76.1	311.9	51.9
28371	G	251.	393.	92.8	300.2	49.2
28374	G	241.	372.	68.4	303.6	62.6
28376	G	234.	385.	93.5	291.5	57.5
28389	G	250.	369.	78.7	290.3	40.3
28402	G	274.	404.	69.5	334.5	60.5
28403	G	271.	406.	75.7	330.3	59.3
28407	G	253.	388.	81.1	306.9	53.9
28416	G	268.	401.	81.6	319.4	51.4
28422	G	301.	471.	103.6	367.4	66.4
MEAN		256.	399.	85.9	312.7	56.5
S.D.		15.6	24.5	10.91	20.64	11.39
S.E.		3.1	4.9	2.18	4.13	2.28
N		25	25	25	25	25

G = GRAVID

TABLE A8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

DAM #	PREGNANCY STATUS	INITIAL BODY WT.	TERMINAL BODY WT.	GRAVID UTERINE WT.	NET BODY WT.	NET BODY WT. CHANGE
GROUP 4: 25 MG/KG/DAY						
28258	G	252.	377.	74.0	303.0	51.0
28261	G	237.	355.	71.5	283.5	46.5
28264	G	222.	355.	76.5	278.5	56.5
28265	G	269.	405.	85.0	320.0	51.0
28273	G	264.	382.	71.6	310.4	46.4
28274	G	278.	418.	84.0	334.0	56.0
28276	G	266.	408.	84.4	323.6	57.6
28287	G	245.	369.	82.8	286.2	41.2
28292	G	256.	357.	55.6	301.4	45.4
28293	G	264.	400.	78.4	321.6	57.6
28311	G	244.	372.	76.3	295.7	51.7
28317	G	258.	359.	72.9	286.1	28.1
28320	G	258.	416.	86.4	329.6	71.6
28334	G	252.	382.	72.7	309.3	57.3
28349	G	267.	382.	62.4	319.6	52.6
28356	G	250.	367.	78.0	289.0	39.0
28360	G	275.	374.	75.0	299.0	24.0
28361	G	270.	413.	87.1	325.9	55.9
28365	G	264.	400.	95.1	304.9	40.9
28382	G	239.	356.	50.0	306.0	67.0
28387	G	249.	383.	67.8	315.2	66.2
28395	NG	241.	268.	NA	NA	NA
28396	G	255.	344.	63.7	280.3	25.3
28412	G	268.	395.	95.6	299.4	31.4
28418	G	258.	370.	72.1	297.9	39.9
MEAN		257.	381.	75.8	305.0	48.3
S.D.		13.1	21.7	11.09	16.23	12.83
S.E.		2.7	4.4	2.26	3.31	2.62
N		24	24	24	24	24

G = GRAVID, NG = NONGRAVID, NOT INCLUDED IN CALCULATION OF THE MEAN
NA = NOT APPLICABLE

TABLE A8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

DAM #	PREGNANCY STATUS	INITIAL BODY WT.	TERMINAL BODY WT.	GRAVID UTERINE WT.	NET BODY WT.	NET BODY WT. CHANGE
GROUP 5: 150 MG/KG/DAY						
28255	G	268.	388.	70.3	317.7	49.7
28260	G	269.	282.	24.0	258.0	-11.0
28275	G	234.	326.	61.7	264.3	30.3
28278	G	281.	367.	28.8	338.2	57.2
28291	G	274.	374.	55.6	318.4	44.4
28294	G	261.	356.	40.3	315.7	54.7
28296	NG	267.	269.	NA	NA	NA
28298	G	251.	301.	12.7	288.3	37.3
28307	G	240.	299.	13.7	285.3	45.3
28310	G	245.	320.	30.9	289.1	44.1
28326	G	247.	279.	10.0	269.0	22.0
28332	G	254.	288.	2.1	285.9	31.9
28335	G	235.	339.	70.1	268.9	33.9
28337	G	254.	364.	60.6	303.4	49.4
28343	G	228.	241.	5.8	235.2	7.2
28362	G	248.	360.	67.5	292.5	44.5
28369	G	253.	319.	26.1	292.9	39.9
28379	G	258.	355.	62.7	292.3	34.3
28380	G	267.	315.	7.8	307.2	40.2
28390	G	266.	333.	17.1	315.9	49.9
28391	G	262.	315.	14.4	300.6	38.6
28420	G	244.	355.	71.0	284.0	40.0
28426	G	255.	328.	33.3	294.7	39.7
28427	G	262.	309.	20.8	288.2	26.2
MEAN		255.	327.	35.1	291.6	36.9
S.D.		13.4	35.7	24.19	22.82	15.21
S.E.		2.8	7.4	5.04	4.76	3.17
N		23	23	23	23	23

G = GRAVID, NG = NONGRAVID, NOT INCLUDED IN CALCULATION OF THE MEAN
NA = NOT APPLICABLE

TABLE A8

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL GRAVID UTERINE WTS. AND NET BODY WT. CHANGES [G]

DAM #	PREGNANCY STATUS	INITIAL BODY WT.	TERMINAL BODY WT.	GRAVID UTERINE WT.	NET BODY WT.	NET BODY WT. CHANGE
GROUP 6: 450 MG/KG/DAY						
28251	G	247.	268.	5.0	263.0	16.0
28252	G	245.	257.	0.8	256.2	11.2
28290	G	265.	261.	2.5	258.5	-6.5
28302	G	266.	278.	4.9	273.1	7.1
28303	G	249.	260.	3.8	256.2	7.2
28305	G	231.	222.	5.2	216.8	-14.2
28313	G	251.	263.	1.3	261.7	10.7
28322	G	243.	256.	0.7	255.3	12.3
28323	G	261.	225.	3.3	221.7	-39.3
28328	G	277.	295.	3.3	291.7	14.7
28331	G	266.	284.	8.3	275.7	9.7
28336	G	258.	227.	2.0	225.0	-33.0
28339	G	239.	226.	1.4	224.6	-14.4
28340	G	246.	283.	20.1	262.9	16.9
28347	G	277.	269.	6.7	262.3	-14.7
28348	G	276.	321.	7.4	313.6	37.6
28363	G	257.	245.	1.9	243.1	-13.9
28364	G	257.	235.	2.0	233.0	-24.0
28372	G	252.	246.	2.1	243.9	-8.1
28373	G	246.	228.	1.3	226.7	-19.3
28405	G	250.	225.	5.1	219.9	-30.1
28411	G	267.	230.	2.1	227.9	-39.1
MEAN		256.	255.	4.1	250.6	-5.1
S.D.		12.6	26.8	4.17	25.12	20.84
S.E.		2.7	5.7	0.89	5.36	4.44
N		22	22	22	22	22

G = GRAVID

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TABLE A9

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/ANIMAL/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 1: 0 MG/KG/DAY SHAM										
28248	G	21.	23.	23.	26.	28.	29.	30.	25.	SCHEDULED NECROPSY DAY 20
28250	G	15.	21.	26.	24.	27.	30.	29.	24.	SCHEDULED NECROPSY DAY 20
28257	G	19.	22.	26.	28.	28.	31.	34.	26.	SCHEDULED NECROPSY DAY 20
28259	G	22.	21.	26.	22.	33.	36.	36.	28.	SCHEDULED NECROPSY DAY 20
28271	G	17.	22.	24.	23.	29.	30.	31.	25.	SCHEDULED NECROPSY DAY 20
28277	G	23.	24.	26.	25.	29.	29.	30.	27.	SCHEDULED NECROPSY DAY 20
28279	G	21.	23.	18.	30.	24.	30.	29.	25.	SCHEDULED NECROPSY DAY 20
28282	G	20.	21.	6.	30.	25.	35.	34.	24.	SCHEDULED NECROPSY DAY 20
28288	G	20.	20.	23.	25.	26.	30.	30.	25.	SCHEDULED NECROPSY DAY 20
28289	G	19.	22.	24.	24.	26.	29.	29.	24.	SCHEDULED NECROPSY DAY 20
28301	G	20.	22.	15.	29.	27.	31.	33.	25.	SCHEDULED NECROPSY DAY 20
28304	G	19.	22.	24.	21.	25.	29.	31.	24.	SCHEDULED NECROPSY DAY 20
28309	G	20.	22.	23.	24.	29.	34.	31.	26.	SCHEDULED NECROPSY DAY 20
28319	G	19.	22.	22.	28.	24.	33.	31.	25.	SCHEDULED NECROPSY DAY 20
28324	G	16.	18.	19.	24.	28.	28.	31.	23.	SCHEDULED NECROPSY DAY 20
28325	G	17.	21.	18.	25.	12.	29.	29.	21.	SCHEDULED NECROPSY DAY 20
28341	G	18.	20.	24.	24.	26.	30.	30.	24.	SCHEDULED NECROPSY DAY 20
28345	G	15.	18.	19.	23.	24.	30.	31.	22.	SCHEDULED NECROPSY DAY 20
28352	G	18.	18.	18.	25.	25.	27.	30.	23.	SCHEDULED NECROPSY DAY 20
28368	G	22.	25.	27.	28.	32.	34.	30.	28.	SCHEDULED NECROPSY DAY 20
28381	G	18.	15.	22.	18.	24.	26.	30.	21.	SCHEDULED NECROPSY DAY 20
28384	G	19.	23.	24.	26.	27.	30.	33.	26.	SCHEDULED NECROPSY DAY 20
28404	G	21.	22.	23.	27.	30.	34.	32.	27.	SCHEDULED NECROPSY DAY 20
28413	G	18.	21.	23.	24.	27.	30.	28.	24.	SCHEDULED NECROPSY DAY 20
28417	G	19.	20.	22.	23.	26.	28.	30.	24.	SCHEDULED NECROPSY DAY 20
MEAN		19.	21.	22.	25.	26.	30.	31.	25.	
S.D.		2.1	2.1	4.5	2.8	3.8	2.5	1.9	1.8	
S.E.		0.4	0.4	0.9	0.6	0.8	0.5	0.4	0.4	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE A9

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/ANIMAL/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 2: 0 MG/KG/DAY VEH.										
28254	G	19.	20.	21.	24.	27.	29.	31.	24.	SCHEDULED NECROPSY DAY 20
28262	G	18.	20.	21.	25.	26.	29.	30.	24.	SCHEDULED NECROPSY DAY 20
28266	G	19.	23.	25.	25.	29.	31.	41.	27.	SCHEDULED NECROPSY DAY 20
28270	G	20.	23.	23.	25.	28.	33.	31.	26.	SCHEDULED NECROPSY DAY 20
28272	G	18.	21.	21.	26.	24.	26.	30.	23.	SCHEDULED NECROPSY DAY 20
28281	G	21.	20.	21.	23.	26.	29.	30.	24.	SCHEDULED NECROPSY DAY 20
28283	G	25.	23.	26.	26.	29.	34.	32.	28.	SCHEDULED NECROPSY DAY 20
28286	G	20.	28.	28.	30.	33.	29.	33.	28.	SCHEDULED NECROPSY DAY 20
28299	G	23.	24.	27.	27.	28.	34.	36.	28.	SCHEDULED NECROPSY DAY 20
28312	G	20.	20.	22.	27.	25.	29.	30.	25.	SCHEDULED NECROPSY DAY 20
28318	G	21.	24.	26.	30.	28.	32.	34.	28.	SCHEDULED NECROPSY DAY 20
28321	G	18.	22.	25.	27.	31.	33.	36.	27.	SCHEDULED NECROPSY DAY 20
28327	G	20.	23.	23.	27.	25.	35.	36.	27.	SCHEDULED NECROPSY DAY 20
28329	G	16.	21.	20.	26.	22.	28.	31.	23.	SCHEDULED NECROPSY DAY 20
28338	G	17.	20.	23.	23.	25.	26.	30.	23.	SCHEDULED NECROPSY DAY 20
28342	G	19.	19.	24.	24.	26.	29.	31.	24.	SCHEDULED NECROPSY DAY 20
28344	G	21.	22.	25.	28.	27.	34.	35.	27.	SCHEDULED NECROPSY DAY 20
28357	G	20.	21.	26.	14.	30.	34.	36.	25.	SCHEDULED NECROPSY DAY 20
28370	G	19.	13.	24.	21.	27.	28.	31.	23.	SCHEDULED NECROPSY DAY 20
28375	G	19.	22.	21.	25.	25.	29.	28.	24.	SCHEDULED NECROPSY DAY 20
28378	G	22.	24.	28.	27.	35.	34.	31.	29.	SCHEDULED NECROPSY DAY 20
28388	G	17.	20.	NA	21.	29.	29.	32.	24.	SCHEDULED NECROPSY DAY 20
28392	G	17.	20.	22.	25.	26.	29.	29.	24.	SCHEDULED NECROPSY DAY 20
28397	G	20.	21.	21.	22.	26.	29.	33.	24.	SCHEDULED NECROPSY DAY 20
28400	G	14.	20.	22.	24.	28.	28.	29.	23.	SCHEDULED NECROPSY DAY 20
MEAN		19.	21.	24.	25.	27.	30.	32.	25.	
S.D.		2.3	2.6	2.4	3.3	2.8	2.7	3.0	2.0	
S.E.		0.5	0.5	0.5	0.7	0.6	0.5	0.6	0.4	
N		25	25	24	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A9

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/ANIMAL/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 3: 5 MG/KG/DAY										
28249	G	18.	18.	20.	23.	23.	31.	32.	23.	SCHEDULED NECROPSY DAY 20
28253	G	18.	23.	22.	24.	27.	29.	29.	25.	SCHEDULED NECROPSY DAY 20
28256	G	18.	23.	24.	27.	22.	33.	35.	26.	SCHEDULED NECROPSY DAY 20
28263	G	18.	18.	21.	23.	26.	27.	26.	22.	SCHEDULED NECROPSY DAY 20
28268	G	15.	18.	25.	24.	31.	34.	36.	26.	SCHEDULED NECROPSY DAY 20
28269	G	19.	20.	23.	22.	28.	32.	29.	24.	SCHEDULED NECROPSY DAY 20
28285	G	22.	26.	24.	25.	27.	30.	32.	26.	SCHEDULED NECROPSY DAY 20
28295	G	20.	22.	20.	21.	34.	34.	34.	26.	SCHEDULED NECROPSY DAY 20
28314	G	23.	20.	23.	25.	21.	32.	37.	25.	SCHEDULED NECROPSY DAY 20
28315	G	18.	21.	21.	25.	23.	29.	31.	24.	SCHEDULED NECROPSY DAY 20
28316	G	20.	19.	20.	24.	22.	28.	26.	23.	SCHEDULED NECROPSY DAY 20
28333	G	20.	21.	23.	24.	27.	30.	33.	25.	SCHEDULED NECROPSY DAY 20
28351	G	20.	21.	22.	24.	26.	27.	29.	24.	SCHEDULED NECROPSY DAY 20
28353	G	21.	19.	20.	22.	22.	30.	32.	23.	SCHEDULED NECROPSY DAY 20
28355	G	20.	24.	25.	25.	28.	33.	31.	26.	SCHEDULED NECROPSY DAY 20
28358	G	19.	19.	21.	18.	28.	26.	28.	22.	SCHEDULED NECROPSY DAY 20
28371	G	19.	21.	20.	24.	24.	27.	27.	23.	SCHEDULED NECROPSY DAY 20
28374	G	16.	21.	24.	24.	28.	29.	29.	24.	SCHEDULED NECROPSY DAY 20
28376	G	17.	21.	24.	15.	25.	30.	33.	23.	SCHEDULED NECROPSY DAY 20
28389	G	18.	18.	21.	22.	24.	27.	29.	22.	SCHEDULED NECROPSY DAY 20
28402	G	20.	20.	23.	25.	27.	30.	32.	25.	SCHEDULED NECROPSY DAY 20
28403	G	19.	22.	24.	24.	28.	30.	30.	25.	SCHEDULED NECROPSY DAY 20
28407	G	13.	18.	24.	12.	27.	26.	33.	21.	SCHEDULED NECROPSY DAY 20
28416	G	17.	19.	24.	23.	21.	39.	30.	25.	SCHEDULED NECROPSY DAY 20
28422	G	21.	23.	27.	26.	29.	34.	34.	27.	SCHEDULED NECROPSY DAY 20
MEAN		19.	21.	23.	23.	26.	30.	31.	24.	
S.D.		2.2	2.1	1.9	3.4	3.2	3.1	2.9	1.6	
S.E.		0.4	0.4	0.4	0.7	0.6	0.6	0.6	0.3	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 4: 25 MG/KG/DAY										
28258	G	18.	22.	24.	27.	30.	31.	32.	26.	SCHEDULED NECROPSY DAY 20
28261	G	17.	18.	19.	22.	23.	29.	31.	22.	SCHEDULED NECROPSY DAY 20
28264	G	15.	22.	21.	26.	27.	30.	31.	24.	SCHEDULED NECROPSY DAY 20
28265	G	17.	14.	24.	27.	26.	29.	31.	24.	SCHEDULED NECROPSY DAY 20
28273	G	19.	20.	22.	23.	28.	30.	29.	24.	SCHEDULED NECROPSY DAY 20
28274	G	22.	21.	24.	24.	29.	32.	31.	26.	SCHEDULED NECROPSY DAY 20
28276	G	20.	25.	27.	25.	29.	31.	28.	26.	SCHEDULED NECROPSY DAY 20
28287	G	17.	16.	18.	22.	21.	26.	26.	21.	SCHEDULED NECROPSY DAY 20
28292	G	14.	18.	21.	24.	26.	30.	31.	23.	SCHEDULED NECROPSY DAY 20
28293	G	19.	16.	23.	23.	26.	30.	31.	24.	SCHEDULED NECROPSY DAY 20
28311	G	16.	20.	25.	23.	27.	29.	29.	24.	SCHEDULED NECROPSY DAY 20
28317	G	18.	14.	19.	19.	22.	26.	27.	20.	SCHEDULED NECROPSY DAY 20
28320	G	21.	22.	24.	26.	28.	31.	33.	26.	SCHEDULED NECROPSY DAY 20
28334	G	17.	20.	23.	16.	26.	31.	31.	23.	SCHEDULED NECROPSY DAY 20
28349	G	18.	17.	22.	25.	14.	30.	31.	22.	SCHEDULED NECROPSY DAY 20
28356	G	21.	21.	21.	24.	23.	30.	30.	24.	SCHEDULED NECROPSY DAY 20
28360	G	18.	21.	25.	25.	30.	30.	28.	25.	SCHEDULED NECROPSY DAY 20
28361	G	21.	25.	24.	26.	29.	31.	31.	26.	SCHEDULED NECROPSY DAY 20
28365	G	20.	21.	23.	23.	26.	29.	25.	24.	SCHEDULED NECROPSY DAY 20
28382	G	19.	21.	23.	23.	26.	29.	28.	24.	SCHEDULED NECROPSY DAY 20
28387	G	19.	21.	23.	10.	25.	30.	29.	22.	SCHEDULED NECROPSY DAY 20
28395	NG	15.	15.	21.	24.	18.	19.	23.	19.	SCHEDULED NECROPSY DAY 20
28396	G	16.	19.	22.	19.	23.	26.	25.	21.	SCHEDULED NECROPSY DAY 20
28412	G	22.	20.	22.	20.	29.	28.	28.	24.	SCHEDULED NECROPSY DAY 20
28418	G	16.	19.	23.	27.	25.	28.	28.	24.	SCHEDULED NECROPSY DAY 20
MEAN		18.	20.	23.	23.	26.	29.	29.	24.	
S.D.		2.2	2.9	2.1	3.9	3.6	1.6	2.2	1.7	
S.E.		0.4	0.6	0.4	0.8	0.7	0.3	0.4	0.3	
N		24	24	24	24	24	24	24	24	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE A9

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/ANIMAL/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 5: 150 MG/KG/DAY										
28255	G	20.	25.	23.	27.	28.	32.	26.	26.	SCHEDULED NECROPSY DAY 20
28260	G	12.	18.	18.	24.	22.	20.	14.	19.	SCHEDULED NECROPSY DAY 20
28275	G	15.	15.	18.	22.	22.	27.	24.	20.	SCHEDULED NECROPSY DAY 20
28278	G	19.	22.	23.	11.	26.	30.	29.	23.	SCHEDULED NECROPSY DAY 20
28291	G	16.	18.	20.	21.	25.	28.	29.	22.	SCHEDULED NECROPSY DAY 20
28294	G	19.	20.	22.	24.	22.	28.	30.	23.	SCHEDULED NECROPSY DAY 20
28296	NG	19.	20.	19.	18.	22.	20.	24.	20.	SCHEDULED NECROPSY DAY 20
28298	G	19.	18.	20.	23.	23.	25.	27.	22.	SCHEDULED NECROPSY DAY 20
28307	G	16.	16.	14.	22.	22.	28.	24.	20.	SCHEDULED NECROPSY DAY 20
28310	G	21.	18.	22.	24.	21.	27.	26.	22.	SCHEDULED NECROPSY DAY 20
28326	G	12.	19.	21.	20.	26.	24.	24.	21.	SCHEDULED NECROPSY DAY 20
28332	G	17.	21.	6.	28.	24.	29.	27.	22.	SCHEDULED NECROPSY DAY 20
28335	G	17.	17.	18.	21.	25.	28.	23.	21.	SCHEDULED NECROPSY DAY 20
28337	G	16.	21.	21.	21.	26.	32.	29.	24.	SCHEDULED NECROPSY DAY 20
28343	G	13.	15.	0.	19.	23.	22.	20.	16.	SCHEDULED NECROPSY DAY 20
28350	G	18.	18.	23.	25.	12.	NA	NA	NA	GRAVID, EUTHANIZED DAY 15
28362	G	20.	19.	19.	25.	24.	30.	31.	24.	SCHEDULED NECROPSY DAY 20
28369	G	15.	15.	18.	20.	23.	25.	27.	20.	SCHEDULED NECROPSY DAY 20
28379	G	15.	23.	22.	23.	24.	30.	29.	23.	SCHEDULED NECROPSY DAY 20
28380	G	16.	17.	22.	24.	23.	24.	27.	22.	SCHEDULED NECROPSY DAY 20
28390	G	19.	16.	18.	19.	28.	30.	29.	22.	SCHEDULED NECROPSY DAY 20
28391	G	12.	18.	17.	21.	19.	24.	31.	20.	SCHEDULED NECROPSY DAY 20
28420	G	15.	17.	20.	5.	22.	26.	26.	18.	SCHEDULED NECROPSY DAY 20
28426	G	20.	23.	26.	23.	26.	30.	28.	25.	SCHEDULED NECROPSY DAY 20
28427	G	13.	15.	24.	20.	24.	26.	29.	21.	SCHEDULED NECROPSY DAY 20
MEAN		16.	19.	19.	21.	23.	27.	26.	22.	
S.D.		2.8	2.8	5.6	4.8	3.2	3.1	3.8	2.3	
S.E.		0.6	0.6	1.2	1.0	0.7	0.6	0.8	0.5	
N		24	24	24	24	24	23	23	23	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 6: 450 MG/KG/DAY										
28251	G	15.	20.	22.	24.	28.	22.	23.	22.	SCHEDULED NECROPSY DAY 20
28252	G	17.	17.	18.	21.	19.	14.	21.	18.	SCHEDULED NECROPSY DAY 20
28267	G	12.	16.	15.	22.	NA	NA	NA	NA	GRAVID, EUTHANIZED DAY 14
28290	G	15.	17.	22.	25.	20.	24.	23.	21.	SCHEDULED NECROPSY DAY 20
28302	G	18.	20.	20.	23.	25.	28.	22.	22.	SCHEDULED NECROPSY DAY 20
28303	G	17.	16.	20.	27.	26.	27.	22.	22.	SCHEDULED NECROPSY DAY 20
28305	G	12.	10.	20.	22.	13.	10.	22.	15.	SCHEDULED NECROPSY DAY 20
28313	G	15.	12.	18.	20.	20.	21.	21.	18.	SCHEDULED NECROPSY DAY 20
28322	G	17.	16.	21.	25.	20.	24.	21.	20.	SCHEDULED NECROPSY DAY 20
28323	G	13.	15.	15.	17.	14.	21.	17.	16.	SCHEDULED NECROPSY DAY 20
28328	G	16.	18.	20.	23.	23.	26.	20.	21.	SCHEDULED NECROPSY DAY 20
28331	G	15.	18.	16.	24.	22.	22.	23.	20.	SCHEDULED NECROPSY DAY 20
28336	G	10.	16.	19.	9.	20.	21.	16.	16.	SCHEDULED NECROPSY DAY 20
28339	G	12.	14.	17.	21.	16.	17.	22.	17.	SCHEDULED NECROPSY DAY 20
28340	G	17.	18.	19.	24.	20.	26.	22.	21.	SCHEDULED NECROPSY DAY 20
28346	G	17.	21.	23.	24.	27.	14.	NA	NA	GRAVID, EUTHANIZED DAY 18
28347	G	20.	18.	21.	23.	21.	22.	11.	20.	SCHEDULED NECROPSY DAY 20
28348	G	20.	14.	18.	25.	24.	29.	29.	22.	SCHEDULED NECROPSY DAY 20
28359	G	11.	10.	20.	21.	24.	NA	NA	NA	GRAVID, EUTHANIZED DAY 16
28363	G	17.	17.	20.	23.	16.	16.	21.	18.	SCHEDULED NECROPSY DAY 20
28364	G	15.	17.	22.	20.	22.	18.	17.	19.	SCHEDULED NECROPSY DAY 20
28372	G	13.	7.	12.	22.	24.	26.	22.	18.	SCHEDULED NECROPSY DAY 20
28373	G	14.	17.	17.	21.	17.	18.	20.	18.	SCHEDULED NECROPSY DAY 20
28405	G	14.	16.	18.	21.	17.	15.	18.	17.	SCHEDULED NECROPSY DAY 20
28411	G	15.	19.	17.	21.	8.	15.	20.	16.	SCHEDULED NECROPSY DAY 20
MEAN		15.	16.	19.	22.	20.	21.	21.	19.	
S.D.		2.6	3.3	2.6	3.4	4.7	5.2	3.4	2.3	
S.E.		0.5	0.7	0.5	0.7	1.0	1.1	0.7	0.5	
N		25	25	25	25	24	23	22	22	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

	PREGNANCY STATUS	DAY	0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 1: 0 MG/KG/DAY SHAM											
28248	G		77.	81.	77.	83.	84.	81.	76.	77.	SCHEDULED NECROPSY DAY 20
28250	G		64.	87.	100.	87.	92.	90.	78.	83.	SCHEDULED NECROPSY DAY 20
28257	G		73.	81.	89.	88.	82.	82.	80.	79.	SCHEDULED NECROPSY DAY 20
28259	G		78.	73.	88.	72.	100.	95.	86.	84.	SCHEDULED NECROPSY DAY 20
28271	G		67.	83.	86.	80.	95.	89.	83.	83.	SCHEDULED NECROPSY DAY 20
28277	G		84.	84.	87.	80.	88.	80.	74.	83.	SCHEDULED NECROPSY DAY 20
28279	G		79.	83.	64.	102.	75.	84.	73.	79.	SCHEDULED NECROPSY DAY 20
28282	G		75.	78.	21.	99.	79.	99.	84.	75.	SCHEDULED NECROPSY DAY 20
28288	G		78.	75.	83.	86.	85.	89.	81.	83.	SCHEDULED NECROPSY DAY 20
28289	G		75.	83.	85.	82.	84.	86.	78.	79.	SCHEDULED NECROPSY DAY 20
28301	G		80.	82.	56.	104.	88.	90.	86.	83.	SCHEDULED NECROPSY DAY 20
28304	G		76.	85.	90.	77.	85.	88.	85.	82.	SCHEDULED NECROPSY DAY 20
28309	G		74.	79.	79.	80.	90.	93.	75.	80.	SCHEDULED NECROPSY DAY 20
28319	G		77.	86.	81.	97.	79.	101.	84.	84.	SCHEDULED NECROPSY DAY 20
28324	G		59.	67.	69.	83.	90.	83.	83.	75.	SCHEDULED NECROPSY DAY 20
28325	G		68.	82.	67.	89.	40.	88.	79.	71.	SCHEDULED NECROPSY DAY 20
28341	G		66.	71.	82.	79.	81.	85.	78.	75.	SCHEDULED NECROPSY DAY 20
28345	G		63.	74.	75.	86.	85.	98.	91.	79.	SCHEDULED NECROPSY DAY 20
28352	G		76.	75.	71.	93.	87.	86.	87.	82.	SCHEDULED NECROPSY DAY 20
28368	G		83.	90.	94.	93.	100.	97.	80.	90.	SCHEDULED NECROPSY DAY 20
28381	G		68.	56.	83.	68.	85.	82.	84.	72.	SCHEDULED NECROPSY DAY 20
28384	G		79.	89.	85.	87.	85.	86.	86.	85.	SCHEDULED NECROPSY DAY 20
28404	G		78.	80.	80.	88.	90.	92.	78.	83.	SCHEDULED NECROPSY DAY 20
28413	G		68.	77.	81.	80.	84.	84.	71.	76.	SCHEDULED NECROPSY DAY 20
28417	G		74.	75.	78.	78.	83.	82.	80.	78.	SCHEDULED NECROPSY DAY 20
MEAN			74.	79.	78.	86.	85.	88.	81.	80.	
S.D.			6.5	7.4	15.3	8.8	11.0	6.0	4.9	4.4	
S.E.			1.3	1.5	3.1	1.8	2.2	1.2	1.0	0.9	
N			25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE A10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 2: 0 MG/KG/DAY VEH.										
28254	G	74.	76.	76.	82.	87.	84.	81.	78.	SCHEDULED NECROPSY DAY 20
28262	G	66.	73.	76.	86.	84.	86.	80.	78.	SCHEDULED NECROPSY DAY 20
28266	G	70.	79.	82.	80.	87.	84.	100.	82.	SCHEDULED NECROPSY DAY 20
28270	G	75.	83.	79.	81.	85.	92.	78.	81.	SCHEDULED NECROPSY DAY 20
28272	G	75.	84.	78.	90.	79.	80.	83.	78.	SCHEDULED NECROPSY DAY 20
28281	G	78.	72.	75.	79.	82.	83.	78.	77.	SCHEDULED NECROPSY DAY 20
28283	G	100.	87.	93.	88.	91.	97.	81.	90.	SCHEDULED NECROPSY DAY 20
28286	G	80.	107.	101.	103.	107.	87.	88.	93.	SCHEDULED NECROPSY DAY 20
28299	G	86.	86.	92.	86.	84.	92.	86.	85.	SCHEDULED NECROPSY DAY 20
28312	G	74.	71.	76.	90.	79.	83.	77.	79.	SCHEDULED NECROPSY DAY 20
28318	G	86.	93.	93.	100.	88.	91.	87.	91.	SCHEDULED NECROPSY DAY 20
28321	G	66.	78.	83.	85.	92.	88.	86.	82.	SCHEDULED NECROPSY DAY 20
28327	G	75.	83.	78.	87.	77.	98.	88.	84.	SCHEDULED NECROPSY DAY 20
28329	G	70.	88.	77.	96.	79.	92.	90.	83.	SCHEDULED NECROPSY DAY 20
28338	G	68.	78.	86.	82.	84.	79.	82.	78.	SCHEDULED NECROPSY DAY 20
28342	G	78.	78.	94.	87.	88.	88.	84.	82.	SCHEDULED NECROPSY DAY 20
28344	G	76.	76.	80.	84.	78.	90.	85.	80.	SCHEDULED NECROPSY DAY 20
28357	G	79.	80.	94.	48.	97.	99.	95.	82.	SCHEDULED NECROPSY DAY 20
28370	G	74.	52.	95.	77.	92.	87.	89.	80.	SCHEDULED NECROPSY DAY 20
28375	G	74.	83.	77.	86.	81.	86.	75.	79.	SCHEDULED NECROPSY DAY 20
28378	G	83.	85.	96.	87.	104.	92.	77.	90.	SCHEDULED NECROPSY DAY 20
28388	G	68.	77.	NA	74.	97.	89.	89.	81.	SCHEDULED NECROPSY DAY 20
28392	G	66.	75.	80.	87.	86.	87.	78.	79.	SCHEDULED NECROPSY DAY 20
28397	G	76.	77.	76.	78.	87.	89.	92.	80.	SCHEDULED NECROPSY DAY 20
28400	G	54.	76.	80.	83.	91.	83.	79.	76.	SCHEDULED NECROPSY DAY 20
MEAN		75.	80.	84.	84.	87.	88.	84.	82.	
S.D.		8.7	9.6	8.3	10.1	7.7	5.2	6.2	4.6	
S.E.		1.7	1.9	1.7	2.0	1.5	1.0	1.2	0.9	
N		25	25	24	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 3: 5 MG/KG/DAY										
28249	G	71.	71.	75.	82.	78.	94.	86.	77.	SCHEDULED NECROPSY DAY 20
28253	G	68.	87.	80.	82.	86.	85.	77.	81.	SCHEDULED NECROPSY DAY 20
28256	G	66.	80.	77.	81.	65.	92.	87.	79.	SCHEDULED NECROPSY DAY 20
28263	G	70.	69.	79.	83.	88.	84.	73.	75.	SCHEDULED NECROPSY DAY 20
28268	G	57.	68.	89.	80.	96.	94.	88.	82.	SCHEDULED NECROPSY DAY 20
28269	G	79.	79.	86.	80.	96.	96.	77.	82.	SCHEDULED NECROPSY DAY 20
28285	G	80.	90.	79.	78.	80.	81.	77.	78.	SCHEDULED NECROPSY DAY 20
28295	G	76.	80.	69.	72.	110.	95.	84.	82.	SCHEDULED NECROPSY DAY 20
28314	G	90.	76.	83.	85.	70.	98.	100.	83.	SCHEDULED NECROPSY DAY 20
28315	G	72.	80.	74.	83.	74.	85.	79.	78.	SCHEDULED NECROPSY DAY 20
28316	G	87.	80.	79.	89.	78.	90.	75.	83.	SCHEDULED NECROPSY DAY 20
28333	G	76.	76.	80.	81.	86.	85.	83.	79.	SCHEDULED NECROPSY DAY 20
28351	G	79.	82.	83.	86.	87.	82.	79.	81.	SCHEDULED NECROPSY DAY 20
28353	G	87.	77.	76.	79.	76.	94.	90.	80.	SCHEDULED NECROPSY DAY 20
28355	G	78.	88.	87.	84.	88.	95.	81.	84.	SCHEDULED NECROPSY DAY 20
28358	G	72.	69.	74.	63.	92.	77.	75.	72.	SCHEDULED NECROPSY DAY 20
28371	G	75.	79.	72.	83.	79.	80.	72.	76.	SCHEDULED NECROPSY DAY 20
28374	G	66.	85.	91.	85.	93.	88.	80.	82.	SCHEDULED NECROPSY DAY 20
28376	G	72.	85.	94.	56.	88.	94.	90.	81.	SCHEDULED NECROPSY DAY 20
28389	G	71.	70.	79.	79.	81.	84.	82.	75.	SCHEDULED NECROPSY DAY 20
28402	G	74.	72.	78.	80.	83.	85.	82.	78.	SCHEDULED NECROPSY DAY 20
28403	G	70.	79.	82.	78.	86.	85.	77.	78.	SCHEDULED NECROPSY DAY 20
28407	G	53.	73.	91.	43.	89.	80.	91.	71.	SCHEDULED NECROPSY DAY 20
28416	G	64.	70.	85.	78.	68.	114.	78.	81.	SCHEDULED NECROPSY DAY 20
28422	G	69.	73.	82.	76.	80.	85.	75.	75.	SCHEDULED NECROPSY DAY 20
MEAN		73.	78.	81.	78.	84.	89.	82.	79.	
S.D.		8.6	6.4	6.3	10.1	9.8	7.9	6.7	3.5	
S.E.		1.7	1.3	1.3	2.0	2.0	1.6	1.3	0.7	
N		25	25	25	25	25	25	25	25	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE A10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 4: 25 MG/KG/DAY										
28258	G	72.	86.	87.	92.	96.	92.	87.	87.	SCHEDULED NECROPSY DAY 20
28261	G	73.	75.	75.	82.	81.	94.	91.	79.	SCHEDULED NECROPSY DAY 20
28264	G	68.	97.	86.	100.	97.	98.	91.	89.	SCHEDULED NECROPSY DAY 20
28265	G	65.	55.	88.	91.	83.	83.	80.	78.	SCHEDULED NECROPSY DAY 20
28273	G	72.	73.	79.	81.	92.	90.	79.	79.	SCHEDULED NECROPSY DAY 20
28274	G	78.	72.	79.	75.	86.	87.	77.	79.	SCHEDULED NECROPSY DAY 20
28276	G	75.	87.	87.	78.	86.	85.	71.	80.	SCHEDULED NECROPSY DAY 20
28287	G	70.	65.	69.	81.	73.	82.	73.	73.	SCHEDULED NECROPSY DAY 20
28292	G	55.	70.	80.	85.	88.	94.	90.	79.	SCHEDULED NECROPSY DAY 20
28293	G	71.	58.	80.	76.	81.	85.	80.	76.	SCHEDULED NECROPSY DAY 20
28311	G	67.	81.	93.	82.	90.	88.	81.	82.	SCHEDULED NECROPSY DAY 20
28317	G	71.	56.	74.	71.	78.	83.	78.	70.	SCHEDULED NECROPSY DAY 20
28320	G	80.	80.	82.	84.	85.	85.	82.	81.	SCHEDULED NECROPSY DAY 20
28334	G	67.	76.	82.	54.	84.	92.	84.	76.	SCHEDULED NECROPSY DAY 20
28349	G	68.	64.	78.	84.	45.	90.	84.	72.	SCHEDULED NECROPSY DAY 20
28356	G	84.	80.	76.	84.	79.	94.	85.	82.	SCHEDULED NECROPSY DAY 20
28360	G	66.	77.	91.	86.	96.	88.	77.	82.	SCHEDULED NECROPSY DAY 20
28361	G	77.	88.	80.	83.	87.	84.	77.	80.	SCHEDULED NECROPSY DAY 20
28365	G	76.	77.	81.	78.	83.	82.	64.	77.	SCHEDULED NECROPSY DAY 20
28382	G	78.	82.	86.	81.	86.	90.	81.	83.	SCHEDULED NECROPSY DAY 20
28387	G	75.	78.	81.	34.	80.	90.	79.	72.	SCHEDULED NECROPSY DAY 20
28395	NG	62.	61.	80.	88.	67.	73.	87.	73.	SCHEDULED NECROPSY DAY 20
28396	G	63.	73.	81.	69.	81.	84.	75.	73.	SCHEDULED NECROPSY DAY 20
28412	G	82.	73.	77.	70.	96.	82.	74.	78.	SCHEDULED NECROPSY DAY 20
28418	G	63.	73.	84.	93.	82.	85.	78.	81.	SCHEDULED NECROPSY DAY 20
MEAN		72.	75.	82.	79.	84.	88.	80.	79.	
S.D.		6.8	10.2	5.6	13.3	10.4	4.6	6.4	4.6	
S.E.		1.4	2.1	1.1	2.7	2.1	0.9	1.3	0.9	
N		24	24	24	24	24	24	24	24	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN

TABLE A10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 5: 150 MG/KG/DAY										
28255	G	75.	89.	77.	87.	86.	89.	67.	82.	SCHEDULED NECROPSY DAY 20
28260	G	46.	69.	65.	83.	73.	66.	48.	67.	SCHEDULED NECROPSY DAY 20
28275	G	65.	66.	75.	86.	82.	92.	75.	76.	SCHEDULED NECROPSY DAY 20
28278	G	68.	77.	77.	36.	82.	89.	81.	73.	SCHEDULED NECROPSY DAY 20
28291	G	58.	64.	70.	72.	81.	84.	80.	72.	SCHEDULED NECROPSY DAY 20
28294	G	73.	75.	78.	81.	72.	88.	87.	77.	SCHEDULED NECROPSY DAY 20
28296	NG	71.	73.	69.	67.	81.	74.	90.	74.	SCHEDULED NECROPSY DAY 20
28298	G	76.	71.	76.	84.	81.	85.	90.	80.	SCHEDULED NECROPSY DAY 20
28307	G	67.	66.	54.	81.	80.	98.	80.	75.	SCHEDULED NECROPSY DAY 20
28310	G	85.	71.	80.	83.	73.	90.	82.	78.	SCHEDULED NECROPSY DAY 20
28326	G	50.	77.	80.	75.	95.	86.	86.	80.	SCHEDULED NECROPSY DAY 20
28332	G	67.	80.	21.	96.	80.	96.	91.	78.	SCHEDULED NECROPSY DAY 20
28335	G	73.	71.	70.	79.	90.	92.	69.	76.	SCHEDULED NECROPSY DAY 20
28337	G	62.	77.	75.	73.	87.	99.	82.	81.	SCHEDULED NECROPSY DAY 20
28343	G	57.	65.	0.	77.	90.	85.	79.	66.	SCHEDULED NECROPSY DAY 20
28350	G	73.	74.	89.	90.	45.	NA	NA	NA	GRAVID, EUTHANIZED DAY 15
28362	G	81.	75.	72.	90.	82.	95.	89.	84.	SCHEDULED NECROPSY DAY 20
28369	G	59.	58.	68.	73.	81.	84.	86.	71.	SCHEDULED NECROPSY DAY 20
28379	G	59.	87.	79.	80.	80.	94.	84.	78.	SCHEDULED NECROPSY DAY 20
28380	G	61.	64.	78.	80.	75.	76.	85.	75.	SCHEDULED NECROPSY DAY 20
28390	G	70.	57.	63.	65.	92.	93.	87.	74.	SCHEDULED NECROPSY DAY 20
28391	G	47.	69.	63.	76.	68.	84.	101.	72.	SCHEDULED NECROPSY DAY 20
28420	G	61.	67.	76.	18.	78.	84.	76.	63.	SCHEDULED NECROPSY DAY 20
28426	G	79.	89.	97.	82.	90.	98.	87.	88.	SCHEDULED NECROPSY DAY 20
28427	G	52.	62.	94.	75.	85.	89.	95.	77.	SCHEDULED NECROPSY DAY 20
MEAN		65.	72.	70.	76.	80.	89.	82.	76.	
S.D.		10.7	8.8	20.8	16.7	10.1	7.5	10.7	5.8	
S.E.		2.2	1.8	4.3	3.4	2.1	1.6	2.2	1.2	
N		24	24	24	24	24	23	23	23	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A10

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION DURING GESTATION [G/KG/DAY]

	PREGNANCY STATUS	DAY 0- 3	3- 6	6- 9	9-12	12-15	15-18	18-20	0-20	
DAMS FROM GROUP 6: 450 MG/KG/DAY										
28251	G	61.	80.	86.	91.	102.	80.	85.	84.	SCHEDULED NECROPSY DAY 20
28252	G	68.	66.	69.	78.	70.	55.	84.	70.	SCHEDULED NECROPSY DAY 20
28267	G	46.	62.	55.	78.	NA	NA	NA	NA	GRAVID, EUTHANIZED DAY 14
28290	G	58.	66.	82.	89.	71.	88.	86.	78.	SCHEDULED NECROPSY DAY 20
28302	G	68.	74.	74.	83.	87.	97.	78.	79.	SCHEDULED NECROPSY DAY 20
28303	G	69.	65.	78.	99.	93.	98.	82.	84.	SCHEDULED NECROPSY DAY 20
28305	G	55.	47.	88.	92.	56.	47.	102.	67.	SCHEDULED NECROPSY DAY 20
28313	G	61.	51.	74.	76.	75.	79.	80.	71.	SCHEDULED NECROPSY DAY 20
28322	G	71.	67.	83.	92.	73.	91.	81.	78.	SCHEDULED NECROPSY DAY 20
28323	G	51.	60.	60.	70.	58.	89.	73.	66.	SCHEDULED NECROPSY DAY 20
28328	G	58.	65.	70.	76.	75.	85.	66.	72.	SCHEDULED NECROPSY DAY 20
28331	G	58.	70.	61.	88.	77.	78.	81.	74.	SCHEDULED NECROPSY DAY 20
28336	G	41.	68.	78.	36.	81.	87.	68.	66.	SCHEDULED NECROPSY DAY 20
28339	G	52.	61.	72.	85.	66.	75.	98.	73.	SCHEDULED NECROPSY DAY 20
28340	G	70.	72.	72.	89.	73.	93.	77.	79.	SCHEDULED NECROPSY DAY 20
28346	G	67.	84.	91.	91.	100.	54.	NA	NA	GRAVID, EUTHANIZED DAY 18
28347	G	72.	64.	74.	77.	70.	76.	40.	70.	SCHEDULED NECROPSY DAY 20
28348	G	73.	52.	65.	84.	78.	92.	91.	75.	SCHEDULED NECROPSY DAY 20
28359	G	48.	44.	84.	83.	90.	NA	NA	NA	GRAVID, EUTHANIZED DAY 16
28363	G	67.	67.	76.	83.	59.	63.	85.	70.	SCHEDULED NECROPSY DAY 20
28364	G	60.	71.	90.	79.	86.	75.	72.	78.	SCHEDULED NECROPSY DAY 20
28372	G	53.	31.	55.	96.	98.	105.	89.	76.	SCHEDULED NECROPSY DAY 20
28373	G	58.	70.	70.	86.	69.	76.	87.	75.	SCHEDULED NECROPSY DAY 20
28405	G	57.	66.	72.	82.	67.	63.	79.	70.	SCHEDULED NECROPSY DAY 20
28411	G	57.	70.	61.	74.	30.	62.	85.	61.	SCHEDULED NECROPSY DAY 20
MEAN		60.	64.	74.	82.	75.	79.	80.	73.	
S.D.		8.7	11.4	10.3	12.0	16.1	15.4	12.5	5.9	
S.E.		1.7	2.3	2.1	2.4	3.3	3.2	2.7	1.2	
N		25	25	25	25	24	23	22	22	

G = GRAVID NG = NONGRAVID - WEIGHT(S) NOT INCLUDED IN CALCULATION OF MEAN
NA = NOT APPLICABLE

TABLE A11

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MATERNAL MACROSCOPIC FINDINGS

DAMS FROM GROUP 1: 0 MG/KG/DAY SHAM	MATERNAL GROSS OBSERVATION
28248	NO SIGNIFICANT CHANGES OBSERVED
28250	NO SIGNIFICANT CHANGES OBSERVED
28257	NO SIGNIFICANT CHANGES OBSERVED
28259	NO SIGNIFICANT CHANGES OBSERVED
28271	NO SIGNIFICANT CHANGES OBSERVED
28277	NO SIGNIFICANT CHANGES OBSERVED
28279	NO SIGNIFICANT CHANGES OBSERVED
28282	NO SIGNIFICANT CHANGES OBSERVED
28288	NO SIGNIFICANT CHANGES OBSERVED
28289	NO SIGNIFICANT CHANGES OBSERVED
28301	NO SIGNIFICANT CHANGES OBSERVED
28304	NO SIGNIFICANT CHANGES OBSERVED
28309	NO SIGNIFICANT CHANGES OBSERVED
28319	NO SIGNIFICANT CHANGES OBSERVED
28324	NO SIGNIFICANT CHANGES OBSERVED
28325	NO SIGNIFICANT CHANGES OBSERVED
28341	NO SIGNIFICANT CHANGES OBSERVED
28345	NO SIGNIFICANT CHANGES OBSERVED
28352	NO SIGNIFICANT CHANGES OBSERVED
28368	NO SIGNIFICANT CHANGES OBSERVED
28381	NO SIGNIFICANT CHANGES OBSERVED
28384	NO SIGNIFICANT CHANGES OBSERVED
28404	NO SIGNIFICANT CHANGES OBSERVED
28413	NO SIGNIFICANT CHANGES OBSERVED
28417	NO SIGNIFICANT CHANGES OBSERVED

DAMS FROM GROUP 2: 0 MG/KG/DAY VEH.	MATERNAL GROSS OBSERVATION
28254	LIVER: AREA(S), WHITE ONE, IRREGULARLY SHAPED, LEFT LOBE
28262	NO SIGNIFICANT CHANGES OBSERVED
28266	PLACENTAE: FUSED SITES #1 AND #2
28270	NO SIGNIFICANT CHANGES OBSERVED
28272	NO SIGNIFICANT CHANGES OBSERVED
28281	NO SIGNIFICANT CHANGES OBSERVED
28283	KIDNEYS: AREA(S), DEPRESSED FEW, PINPOINT TO 1 MM IN DIAMETER, IN CORTEX, RIGHT
28286	NO SIGNIFICANT CHANGES OBSERVED
28299	NO SIGNIFICANT CHANGES OBSERVED
28312	NO SIGNIFICANT CHANGES OBSERVED
28318	NO SIGNIFICANT CHANGES OBSERVED
28321	NO SIGNIFICANT CHANGES OBSERVED
28327	NO SIGNIFICANT CHANGES OBSERVED
28329	NO SIGNIFICANT CHANGES OBSERVED
28338	NO SIGNIFICANT CHANGES OBSERVED
28342	NO SIGNIFICANT CHANGES OBSERVED
28344	NO SIGNIFICANT CHANGES OBSERVED
28357	NO SIGNIFICANT CHANGES OBSERVED
28370	NO SIGNIFICANT CHANGES OBSERVED
28375	NO SIGNIFICANT CHANGES OBSERVED
28378	NO SIGNIFICANT CHANGES OBSERVED
28388	NO SIGNIFICANT CHANGES OBSERVED
28392	NO SIGNIFICANT CHANGES OBSERVED
28397	NO SIGNIFICANT CHANGES OBSERVED
28400	NO SIGNIFICANT CHANGES OBSERVED

DAMS FROM GROUP 3: 5 MG/KG/DAY	MATERNAL GROSS OBSERVATION
28249	NO SIGNIFICANT CHANGES OBSERVED
28253	NO SIGNIFICANT CHANGES OBSERVED
28256	LIVER: AREA(S), WHITE ONE, 4 X 1 MM, LEFT LOBE
28263	NO SIGNIFICANT CHANGES OBSERVED
28268	NO SIGNIFICANT CHANGES OBSERVED
28269	NO SIGNIFICANT CHANGES OBSERVED
28285	NO SIGNIFICANT CHANGES OBSERVED
28295	NO SIGNIFICANT CHANGES OBSERVED
28314	NO SIGNIFICANT CHANGES OBSERVED
28315	NO SIGNIFICANT CHANGES OBSERVED
28316	NO SIGNIFICANT CHANGES OBSERVED
28333	NO SIGNIFICANT CHANGES OBSERVED
28351	NO SIGNIFICANT CHANGES OBSERVED
28353	NO SIGNIFICANT CHANGES OBSERVED
28355	NO SIGNIFICANT CHANGES OBSERVED
28358	NO SIGNIFICANT CHANGES OBSERVED
28371	NO SIGNIFICANT CHANGES OBSERVED
28374	NO SIGNIFICANT CHANGES OBSERVED
28376	NO SIGNIFICANT CHANGES OBSERVED
28389	NO SIGNIFICANT CHANGES OBSERVED
28402	NO SIGNIFICANT CHANGES OBSERVED
28403	NO SIGNIFICANT CHANGES OBSERVED
28407	NO SIGNIFICANT CHANGES OBSERVED
28416	NO SIGNIFICANT CHANGES OBSERVED
28422	NO SIGNIFICANT CHANGES OBSERVED

TABLE A11

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MATERNAL MACROSCOPIC FINDINGS

DAMS FROM GROUP 4: 25 MG/KG/DAY	MATERNAL GROSS OBSERVATION
28258	NO SIGNIFICANT CHANGES OBSERVED
28261	NO SIGNIFICANT CHANGES OBSERVED
28264	NO SIGNIFICANT CHANGES OBSERVED
28265	NO SIGNIFICANT CHANGES OBSERVED
28273	NO SIGNIFICANT CHANGES OBSERVED
28274	NO SIGNIFICANT CHANGES OBSERVED
28276	NO SIGNIFICANT CHANGES OBSERVED
28287	NO SIGNIFICANT CHANGES OBSERVED
28292	NO SIGNIFICANT CHANGES OBSERVED
28293	NO SIGNIFICANT CHANGES OBSERVED
28311	NO SIGNIFICANT CHANGES OBSERVED
28317	NO SIGNIFICANT CHANGES OBSERVED
28320	NO SIGNIFICANT CHANGES OBSERVED
28334	NO SIGNIFICANT CHANGES OBSERVED
28349	NO SIGNIFICANT CHANGES OBSERVED
28356	NO SIGNIFICANT CHANGES OBSERVED
28360	NO SIGNIFICANT CHANGES OBSERVED
28361	NO SIGNIFICANT CHANGES OBSERVED
28365	NO SIGNIFICANT CHANGES OBSERVED
28382	NO SIGNIFICANT CHANGES OBSERVED
28387	NO SIGNIFICANT CHANGES OBSERVED
28395	NO SIGNIFICANT CHANGES OBSERVED
28396	NO SIGNIFICANT CHANGES OBSERVED
28412	NO SIGNIFICANT CHANGES OBSERVED
28418	NO SIGNIFICANT CHANGES OBSERVED

DAMS FROM GROUP 5: 150 MG/KG/DAY	MATERNAL GROSS OBSERVATION
28255	BONE: RAISED AREA(S) ONE, 5 X 5 X 1 MM, DARK RED, CALVARIUM UTERUS: CONTENTS, DARK RED SURROUNDS SITES #11 THROUGH #17
28260	SKIN: MATTING, RED UROGENITAL VAGINA: CONTENTS, DARK RED UTERUS: CONTENTS, DARK RED SURROUNDS ALL SITES
28275	NO SIGNIFICANT CHANGES OBSERVED
28278	PINEAL BODY: DISCOLORATION, YELLOW PINEAL BODY: FIRM PINEAL BODY: CYST(S) ONE, 1 MM IN DIAMETER PINEAL BODY: ENLARGED
28291	NO SIGNIFICANT CHANGES OBSERVED
28294	NO SIGNIFICANT CHANGES OBSERVED
28296	NONGRAVID -- AMMONIUM SULFIDE NEGATIVE
28298	NO SIGNIFICANT CHANGES OBSERVED
28307	UTERUS: CONTENTS, DARK RED BOTH HORNS
28310	NO SIGNIFICANT CHANGES OBSERVED
28326	UTERUS: CONTENTS, DARK RED SURROUNDS ALL SITES
28332	NO SIGNIFICANT CHANGES OBSERVED
28335	NO SIGNIFICANT CHANGES OBSERVED
28337	NO SIGNIFICANT CHANGES OBSERVED
28343	NO SIGNIFICANT CHANGES OBSERVED
28350	SKIN: MATTING, RED NASAL; UROGENITAL UTERUS: CONTENTS, DARK RED BOTH HORNS VAGINA: CONTENTS, DARK RED

TABLE A11

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MATERNAL MACROSCOPIC FINDINGS

DAMS FROM GROUP 5: 150 MG/KG/DAY	MATERNAL GROSS OBSERVATION
28350	KIDNEYS: PALE BILATERAL PITUITARY: PALE EUTHANIZED GESTATION DAY 15 UTERUS: LEFT- 4 EARLY RESORPTIONS; RIGHT- 9 EARLY RESORPTIONS OVARIES: CORPORA LUTEA- 4, LEFT; 9, RIGHT
28362	NO SIGNIFICANT CHANGES OBSERVED
28369	NO SIGNIFICANT CHANGES OBSERVED
28379	NO SIGNIFICANT CHANGES OBSERVED
28380	NO SIGNIFICANT CHANGES OBSERVED
28390	VAGINA: CONTENTS, DARK RED UTERUS: CONTENTS, DARK RED BOTH HORNS CERVIX: CONTENTS, DARK RED PLACENTAE: PALE SITES #9 AND #10
28391	NO SIGNIFICANT CHANGES OBSERVED
28420	NO SIGNIFICANT CHANGES OBSERVED
28426	THYMUS: SMALL
28427	NO SIGNIFICANT CHANGES OBSERVED

DAMS FROM GROUP 6: 450 MG/KG/DAY	MATERNAL GROSS OBSERVATION
28251	NO SIGNIFICANT CHANGES OBSERVED
28252	NO SIGNIFICANT CHANGES OBSERVED
28267	SKIN: MATTING, RED NASAL; BUCCAL; ANOGENITAL UTERUS: CONTENTS, DARK RED LEFT HORN EUTHANIZED GESTATION DAY 14 UTUERUS: LEFT- 10 EARLY RESORPTIONS; RIGHT- 5 EARLY RESORPTIONS OVARIES: CORPORA LUTEA- 10, LEFT; 5, RIGHT
28290	NO SIGNIFICANT CHANGES OBSERVED
28302	THYMUS: AREA(S), DARK RED FEW, IRREGULARLY SHAPED
28303	NO SIGNIFICANT CHANGES OBSERVED
28305	VAGINA: CONTENTS, DARK RED
28313	NO SIGNIFICANT CHANGES OBSERVED
28322	GRAVID -- AMMONIUM SULFIDE POSITIVE
28323	THYMUS: SMALL
28328	NO SIGNIFICANT CHANGES OBSERVED
28331	NO SIGNIFICANT CHANGES OBSERVED
28336	SKIN: MATTING, RED UROGENITAL UTERUS: CONTENTS, DARK RED RIGHT HORN
28339	THYMUS: SMALL
28340	NO SIGNIFICANT CHANGES OBSERVED
28346	SKIN: MATTING, RED UROGENITAL VAGINA: CONTENTS, DARK RED BRAIN: PALE PITUITARY: PALE EUTHANIZED GESTATION DAY 18 UTERUS: LEFT- 12 EARLY RESORPTIONS; RIGHT- 5 EARLY RESORPTIONS

DAMS FROM GROUP 6: 450 MG/KG/DAY	MATERNAL GROSS OBSERVATION
28346	OVARIES: CORPORA LUTEA- 12, LEFT; 5, RIGHT
	OVARIES: PALE
	BILATERAL
	PLACENTAE: ENLARGED
	SITE #7
28347	UTERUS: CONTENTS, DARK RED
	SURROUNDS ALL SITES
28348	UTERUS: CONTENTS, DARK RED
	BOTH HORNS
28359	SKIN: MATTING, RED
	OCULAR, BILATERAL; NASAL; UROGENITAL
	EUTHANIZED GESTATION DAY 16
	UTERUS: LEFT- 4 NORMALLY DEVELOPING IMPLANTATIONS; RIGHT- 5 NORMALLY DEVELOPING IMPLANTATIONS, 4 EARLY RESORPTIONS
	OVARIES: CORPORA LUTEA- 5, LEFT; 10, RIGHT
28363	THYMUS: SMALL
28364	THYMUS: SMALL
28372	NO SIGNIFICANT CHANGES OBSERVED
28373	THYMUS: SMALL
28405	NO SIGNIFICANT CHANGES OBSERVED
28411	LIVER: AREA(S), WHITE
	FEW, IRREGULARLY SHAPED, MEDIAN LOBE
	THYMUS: SMALL

TABLE A12 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS [G]

FEMALE GROUP:0 MG/KG/DAY SHAM

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28301	G	2.01	16.11	0.2010
28352	G	1.95	15.11	0.2218
28325	G	1.99	16.72	0.2500
28319	G	1.95	16.07	0.2541
28279	G	1.84	17.21	0.3997
28282	G	1.97	16.69	0.2714
28324	G	1.80	16.26	0.3517
28248	G	NA	17.49	0.3081
28257	G	1.80	17.41	0.1378
28289	G	1.92	15.09	0.2200
28288	G	2.00	15.13	0.2795
28384	G	1.91	16.67	0.3000
28345	G	1.86	15.40	0.2641
28404	G	1.94	18.29	0.3250
28277	G	1.96	17.94	0.1308
28259	G	1.87	18.06	0.3008
28341	G	2.00	16.74	0.3874
28309	G	2.03	16.79	0.1935
28381	G	1.92	15.76	0.1952
28368	G	1.83	17.11	0.3492
28417	G	1.99	16.20	0.2001
28271	G	1.87	16.14	0.2338
28304	G	1.92	14.66	0.1552
28250	G	1.87	15.92	0.2165
28413	G	1.96	17.67	0.2622
MEAN		1.92	16.51	0.2564
S.D.		0.068	0.998	0.07251
S.E.		0.014	0.200	0.01450
N		24	25	25

NA = NOT APPLICABLE

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A12 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS [G]

FEMALE GROUP:0 MG/KG/DAY VEH.

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28329	G	1.90	14.68	0.2854
28272	G	1.88	16.27	0.3288
28318	G	2.01	16.44	0.2875
28254	G	1.93	16.41	0.2084
28327	G	1.83	16.24	0.2868
28344	G	2.01	18.23	0.2453
28262	G	2.07	15.39	0.2834
28299	G	1.93	20.20	0.4821
28375	G	1.96	16.21	0.2653
28338	G	1.92	16.34	0.1503
28286	G	1.92	15.53	0.1733
28342	G	1.89	16.71	0.2135
28283	G	1.82	18.24	0.2436
28400	G	1.72	16.07	0.2739
28270	G	2.09	17.28	0.2604
28312	G	1.86	16.50	0.1268
28321	G	1.78	18.89	0.3248
28266	G	2.01	17.82	0.2768
28281	G	1.89	16.00	0.2733
28397	G	1.86	16.00	0.2022
28378	G	1.79	17.90	0.2529
28370	G	2.01	15.85	0.1592
28388	G	1.84	15.26	0.2335
28357	G	1.99	17.02	0.3412
28392	G	1.92	16.18	0.1517
MEAN		1.91	16.71	0.2532
S.D.		0.092	1.249	0.07518
S.E.		0.018	0.250	0.01504
N		25	25	25

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A12 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS [G]

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28316	G	1.97	14.61	0.1854
28353	G	1.79	16.32	0.2943
28315	G	1.89	17.02	0.2688
28314	G	1.81	16.62	0.2306
28249	G	1.77	15.80	0.2115
28256	G	1.99	19.52	0.3635
28402	G	1.87	16.91	0.3885
28253	G	1.90	17.14	0.2680
28351	G	1.90	16.31	0.2392
28371	G	1.87	14.75	0.1784
28389	G	1.79	15.52	0.2051
28374	G	1.83	14.76	0.2822
28263	G	1.91	13.71	0.2256
28285	G	2.02	16.84	0.3160
28403	G	1.95	18.48	0.3143
28422	G	1.92	20.64	0.3324
28416	G	2.09	16.24	0.2623
28268	G	1.84	17.36	0.3140
28295	G	1.97	19.26	0.3000
28358	G	1.86	15.64	0.2466
28333	G	2.07	16.82	0.2332
28407	G	1.99	16.62	0.2363
28355	G	1.86	15.63	0.2962
28269	G	1.82	15.75	0.1620
28376	G	1.87	16.55	0.2430
MEAN		1.90	16.59	0.2639
S.D.		0.086	1.588	0.05673
S.E.		0.017	0.318	0.01135
N		25	25	25

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A12 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS [G]

FEMALE GROUP: 25 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28264	G	1.76	17.00	0.1488
28261	G	1.89	17.23	0.2029
28287	G	1.88	16.35	0.1716
28356	G	1.98	15.55	0.1575
28349	G	1.99	17.39	0.1808
28265	G	2.14	17.22	0.2739
28361	G	1.94	18.62	0.2567
28365	G	2.03	17.76	0.1556
28320	G	1.82	18.76	0.3266
28258	G	1.85	16.81	0.1988
28395	NG	1.85	12.04	0.3383
28382	G	1.82	17.74	0.2322
28292	G	1.78	18.35	0.1252
28293	G	1.99	17.84	0.3375
28360	G	1.85	16.72	0.1978
28274	G	1.97	18.78	0.2052
28412	G	1.98	18.08	0.1522
28276	G	1.89	17.63	0.2364
28273	G	1.93	17.24	0.1742
28317	G	1.91	16.01	0.1787
28396	G	1.83	15.90	0.1973
28334	G	1.96	17.63	0.2756
28387	G	1.80	17.85	0.2292
28311	G	2.01	16.88	0.2198
28418	G	1.91	15.69	0.1977
MEAN		1.91	17.29	0.2097
S.D.		0.091	0.933	0.05410
S.E.		0.019	0.191	0.01104
N		24	24	24

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28335	G	1.97	17.68	0.1444
28307	G	1.87	15.52	0.1287
28310	G	1.84	16.19	0.1809
28332	G	1.93	14.08	0.1706
28260	G	1.93	15.20	0.0702
28255	G	1.87	18.47	0.1671
28380	G	1.99	16.85	0.1646
28294	G	1.93	18.89	0.2898
28298	G	1.94	18.36	0.1408
28362	G	1.91	17.73	0.2087
28275	G	1.84	15.61	0.1205
28426	G	1.93	15.77	0.0683
28391	G	1.81	18.04	0.1724
28291	G	1.98	17.40	0.1779
28278	G	2.03	18.55	0.1865
28296	NG	1.98	13.89	0.1784
28390	G	1.90	18.83	0.1924
28427	G	1.81	15.69	0.1484
28379	G	2.01	18.91	0.1562
28337	G	1.77	16.95	0.1493
28369	G	1.84	17.84	0.1680
28326	G	1.88	14.76	0.1414
28420	G	1.87	17.32	0.1227
28343	G	1.88	12.90	0.0612
MEAN		1.90	16.85	0.1535
S.D.		0.068	1.667	0.04887
S.E.		0.014	0.348	0.01019
N		23	23	23

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

FEMALE GROUP: 450 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28305	G	1.80	14.30	0.0219
28322	G	1.82	15.33	0.0645
28340	G	1.96	16.62	0.0692
28303	G	1.84	15.14	0.1461
28290	G	1.86	18.04	0.0752
28348	G	1.93	19.95	0.0908
28331	G	1.88	17.49	0.0616
28363	G	1.95	15.50	0.0329
28313	G	1.76	16.54	0.0855
28252	G	1.84	15.23	0.0976
28339	G	1.66	15.01	0.0385
28372	G	2.03	17.81	0.0337
28347	G	1.84	17.64	0.0536
28328	G	1.89	17.96	0.0801
28411	G	1.84	13.77	0.0232
28302	G	1.81	17.60	0.1190
28323	G	2.00	15.30	0.0428
28336	G	1.83	13.03	0.0850
28364	G	1.68	13.00	0.0424
28405	G	1.80	12.81	0.0321
28251	G	1.83	14.40	0.0677
28373	G	1.77	13.36	0.0520
MEAN		1.85	15.72	0.0643
S.D.		0.091	1.978	0.03170
S.E.		0.019	0.422	0.00676
N		22	22	22

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A13 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP:0 MG/KG/DAY SHAM

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28301	G	2.01	801.493	10.000
28352	G	1.95	774.872	11.385
28325	G	1.99	840.201	12.563
28319	G	1.95	824.103	13.026
28279	G	1.84	935.326	21.739
28282	G	1.97	847.208	13.756
28324	G	1.80	903.333	19.556
28248	G	NA	NA	NA
28257	G	1.80	967.222	7.667
28289	G	1.92	785.938	11.458
28288	G	2.00	756.500	14.000
28384	G	1.91	872.775	15.707
28345	G	1.86	827.957	14.194
28404	G	1.94	942.784	16.753
28277	G	1.96	915.306	6.684
28259	G	1.87	965.775	16.096
28341	G	2.00	837.000	19.350
28309	G	2.03	827.094	9.557
28381	G	1.92	820.833	10.156
28368	G	1.83	934.973	19.071
28417	G	1.99	814.070	10.050
28271	G	1.87	863.102	12.513
28304	G	1.92	763.542	8.073
28250	G	1.87	851.337	11.604
28413	G	1.96	901.531	13.367
MEAN		1.92	857.261	13.264
S.D.		0.068	63.1976	3.9924
S.E.		0.014	12.9001	0.8150
N		24	24	24

NA = NOT APPLICABLE

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A13 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP:0 MG/KG/DAY VEH.

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28329	G	1.90	772.632	15.000
28272	G	1.88	865.426	17.500
28318	G	2.01	817.911	14.328
28254	G	1.93	850.259	10.777
28327	G	1.83	887.432	15.683
28344	G	2.01	906.965	12.189
28262	G	2.07	743.478	13.671
28299	G	1.93	1046.632	24.974
28375	G	1.96	827.041	13.520
28338	G	1.92	851.042	7.813
28286	G	1.92	808.854	9.010
28342	G	1.89	884.127	11.323
28283	G	1.82	1002.198	13.407
28400	G	1.72	934.302	15.930
28270	G	2.09	826.794	12.440
28312	G	1.86	887.097	6.828
28321	G	1.78	1061.236	18.258
28266	G	2.01	886.567	13.781
28281	G	1.89	846.561	14.444
28397	G	1.86	860.215	10.860
28378	G	1.79	1000.000	14.134
28370	G	2.01	788.557	7.910
28388	G	1.84	829.348	12.717
28357	G	1.99	855.276	17.136
28392	G	1.92	842.708	7.917
MEAN		1.91	875.306	13.262
S.D.		0.092	80.1895	3.9745
S.E.		0.018	16.0379	0.7949
N		25	25	25

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A13 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28316	G	1.97	741.624	9.391
28353	G	1.79	911.732	16.425
28315	G	1.89	900.529	14.233
28314	G	1.81	918.232	12.762
28249	G	1.77	892.655	11.977
28256	G	1.99	980.905	18.291
28402	G	1.87	904.278	20.802
28253	G	1.90	902.105	14.105
28351	G	1.90	858.421	12.579
28371	G	1.87	788.770	9.519
28389	G	1.79	867.039	11.453
28374	G	1.83	806.557	15.410
28263	G	1.91	717.801	11.832
28285	G	2.02	833.663	15.644
28403	G	1.95	947.692	16.103
28422	G	1.92	1075.000	17.292
28416	G	2.09	777.034	12.536
28268	G	1.84	943.478	17.065
28295	G	1.97	977.665	15.228
28358	G	1.86	840.860	13.280
28333	G	2.07	812.560	11.256
28407	G	1.99	835.176	11.859
28355	G	1.86	840.323	15.914
28269	G	1.82	865.385	8.901
28376	G	1.87	885.027	12.995
MEAN		1.90	872.981	13.874
S.D.		0.086	79.5067	2.9346
S.E.		0.017	15.9013	0.5869
N		25	25	25

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A13 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 25 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28264	G	1.76	965.909	8.466
28261	G	1.89	911.640	10.741
28287	G	1.88	869.681	9.149
28356	G	1.98	785.354	7.980
28349	G	1.99	873.869	9.095
28265	G	2.14	804.673	12.804
28361	G	1.94	959.794	13.247
28365	G	2.03	874.877	7.685
28320	G	1.82	1030.769	17.967
28258	G	1.85	908.649	10.757
28395	NG	1.85	650.811	18.270
28382	G	1.82	974.725	12.747
28292	G	1.78	1030.899	7.022
28293	G	1.99	896.482	16.985
28360	G	1.85	903.784	10.703
28274	G	1.97	953.299	10.406
28412	G	1.98	913.131	7.677
28276	G	1.89	932.804	12.487
28273	G	1.93	893.264	9.016
28317	G	1.91	838.220	9.372
28396	G	1.83	868.852	10.765
28334	G	1.96	899.490	14.082
28387	G	1.80	991.667	12.722
28311	G	2.01	839.801	10.945
28418	G	1.91	821.466	10.366
MEAN		1.91	905.963	10.966
S.D.		0.091	65.5090	2.7853
S.E.		0.019	13.3720	0.5685
N		24	24	24

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A13 (SCHEDULED NECROPSY)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 5

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28335	G	1.97	897.462	7.310
28307	G	1.87	829.947	6.898
28310	G	1.84	879.891	9.837
28332	G	1.93	729.534	8.860
28260	G	1.93	787.565	3.627
28255	G	1.87	987.701	8.930
28380	G	1.99	846.734	8.291
28294	G	1.93	978.757	15.026
28298	G	1.94	946.392	7.268
28362	G	1.91	928.272	10.942
28275	G	1.84	848.370	6.576
28426	G	1.93	817.099	3.523
28391	G	1.81	996.685	9.503
28291	G	1.98	878.788	8.990
28278	G	2.03	913.793	9.212
28296	NG	1.98	701.515	8.990
28390	G	1.90	991.053	10.105
28427	G	1.81	866.851	8.177
28379	G	2.01	940.796	7.761
28337	G	1.77	957.627	8.418
28369	G	1.84	969.565	9.130
28326	G	1.88	785.106	7.500
28420	G	1.87	926.203	6.578
28343	G	1.88	686.170	3.245
MEAN		1.90	886.537	8.074
S.D.		0.068	85.5155	2.5400
S.E.		0.014	17.8312	0.5296
N		23	23	23

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

FEMALE GROUP: 450 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28305	G	1.80	794.445	1.222
28322	G	1.82	842.308	3.571
28340	G	1.96	847.959	3.520
28303	G	1.84	822.826	7.935
28290	G	1.86	969.893	4.032
28348	G	1.93	1033.679	4.715
28331	G	1.88	930.319	3.298
28363	G	1.95	794.872	1.692
28313	G	1.76	939.773	4.886
28252	G	1.84	827.717	5.326
28339	G	1.66	904.217	2.349
28372	G	2.03	877.340	1.675
28347	G	1.84	958.696	2.935
28328	G	1.89	950.265	4.233
28411	G	1.84	748.370	1.250
28302	G	1.81	972.376	6.575
28323	G	2.00	765.000	2.150
28336	G	1.83	712.022	4.645
28364	G	1.68	773.810	2.500
28405	G	1.80	711.667	1.778
28251	G	1.83	786.885	3.716
28373	G	1.77	754.802	2.938
MEAN		1.85	850.874	3.497
S.D.		0.091	93.8943	1.7276
S.E.		0.019	20.0183	0.3683
N		22	22	22

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

TABLE A14 (UNSCHEDULED DEATHS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS [G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28350	G	1.91	10.03	0.2542
MEAN		1.91	10.03	0.2542
S.D.		0.000	0.000	0.00000
S.E.		0.000	0.000	0.00000
N		1	1	1

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

FEMALE GROUP: 450 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN	LIVER	THYMUS
28267	G	1.82	12.72	0.1154
28346	G	1.88	13.87	0.1102
28359	G	1.83	12.94	0.1071
MEAN		1.84	13.18	0.1109
S.D.		0.032	0.610	0.00419
S.E.		0.019	0.352	0.00242
N		3	3	3

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

POFBWv4.29
11/21/2011
R:12/18/2011

TABLE A15 (UNSCHEDULED DEATHS)

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28350	G	1.91	525.131	13.298
MEAN		1.91	525.131	13.298
S.D.		0.000	0.0000	0.0000
S.E.		0.000	0.0000	0.0000
N		1	1	1

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

FEMALE GROUP: 450 MG/KG/DAY

ANIMAL	PREGNANCY STATUS	BRAIN WT (GRAMS)	LIVER	THYMUS
28267	G	1.82	698.901	6.319
28346	G	1.88	737.766	5.851
28359	G	1.83	707.104	5.847
MEAN		1.84	714.590	6.006
S.D.		0.032	20.4857	0.2714
S.E.		0.019	11.8274	0.1567
N		3	3	3

G = GRAVID, NG = NONGRAVID - WEIGHTS NOT INCLUDED IN CALCULATION OF THE MEAN

POFBWv4.29
11/21/2011
R:12/18/2011

TABLE A16

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY

DAMS FROM GROUP 1: 0 MG/KG/DAY SHAM

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
28248	8	4	5	7	12	0	0	0	0	1	1	0	0	0	5	8	13	5	8	13
28250	7	9	6	10	16	0	0	0	0	0	0	0	0	0	6	10	16	6	10	16
28257	10	11	11	10	21	0	0	0	0	0	0	0	0	0	11	10	21	11	10	21
28259	9	7	8	8	16	0	0	0	0	0	0	0	0	0	8	8	16	8	8	16
28271	10	7	9	8	17	0	0	0	0	0	0	0	0	0	9	8	17	11	8	19
28277	9	11	11	9	20	0	0	0	0	0	0	0	0	0	11	9	20	11	10	21
28279	9	8	10	7	17	0	0	0	0	0	0	0	0	0	10	7	17	10	8	18
28282	9	7	9	7	16	0	0	0	0	1	1	0	0	0	9	8	17	9	8	17
28288	7	7	7	7	14	0	0	0	0	0	0	0	0	0	7	7	14	7	7	14
28289	3	9	6	6	12	0	0	0	2	0	2	0	0	0	8	6	14	8	6	14
28301	10	5	8	7	15	0	0	0	0	0	0	0	0	0	8	7	15	9	7	16
28304	5	11	7	9	16	0	0	0	0	0	0	0	0	0	7	9	16	7	10	17
28309	10	11	12	9	21	0	0	0	0	0	0	0	0	0	12	9	21	12	9	21
28319	5	9	7	7	14	0	0	0	0	2	2	0	0	0	7	9	16	7	9	16
28324	4	11	10	5	15	0	0	0	0	1	1	0	0	0	10	6	16	10	7	17
28325	10	4	8	6	14	0	0	0	0	1	1	0	0	0	8	7	15	9	8	17
28341	9	5	8	6	14	0	0	0	0	0	0	0	0	0	8	6	14	8	7	15
28345	6	5	3	8	11	0	0	0	0	1	1	0	0	0	3	9	12	4	11	15
28352	2	9	5	6	11	0	0	0	0	1	1	0	0	0	5	7	12	6	7	13
28368	5	8	4	9	13	0	0	0	1	0	1	0	0	0	5	9	14	8	10	18
28381	8	7	9	6	15	0	0	0	0	1	1	0	0	0	9	7	16	9	7	16
28384	6	7	5	8	13	0	0	0	1	0	1	0	0	0	6	8	14	7	8	15
28404	10	5	6	9	15	0	0	0	0	0	0	0	0	0	6	9	15	6	9	15
28413	9	7	9	7	16	0	0	0	0	0	0	0	0	0	9	7	16	9	7	16
28417	8	5	6	7	13	0	0	0	1	1	2	0	0	0	7	8	15	7	8	15
TOTAL	188	189	189	188	377	0	0	0	5	10	15	0	0	0	194	198	392	204	207	411
MEAN	7.5	7.6	7.6	7.5	15.1	0.0	0.0	0.0	0.2	0.4	0.6	0.0	0.0	0.0	7.8	7.9	15.7	8.2	8.3	16.4
S.D.	2.40	2.31	2.31	1.36	2.71	0.00	0.00	0.00	0.50	0.58	0.71	0.00	0.00	0.00	2.17	1.19	2.34	2.01	1.31	2.26
S.E.	0.48	0.46	0.46	0.27	0.54	0.00	0.00	0.00	0.10	0.12	0.14	0.00	0.00	0.00	0.43	0.24	0.47	0.40	0.26	0.45
N =	25																			

DAMS FROM GROUP 2: 0 MG/KG/DAY VEH.

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
28254	6	8	8	6	14	0	0	0	0	1	1	0	0	0	8	7	15	8	7	15
28262	5	9	7	7	14	0	0	0	0	2	2	0	0	0	7	9	16	7	10	17
28266	6	10	8	8	16	0	0	0	1	0	1	0	0	0	9	8	17	14	13	27
28270	10	4	8	6	14	0	0	0	0	0	0	0	0	0	8	6	14	8	6	14
28272	6	9	7	8	15	0	0	0	0	0	0	0	0	0	7	8	15	7	8	15
28281	9	5	8	6	14	0	0	0	0	0	0	0	0	0	8	6	14	8	6	14
28283	6	9	9	6	15	0	0	0	3	0	3	0	0	0	12	6	18	14	6	20
28286	8	8	6	10	16	0	0	0	0	0	0	0	0	0	6	10	16	6	10	16
28299	12	4	7	9	16	0	0	0	0	1	1	0	0	0	7	10	17	7	11	18
28312	5	10	7	8	15	0	0	0	1	0	1	0	0	0	8	8	16	8	8	16
28318	11	5	8	8	16	0	0	0	0	0	0	0	0	0	8	8	16	8	8	16
28321	6	9	8	7	15	0	0	0	0	0	0	0	0	0	8	7	15	8	7	15
28327	10	5	6	9	15	0	0	0	0	0	0	0	0	0	6	9	15	6	9	15
28329	6	7	6	7	13	0	0	0	0	0	0	0	0	0	6	7	13	7	7	14
28338	10	6	9	7	16	0	0	0	0	0	0	0	0	0	9	7	16	9	7	16
28342	7	7	7	7	14	0	0	0	2	1	3	0	0	0	9	8	17	9	8	17
28344	6	7	7	6	13	0	0	0	0	3	3	0	0	0	7	9	16	11	9	20
28357	3	10	7	6	13	0	0	0	0	1	1	0	0	0	7	7	14	7	7	14
28370	3	10	5	8	13	0	0	0	0	2	2	0	0	0	5	10	15	5	11	16
28375	8	5	7	6	13	0	0	0	1	0	1	0	0	0	8	6	14	9	6	15
28378	8	8	10	6	16	0	0	0	1	0	1	0	0	0	11	6	17	11	6	17
28388	7	5	6	6	12	0	0	0	1	1	2	0	0	0	7	7	14	7	8	15
28392	7	11	7	11	18	0	0	0	0	0	0	0	0	0	7	11	18	7	11	18
28397	9	3	3	9	12	0	0	0	3	1	4	0	0	0	6	10	16	6	10	16
28400	9	4	5	8	13	0	0	0	1	1	2	0	0	0	6	9	15	8	10	18
TOTAL	183	178	176	185	361	0	0	0	14	14	28	0	0	0	190	199	389	205	209	414
MEAN	7.3	7.1	7.0	7.4	14.4	0.0	0.0	0.0	0.6	0.6	1.1	0.0	0.0	0.0	7.6	8.0	15.6	8.2	8.4	16.6
S.D.	2.30	2.37	1.46	1.41	1.50	0.00	0.00	0.00	0.92	0.82	1.20	0.00	0.00	0.00	1.58	1.51	1.33	2.24	1.96	2.75
S.E.	0.46	0.47	0.29	0.28	0.30	0.00	0.00	0.00	0.18	0.16	0.24	0.00	0.00	0.00	0.32	0.30	0.27	0.45	0.39	0.55
N =	25																			

DAMS FROM GROUP 3: 5 MG/KG/DAY

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
28249	7	10	11	6	17	0	0	0	0	0	0	0	0	0	11	6	17	11	7	18
28253	5	11	10	6	16	0	0	0	0	0	0	1	0	1	11	6	17	11	9	20
28256	5	8	4	9	13	0	0	0	3	1	4	0	0	0	7	10	17	7	10	17
28263	8	7	8	7	15	0	0	0	0	0	0	0	0	0	8	7	15	8	8	16
28268	10	7	7	10	17	0	0	0	1	0	1	0	0	0	8	10	18	8	10	18
28269	10	5	8	7	15	0	0	0	1	0	1	0	0	0	9	7	16	9	7	16
28285	9	8	8	9	17	0	0	0	1	0	1	0	0	0	9	9	18	9	9	18
28295	4	11	9	6	15	0	0	0	1	0	1	0	0	0	10	6	16	10	6	16
28314	8	6	9	5	14	0	0	0	0	0	0	0	0	0	9	5	14	12	7	19
28315	12	5	10	7	17	0	0	0	0	0	0	0	0	0	10	7	17	10	7	17
28316	7	6	6	7	13	0	0	0	1	0	1	0	0	0	7	7	14	7	7	14
28333	7	11	8	10	18	0	0	0	0	0	0	0	0	0	8	10	18	8	10	18
28351	10	5	8	7	15	0	0	0	0	0	0	0	0	0	8	7	15	10	7	17
28353	5	7	7	5	12	0	0	0	0	1	1	0	0	0	7	6	13	7	6	13
28355	6	8	8	6	14	0	0	0	0	2	2	0	0	0	8	8	16	8	8	16
28358	7	6	4	9	13	0	0	0	2	0	2	0	0	0	6	9	15	6	9	15
28371	11	5	7	9	16	0	0	0	1	0	1	0	0	0	8	9	17	8	9	17
28374	7	5	6	6	12	0	0	0	0	1	1	0	0	0	6	7	13	6	8	14
28376	8	8	7	9	16	0	0	0	0	0	0	0	0	0	7	9	16	7	9	16
28389	9	4	9	4	13	0	0	0	0	0	0	0	0	0	9	4	13	10	5	15
28402	4	8	4	8	12	0	0	0	0	1	1	0	0	0	4	9	13	4	9	13
28403	4	10	7	7	14	0	0	0	1	0	1	0	0	0	8	7	15	8	7	15
28407	6	8	4	10	14	0	0	0	1	1	2	0	0	0	5	11	16	5	11	16
28416	7	7	8	6	14	0	0	0	0	0	0	0	0	0	8	6	14	8	6	14
28422	9	9	8	10	18	0	0	0	0	0	0	0	0	0	8	10	18	8	10	18
TOTAL	185	185	185	185	370	0	0	0	13	7	20	1	0	1	199	192	391	205	201	406
MEAN	7.4	7.4	7.4	7.4	14.8	0.0	0.0	0.0	0.5	0.3	0.8	0.0	0.0	0.0	8.0	7.7	15.6	8.2	8.0	16.2
S.D.	2.24	2.08	1.91	1.78	1.87	0.00	0.00	0.00	0.77	0.54	0.96	0.20	0.00	0.20	1.67	1.82	1.70	1.91	1.57	1.83
S.E.	0.45	0.42	0.38	0.36	0.37	0.00	0.00	0.00	0.15	0.11	0.19	0.04	0.00	0.04	0.33	0.36	0.34	0.38	0.31	0.37
N =	25																			

DAMS FROM GROUP 4: 25 MG/KG/DAY

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
28258	8	5	4	9	13	0	0	0	0	0	0	0	0	0	4	9	13	4	9	13
28261	8	5	4	9	13	0	0	0	1	1	2	0	0	0	5	10	15	5	10	15
28264	5	7	7	5	12	0	0	0	0	0	0	0	0	0	7	5	12	10	7	17
28265	6	9	7	8	15	0	0	0	1	0	1	0	0	0	8	8	16	8	9	17
28273	5	9	7	7	14	0	0	0	0	0	0	0	0	0	7	7	14	8	8	16
28274	7	8	8	7	15	0	0	0	1	1	2	0	0	0	9	8	17	9	9	18
28276	10	6	10	6	16	0	0	0	2	1	3	0	0	0	12	7	19	12	7	19
28287	6	9	8	7	15	0	0	0	0	0	0	0	0	0	8	7	15	8	9	17
28292	5	5	4	6	10	0	0	0	3	3	6	0	0	0	7	9	16	7	9	16
28293	10	6	8	8	16	0	0	0	0	0	0	0	0	0	8	8	16	8	8	16
28311	9	5	6	8	14	0	0	0	0	0	0	1	0	1	7	8	15	8	8	16
28317	7	6	8	5	13	0	0	0	1	0	1	0	0	0	9	5	14	9	5	14
28320	9	6	9	6	15	0	0	0	0	0	0	0	0	0	9	6	15	10	6	16
28334	9	4	5	8	13	0	0	0	2	1	3	0	0	0	7	9	16	7	9	16
28349	7	4	7	4	11	0	0	0	1	3	4	0	0	0	8	7	15	8	11	19
28356	7	7	7	7	14	0	0	0	1	0	1	0	0	0	8	7	15	9	7	16
28360	4	10	5	9	14	0	0	0	0	0	0	0	0	0	5	9	14	5	9	14
28361	9	7	9	7	16	0	0	0	0	1	1	0	0	0	9	8	17	9	9	18
28365	11	5	5	11	16	0	0	0	1	0	1	0	0	0	6	11	17	6	11	17
28382	3	5	6	2	8	0	0	0	0	0	0	0	0	0	6	2	8	7	6	13
28387	6	7	6	7	13	0	0	0	0	1	1	0	0	0	6	8	14	6	8	14
28395	NONGRAVID																			
28396	5	7	8	4	12	0	0	0	1	1	2	0	0	0	9	5	14	9	5	14
28412	11	7	7	11	18	0	0	0	0	0	0	0	0	0	7	11	18	7	11	18
28418	8	5	7	6	13	0	0	0	0	0	0	0	0	0	7	6	13	7	6	13
TOTAL	175	154	162	167	329	0	0	0	15	13	28	1	0	1	178	180	358	186	196	382
MEAN	7.3	6.4	6.8	7.0	13.7	0.0	0.0	0.0	0.6	0.5	1.2	0.0	0.0	0.0	7.4	7.5	14.9	7.8	8.2	15.9
S.D.	2.20	1.67	1.65	2.12	2.18	0.00	0.00	0.00	0.82	0.88	1.55	0.20	0.00	0.20	1.69	2.04	2.21	1.80	1.76	1.84
S.E.	0.45	0.34	0.34	0.43	0.44	0.00	0.00	0.00	0.17	0.18	0.32	0.04	0.00	0.04	0.35	0.42	0.45	0.37	0.36	0.38
N =	24																			

DAMS FROM GROUP 5: 150 MG/KG/DAY

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
28255	8	1	6	3	9	0	0	0	3	2	5	1	2	3	10	7	17	10	7	17
28260	1	0	0	1	1	0	1	1	6	7	13	1	1	2	7	10	17	9	10	19
28275	9	3	5	7	12	0	0	0	0	1	1	0	0	0	5	8	13	5	8	13
28278	2	3	1	4	5	0	0	0	6	6	12	0	0	0	7	10	17	7	10	17
28291	6	5	5	6	11	0	0	0	4	2	6	0	0	0	9	8	17	9	9	18
28294	2	4	4	2	6	0	0	0	3	6	9	0	1	1	7	9	16	7	9	16
28296	NONGRAVID																			
28298	1	0	0	1	1	0	0	0	9	5	14	0	0	0	9	6	15	9	6	15
28307	0	1	0	1	1	0	0	0	3	9	12	0	0	0	3	10	13	4	11	15
28310	3	3	3	3	6	0	0	0	6	5	11	0	0	0	9	8	17	9	8	17
28326	1	0	0	1	1	0	0	0	7	8	15	0	0	0	7	9	16	7	9	16
28332	0	0	0	0	0	0	0	0	7	7	14	0	0	0	7	7	14	7	7	14
28335	6	8	3	11	14	0	0	0	0	0	0	0	0	0	3	11	14	3	11	14
28337	9	2	3	8	11	0	0	0	3	2	5	0	0	0	6	10	16	7	10	17
28343	0	0	0	0	0	0	0	0	5	10	15	0	0	0	5	10	15	5	10	15
28350	GRAVID, EUTHANIZED DAY 15																			
28362	8	5	7	6	13	0	0	0	1	1	2	0	0	0	8	7	15	8	7	15
28369	2	3	1	4	5	0	0	0	7	3	10	0	0	0	8	7	15	8	7	15
28379	5	6	4	7	11	0	0	0	1	2	3	0	1	1	5	10	15	5	11	16
28380	0	1	0	1	1	0	0	0	7	5	12	0	0	0	7	6	13	8	6	14
28390	2	0	0	2	2	0	0	0	8	8	16	0	1	1	8	11	19	8	11	19
28391	2	0	1	1	2	0	0	0	3	6	9	0	0	0	4	7	11	5	7	12
28420	9	6	4	11	15	0	0	0	0	1	1	0	0	0	4	12	16	4	13	17
28426	5	1	1	5	6	0	0	0	4	5	9	0	0	0	5	10	15	5	10	15
28427	3	1	2	2	4	0	0	0	5	5	10	0	0	0	7	7	14	8	8	16
TOTAL	84	53	50	87	137	0	1	1	98	106	204	2	6	8	150	200	350	157	205	362
MEAN	3.7	2.3	2.2	3.8	6.0	0.0	0.0	0.0	4.3	4.6	8.9	0.1	0.3	0.3	6.5	8.7	15.2	6.8	8.9	15.7
S.D.	3.21	2.38	2.23	3.30	5.00	0.00	0.21	0.21	2.70	2.86	5.02	0.29	0.54	0.78	1.97	1.74	1.78	1.95	1.88	1.76
S.E.	0.67	0.50	0.46	0.69	1.04	0.00	0.04	0.04	0.56	0.60	1.05	0.06	0.11	0.16	0.41	0.36	0.37	0.41	0.39	0.37
N =	23																			

DAMS FROM GROUP 6: 450 MG/KG/DAY

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
28251	0	0	0	0	0	0	0	0	6	8	14	0	0	0	6	8	14	6	8	14
28252	0	0	0	0	0	0	0	0	5	10	15	0	0	0	5	10	15	5	10	15
28267	GRAVID, EUTHANIZED DAY 14																			
28290	0	0	0	0	0	0	0	0	9	8	17	0	0	0	9	8	17	9	9	18
28302	0	0	0	0	0	0	0	0	7	7	14	0	0	0	7	7	14	10	9	19
28303	0	0	0	0	0	0	0	0	6	8	14	0	0	0	6	8	14	6	9	15
28305	0	0	0	0	0	0	0	0	8	5	13	0	0	0	8	5	13	8	10	18
28313	0	0	0	0	0	0	0	0	6	10	16	0	0	0	6	10	16	6	10	16
28322	0	0	0	0	0	0	0	0	6	9	15	0	0	0	6	9	15	6	9	15
28323	0	0	0	0	0	0	0	0	8	9	17	0	0	0	8	9	17	8	9	17
28328	0	0	0	0	0	0	0	0	5	11	16	0	0	0	5	11	16	5	11	16
28331	0	0	0	0	0	0	0	0	8	11	19	0	0	0	8	11	19	8	11	19
28336	0	0	0	0	0	0	0	0	5	10	15	0	0	0	5	10	15	8	10	18
28339	0	0	0	0	0	0	0	0	9	6	15	0	0	0	9	6	15	9	6	15
28340	3	0	0	3	3	0	0	0	7	5	12	0	0	0	7	8	15	8	8	16
28346	GRAVID, EUTHANIZED DAY 18																			
28347	0	0	0	0	0	0	0	0	11	8	19	0	0	0	11	8	19	12	9	21
28348	0	0	0	0	0	0	0	0	6	9	15	0	0	0	6	9	15	6	9	15
28359	GRAVID, EUTHANIZED DAY 16																			
28363	0	0	0	0	0	0	0	0	6	8	14	0	0	0	6	8	14	7	8	15
28364	0	0	0	0	0	0	0	0	6	13	19	0	0	0	6	13	19	6	13	19
28372	0	0	0	0	0	0	0	0	4	8	12	0	0	0	4	8	12	4	8	12
28373	0	0	0	0	0	0	0	0	8	6	14	0	0	0	8	6	14	8	6	14
28405	0	0	0	0	0	0	0	0	6	10	16	0	0	0	6	10	16	6	10	16
28411	0	0	0	0	0	0	0	0	9	11	20	0	0	0	9	11	20	9	12	21
TOTAL	3	0	0	3	3	0	0	0	151	190	341	0	0	0	151	193	344	160	204	364
MEAN	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	6.9	8.6	15.5	0.0	0.0	0.0	6.9	8.8	15.6	7.3	9.3	16.5
S.D.	0.64	0.00	0.00	0.64	0.64	0.00	0.00	0.00	1.70	2.06	2.24	0.00	0.00	0.00	1.70	1.90	2.11	1.88	1.67	2.32
S.E.	0.14	0.00	0.00	0.14	0.14	0.00	0.00	0.00	0.36	0.44	0.48	0.00	0.00	0.00	0.36	0.41	0.45	0.40	0.36	0.50
N =	22																			

TABLE A17

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

DAMS FROM GROUP 1:0 MG/KG/DAY SHAM

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
28248	13.0	13.0	92.3	0.0	7.7	0.0	7.7	0.0	7.7	66.7	33.3
28250	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8	56.3
28257	21.0	21.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	47.6	52.4
28259	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	56.3	43.8
28271	19.0	17.0	100.0	0.0	0.0	0.0	0.0	10.5	0.0	58.8	41.2
28277	21.0	20.0	100.0	0.0	0.0	0.0	0.0	4.8	0.0	45.0	55.0
28279	18.0	17.0	100.0	0.0	0.0	0.0	0.0	5.6	0.0	52.9	47.1
28282	17.0	17.0	94.1	0.0	5.9	0.0	5.9	0.0	5.9	56.3	43.8
28288	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
28289	14.0	14.0	85.7	0.0	14.3	0.0	14.3	0.0	14.3	25.0	75.0
28301	16.0	15.0	100.0	0.0	0.0	0.0	0.0	6.3	0.0	66.7	33.3
28304	17.0	16.0	100.0	0.0	0.0	0.0	0.0	5.9	0.0	31.3	68.8
28309	21.0	21.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	47.6	52.4
28319	16.0	16.0	87.5	0.0	12.5	0.0	12.5	0.0	12.5	35.7	64.3
28324	17.0	16.0	93.8	0.0	6.3	0.0	6.3	5.9	6.3	26.7	73.3
28325	17.0	15.0	93.3	0.0	6.7	0.0	6.7	11.8	6.7	71.4	28.6
28341	15.0	14.0	100.0	0.0	0.0	0.0	0.0	6.7	0.0	64.3	35.7
28345	15.0	12.0	91.7	0.0	8.3	0.0	8.3	20.0	8.3	54.5	45.5
28352	13.0	12.0	91.7	0.0	8.3	0.0	8.3	7.7	8.3	18.2	81.8
28368	18.0	14.0	92.9	0.0	7.1	0.0	7.1	22.2	7.1	38.5	61.5
28381	16.0	16.0	93.8	0.0	6.3	0.0	6.3	0.0	6.3	53.3	46.7
28384	15.0	14.0	92.9	0.0	7.1	0.0	7.1	6.7	7.1	46.2	53.8
28404	15.0	15.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	33.3
28413	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	56.3	43.8
28417	15.0	15.0	86.7	0.0	13.3	0.0	13.3	0.0	13.3	61.5	38.5
MEAN	16.4	15.7	95.9	0.0	4.2	0.0	4.2	4.6	4.2	49.6	50.4
S.D.	2.26	2.34	4.84	0.00	4.85	0.00	4.85	6.24	4.85	14.18	14.18
S.E.	0.45	0.47	0.97	0.00	0.97	0.00	0.97	1.25	0.97	2.84	2.84
N	25	25	25	25	25	25	25	25	25	25	25

DAMS FROM GROUP 2:0 MG/KG/DAY VEH.

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
28254	15.0	15.0	93.3	0.0	6.7	0.0	6.7	0.0	6.7	42.9	57.1
28262	17.0	16.0	87.5	0.0	12.5	0.0	12.5	5.9	12.5	35.7	64.3
28266	27.0	17.0	94.1	0.0	5.9	0.0	5.9	37.0	5.9	37.5	62.5
28270	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	71.4	28.6
28272	15.0	15.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	60.0
28281	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	64.3	35.7
28283	20.0	18.0	83.3	0.0	16.7	0.0	16.7	10.0	16.7	40.0	60.0
28286	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
28299	18.0	17.0	94.1	0.0	5.9	0.0	5.9	5.6	5.9	75.0	25.0
28312	16.0	16.0	93.8	0.0	6.3	0.0	6.3	0.0	6.3	33.3	66.7
28318	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	68.8	31.3
28321	15.0	15.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	60.0
28327	15.0	15.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	33.3
28329	14.0	13.0	100.0	0.0	0.0	0.0	0.0	7.1	0.0	46.2	53.8
28338	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	62.5	37.5
28342	17.0	17.0	82.4	0.0	17.6	0.0	17.6	0.0	17.6	50.0	50.0
28344	20.0	16.0	81.3	0.0	18.8	0.0	18.8	20.0	18.8	46.2	53.8
28357	14.0	14.0	92.9	0.0	7.1	0.0	7.1	0.0	7.1	23.1	76.9
28370	16.0	15.0	86.7	0.0	13.3	0.0	13.3	6.3	13.3	23.1	76.9
28375	15.0	14.0	92.9	0.0	7.1	0.0	7.1	6.7	7.1	61.5	38.5
28378	17.0	17.0	94.1	0.0	5.9	0.0	5.9	0.0	5.9	50.0	50.0
28388	15.0	14.0	85.7	0.0	14.3	0.0	14.3	6.7	14.3	58.3	41.7
28392	18.0	18.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9	61.1
28397	16.0	16.0	75.0	0.0	25.0	0.0	25.0	0.0	25.0	75.0	25.0
28400	18.0	15.0	86.7	0.0	13.3	0.0	13.3	16.7	13.3	69.2	30.8
MEAN	16.6	15.6	93.0	0.0	7.1	0.0	7.1	4.9	7.1	50.8	49.2
S.D.	2.75	1.33	7.43	0.00	7.44	0.00	7.44	8.66	7.44	15.61	15.61
S.E.	0.55	0.27	1.49	0.00	1.49	0.00	1.49	1.73	1.49	3.12	3.12
N	25	25	25	25	25	25	25	25	25	25	25

TABLE A17

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

DAMS FROM GROUP 3: 5 MG/KG/DAY

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
28249	18.0	17.0	100.0	0.0	0.0	0.0	0.0	5.6	0.0	41.2	58.8
28253	20.0	17.0	94.1	0.0	0.0	5.9	5.9	15.0	5.9	31.3	68.8
28256	17.0	17.0	76.5	0.0	23.5	0.0	23.5	0.0	23.5	38.5	61.5
28263	16.0	15.0	100.0	0.0	0.0	0.0	0.0	6.3	0.0	53.3	46.7
28268	18.0	18.0	94.4	0.0	5.6	0.0	5.6	0.0	5.6	58.8	41.2
28269	16.0	16.0	93.8	0.0	6.3	0.0	6.3	0.0	6.3	66.7	33.3
28285	18.0	18.0	94.4	0.0	5.6	0.0	5.6	0.0	5.6	52.9	47.1
28295	16.0	16.0	93.8	0.0	6.3	0.0	6.3	0.0	6.3	26.7	73.3
28314	19.0	14.0	100.0	0.0	0.0	0.0	0.0	26.3	0.0	57.1	42.9
28315	17.0	17.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	70.6	29.4
28316	14.0	14.0	92.9	0.0	7.1	0.0	7.1	0.0	7.1	53.8	46.2
28333	18.0	18.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9	61.1
28351	17.0	15.0	100.0	0.0	0.0	0.0	0.0	11.8	0.0	66.7	33.3
28353	13.0	13.0	92.3	0.0	7.7	0.0	7.7	0.0	7.7	41.7	58.3
28355	16.0	16.0	87.5	0.0	12.5	0.0	12.5	0.0	12.5	42.9	57.1
28358	15.0	15.0	86.7	0.0	13.3	0.0	13.3	0.0	13.3	53.8	46.2
28371	17.0	17.0	94.1	0.0	5.9	0.0	5.9	0.0	5.9	68.8	31.3
28374	14.0	13.0	92.3	0.0	7.7	0.0	7.7	7.1	7.7	58.3	41.7
28376	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
28389	15.0	13.0	100.0	0.0	0.0	0.0	0.0	13.3	0.0	69.2	30.8
28402	13.0	13.0	92.3	0.0	7.7	0.0	7.7	0.0	7.7	33.3	66.7
28403	15.0	15.0	93.3	0.0	6.7	0.0	6.7	0.0	6.7	28.6	71.4
28407	16.0	16.0	87.5	0.0	12.5	0.0	12.5	0.0	12.5	42.9	57.1
28416	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
28422	18.0	18.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
MEAN	16.2	15.6	94.6	0.0	5.1	0.2	5.4	3.4	5.4	49.8	50.2
S.D.	1.83	1.70	5.79	0.00	5.89	1.18	5.79	6.65	5.79	13.05	13.05
S.E.	0.37	0.34	1.16	0.00	1.18	0.24	1.16	1.33	1.16	2.61	2.61
N	25	25	25	25	25	25	25	25	25	25	25

DAMS FROM GROUP 4: 25 MG/KG/DAY

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
28258	13.0	13.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	61.5	38.5
28261	15.0	15.0	86.7	0.0	13.3	0.0	13.3	0.0	13.3	61.5	38.5
28264	17.0	12.0	100.0	0.0	0.0	0.0	0.0	29.4	0.0	41.7	58.3
28265	17.0	16.0	93.8	0.0	6.3	0.0	6.3	5.9	6.3	40.0	60.0
28273	16.0	14.0	100.0	0.0	0.0	0.0	0.0	12.5	0.0	35.7	64.3
28274	18.0	17.0	88.2	0.0	11.8	0.0	11.8	5.6	11.8	46.7	53.3
28276	19.0	19.0	84.2	0.0	15.8	0.0	15.8	0.0	15.8	62.5	37.5
28287	17.0	15.0	100.0	0.0	0.0	0.0	0.0	11.8	0.0	40.0	60.0
28292	16.0	16.0	62.5	0.0	37.5	0.0	37.5	0.0	37.5	50.0	50.0
28293	16.0	16.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	62.5	37.5
28311	16.0	15.0	93.3	0.0	0.0	6.7	6.7	6.3	6.7	64.3	35.7
28317	14.0	14.0	92.9	0.0	7.1	0.0	7.1	0.0	7.1	53.8	46.2
28320	16.0	15.0	100.0	0.0	0.0	0.0	0.0	6.3	0.0	60.0	40.0
28334	16.0	16.0	81.3	0.0	18.8	0.0	18.8	0.0	18.8	69.2	30.8
28349	19.0	15.0	73.3	0.0	26.7	0.0	26.7	21.1	26.7	63.6	36.4
28356	16.0	15.0	93.3	0.0	6.7	0.0	6.7	6.3	6.7	50.0	50.0
28360	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	71.4
28361	18.0	17.0	94.1	0.0	5.9	0.0	5.9	5.6	5.9	56.3	43.8
28365	17.0	17.0	94.1	0.0	5.9	0.0	5.9	0.0	5.9	68.8	31.3
28382	13.0	8.0	100.0	0.0	0.0	0.0	0.0	38.5	0.0	37.5	62.5
28387	14.0	14.0	92.9	0.0	7.1	0.0	7.1	0.0	7.1	46.2	53.8
28396	14.0	14.0	85.7	0.0	14.3	0.0	14.3	0.0	14.3	41.7	58.3
28412	18.0	18.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	61.1	38.9
28418	13.0	13.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	61.5	38.5
MEAN	15.9	14.9	92.3	0.0	7.4	0.3	7.7	6.2	7.7	52.7	47.3
S.D.	1.84	2.21	9.63	0.00	9.76	1.37	9.63	10.16	9.63	11.63	11.63
S.E.	0.38	0.45	1.97	0.00	1.99	0.28	1.97	2.07	1.97	2.37	2.37
N	24	24	24	24	24	24	24	24	24	24	24

DAMS FROM GROUP 5: 150 MG/KG/DAY

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
28255	17.0	17.0	52.9	0.0	29.4	17.6	47.1	0.0	47.1	88.9	11.1
28260	19.0	17.0	5.9	5.9	76.5	11.8	88.2	10.5	94.1	100.0	0.0
28275	13.0	13.0	92.3	0.0	7.7	0.0	7.7	0.0	7.7	75.0	25.0
28278	17.0	17.0	29.4	0.0	70.6	0.0	70.6	0.0	70.6	40.0	60.0
28291	18.0	17.0	64.7	0.0	35.3	0.0	35.3	5.6	35.3	54.5	45.5
28294	16.0	16.0	37.5	0.0	56.3	6.3	62.5	0.0	62.5	33.3	66.7
28298	15.0	15.0	6.7	0.0	93.3	0.0	93.3	0.0	93.3	100.0	0.0
28307	15.0	13.0	7.7	0.0	92.3	0.0	92.3	13.3	92.3	0.0	100.0
28310	17.0	17.0	35.3	0.0	64.7	0.0	64.7	0.0	64.7	50.0	50.0
28326	16.0	16.0	6.3	0.0	93.8	0.0	93.8	0.0	93.8	100.0	0.0
28332	14.0	14.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28335	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.9	57.1
28337	17.0	16.0	68.8	0.0	31.3	0.0	31.3	5.9	31.3	81.8	18.2
28343	15.0	15.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28362	15.0	15.0	86.7	0.0	13.3	0.0	13.3	0.0	13.3	61.5	38.5
28369	15.0	15.0	33.3	0.0	66.7	0.0	66.7	0.0	66.7	40.0	60.0
28379	16.0	15.0	73.3	0.0	20.0	6.7	26.7	6.3	26.7	45.5	54.5
28380	14.0	13.0	7.7	0.0	92.3	0.0	92.3	7.1	92.3	0.0	100.0
28390	19.0	19.0	10.5	0.0	84.2	5.3	89.5	0.0	89.5	100.0	0.0
28391	12.0	11.0	18.2	0.0	81.8	0.0	81.8	8.3	81.8	100.0	0.0
28420	17.0	16.0	93.8	0.0	6.3	0.0	6.3	5.9	6.3	60.0	40.0
28426	15.0	15.0	40.0	0.0	60.0	0.0	60.0	0.0	60.0	83.3	16.7
28427	16.0	14.0	28.6	0.0	71.4	0.0	71.4	12.5	71.4	75.0	25.0
MEAN	15.7	15.2	39.1	0.3	58.6	2.1	60.6	3.3	60.9	63.4	36.6
S.D.	1.76	1.78	33.35	1.23	33.38	4.59	33.09	4.55	33.34	31.15	31.15
S.E.	0.37	0.37	6.95	0.26	6.96	0.96	6.90	0.95	6.95	6.80	6.80
N	23	23	23	23	23	23	23	23	23	21	21

DAMS FROM GROUP 6: 450 MG/KG/DAY

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
28251	14.0	14.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28252	15.0	15.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28290	18.0	17.0	0.0	0.0	100.0	0.0	100.0	5.6	100.0	0.0	0.0
28302	19.0	14.0	0.0	0.0	100.0	0.0	100.0	26.3	100.0	0.0	0.0
28303	15.0	14.0	0.0	0.0	100.0	0.0	100.0	6.7	100.0	0.0	0.0
28305	18.0	13.0	0.0	0.0	100.0	0.0	100.0	27.8	100.0	0.0	0.0
28313	16.0	16.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28322	15.0	15.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28323	17.0	17.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28328	16.0	16.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28331	19.0	19.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28336	18.0	15.0	0.0	0.0	100.0	0.0	100.0	16.7	100.0	0.0	0.0
28339	15.0	15.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28340	16.0	15.0	20.0	0.0	80.0	0.0	80.0	6.3	80.0	100.0	0.0
28347	21.0	19.0	0.0	0.0	100.0	0.0	100.0	9.5	100.0	0.0	0.0
28348	15.0	15.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28363	15.0	14.0	0.0	0.0	100.0	0.0	100.0	6.7	100.0	0.0	0.0
28364	19.0	19.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28372	12.0	12.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28373	14.0	14.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28405	16.0	16.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0
28411	21.0	20.0	0.0	0.0	100.0	0.0	100.0	4.8	100.0	0.0	0.0
MEAN	16.5	15.6	0.9	0.0	99.1	0.0	99.1	5.0	99.1	100.0	0.0
S.D.	2.32	2.11	4.26	0.00	4.26	0.00	4.26	8.35	4.26	0.00	0.00
S.E.	0.50	0.45	0.91	0.00	0.91	0.00	0.91	1.78	0.91	0.00	0.00
N	22	22	22	22	22	22	22	22	22	1	1

TABLE A18

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 1: 0 MG/KG/DAY SHAM																						
28248 3.9	3.9	4.1	4.3	4.1	3.9/	3.9	4.0	4.0	E	3.9	3.6	3.4	3.6										
28250 3.5	3.3	3.7	3.5	3.4	3.8	3.2/	3.5	3.2	4.2	3.6	3.8	3.8	3.5	3.6	3.6	2.6							
28257 3.9	4.2	3.7	3.9	4.0	4.3	3.9	4.1	3.6	3.9	3.8	3.9/	4.1	3.8	4.2	4.1	3.7	3.8	4.1	3.8	4.1	3.4		
28259 3.8	3.4	4.0	3.7	3.8	3.8	4.2	3.9	3.9/	4.0	4.1	3.9	4.0	3.6	3.6	3.5	3.4							
28271 3.8	3.4	3.6	3.7	4.1	4.0	4.0	3.9	4.0	4.3/	3.7	4.0	4.0	3.7	3.7	3.5	3.4	3.0						
28277 3.6	2.9	3.4	3.6	3.9	3.5	3.7	3.8	4.0	3.6	4.0	3.6/	3.9	3.5	4.1	3.9	3.8	3.9	3.2	3.2	3.3			
28279 4.0	3.7	4.2	4.1	4.2	4.0	3.9	4.1	3.9	4.3	3.9/	4.4	4.0	3.8	3.8	3.9	3.7	4.3						
28282 4.3	3.9	4.4	4.3	4.3	4.2	4.1	4.5	4.5	4.8/	4.5	E	4.5	4.6	4.3	4.2	3.9	3.9						
28288 3.7	3.1	3.8	3.6	4.1	3.8	3.7	4.3/	3.5	3.8	3.5	4.2	3.7	3.4	3.4									
28289 4.1	3.8	E	E	4.2	4.5	4.1	4.2	4.0/	4.0	4.2	4.3	3.9	4.0	3.9									
28301 4.2	3.6	4.1	4.0	4.0	4.2	4.2	4.5	4.6/	4.3	4.3	4.0	4.6	4.1	4.1	3.8								
28304 3.5	3.1	3.7	3.4	3.7	3.6	3.8	3.7/	3.2	3.7	3.5	3.8	3.6	3.5	3.7	3.4	2.6							
28309 3.8	3.5	3.9	4.0	4.1	3.7	3.4	3.6	3.7	3.3	3.6	4.3	4.0/	4.3	3.8	3.7	4.2	3.2	4.1	3.9	3.3	3.3		
28319 4.3	4.1	4.1	4.4	4.3	3.9	3.1	4.5/	4.5	4.3	4.5	4.5	E	4.9	4.3	E	4.4							
28324 3.7	3.2	3.2	3.4	3.8	3.6	3.6	3.7	4.0	3.9	4.1/	3.9	E	4.1	4.3	3.6	3.2							
28325 4.1	4.0	4.3	4.4	4.4	4.4	4.1	3.8	4.1/	4.3	4.2	4.1	4.1	4.3	E	3.3								
28341 3.8	3.5	3.9	4.3	3.5	3.8	3.8	3.9	4.2/	3.8	4.1	4.2	3.7	3.3	3.4									
28345 3.4	3.5	3.3	4.0/	E	3.5	3.4	3.7	3.6	3.4	3.2	2.9	2.9											
28352 4.4	4.3	4.7	4.5	4.4	4.3/	4.2	4.3	4.6	4.4	4.8	E	4.1											
28368 3.8	E	3.9	4.0	4.0	4.4/	3.6	3.9	3.9	3.8	3.6	3.8	3.4	4.0	3.2									
28381 3.8	3.9	3.5	4.1	4.0	3.8	3.7	3.9	4.3	3.8/	3.8	3.8	3.5	E	3.6	4.2	3.3							
28384 3.9	3.8	3.8	3.9	E	4.4	4.0/	3.9	3.9	3.6	3.9	3.6	3.7	3.9	3.8									
28404 3.9	3.6	2.7	4.2	4.0	3.6	4.4/	4.5	4.0	4.1	4.2	4.1	4.1	4.2	4.0	3.4								
28413 3.6	3.7	3.7	3.6	3.1	3.6	4.0	3.9	4.1	4.2/	3.5	3.6	3.7	3.6	3.6	3.2	3.1							
28417 4.0	E	3.9	3.9	4.2	4.6	4.7	4.5/	3.9	E	4.0	3.8	3.9	4.0	3.9	3.2								

MEAN	3.9
S.D.	0.26
S.E.	0.05
N	25

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

TABLE A18

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 2: 0 MG/KG/DAY VEH.																						
28254 4.3	4.4	4.4	4.4	4.1	4.4	4.5	4.3	4.3/	E	4.5	4.5	4.5	4.1	4.1	4.0								
28262 3.6	3.4	3.4	3.5	3.8	3.8	3.7	3.8/	3.6	E	E	3.7	3.8	3.7	3.5	3.4	3.2							
28266 3.7	3.7	E	3.7	3.7	3.8	3.8	3.8	4.0	3.7/	3.8	3.8	4.0	3.3	3.3	3.7	3.2	3.2						
28270 3.9	3.4	3.6	3.6	4.0	4.0	4.0	4.2	3.9/	4.2	4.1	4.4	4.1	4.1	3.4									
28272 3.8	3.3	3.4	4.1	3.7	4.1	4.1	4.1/	3.9	4.0	3.8	4.2	3.8	3.9	3.5	3.2								
28281 4.0	3.7	4.2	3.9	4.2	3.9	4.3	4.6	4.1/	4.2	4.3	4.6	3.4	3.8	3.3									
28283 3.9	3.4	E	3.6	E	3.7	E	4.0	3.4	3.9	3.7	4.2	4.0/	4.2	4.0	4.3	3.9	4.4	4.0					
28286 3.6	3.5	3.4	3.4	3.8	3.6	3.5/	3.7	3.5	3.7	3.9	3.8	3.7	3.4	3.5	3.4	3.1							
28299 4.0	3.6	3.6	3.9	4.2	4.3	4.3	4.2/	4.1	3.9	E	4.0	3.9	4.0	4.1	3.9	3.9	3.8						
28312 3.9	E	3.8	3.5	3.9	3.7	4.1	4.1	4.2/	3.9	3.9	4.3	3.7	3.7	3.9	3.7	3.9							
28318 4.3	3.8	4.3	4.5	4.1	4.2	4.7	4.4	4.4/	4.3	4.5	4.6	4.8	4.3	4.1	4.0	3.8							
28321 3.6	3.2	3.5	3.8	3.9	3.5	3.8	3.7	4.1/	3.3	3.7	3.8	3.7	3.7	3.4	3.3								
28327 4.1	4.0	4.6	4.3	4.3	4.5	4.6/	4.5	4.4	4.0	4.0	4.1	3.6	3.4	3.5	3.6								
28329 3.9	3.4	3.9	4.2	4.3	4.2	4.0/	3.8	3.8	3.8	3.8	3.6	3.7	3.6										
28338 3.5	3.5	3.0	2.9	3.4	3.4	4.0	4.0	4.2	3.8/	4.0	3.6	3.7	3.2	3.8	3.7	2.5							
28342 4.0	E	3.6	3.6	4.2	3.9	3.9	4.0	4.3	E /	4.2	4.1	3.9	4.5	3.7	4.0	4.0	E						
28344 4.1	4.1	3.9	4.2	3.9	4.1	4.0	4.4/	4.4	4.3	E	3.8	4.4	4.4	E	3.8	E							
28357 4.0	3.7	3.9	3.8	4.3	4.1	3.8	4.2/	4.2	4.1	4.0	4.0	4.2	3.7	E									
28370 3.9	3.6	3.8	4.0	4.0	4.7/	E	3.9	3.3	4.0	4.1	4.0	3.8	3.4	3.7	E								
28375 4.0	3.7	E	4.2	4.0	4.1	4.3	4.2	4.6/	3.9	4.2	4.0	3.7	4.0	3.6									
28378 4.0	3.1	3.6	4.1	4.3	3.7	4.3	4.4	4.3	4.2	E	4.0/	4.3	4.2	4.1	4.1	4.2	3.8						
28388 4.0	3.8	4.0	3.8	E	4.0	4.4	4.3/	4.0	3.8	4.2	4.0	3.8	E	4.1									
28392 3.7	3.5	3.6	3.4	4.2	3.7	4.1	4.2/	4.0	3.8	3.9	4.1	3.7	3.9	3.7	2.6	3.7	3.5	3.4					
28397 3.8	E	E	E	3.9	4.3	4.4/	3.7	3.7	3.8	3.8	4.1	4.1	3.9	E	3.8	2.6							
28400 3.4	3.2	3.3	3.8	3.2	E	3.7/	3.6	3.9	E	3.8	3.2	3.1	3.4	3.5	3.1								

MEAN 3.9
S.D. 0.23
S.E. 0.05
N 25

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

TABLE A18

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 3: 5 MG/KG/DAY																						
28249 3.8	3.1	3.7	3.4	3.8	4.1	4.1	4.0	4.0	3.6	3.5	4.0/	3.3	3.8	4.1	4.0	3.8	3.7						
28253 3.4	L	2.8	2.9	3.3	3.1	3.3	3.4	3.5	3.4	3.7	3.5/	4.1	3.6	3.9	3.5	3.1	3.0						
28256 3.7	2.7	E	E	2.9	3.9	E	4.0/	4.1	4.1	3.8	4.1	3.9	3.8	4.0	3.6	3.7	E						
28263 4.0	4.1	4.1	4.0	4.1	4.3	4.0	4.1	4.3/	4.2	4.0	4.1	4.4	4.0	3.5	3.4								
28268 3.9	3.2	E	3.9	3.8	4.1	4.3	4.3	4.1/	4.0	4.0	3.8	3.7	3.5	3.7	3.9	3.9	3.7	3.6					
28269 4.4	4.0	4.1	4.3	4.4	4.9	4.7	E	4.9	4.9/	4.4	4.1	4.3	4.1	4.2	4.3	4.0							
28285 3.5	3.2	3.5	E	3.7	3.4	3.9	3.5	3.6	3.9/	3.7	3.9	3.6	3.5	3.7	3.4	3.4	3.0	3.1					
28295 4.2	4.0	4.0	E	4.4	4.5	4.5	4.6	4.1	4.2	4.4/	4.6	4.1	3.9	4.3	3.9	4.2							
28314 3.8	3.1	3.8	3.5	3.9	3.6	3.9	3.6	3.9	4.1/	3.9	4.1	4.0	3.8	3.8									
28315 3.8	3.2	3.8	3.8	3.9	3.6	3.8	3.7	3.8	4.3	4.1/	3.6	3.8	3.9	3.7	3.9	3.9	3.4						
28316 4.1	3.9	E	4.4	4.4	4.1	4.2	4.0/	4.3	3.9	4.5	3.9	4.0	3.8	3.7									
28333 3.9	3.6	4.0	4.0	3.7	3.8	3.9	3.7	4.2/	3.7	3.7	3.9	3.8	4.0	4.2	3.9	3.7	3.7	3.8					
28351 4.1	4.2	4.6	4.0	4.8	4.0	3.7	4.5	4.0/	4.2	4.0	4.4	4.0	4.0	3.8	3.4								
28353 3.5	3.3	3.2	3.4	3.6	3.6	3.7	3.6/	3.5	3.7	3.6	3.5	3.5	E										
28355 3.9	3.7	3.9	4.2	3.9	3.8	3.9	3.9	4.0/	4.0	3.5	3.9	3.6	4.0	4.0	E	E							
28358 3.8	3.6	3.6	E	E	3.9	4.1/	4.0	3.7	3.8	3.6	3.9	3.7	4.1	4.0	3.5								
28371 3.9	4.1	3.9	3.9	3.6	3.8	E	4.0	4.0/	4.1	4.1	4.1	3.9	3.9	3.9	3.9	3.6	3.3						
28374 3.7	3.4	3.4	3.8	3.7	3.8	3.8/	3.9	4.0	3.7	3.8	3.8	E	3.2										
28376 3.9	3.8	3.8	3.8	4.0	4.1	4.1	4.3/	4.0	4.1	4.2	4.0	4.0	3.6	4.1	3.9	3.2							
28389 3.9	3.7	4.0	3.6	3.9	3.8	4.0	4.0	4.2	4.3/	4.0	3.9	4.0	3.6										
28402 3.7	3.7	3.6	4.2	3.8/	3.8	3.0	4.0	3.8	E	3.7	3.9	3.3	3.4										
28403 3.5	2.7	3.2	3.8	3.8	E	3.8	3.7	3.9/	2.9	4.1	3.5	3.7	3.7	3.1	3.3								
28407 3.7	2.1	4.3	E	3.9	3.5/	4.0	4.1	3.9	3.3	4.0	3.7	4.2	3.4	E	4.1	3.4							
28416 3.8	3.4	4.0	3.1	3.0	3.9	4.0	3.5	4.1/	3.5	4.0	4.0	4.2	3.9	3.9									
28422 3.8	3.3	3.4	3.6	3.6	3.6	4.2	4.0	4.1/	3.8	3.8	4.1	4.2	3.9	3.8	3.5	3.9	4.1	3.6					

MEAN	3.8
S.D.	0.23
S.E.	0.05
N	25

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

TABLE A18

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 4: 25 MG/KG/DAY																						
28258 3.6	3.5	3.5	3.9	3.9/	3.7	3.8	3.9	3.7	3.4	3.5	3.4	3.5	3.3										
28261 3.6	3.5	3.8	4.0	E	3.8/	3.7	4.0	4.3	E	3.5	3.6	3.9	3.3	3.3	2.7								
28264 4.2	4.3	4.0	4.1	4.0	4.3	4.2	4.0/	4.4	4.6	4.1	4.3	3.9											
28265 3.9	3.7	4.0	E	4.2	4.0	3.9	3.9	4.2/	4.0	4.3	3.9	3.8	3.7	3.7	3.8	3.7							
28273 3.4	3.2	3.5	3.7	3.6	3.1	3.5	3.5/	3.0	3.4	3.4	3.5	3.2	3.3	3.1									
28274 3.8	3.5	3.6	E	3.7	4.0	3.9	3.9	3.5	3.8/	3.9	4.1	E	4.0	3.7	3.8	3.8	3.6						
28276 3.6	3.3	E	3.0	3.7	3.2	3.5	3.7	3.7	3.9	3.7	E	4.0/	E	3.8	4.0	3.9	3.6	3.2	3.4				
28287 3.8	3.6	3.9	3.9	3.7	3.7	3.9	4.0	3.6/	3.9	3.5	4.0	3.9	3.7	3.5	3.7								
28292 3.6	3.4	3.5	E	E	E	3.7	3.8/	E	3.9	4.2	E	3.8	3.6	3.3	E	3.1							
28293 3.1	2.7	2.6	3.3	3.2	3.4	3.4	3.2	3.2/	1.9	3.0	3.4	3.3	3.2	3.4	3.0	2.9							
28311 3.5	3.1	3.4	3.7	3.7	3.8	3.6	L /	3.5	3.6	3.5	3.5	3.8	3.3	3.3	3.0								
28317 3.9	3.7	3.7	4.0	E	3.8	4.2	3.9	3.8	4.2/	3.2	4.3	3.9	3.9	3.5									
28320 3.8	3.3	3.6	4.0	3.9	4.0	3.8	3.8	3.6	4.0/	3.8	3.8	4.1	4.0	4.0	3.7								
28334 3.5	3.2	E	3.6	3.8	3.2	E	3.6/	3.4	3.8	3.6	3.9	3.9	E	3.4	3.3	3.3							
28349 3.6	E	3.2	3.6	3.7	4.0	3.7	4.1	3.7/	E	3.2	4.0	3.8	E	3.0	E								
28356 3.6	3.2	3.3	3.4	3.8	3.3	E	3.6	3.6/	4.0	3.5	3.7	3.6	3.8	3.8	3.1								
28360 3.7	3.5	3.5	4.2	4.1	3.9/	3.7	3.8	3.8	3.7	3.2	3.4	3.6	3.9	3.1									
28361 3.6	3.5	3.7	3.4	3.8	3.7	3.8	3.8	3.7	3.8/	3.5	3.7	3.6	E	3.6	3.6	3.5	3.3						
28365 4.0	3.8	4.3	E	4.1	4.3	3.7/	4.3	4.2	3.9	3.9	4.2	4.3	3.9	3.7	3.6	3.9	3.9						
28382 4.0	3.5	4.2	3.9	4.3	4.0	4.0/	4.2	4.2															
28387 3.5	3.1	3.2	3.7	3.2	3.8	3.5/	E	3.8	4.0	3.5	3.6	3.7	3.0	2.9									
28396 3.5	3.2	E	3.5	3.6	3.5	3.5	3.8	3.7	3.6/	3.5	3.5	3.6	E	3.1									
28412 3.6	3.0	3.8	3.6	4.0	3.6	3.7	4.0/	3.4	3.7	3.8	3.5	3.9	3.3	3.3	3.4	3.1	3.4	3.4					
28418 3.5	3.2	3.1	3.2	3.5	3.6	3.9	3.5/	3.8	3.9	4.1	3.8	3.4	3.0										

MEAN	3.7
S.D.	0.23
S.E.	0.05
N	24

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

TABLE A18

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 5: 150 MG/KG/DAY																						
28255 3.1	2.7	E	2.7	3.4	E	E	2.9	3.1	3.1	L /	E	3.3	3.4	E	2.9	L	L						
28260 1.9	E	E	E	E	E	L	E /	E	E	E	E	E	E	E	D	1.9	L						
28275 3.3	2.9	3.5	3.5	2.7	3.0/	3.6	3.5	3.4	3.5	3.6	E	3.0	2.9										
28278 3.0	E	E	E	E	E	3.4	E /	E	3.0	3.2	E	3.1	E	E	E	2.5	E						
28291 3.1	2.9	E	3.5	E	2.8	3.3	3.3	E	E /	E	E	3.0	3.2	2.7	3.3	3.2	2.9						
28294 3.4	3.2	E	E	3.9	3.6	2.8	E /	E	E	3.8	E	E	3.3	E	L	E							
28298 3.4	E	E	E	E	E	E	E	E	E /	3.4	E	E	E	E	E								
28307 2.8	E	E	E /	E	2.8	E	E	E	E	E	E	E	E										
28310 2.5	E	E	E	E	2.9	E	2.2	2.2	E /	E	E	E	2.5	2.5	E	2.7	E						
28326 3.6	E	E	E	E	E	E	E /	E	E	E	E	3.6	E	E	E	E							
28332 0.0	E	E	E	E	E	E	E /	E	E	E	E	E	E	E									
28335 3.2	3.2	3.2	3.9/	3.3	3.4	3.3	3.3	3.3	3.3	3.5	2.4	2.9	3.2	2.6									
28337 3.4	E	3.1	3.5	E	E	3.9/	E	2.9	3.6	3.5	3.5	3.1	2.9	3.7	3.2	E							
28343 0.0	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E								
28362 3.2	3.3	E	3.0	3.4	3.8	3.3	3.4	3.2/	E	2.9	3.3	3.2	3.1	3.0	2.8								
28369 3.0	E	E	3.3	E	E	E	E	E /	E	2.8	E	E	3.4	2.7	2.8								
28379 3.3	E	2.5	2.7	3.8	3.6/	E	3.1	3.5	3.4	L	3.4	3.3	3.6	2.9	E								
28380 3.5	E	E	E	E	E	E	E /	E	E	E	E	3.5	E										
28390 2.8	E	E	E	E	E	E	E	E /	2.7	2.8	E	E	E	E	E	E	L	E	E				
28391 3.5	E	E	3.7	E /	E	E	E	3.3	E	E	E												
28420 2.9	2.9	2.9	3.5	3.6/	E	3.1	3.4	2.8	2.7	2.5	2.6	3.3	3.3	2.9	1.8	2.2							
28426 3.2	E	E	3.4	E	E /	E	E	2.9	2.9	3.4	3.4	3.2	E	E	E								
28427 2.5	E	2.5	E	1.9	E	E	E /	E	E	E	2.9	2.8	E	E									

MEAN 3.1
S.D. 0.41
S.E. 0.09
N 21

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

TABLE A18

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 6: 450 MG/KG/DAY																						
28251 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E									
28252 0.0	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E								
28290 0.0	E	E	E	E	E	E	E	E	E /	E	E	E	E	E	E	E	E						
28302 0.0	E	E	E	E	E	E	E /	E	E	E	E	E	E	E									
28303 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E									
28305 0.0	E	E	E	E	E	E	E	E /	E	E	E	E	E										
28313 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E							
28322 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E								
28323 0.0	E	E	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E						
28328 0.0	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E	E							
28331 0.0	E	E	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E	E				
28336 0.0	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E								
28339 0.0	E	E	E	E	E	E	E	E	E /	E	E	E	E	E	E								
28340 2.4	E	E	E	E	E	E	E /	E	2.6	2.1	E	2.6	E	E	E								
28347 0.0	E	E	E	E	E	E	E	E	E	E	E /	E	E	E	E	E	E	E	E				
28348 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E								
28363 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E									
28364 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E	E	E	E				
28372 0.0	E	E	E	E /	E	E	E	E	E	E	E	E											
28373 0.0	E	E	E	E	E	E	E	E /	E	E	E	E	E	E									
28405 0.0	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E							
28411 0.0	E	E	E	E	E	E	E	E	E /	E	E	E	E	E	E	E	E	E	E	E			

MEAN	2.4
S.D.	0.00
S.E.	0.00
N	1

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

PFWTv4.15
11/21/2011

DAMS FROM GROUP 1:0 MG/KG/DAY SHAM FETUS #

					GRADE
28248			1 2 3 4 5 6 7 8 9 10 11 12 13		
			A A A A A/ A A A E A A A A		
		SEX:	M F M F F F M M - M M M M		
		CEPHALIC:	1,5,7,10,12		
	SKELETAL	3	V	CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V	CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	9		EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,10,11,12,13			
	VISCERAL	1,2,3,4,5,6,7,8,10,11,12,13			
	SKELETAL	1,2,4,5,8,10,11,12,13			
28250			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
			A A A A A A/ A A A A A A A A A A		
		SEX:	M F F F M F F F M F M M M M F F		
		CEPHALIC:	1,3,5,7,9,11,13,15		
	SKELETAL	3	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	6	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	8	V	CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	10	V	REDUCED OSSIFICATION OF THE SKULL PARIETAL, BILATERAL	2
			V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28250 (CONTINUED)				
	SKELETAL	10	V BENT RIB(S) #11, RIGHT	1
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	14	V REDUCED OSSIFICATION OF THE SKULL PARIETAL, BILATERAL	1
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
			V BENT RIB(S) #6, RIGHT	1
	SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	SKELETAL	1,2,4,5,7,9,12		
28257		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		
		A A A A A A A A A A A/ A A A A A A A A A		
	SEX:	M F M M M F F F F M F M F M M F F M F M F		
	CEPHALIC:	2,4,6,8,10,12,14,16,18,20		
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21		
	SKELETAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21		

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM FETUS #

28259			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			A	A	A	A	A	A	A	A/	A	A	A	A	A	A	A	A
		SEX:	F	M	M	M	F	M	F	M	F	M	M	F	F	M	F	M
		CEPHALIC:	2,4,6,8,10,12,14,16															

				GRADE
	SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	13	V REDUCED OSSIFICATION OF THE SKULL PARIETAL, BILATERAL	1
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
	SKELETAL	14	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #6	P
	SKELETAL	15	V REDUCED OSSIFICATION OF THE SKULL PARIETAL, BILATERAL	1
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28259 (CONTINUED)			
		#5	
SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
SKELETAL	1,4,5,12		
28271	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
	A A A A A A A A A/ A A A A A A A A		
SEX:	M M F M F M F F M F M M M M F M F		
CEPHALIC:	2,4,6,8,10,12,14,16		
SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
		V BENT RIB(S)	1
		#9 THROUGH #11, LEFT; #5 THROUGH #9 AND #11, RIGHT	
SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28271 (CONTINUED)			
SKELETAL	16	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	17	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
SKELETAL	4,5,6,12,15		
28277	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20		
	A A A A A A A A A A A/ A A A A A A A A		
SEX:	F F M M F F F M F M F M F M F M M M F F		
CEPHALIC:	2,4,6,8,10,12,14,16,18,20		
SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	6	V 7TH CERVICAL RIB(S) PINPOINT, LEFT	P
SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	19	V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20		
SKELETAL	1,2,5,7,8,9,10,12,13,14,16,17,18,20		
28279	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
	A A A A A A A A A A A/ A A A A A A A A		
SEX:	F M M F F F F M M M M F F F M M M		
CEPHALIC:	2,4,6,8,10,12,14,16		

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28279 (CONTINUED)				
	VISCERAL	9	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, LEFT	2
	SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
	VISCERAL	1,2,3,4,5,6,7,8,10,11,12,13,14,15,16,17		
	SKELETAL	1,2,3,4,5,6,7,8,9,10,12,13,14,15,16,17		
28282		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		A A A A A A A A A/ A E A A A A A A		
	SEX:	M M M F F F M M M F - M M F F F M		
	CEPHALIC:	1,3,5,7,9,12,14,16		
	VISCERAL	10	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, LEFT	1
			RENAL PAPILLA(E) NOT FULLY DEVELOPED (WOO AND HOAR GRADE 1) LEFT	P
	SKELETAL		V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	11	EARLY RESORPTION	
	SKELETAL	13	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,12,13,14,15,16,17		
	VISCERAL	1,2,3,4,5,6,7,8,9,12,13,14,15,16,17		
	SKELETAL	1,2,3,4,5,6,7,8,9,12,14,15,16,17		
28288		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		A A A A A A A/ A A A A A A A		
	SEX:	F F F M M M M F M F M F F M		
	CEPHALIC:	1,3,5,7,9,11,13		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28288 (CONTINUED)				
	SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	1,2,4,5,6,7,8,9,10,11,12,13,14		
28289		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		A E E A A A A A/ A A A A A A		
	SEX:	F - - F M F F F F M F F M F		
	CEPHALIC:	4,6,8,10,12,14		
	SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 7TH CERVICAL RIB(S) INTERMEDIATE, LEFT	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	13	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	6,7,9,10		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28301	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	A A A A A A A A/ A A A A A A A		
SEX:	F M M M F M M M F M F M M F M		
CEPHALIC:	2,4,6,8,10,12,14		
SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
		V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
SKELETAL	2,3,4,6,11,13,14		
28304	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	A A A A A A A/ A A A A A A A A		
SEX:	F F F M F F M F M F M M F F F F		
CEPHALIC:	1,3,5,7,9,11,13,15		
SKELETAL	10	V 14TH RUDIMENTARY RIB(S) LEFT	P

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28304 (CONTINUED)			
SKELETAL	16	V HYOID UNOSSIFIED	P
		V 14TH RUDIMENTARY RIB(S) LEFT	P
		V PUBIS UNOSSIFIED BILATERAL	P
		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
SKELETAL	1,2,3,4,5,6,7,8,9,11,12,13,14,15		
28309	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		
	A A A A A A A A A A A A/ A A A A A A A A A		
SEX:	F M M F F M M M F F M F M F F F F M M F M		
CEPHALIC:	2,4,6,8,10,12,14,16,18,20		
SKELETAL	19	V REDUCED OSSIFICATION OF THE 13TH RIB(S) LEFT	P
SKELETAL	20	V REDUCED OSSIFICATION OF THE 13TH RIB(S) RIGHT	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21		
SKELETAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,21		
28319	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	A A A A A A A/ A A A A E A A E A		
SEX:	M M M F F F F F F F - F M - M		
CEPHALIC:	2,4,6,8,10,13,16		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28319 (CONTINUED)				
	SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	12	EARLY RESORPTION	
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	15	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,13,14,16		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,13,14,16		
	SKELETAL	2,4,6,7,8,9,10,13,16		
28324		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A A A A A A A A A/ A E A A A A		
	SEX:	F M F F M M F F F F F - F M F F		
	CEPHALIC:	1,3,5,7,9,11,14,16		
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	VISCERAL	5	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, LEFT	1
	VISCERAL	6	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	VISCERAL	7	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, RIGHT	1
	VISCERAL	8	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, RIGHT	2
	VISCERAL	9	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S)	1

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28324 (CONTINUED)			
		URETER, RIGHT	
EXTERNAL	12	EARLY RESORPTION	
SKELETAL	14	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
VISCERAL	16	V MAJOR BLOOD VESSEL VARIATION RIGHT CAROTID AND RIGHT SUBCLAVIAN ARISE INDEPENDENTLY FROM THE AORTIC ARCH (NO BRACHIOCEPHALIC TRUNK)	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,13,14,15,16		
VISCERAL	1,2,3,4,10,11,13,14,15		
SKELETAL	1,3,4,5,6,7,8,9,10,11,13,16		
28325	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	A A A A A A A A/ A A A A A E A		
SEX:	M M M M M F F M M M F M M - F		
CEPHALIC:	2,4,6,8,10,12,15		
SKELETAL	8	V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	14	EARLY RESORPTION	
SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,15		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,15		
SKELETAL	1,2,3,4,5,6,7,9,10,11,13		
28341	1 2 3 4 5 6 7 8 9 10 11 12 13 14		
	A A A A A A A A/ A A A A A A		
SEX:	F M M M F M M M F M M M F F		
CEPHALIC:	2,4,6,8,10,12,14		

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28341 (CONTINUED)				
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	1,2,3,4,5,8,10,11,12,13,14		
28345		1 2 3 4 5 6 7 8 9 10 11 12		
		A A A/ E A A A A A A A A		
	SEX:	M M M - F F M M F M F F		
	CEPHALIC:	2,5,7,9,11		
	SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	4	EARLY RESORPTION	
	SKELETAL	7	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4	1
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	10	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28345 (CONTINUED)			
SKELETAL	10	V STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED #2	P
SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,5,6,7,8,9,10,11,12		
VISCERAL	1,2,3,5,6,7,8,9,10,11,12		
SKELETAL	1,3,5,6		
28352	1 2 3 4 5 6 7 8 9 10 11 12		
	A A A A A/ A A A A A E A		
SEX:	M F M F F F F F F F - F		
CEPHALIC:	1,3,5,7,9,12		
SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL	11	EARLY RESORPTION	
SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,12		
VISCERAL	1,2,3,4,5,6,7,8,9,10,12		
SKELETAL	1,2,3,5,7,8		
28368	1 2 3 4 5 6 7 8 9 10 11 12 13 14		
	E A A A A/ A A A A A A A A A		
SEX:	- F M F M F F M F F M F M F		
CEPHALIC:	2,4,6,8,10,12,14		

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #			GRADE
28368 (CONTINUED)				
EXTERNAL	1		EARLY RESORPTION	
SKELETAL	2	V	BENT RIB(S) #5 THROUGH #9, RIGHT	1
SKELETAL	4	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	5	V	14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	6	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	10	V	14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	12	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	14	V	14TH RUDIMENTARY RIB(S) LEFT	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	2,3,4,5,6,7,8,9,10,11,12,13,14			
VISCERAL	2,3,4,5,6,7,8,9,10,11,12,13,14			
SKELETAL	3,7,8,9,11,13			
28381	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
	A A A A A A A A A/ A A A E A A A			
SEX:	M M M M F F F M F M M F - F M F			
CEPHALIC:	1,3,5,6,8,10,12,15			
SKELETAL	6	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	13		EARLY RESORPTION	

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #		GRADE
28381 (CONTINUED)			
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,4,5,6,7,8,9,10,11,12,14,15,16	
VISCERAL		1,2,3,4,5,6,7,8,9,10,11,12,14,15,16	
SKELETAL		1,2,3,4,5,7,8,9,10,11,12,14,15,16	
28384		1 2 3 4 5 6 7 8 9 10 11 12 13 14	
		A A A E A A/ A A A A A A A A	
	SEX:	F F F - M F M F F M F M M M	
	CEPHALIC:	1,3,6,8,10,12,14	
SKELETAL	3	V 14TH RUDIMENTARY RIB(S) LEFT	P
EXTERNAL	4	EARLY RESORPTION	
SKELETAL	6	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,5,6,7,8,9,10,11,12,13,14	
VISCERAL		1,2,3,5,6,7,8,9,10,11,12,13,14	
SKELETAL		1,2,5,7,8,10,11,12,13,14	
28404		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	
		A A A A A A/ A A A A A A A A A	
	SEX:	F M M M F M M F M M M M M F F	
	CEPHALIC:	1,3,5,7,9,11,13,15	
SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28404 (CONTINUED)				
	EXTERNAL	2	M OMPHALOCELE SEVERAL LOOPS OF INTESTINE PROTRUDE THROUGH AN OPENING IN THE UMBILICUS, REMNANTS OF A MEMBRANOUS SAC	
	VISCERAL		CONFIRMATION OF OMPHALOCELE	P
	SKELETAL		M RIB ANOMALY RIGHT RIBS #6 AND #7 FUSED, PROXIMAL; RIGHT RIBS #9 AND #10 FUSED, DISTAL; LEFT RIBS #7 AND #8 FUSED, MEDIAL THROUGH DISTAL	P
			M STERNEBRA(E) MALALIGNED (SEVERE) #3 THROUGH #5; #2, MODERATE; LEFT HALF OF #4 ATTACHED TO RIGHT HALF OF #5	P
	VISCERAL	4	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, LEFT	2
	VISCERAL	5	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,3,4,5,6,7,8,9,10,11,12,13,14,15		
	VISCERAL	1,3,6,7,8,9,10,11,12,13,14,15		
	SKELETAL	3,4,5,6,8,9,11,13,14,15		
28413		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A A A A A A A A/ A A A A A A A		
	SEX:	F M M M F M M M F F F M F M M F		
	CEPHALIC:	2,4,6,8,10,12,14,16		
	SKELETAL	4	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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DAMS FROM GROUP 1:0 MG/KG/DAY SHAM		FETUS #		GRADE
28413 (CONTINUED)				
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V 27 PRESACRAL VERTEBRAE	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	SKELETAL	1,2,3,5,6,7,9,10,11,12,13,14,15,16		
28417		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		E A A A A A A/ A E A A A A A A		
	SEX:	- F M M M F M M - M F F M M F		
	CEPHALIC:	3,5,7,10,12,14		
	EXTERNAL	1	EARLY RESORPTION	
	SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V 27 PRESACRAL VERTEBRAE	P
	EXTERNAL	9	EARLY RESORPTION	
	SKELETAL	13	V 7TH CERVICAL RIB(S) PINPOINT, LEFT	P
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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TABLE A19

PROJECT NO.:WIL-402015 DERMAL RAT DEV TOX STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 18

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1:0 MG/KG/DAY SHAM	FETUS #	GRADE
28417 (CONTINUED)		
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	2,3,4,5,6,7,8,10,11,12,13,14,15	
VISCERAL	2,3,4,5,6,7,8,10,11,12,13,14,15	
SKELETAL	3,4,7,8,10,11,12	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #			GRADE
28254		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
		A A A A A A A A/ E A A A A A A			
	SEX:	M M F F M F M F - F F M F F M			
	CEPHALIC:	1,3,5,7,10,12,14			
	SKELETAL	1	V	CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	4	V	CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	5	V	CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
			V	7TH CERVICAL RIB(S) INTERMEDIATE, LEFT	P
	EXTERNAL	9		EARLY RESORPTION	
	SKELETAL	11	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,10,11,12,13,14,15			
	VISCERAL	1,2,3,4,5,6,7,8,10,11,12,13,14,15			
	SKELETAL	2,3,7,8,10,12,13,14,15			
28262		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
		A A A A A A A/ A E E A A A A A A			
	SEX:	F F M M M F F F - - F F M F M F			
	CEPHALIC:	1,3,5,7,11,13,15			
	SKELETAL	2	V	HYOID UNOSSIFIED	P
	EXTERNAL	9		EARLY RESORPTION	
	EXTERNAL	10		EARLY RESORPTION	
	SKELETAL	16	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.	FETUS #		GRADE
28262 (CONTINUED)			
		#5	
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,4,5,6,7,8,11,12,13,14,15,16	
VISCERAL		1,2,3,4,5,6,7,8,11,12,13,14,15,16	
SKELETAL		1,3,4,5,6,7,8,11,12,13,14,15	
28266		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	
		A E A A A A A A A/ A A A A A A A A	
	SEX:	M - F F M F F M M F M M F F F F F	
	CEPHALIC:	1,4,6,8,10,12,14,16	
EXTERNAL	2	EARLY RESORPTION	
SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	13	V REDUCED OSSIFICATION OF THE SKULL SUPRAOCCIPITAL	1
		V CERVICAL CENTRUM #1 OSSIFIED	P
		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	17	V 7TH CERVICAL RIB(S) PINPOINT, LEFT	P
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17	
VISCERAL		1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17	
SKELETAL		1,4,5,6,7,9,11,12,14,15	
28270		1 2 3 4 5 6 7 8 9 10 11 12 13 14	
		A A A A A A A A/ A A A A A A	
	SEX:	M M M M M F M F F M M F M M	
	CEPHALIC:	1,3,5,7,9,11,13	

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28270 (CONTINUED)				
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	1,2,3,4,5,6,7,8,9,11,12,13,14		
28272		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		A A A A A A A/ A A A A A A A A		
	SEX:	M F M F M M M F F F M F F F F		
	CEPHALIC:	1,3,5,7,9,11,13,15		
	SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 7TH CERVICAL RIB(S) PINPOINT, RIGHT	P
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
	SKELETAL	5,6,9,11,12,13,14		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.	FETUS #																		GRADE
28281		1	2	3	4	5	6	7	8	9	10	11	12	13	14				
		A	A	A	A	A	A	A	A/	A	A	A	A	A	A				
SEX:		F	M	M	M	F	M	M	F	M	M	M	F	M	F				
CEPHALIC:		2,4,6,8,10,12,14																	
SKELETAL	1	V	14TH RUDIMENTARY RIB(S) LEFT																P
SKELETAL	3	V	CERVICAL CENTRUM #1 OSSIFIED																P
SKELETAL	5	V	CERVICAL CENTRUM #1 OSSIFIED																P
SKELETAL	7	V	CERVICAL CENTRUM #1 OSSIFIED																P
SKELETAL	8	V	CERVICAL CENTRUM #1 OSSIFIED																P
VISCERAL	9	V	RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL																1
SKELETAL	13	V	14TH RUDIMENTARY RIB(S) LEFT																P
NO REMARKABLE OBSERVATIONS																			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14																		
VISCERAL	1,2,3,4,5,6,7,8,10,11,12,13,14																		
SKELETAL	2,4,6,9,10,11,12,14																		
28283		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		A	E	A	E	A	E	A	A	A	A	A	A/	A	A	A	A	A	A
SEX:		F	-	M	-	F	-	M	F	F	F	F	F	F	F	M	M	M	M
CEPHALIC:		3,7,9,11,13,15,17																	
EXTERNAL	2		EARLY RESORPTION																
EXTERNAL	4		EARLY RESORPTION																
EXTERNAL	6		EARLY RESORPTION																
SKELETAL	7	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED																P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #			GRADE
28283 (CONTINUED)					
				#5	
	SKELETAL	8	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
	SKELETAL	9	V	14TH RUDIMENTARY RIB(S)	P
				RIGHT	
	SKELETAL	10	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
	SKELETAL	11	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
	SKELETAL	12	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
	SKELETAL	14	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,3,5,7,8,9,10,11,12,13,14,15,16,17,18			
	VISCERAL	1,3,5,7,8,9,10,11,12,13,14,15,16,17,18			
	SKELETAL	1,3,5,13,15,16,17,18			
28286		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
		A A A A A A/ A A A A A A A A A A			
	SEX:	M F F M F F M F F M M M M M F F			
	CEPHALIC:	1,3,5,7,9,11,13,15			
	SKELETAL	2	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
				#5	
	SKELETAL	3	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
				#5	
	SKELETAL	4	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
				#5	
	SKELETAL	16	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.	FETUS #		GRADE
28286 (CONTINUED)			
		#5	
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	
VISCERAL		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	
SKELETAL		1,5,6,7,8,9,10,11,12,13,14,15	
28299		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	
		A A A A A A A/ A A E A A A A A A A	
	SEX:	M F F M M M M F M - M M M M M F M	
	CEPHALIC:	2,4,6,8,11,13,15,17	
SKELETAL	4	V 14TH RUDIMENTARY RIB(S)	P
		RIGHT	
EXTERNAL	10	EARLY RESORPTION	
SKELETAL	13	V 14TH RUDIMENTARY RIB(S)	P
		BILATERAL	
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,4,5,6,7,8,9,11,12,13,14,15,16,17	
VISCERAL		1,2,3,4,5,6,7,8,9,11,12,13,14,15,16,17	
SKELETAL		1,2,3,5,6,7,8,9,11,12,14,15,16,17	
28312		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
		E A A A A A A A/ A A A A A A A A	
	SEX:	- M F F F F F M F F M F F M F M	
	CEPHALIC:	2,4,6,8,10,12,14,16	
EXTERNAL	1	EARLY RESORPTION	
SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28312 (CONTINUED)				
	SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	6	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	SKELETAL	4,5,7,8,9,10,11,14,16		
28318		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A A A A A A A/ A A A A A A A A		
	SEX:	M M M M F M F F M M M M F F M M		
	CEPHALIC:	1,3,5,7,9,11,13,15		
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	13	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	14	V 14TH RUDIMENTARY RIB(S)	P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.	FETUS #		GRADE
28318 (CONTINUED)			
SKELETAL	16	V 14TH RUDIMENTARY RIB(S) LEFT	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
SKELETAL	1,4,6,7,9,10,12,15		
28321	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	A A A A A A A A/ A A A A A A A		
SEX:	F F M M F M F M F F M F F F M		
CEPHALIC:	2,4,6,8,10,12,14		
SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		V HYOID UNOSSIFIED	P
SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
SKELETAL	2,4,5,6,7,8,9,10,11,12,13,14		
28327	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	A A A A A A/ A A A A A A A A A		
SEX:	M M F M M M M M M M M F F F F		
CEPHALIC:	2,4,6,8,10,12,14		
SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28327 (CONTINUED)				
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) RIGHT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #5	1
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	13	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	15	V 14TH RUDIMENTARY RIB(S) LEFT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
	SKELETAL	6,8,9,12,14		

28329		1	2	3	4	5	6	7	8	9	10	11	12	13
		A	A	A	A	A	A/	A	A	A	A	A	A	A
	SEX:	F	F	M	M	M	M	F	F	F	F	F	M	M
	CEPHALIC:	2,4,6,8,10,12												

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28329 (CONTINUED)				
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	SKELETAL	3,4,7,9,10,12,13		
28338		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A A A A A A A A/ A A A A A A A		
	SEX:	M F M F F M F M M M M F M M M F		
	CEPHALIC:	1,3,5,7,9,11,13,15		
	SKELETAL	1	V 25 PRESACRAL VERTEBRAE	P
			M ONLY 12 PAIR OF RIBS PRESENT	P
	SKELETAL	2	V REDUCED OSSIFICATION OF THE VERTEBRAL ARCHES CERVICAL #4 THROUGH #7, BILATERAL	1
			M 24 PRESACRAL VERTEBRAE	P
			M ONLY 12 PAIR OF RIBS PRESENT	P
			RIB #12 REDUCED IN OSSIFICATION, MODERATE, BILATERAL	
	SKELETAL	4	M ONLY 12 PAIR OF RIBS PRESENT	P
			V 25 PRESACRAL VERTEBRAE	P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28338 (CONTINUED)				
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	6	V 25 PRESACRAL VERTEBRAE	P
			M ONLY 12 PAIR OF RIBS PRESENT	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16		
	SKELETAL	3,8,12,13,15,16		
28342		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		E A A A A A A A E/ A A A A A A A E		
	SEX:	- F M M M F M F - M M F F F F M -		
	CEPHALIC:	2,4,6,8,11,13,15		
	EXTERNAL	1	EARLY RESORPTION	
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) LEFT	P
	EXTERNAL	9	EARLY RESORPTION	
	SKELETAL	13	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	17	EARLY RESORPTION	

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SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28342 (CONTINUED)				
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	2,3,4,5,6,7,8,10,11,12,13,14,15,16		
	VISCERAL	2,3,4,5,6,7,8,10,11,12,13,14,15,16		
	SKELETAL	2,3,4,6,7,8,10,11,12,14,15,16		
28344		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A A A A A A/ A A E A A A E A E		
	SEX:	M F M F F F F M M - F M M - F -		
	CEPHALIC:	1,3,5,7,9,12,15		
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	6	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) LEFT	P
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,11,12,13,15		
	VISCERAL	1,2,3,4,5,6,7,8,9,11,12,13,15		
	SKELETAL	1,2,3,4,7,8,11,12,13,15		
28357		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		A A A A A A A/ A A A A A A E		
	SEX:	F M M F M F F F F F F F F -		
	CEPHALIC:	2,4,6,8,10,12		
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P

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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28357 (CONTINUED)				
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	14	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	SKELETAL	1,2,3,4,5,6,10,11,12,13		
28370		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		A A A A A/ E A A A A A A A A E		
	SEX:	F F F M M - F F F M F F F F -		
	CEPHALIC:	1,3,5,8,10,12,14		
	SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) RIGHT	P
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	VISCERAL	4	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	EXTERNAL	6	EARLY RESORPTION	
	SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	10	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28370 (CONTINUED)				
			#5	
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	12	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	14	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	15	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,7,8,9,10,11,12,13,14		
	VISCERAL	1,2,3,5,7,8,9,10,11,12,13,14		
	SKELETAL	3,4,5,7		
28375		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		A E A A A A A A/ A A A A A A		
	SEX:	F - M F F M M M F M M F M M		
	CEPHALIC:	3,5,7,9,11,13		
	SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	2	EARLY RESORPTION	
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,3,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,3,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	3,4,5,6,9,10,11,12,13,14		
28378		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		A A A A A A A A A E A/ A A A A A A		
	SEX:	F M M M F M M F F - F M F M F F M		
	CEPHALIC:	1,3,5,7,9,12,14,16		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28378 (CONTINUED)				
	SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	10	EARLY RESORPTION	
	SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	13	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,11,12,13,14,15,16,17		
	VISCERAL	1,2,3,4,5,6,7,8,9,11,12,13,14,15,16,17		
	SKELETAL	2,3,5,8,9,11,17		
28388		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		A A A E A A A/ A A A A A E A		
	SEX:	M M F - F M M F F M F M - M		
	CEPHALIC:	1,3,6,8,10,12		
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,5,6,7,8,9,10,11,12,14		
	VISCERAL	1,2,3,5,6,7,8,9,10,11,12,14		
	SKELETAL	1,2,3,5,6,7,8,9,10,11,12,14		
28392		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		
		A A A A A A A/ A A A A A A A A A A		
	SEX:	F M F M F F M M F M F F F F F F M M		
	CEPHALIC:	1,3,5,7,9,11,13,15,17		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 2:0 MG/KG/DAY VEH.		FETUS #		GRADE
28392 (CONTINUED)				
	SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	16	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	18	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
	SKELETAL	1,2,5,7,8,9,10,11,13,14,17		
28397		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		E E E A A A/ A A A A A A A E A A		
	SEX:	- - - M F M M M F M F M M - M M		
	CEPHALIC:	5,7,9,11,13,16		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	SKELETAL	7	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	14	EARLY RESORPTION	
	SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 2:0 MG/KG/DAY VEH.	FETUS #	GRADE
28397 (CONTINUED)		
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	4,5,6,7,8,9,10,11,12,13,15,16	
VISCERAL	4,5,6,7,8,9,10,11,12,13,15,16	
SKELETAL	4,5,6,9,10,11,12,13,15	
28400	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	
	A A A A E A/ A A E A A A A A A	
SEX:	M M M F - M M M - F F F M M M	
CEPHALIC:	1,3,6,8,11,13,15	
EXTERNAL	5 EARLY RESORPTION	
EXTERNAL	9 EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	1,2,3,4,6,7,8,10,11,12,13,14,15	
VISCERAL	1,2,3,4,6,7,8,10,11,12,13,14,15	
SKELETAL	1,2,3,4,6,7,8,10,11,12,13,14,15	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #			GRADE
28249	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17			
	A A A A A A A A A A A/ A A A A A A			
SEX:	M F F M M M F F F F F F F M F M M			
CEPHALIC:	2,4,6,8,10,12,14,16			
SKELETAL	2	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	12	V	14TH RUDIMENTARY RIB(S) LEFT	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17			
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17			
SKELETAL	1,3,4,5,6,7,8,9,10,11,13,14,15,16,17			
28253	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17			
	L A A A A A A A A A A/ A A A A A A			
SEX:	- F F M F F F M M F F M F M F F F			
CEPHALIC:	3,5,7,9,11,13,15,17			
EXTERNAL	1		LATE RESORPTION CROWN-RUMP LENGTH: 1.5 CM, MUMMIFIED	
SKELETAL	2	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	3	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	5	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	6	V	REDUCED OSSIFICATION OF THE 13TH RIB(S) LEFT	1

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #		GRADE
28253 (CONTINUED)			
SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	12	V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	17	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
VISCERAL	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
SKELETAL	4,7,13,14,16		
28256	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
	A E E A A E A/ A A A A A A A A E		
SEX:	M - - F M - F M M F M F F F F F -		
CEPHALIC:	1,5,8,10,12,14,16		
SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	3	EARLY RESORPTION	
SKELETAL	4	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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TABLE A19

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SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28256 (CONTINUED)				
	SKELETAL	5	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	6	EARLY RESORPTION	
	SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	17	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,4,5,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	1,4,5,7,8,9,10,11,12,13,14,15,16		
	SKELETAL	7,9,10,14,15		
28263		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		A A A A A A A A/ A A A A A A A		
	SEX:	M M F M M F F F M F F M M F M		
	CEPHALIC:	2,4,6,8,10,12,14		
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	13	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #			GRADE
28263 (CONTINUED)				
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15			
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15			
SKELETAL	1,2,3,4,5,8,10,11,12,15			
28268	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18			
	A E A A A A A A/ A A A A A A A A A A			
SEX:	F - M F M M M M F F M M F M F M F M			
CEPHALIC:	1,4,6,8,10,12,14,16,18			
SKELETAL	1	V	14TH RUDIMENTARY RIB(S) LEFT	P
EXTERNAL	2		EARLY RESORPTION	
SKELETAL	3	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	5	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	6	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	7	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	9	V	14TH RUDIMENTARY RIB(S) LEFT	P
		V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	13	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	14	V	14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	15	V	CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18			
VISCERAL	1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18			
SKELETAL	4,8,10,12,16,17,18			

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #																	GRADE
28269		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
		A	A	A	A	A	A	E	A	A/	A	A	A	A	A	A	A	
	SEX:	F	M	M	M	M	M	-	M	M	M	F	M	F	F	F	M	
	CEPHALIC:	2,4,6,9,11,13,15																
SKELETAL		1	V	CERVICAL CENTRUM #1 OSSIFIED														P
SKELETAL		3	V	14TH RUDIMENTARY RIB(S) LEFT														P
SKELETAL		5	V	CERVICAL CENTRUM #1 OSSIFIED														P
EXTERNAL		7		EARLY RESORPTION														
SKELETAL		10	V	14TH RUDIMENTARY RIB(S) BILATERAL														P
SKELETAL		11	V	14TH RUDIMENTARY RIB(S) LEFT														P
	NO REMARKABLE OBSERVATIONS																	
EXTERNAL	1,2,3,4,5,6,8,9,10,11,12,13,14,15,16																	
VISCERAL	1,2,3,4,5,6,8,9,10,11,12,13,14,15,16																	
SKELETAL	2,4,6,8,9,12,13,14,15,16																	
28285		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		A	A	E	A	A	A	A	A	A/	A	A	A	A	A	A	A	A	A
	SEX:	M	M	-	M	M	M	F	F	M	F	M	F	F	M	F	F	F	M
	CEPHALIC:	2,5,7,9,11,13,15,17																	
EXTERNAL		3		EARLY RESORPTION															
SKELETAL		6	V	14TH RUDIMENTARY RIB(S) RIGHT															P
SKELETAL		9	V	14TH RUDIMENTARY RIB(S) LEFT															P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #		GRADE
28285 (CONTINUED)			
SKELETAL	11	V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	14	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4	1
SKELETAL	15	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3 AND #4	1
SKELETAL	16	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	17	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
VISCERAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
SKELETAL	1,2,4,5,7,8,10,12,13,18		
28295	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	A A E A A A A A A A/ A A A A A A		
SEX:	F F - F F M M F F F F F F M F M		
CEPHALIC:	2,5,7,9,11,13,15		
EXTERNAL	3	EARLY RESORPTION	
SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16		
VISCERAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16		
SKELETAL	1,2,4,5,7,8,9,10,11,12,13,14,15,16		
28314	1 2 3 4 5 6 7 8 9 10 11 12 13 14		
	A A A A A A A A A/ A A A A A		
SEX:	F M M M F M F F M F M M F M		
CEPHALIC:	1,3,5,7,9,11,13		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28314 (CONTINUED)				
	SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	12	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	13	V 14TH RUDIMENTARY RIB(S) RIGHT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	2,4,6,7,10,11,14		
28315		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		A A A A A A A A A A/ A A A A A A A		
	SEX:	F M M M M M M M M F M F F M M F		
	CEPHALIC:	2,4,6,8,10,12,14,16		
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
	SKELETAL	1,2,4,5,7,8,10,11,12,13,14,15,16,17		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #			GRADE
28316	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A E A A A A A/ A A A A A A A			
SEX:	M - M M F M F M F M F F F M			
CEPHALIC:	1,4,6,8,10,12,14			
SKELETAL	1	V	CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL	2		EARLY RESORPTION	
SKELETAL	3	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	4	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	5	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	6	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	7	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	8	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	9	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	13	V	CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,3,4,5,6,7,8,9,10,11,12,13,14			
VISCERAL	1,3,4,5,6,7,8,9,10,11,12,13,14			
SKELETAL	10,12,14			
28333	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18			
	A A A A A A A A/ A A A A A A A A A A			
SEX:	M F F F F M M M F F F F M M F F F M			
CEPHALIC:	2,4,6,8,10,12,14,16,18			
VISCERAL	3	V	RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, RIGHT	2

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DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28333 (CONTINUED)				
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	VISCERAL	6	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	SKELETAL		V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
	VISCERAL	7	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, RIGHT	1
	VISCERAL	8	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	VISCERAL	9	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	2
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	VISCERAL	13	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	VISCERAL	14	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
	VISCERAL	15	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, RIGHT	2
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
	VISCERAL	1,2,4,5,10,11,12,16,17,18		
	SKELETAL	1,2,7,8,9,10,12,13,14,15,16,17,18		

28351	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	A	A	A	A	A	A	A	A/	A	A	A	A	A	A	A
SEX:	M	M	M	M	F	F	M	F	M	F	M	M	M	F	M
CEPHALIC:	2,4,6,8,10,12,14														

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DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #		GRADE
28351 (CONTINUED)			
SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) RIGHT	P
		V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	10	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	12	V 14TH RUDIMENTARY RIB(S) RIGHT	P
		V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	13	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
SKELETAL	2,3,8		
28353	1 2 3 4 5 6 7 8 9 10 11 12 13		
	A A A A A A A/ A A A A A E		
SEX:	F M F M F M M F M F F F -		
CEPHALIC:	2,4,6,8,10,12		
SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	3	V 14TH RUDIMENTARY RIB(S)	P

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DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #			GRADE
28353 (CONTINUED)				
			LEFT	
SKELETAL		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
SKELETAL	4	V	14TH RUDIMENTARY RIB(S)	P
			RIGHT	
SKELETAL	5	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
SKELETAL	6	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
SKELETAL	7	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
SKELETAL	8	V	REDUCED OSSIFICATION OF THE 13TH RIB(S)	1
			LEFT	
		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
SKELETAL	9	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	10	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
SKELETAL	12	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
EXTERNAL	13		EARLY RESORPTION	
NO REMARKABLE OBSERVATIONS				
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12			
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12			
SKELETAL	1			

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DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #																GRADE
28355		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		A	A	A	A	A	A	A	A/	A	A	A	A	A	A	E	E
	SEX:	M	F	M	F	M	F	F	F	M	F	F	F	M	M	-	-
	CEPHALIC:	2,4,6,8,10,12,14															
SKELETAL		1	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5													P
SKELETAL		2	V	CERVICAL CENTRUM #1 OSSIFIED													P
SKELETAL		8	V	CERVICAL CENTRUM #1 OSSIFIED													P
SKELETAL		12	V	7TH CERVICAL RIB(S) INTERMEDIATE, LEFT													P
SKELETAL		13	V	CERVICAL CENTRUM #1 OSSIFIED													P
EXTERNAL		15		EARLY RESORPTION													
EXTERNAL		16		EARLY RESORPTION													
	NO REMARKABLE OBSERVATIONS																
EXTERNAL		1,2,3,4,5,6,7,8,9,10,11,12,13,14															
VISCERAL		1,2,3,4,5,6,7,8,9,10,11,12,13,14															
SKELETAL		3,4,5,6,7,9,10,11,14															
28358		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		A	A	E	E	A	A/	A	A	A	A	A	A	A	A	A	
	SEX:	M	F	-	-	M	M	M	M	F	M	F	F	F	M	F	
	CEPHALIC:	1,5,7,9,11,13,15															
EXTERNAL		3		EARLY RESORPTION													
EXTERNAL		4		EARLY RESORPTION													
SKELETAL		6	V	CERVICAL CENTRUM #1 OSSIFIED													P
SKELETAL		7	V	14TH RUDIMENTARY RIB(S) LEFT													P

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DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28358 (CONTINUED)				
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	14	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,5,6,7,8,9,10,11,12,13,14,15		
	VISCERAL	1,2,5,6,7,8,9,10,11,12,13,14,15		
	SKELETAL	1,2,5,8,9,12,13,15		
28371		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		A A A A A E A A/ A A A A A A A A A		
	SEX:	M M M M F - F F F M M M M M M M F		
	CEPHALIC:	2,4,7,9,11,13,14,15,17		
	SKELETAL	1	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	6	EARLY RESORPTION	
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	VISCERAL	13	M RETROESOPHAGEAL AORTIC ARCH AORTIC ARCH COURSES RETROESOPHAGEAL IMMEDIATELY FOLLOWING LEFT CAROTID AND REJOINS IN NORMAL POSITION ADJACENT TO DUCTUS ARTERIOSUS	P

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DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #	GRADE
28371 (CONTINUED)		
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	1,2,3,4,5,7,8,9,10,11,12,13,14,15,16,17	
VISCERAL	1,2,3,4,5,7,8,9,10,11,12,14,15,16,17	
SKELETAL	3,5,8,9,10,12,13,14,15,16,17	
28374	1 2 3 4 5 6 7 8 9 10 11 12 13	
	A A A A A A/ A A A A A E A	
SEX:	M F F F M M M M F M M - F	
CEPHALIC:	1,3,5,7,9,11	
EXTERNAL	12 EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,13	
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,13	
SKELETAL	1,2,3,4,5,6,7,8,9,10,11,13	
28376	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
	A A A A A A A/ A A A A A A A A A	
SEX:	F F F M M M M F M M F F F M M F	
CEPHALIC:	1,3,5,7,9,11,13,15	
SKELETAL	6 V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	15 V CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	
SKELETAL	1,2,3,4,5,7,8,9,10,11,12,13,14,16	
28389	1 2 3 4 5 6 7 8 9 10 11 12 13	
	A A A A A A A A A/ A A A A	
SEX:	M M F M M M F M M M F M F	
CEPHALIC:	2,4,6,8,10,12	

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DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28389 (CONTINUED)				
	VISCERAL	1	RENAL PAPILLA(E) NOT FULLY DEVELOPED (WOO AND HOAR GRADE 1) RIGHT	P
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	13	V 14TH RUDIMENTARY RIB(S) RIGHT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	2,3,4,5,6,7,8,9,10,11,12,13		
	SKELETAL	1,5		

28402		1	2	3	4	5	6	7	8	9	10	11	12	13
		A	A	A	A/	A	A	A	A	E	A	A	A	A
	SEX:	M	F	M	F	F	F	F	M	-	F	M	F	F
	CEPHALIC:	1,3,5,7,10,12												

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DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28402 (CONTINUED)				
	SKELETAL	2	V HYOID UNOSSIFIED	P
	SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	6	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
	EXTERNAL	9	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,10,11,12,13		
	VISCERAL	1,2,3,4,5,6,7,8,10,11,12,13		
	SKELETAL	1,4,5,8,10,11,12,13		
28403		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		A A A A E A A A/ A A A A A A A		
	SEX:	F F M F - F M F F M M F F F F		
	CEPHALIC:	2,4,7,9,11,13,15		
	SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	5	EARLY RESORPTION	
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,6,7,8,9,10,11,12,13,14,15		
	VISCERAL	1,2,3,4,6,7,8,9,10,11,12,13,14,15		
	SKELETAL	1,2,4,6,7,8,9,11,12,13,14,15		
28407		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A E A A/ A A A A A A A A E A A		
	SEX:	F M - F F F M M F M F M F - M F		
	CEPHALIC:	2,5,7,9,11,13,16		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28407 (CONTINUED)				
	SKELETAL	1	V REDUCED OSSIFICATION OF THE SKULL FRONTAL, BILATERAL	1
			V REDUCED OSSIFICATION OF THE VERTEBRAL ARCHES CERVICAL #4 THROUGH #6, BILATERAL	2
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
			V STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED #2 AND #4	P
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	3	EARLY RESORPTION	
	SKELETAL	5	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	12	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	14	EARLY RESORPTION	
	SKELETAL	15	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,4,5,6,7,8,9,10,11,12,13,15,16		
	VISCERAL	1,2,4,5,6,7,8,9,10,11,12,13,15,16		
	SKELETAL	4,6,8,9		

28416	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	A	A	A	A	A	A	A	A/	A	A	A	A	A	A
SEX:	F	M	F	M	F	M	F	M	M	F	F	M	F	M
CEPHALIC:	1,3,5,7,9,11,13													

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 3: 5 MG/KG/DAY		FETUS #		GRADE
28416 (CONTINUED)				
	SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	5	V CERVICAL CENTRUM #1 OSSIFIED	P
			V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	7	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	8	V HYOID UNOSSIFIED	P
			V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
	SKELETAL	1,2,4,6,10,12,13,14		
28422		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		
		A A A A A A A A/ A A A A A A A A A A		
	SEX:	F F F F F M F M F M M M M M F F M M		
	CEPHALIC:	1,3,5,7,9,11,13,15,17		
	SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
			V REDUCED OSSIFICATION OF THE 13TH RIB(S) RIGHT	1

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 3: 5 MG/KG/DAY	FETUS #		GRADE
28422 (CONTINUED)			
SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
SKELETAL	1,3,5,6,7,8,9,10,11,12,14,15,17,18		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #		GRADE
28258		1 2 3 4 5 6 7 8 9 10 11 12 13	
		A A A A/ A A A A A A A A A	
	SEX:	M F M F M F M M F M F M M	
	CEPHALIC:	1,3,5,7,9,11,13	
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,4,5,6,7,8,9,10,11,12,13	
VISCERAL		1,2,3,4,5,6,7,8,9,10,11,12,13	
SKELETAL		1,2,3,4,5,6,7,8,9,10,11,12,13	
28261		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	
		A A A E A/ A A A E A A A A A A	
	SEX:	F M M - M M F M - F F M M F M	
	CEPHALIC:	2,5,7,10,12,14	
SKELETAL		1 V CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL		4 EARLY RESORPTION	
SKELETAL		6 V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL		7 V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL		8 V CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL		9 EARLY RESORPTION	
SKELETAL		11 V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS	
EXTERNAL		1,2,3,5,6,7,8,10,11,12,13,14,15	
VISCERAL		1,2,3,5,6,7,8,10,11,12,13,14,15	
SKELETAL		2,3,5,10,12,13,14,15	
28264		1 2 3 4 5 6 7 8 9 10 11 12	
		A A A A A A A/ A A A A A	
	SEX:	M F F M F M F M M F F F	
	CEPHALIC:	1,3,5,7,9,11	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY		FETUS #		GRADE
28264 (CONTINUED)				
	SKELETAL	2	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	4	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12		
	SKELETAL	1,3,11,12		
28265		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		A A E A A A A A/ A A A A A A A A		
	SEX:	F F - M F M F F M M F F F F M M		
	CEPHALIC:	2,5,7,9,11,13,15		
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S) LEFT	P
	EXTERNAL	3	EARLY RESORPTION	
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V CERVICAL CENTRUM #1 OSSIFIED	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16		
	SKELETAL	2,4,5,7,9,10,11,12,13,14,15,16		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #			GRADE
28273	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A A A A A A A/ A A A A A A A			
SEX:	M M M M F F F F F F F F M			
CEPHALIC:	2,4,6,8,10,12,14			
SKELETAL	1	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
VISCERAL	3	V	RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
SKELETAL		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
VISCERAL	5	V	RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	1
SKELETAL		V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
VISCERAL	6	V	RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	2
SKELETAL	11	V	CERVICAL CENTRUM #1 OSSIFIED	P
NO REMARKABLE OBSERVATIONS				
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14			
VISCERAL	1,2,4,7,8,9,10,11,12,13,14			
SKELETAL	2,4,6,7,8,9,10,12,13,14			
28274	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17			
	A A E A A A A A A/ A A E A A A A A			
SEX:	M F - F M M M F F M M - F M F F F			
CEPHALIC:	1,4,6,8,10,13,15,17			
EXTERNAL	3		EARLY RESORPTION	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 4: 25 MG/KG/DAY		FETUS #		GRADE
28274 (CONTINUED)				
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	12	EARLY RESORPTION	
	SKELETAL	16	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,4,5,6,7,8,9,10,11,13,14,15,16,17		
	VISCERAL	1,2,4,5,6,7,8,9,10,11,13,14,15,16,17		
	SKELETAL	1,2,4,5,6,7,8,10,11,13,14,15,17		
28276		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19		
		A E A A A A A A A A E A/ E A A A A A		
	SEX:	F - F F M M M M M F - M - F M M M F M		
	CEPHALIC:	1,4,6,8,10,14,16,18		
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	VISCERAL	19	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) KIDNEY, RIGHT (WOO AND HOAR GRADE 0)	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,3,4,5,6,7,8,9,10,12,14,15,16,17,18,19		
	VISCERAL	1,3,4,5,6,7,8,9,10,12,14,15,16,17,18		
	SKELETAL	1,3,4,5,6,7,8,9,10,12,14,15,16,17,18,19		
28287		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		A A A A A A A A/ A A A A A A A		
	SEX:	F F F F F M M M M F M F F F M		
	CEPHALIC:	2,4,6,8,10,12,14		
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) LEFT	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #		GRADE
28287 (CONTINUED)			
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) RIGHT	P
SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15		
SKELETAL	1,2,4,5,6,8,9,10,11,13,14,15		
28292	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	A A E E E A A/ E A A E A A A E A		
SEX:	F F - - - M F - M M - F M F - M		
CEPHALIC:	1,6,9,12,14		
SKELETAL	2	V 7TH CERVICAL RIB(S) PINPOINT, LEFT	P
EXTERNAL	3	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
SKELETAL	9	V 14TH RUDIMENTARY RIB(S) LEFT	P
VISCERAL	10	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S) URETER, BILATERAL	2
EXTERNAL	11	EARLY RESORPTION	
SKELETAL	14	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	15	EARLY RESORPTION	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #			GRADE
28292 (CONTINUED)				
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,6,7,9,10,12,13,14,16			
VISCERAL	1,2,6,7,9,12,13,14,16			
SKELETAL	1,6,7,10,12,13,16			
28293	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
	A A A A A A A A/ A A A A A A A A			
SEX:	F M M M M M F M F M M M F F M F			
CEPHALIC:	2,4,6,8,10,12,14,16			
SKELETAL	7	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
VISCERAL	9	V	SPLEEN- PALE	P
SKELETAL		V	REDUCED OSSIFICATION OF THE SKULL NASAL, BILATERAL	1
		M	VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY CERVICAL ARCHES #5 AND #6 FUSED, BILATERAL	P
VISCERAL	12	V	SPLEEN- PALE	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16			
VISCERAL	1,2,3,4,5,6,7,8,10,11,13,14,15,16			
SKELETAL	1,2,3,4,5,6,8,10,11,12,13,14,15,16			
28311	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
	A A A A A A L/ A A A A A A A A			
SEX:	F F M F M M - F M M F M M M M			
CEPHALIC:	2,4,6,9,11,13,15			
SKELETAL	1	V	CERVICAL CENTRUM #1 OSSIFIED	P
		V	REDUCED OSSIFICATION OF THE 13TH RIB(S)	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #			GRADE
28311 (CONTINUED)				
			RIGHT	
SKELETAL	2	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
VISCERAL	5	V	RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S)	1
			URETER, BILATERAL	
SKELETAL		V	CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL	7		LATE RESORPTION	
			CROWN-RUMP LENGTH: 2.0 CM, MUMMIFIED	
SKELETAL	14	V	CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,8,9,10,11,12,13,14,15			
VISCERAL	1,2,3,4,6,8,9,10,11,12,13,14,15			
SKELETAL	3,4,6,8,9,10,11,12,13,15			
28317	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A A A E A A A A A/ A A A A A			
SEX:	F F M - M M M F M F M F M F			
CEPHALIC:	2,5,7,9,11,13			
EXTERNAL	4		EARLY RESORPTION	
SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
SKELETAL	10	V	14TH RUDIMENTARY RIB(S)	P
			LEFT	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,5,6,7,8,9,10,11,12,13,14			
VISCERAL	1,2,3,5,6,7,8,9,10,11,12,13,14			
SKELETAL	1,2,3,6,7,8,9,11,12,13,14			
28320	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
	A A A A A A A A A/ A A A A A A			
SEX:	M M M M F F F F M M F F M M M			
CEPHALIC:	1,3,5,7,9,11,13,15			

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #			GRADE
28320 (CONTINUED)				
SKELETAL	2	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	4	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	6	V	CERVICAL CENTRUM #1 OSSIFIED	P
VISCERAL	9	V	MAJOR BLOOD VESSEL VARIATION RIGHT CAROTID AND RIGHT SUBCLAVIAN ARISE INDEPENDENTLY FROM THE AORTIC ARCH (NO BRACHIOCEPHALIC TRUNK)	P
SKELETAL		V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V	CERVICAL CENTRUM #1 OSSIFIED	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15			
VISCERAL	1,2,3,4,5,6,7,8,10,11,12,13,14,15			
SKELETAL	1,3,5,7,8,10,12,13,14,15			
28334	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
	A E A A A E A/ A A A A A E A A A			
SEX:	M - F M M - F F M M M M - M M F			
CEPHALIC:	1,4,7,9,11,14,16			
SKELETAL	1	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	2		EARLY RESORPTION	
SKELETAL	4	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	6		EARLY RESORPTION	
SKELETAL	7	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	12	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
EXTERNAL	13		EARLY RESORPTION	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #		GRADE
28334 (CONTINUED)			
SKELETAL	14	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	15	V 27 PRESACRAL VERTEBRAE	P
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,3,4,5,7,8,9,10,11,12,14,15,16		
VISCERAL	1,3,4,5,7,8,9,10,11,12,14,15,16		
SKELETAL	3,5,8,9,10		
28349	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	E A A A A A A A/ E A A A E A E		
SEX:	- F M M M F M M - M M F - F -		
CEPHALIC:	3,5,7,10,12		
EXTERNAL	1	EARLY RESORPTION	
SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	9	EARLY RESORPTION	
VISCERAL	10	V MAJOR BLOOD VESSEL VARIATION RIGHT CAROTID AND RIGHT SUBCLAVIAN ARISE INDEPENDENTLY FROM THE AORTIC ARCH (NO BRACHIOCEPHALIC TRUNK)	P
EXTERNAL	13	EARLY RESORPTION	
EXTERNAL	15	EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	2,3,4,5,6,7,8,10,11,12,14		
VISCERAL	2,3,4,5,6,7,8,11,12,14		
SKELETAL	2,4,5,6,7,8,10,11,12,14		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #															GRADE
28356		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		A	A	A	A	A	E	A	A/	A	A	A	A	A	A	A
	SEX:	F	F	F	M	M	-	F	M	M	F	F	F	M	M	M
	CEPHALIC:	1,3,8,10,12,14														
SKELETAL		1 V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3 AND #4														1
EXTERNAL		6 EARLY RESORPTION														
SKELETAL		7 V 7TH CERVICAL RIB(S) PINPOINT, RIGHT														P
		NO REMARKABLE OBSERVATIONS														
EXTERNAL		1,2,3,4,5,7,8,9,10,11,12,13,14,15														
VISCERAL		1,2,3,4,5,7,8,9,10,11,12,13,14,15														
SKELETAL		2,3,4,5,8,9,10,11,12,13,14,15														
28360		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		A	A	A	A	A/	A	A	A	A	A	A	A	A	A	
	SEX:	F	F	M	M	F	F	F	F	M	F	F	F	M	F	
	CEPHALIC:	1,3,5,7,9,11,13														
SKELETAL		1 V 14TH RUDIMENTARY RIB(S) LEFT														P
SKELETAL		7 V 14TH RUDIMENTARY RIB(S) LEFT														P
SKELETAL		8 V 14TH RUDIMENTARY RIB(S) BILATERAL														P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #																GRADE
28360 (CONTINUED)																	
	NO REMARKABLE OBSERVATIONS																
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14																
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14																
SKELETAL	2,3,4,5,6,9,10,11,12,13,14																
28361		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
		A	A	A	A	A	A	A	A	A/	A	A	A	E	A	A	A	A	
	SEX:	M	M	F	M	F	M	M	M	F	F	F	F	-	F	M	M	M	
	CEPHALIC:	2,4,6,8,10,12,15,17																	
SKELETAL		2								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
SKELETAL		3								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
										V 14TH RUDIMENTARY RIB(S)									P
										LEFT									
SKELETAL		4								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
SKELETAL		5								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
SKELETAL		7								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
SKELETAL		8								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
SKELETAL		9								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
SKELETAL		10								V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED									P
										#5									
										V REDUCED OSSIFICATION OF THE 13TH RIB(S)									P
										RIGHT									

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY		FETUS #		GRADE
28361 (CONTINUED)				
	SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
	SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
	EXTERNAL	13	EARLY RESORPTION	
	SKELETAL	14	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
	SKELETAL	15	V REDUCED OSSIFICATION OF THE 13TH RIB(S)	P
			RIGHT	
	SKELETAL	16	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
	SKELETAL	17	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
			#5	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,14,15,16,17		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,14,15,16,17		
	SKELETAL	1,6		
28365		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		A A E A A A/ A A A A A A A A A A A		
	SEX:	M M - M M F M M M F M M M F F F M		
	CEPHALIC:	2,5,7,9,11,13,15,17		
	EXTERNAL	3	EARLY RESORPTION	
	VISCERAL	16	RENAL PAPILLA(E) NOT FULLY DEVELOPED (WOO AND HOAR GRADE 1)	P
			RIGHT	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17		
	VISCERAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,17		
	SKELETAL	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #			GRADE
28382	1 2 3 4 5 6 7 8			
	A A A A A A/ A A			
SEX:	F M F M M F F F			
CEPHALIC:	1,3,5,7			
SKELETAL	3	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	6	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	7	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
NO REMARKABLE OBSERVATIONS				
EXTERNAL	1,2,3,4,5,6,7,8			
VISCERAL	1,2,3,4,5,6,7,8			
SKELETAL	1,2,4,5,8			
28387	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A A A A A A/ E A A A A A A A			
SEX:	F F M F M F - F M F M M F M			
CEPHALIC:	2,4,6,9,11,13			
SKELETAL	1	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	3	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	4	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	5	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	6	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY	FETUS #			GRADE
28387 (CONTINUED)				
EXTERNAL	7		EARLY RESORPTION	
SKELETAL	8	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	11	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	12	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	13	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	14	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,8,9,10,11,12,13,14			
VISCERAL	1,2,3,4,5,6,8,9,10,11,12,13,14			
SKELETAL	2,9,10			
28396	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A E A A A A A A A/ A A A E A			
SEX:	F - M F M F M F F M F M - F			
CEPHALIC:	1,4,6,8,10,12			
EXTERNAL	2		EARLY RESORPTION	
SKELETAL	9	V	CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	11	V	CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL	13		EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,3,4,5,6,7,8,9,10,11,12,14			
VISCERAL	1,3,4,5,6,7,8,9,10,11,12,14			
SKELETAL	1,3,4,5,6,7,8,10,12,14			
28412	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18			
	A A A A A A A/ A A A A A A A A A A			
SEX:	F M F M M M M M M M F M F F F M F M			
CEPHALIC:	1,3,5,7,9,11,13,15,17			

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 4: 25 MG/KG/DAY		FETUS #		GRADE
28412 (CONTINUED)				
	SKELETAL	6	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	7	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	9	V CERVICAL CENTRUM #1 OSSIFIED	P
	SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18		
	SKELETAL	1,2,3,4,5,10,12,13,14,15,16,17,18		
28418		1 2 3 4 5 6 7 8 9 10 11 12 13		
		A A A A A A A/ A A A A A A		
	SEX:	M F F F M M F F M M M M M		
	CEPHALIC:	1,3,5,7,9,11,13		
	SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	SKELETAL	1,3,4,5,6,7,8,9,10,11,12,13		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #																	GRADE
28255		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
		A	E	A	A	E	E	A	A	A	L/	E	A	A	E	A	L	L	
	SEX:	M	-	M	M	-	-	F	M	M	-	-	M	M	-	M	-	-	
	CEPHALIC:	3,7,9,13																	
EXTERNAL		2																	EARLY RESORPTION
EXTERNAL		5																	EARLY RESORPTION
EXTERNAL		6																	EARLY RESORPTION
EXTERNAL		10																	LATE RESORPTION CROWN-RUMP LENGTH: 3.0 CM, SEVERE AUTOLYSIS, NO APPARENT MALFORMATIONS
EXTERNAL		11																	EARLY RESORPTION
EXTERNAL		14																	EARLY RESORPTION
EXTERNAL		16																	LATE RESORPTION CROWN-RUMP LENGTH: 2.5 CM, SEVERE AUTOLYSIS, NO APPARENT MALFORMATIONS
EXTERNAL		17																	LATE RESORPTION CROWN-RUMP LENGTH: 2.5 CM, SEVERE AUTOLYSIS, NO APPARENT MALFORMATIONS
	NO REMARKABLE OBSERVATIONS																		
EXTERNAL	1,3,4,7,8,9,12,13,15																		
VISCERAL	1,3,4,7,8,9,12,13,15																		
SKELETAL	1,3,4,7,8,9,12,13,15																		
28260		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
		E	E	E	E	E	L	E/	E	E	E	E	E	E	E	D	A	L	
	SEX:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-	
	CEPHALIC:	16																	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY		FETUS #			GRADE
28260 (CONTINUED)					
	EXTERNAL	1		EARLY RESORPTION	
	EXTERNAL	2		EARLY RESORPTION	
	EXTERNAL	3		EARLY RESORPTION	
	EXTERNAL	4		EARLY RESORPTION	
	EXTERNAL	5		EARLY RESORPTION	
	EXTERNAL	6		LATE RESORPTION CROWN-RUMP LENGTH: 2.2 CM, MUMMIFIED	
	EXTERNAL	7		EARLY RESORPTION	
	EXTERNAL	8		EARLY RESORPTION	
	EXTERNAL	9		EARLY RESORPTION	
	EXTERNAL	10		EARLY RESORPTION	
	EXTERNAL	11		EARLY RESORPTION	
	EXTERNAL	12		EARLY RESORPTION	
	EXTERNAL	13		EARLY RESORPTION	
	EXTERNAL	14		EARLY RESORPTION	
	EXTERNAL	15		DEAD FETUS CROWN-RUMP LENGTH: 3.1 CM, WEIGHT: 1.97 G, FEMALE, NO APPARENT MALFORMATIONS	
	SKELETAL	16	V	REDUCED OSSIFICATION OF THE VERTEBRAL ARCHES CERVICAL #3 THROUGH #7, BILATERAL	1
			V	27 PRESACRAL VERTEBRAE	P
			V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
	EXTERNAL	17		LATE RESORPTION CROWN-RUMP LENGTH: 2.0 CM, MUMMIFIED	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	16			
	VISCERAL	16			
	SKELETAL				

28275	1	2	3	4	5	6	7	8	9	10	11	12	13
	A	A	A	A	A/	A	A	A	A	A	E	A	A
SEX:	M	M	M	F	F	M	M	M	F	M	-	M	M
CEPHALIC:	2,4,6,8,10,13												

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #		GRADE
28275 (CONTINUED)			
SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	3	V CERVICAL CENTRUM #1 OSSIFIED	P
SKELETAL	4	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	6	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
VISCERAL	8	V RENAL PAPILLA(E) NOT DEVELOPED AND/OR DISTENDED URETER(S)	P
		KIDNEY, RIGHT (WOO AND HOAR GRADE 0); URETER, SLIGHT, RIGHT	
SKELETAL		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
EXTERNAL	11	EARLY RESORPTION	
SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	13	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,12,13		
VISCERAL	1,2,3,4,5,6,7,9,10,12,13		
SKELETAL	2,5,7,9,10		

28278	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	E	E	E	E	E	A	E/	E	A	A	E	A	E	E	E	A	E
SEX:	-	-	-	-	-	M	-	-	M	F	-	F	-	-	-	F	-
CEPHALIC:	6,10,16																

EXTERNAL	1	EARLY RESORPTION	
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	3	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY		FETUS #			GRADE
28278 (CONTINUED)					
	EXTERNAL	5		EARLY RESORPTION	
	EXTERNAL	7		EARLY RESORPTION	
	EXTERNAL	8		EARLY RESORPTION	
	SKELETAL	9	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	11		EARLY RESORPTION	
	EXTERNAL	13		EARLY RESORPTION	
	EXTERNAL	14		EARLY RESORPTION	
	EXTERNAL	15		EARLY RESORPTION	
	SKELETAL	16	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
	EXTERNAL	17		EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS				
	EXTERNAL	6,9,10,12,16			
	VISCERAL	6,9,10,12,16			
	SKELETAL	6,10,12			
28291		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17			
		A E A E A A A E E/ E E A A A A A A			
	SEX:	M - M - M F F - - - - F F M M F M			
	CEPHALIC:	3,6,12,14,16			
	EXTERNAL	2		EARLY RESORPTION	
	EXTERNAL	4		EARLY RESORPTION	
	EXTERNAL	8		EARLY RESORPTION	
	EXTERNAL	9		EARLY RESORPTION	
	EXTERNAL	10		EARLY RESORPTION	
	EXTERNAL	11		EARLY RESORPTION	
	VISCERAL	14	V	MAJOR BLOOD VESSEL VARIATION RIGHT CAROTID AND RIGHT SUBCLAVIAN ARISE INDEPENDENTLY FROM	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #																GRADE
28291 (CONTINUED)																	
								THE AORTIC ARCH (NO BRACHIOCEPHALIC TRUNK)									
							NO REMARKABLE OBSERVATIONS										
EXTERNAL							1,3,5,6,7,12,13,14,15,16,17										
VISCERAL							1,3,5,6,7,12,13,15,16,17										
SKELETAL							1,3,5,6,7,12,13,14,15,16,17										
28294							1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16										
							A E E A A A E/ E E A E E A E L E										
				SEX:			M - - M F F - - - F - - F - - -										
				CEPHALIC:			4,5,10										
SKELETAL						1	V REDUCED OSSIFICATION OF THE SKULL										1
							NASAL, BILATERAL										
EXTERNAL						2	EARLY RESORPTION										
EXTERNAL						3	EARLY RESORPTION										
SKELETAL						4	V CERVICAL CENTRUM #1 OSSIFIED										P
SKELETAL						6	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED										P
							#5 AND #6										
EXTERNAL						7	EARLY RESORPTION										
EXTERNAL						8	EARLY RESORPTION										
EXTERNAL						9	EARLY RESORPTION										
EXTERNAL						11	EARLY RESORPTION										
EXTERNAL						12	EARLY RESORPTION										
VISCERAL						13	V MAJOR BLOOD VESSEL VARIATION										P
							RIGHT CAROTID AND RIGHT SUBCLAVIAN ARISE INDEPENDENTLY FROM										
							AORTIC ARCH (NO BRACHIOCEPHALIC TRUNK)										
EXTERNAL						14	EARLY RESORPTION										
EXTERNAL						15	LATE RESORPTION										
							CROWN-RUMP LENGTH: 3.0 CM, SLIGHT AUTOLYSIS WITH NO APPARENT										
							MALFORMATIONS										

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #		GRADE
28294 (CONTINUED)			
EXTERNAL	16	EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,4,5,6,10,13		
VISCERAL	1,4,5,6,10		
SKELETAL	5,10,13		
28298	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	E E E E E E E E E/ A E E E E E		
SEX:	- - - - - - - - - M - - - - -		
CEPHALIC:	10		
EXTERNAL	1	EARLY RESORPTION	
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	3	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	
SKELETAL	10	V CERVICAL CENTRUM #1 OSSIFIED	P
EXTERNAL	11	EARLY RESORPTION	
EXTERNAL	12	EARLY RESORPTION	
EXTERNAL	13	EARLY RESORPTION	
EXTERNAL	14	EARLY RESORPTION	
EXTERNAL	15	EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	10		
VISCERAL	10		
SKELETAL			

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #																GRADE
28307		1	2	3	4	5	6	7	8	9	10	11	12	13			
		E	E	E/	E	A	E	E	E	E	E	E	E	E			
	SEX:	-	-	-	-	F	-	-	-	-	-	-	-	-			
EXTERNAL				1		EARLY RESORPTION											
EXTERNAL				2		EARLY RESORPTION											
EXTERNAL				3		EARLY RESORPTION											
EXTERNAL				4		EARLY RESORPTION											
EXTERNAL				6		EARLY RESORPTION											
EXTERNAL				7		EARLY RESORPTION											
EXTERNAL				8		EARLY RESORPTION											
EXTERNAL				9		EARLY RESORPTION											
EXTERNAL				10		EARLY RESORPTION											
EXTERNAL				11		EARLY RESORPTION											
EXTERNAL				12		EARLY RESORPTION											
EXTERNAL				13		EARLY RESORPTION											
	NO REMARKABLE OBSERVATIONS																
EXTERNAL		5															
VISCERAL		5															
SKELETAL		5															
28310		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		E	E	E	E	A	E	A	A	E/	E	E	E	A	A	E	A	E
	SEX:	-	-	-	-	M	-	F	M	-	-	-	-	F	F	-	M	-
	CEPHALIC:	5,8,14																
EXTERNAL				1		EARLY RESORPTION											
EXTERNAL				2		EARLY RESORPTION											
EXTERNAL				3		EARLY RESORPTION											

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY		FETUS #			GRADE
28310 (CONTINUED)					
	EXTERNAL	4		EARLY RESORPTION	
	EXTERNAL	6		EARLY RESORPTION	
	SKELETAL	7	V	REDUCED OSSIFICATION OF THE VERTEBRAL ARCHES CERVICAL #4 THROUGH #6, BILATERAL	1
			V	REDUCED OSSIFICATION OF THE SKULL PARIETAL, BILATERAL	1
			V	REDUCED OSSIFICATION OF THE 13TH RIB(S) LEFT	1
	SKELETAL	8	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
	EXTERNAL	9		EARLY RESORPTION	
	EXTERNAL	10		EARLY RESORPTION	
	EXTERNAL	11		EARLY RESORPTION	
	EXTERNAL	12		EARLY RESORPTION	
	SKELETAL	13	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	14	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	15		EARLY RESORPTION	
	SKELETAL	16	V	CERVICAL CENTRUM #1 OSSIFIED	P
	EXTERNAL	17		EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	5,7,8,13,14,16			
	VISCERAL	5,7,8,13,14,16			
	SKELETAL	5			

28326		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		E	E	E	E	E	E	E/	E	E	E	E	A	E	E	E	E
	SEX:	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	CEPHALIC:	12															

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY		FETUS #		GRADE
28326 (CONTINUED)				
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	12		
	VISCERAL	12		
	SKELETAL	12		
28332		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		E E E E E E E/ E E E E E E E		
	SEX:	- - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #			GRADE
28332 (CONTINUED)				
EXTERNAL	7	EARLY RESORPTION		
EXTERNAL	8	EARLY RESORPTION		
EXTERNAL	9	EARLY RESORPTION		
EXTERNAL	10	EARLY RESORPTION		
EXTERNAL	11	EARLY RESORPTION		
EXTERNAL	12	EARLY RESORPTION		
EXTERNAL	13	EARLY RESORPTION		
EXTERNAL	14	EARLY RESORPTION		
28335	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A A A/ A A A A A A A A A A			
SEX:	F F M F M F F M M M F F M F			
CEPHALIC:	2,4,6,8,10,12,14			
SKELETAL	11	V CERVICAL CENTRUM #1 OSSIFIED		P
		V 14TH RUDIMENTARY RIB(S) LEFT		P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14			
VISCERAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14			
SKELETAL	1,2,3,4,5,6,7,8,9,10,12,13,14			
28337	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
	E A A E E A/ E A A A A A A A E			
SEX:	- M M - - M - M M M M M F M F -			
CEPHALIC:	3,8,10,12,14			
EXTERNAL	1	EARLY RESORPTION		
SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5		P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY		FETUS #			GRADE
28337 (CONTINUED)					
	EXTERNAL	4		EARLY RESORPTION	
	EXTERNAL	5		EARLY RESORPTION	
	SKELETAL	6	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
	EXTERNAL	7		EARLY RESORPTION	
	SKELETAL	8	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	9	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	10	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	12	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	SKELETAL	13	V	14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	15	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	EXTERNAL	16		EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	2,3,6,8,9,10,11,12,13,14,15			
	VISCERAL	2,3,6,8,9,10,11,12,13,14,15			
	SKELETAL	3,11,14			

28343		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		E	E	E	E	E/	E	E	E	E	E	E	E	E	E	E	
	SEX:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EXTERNAL	1					EARLY RESORPTION										
	EXTERNAL	2					EARLY RESORPTION										
	EXTERNAL	3					EARLY RESORPTION										

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #			GRADE
28343 (CONTINUED)				
EXTERNAL	4	EARLY RESORPTION		
EXTERNAL	5	EARLY RESORPTION		
EXTERNAL	6	EARLY RESORPTION		
EXTERNAL	7	EARLY RESORPTION		
EXTERNAL	8	EARLY RESORPTION		
EXTERNAL	9	EARLY RESORPTION		
EXTERNAL	10	EARLY RESORPTION		
EXTERNAL	11	EARLY RESORPTION		
EXTERNAL	12	EARLY RESORPTION		
EXTERNAL	13	EARLY RESORPTION		
EXTERNAL	14	EARLY RESORPTION		
EXTERNAL	15	EARLY RESORPTION		
28362	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
	A E A A A A A A/ E A A A A A A			
SEX:	M - M M M F M M - F M F F M F			
CEPHALIC:	1,4,6,8,11,13,15			
EXTERNAL	2	EARLY RESORPTION		
SKELETAL	5	V	REDUCED OSSIFICATION OF THE SKULL NASAL, BILATERAL	1
EXTERNAL	9	EARLY RESORPTION		
SKELETAL	12	V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,3,4,5,6,7,8,10,11,12,13,14,15			
VISCERAL	1,3,4,5,6,7,8,10,11,12,13,14,15			
SKELETAL	1,3,4,6,7,8,10,11,13,14,15			
28369	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
	E E A E E E E E/ E A E E A A A			
SEX:	- - M - - - - - - F - - F F M			
CEPHALIC:	10,14			

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #			GRADE
28369 (CONTINUED)				
EXTERNAL	1	EARLY RESORPTION		
EXTERNAL	2	EARLY RESORPTION		
EXTERNAL	4	EARLY RESORPTION		
EXTERNAL	5	EARLY RESORPTION		
EXTERNAL	6	EARLY RESORPTION		
EXTERNAL	7	EARLY RESORPTION		
EXTERNAL	8	EARLY RESORPTION		
EXTERNAL	9	EARLY RESORPTION		
EXTERNAL	11	EARLY RESORPTION		
EXTERNAL	12	EARLY RESORPTION		
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	3,10,13,14,15			
VISCERAL	3,10,13,14,15			
SKELETAL	3,10,13,14,15			
28379	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
	E A A A A/ E A A A L A A A A E			
SEX:	- F F M M - F M F - F M M F -			
CEPHALIC:	3,5,8,11,13			
EXTERNAL	1	EARLY RESORPTION		
EXTERNAL	6	EARLY RESORPTION		
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) RIGHT		P
SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5		P
EXTERNAL	10	LATE RESORPTION CROWN-RUMP LENGTH: 3.0 CM, SLIGHT AUTOLYSIS, NO APPARENT MALFORMATIONS		
SKELETAL	14	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED		P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #	GRADE
28379 (CONTINUED)		
	#5	
EXTERNAL	15 EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	2,3,4,5,7,8,9,11,12,13,14	
VISCERAL	2,3,4,5,7,8,9,11,12,13,14	
SKELETAL	2,3,4,5,9,11,12,13	
28380	1 2 3 4 5 6 7 8 9 10 11 12 13	
	E E E E E E E/ E E E E A E	
SEX:	- - - - - - - - - - - F -	
CEPHALIC:	12	
EXTERNAL	1 EARLY RESORPTION	
EXTERNAL	2 EARLY RESORPTION	
EXTERNAL	3 EARLY RESORPTION	
EXTERNAL	4 EARLY RESORPTION	
EXTERNAL	5 EARLY RESORPTION	
EXTERNAL	6 EARLY RESORPTION	
EXTERNAL	7 EARLY RESORPTION	
EXTERNAL	8 EARLY RESORPTION	
EXTERNAL	9 EARLY RESORPTION	
EXTERNAL	10 EARLY RESORPTION	
EXTERNAL	11 EARLY RESORPTION	
EXTERNAL	13 EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	12	
VISCERAL	12	
SKELETAL	12	
28390	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	
	E E E E E E E E/ A A E E E E E E L E E	
SEX:	- - - - - - - - M M - - - - - - - - -	
CEPHALIC:	9	

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DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #			GRADE
28390 (CONTINUED)				
EXTERNAL	1	EARLY RESORPTION		
EXTERNAL	2	EARLY RESORPTION		
EXTERNAL	3	EARLY RESORPTION		
EXTERNAL	4	EARLY RESORPTION		
EXTERNAL	5	EARLY RESORPTION		
EXTERNAL	6	EARLY RESORPTION		
EXTERNAL	7	EARLY RESORPTION		
EXTERNAL	8	EARLY RESORPTION		
SKELETAL	9	V	27 PRESACRAL VERTEBRAE	P
EXTERNAL	11	EARLY RESORPTION		
EXTERNAL	12	EARLY RESORPTION		
EXTERNAL	13	EARLY RESORPTION		
EXTERNAL	14	EARLY RESORPTION		
EXTERNAL	15	EARLY RESORPTION		
EXTERNAL	16	EARLY RESORPTION		
EXTERNAL	17	LATE RESORPTION		
		CROWN-RUMP LENGTH: 1.1 CM, MUMMIFIED		
EXTERNAL	18	EARLY RESORPTION		
EXTERNAL	19	EARLY RESORPTION		
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	9,10			
VISCERAL	9,10			
SKELETAL	10			
28391	1 2 3 4 5 6 7 8 9 10 11			
	E E A E/ E E E A E E E			
SEX:	- - M - - - - M - - -			
CEPHALIC:	8			
EXTERNAL	1	EARLY RESORPTION		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #		GRADE
28391 (CONTINUED)			
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	
EXTERNAL	10	EARLY RESORPTION	
EXTERNAL	11	EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	3,8		
VISCERAL	3,8		
SKELETAL	3,8		
28420	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	A A A A/ E A A A A A A A A A A A		
SEX:	M F M M - M M F F F F M M M F M		
CEPHALIC:	1,3,6,8,10,12,14,16		
SKELETAL	1	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
EXTERNAL	5	EARLY RESORPTION	
SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5	P
SKELETAL	10	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6	P
SKELETAL	15	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P

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SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #		GRADE
28420 (CONTINUED)			
		#5	
SKELETAL		V STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED	P
		#3 AND #4	
		V PUBIS UNOSSIFIED	P
		LEFT	
SKELETAL	16	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
		#3 AND #4	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,6,7,8,9,10,11,12,13,14,15,16		
VISCERAL	1,2,3,4,6,7,8,9,10,11,12,13,14,15,16		
SKELETAL	3,4,6,7,11,12,13,14		
28426	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	E E A E E/ E E A A A A A E E E		
SEX:	- - M - - - - F M M M M - - -		
CEPHALIC:	3,9,11		
EXTERNAL	1	EARLY RESORPTION	
EXTERNAL	2	EARLY RESORPTION	
SKELETAL	3	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
SKELETAL	8	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5 AND #6	
SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
SKELETAL	11	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY	FETUS #		GRADE
28426 (CONTINUED)			
		#5	
SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
EXTERNAL	13	EARLY RESORPTION	
EXTERNAL	14	EARLY RESORPTION	
EXTERNAL	15	EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	3,8,9,10,11,12		
VISCERAL	3,8,9,10,11,12		
SKELETAL	10		
28427	1 2 3 4 5 6 7 8 9 10 11 12 13 14		
	E A E A E E E/ E E E A A E E		
SEX:	- M - F - - - - - - M M - -		
CEPHALIC:	4,12		
EXTERNAL	1	EARLY RESORPTION	
SKELETAL	2	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5	
EXTERNAL	3	EARLY RESORPTION	
SKELETAL	4	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#6	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	
EXTERNAL	10	EARLY RESORPTION	
SKELETAL	12	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
		#5 AND #6	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 5: 150 MG/KG/DAY		FETUS #		GRADE
28427 (CONTINUED)				
	SKELETAL	12	V STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED #2	P
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	2,4,11,12		
	VISCERAL	2,4,11,12		
	SKELETAL	11		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 6: 450 MG/KG/DAY	FETUS #			GRADE
28251	1 E	SEX: -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
28252	1 E	SEX: -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	

28251	2 E	3 E	4 E	5 E	6 E/	7 E	8 E	9 E	10 E	11 E	12 E	13 E	14 E
SEX:	-	-	-	-	-	-	-	-	-	-	-	-	-

28252	2 E	3 E	4 E	5 E/	6 E	7 E	8 E	9 E	10 E	11 E	12 E	13 E	14 E	15 E
SEX:	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28252 (CONTINUED)				
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
28290		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		E E E E E E E E E/ E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	

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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28290 (CONTINUED)				
	EXTERNAL	17	EARLY RESORPTION	
28302		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		E E E E E E E/ E E E E E E E		
		SEX: - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
28303		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		E E E E E E/ E E E E E E E E		
		SEX: - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28303 (CONTINUED)				
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
28305		1 2 3 4 5 6 7 8 9 10 11 12 13		
		E E E E E E E E/ E E E E E		
	SEX:	- - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
28313		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		E E E E E E/ E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - - -		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28313 (CONTINUED)				
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
28322		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		E E E E E E/ E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	

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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28322 (CONTINUED)				
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
28323		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		
		E E E E E E E E/ E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
	EXTERNAL	17	EARLY RESORPTION	
28328		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
		E E E E E/ E E E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - - -		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28328 (CONTINUED)				
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
28331		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19		
		E E E E E E E E/ E E E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	

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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28331 (CONTINUED)				
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
	EXTERNAL	17	EARLY RESORPTION	
	EXTERNAL	18	EARLY RESORPTION	
	EXTERNAL	19	EARLY RESORPTION	
28336		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
		E E E E E/ E E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	

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DAMS FROM GROUP 6: 450 MG/KG/DAY	FETUS #															GRADE
28339		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		E	E	E	E	E	E	E	E	E/	E	E	E	E	E	E
	SEX:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXTERNAL	1	EARLY RESORPTION														
EXTERNAL	2	EARLY RESORPTION														
EXTERNAL	3	EARLY RESORPTION														
EXTERNAL	4	EARLY RESORPTION														
EXTERNAL	5	EARLY RESORPTION														
EXTERNAL	6	EARLY RESORPTION														
EXTERNAL	7	EARLY RESORPTION														
EXTERNAL	8	EARLY RESORPTION														
EXTERNAL	9	EARLY RESORPTION														
EXTERNAL	10	EARLY RESORPTION														
EXTERNAL	11	EARLY RESORPTION														
EXTERNAL	12	EARLY RESORPTION														
EXTERNAL	13	EARLY RESORPTION														
EXTERNAL	14	EARLY RESORPTION														
EXTERNAL	15	EARLY RESORPTION														
28340		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		E	E	E	E	E	E	E/	E	A	A	E	A	E	E	E
	SEX:	-	-	-	-	-	-	-	-	M	M	-	M	-	-	-
	CEPHALIC:	9,12														
EXTERNAL	1	EARLY RESORPTION														
EXTERNAL	2	EARLY RESORPTION														
EXTERNAL	3	EARLY RESORPTION														
EXTERNAL	4	EARLY RESORPTION														

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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DAMS FROM GROUP 6: 450 MG/KG/DAY	FETUS #			GRADE
28340 (CONTINUED)				
EXTERNAL	5	EARLY RESORPTION		
EXTERNAL	6	EARLY RESORPTION		
EXTERNAL	7	EARLY RESORPTION		
EXTERNAL	8	EARLY RESORPTION		
SKELETAL	9	V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6		P
SKELETAL	10	V REDUCED OSSIFICATION OF THE SKULL NASAL, BILATERAL		1
		V STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED #5 AND #6		P
		V STERNEBRA(E) #1,#2,#3 AND/OR #4 UNOSSIFIED #2		P
EXTERNAL	11	EARLY RESORPTION		
SKELETAL	12	V 14TH RUDIMENTARY RIB(S) BILATERAL		P
EXTERNAL	13	EARLY RESORPTION		
EXTERNAL	14	EARLY RESORPTION		
EXTERNAL	15	EARLY RESORPTION		
NO REMARKABLE OBSERVATIONS				
EXTERNAL	9,10,12			
VISCERAL	9,10,12			
SKELETAL				
28347	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19			
	E E E E E E E E E E E/ E E E E E E E E			
SEX:	- - - - - - - - - - - - - - - - - - -			
EXTERNAL	1	EARLY RESORPTION		
EXTERNAL	2	EARLY RESORPTION		
EXTERNAL	3	EARLY RESORPTION		

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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28347 (CONTINUED)				
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
	EXTERNAL	17	EARLY RESORPTION	
	EXTERNAL	18	EARLY RESORPTION	
	EXTERNAL	19	EARLY RESORPTION	
28348		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
	SEX:	E E E E E E/ E E E E E E E E E		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	

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DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28348 (CONTINUED)				
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
28363		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		E E E E E E/ E E E E E E E E		
	SEX:	- - - - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
28364		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19		
		E E E E E E/ E E E E E E E E E E E E E		
	SEX:	- - - - - - - - - - - - - - - - - - -		

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SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28364 (CONTINUED)				
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	EXTERNAL	9	EARLY RESORPTION	
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
	EXTERNAL	17	EARLY RESORPTION	
	EXTERNAL	18	EARLY RESORPTION	
	EXTERNAL	19	EARLY RESORPTION	
28372		1 2 3 4 5 6 7 8 9 10 11 12		
		E E E E/ E E E E E E E E		
	SEX:	- - - - - - - - - - - -		
	EXTERNAL	1	EARLY RESORPTION	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	

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DAMS FROM GROUP 6: 450 MG/KG/DAY	FETUS #		GRADE
28372 (CONTINUED)			
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	
EXTERNAL	10	EARLY RESORPTION	
EXTERNAL	11	EARLY RESORPTION	
EXTERNAL	12	EARLY RESORPTION	
28373	1 2 3 4 5 6 7 8 9 10 11 12 13 14		
	E E E E E E E E/ E E E E E E		
SEX:	- - - - - - - - - - - - - -		
EXTERNAL	1	EARLY RESORPTION	
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	3	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	
EXTERNAL	10	EARLY RESORPTION	
EXTERNAL	11	EARLY RESORPTION	
EXTERNAL	12	EARLY RESORPTION	
EXTERNAL	13	EARLY RESORPTION	
EXTERNAL	14	EARLY RESORPTION	
28405	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	E E E E E E/ E E E E E E E E E		
SEX:	- - - - - - - - - - - - - - - -		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

TABLE A19

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SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 6: 450 MG/KG/DAY	FETUS #		GRADE
28405 (CONTINUED)			
EXTERNAL	1	EARLY RESORPTION	
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	3	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	
EXTERNAL	10	EARLY RESORPTION	
EXTERNAL	11	EARLY RESORPTION	
EXTERNAL	12	EARLY RESORPTION	
EXTERNAL	13	EARLY RESORPTION	
EXTERNAL	14	EARLY RESORPTION	
EXTERNAL	15	EARLY RESORPTION	
EXTERNAL	16	EARLY RESORPTION	

28411	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	E	E	E	E	E	E	E	E	E/	E	E	E	E	E	E	E	E	E	E	E
SEX:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

EXTERNAL	1	EARLY RESORPTION	
EXTERNAL	2	EARLY RESORPTION	
EXTERNAL	3	EARLY RESORPTION	
EXTERNAL	4	EARLY RESORPTION	
EXTERNAL	5	EARLY RESORPTION	
EXTERNAL	6	EARLY RESORPTION	
EXTERNAL	7	EARLY RESORPTION	
EXTERNAL	8	EARLY RESORPTION	
EXTERNAL	9	EARLY RESORPTION	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

DAMS FROM GROUP 6: 450 MG/KG/DAY		FETUS #		GRADE
28411	(CONTINUED)			
	EXTERNAL	10	EARLY RESORPTION	
	EXTERNAL	11	EARLY RESORPTION	
	EXTERNAL	12	EARLY RESORPTION	
	EXTERNAL	13	EARLY RESORPTION	
	EXTERNAL	14	EARLY RESORPTION	
	EXTERNAL	15	EARLY RESORPTION	
	EXTERNAL	16	EARLY RESORPTION	
	EXTERNAL	17	EARLY RESORPTION	
	EXTERNAL	18	EARLY RESORPTION	
	EXTERNAL	19	EARLY RESORPTION	
	EXTERNAL	20	EARLY RESORPTION	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE