FINAL REPORT

Contents:	Text, Summary Tables, and Appendices A - E
Study Title:	A 14-Day Dose Range Finding Dermal Toxicity Study Utilizing Extract, Light Paraffinic Distillate Solvent in Sprague Dawley Rats
Study Number:	WIL-402018
Study Director:	[redacted]
Data Requirements:	Not Applicable
Study Initiation Date:	2 December 2010
Study Completion Date:	4 October 2012
Performing Laboratory:	WIL Research 1407 George Road Ashland, OH 44805-8946
Sponsor Number:	Not Applicable
Sponsor:	American Petroleum Institute 1220 L Street, NW Washington, DC 20005

COMPLIANCE STATEMENT

This non-GLP study, designated WIL-402018, was conducted in compliance with the WIL Research SOPs and the study protocol as approved by the Sponsor. The data tables and the associated raw data were audited by the Quality Assurance Department of WIL Research in compliance with the United States EPA GLP Standards 40 CFR Part 792 (18 September 1989).

[redacted]
Senior Toxicologist, General Toxicology
Study Director

4 Oct 2012
Date

TABLE OF CONTENTS

Page

INDEX OF TABLES

INDEX OF APPENDICES

1. SUMMARY

1.1. OBJECTIVE

The objectives of the study were to evaluate the potential skin irritation and systemic toxicity of repeated exposure of Extract, light paraffinic distillate solvent over 14 days, and to assist in dose selection for subsequent dermal toxicity studies (OECD 414 and 411) in Sprague Dawley rats.

1.2. STUDY DESIGN

Extract, light paraffinic distillate solvent (CAS 64742-05-8) in the vehicle, acetone, was administered by once daily dermal application for 14 consecutive days to 3 groups (Groups 3-5) of Crl:CD(SD) rats. Once weekly (on study days 6 and 13) the test site was gently patted in an effort to remove the residual test substance. All animals were collared continuously during the 14-day dosing period. Dosage levels were 5, 50, and 150 mg/kg/day for Groups 3, 4, and 5, respectively. A concurrent vehicle control group (Group 2) received the vehicle on a comparable regimen. The dose volume was 1.5 mL/kg for Groups 2-5. A concurrent sham control group (Group 1) was subjected to the same procedures (*i.e.*, shaving, collaring, sham dosing with glass rod, and weekly wiping) as the test substance-treated groups; however, no vehicle was applied to these animals. Each group (Groups 1-5) consisted of 2 animals/sex. Following 14 days of dose administration, all animals were euthanized (study day 14).

All animals were observed twice daily for mortality and moribundity. Clinical and dermal observations were recorded daily, and detailed physical examinations were performed weekly. Individual body weights and food consumption were recorded approximately weekly. Complete necropsies were conducted on all animals, and selected organs were weighed at the scheduled necropsy (study day 14).

1.3. RESULTS

All animals survived to the scheduled necropsy. There were no test substance-related clinical or dermal observations or macroscopic findings. There were no test substance-related effects on body weights, food consumption, or organ weights.

1.4. CONCLUSIONS

Based on the results of this study, dermal administration of Extract, light paraffinic distillate solvent over an area of approximately 10% of the shaved body surface area to Crl:CD[SD] rats for 14 consecutive days at dosage levels of 5, 50, and 150 mg/kg/day was well tolerated at all dosage levels. The maximum tolerated dose was determined to be 150 mg/kg.

2. INTRODUCTION

The objectives of the study were to evaluate the potential skin irritation and systemic toxicity of repeated exposure of Extract, light paraffinic distillate solvent over 14 days, and to assist in dose selection for subsequent dermal toxicity studies (OECD 414 and 411) in Sprague Dawley rats.

2.1. GENERAL STUDY INFORMATION

This report presents the data from "A 14-Day Dose Range Finding Dermal Toxicity Study Utilizing Extract, Light Paraffinic Distillate Solvent in Sprague Dawley Rats." Due to software spacing constraints, the study title appears as "14-Day Rat Dermal Study of Light Paraffinic Distillate Solvent" on the report tables. The study protocol is presented in Appendix A.

A list of abbreviations potentially used in this report is presented in Section 12. (Abbreviations).

For the data collection process, each phase of the study was separated into what were termed WIL computer protocols. The computer protocol reference numbers and types of data collected were identified as follows:

Computer Protocol	Type of Data Collected
WIL-402018M	Main study data
WIL-402018P	Pretest data

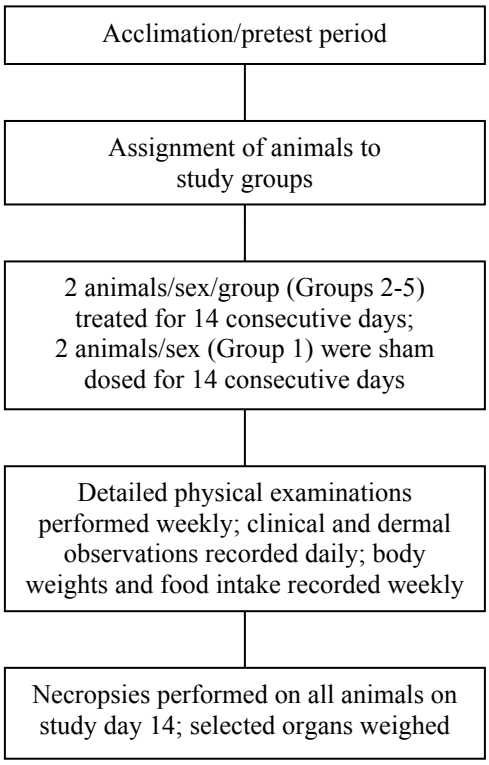
2.2. KEY STUDY DATES

Date(s)	Event(s)
23 November 2010	Animal receipt
2 December 2010	Assignment to study groups
3 December 2010	Initiation of dose administration (study day 0)
17 December 2010	Scheduled necropsy (study day 14)

2.3. WIL RESEARCH KEY STUDY PERSONNEL

[redacted]	Operations Manager, Pathology
	Manager, Quality Assurance
	Senior Operations Manager, Vivarium
	Manager, Gross Pathology and Developmental Toxicology Laboratory
	Operations Manager, Toxicology
	Clinical Veterinarian
	Group Manager, Formulations Laboratory
	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 American Petroleum Institute, on 10 November 2010, as follows:

Identification	Physical Description
Extract, light paraffinic distillate solvent (CAS# 64742-65-0; Site# 7, Sample# 23) [WIL log no. 8470A]	Dark brown, viscous liquid

Documentation regarding the purity and stability of the test substance is on file with the Sponsor. The purity of the test substance was 100%. 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 (lot nos. ZM0550, XP3044, ZE0696, and ZP3044; exp. dates: 28 December 2011, 19 February 2012, 31 March 2012, and 19 February 2012, respectively; manufactured by Spectrum Chemical Manufacturing Corporation, New Brunswick, NJ).

4.1.3. PREPARATION

For the vehicle control group (Group 2), a sufficient amount of acetone was dispensed into a labeled glass storage container. The vehicle was dispensed daily.

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

Group Number	Treatment	Dosage Level (mg/kg/day)	Test substance Concentration (mg/mL)
1	Sham Control	NA	NA
2	Vehicle	0	0
3	Test Substance [a]	5	3.3
4	Test Substance [a]	50	33.3
5	Test Substance [a]	150	100.0

NA = Not applicable
[a] = The test substance for this study was Extract, light paraffinic distillate solvent.

The test substance formulations were weight/volume (test substance/vehicle) mixtures. The test substance formulations were prepared daily as single formulations for each dosage level and stored at room temperature, protected from light, prior to dose application. The test substance formulations were stirred continuously throughout the preparation and dose administration procedures.

4.1.4. SAMPLING AND ANALYSES

Assessments of formulation homogeneity, stability, and concentration were not included as a part of this non-GLP study.

4.2. TEST SYSTEM, ANIMAL RECEIPT, AND ACCLIMATION/PRETEST PERIOD

Crl:CD(SD) rats were used as the test system for this study. This species and strain of animal is recognized as appropriate for short-term toxicity studies. The Sprague Dawley rat was utilized because it is a widely used strain for which significant historical control data are available. The number of animals selected for this study (see Section 4.7.) was the minimum needed to yield scientifically meaningful data.

Crl:CD(SD) rats (11 males and 11 females) were received in good health from Charles River Laboratories, Inc., Raleigh, NC on 23 November 2010. The animals were approximately 50 days old at receipt. Each animal was examined by a qualified

technician on the day of receipt and weighed on the following day. Each animal was uniquely identified by a Monel® metal ear tag displaying the permanent identification number. All animals were housed for a 10-day acclimation/pretest period. During this period, each animal was observed twice daily for mortality and changes in general appearance or behavior.

Pretest data collection began on 24 November 2010. Individual body weights and food consumption were recorded and detailed physical examinations were performed periodically during the pretest period. Pretest clinical observations are presented in Appendix B.

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

Study Day	Approximate Acclimation Period (Hours)
-8	1
-7	2
-6	4
-5	8
-4	22

4.3. ANIMAL HOUSING

Upon arrival, all animals were housed individually in clean, stainless steel, wire-mesh cages suspended above cage-board. 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 accredited by AAALAC International. Enrichment devices were provided to all animals as appropriate throughout the study for environmental enrichment and to aid in maintaining the animals' oral health, and were sanitized weekly.

4.4. DIET, DRINKING WATER, AND MAINTENANCE

The basal diet used in this study, PMI Nutrition International, LLC, Certified Rodent LabDiet® 5002 (pellet), is a certified feed with appropriate analyses performed by the manufacturer and provided to WIL Research. Reverse osmosis-treated (on-site) drinking water, delivered by an automatic watering system, and the basal diet were provided *ad libitum* throughout the study, except during the period of fasting prior to necropsy when food, but not water, was withheld. Municipal water supplying the facility was analyzed for contaminants according to 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.

4.5. ENVIRONMENTAL CONDITIONS

All animals 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 ± 5ºF (22 ± 3ºC) 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 C. Actual mean daily temperature ranged from 70.3ºF to 71.5ºF (21.3ºC to 21.9ºC) and mean daily relative humidity ranged from 42.0% to 49.4% during the study. Fluorescent lighting provided illumination for a 12-hour light (0600 hours to 1800 hours)/12-hour dark photoperiod. Lighting conditions were recorded 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

On 2 December 2010 (the day prior to the initiation of dose administration), all available rats were weighed and examined in detail for physical abnormalities. These data were collected using WTDMS™ and reviewed by the Study Director. The animals judged suitable for assignment to the study were selected for use in a computerized randomization procedure based on body weight stratification in a block design. A

printout containing the animal numbers and individual group assignments was generated, and the animals were then arranged into groups according to the printout. Individual body weights at randomization were within ± 20% of the mean for each sex. Animals not assigned to study were euthanized by carbon dioxide inhalation and discarded.

Each group (Groups 1-5) consisted of 2 males and 2 females. The animals were approximately 9 weeks old at the initiation of dose administration. Individual body weights ranged from 232 g to 258 g for males and from 161 g to 194 g for females at randomization**.**

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

Prior to the initiation of dose administration, and throughout the study as necessary, the hair was clipped from the back (down each side to the ventral surface) and flanks of each animal using an electric clipper; a different set of clippers was used for the sham control group, the vehicle control group, and the test substance-treated groups to avoid potential cross-contamination.

The vehicle or test substance was applied evenly to the clipped, unabraded area of skin and spread evenly using a glass rod (to ensure contact with an area of approximately 10% of the body surface area) once daily for 14 consecutive days. No vehicle was applied to the sham control group. All animals (Groups 1-5) were fitted with Elizabethan collars during the dosing period. On study days 6 and 13, the test site of each animal was gently patted using a disposable paper towel according to WIL SOPs.

The corners of the application site were marked daily with indelible ink to allow proper identification of the treated and untreated skin. The area of test substance application was measured and recorded weekly for each animal. The actual surface area of coverage was calculated for each animal 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 mean area of coverage was 10% for males and females in the test substance-treated groups.

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

Percent Coverage (%)

	Males					Females				
Group	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Dosage Level (mg/kg/day)	**NA**	**0**	**5**	**50**	**150**	**NA**	**0**	**5**	**50**	**150**
Study Week 0	10.0	10.1	10.3	10.0	10.2	10.4	10.0	10.3	9.9	10.3
Study Week 1	10.4	10.3	10.8	10.1	10.3	10.7	10.2	10.0	10.3	10.2
Mean Coverage	**10.2**	**10.2**	**10.6**	**10.0**	**10.2**	**10.5**	**10.1**	**10.1**	**10.1**	**10.2**
Standard Deviation	0.3	0.3	0.8	0.1	0.3	0.6	0.2	0.3	0.2	0.1

NA = Not applicable

The dose volume for the test substance-treated group was 1.5 mL/kg, adjusted as mL/kg per the most recent body weight. Adjusted doses became effective the day of collection of the weekly body weights. The first day of dosing was study day 0, the first week of dosing was study week 0.

The following table presents the study group assignment:

Group Number	Treatment	Dosage Level (mg/kg/day)	Dose Volume (mL/kg)	Number of Animals	
				Males	Females
1	Sham Control	NA	NA	2	2
2	Vehicle	0	1.5	2	2
3	Test Substance [a]	5	1.5	2	2
4	Test Substance [a]	50	1.5	2	2
5	Test Substance [a]	150	1.5	2	2

NA = Not applicable

[a] = The test substance for this study was Extract, light paraffinic distillate solvent.

Dosage levels were selected by the Sponsor.

The selected route of administration for this study was dermal to determine the potential toxicity of the test substance when administered by the dermal route.

5. PARAMETERS EVALUATED

5.1. SURVIVAL

All animals were observed twice daily, once in the morning and once in the afternoon, for mortality and moribundity.

5.2. CLINICAL OBSERVATIONS

Clinical examinations were performed twice daily, at the time of dose administration and approximately 1 to 2 hours following dose administration. The absence or presence of findings was recorded for individual animals at the scheduled intervals. Detailed physical examinations were conducted on all animals at least once during the pretest period, approximately weekly during the study, and prior to the scheduled necropsy.

5.3. DERMAL OBSERVATIONS

The application sites were scored weekly (following test substance removal) from study days 0 through 14 for erythema and edema in accordance with the methods of Draize (Draize, 1965) using the 4-step grading system presented in Appendix D. All dermal findings were recorded.

5.4. BODY WEIGHTS

Individual body weights were recorded approximately weekly beginning during the pretest period, and for the duration of the study. Body weights were collected with collars on throughout the study. Mean body weights and mean body weight changes were calculated for the corresponding intervals. Final body weights (fasted) were recorded on the day of the scheduled necropsy.

5.5. FOOD CONSUMPTION

Individual food consumption was recorded approximately weekly beginning during the pretest period, and for the duration of the study. Food intake was calculated as g/animal/day for the corresponding body weight intervals. When food consumption could not be measured for a given interval (due to spillage, weighing error, obvious

erroneous value, *etc.*), the appropriate interval was footnoted as "NA" on the individual tables.

5.6. ANATOMIC PATHOLOGY

5.6.1. MACROSCOPIC EXAMINATION

A complete necropsy was conducted on all animals. Animals were euthanized by carbon dioxide inhalation followed by exsanguination. The necropsies included, but were not limited to, examination of the external surface, all orifices, and the cranial, thoracic, abdominal, and pelvic cavities, including viscera. The following tissues and organs were collected and placed in 10% neutral-buffered formalin (except as noted):

- Adrenals (2)
- Aorta
- Bone with marrow
  - Femur with joint
  - Sternum
- Bone marrow smear (from femur) [a]
- Brain
  - Cerebrum level 1
  - Cerebrum level 2
  - Cerebellum with medulla/pons
- Cervix
- Epididymides (2) [b]
- Eyes with optic nerve (2) [c]
- Gastrointestinal tract
  - Esophagus
  - Stomach
  - Duodenum
  - Jejunum
  - Ileum
  - Cecum
  - Colon
  - Rectum
- Heart
- Kidneys (2)
- Lacrimal gland (exorbital [2])
- Liver (sections of 2 lobes)
- Lungs (including bronchi, fixed by inflation with fixative)
- Lymph nodes
  - Axillary (2)
  - Mandibular (2)
  - Mesenteric
- Ovaries with oviducts (2)
- Pancreas
- Peripheral nerve (sciatic)
- Peyer's patches
- Pituitary
- Prostate
- Salivary glands (mandibular [2])
- Seminal vesicles (2)
- Skeletal muscle (rectus femoris)
- Skin (with mammary gland) [d]
- Skin (treated, sham, untreated [posterior to treated skin])
- Spinal cord (cervical, thoracic, lumbar)
- Spleen
- Testes (2) [b]
- Thymus
- Thyroid (with parathyroids, if present [2])
- Trachea
- Urinary bladder
- Uterus
- Vagina
- Gross lesions (when possible)

[a] = Bone marrow smears were obtained at scheduled necropsy, but not placed in formalin; slides were not examined.
[b] = Fixed in Bouin's solution
[c] = Fixed in Davidson's solution
[d] = For females only.

5.6.2. ORGAN WEIGHTS

The following organs were weighed from all animals at the scheduled necropsy:

Adrenals	Pituitary
Brain	Prostate
Epididymides	Spleen
Heart	Testes
Kidneys	Thymus
Liver	Thyroid with parathyroids*
Ovaries with oviducts	Uterus

Paired organs were weighed together. Designated organs (*) were weighed after fixation.

Organ to final body weight and organ to brain weight ratios were calculated.

5.7. DATA ACQUISITION AND ANALYSIS

5.7.1. 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.*).
Formulations Dose Dispensing Management System (FDDMS)	In-house developed system used to assign unique barcodes to formulation containers and individual containers used for dispensing dosing formulations.
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.
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.

5.7.2. STATISTICAL ANALYSIS

Statistical analysis of the in-life data was not conducted due to the small group size.

6. RESULTS

6.1. SURVIVAL

Summary Data: Table S1

Individual Data: Table A1

All animals survived to the scheduled necropsy.

6.2. CLINICAL OBSERVATIONS

Summary Data: Table S2, Table S3

Individual Data: Table A2, Table A3, Table A4

There were no test substance-related clinical observations. All clinical findings in the test substance-treated groups were noted with similar incidence in the vehicle control and/or sham control groups, were not noted in a dose-related manner, and/or were common findings for laboratory rats of this age and strain.

6.3. DERMAL OBSERVATIONS

Summary Data: Table S4

Individual Data: Table A5

There were no test substance-related effects noted during the dermal observations. Residual test substance was noted within the test site for the 150 mg/kg/day group males and for the 50 and 150 mg/kg/day group females.

6.4. BODY WEIGHTS

Summary Data: Table S5, Table S6, Table S7

Individual Data: Table A6, Table A7, Table A8

Body weights were unaffected by test substance administration.

6.5. FOOD CONSUMPTION

Summary Data: Table S8

Individual Data: Table A9

Food consumption was unaffected by test substance administration.

6.6. ANATOMIC PATHOLOGY

6.6.1. MACROSCOPIC EXAMINATION

Summary Data: Table S9

Individual Data: Table A10

There were no test substance-related macroscopic findings at the scheduled necropsy. All macroscopic findings noted were considered to be spontaneous and/or incidental in nature and unrelated to test substance administration.

6.6.2. ORGAN WEIGHTS

Summary Data: Table S10

Individual Data: Table A11, Table A12, Table A13

Organ weights were unaffected by test substance administration.

7. CONCLUSIONS

Based on the results of this study, dermal administration of Extract, light paraffinic distillate solvent over an area of approximately 10% of the shaved body surface area to Crl:CD[SD] rats for 14 consecutive days at dosage levels of 5, 50, and 150 mg/kg/day was well tolerated at all dosage levels. There were no treatment-related effects at 150 mg/kg/day, the highest dosage level evaluated.

8. REPORT REVIEW AND APPROVAL

Report Approved By:

[redacted]

Senior Toxicologist, General Toxicology
Study Director

4 Oct 2012
Date

Report Prepared By:

[redacted]

Study Analyst

4 Oct 2012
Date

Report Reviewed By:

[redacted]

Project Specialist, General Toxicology

4 Oct 2012
Date

[redacted]

Assistant Director, General Toxicology

[redacted]

Lead Analyst and Scientific Advisor,
Reporting & Technical Support Services

4 Oct 2012
Date

9. QUALITY ASSURANCE STATEMENT

Date(s) of Inspection(s)	Phase Inspected	Date(s) Findings Reported to Study Director	Date(s) Findings Reported to Management
27-Dec-2010 03-Jan-2011	Study Records (I-1;Data for Audited Tables Only)	03-Jan-2011	28-Feb-2011
27-Dec-2010 03-Jan-2011	Study Records (N-1; Data for Audited Tables Only)	03-Jan-2011	28-Feb-2011
03-Jan-2011	Summary and Individual Data Tables	03-Jan-2011	28-Feb-2011
02-Oct-2012	Final Summary and Individual Data Tables	02-Oct-2012	02-Oct-2012

This study and the corresponding report were not audited by the WIL Quality Assurance Department with the following exception. The data tables and the associated raw data for this study were inspected in accordance with the United States EPA GLP Regulations (40 CFR Part 792). Quality Assurance findings, derived from the inspections of the raw data and draft data tables, are documented and have been reported to the Study Director.

[redacted]

Quality Assurance Representative

4 Oct 2012
Date

10. REFERENCES

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

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.

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**.

11. DATA RETENTION

The Sponsor has title to all documentation records, raw data, specimens, or other work product generated during the performance of the study. 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.

A reserve sample 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.

12. ABBREVIATIONS

The following abbreviations may apply to this report:

µ	-	micro
AAALAC	-	Association for Assessment and Accreditation of Laboratory Animal Care
cm	-	centimeter
C_{max}	-	maximum measured concentration of the analyte in plasma
dB	-	decibels
dL	-	deciliter
etc.	-	et cetera
EPA	-	Environmental Protection Agency
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
ppm	-	parts per million
RSD	-	Relative standard deviation
SOP	-	standard operating procedure
T_{max}	-	Sampling time at which C_{max} was achieved
WIL Research	-	WIL Research Laboratories, LLC
WTDMS™	-	WIL Toxicology Data Management System

TABLES S1 - S10

TABLE S1

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF SURVIVAL AND DISPOSITION

MALES

GROUP :	1				2				3				4				5			
DAY	LIVE	FD	EE	SE	LIVE	FD	EE	SE	LIVE	FD	EE	SE	LIVE	FD	EE	SE	LIVE	FD	EE	SE
0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
1	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
2	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
3	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
4	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
5	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
6	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
7	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
8	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
9	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
10	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
11	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
12	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
13	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
14	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2

DAY = DAY OF STUDY FD = FOUND DEAD EE = EUTHANIZED IN EXTREMIS SE = SCHEDULED EUTHANASIA

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

TABLE S1

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF SURVIVAL AND DISPOSITION

FEMALES

GROUP :	1				2				3				4				5			
DAY	LIVE	FD	EE	SE	LIVE	FD	EE	SE	LIVE	FD	EE	SE	LIVE	FD	EE	SE	LIVE	FD	EE	SE
0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
1	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
2	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
3	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
4	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
5	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
6	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
7	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
8	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
9	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
10	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
11	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
12	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
13	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0
14	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2

DAY = DAY OF STUDY FD = FOUND DEAD EE = EUTHANIZED IN EXTREMIS SE = SCHEDULED EUTHANASIA

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

TABLE S2 (DETAILED PHYSICAL EXAMINATIONS/DISPOSITIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

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

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

TABLE RANGE:	DAY 000 TO DAY 014				
GROUP:	1	2	3	4	5
NORMAL					
-NO SIGNIFICANT CLINICAL OBSERVATIONS	2/ 2	2/ 2	3/ 2	2/ 2	2/ 2
DISPOSITION					
-PRIMARY NECROPSY (DAY 14)	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2
BODY/INTEGUMENT					
-DRIED YELLOW MATERIAL UROGENITAL AREA	0/ 0	1/ 1	0/ 0	1/ 1	0/ 0
EYES/EARS/NOSE					
-DRIED RED MATERIAL AROUND RIGHT EYE	3/ 2	2/ 1	2/ 1	2/ 1	0/ 0
-DRIED RED MATERIAL AROUND LEFT EYE	3/ 2	3/ 2	1/ 1	2/ 1	2/ 1
-DRIED RED MATERIAL AROUND NOSE	3/ 2	4/ 2	3/ 2	3/ 2	3/ 2
SPECIAL					
-SWOLLEN FACIAL AREA	2/ 2	1/ 1	0/ 0	1/ 1	0/ 0

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

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

TABLE RANGE:	DAY 000 TO DAY 014				
GROUP:	1	2	3	4	5
NORMAL					
-NO SIGNIFICANT CLINICAL OBSERVATIONS	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2
DISPOSITION					
-PRIMARY NECROPSY (DAY 14)	2/ 2	2/ 2	2/ 2	2/ 2	2/ 2
BODY/INTEGUMENT					
-DRIED YELLOW MATERIAL UROGENITAL AREA	3/ 2	0/ 0	0/ 0	0/ 0	1/ 1
-HAIR LOSS FACIAL AREA	0/ 0	1/ 1	0/ 0	1/ 1	0/ 0
-HAIR LOSS FORELIMB(S)	0/ 0	0/ 0	0/ 0	0/ 0	1/ 1
EYES/EARS/NOSE					
-DRIED RED MATERIAL AROUND RIGHT EYE	4/ 2	3/ 2	0/ 0	3/ 2	0/ 0
-DRIED RED MATERIAL AROUND LEFT EYE	4/ 2	1/ 1	1/ 1	4/ 2	0/ 0
-DRIED RED MATERIAL AROUND NOSE	4/ 2	4/ 2	4/ 2	4/ 2	4/ 2

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

TABLE S3 (DOSING DAY OBSERVATIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

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

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

TABLE RANGE:	DAY 0 TO DAY 13				
GROUP:	1	2	3	4	5
NORMAL					
TIME OF DOSE					
-NO SIGNIFICANT CLINICAL OBSERVATIONS	28/2	28/2	28/2	28/2	28/2
1-2 HOUR POST-DOSING					
-NO SIGNIFICANT CLINICAL OBSERVATIONS	26/2	28/2	28/2	28/2	28/2
SPECIAL					
1-2 HOUR POST-DOSING					
-SWOLLEN FACIAL AREA	2/2	0/0	0/0	0/0	0/0

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

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

TABLE RANGE: DAY 0 TO DAY 13					
GROUP:	1	2	3	4	5
NORMAL					
TIME OF DOSE					
-NO SIGNIFICANT CLINICAL OBSERVATIONS	28/2	28/2	28/2	28/2	28/2
1-2 HOUR POST-DOSING					
-NO SIGNIFICANT CLINICAL OBSERVATIONS	28/2	28/2	28/2	28/2	28/2

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

TABLE S4

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF DERMAL OBSERVATIONS: TOTAL OCCURRENCE/NO. OF ANIMALS

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

TABLE RANGE:	DAY 000 TO DAY 014				
GROUP:	1	2	3	4	5
BODY/INTEG III					
-SCORED, NOT REMARKABLE	30/ 2	30/ 2	30/ 2	30/ 2	26/ 2
-NO ERYTHEMA	0/ 0	0/ 0	0/ 0	0/ 0	4/ 2
-NO EDEMA	0/ 0	0/ 0	0/ 0	0/ 0	4/ 2
-RESIDUAL TEST SUBSTANCE WITHIN DOSE SITE	0/ 0	0/ 0	0/ 0	0/ 0	4/ 2

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

TABLE S4

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT
SPONSOR:AMERICAN PETROLEUM SUMMARY OF DERMAL OBSERVATIONS: TOTAL OCCURRENCE/NO. OF ANIMALS

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

TABLE RANGE:	DAY 000 TO DAY 014				
GROUP:	1	2	3	4	5
BODY/INTEG III					
-SCORED, NOT REMARKABLE	30/ 2	30/ 2	30/ 2	29/ 2	20/ 2
-NO ERYTHEMA	0/ 0	0/ 0	0/ 0	1/ 1	10/ 2
-NO EDEMA	0/ 0	0/ 0	0/ 0	1/ 1	10/ 2
-RESIDUAL TEST SUBSTANCE WITHIN DOSE SITE	0/ 0	0/ 0	0/ 0	1/ 1	10/ 2

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

PCSUv4.07
01/07/2011
R:01/07/2011

TABLE S5

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM SUMMARY OF BODY WEIGHTS [G]

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY -9					
MEAN	190.	201.	194.	190.	182.
% DIFFERENCE		5.8	2.1	0.0	-4.2
S.D.	9.9	6.4	8.5	7.1	13.4
N	2	2	2	2	2
-3					
MEAN	238.	249.	247.	242.	242.
% DIFFERENCE		4.6	3.8	1.7	1.7
S.D.	7.8	13.4	14.8	1.4	10.6
N	2	2	2	2	2
0					
MEAN	271.	282.	288.	273.	277.
% DIFFERENCE		4.1	6.3	0.7	2.2
S.D.	1.4	12.0	17.7	1.4	17.7
N	2	2	2	2	2
7					
MEAN	269.	295.	290.	294.	294.
% DIFFERENCE		9.7	7.8	9.3	9.3
S.D.	17.0	20.5	47.4	4.9	14.8
N	2	2	2	2	2
13					
MEAN	299.	314.	325.	324.	319.
% DIFFERENCE		5.0	8.7	8.4	6.7
S.D.	32.5	16.3	41.7	2.8	30.4
N	2	2	2	2	2

TABLE S5

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM SUMMARY OF BODY WEIGHTS [G]

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY -9					
MEAN	159.	159.	162.	167.	162.
% DIFFERENCE		0.0	1.9	5.0	1.9
S.D.	9.9	2.1	4.9	5.7	8.5
N	2	2	2	2	2
-3					
MEAN	174.	186.	184.	189.	187.
% DIFFERENCE		6.9	5.7	8.6	7.5
S.D.	17.7	0.7	3.5	7.8	6.4
N	2	2	2	2	2
0					
MEAN	189.	200.	198.	202.	199.
% DIFFERENCE		5.8	4.8	6.9	5.3
S.D.	16.3	4.2	9.2	0.0	7.8
N	2	2	2	2	2
7					
MEAN	188.	207.	198.	204.	201.
% DIFFERENCE		10.1	5.3	8.5	6.9
S.D.	25.5	7.1	4.2	7.1	3.5
N	2	2	2	2	2
13					
MEAN	195.	221.	215.	219.	211.
% DIFFERENCE		13.3	10.3	12.3	8.2
S.D.	36.1	12.7	14.8	2.8	9.2
N	2	2	2	2	2

TABLE S6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

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

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY -9 TO -3					
MEAN	48.	48.	53.	52.	60.
S.D.	2.1	7.1	6.4	8.5	2.8
N	2	2	2	2	2
-3 TO 0					
MEAN	34.	33.	41.	31.	35.
S.D.	6.4	1.4	2.8	0.0	7.1
N	2	2	2	2	2
0 TO 7					
MEAN	-2.	13.	2.	21.	17.
S.D.	18.4	8.5	29.7	3.5	2.8
N	2	2	2	2	2
7 TO 13					
MEAN	30.	19.	35.	31.	25.
S.D.	15.6	4.2	5.7	2.1	15.6
N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY -9 TO -3					
MEAN	15.	27.	22.	22.	25.
S.D.	7.8	2.8	1.4	13.4	2.1
N	2	2	2	2	2
-3 TO 0					
MEAN	15.	15.	14.	14.	12.
S.D.	1.4	3.5	5.7	7.8	1.4
N	2	2	2	2	2
0 TO 7					
MEAN	-1.	7.	1.	2.	2.
S.D.	9.2	2.8	4.9	7.1	4.2
N	2	2	2	2	2
7 TO 13					
MEAN	7.	14.	17.	15.	10.
S.D.	10.6	5.7	10.6	9.9	5.7
N	2	2	2	2	2

TABLE S7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

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

MALES

GROUP:		UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY 0 TO 7						
	MEAN	-2.	13.	2.	21.	17.
	S.D.	18.4	8.5	29.7	3.5	2.8
	N	2	2	2	2	2
0 TO 13						
	MEAN	28.	32.	37.	51.	42.
	S.D.	33.9	4.2	24.0	1.4	12.7
	N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY 0 TO 7					
MEAN	-1.	7.	1.	2.	2.
S.D.	9.2	2.8	4.9	7.1	4.2
N	2	2	2	2	2
0 TO 13					
MEAN	6.	21.	17.	17.	12.
S.D.	19.8	8.5	5.7	2.8	1.4
N	2	2	2	2	2

TABLE S8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

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

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY -9 TO -3					
MEAN	28.	28.	28.	30.	27.
S.D.	2.1	2.8	0.7	0.7	2.8
N	2	2	2	2	2
0 TO 7					
MEAN	29.	32.	31.	36.	32.
S.D.	4.2	3.5	8.5	4.9	0.0
N	2	2	2	2	1
7 TO 13					
MEAN	35.	36.	39.	38.	34.
S.D.	2.1	2.1	0.0	0.0	0.0
N	2	2	1	1	1

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
DAY -9 TO -3					
MEAN	20.	20.	24.	24.	22.
S.D.	0.7	0.0	4.2	2.1	0.7
N	2	2	2	2	2
0 TO 7					
MEAN	25.	25.	29.	26.	24.
S.D.	4.9	0.7	2.1	1.4	0.7
N	2	2	2	2	2
7 TO 13					
MEAN	26.	28.	29.	30.	26.
S.D.	2.8	2.8	0.0	0.0	0.0
N	2	2	1	1	2

TABLE S9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM SUMMARY OF MACROSCOPIC FINDINGS

SCHEDULED NECROPSY

	M A L E				
GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	2	2	2	2	2
NUMBER OF ANIMALS EXAMINED DAY 14	2	2	2	2	2
BRAIN					
-AREA(S), WHITE	0	1	0	0	0
COAGULATING GL					
-SMALL	0	0	1	0	0
EPIDIDYMIDES					
-SMALL	0	0	0	0	1
LN, MANDIBULAR					
-ENLARGED	0	0	0	2	0
SEMINAL VESICLES					
-SMALL	0	0	1	0	1
SKIN					
-MATTING, RED	0	1	1	1	1
-SCABBING	0	1	0	0	0
TESTES					
-SMALL	0	0	0	0	1
NO SIGNIFICANT CHANGES OBSERVED - ALL EXAMINED TISSUES	2	0	0	0	0

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

SCHEDULED NECROPSY

	----- F E M A L E -----				
GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	2	2	2	2	2
NUMBER OF ANIMALS EXAMINED DAY 14	2	2	2	2	2
ADRENAL GLANDS					
-CYST(S)	0	0	0	1	0
LN, MANDIBULAR					
-ENLARGED	0	1	0	0	0
SKIN					
-MATTING, RED	2	1	0	1	0
NO SIGNIFICANT CHANGES OBSERVED - ALL EXAMINED TISSUES	0	1	2	0	2

1- UNTREATED 2- 0 MG/KG/DAY 3- 5 MG/KG/DAY 4- 50 MG/KG/DAY 5- 150 MG/KG/DAY

TABLE S10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

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

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
FINAL BODY WT (G)					
MEAN	260.	281.	290.	288.	281.
% DIFFERENCE		8.1	11.5	10.8	8.1
S.D.	23.3	11.3	44.5	5.7	28.3
S.E.	16.5	8.0	31.5	4.0	20.0
N	2	2	2	2	2
ADRENAL GLANDS (G)					
MEAN	0.0535	0.0597	0.0669	0.0704	0.0613
% DIFFERENCE		11.6	25.0	31.6	14.6
S.D.	0.01195	0.00113	0.00028	0.00778	0.00651
S.E.	0.00845	0.00080	0.00020	0.00550	0.00460
N	2	2	2	2	2
ADRENAL GLANDS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.020	0.021	0.023	0.024	0.022
% DIFFERENCE		5.0	15.0	20.0	10.0
S.D.	0.0028	0.0013	0.0035	0.0022	0.0001
S.E.	0.0020	0.0009	0.0025	0.0016	0.0001
N	2	2	2	2	2
ADRENAL GLANDS (G/100 G BRAIN)					
MEAN	2.718	2.970	3.354	3.417	3.261
% DIFFERENCE		9.3	23.4	25.7	20.0
S.D.	0.5116	0.0354	0.0690	0.4820	0.3460
S.E.	0.3618	0.0250	0.0488	0.3408	0.2447
N	2	2	2	2	2

TABLE S10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

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

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
BRAIN (G)					
MEAN	1.96	2.01	2.00	2.07	1.88
% DIFFERENCE		2.6	2.0	5.6	-4.1
S.D.	0.071	0.014	0.049	0.064	0.000
S.E.	0.050	0.010	0.035	0.045	0.000
N	2	2	2	2	2
BRAIN (G/100 G FINAL BODY WEIGHT)					
MEAN	0.757	0.716	0.696	0.717	0.672
% DIFFERENCE		-5.4	-8.1	-5.3	-11.2
S.D.	0.0408	0.0339	0.0900	0.0362	0.0677
S.E.	0.0289	0.0239	0.0636	0.0256	0.0479
N	2	2	2	2	2
EPIDIDYMIDES (G)					
MEAN	0.76	0.77	0.71	0.82	0.60
% DIFFERENCE		1.3	-6.6	7.9	-21.1
S.D.	0.028	0.000	0.007	0.042	0.262
S.E.	0.020	0.000	0.005	0.030	0.185
N	2	2	2	2	2
EPIDIDYMIDES (G/100 G FINAL BODY WEIGHT)					
MEAN	0.295	0.274	0.246	0.285	0.208
% DIFFERENCE		-7.1	-16.6	-3.4	-29.5
S.D.	0.0374	0.0110	0.0355	0.0203	0.0722
S.E.	0.0264	0.0078	0.0251	0.0144	0.0510
N	2	2	2	2	2

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
EPIDIDYMIDES (G/100 G BRAIN)					
MEAN	38.827	38.309	35.345	39.697	31.649
% DIFFERENCE		-1.3	-9.0	2.2	-18.5
S.D.	2.8438	0.2695	0.5225	0.8312	13.9165
S.E.	2.0109	0.1905	0.3694	0.5877	9.8404
N	2	2	2	2	2
HEART (G)					
MEAN	1.09	1.15	1.43	1.20	1.24
% DIFFERENCE		5.5	31.2	10.1	13.8
S.D.	0.007	0.064	0.064	0.014	0.177
S.E.	0.005	0.045	0.045	0.010	0.125
N	2	2	2	2	2
HEART (G/100 G FINAL BODY WEIGHT)					
MEAN	0.420	0.407	0.496	0.417	0.439
% DIFFERENCE		-3.1	18.1	-0.7	4.5
S.D.	0.0350	0.0062	0.0544	0.0131	0.0188
S.E.	0.0248	0.0044	0.0385	0.0093	0.0133
N	2	2	2	2	2
HEART (G/100 G BRAIN)					
MEAN	55.387	56.978	71.411	58.128	65.691
% DIFFERENCE		2.9	28.9	4.9	18.6
S.D.	1.6374	3.5670	1.4182	1.1066	9.4030
S.E.	1.1578	2.5223	1.0028	0.7825	6.6489
N	2	2	2	2	2

TABLE S10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

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

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
KIDNEYS (G)					
MEAN	2.44	2.74	2.61	2.84	2.87
% DIFFERENCE		12.3	7.0	16.4	17.6
S.D.	0.361	0.113	0.283	0.156	0.205
S.E.	0.255	0.080	0.200	0.110	0.145
N	2	2	2	2	2
KIDNEYS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.936	0.977	0.905	0.986	1.021
% DIFFERENCE		4.4	-3.3	5.3	9.1
S.D.	0.0548	0.0796	0.0415	0.0347	0.0298
S.E.	0.0388	0.0563	0.0294	0.0245	0.0211
N	2	2	2	2	2
KIDNEYS (G/100 G BRAIN)					
MEAN	123.984	136.302	130.691	137.712	152.394
% DIFFERENCE		9.9	5.4	11.1	22.9
S.D.	13.9262	4.6698	10.9350	11.7774	10.9075
S.E.	9.8473	3.3020	7.7322	8.3279	7.7128
N	2	2	2	2	2
LIVER (G)					
MEAN	9.54	10.35	10.52	11.40	13.31
% DIFFERENCE		8.5	10.3	19.5	39.5
S.D.	1.011	0.255	1.485	0.707	2.546
S.E.	0.715	0.180	1.050	0.500	1.800
N	2	2	2	2	2

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
LIVER (G/100 G FINAL BODY WEIGHT)					
MEAN	3.672	3.684	3.637	3.957	4.715
% DIFFERENCE		0.3	-1.0	7.8	28.4
S.D.	0.0595	0.0578	0.0468	0.1678	0.4313
S.E.	0.0421	0.0408	0.0331	0.1187	0.3050
N	2	2	2	2	2
LIVER (G/100 G BRAIN)					
MEAN	485.865	514.983	526.557	552.848	707.979
% DIFFERENCE		6.0	8.4	13.8	45.7
S.D.	34.0614	16.2881	61.3680	51.2804	135.4035
S.E.	24.0850	11.5174	43.3937	36.2607	95.7447
N	2	2	2	2	2
PITUITARY (G)					
MEAN	0.0098	0.0106	0.0103	0.0108	0.0109
% DIFFERENCE		8.2	5.1	10.2	11.2
S.D.	0.00262	0.00148	0.00276	0.00007	0.00014
S.E.	0.00185	0.00105	0.00195	0.00005	0.00010
N	2	2	2	2	2
PITUITARY (G/100 G FINAL BODY WEIGHT)					
MEAN	0.004	0.004	0.004	0.004	0.004
% DIFFERENCE		0.0	0.0	0.0	0.0
S.D.	0.0007	0.0007	0.0004	0.0000	0.0003
S.E.	0.0005	0.0005	0.0003	0.0000	0.0002
N	2	2	2	2	2

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
PITUITARY (G/100 G BRAIN)					
MEAN	0.495	0.525	0.512	0.521	0.580
% DIFFERENCE		6.1	3.4	5.3	17.2
S.D.	0.1156	0.0702	0.1255	0.0195	0.0075
S.E.	0.0818	0.0496	0.0888	0.0138	0.0053
N	2	2	2	2	2
PROSTATE (G)					
MEAN	0.68	0.69	0.50	0.55	0.44
% DIFFERENCE		1.5	-26.5	-19.1	-35.3
S.D.	0.127	0.134	0.057	0.078	0.035
S.E.	0.090	0.095	0.040	0.055	0.025
N	2	2	2	2	2
PROSTATE (G/100 G FINAL BODY WEIGHT)					
MEAN	0.261	0.243	0.173	0.190	0.155
% DIFFERENCE		-6.9	-33.7	-27.2	-40.6
S.D.	0.0256	0.0380	0.0071	0.0307	0.0030
S.E.	0.0181	0.0269	0.0050	0.0217	0.0021
N	2	2	2	2	2
PROSTATE (G/100 G BRAIN)					
MEAN	34.599	34.104	25.035	26.347	23.138
% DIFFERENCE		-1.4	-27.6	-23.9	-33.1
S.D.	5.2456	6.9240	2.2144	2.9547	1.8806
S.E.	3.7092	4.8960	1.5658	2.0893	1.3298
N	2	2	2	2	2

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
SPLEEN (G)					
MEAN	0.54	0.60	0.71	0.56	0.76
% DIFFERENCE		11.1	31.5	3.7	40.7
S.D.	0.049	0.028	0.028	0.007	0.233
S.E.	0.035	0.020	0.020	0.005	0.165
N	2	2	2	2	2
SPLEEN (G/100 G FINAL BODY WEIGHT)					
MEAN	0.208	0.213	0.247	0.193	0.266
% DIFFERENCE		2.4	18.8	-7.2	27.9
S.D.	0.0378	0.0015	0.0283	0.0013	0.0563
S.E.	0.0267	0.0010	0.0200	0.0009	0.0398
N	2	2	2	2	2
SPLEEN (G/100 G BRAIN)					
MEAN	27.359	29.856	35.582	26.895	40.160
% DIFFERENCE		9.1	30.1	-1.7	46.8
S.D.	3.5124	1.6173	0.5349	1.1713	12.4120
S.E.	2.4837	1.1436	0.3782	0.8282	8.7766
N	2	2	2	2	2
TESTES (G)					
MEAN	2.96	3.00	2.95	3.49	2.15
% DIFFERENCE		1.4	-0.3	17.9	-27.4
S.D.	0.148	0.148	0.134	0.134	1.478
S.E.	0.105	0.105	0.095	0.095	1.045
N	2	2	2	2	2

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
TESTES (G/100 G FINAL BODY WEIGHT)					
MEAN	1.141	1.068	1.033	1.211	0.741
% DIFFERENCE		-6.4	-9.5	6.1	-35.1
S.D.	0.0454	0.0958	0.2054	0.0704	0.4514
S.E.	0.0321	0.0678	0.1452	0.0498	0.3192
N	2	2	2	2	2
TESTES (G/100 G BRAIN)					
MEAN	150.727	148.983	147.748	168.745	114.096
% DIFFERENCE		-1.2	-2.0	12.0	-24.3
S.D.	2.1384	6.3394	10.4000	1.3059	78.6092
S.E.	1.5121	4.4827	7.3539	0.9234	55.5851
N	2	2	2	2	2
THYMUS (G)					
MEAN	0.3325	0.4326	0.6554	0.3097	0.2887
% DIFFERENCE		30.1	97.1	-6.9	-13.2
S.D.	0.01421	0.18257	0.12657	0.06916	0.04278
S.E.	0.01005	0.12910	0.08950	0.04890	0.03025
N	2	2	2	2	2
THYMUS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.129	0.153	0.226	0.107	0.102
% DIFFERENCE		18.6	75.2	-17.1	-20.9
S.D.	0.0171	0.0588	0.0090	0.0219	0.0049
S.E.	0.0121	0.0416	0.0064	0.0155	0.0035
N	2	2	2	2	2

MALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
THYMUS (G/100 G BRAIN)					
MEAN	16.986	21.555	32.784	15.056	15.354
% DIFFERENCE		26.9	93.0	-11.4	-9.6
S.D.	1.3379	9.2350	5.5311	3.8129	2.2755
S.E.	0.9461	6.5301	3.9111	2.6961	1.6090
N	2	2	2	2	2
THYROIDS/PARATHY (G)					
MEAN	0.0197	0.0193	0.0231	0.0214	0.0244
% DIFFERENCE		-2.0	17.3	8.6	23.9
S.D.	0.00233	0.00057	0.00014	0.00085	0.00226
S.E.	0.00165	0.00040	0.00010	0.00060	0.00160
N	2	2	2	2	2
THYROIDS/PARATHY (G/100 G FINAL BODY WEIGHT)					
MEAN	0.008	0.007	0.008	0.008	0.009
% DIFFERENCE		-12.5	0.0	0.0	12.5
S.D.	0.0007	0.0000	0.0014	0.0007	0.0014
S.E.	0.0005	0.0000	0.0010	0.0005	0.0010
N	2	2	2	2	2
THYROIDS/PARATHY (G/100 G BRAIN)					
MEAN	1.001	0.960	1.158	1.037	1.298
% DIFFERENCE		-4.1	15.7	3.6	29.7
S.D.	0.0834	0.0212	0.0212	0.0092	0.1202
S.E.	0.0590	0.0150	0.0150	0.0065	0.0850
N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
FINAL BODY WT (G)					
MEAN	174.	189.	190.	195.	190.
% DIFFERENCE		8.6	9.2	12.1	9.2
S.D.	29.0	9.2	15.6	2.1	8.5
S.E.	20.5	6.5	11.0	1.5	6.0
N	2	2	2	2	2
ADRENAL GLANDS (G)					
MEAN	0.0586	0.0897	0.0551	0.0741	0.0700
% DIFFERENCE		53.1	-6.0	26.5	19.5
S.D.	0.00382	0.01556	0.01138	0.01039	0.00813
S.E.	0.00270	0.01100	0.00805	0.00735	0.00575
N	2	2	2	2	2
ADRENAL GLANDS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.034	0.047	0.029	0.038	0.037
% DIFFERENCE		38.2	-14.7	11.8	8.8
S.D.	0.0035	0.0059	0.0036	0.0058	0.0026
S.E.	0.0025	0.0042	0.0026	0.0041	0.0019
N	2	2	2	2	2
ADRENAL GLANDS (G/100 G BRAIN)					
MEAN	3.519	4.833	3.080	4.043	3.797
% DIFFERENCE		37.3	-12.5	14.9	7.9
S.D.	0.0351	0.5823	0.6012	0.5055	0.7133
S.E.	0.0248	0.4117	0.4251	0.3575	0.5044
N	2	2	2	2	2

TABLE S10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 11

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

	FEMALES				
GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
BRAIN (G)					
MEAN	1.67	1.85	1.79	1.83	1.86
% DIFFERENCE		10.8	7.2	9.6	11.4
S.D.	0.092	0.099	0.021	0.028	0.134
S.E.	0.065	0.070	0.015	0.020	0.095
N	2	2	2	2	2
BRAIN (G/100 G FINAL BODY WEIGHT)					
MEAN	0.969	0.981	0.942	0.941	0.979
% DIFFERENCE		1.2	-2.8	-2.9	1.0
S.D.	0.1089	0.0047	0.0660	0.0248	0.1144
S.E.	0.0770	0.0033	0.0467	0.0175	0.0809
N	2	2	2	2	2
HEART (G)					
MEAN	0.90	0.87	0.82	0.86	0.83
% DIFFERENCE		-3.3	-8.9	-4.4	-7.8
S.D.	0.233	0.028	0.092	0.007	0.064
S.E.	0.165	0.020	0.065	0.005	0.045
N	2	2	2	2	2
HEART (G/100 G FINAL BODY WEIGHT)					
MEAN	0.512	0.462	0.428	0.440	0.435
% DIFFERENCE		-9.8	-16.4	-14.1	-15.0
S.D.	0.0490	0.0075	0.0133	0.0084	0.0529
S.E.	0.0346	0.0053	0.0094	0.0060	0.0374
N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
HEART (G/100 G BRAIN)					
MEAN	53.448	47.053	45.631	46.724	44.467
% DIFFERENCE		-12.0	-14.6	-12.6	-16.8
S.D.	11.0639	0.9891	4.6075	0.3357	0.2103
S.E.	7.8233	0.6994	3.2580	0.2374	0.1487
N	2	2	2	2	2
KIDNEYS (G)					
MEAN	1.64	1.87	1.80	1.95	1.75
% DIFFERENCE		14.0	9.8	18.9	6.7
S.D.	0.071	0.014	0.212	0.156	0.064
S.E.	0.050	0.010	0.150	0.110	0.045
N	2	2	2	2	2
KIDNEYS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.955	0.993	0.946	1.003	0.920
% DIFFERENCE		4.0	-0.9	5.0	-3.7
S.D.	0.1189	0.0409	0.0342	0.0909	0.0746
S.E.	0.0840	0.0289	0.0242	0.0643	0.0527
N	2	2	2	2	2
KIDNEYS (G/100 G BRAIN)					
MEAN	98.531	101.206	100.777	106.504	94.193
% DIFFERENCE		2.7	2.3	8.1	-4.4
S.D.	1.1931	4.6511	10.6865	6.8547	3.3914
S.E.	0.8436	3.2889	7.5565	4.8470	2.3981
N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
LIVER (G)					
MEAN	6.85	7.58	7.96	8.10	9.11
% DIFFERENCE		10.7	16.2	18.2	33.0
S.D.	1.287	0.035	0.912	0.792	0.163
S.E.	0.910	0.025	0.645	0.560	0.115
N	2	2	2	2	2
LIVER (G/100 G FINAL BODY WEIGHT)					
MEAN	3.941	4.024	4.181	4.167	4.795
% DIFFERENCE		2.1	6.1	5.7	21.7
S.D.	0.0832	0.2150	0.1378	0.4526	0.1285
S.E.	0.0588	0.1520	0.0974	0.3201	0.0909
N	2	2	2	2	2
LIVER (G/100 G BRAIN)					
MEAN	409.902	410.098	445.386	442.341	492.445
% DIFFERENCE		0.0	8.7	7.9	20.1
S.D.	54.6628	23.8557	45.8089	36.4396	44.4333
S.E.	38.6525	16.8686	32.3918	25.7667	31.4191
N	2	2	2	2	2
OVARIES/OVIDUCTS (G)					
MEAN	0.1057	0.1210	0.1054	0.1100	0.1171
% DIFFERENCE		14.5	-0.3	4.1	10.8
S.D.	0.01549	0.00827	0.00467	0.00658	0.00615
S.E.	0.01095	0.00585	0.00330	0.00465	0.00435
N	2	2	2	2	2

	FEMALES				
GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
OVARIES/OVIDUCTS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.061	0.064	0.056	0.057	0.062
% DIFFERENCE		4.9	-8.2	-6.6	1.6
S.D.	0.0013	0.0075	0.0070	0.0040	0.0060
S.E.	0.0009	0.0053	0.0050	0.0028	0.0042
N	2	2	2	2	2
OVARIES/OVIDUCTS (G/100 G BRAIN)					
MEAN	6.329	6.559	5.907	6.006	6.315
% DIFFERENCE		3.6	-6.7	-5.1	-0.2
S.D.	0.5806	0.7982	0.3317	0.2665	0.1257
S.E.	0.4106	0.5644	0.2345	0.1885	0.0889
N	2	2	2	2	2
PITUITARY (G)					
MEAN	0.0119	0.0131	0.0127	0.0139	0.0132
% DIFFERENCE		10.1	6.7	16.8	10.9
S.D.	0.00297	0.00283	0.00396	0.00064	0.00163
S.E.	0.00210	0.00200	0.00280	0.00045	0.00115
N	2	2	2	2	2
PITUITARY (G/100 G FINAL BODY WEIGHT)					
MEAN	0.007	0.007	0.007	0.007	0.007
% DIFFERENCE		0.0	0.0	0.0	0.0
S.D.	0.0029	0.0018	0.0015	0.0002	0.0012
S.E.	0.0020	0.0013	0.0011	0.0002	0.0008
N	2	2	2	2	2

TABLE S10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 15

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

	FEMALES				
GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
PITUITARY (G/100 G BRAIN)					
MEAN	0.721	0.713	0.710	0.757	0.708
% DIFFERENCE		-1.1	-1.5	5.0	-1.8
S.D.	0.2182	0.1911	0.2134	0.0465	0.0364
S.E.	0.1543	0.1351	0.1509	0.0329	0.0258
N	2	2	2	2	2
SPLEEN (G)					
MEAN	0.34	0.45	0.49	0.53	0.51
% DIFFERENCE		32.4	44.1	55.9	50.0
S.D.	0.099	0.099	0.106	0.007	0.233
S.E.	0.070	0.070	0.075	0.005	0.165
N	2	2	2	2	2
SPLEEN (G/100 G FINAL BODY WEIGHT)					
MEAN	0.194	0.238	0.254	0.270	0.263
% DIFFERENCE		22.7	30.9	39.2	35.6
S.D.	0.0247	0.0409	0.0350	0.0007	0.1111
S.E.	0.0174	0.0289	0.0248	0.0005	0.0785
N	2	2	2	2	2
SPLEEN (G/100 G BRAIN)					
MEAN	20.287	24.216	27.137	28.695	27.752
% DIFFERENCE		19.4	33.8	41.4	36.8
S.D.	4.8256	4.0553	5.6196	0.8299	14.5892
S.E.	3.4122	2.8675	3.9736	0.5868	10.3161
N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
THYMUS (G)					
MEAN	0.2973	0.2982	0.3840	0.2870	0.1608
% DIFFERENCE		0.3	29.2	-3.5	-45.9
S.D.	0.06611	0.00198	0.07616	0.00036	0.00912
S.E.	0.04675	0.00140	0.05385	0.00025	0.00645
N	2	2	2	2	2
THYMUS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.171	0.158	0.201	0.148	0.085
% DIFFERENCE		-7.6	17.5	-13.5	-50.3
S.D.	0.0096	0.0088	0.0236	0.0018	0.0010
S.E.	0.0068	0.0062	0.0167	0.0013	0.0007
N	2	2	2	2	2
THYMUS (G/100 G BRAIN)					
MEAN	17.770	16.145	21.486	15.682	8.706
% DIFFERENCE		-9.1	20.9	-11.8	-51.0
S.D.	2.9897	0.9709	4.0111	0.2231	1.1223
S.E.	2.1141	0.6866	2.8363	0.1577	0.7936
N	2	2	2	2	2
THYROIDS/PARATHY (G)					
MEAN	0.0190	0.0171	0.0215	0.0231	0.0226
% DIFFERENCE		-10.0	13.2	21.6	18.9
S.D.	0.00672	0.00276	0.00742	0.00191	0.00410
S.E.	0.00475	0.00195	0.00525	0.00135	0.00290
N	2	2	2	2	2

TABLE S10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

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

	FEMALES				
GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
THYROIDS/PARATHY (G/100 G FINAL BODY WEIGHT)					
MEAN	0.011	0.009	0.012	0.012	0.012
% DIFFERENCE		-18.2	9.1	9.1	9.1
S.D.	0.0021	0.0014	0.0049	0.0007	0.0028
S.E.	0.0015	0.0010	0.0035	0.0005	0.0020
N	2	2	2	2	2
THYROIDS/PARATHY (G/100 G BRAIN)					
MEAN	1.129	0.919	1.204	1.261	1.214
% DIFFERENCE		-18.6	6.6	11.7	7.5
S.D.	0.3408	0.1004	0.4299	0.1237	0.1336
S.E.	0.2410	0.0710	0.3040	0.0875	0.0945
N	2	2	2	2	2
UTERUS (G)					
MEAN	0.38	0.44	0.44	0.53	0.43
% DIFFERENCE		15.8	15.8	39.5	13.2
S.D.	0.049	0.120	0.177	0.262	0.078
S.E.	0.035	0.085	0.125	0.185	0.055
N	2	2	2	2	2
UTERUS (G/100 G FINAL BODY WEIGHT)					
MEAN	0.222	0.233	0.226	0.271	0.225
% DIFFERENCE		5.0	1.8	22.1	1.4
S.D.	0.0656	0.0751	0.0745	0.1375	0.0510
S.E.	0.0464	0.0531	0.0527	0.0972	0.0360
N	2	2	2	2	2

FEMALES

GROUP:	UNTREATED	0 MG/KG/DAY	5 MG/KG/DAY	50 MG/KG/DAY	150 MG/KG/DAY
UTERUS (G/100 G BRAIN)					
MEAN	22.639	23.721	24.313	28.581	22.819
% DIFFERENCE		4.8	7.4	26.2	0.8
S.D.	4.2227	7.7671	9.6145	13.8549	2.5404
S.E.	2.9859	5.4922	6.7985	9.7969	1.7963
N	2	2	2	2	2

APPENDIX A

Study Protocol

Study Number: WIL-402018

PROTOCOL AMENDMENT 1

Sponsor: American Petroleum Institute

Title of Study:

A 14-Day Dose Range Finding Dermal Toxicity Study Utilizing Extract, Light Paraffinic Distillate Solvent in Sprague Dawley Rats

Protocol Modifications:

1) **7.4.3 Treatment Regimen:**

This section will be replaced with the following:

The vehicle (acetone) and test substance formulations will be administered once daily, 7 days a week for approximately 14 days (until the day prior to necropsy). Day 0 is the first day of dosing and Day 14 is the day of the scheduled necropsy. All animals will be collared continuously during the 14-day dosing period. Once per week (on study days 6 and 13) 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 disposable paper towel. Group 1 animals will be sham controls and will not receive the test or vehicle control substance; however, all other dosing procedures will be followed for this group.

Reasons for Protocol Modification:

1) Change removal of residual test substance from daily (6-hours following dosing) to weekly (approximately 6 hours following dosing).

Approval:

Sponsor's approval was obtained via e-mail on December 3, 2010.

WIL Research Laboratories, LLC

[redacted] 12/3/10
Study Director Date

[redacted] 3 Dec 2010
Senior Director, General Toxicology Date

American Petroleum Institute

[redacted] 07 Dec 2010
Sponsor Representative Date

PROTOCOL

A 14-DAY DOSE RANGE FINDING DERMAL TOXICITY STUDY UTILIZING EXTRACT, LIGHT PARAFFINIC DISTILLATE SOLVENT IN SPRAGUE DAWLEY RATS

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 evaluate the potential irritative and toxicity effects of repeated exposure of Extract, light paraffinic distillate solvent over 14 days, and to assist in dose selection for subsequent dermal toxicity studies (OECD 414 and 411) in Sprague Dawley rats.

This study is a non-GLP study and will be performed according to this protocol as approved by the Sponsor and the applicable Standard Operating Procedures of WIL Research Laboratories, LLC (WIL SOPs).

2 PERSONNEL INVOLVED IN THE STUDY:

2.1 Sponsor Representative:

[redacted]
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005
Tel: (202) 682-8333
E-mail: [redacted]

2.2 WIL Study Director:

[redacted]
Senior Toxicologist, Toxicology
Tel: (419) 289-8700
Fax: (419) 289-3650
E-mail: [redacted]

2.3 WIL Departmental Responsibilities:

[redacted]
Project Specialist, General Toxicology
Emergency Contact
Tel: (419) 289-8700
Fax: (419) 289-3650
E-mail: [redacted]

[redacted]
President and Chief Operating Officer

[redacted]
Senior Director, General Toxicology

[redacted]
Assistant Director, Toxicology

[redacted]
Director, Informational Systems

[redacted]
Clinical Veterinarian, Head of Surgery
and Experimental Medicine

[redacted]
Senior Operations Manager, Vivarium

[redacted]
Operations Manager, Toxicology

[redacted]
Group Manager, Formulations Laboratory

[redacted]
Manager, Gross Pathology and
Developmental Toxicology Laboratory

[redacted]
Operations Manager, Reporting and
Technical Support Services

3 STUDY SCHEDULE:

Proposed Experimental Starting Date: (Animal Receipt Date)	November 23, 2010
Proposed Experimental Start Date: (Proposed Initiation of Dosing)	December 3, 2010
Proposed Necropsy Date:	December 17, 2010
Proposed Preliminary Audited Data Tables:	Approximately 3 weeks following the scheduled necropsy
Proposed Unaudited Draft Report Date:	Approximately 6-8 weeks following the scheduled necropsy

4 TEST SUBSTANCE INFORMATION:

4.1 Test Substance Shipment:

Test substance and applicable documentation will be shipped under Sponsor's responsibility to:

Formulations Laboratory (WIL-402018; [redacted])
Attn. [redacted]
WIL Research Laboratories, LLC
1407 George Road
Ashland, Ohio 44805-8946

4.2 Identification:

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

4.3 Lot Number:

Site #7: Sample #23

4.4 Expiration/Retest Date:

Not applicable for this study. Will be determined prior to the conduct of the GLP definitive studies.

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:

With the exception of the reserve sample for each batch of test substance, all neat test substance remaining at study completion will be returned to the Sponsor or retained for subsequent studies.

5 TEST SYSTEM:

5.1 Species:

Rat

5.2 Strain:

Crl:CD(SD)

5.3 Source:

Charles River Laboratories, Inc.
Facility to be documented in the raw data

5.4 Number of Animals:

Eleven (11) naïve males and 11 naïve females will be purchased. Ten males and 10 females will be placed on study. Females will be nulliparous and non-pregnant. Animals not utilized on study will be assigned to stock or euthanized by CO_2 inhalation and discarded.

5.5 Approximate Age and Weight:

Animals will be approximately 7-8 weeks of age when received, and approximately 8-9 weeks of age at initiation of dosing. The males will weigh approximately 240 to 340 grams and the females approximately 170 to 270 grams at randomization.

5.6 Identification System:

Animals will be uniquely identified by a metal eartag displaying the animal number. Individual cage cards will be affixed to each cage and will display at least the animal number, group number, sex, and study number.

5.7 Justification for Selection and Number of Animals:

This species and strain of animal is recognized as appropriate for short-term toxicity studies. The Crl:CD(SD) rat will be utilized because it is a widely used strain for which historical control data are available. The number of animals selected is the minimum needed to yield scientifically meaningful data.

6 SPECIFIC MAINTENANCE SCHEDULE:

6.1 Animal Housing:

Animals will be housed individually in an environmentally controlled room in suspended, wire-mesh cages. The cages will be elevated above cage-board or other suitable material. The cages will be subject to routine cleaning at a frequency consistent with maintaining good animal health. The facilities at WIL Research Laboratories, LLC are fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International).

6.2 Environmental Conditions:

Controls will be set to maintain temperature at 71 ± 5°F (22 ± 3°C) and relative humidity at approximately 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 will provide illumination for a 12-hour light/dark photoperiod. Temporary adjustments to the light/dark cycles may be made to accommodate protocol specified activities. The ventilation rate will be set at a minimum of 10 room air changes per hour, 100% fresh air.

6.3 Drinking Water:

Reverse osmosis-purified water will be available *ad libitum*. Filters servicing the automatic watering system will be changed regularly according to Standard Operating Procedures. The municipal water supplying the laboratory will be analyzed for contaminants according to Standard Operating Procedures to ascertain that none are present at concentrations that would be expected to affect the outcome of the study.

6.4 Diet:

PMI Nutrition International, LLC Certified Rodent LabDiet® 5002 (pellet) will be offered *ad libitum* during the study, except during overnight fasting prior to necropsy. Each lot utilized will be identified and recorded. Standard operating procedures provide specifications for acceptable levels of heavy metals and pesticides that are reasonably expected to be present in the diet without interfering with the purpose or conduct of the study. Each lot of feed has been analyzed to assure specifications are met. Feeders will be changed and sanitized once per week.

6.5 Enrichment:

Enrichment devices will be provided to each animal for environmental enrichment and to aid in maintaining the animal's oral health (to be provided starting during acclimation).

7 EXPERIMENTAL DESIGN:

7.1 Animal Receipt and Acclimation:

Each animal will be inspected by qualified personnel upon receipt. Animals judged to be in good health will be placed immediately in acclimation for at least 7 days. All animals will be weighed and assigned a permanent animal number. During the acclimation period, each animal will be observed twice daily for changes in general appearance or behavior.

The animals will be allowed a pretreatment week (during the acclimation period) at which time all animals will be fitted with collars, food consumption will be determined and general health will be monitored, but they will not receive the test substance. All animals will receive a detailed physical examination and body weight determination prior to the time of animal selection for randomization.

7.2 Randomization:

Near the end of the pretest period, animals judged to be suitable for testing will be assigned to groups at random based on body weight stratification into a block design using a computer program. A printout containing the animal numbers and individual group assignments will be generated. Animals will then be arranged into the groups according to the printout. Body weights at randomization will be within ± 20% of the mean of each sex. Following randomization, it may be necessary to replace individual animals prior to or shortly after the initiation of dosing, based on the health status of the animals. Replacement animals will be selected from remaining pretest animals and

assigned arbitrarily. These instances will be appropriately documented in the study records.

7.3 Route and Rationale of Test Substance Administration:

The route of administration will be dermal since the study objective is to determine the potential toxicity of the test substance when administered by the dermal route.

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

7.4.1 Organization of Test Groups:

The following table presents the study group arrangement. The dosage levels were selected by the Sponsor's Representatives.

Group Number	Test Substance	Dosage Level (mg/kg/day)	Dose Concentration (mg/mL)	Dose Volume (mL/kg)	Number of Animals	
					Males	Females
1	Sham Control	NA	NA	NA	2	2
2	Vehicle[a]	0	0	1.5	2	2
3	Test Substance[b]	5	3.3	1.5	2	2
4	Test Substance[b]	50	33.3	1.5	2	2
5	Test Substance[b]	150	100.0	1.5	2	2

[a] The vehicle for this study is acetone.
[b] The test substance used for Groups 3-5 is Extract, light paraffinic distillate solvent.

7.4.2 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 2-5. However, no vehicle or test substance will be applied to the sham control animals.

7.4.3 Treatment Regimen:

The vehicle (acetone) and test substance formulations will be administered once daily (6-hour exposure), 7 days a week for approximately 14 days (until the day prior to necropsy). Day 0 is the first day of dosing and Day 14 is the day of the scheduled necropsy. All animals will be collared continuously during the 14-day dosing period. Following each 6-hour exposure 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 disposable paper towel. Group 1 animals will be sham controls and will not receive the test or vehicle control substance; however, all other dosing procedures will be followed for this group.

7.4.4 Method of Administration and Dose Calculations:

Prior to administration the back (down each side to the ventral surface) and flanks of each animal will be clipped free of hair using an electric clipper. Additional clipping throughout the study will be performed as necessary.

The vehicle and test substance formulations, adjusted as mL/kg per the most recent body weight, will be spread uniformly over the treatment site (target area of approximately 10% of the body surface area). The area covered by the vehicle and test substance will be measured and recorded once per week for each animal and the resulting approximate % of body surface area covered will be reported. The vehicle and test substance formulations will be applied to each animal in Groups 2-5 (as appropriate) and spread over the area using a glass rod. The area will remain uncovered. Dosing sites will be marked with a permanent marker and remarked as necessary. Animals will be exposed for 14 consecutive days and collared for the duration of the exposure to prevent ingestion of the test substance.

7.5 Preparation and Analysis of Test Substance Formulations:

7.5.1 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 daily. 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.

7.5.2 Homogeneity, Stability and Concentration of Test Substance Formulations:

Not applicable for this study. Will be determined prior to the conduct of the GLP definitive studies.

8 PARAMETERS TO BE EVALUATED:

8.1 Viability Observations:

All animals will be observed for mortality and moribundity twice daily, once in the morning and once in the afternoon. Moribund animals will be euthanized by CO_2 inhalation and necropsied as described in section 8.6.1.

8.2 Animals to Be Euthanized *in Extremis*:

All animals to be euthanized *in extremis* will have a body weight collected and undergo a final detailed physical observation prior to release for euthanasia and subsequent necropsy.

8.3 Clinical Observations:

8.3.1 Daily Observations:

A clinical examination will be performed on all animals at the time of dosing and at approximately 1-2 hours post-dose on each dosing day. Observations will include, but are not limited to, changes in the skin, fur, eyes and mucous membranes; respiratory, circulatory, autonomic and central nervous systems functions; somatomotor activity and behavior patterns. Findings or lack of findings noted at the clinical examination will be recorded for individual animals. Findings noted for individual animals outside of the specified observation periods will also be recorded.

8.3.2 Detailed Physical Examinations:

A detailed physical examination will be conducted at least once during the pretreatment period, and approximately weekly during the study. All animals assigned to study will also receive a detailed physical examination on the days of the scheduled or unscheduled euthanasia. The animals will be removed from their home cages and placed in a standard arena for observations. Observations will be detailed and carefully recorded. Where appropriate an explicitly defined scoring system will be used if in the opinion of the Study Director, and with approval of the Sponsor, doing so increases the utility of the data. Signs noted shall include, but not be limited to, changes in skin, fur, eyes, mucous membranes, occurrence of secretions and excretions and autonomic activity (e.g., lacrimation, piloerection, pupil size, unusual respiratory pattern), changes in gait, posture and response to handling, as well as the presence of clonic or tonic movements, stereotypic behavior (e.g., excessive grooming, repetitive circling) or bizarre behavior (e.g.,

self-mutilation, walking backwards) will be recorded. The absence or presence of findings will be recorded for individual animals.

8.3.3 Dermal Observations:

Dermal scoring according to the method of Draize (Appendix A) will be conducted daily during the 14-day dosing period (immediately prior to application, on dosing days).

8.4 Individual Body Weights:

Individual body weights will be recorded approximately weekly, beginning during pretest, for the duration of the study. A final fasted body weight will be recorded at the time of necropsy.

8.5 Individual Food Consumption:

Individual food consumption will be recorded approximately weekly, beginning during pretest, for the duration of the study.

8.6 Anatomic Pathology:

8.6.1 Macroscopic Examination:

A complete necropsy examination will be conducted on all animals. Animals *in extremis* or surviving to the scheduled necropsy will be euthanized by CO_2 inhalation. Necropsy will include examination of the external surface; all orifices; and the cranial, thoracic, åbdominal and pelvic cavities including viscera. At the time of necropsy, the following tissues will be collected and placed in 10% neutral-buffered formalin (or other fixative if applicable).

Adrenals (2)
Aorta
Bone with marrow
  Sternum
  Femur with joint
Bone marrow smear (from femur)[a]
Brain
  Cerebrum (2 levels)
  Cerebellum with pons/medulla
Cervix
Epididymides (2)[c]
Exor bital lacrimal glands (2)
Eyes with optic nerves (2)[b]
Gastrointestinal tract
  Esophagus
  Stomach
  Duodenum
  Jejunum
  Ileum
  Cecum
  Colon
  Rectum
Heart
Kidneys (2)
Liver (sections of two lobes)
Lungs (including bronchi, fixed by inflation with fixative)
Lymph node
  Axillary (2)
  Mandibular (2)
  Mesenteric
Ovaries (2) with oviducts[c]
Pancreas
Peripheral nerve (sciatic)
Peyer's patches
Pituitary
Prostate
Salivary glands [mandibular (2)]
Seminal vesicles (2)
Skeletal muscle (Rectus femoris)
Skin with mammary gland[d] (females only)
Skin
  Treated
  Sham
  Untreated (posterior to treated skin)
Skin with mammary gland[d] (females only)
Spinal cord
  Cervical
  Thoracic
  Lumbar
Spleen
Testes (2)[c]
Thymus
Thyroid with parathyroids (2)[e]
Trachea
Urinary bladder
Uterus
Vagina
All gross lesions

[a] - Not taken from animals found dead; not placed in formalin; to be examined only if scientifically warranted.
[b] - To be placed in Davidson's solution.
[c] - To be placed in Bouin's solution.
[d] - For females: A corresponding section of skin will be collected from the same anatomical area for males.
[e] - If microscopic evaluation is conducted, parathyroids and oviducts will be examined histopathologically if in the plane of section and in all cases where a gross lesion is present.

8.6.2 Organ Weights:

The following organs, from all animals, will be weighed at the scheduled necropsy:

Adrenals (2)	Pituitary gland
Brain	Prostate
Epididymides (2)	Spleen
Heart	Testes (2)
Kidneys (2)	Thymus
Liver	Thyroid with parathyroids (2)*
Ovaries (2)with oviducts	Uterus

Paired organs will be weighed together. Designated (*) organs will be weighed after fixation. Organ-to-body-weight and organ-to-brain-weight ratios will be calculated from animals euthanized at the scheduled necropsy.

8.6.3 Microscopic Examination:

Processing of tissues to slide and subsequent microscopic examination of the hematoxylin-eosin stained paraffin sections will only be conducted if deemed necessary in consultation with the Sponsor by protocol amendment (at additional cost).

9 STATISTICAL METHODS:

Statistical evaluations will not be performed due to the small group size.

10 QUALITY ASSURANCE:

This study and the corresponding report will not be audited by the WIL Quality Assurance Unit. However, the data tables for this study will be audited by the WIL Quality Assurance Unit.

11 RECORDS TO BE MAINTAINED:

All original raw data records, as defined by WIL SOPs will be stored in Archives at WIL Research Laboratories, LLC as described in protocol Section 12.

12 WORK PRODUCT:

Sponsor will have title to all documentation records, raw data, slides, specimens, or other work products generated during the performance of the study. All work products including raw paper data, pertinent electronic storage media and specimens will be retained at no charge for a period of 6 months following issuance of the final

report in the Archives at WIL Research Laboratories, LLC. Thereafter, WIL Research Laboratories will charge a monthly archiving fee for retention of all work products. All work products 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.

13 REPORTS:

Audited data tables will be prepared and sent to the study monitor approximately 3 weeks after the scheduled necropsy.

The final report will contain a summary, test substance data, methods and procedures, appropriate individual animal and summary data tables, a copy of the protocol and amendments (if any) and an interpretation and discussion of the study results. The final report will be comprehensive and shall attempt to define level(s) inducing toxic effects, including irritation, under the condition of this investigation.

WIL Research Laboratories, LLC will submit an electronic copy (PDF with an MS Word copy of the report text for editing and comments) of the unaudited 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 within a two-month time frame following submission. Within one month following receipt of the Sponsor's comments, WIL 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 shall submit the final report within two weeks of receiving authorization from the sponsor. If the Sponsor's comments and/or authorization to finalize the report have not been received at WIL within one year following submission of the draft report, WIL 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 additional paper copies of the final report may result in additional charges.

14 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 Representative. In the event that the Sponsor verbally requests or approves changes in the protocol, documentation will be

maintained as e-mail or other suitable correspondence, and may be communicated to WIL Research Laboratory staff in the form of Study Director Notifications, as appropriate.

15 ANIMAL WELFARE ACT COMPLIANCE:

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

- The Sponsor signature on this protocol documents for the Study Director the Sponsor's assurance that the study described 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) of the methods and sources used to determine that alternatives are not available.

16 PROTOCOL APPROVAL:

Sponsor approval received via E-mail on 12/2/10.
Date

American Petroleum Institute

[redacted]
Sponsor Representative

22 Dec 2010
Date

WIL Research Laboratories, LLC

[redacted]
Study Director

12/2/10
Date

[redacted]
Senior Director, General Toxicology

28 Dec 2010
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

Pretest Clinical Observations

TABLE P1 (PRETEST OBSERVATIONS)

PROJECT NO.:WIL-402018P 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

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

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

TABLE RANGE:	11-24-10 TO 12-02-10
GROUP:	1
NORMAL	
-NO SIGNIFICANT CLINICAL OBSERVATIONS	16/11
EYES/EARS/NOSE	
-DRIED RED MATERIAL AROUND LEFT EYE	3/ 3
-DRIED RED MATERIAL AROUND RIGHT EYE	4/ 4
-DRIED RED MATERIAL AROUND NOSE	5/ 5

1- PRETEST

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

TABLE RANGE: 11-24-10 TO 12-02-10
GROUP: 1

NORMAL
-NO SIGNIFICANT CLINICAL OBSERVATIONS 19/11

EYES/EARS/NOSE
-DRIED RED MATERIAL AROUND LEFT EYE 1/ 1
-DRIED RED MATERIAL AROUND RIGHT EYE 1/ 1
-DRIED RED MATERIAL AROUND NOSE 2/ 2

1- PRETEST

APPENDIX C

Animal Room Environmental Conditions

14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

PROJECT NO.:WIL- 402018 TEMPERATURE/HUMIDITY - STUDY SUMMARY REPORT

SPONSOR: 402 - AMERICAN PETROLEUM

STUDY SPECIFICATIONS: 402018 DATE IN 11/23/10 TIME IN 08:00
DATE OUT 12/17/10 TIME OUT 16:00

ROOM SPECIFICATIONS: B ROOM 108 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)
11/23/10	70.5	21.4	70.4	21.3	42.4	41.5
11/24/10	70.5	21.4	70.3	21.3	43.9	43.1
11/25/10	70.4	21.3	70.3	21.3	45.6	45.0
11/26/10	71.2	21.8	70.9	21.6	42.8	42.1
11/27/10	70.4	21.3	70.2	21.2	44.9	44.3
11/28/10	70.6	21.4	70.4	21.3	44.5	43.9
11/29/10	70.3	21.3	70.3	21.3	43.6	43.0
11/30/10	70.3	21.3	70.1	21.2	46.1	45.4
12/01/10	71.5	21.9	71.4	21.9	42.0	41.2
12/02/10	70.3	21.3	70.2	21.2	44.6	43.9
12/03/10	70.6	21.4	70.4	21.3	43.8	43.1
12/04/10	70.7	21.5	70.5	21.4	44.5	43.9
12/05/10	70.4	21.3	70.2	21.2	45.1	44.4
12/06/10	70.4	21.3	70.2	21.2	44.7	44.1
12/07/10	70.4	21.3	70.2	21.2	44.2	43.6
12/08/10	70.6	21.4	70.4	21.3	44.7	44.0
12/09/10	70.5	21.4	70.4	21.3	42.7	42.1
12/10/10	70.6	21.4	70.4	21.3	44.3	43.7
12/11/10	70.7	21.5	70.5	21.4	43.6	43.0

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
DATE	MEAN (°F)	MEAN (°C)	MEAN (°F)	MEAN (°C)	MEAN (%RH)	MEAN (%RH)
12/12/10	70.7	21.5	70.5	21.4	43.9	43.2
12/13/10	70.4	21.3	70.2	21.2	42.3	41.7
12/14/10	70.5	21.4	70.4	21.3	43.5	42.8
12/15/10	70.6	21.4	70.3	21.3	46.2	45.6
12/16/10	70.6	21.4	70.4	21.3	47.0	46.4
12/17/10	70.4	21.3	70.1	21.2	49.4	48.8

SUMMARY OF DAILY MEANS	MEAN	MIN	MAX
PRIMARY TEMP °F:	70.6	70.3	71.5
PRIMARY TEMP °C:	21.4	21.3	21.9
SECONDARY TEMP °F:	70.4	70.1	71.4
SECONDARY TEMP °C:	21.3	21.2	21.9
PRIMARY HUM %RH:	44.4	42.0	49.4
SECONDARY HUM %RH:	43.7	41.2	48.8
N DAYS	25		

B ROOM 108 SUMMARY OF HOURLY VALUES

	PRIMARY TEMP		SECONDARY TEMP		PRIMARY HUM	SECONDARY HUM
MEAN	70.6 °F	21.4 °C	70.4 °F	21.3 °C	44.4 %RH	43.7 %RH
MIN	67.7 °F	19.8 °C	67.4 °F	19.7 °C	18.4 %RH	18.2 %RH
MAX	73.7 °F	23.2 °C	73.5 °F	23.1 °C	62.7 %RH	62.5 %RH
SD	1.69	0.94	1.68	0.93	4.23	4.33
SE	0.07	0.04	0.07	0.04	0.18	0.18
N SAMPLES	583		583		583	583
FIRST DAY	11/23/10					
LAST DAY	12/17/10					
N DAYS	25					

STUDY 402018 SUMMARY OF HOURLY VALUES

	PRIMARY TEMP				SECONDARY TEMP				PRIMARY HUM		SECONDARY HUM	
MEAN	70.6	°F	21.4	°C	70.4	°F	21.3	°C	44.4	%RH	43.7	%RH
MIN	67.7	°F	19.8	°C	67.4	°F	19.7	°C	18.4	%RH	18.2	%RH
MAX	73.7	°F	23.2	°C	73.5	°F	23.1	°C	62.7	%RH	62.5	%RH
SD	1.69		0.94		1.68		0.93		4.23		4.33	
SE	0.07		0.04		0.07		0.04		0.18		0.18	
N SAMPLES	583				583				583		583	
FIRST DAY	11/23/10											
LAST DAY	12/17/10											
N DAYS	25											

APPENDIX D

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 E

Individual Animal Data

TABLE A1

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL SURVIVAL AND DISPOSITION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS A	DATE OF DEATH	STUDY DAY
90143	M	UNTREATED	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90153	M	UNTREATED	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90144	M	0 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90147	M	0 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90149	M	5 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90151	M	5 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90145	M	50 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90146	M	50 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90150	M	150 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90152	M	150 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14

A = CALCULATED TO THE NEAREST WHOLE WEEK USING THE MEAN AGE IN WEEKS AT INITIATION OF DOSING (8)

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS A	DATE OF DEATH	STUDY DAY
90154	F	UNTREATED	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90157	F	UNTREATED	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90158	F	0 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90161	F	0 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90156	F	5 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90159	F	5 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90160	F	50 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90162	F	50 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90163	F	150 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14
90164	F	150 MG/KG/DAY	SCHEDULED EUTHANASIA	10	17-DEC-10	14

A = CALCULATED TO THE NEAREST WHOLE WEEK USING THE MEAN AGE IN WEEKS AT INITIATION OF DOSING (8)

TABLE A2 (DETAILED PHYSICAL EXAMINATIONS/DISPOSITIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 14

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90143	M	UNTREATED	NORMAL	0	7:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90143	M	UNTREATED	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90143	M	UNTREATED	EYES/EARS/NOSE	7	7:52	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	7:52	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:27	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:27	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:27	P	DRIED RED MATERIAL AROUND NOSE
90143	M	UNTREATED	SPECIAL	7	7:52	P	SWOLLEN FACIAL AREA
90153	M	UNTREATED	NORMAL	0	7:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90153	M	UNTREATED	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90153	M	UNTREATED	EYES/EARS/NOSE	7	7:54	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	7:54	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	7:54	P	DRIED RED MATERIAL AROUND NOSE
				14	7:28	P	DRIED RED MATERIAL AROUND NOSE
90153	M	UNTREATED	SPECIAL	7	7:54	P	SWOLLEN FACIAL AREA
90144	M	0 MG/KG/DAY	NORMAL	0	7:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90144	M	0 MG/KG/DAY	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90144	M	0 MG/KG/DAY	EYES/EARS/NOSE	7	7:57	P	DRIED RED MATERIAL AROUND NOSE
				14	7:30	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:30	P	DRIED RED MATERIAL AROUND NOSE
90144	M	0 MG/KG/DAY	SPECIAL	7	7:58	P	SWOLLEN FACIAL AREA
90147	M	0 MG/KG/DAY	NORMAL	0	7:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90147	M	0 MG/KG/DAY	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90147	M	0 MG/KG/DAY	BODY/INTEGUMENT	14	7:30	P	DRIED YELLOW MATERIAL UROGENITAL AREA
90147	M	0 MG/KG/DAY	EYES/EARS/NOSE	7	7:58	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	7:58	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	7:58	P	DRIED RED MATERIAL AROUND NOSE
				14	7:30	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:30	P	DRIED RED MATERIAL AROUND LEFT EYE

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

TABLE A2 (DETAILED PHYSICAL EXAMINATIONS/DISPOSITIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 14

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90147	M	0 MG/KG/DAY	EYES/EARS/NOSE	14	7:30	P	DRIED RED MATERIAL AROUND NOSE
90149	M	5 MG/KG/DAY	NORMAL	0	7:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90149	M	5 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90149	M	5 MG/KG/DAY	EYES/EARS/NOSE	7	8:01	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	8:01	P	DRIED RED MATERIAL AROUND NOSE
				14	7:34	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:34	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:34	P	DRIED RED MATERIAL AROUND NOSE
90151	M	5 MG/KG/DAY	NORMAL	0	7:57	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	8:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90151	M	5 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90151	M	5 MG/KG/DAY	EYES/EARS/NOSE	14	7:34	P	DRIED RED MATERIAL AROUND NOSE
90145	M	50 MG/KG/DAY	NORMAL	0	7:59	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90145	M	50 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90145	M	50 MG/KG/DAY	EYES/EARS/NOSE	7	8:04	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	8:04	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	8:04	P	DRIED RED MATERIAL AROUND NOSE
				14	7:36	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:36	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:36	P	DRIED RED MATERIAL AROUND NOSE
90145	M	50 MG/KG/DAY	SPECIAL	7	8:04	P	SWOLLEN FACIAL AREA
90146	M	50 MG/KG/DAY	NORMAL	0	7:59	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90146	M	50 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90146	M	50 MG/KG/DAY	BODY/INTEGUMENT	7	8:05	P	DRIED YELLOW MATERIAL UROGENITAL AREA
90146	M	50 MG/KG/DAY	EYES/EARS/NOSE	14	7:37	P	DRIED RED MATERIAL AROUND NOSE
90150	M	150 MG/KG/DAY	NORMAL	0	8:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90150	M	150 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90150	M	150 MG/KG/DAY	EYES/EARS/NOSE	7	8:07	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:39	P	DRIED RED MATERIAL AROUND LEFT EYE

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

TABLE A2 (DETAILED PHYSICAL EXAMINATIONS/DISPOSITIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 14

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90150	M	150 MG/KG/DAY	EYES/EARS/NOSE	14	7:39	P	DRIED RED MATERIAL AROUND NOSE
90152	M	150 MG/KG/DAY	NORMAL	0	8:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90152	M	150 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90152	M	150 MG/KG/DAY	EYES/EARS/NOSE	7	8:08	P	DRIED RED MATERIAL AROUND NOSE
				14	7:39	P	DRIED RED MATERIAL AROUND NOSE
90154	F	UNTREATED	NORMAL	0	7:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90154	F	UNTREATED	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90154	F	UNTREATED	BODY/INTEGUMENT	7	7:56	P	DRIED YELLOW MATERIAL UROGENITAL AREA
				14	7:28	P	DRIED YELLOW MATERIAL UROGENITAL AREA
90154	F	UNTREATED	EYES/EARS/NOSE	7	7:54	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	7:54	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	7:54	P	DRIED RED MATERIAL AROUND NOSE
				14	7:28	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:28	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:28	P	DRIED RED MATERIAL AROUND NOSE
90157	F	UNTREATED	NORMAL	0	7:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90157	F	UNTREATED	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90157	F	UNTREATED	BODY/INTEGUMENT	14	7:29	P	DRIED YELLOW MATERIAL UROGENITAL AREA
90157	F	UNTREATED	EYES/EARS/NOSE	7	7:57	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	7:57	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	7:57	P	DRIED RED MATERIAL AROUND NOSE
				14	7:29	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:29	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:29	P	DRIED RED MATERIAL AROUND NOSE
90158	F	0 MG/KG/DAY	NORMAL	0	7:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90158	F	0 MG/KG/DAY	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90158	F	0 MG/KG/DAY	EYES/EARS/NOSE	7	8:00	P	DRIED RED MATERIAL AROUND NOSE
				14	7:31	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:31	P	DRIED RED MATERIAL AROUND NOSE

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

TABLE A2 (DETAILED PHYSICAL EXAMINATIONS/DISPOSITIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 14

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90161	F	0 MG/KG/DAY	NORMAL	0	7:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90161	F	0 MG/KG/DAY	DISPOSITION	14	8:07	P	PRIMARY NECROPSY (DAY 14)
90161	F	0 MG/KG/DAY	BODY/INTEGUMENT	14	7:33	P	HAIR LOSS FACIAL AREA
90161	F	0 MG/KG/DAY	EYES/EARS/NOSE	7	8:00	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	8:00	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	8:00	P	DRIED RED MATERIAL AROUND NOSE
				14	7:32	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:32	P	DRIED RED MATERIAL AROUND NOSE
90156	F	5 MG/KG/DAY	NORMAL	0	7:58	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90156	F	5 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90156	F	5 MG/KG/DAY	EYES/EARS/NOSE	7	8:03	P	DRIED RED MATERIAL AROUND NOSE
				14	7:35	P	DRIED RED MATERIAL AROUND NOSE
90159	F	5 MG/KG/DAY	NORMAL	0	7:58	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90159	F	5 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90159	F	5 MG/KG/DAY	EYES/EARS/NOSE	7	8:03	P	DRIED RED MATERIAL AROUND NOSE
				14	7:36	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:36	P	DRIED RED MATERIAL AROUND NOSE
90160	F	50 MG/KG/DAY	NORMAL	0	8:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90160	F	50 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90160	F	50 MG/KG/DAY	BODY/INTEGUMENT	14	7:38	P	HAIR LOSS FACIAL AREA
90160	F	50 MG/KG/DAY	EYES/EARS/NOSE	7	8:05	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	8:05	P	DRIED RED MATERIAL AROUND LEFT EYE
				7	8:05	P	DRIED RED MATERIAL AROUND NOSE
				14	7:37	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:37	P	DRIED RED MATERIAL AROUND NOSE
90162	F	50 MG/KG/DAY	NORMAL	0	8:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90162	F	50 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90162	F	50 MG/KG/DAY	EYES/EARS/NOSE	7	8:06	P	DRIED RED MATERIAL AROUND RIGHT EYE
				7	8:06	P	DRIED RED MATERIAL AROUND LEFT EYE

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

STUDY DAYS: 0 THROUGH 14

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90162	F	50 MG/KG/DAY	EYES/EARS/NOSE	7	8:06	P	DRIED RED MATERIAL AROUND NOSE
				14	7:38	P	DRIED RED MATERIAL AROUND RIGHT EYE
				14	7:38	P	DRIED RED MATERIAL AROUND LEFT EYE
				14	7:38	P	DRIED RED MATERIAL AROUND NOSE
90163	F	150 MG/KG/DAY	NORMAL	0	8:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90163	F	150 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90163	F	150 MG/KG/DAY	EYES/EARS/NOSE	7	8:08	P	DRIED RED MATERIAL AROUND NOSE
				14	7:39	P	DRIED RED MATERIAL AROUND NOSE
90164	F	150 MG/KG/DAY	NORMAL	0	8:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90164	F	150 MG/KG/DAY	DISPOSITION	14	8:08	P	PRIMARY NECROPSY (DAY 14)
90164	F	150 MG/KG/DAY	BODY/INTEGUMENT	14	7:40	P	DRIED YELLOW MATERIAL UROGENITAL AREA
				14	7:41	P	HAIR LOSS FORELIMB(S)
90164	F	150 MG/KG/DAY	EYES/EARS/NOSE	7	8:09	P	DRIED RED MATERIAL AROUND NOSE
				14	7:40	P	DRIED RED MATERIAL AROUND NOSE

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90143	M	UNTREATED	NORMAL	0	15:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:50	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90153	M	UNTREATED	NORMAL	0	15:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:50	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90144	M	0 MG/KG/DAY	NORMAL	0	15:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90144	M	0 MG/KG/DAY	NORMAL	1	13:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:42	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90147	M	0 MG/KG/DAY	NORMAL	0	15:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:42	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90149	M	5 MG/KG/DAY	NORMAL	0	15:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90149	M	5 MG/KG/DAY	NORMAL	2	11:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:42	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:50	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90151	M	5 MG/KG/DAY	NORMAL	0	15:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:06	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90145	M	50 MG/KG/DAY	NORMAL	0	15:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90145	M	50 MG/KG/DAY	NORMAL	3	9:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:15	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:07	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:57	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90146	M	50 MG/KG/DAY	NORMAL	0	15:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:07	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:57	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90150	M	150 MG/KG/DAY	NORMAL	0	15:50	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:50	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90150	M	150 MG/KG/DAY	NORMAL	4	13:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:08	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:59	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:57	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90152	M	150 MG/KG/DAY	NORMAL	0	15:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:50	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:09	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:59	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:57	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90154	F	UNTREATED	NORMAL	0	15:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90154	F	UNTREATED	NORMAL	5	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90157	F	UNTREATED	NORMAL	0	15:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:25	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90158	F	0 MG/KG/DAY	NORMAL	0	15:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:49	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90158	F	0 MG/KG/DAY	NORMAL	6	10:42	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90161	F	0 MG/KG/DAY	NORMAL	0	15:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:42	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:49	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90156	F	5 MG/KG/DAY	NORMAL	0	15:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:44	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90156	F	5 MG/KG/DAY	NORMAL	7	12:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:06	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90159	F	5 MG/KG/DAY	NORMAL	0	15:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:15	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:43	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:06	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90160	F	50 MG/KG/DAY	NORMAL	0	15:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:49	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90160	F	50 MG/KG/DAY	NORMAL	8	10:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:08	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:58	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90162	F	50 MG/KG/DAY	NORMAL	0	15:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:49	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:08	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:58	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:30	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90163	F	150 MG/KG/DAY	NORMAL	0	15:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:19	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A3 (AT TIME OF DOSING)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90163	F	150 MG/KG/DAY	NORMAL	9	10:09	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:59	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:58	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90164	F	150 MG/KG/DAY	NORMAL	0	15:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	13:19	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	11:51	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	9:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	13:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	11:19	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	10:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	12:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	10:32	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	10:09	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	10:59	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	9:31	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	10:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	8:58	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A4 (DOSING DAY OBSERVATIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90143	M	UNTREATED	NORMAL	0	16:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:21	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90143	M	UNTREATED	SPECIAL	1	14:26	P	SWOLLEN FACIAL AREA
90153	M	UNTREATED	NORMAL	0	16:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:21	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90153	M	UNTREATED	SPECIAL	1	14:26	P	SWOLLEN FACIAL AREA
90144	M	0 MG/KG/DAY	NORMAL	0	16:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A4 (DOSING DAY OBSERVATIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90144	M	0 MG/KG/DAY	NORMAL	1	14:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:21	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90147	M	0 MG/KG/DAY	NORMAL	0	16:36	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:22	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90149	M	5 MG/KG/DAY	NORMAL	0	16:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90149	M	5 MG/KG/DAY	NORMAL	2	13:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:22	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90151	M	5 MG/KG/DAY	NORMAL	0	16:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90145	M	50 MG/KG/DAY	NORMAL	0	16:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90145	M	50 MG/KG/DAY	NORMAL	3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90146	M	50 MG/KG/DAY	NORMAL	0	16:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90150	M	150 MG/KG/DAY	NORMAL	0	16:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90150	M	150 MG/KG/DAY	NORMAL	4	15:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90152	M	150 MG/KG/DAY	NORMAL	0	16:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90154	F	UNTREATED	NORMAL	0	16:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:26	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A4 (DOSING DAY OBSERVATIONS)

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CLINICAL OBSERVATIONS

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90154	F	UNTREATED	NORMAL	5	12:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:21	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90157	F	UNTREATED	NORMAL	0	16:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:10	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:45	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:53	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:16	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:33	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:21	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90158	F	0 MG/KG/DAY	NORMAL	0	16:36	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:03	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90158	F	0 MG/KG/DAY	NORMAL	6	11:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:22	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90161	F	0 MG/KG/DAY	NORMAL	0	16:37	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:27	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:11	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:46	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:04	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:34	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:22	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90156	F	5 MG/KG/DAY	NORMAL	0	16:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90156	F	5 MG/KG/DAY	NORMAL	7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90159	F	5 MG/KG/DAY	NORMAL	0	16:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:00	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:17	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:38	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:23	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90160	F	50 MG/KG/DAY	NORMAL	0	16:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:47	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90160	F	50 MG/KG/DAY	NORMAL	8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90162	F	50 MG/KG/DAY	NORMAL	0	16:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:28	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:14	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:12	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:01	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:55	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:39	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:35	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90163	F	150 MG/KG/DAY	NORMAL	0	16:52	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:15	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

STUDY DAYS: 0 THROUGH 13

ANIMAL	SEX	GROUP	CATEGORY	STUDY DAY	TIME	GRADE	OBSERVATIONS
90163	F	150 MG/KG/DAY	NORMAL	9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:05	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:36	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
90164	F	150 MG/KG/DAY	NORMAL	0	16:54	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				1	14:29	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				2	13:15	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				3	11:13	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				4	15:02	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				5	12:48	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				6	11:56	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				7	13:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				8	11:41	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				9	11:18	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				10	12:06	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				11	10:40	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				12	11:36	P	NO SIGNIFICANT CLINICAL OBSERVATIONS
				13	10:24	P	NO SIGNIFICANT CLINICAL OBSERVATIONS

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

TABLE A5

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : UNTREATED	ANIMAL NO. / SEX	
	90143/M	90153/M
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY	ANIMAL NO. / SEX	
	90144/M	90147/M
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 5 MG/KG/DAY	ANIMAL NO. / SEX	
	90149/M	90151/M
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 50 MG/KG/DAY	ANIMAL NO. / SEX	
	90145/M	90146/M
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 150 MG/KG/DAY	ANIMAL NO. / SEX	
	90150/M	90152/M
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	0/0/h
5	SNR	0/0/h
6	0/0/h	0/0/h
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	SNR	SNR

+ = REFER TO DRAIZE SCALE FOR DERMAL SCORING CRITERIA
SEX CODE: M = MALE F = FEMALE
SNR = SCORED, NOT REMARKABLE
h = RESIDUAL TEST SUBSTANCE WITHIN DOSE SITE

TABLE A5

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : UNTREATED	ANIMAL NO. / SEX	
	90154/F	90157/F
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 0 MG/KG/DAY	ANIMAL NO. / SEX	
	90158/F	90161/F
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 5 MG/KG/DAY	ANIMAL NO. / SEX	
	90156/F	90159/F
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	SNR
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	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-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL DERMAL OBSERVATIONS

GROUP : 50 MG/KG/DAY	ANIMAL NO. / SEX	
	90160/F	90162/F
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	SNR	SNR
5	SNR	SNR
6	SNR	0/0/h
7	SNR	SNR
8	SNR	SNR
9	SNR	SNR
10	SNR	SNR
11	SNR	SNR
12	SNR	SNR
13	SNR	SNR
14	SNR	SNR

+ = REFER TO DRAIZE SCALE FOR DERMAL SCORING CRITERIA
SEX CODE: M = MALE F = FEMALE
SNR = SCORED, NOT REMARKABLE
h = RESIDUAL TEST SUBSTANCE WITHIN DOSE SITE

GROUP : 150 MG/KG/DAY	ANIMAL NO. / SEX	
	90163/F	90164/F
STUDY DAY	ERYTHEMA+/EDEMA+/OTHER FINDINGS	
0	SNR	SNR
1	SNR	SNR
2	SNR	SNR
3	SNR	SNR
4	0/0/h	0/0/h
5	0/0/h	0/0/h
6	0/0/h	0/0/h
7	SNR	SNR
8	SNR	0/0/h
9	SNR	0/0/h
10	SNR	SNR
11	0/0/h	0/0/h
12	SNR	SNR
13	SNR	SNR
14	SNR	SNR

+ = REFER TO DRAIZE SCALE FOR DERMAL SCORING CRITERIA
SEX CODE: M = MALE F = FEMALE
SNR = SCORED, NOT REMARKABLE
h = RESIDUAL TEST SUBSTANCE WITHIN DOSE SITE

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

MALE GROUP: UNTREATED

DAY	-9	-3	0	7	13
ANIMAL					
90143	183.	232.	270.	281.	322.
90153	197.	243.	272.	257.	276.
MEAN	190.	238.	271.	269.	299.
S.D.	9.9	7.8	1.4	17.0	32.5
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

MALE GROUP: 0 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90144	205.	258.	290.	309.	325.
90147	196.	239.	273.	280.	302.
MEAN	201.	249.	282.	295.	314.
S.D.	6.4	13.4	12.0	20.5	16.3
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

MALE GROUP: 5 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90149	200.	257.	300.	323.	354.
90151	188.	236.	275.	256.	295.
MEAN	194.	247.	288.	290.	325.
S.D.	8.5	14.8	17.7	47.4	41.7
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

MALE GROUP: 50 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90145	195.	241.	272.	290.	322.
90146	185.	243.	274.	297.	326.
MEAN	190.	242.	273.	294.	324.
S.D.	7.1	1.4	1.4	4.9	2.8
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

MALE GROUP: 150 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90150	191.	249.	289.	304.	340.
90152	172.	234.	264.	283.	297.
MEAN	182.	242.	277.	294.	319.
S.D.	13.4	10.6	17.7	14.8	30.4
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

FEMALE GROUP: UNTREATED

DAY	-9	-3	0	7	13
ANIMAL					
90154	152.	161.	177.	170.	169.
90157	166.	186.	200.	206.	220.
MEAN	159.	174.	189.	188.	195.
S.D.	9.9	17.7	16.3	25.5	36.1
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

FEMALE GROUP: 0 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90158	160.	185.	197.	202.	212.
90161	157.	186.	203.	212.	230.
MEAN	159.	186.	200.	207.	221.
S.D.	2.1	0.7	4.2	7.1	12.7
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

FEMALE GROUP: 5 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90156	165.	186.	204.	201.	225.
90159	158.	181.	191.	195.	204.
MEAN	162.	184.	198.	198.	215.
S.D.	4.9	3.5	9.2	4.2	14.8
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

FEMALE GROUP: 50 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90160	171.	183.	202.	209.	217.
90162	163.	194.	202.	199.	221.
MEAN	167.	189.	202.	204.	219.
S.D.	5.7	7.8	0.0	7.1	2.8
N	2	2	2	2	2

TABLE A6

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHTS [G]

FEMALE GROUP: 150 MG/KG/DAY

DAY	-9	-3	0	7	13
ANIMAL					
90163	168.	191.	204.	203.	217.
90164	156.	182.	193.	198.	204.
MEAN	162.	187.	199.	201.	211.
S.D.	8.5	6.4	7.8	3.5	9.2
N	2	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

MALE GROUP: UNTREATED

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90143	49.	38.	11.	41.
90153	46.	29.	-15.	19.
MEAN	48.	34.	-2.	30.
S.D.	2.1	6.4	18.4	15.6
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

MALE GROUP: 0 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90144	53.	32.	19.	16.
90147	43.	34.	7.	22.
MEAN	48.	33.	13.	19.
S.D.	7.1	1.4	8.5	4.2
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

MALE GROUP: 5 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90149	57.	43.	23.	31.
90151	48.	39.	-19.	39.
MEAN	53.	41.	2.	35.
S.D.	6.4	2.8	29.7	5.7
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

MALE GROUP: 50 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90145	46.	31.	18.	32.
90146	58.	31.	23.	29.
MEAN	52.	31.	21.	31.
S.D.	8.5	0.0	3.5	2.1
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

MALE GROUP: 150 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90150	58.	40.	15.	36.
90152	62.	30.	19.	14.
MEAN	60.	35.	17.	25.
S.D.	2.8	7.1	2.8	15.6
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

FEMALE GROUP: UNTREATED

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90154	9.	16.	-7.	-1.
90157	20.	14.	6.	14.
MEAN	15.	15.	-1.	7.
S.D.	7.8	1.4	9.2	10.6
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

FEMALE GROUP: 0 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90158	25.	12.	5.	10.
90161	29.	17.	9.	18.
MEAN	27.	15.	7.	14.
S.D.	2.8	3.5	2.8	5.7
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

FEMALE GROUP: 5 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90156	21.	18.	-3.	24.
90159	23.	10.	4.	9.
MEAN	22.	14.	1.	17.
S.D.	1.4	5.7	4.9	10.6
N	2	2	2	2

TABLE A7

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL BODY WEIGHT CHANGES [G]

FEMALE GROUP: 50 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90160	12.	19.	7.	8.
90162	31.	8.	-3.	22.
MEAN	22.	14.	2.	15.
S.D.	13.4	7.8	7.1	9.9
N	2	2	2	2

FEMALE GROUP: 150 MG/KG/DAY

DAY	-9 TO -3	-3 TO 0	0 TO 7	7 TO 13
ANIMAL				
90163	23.	13.	-1.	14.
90164	26.	11.	5.	6.
MEAN	25.	12.	2.	10.
S.D.	2.1	1.4	4.2	5.7
N	2	2	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

MALE GROUP: UNTREATED

DAY	0 TO 7	0 TO 13
ANIMAL		
90143	11.	52.
90153	-15.	4.
MEAN	-2.	28.
S.D.	18.4	33.9
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

MALE GROUP: 0 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90144	19.	35.
90147	7.	29.
MEAN	13.	32.
S.D.	8.5	4.2
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

MALE GROUP: 5 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90149	23.	54.
90151	-19.	20.
MEAN	2.	37.
S.D.	29.7	24.0
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

MALE GROUP: 50 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90145	18.	50.
90146	23.	52.
MEAN	21.	51.
S.D.	3.5	1.4
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

MALE GROUP: 150 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90150	15.	51.
90152	19.	33.
MEAN	17.	42.
S.D.	2.8	12.7
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

FEMALE GROUP: UNTREATED

DAY	0 TO 7	0 TO 13
ANIMAL		
90154	-7.	-8.
90157	6.	20.
MEAN	-1.	6.
S.D.	9.2	19.8
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

FEMALE GROUP: 0 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90158	5.	15.
90161	9.	27.
MEAN	7.	21.
S.D.	2.8	8.5
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

FEMALE GROUP: 5 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90156	-3.	21.
90159	4.	13.
MEAN	1.	17.
S.D.	4.9	5.7
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

FEMALE GROUP: 50 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90160	7.	15.
90162	-3.	19.
MEAN	2.	17.
S.D.	7.1	2.8
N	2	2

TABLE A8

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL CUMULATIVE BODY WEIGHT CHANGES [G]

FEMALE GROUP: 150 MG/KG/DAY

DAY	0 TO 7	0 TO 13
ANIMAL		
90163	-1.	13.
90164	5.	11.
MEAN	2.	12.
S.D.	4.2	1.4
N	2	2

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

MALE GROUP: UNTREATED

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90143	26.	32.	36.
90153	29.	26.	33.
MEAN	28.	29.	35.
S.D.	2.1	4.2	2.1
N	2	2	2

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

MALE GROUP: 0 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90144	30.	34.	37.
90147	26.	29.	34.
MEAN	28.	32.	36.
S.D.	2.8	3.5	2.1
N	2	2	2

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

MALE GROUP: 5 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90149	27.	37.	NA
90151	28.	25.	39.
MEAN	28.	31.	39.
S.D.	0.7	8.5	0.0
N	2	2	1

NA = NOT APPLICABLE

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

MALE GROUP: 50 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90145	29.	32.	38.
90146	30.	39.	NA
MEAN	30.	36.	38.
S.D.	0.7	4.9	0.0
N	2	2	1

NA = NOT APPLICABLE

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

MALE GROUP: 150 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90150	29.	NA	NA
90152	25.	32.	34.
MEAN	27.	32.	34.
S.D.	2.8	0.0	0.0
N	2	1	1

NA = NOT APPLICABLE

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

FEMALE GROUP: UNTREATED

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90154	19.	21.	24.
90157	20.	28.	28.
MEAN	20.	25.	26.
S.D.	0.7	4.9	2.8
N	2	2	2

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

FEMALE GROUP: 0 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90158	20.	24.	26.
90161	20.	25.	30.
MEAN	20.	25.	28.
S.D.	0.0	0.7	2.8
N	2	2	2

FEMALE GROUP: 5 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90156	27.	30.	NA
90159	21.	27.	29.
MEAN	24.	29.	29.
S.D.	4.2	2.1	0.0
N	2	2	1

NA = NOT APPLICABLE

TABLE A9

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL FOOD CONSUMPTION [G/ANIMAL/DAY]

FEMALE GROUP: 50 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90160	22.	27.	30.
90162	25.	25.	NA
MEAN	24.	26.	30.
S.D.	2.1	1.4	0.0
N	2	2	1

NA = NOT APPLICABLE

FEMALE GROUP: 150 MG/KG/DAY

DAY	-9 TO -3	0 TO 7	7 TO 13
ANIMAL			
90163	22.	24.	26.
90164	21.	23.	26.
MEAN	22.	24.	26.
S.D.	0.7	0.7	0.0
N	2	2	2

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90143 GROUP 1: UNTREATED MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	2.01	0.728
LIVER	10.25	3.714
KIDNEYS	2.69	0.975
HEART	1.09	0.395
SPLEEN	0.50	0.181
PROSTATE	0.77	0.279
TESTES	3.06	1.109
EPIDIDYMIDES	0.74	0.268
THYMUS	0.3224	0.117
ADRENAL GLANDS	0.0619	0.022
PITUITARY	0.0116	0.004
THYROIDS/PARATHY	0.0213	0.008
FINAL BODY WT(G)	276.	

NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES
NERVES, OPTIC	HEART	ILEUM	JEJUNUM
KIDNEYS	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER
LN, MESENTERIC	LUNGS	NERVE, SCIATIC	PANCREAS
PITUITARY	PROSTATE	RECTUM	SPINAL CORD
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SKIN
SPLEEN	SEMINAL VESICLES	TESTES	PEYER'S PATCHES
THYROID GLANDS	THYMUS	TRACHEA	URINARY BLADDER
LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED	

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90153 GROUP 1: UNTREATED MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.91	0.786
LIVER	8.82	3.630
KIDNEYS	2.18	0.897
HEART	1.08	0.444
SPLEEN	0.57	0.235
PROSTATE	0.59	0.243
TESTES	2.85	1.173
EPIDIDYMIDES	0.78	0.321
THYMUS	0.3425	0.141
ADRENAL GLANDS	0.0450	0.019
PITUITARY	0.0079	0.003
THYROIDS/PARATHY	0.0180	0.007
FINAL BODY WT(G)	243.	

NO SIGNIFICANT CHANGES OBSERVED

GROSS:				GRADE
ADRENAL GLANDS	AORTA	STERNUM	FEMUR	
JOINT	BRAIN	CECUM	COLON	
DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES	
NERVES, OPTIC	HEART	ILEUM	JEJUNUM	
KIDNEYS	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	
LN, MESENTERIC	LUNGS	NERVE, SCIATIC	PANCREAS	
PITUITARY	PROSTATE	RECTUM	SPINAL CORD	
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SKIN	
SPLEEN	SEMINAL VESICLES	TESTES	PEYER'S PATCHES	
THYROID GLANDS	THYMUS	TRACHEA	URINARY BLADDER	
LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED		

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90144 GROUP 2: 0 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	2.00	0.692
LIVER	10.53	3.644
KIDNEYS	2.66	0.920
HEART	1.19	0.412
SPLEEN	0.62	0.215
PROSTATE	0.78	0.270
TESTES	2.89	1.000
EPIDIDYMIDES	0.77	0.266
THYMUS	0.5617	0.194
ADRENAL GLANDS	0.0589	0.020
PITUITARY	0.0095	0.003
THYROIDS/PARATHY	0.0189	0.007
FINAL BODY WT(G)	289.	

BRAIN NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS: AREA(S), WHITE ONE, 2 MM INDIAMETER, ADJACENT TO PINEAL BODY P

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	CECUM	COLON	DUODENUM
EPIDIDYMIDES	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	NERVE, SCIATIC	PANCREAS	PITUITARY
PROSTATE	RECTUM	SPINAL CORD	SAL. GLAND MAND
STOMACH	SKELETAL MUSCLE	SKIN	SPLEEN
SEMINAL VESICLES	TESTES	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	LN, AXILLARY
SKIN, TREATED	SKIN, UNTREATED		

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

ANIMAL NO. 90147 GROUP 2: 0 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	2.02	0.740
LIVER	10.17	3.725
KIDNEYS	2.82	1.033
HEART	1.10	0.403
SPLEEN	0.58	0.212
PROSTATE	0.59	0.216
TESTES	3.10	1.136
EPIDIDYMIDES	0.77	0.282
THYMUS	0.3035	0.111
ADRENAL GLANDS	0.0605	0.022
PITUITARY	0.0116	0.004
THYROIDS/PARATHY	0.0197	0.007
FINAL BODY WT(G)	273.	

SKIN NO SIGNIFICANT CHANGES OBSERVED

					GRADE
GROSS: SCABBING					P
VENTRAL NECK					
SKIN					P
GROSS: MATTING, RED					
NASAL; OCULAR, BILATERAL					
GROSS: ADRENAL GLANDS	AORTA	STERNUM	FEMUR		
JOINT	BRAIN	CECUM	COLON		
DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES		
NERVES, OPTIC	HEART	ILEUM	JEJUNUM		
KIDNEYS	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER		
LN, MESENTERIC	LUNGS	NERVE, SCIATIC	PANCREAS		
PITUITARY	PROSTATE	RECTUM	SPINAL CORD		
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SPLEEN		
SEMINAL VESICLES	TESTES	PEYER'S PATCHES	THYROID GLANDS		
THYMUS	TRACHEA	URINARY BLADDER	LN, AXILLARY		
SKIN, TREATED	SKIN, UNTREATED				

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 5

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90149 GROUP 3: 5 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	2.03	0.632
LIVER	11.57	3.604
KIDNEYS	2.81	0.875
HEART	1.47	0.458
SPLEEN	0.73	0.227
PROSTATE	0.54	0.168
TESTES	2.85	0.888
EPIDIDYMIDES	0.71	0.221
THYMUS	0.7449	0.232
ADRENAL GLANDS	0.0671	0.021
PITUITARY	0.0122	0.004
THYROIDS/PARATHY	0.0232	0.007
FINAL BODY WT(G)	321.	

SKIN: NO SIGNIFICANT CHANGES OBSERVED

GRADE	GROSS: MATTING, RED OCULAR, BILATERAL			
P	ADRENAL GLANDS	AORTA	STERNUM	FEMUR
	JOINT	BRAIN	CECUM	COLON
	DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES
	NERVES, OPTIC	HEART	ILEUM	JEJUNUM
	KIDNEYS	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER
	LN, MESENTERIC	LUNGS	NERVE, SCIATIC	PANCREAS
	PITUITARY	PROSTATE	RECTUM	SPINAL CORD
	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SPLEEN
	SEMINAL VESICLES	TESTES	PEYER'S PATCHES	THYROID GLANDS
	THYMUS	TRACHEA	URINARY BLADDER	LN, AXILLARY
	SKIN, TREATED	SKIN, UNTREATED		

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90151 GROUP 3: 5 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.96	0.760
LIVER	9.47	3.671
KIDNEYS	2.41	0.934
HEART	1.38	0.535
SPLEEN	0.69	0.267
PROSTATE	0.46	0.178
TESTES	3.04	1.178
EPIDIDYMIDES	0.70	0.271
THYMUS	0.5659	0.219
ADRENAL GLANDS	0.0667	0.026
PITUITARY	0.0083	0.003
THYROIDS/PARATHY	0.0230	0.009
FINAL BODY WT(G)	258.	

		GRADE
SEMINAL VESICLES	GROSS: SMALL	P
	BILATERAL	
COAGULATING GL	GROSS: SMALL	P
	BILATERAL	
NO SIGNIFICANT CHANGES OBSERVED		

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES
NERVES, OPTIC	HEART	ILEUM	JEJUNUM
KIDNEYS	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER
LN, MESENTERIC	LUNGS	NERVE, SCIATIC	PANCREAS
PITUITARY	PROSTATE	RECTUM	SPINAL CORD
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SKIN
SPLEEN	TESTES	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	LN, AXILLARY
SKIN, TREATED	SKIN, UNTREATED		

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

ANIMAL NO. 90145 GROUP 4: 50 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	2.11	0.743
LIVER	10.90	3.838
KIDNEYS	2.73	0.961
HEART	1.21	0.426
SPLEEN	0.55	0.194
PROSTATE	0.60	0.211
TESTES	3.58	1.261
EPIDIDYMIDES	0.85	0.299
THYMUS	0.2608	0.092
ADRENAL GLANDS	0.0649	0.023
PITUITARY	0.0107	0.004
THYROIDS/PARATHY	0.0220	0.008
FINAL BODY WT(G)	284.	

		GRADE
LN, MANDIBULAR	GROSS: ENLARGED	P
	BILATERAL	
SKIN	GROSS: MATTING, RED	P
	OCULAR, BILATERAL; NASAL	
NO SIGNIFICANT CHANGES OBSERVED		

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES
NERVES, OPTIC	HEART	ILEUM	JEJUNUM
KIDNEYS	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	NERVE, SCIATIC	PANCREAS	PITUITARY
PROSTATE	RECTUM	SPINAL CORD	SAL. GLAND MAND
STOMACH	SKELETAL MUSCLE	SPLEEN	SEMINAL VESICLES
TESTES	PEYER'S PATCHES	THYROID GLANDS	THYMUS
TRACHEA	URINARY BLADDER	LN, AXILLARY	SKIN, TREATED
SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 8

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90146 GROUP 4: 50 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.	LN, MANDIBULAR	GROSS: ENLARGED BILATERAL				GRADE P
BRAIN	2.02	0.692						
LIVER	11.90	4.075	NO SIGNIFICANT					
KIDNEYS	2.95	1.010	CHANGES OBSERVED	GROSS:ADRENAL GLANDS	AORTA	STERNUM	FEMUR	
HEART	1.19	0.408		JOINT	BRAIN	CECUM	COLON	
SPLEEN	0.56	0.192		DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES	
PROSTATE	0.49	0.168		NERVES, OPTIC	HEART	ILEUM	JEJUNUM	
TESTES	3.39	1.161		KIDNEYS	LAC. GLAND EXOR	LIVER	LN, MESENTERIC	
EPIDIDYMIDES	0.79	0.271		LUNGS	NERVE, SCIATIC	PANCREAS	PITUITARY	
THYMUS	0.3586	0.123		PROSTATE	RECTUM	SPINAL CORD	SAL. GLAND MAND	
ADRENAL GLANDS	0.0759	0.026		STOMACH	SKELETAL MUSCLE	SKIN	SPLEEN	
PITUITARY	0.0108	0.004		SEMINAL VESICLES	TESTES	PEYER'S PATCHES	THYROID GLANDS	
THYROIDS/PARATHY	0.0208	0.007		THYMUS	TRACHEA	URINARY BLADDER	LN, AXILLARY	
FINAL BODY WT(G)	292.			SKIN, TREATED	SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

ANIMAL NO. 90150 GROUP 5: 150 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.88	0.625
LIVER	15.11	5.020
KIDNEYS	3.01	1.000
HEART	1.36	0.452
SPLEEN	0.92	0.306
PROSTATE	0.46	0.153
TESTES	3.19	1.060
EPIDIDYMIDES	0.78	0.259
THYMUS	0.3189	0.106
ADRENAL GLANDS	0.0659	0.022
PITUITARY	0.0110	0.004
THYROIDS/PARATHY	0.0228	0.008
FINAL BODY WT(G)	301.	

SKIN: NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS: MATTING, RED OCULAR, LEFT; NASAL P

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	EPIDIDYMIDES	ESOPHAGUS	EYES
NERVES, OPTIC	HEART	ILEUM	JEJUNUM
KIDNEYS	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER
LN, MESENTERIC	LUNGS	NERVE, SCIATIC	PANCREAS
PITUITARY	PROSTATE	RECTUM	SPINAL CORD
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SPLEEN
SEMINAL VESICLES	TESTES	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	LN, AXILLARY
SKIN, TREATED	SKIN, UNTREATED		

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 10

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90152 GROUP 5: 150 MG/KG/DAY MALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.88	0.720
LIVER	11.51	4.410
KIDNEYS	2.72	1.042
HEART	1.11	0.425
SPLEEN	0.59	0.226
PROSTATE	0.41	0.157
TESTES	1.10	0.421
EPIDIDYMIDES	0.41	0.157
THYMUS	0.2584	0.099
ADRENAL GLANDS	0.0567	0.022
PITUITARY	0.0108	0.004
THYROIDS/PARATHY	0.0260	0.010
FINAL BODY WT(G)	261.	

		GRADE
EPIDIDYMIDES	GROSS: SMALL	P
	BILATERAL	
SEMINAL VESICLES	GROSS: SMALL	P
	BILATERAL	
TESTES	GROSS: SMALL	P
	BILATERAL	
NO SIGNIFICANT CHANGES OBSERVED		

GROSS:	ADRENAL GLANDS	AORTA	STERNUM	FEMUR
	JOINT	BRAIN	CECUM	COLON
	DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
	HEART	ILEUM	JEJUNUM	KIDNEYS
	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
	LUNGS	NERVE, SCIATIC	PANCREAS	PITUITARY
	PROSTATE	RECTUM	SPINAL CORD	SAL. GLAND MAND
	STOMACH	SKELETAL MUSCLE	SKIN	SPLEEN
	PEYER'S PATCHES	THYROID GLANDS	THYMUS	TRACHEA
	URINARY BLADDER	LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 11

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90154 GROUP 1: UNTREATED FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.60	1.046
LIVER	5.94	3.882
KIDNEYS	1.59	1.039
HEART	0.73	0.477
SPLEEN	0.27	0.176
UTERUS	0.41	0.268
OVARIES/OVIDUCTS	0.0947	0.062
THYMUS	0.2505	0.164
ADRENAL GLANDS	0.0559	0.037
PITUITARY	0.0140	0.009
THYROIDS/PARATHY	0.0142	0.009
FINAL BODY WT(G)	153.	

SKIN: NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS: MATTING, RED OCULAR, BILATERAL P

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS
OVARIES	PANCREAS	PITUITARY	RECTUM
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE
SPLEEN	PEYER'S PATCHES	THYROID GLANDS	THYMUS
TRACHEA	URINARY BLADDER	UTERUS	VAGINA
CERVIX	LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 12

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90157 GROUP 1: UNTREATED FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.73	0.892
LIVER	7.76	4.000
KIDNEYS	1.69	0.871
HEART	1.06	0.546
SPLEEN	0.41	0.211
UTERUS	0.34	0.175
OVARIES/OVIDUCTS	0.1166	0.060
THYMUS	0.3440	0.177
ADRENAL GLANDS	0.0613	0.032
PITUITARY	0.0098	0.005
THYROIDS/PARATHY	0.0237	0.012
FINAL BODY WT(G)	194.	

SKIN: NO SIGNIFICANT CHANGES OBSERVED

				GRADE
GROSS: MATTING, RED OCULAR, BILATERAL				P
GROSS: ADRENAL GLANDS	AORTA	STERNUM	FEMUR	
JOINT	BRAIN	CECUM	COLON	
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC	
HEART	ILEUM	JEJUNUM	KIDNEYS	
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC	
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS	
OVARIES	PANCREAS	PITUITARY	RECTUM	
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	
SPLEEN	PEYER'S PATCHES	THYROID GLANDS	THYMUS	
TRACHEA	URINARY BLADDER	UTERUS	VAGINA	
CERVIX	LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED	

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 13

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90158 GROUP 2: 0 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.78	0.978
LIVER	7.60	4.176
KIDNEYS	1.86	1.022
HEART	0.85	0.467
SPLEEN	0.38	0.209
UTERUS	0.52	0.286
OVARIES/OVIDUCTS	0.1268	0.070
THYMUS	0.2996	0.165
ADRENAL GLANDS	0.0787	0.043
PITUITARY	0.0151	0.008
THYROIDS/PARATHY	0.0151	0.008
FINAL BODY WT(G)	182.	

NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS
OVARIES	PANCREAS	PITUITARY	RECTUM
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE
SKIN	SPLEEN	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	UTERUS
VAGINA	CERVIX	LN, AXILLARY	SKIN, TREATED
SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 14

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90161 GROUP 2: 0 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.92	0.985
LIVER	7.55	3.872
KIDNEYS	1.88	0.964
HEART	0.89	0.456
SPLEEN	0.52	0.267
UTERUS	0.35	0.179
OVARIES/OVIDUCTS	0.1151	0.059
THYMUS	0.2968	0.152
ADRENAL GLANDS	0.1007	0.052
PITUITARY	0.0111	0.006
THYROIDS/PARATHY	0.0190	0.010
FINAL BODY WT(G)	195.	

		GRADE
LN, MANDIBULAR	GROSS: ENLARGED BILATERAL	P
SKIN	GROSS: MATTING, RED OCULAR, BILATERAL	P
NO SIGNIFICANT CHANGES OBSERVED		

GROSS:				
ADRENAL GLANDS	AORTA	STERNUM	FEMUR	
JOINT	BRAIN	CECUM	COLON	
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC	
HEART	ILEUM	JEJUNUM	KIDNEYS	
LAC. GLAND EXOR	LIVER	LN, MESENTERIC	LUNGS	
MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS	OVARIES	
PANCREAS	PITUITARY	RECTUM	SPINAL CORD	
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SPLEEN	
PEYER'S PATCHES	THYROID GLANDS	THYMUS	TRACHEA	
URINARY BLADDER	UTERUS	VAGINA	CERVIX	
LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED		

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 15

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90156 GROUP 3: 5 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.80	0.896
LIVER	8.60	4.279
KIDNEYS	1.95	0.970
HEART	0.88	0.438
SPLEEN	0.56	0.279
UTERUS	0.56	0.279
OVARIES/OVIDUCTS	0.1021	0.051
THYMUS	0.4378	0.218
ADRENAL GLANDS	0.0631	0.031
PITUITARY	0.0155	0.008
THYROIDS/PARATHY	0.0162	0.008
FINAL BODY WT(G)	201.	

NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS
OVARIES	PANCREAS	PITUITARY	RECTUM
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE
SKIN	SPLEEN	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	UTERUS
VAGINA	CERVIX	LN, AXILLARY	SKIN, TREATED
SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 16

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90159 GROUP 3: 5 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.77	0.989
LIVER	7.31	4.084
KIDNEYS	1.65	0.922
HEART	0.75	0.419
SPLEEN	0.41	0.229
UTERUS	0.31	0.173
OVARIES/OVIDUCTS	0.1087	0.061
THYMUS	0.3301	0.184
ADRENAL GLANDS	0.0470	0.026
PITUITARY	0.0099	0.006
THYROIDS/PARATHY	0.0267	0.015
FINAL BODY WT(G)	179.	

NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS
OVARIES	PANCREAS	PITUITARY	RECTUM
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE
SKIN	SPLEEN	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	UTERUS
VAGINA	CERVIX	LN, AXILLARY	SKIN, TREATED
SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 17

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90160 GROUP 4: 50 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.81	0.923
LIVER	7.54	3.847
KIDNEYS	1.84	0.939
HEART	0.85	0.434
SPLEEN	0.53	0.270
UTERUS	0.34	0.173
OVARIES/OVIDUCTS	0.1053	0.054
THYMUS	0.2867	0.146
ADRENAL GLANDS	0.0667	0.034
PITUITARY	0.0143	0.007
THYROIDS/PARATHY	0.0244	0.012
FINAL BODY WT(G)	196.	

ADRENAL GLANDS: NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS: CYST(S) P
ONE, PINPOINT, LEFT

GROSS:

AORTA	STERNUM	FEMUR	JOINT
BRAIN	CECUM	COLON	DUODENUM
ESOPHAGUS	EYES	NERVES, OPTIC	HEART
ILEUM	JEJUNUM	KIDNEYS	LN, MANDIBULAR
LAC. GLAND EXOR	LIVER	LN, MESENTERIC	LUNGS
MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS	OVARIES
PANCREAS	PITUITARY	RECTUM	SPINAL CORD
SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	SKIN
SPLEEN	PEYER'S PATCHES	THYROID GLANDS	THYMUS
TRACHEA	URINARY BLADDER	UTERUS	VAGINA
CERVIX	LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90162 GROUP 4: 50 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.85	0.959
LIVER	8.66	4.487
KIDNEYS	2.06	1.067
HEART	0.86	0.446
SPLEEN	0.52	0.269
UTERUS	0.71	0.368
OVARIES/OVIDUCTS	0.1146	0.059
THYMUS	0.2872	0.149
ADRENAL GLANDS	0.0814	0.042
PITUITARY	0.0134	0.007
THYROIDS/PARATHY	0.0217	0.011
FINAL BODY WT(G)	193.	

SKIN: NO SIGNIFICANT CHANGES OBSERVED

					GRADE
GROSS: MATTING, RED OCULAR, BILATERAL; NASAL					P
GROSS:	ADRENAL GLANDS	AORTA	STERNUM	FEMUR	
	JOINT	BRAIN	CECUM	COLON	
	DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC	
	HEART	ILEUM	JEJUNUM	KIDNEYS	
	LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC	
	LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS	
	OVARIES	PANCREAS	PITUITARY	RECTUM	
	SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE	
	SPLEEN	PEYER'S PATCHES	THYROID GLANDS	THYMUS	
	TRACHEA	URINARY BLADDER	UTERUS	VAGINA	
	CERVIX	LN, AXILLARY	SKIN, TREATED	SKIN, UNTREATED	

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A10

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 19

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL MACROSCOPIC FINDINGS

ANIMAL NO. 90163 GROUP 5: 150 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.76	0.898
LIVER	9.22	4.704
KIDNEYS	1.70	0.867
HEART	0.78	0.398
SPLEEN	0.67	0.342
UTERUS	0.37	0.189
OVARIES/OVIDUCTS	0.1127	0.058
THYMUS	0.1672	0.085
ADRENAL GLANDS	0.0757	0.039
PITUITARY	0.0120	0.006
THYROIDS/PARATHY	0.0197	0.010
FINAL BODY WT(G)	196.	

NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS
OVARIES	PANCREAS	PITUITARY	RECTUM
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE
SKIN	SPLEEN	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	UTERUS
VAGINA	CERVIX	LN, AXILLARY	SKIN, TREATED
SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

ANIMAL NO. 90164 GROUP 5: 150 MG/KG/DAY FEMALE SCHEDULED EUTH 12/17/10 DATE OF DEATH: 12/17/10 STUDY DAY: 14

ORGAN WEIGHT	ABS.(G)	REL.
BRAIN	1.95	1.060
LIVER	8.99	4.886
KIDNEYS	1.79	0.973
HEART	0.87	0.473
SPLEEN	0.34	0.185
UTERUS	0.48	0.261
OVARIES/OVIDUCTS	0.1214	0.066
THYMUS	0.1543	0.084
ADRENAL GLANDS	0.0642	0.035
PITUITARY	0.0143	0.008
THYROIDS/PARATHY	0.0255	0.014
FINAL BODY WT(G)	184.	

NO SIGNIFICANT CHANGES OBSERVED

GRADE

GROSS:

ADRENAL GLANDS	AORTA	STERNUM	FEMUR
JOINT	BRAIN	CECUM	COLON
DUODENUM	ESOPHAGUS	EYES	NERVES, OPTIC
HEART	ILEUM	JEJUNUM	KIDNEYS
LN, MANDIBULAR	LAC. GLAND EXOR	LIVER	LN, MESENTERIC
LUNGS	MAMMARY GLAND	NERVE, SCIATIC	OVIDUCTS
OVARIES	PANCREAS	PITUITARY	RECTUM
SPINAL CORD	SAL. GLAND MAND	STOMACH	SKELETAL MUSCLE
SKIN	SPLEEN	PEYER'S PATCHES	THYROID GLANDS
THYMUS	TRACHEA	URINARY BLADDER	UTERUS
VAGINA	CERVIX	LN, AXILLARY	SKIN, TREATED
SKIN, UNTREATED			

GROSS GRADE CODE: 1-SLIGHT, 2-MODERATE, 3-MARKED, P-PRESENT

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: UNTREATED

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90143	276.	2.01	10.25	2.69	1.09	0.50	0.77
90153	243.	1.91	8.82	2.18	1.08	0.57	0.59
MEAN	260.	1.96	9.54	2.44	1.09	0.54	0.68
S.D.	23.3	0.071	1.011	0.361	0.007	0.049	0.127
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 0 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90144	289.	2.00	10.53	2.66	1.19	0.62	0.78
90147	273.	2.02	10.17	2.82	1.10	0.58	0.59
MEAN	281.	2.01	10.35	2.74	1.15	0.60	0.69
S.D.	11.3	0.014	0.255	0.113	0.064	0.028	0.134
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 5 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90149	321.	2.03	11.57	2.81	1.47	0.73	0.54
90151	258.	1.96	9.47	2.41	1.38	0.69	0.46
MEAN	290.	2.00	10.52	2.61	1.43	0.71	0.50
S.D.	44.5	0.049	1.485	0.283	0.064	0.028	0.057
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 50 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90145	284.	2.11	10.90	2.73	1.21	0.55	0.60
90146	292.	2.02	11.90	2.95	1.19	0.56	0.49
MEAN	288.	2.07	11.40	2.84	1.20	0.56	0.55
S.D.	5.7	0.064	0.707	0.156	0.014	0.007	0.078
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 5

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 150 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90150	301.	1.88	15.11	3.01	1.36	0.92	0.46
90152	261.	1.88	11.51	2.72	1.11	0.59	0.41
MEAN	281.	1.88	13.31	2.87	1.24	0.76	0.44
S.D.	28.3	0.000	2.546	0.205	0.177	0.233	0.035
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: UNTREATED

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90143	3.06	0.74	0.3224	0.0619	0.0116	0.0213
90153	2.85	0.78	0.3425	0.0450	0.0079	0.0180
MEAN	2.96	0.76	0.3325	0.0535	0.0098	0.0197
S.D.	0.148	0.028	0.01421	0.01195	0.00262	0.00233
N	2	2	2	2	2	2

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 7

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 0 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90144	2.89	0.77	0.5617	0.0589	0.0095	0.0189
90147	3.10	0.77	0.3035	0.0605	0.0116	0.0197
MEAN	3.00	0.77	0.4326	0.0597	0.0106	0.0193
S.D.	0.148	0.000	0.18257	0.00113	0.00148	0.00057
N	2	2	2	2	2	2

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 8

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 5 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90149	2.85	0.71	0.7449	0.0671	0.0122	0.0232
90151	3.04	0.70	0.5659	0.0667	0.0083	0.0230
MEAN	2.95	0.71	0.6554	0.0669	0.0103	0.0231
S.D.	0.134	0.007	0.12657	0.00028	0.00276	0.00014
N	2	2	2	2	2	2

MALE GROUP: 50 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90145	3.58	0.85	0.2608	0.0649	0.0107	0.0220
90146	3.39	0.79	0.3586	0.0759	0.0108	0.0208
MEAN	3.49	0.82	0.3097	0.0704	0.0108	0.0214
S.D.	0.134	0.042	0.06916	0.00778	0.00007	0.00085
N	2	2	2	2	2	2

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 10

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

MALE GROUP: 150 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90150	3.19	0.78	0.3189	0.0659	0.0110	0.0228
90152	1.10	0.41	0.2584	0.0567	0.0108	0.0260
MEAN	2.15	0.60	0.2887	0.0613	0.0109	0.0244
S.D.	1.478	0.262	0.04278	0.00651	0.00014	0.00226
N	2	2	2	2	2	2

FEMALE GROUP: UNTREATED

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90154	153.	1.60	5.94	1.59	0.73	0.27
90157	194.	1.73	7.76	1.69	1.06	0.41
MEAN	174.	1.67	6.85	1.64	0.90	0.34
S.D.	29.0	0.092	1.287	0.071	0.233	0.099
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 0 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90158	182.	1.78	7.60	1.86	0.85	0.38
90161	195.	1.92	7.55	1.88	0.89	0.52
MEAN	189.	1.85	7.58	1.87	0.87	0.45
S.D.	9.2	0.099	0.035	0.014	0.028	0.099
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90156	201.	1.80	8.60	1.95	0.88	0.56
90159	179.	1.77	7.31	1.65	0.75	0.41
MEAN	190.	1.79	7.96	1.80	0.82	0.49
S.D.	15.6	0.021	0.912	0.212	0.092	0.106
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 50 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90160	196.	1.81	7.54	1.84	0.85	0.53
90162	193.	1.85	8.66	2.06	0.86	0.52
MEAN	195.	1.83	8.10	1.95	0.86	0.53
S.D.	2.1	0.028	0.792	0.156	0.007	0.007
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90163	196.	1.76	9.22	1.70	0.78	0.67
90164	184.	1.95	8.99	1.79	0.87	0.34
MEAN	190.	1.86	9.11	1.75	0.83	0.51
S.D.	8.5	0.134	0.163	0.064	0.064	0.233
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: UNTREATED

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90154	0.41	0.0947	0.2505	0.0559	0.0140	0.0142
90157	0.34	0.1166	0.3440	0.0613	0.0098	0.0237
MEAN	0.38	0.1057	0.2973	0.0586	0.0119	0.0190
S.D.	0.049	0.01549	0.06611	0.00382	0.00297	0.00672
N	2	2	2	2	2	2

FEMALE GROUP: 0 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90158	0.52	0.1268	0.2996	0.0787	0.0151	0.0151
90161	0.35	0.1151	0.2968	0.1007	0.0111	0.0190
MEAN	0.44	0.1210	0.2982	0.0897	0.0131	0.0171
S.D.	0.120	0.00827	0.00198	0.01556	0.00283	0.00276
N	2	2	2	2	2	2

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90156	0.56	0.1021	0.4378	0.0631	0.0155	0.0162
90159	0.31	0.1087	0.3301	0.0470	0.0099	0.0267
MEAN	0.44	0.1054	0.3840	0.0551	0.0127	0.0215
S.D.	0.177	0.00467	0.07616	0.01138	0.00396	0.00742
N	2	2	2	2	2	2

FEMALE GROUP: 50 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90160	0.34	0.1053	0.2867	0.0667	0.0143	0.0244
90162	0.71	0.1146	0.2872	0.0814	0.0134	0.0217
MEAN	0.53	0.1100	0.2870	0.0741	0.0139	0.0231
S.D.	0.262	0.00658	0.00036	0.01039	0.00064	0.00191
N	2	2	2	2	2	2

TABLE A11

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 20

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS AND FINAL BODY WEIGHTS [G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90163	0.37	0.1127	0.1672	0.0757	0.0120	0.0197
90164	0.48	0.1214	0.1543	0.0642	0.0143	0.0255
MEAN	0.43	0.1171	0.1608	0.0700	0.0132	0.0226
S.D.	0.078	0.00615	0.00912	0.00813	0.00163	0.00410
N	2	2	2	2	2	2

POFBWv4.25
01/03/2011

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 1

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: UNTREATED

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90143	276.	0.728	3.714	0.975	0.395	0.181	0.279
90153	243.	0.786	3.630	0.897	0.444	0.235	0.243
MEAN	260.	0.760	3.670	0.940	0.420	0.210	0.260
S.D.	23.3	0.0408	0.0595	0.0548	0.0350	0.0378	0.0256
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 2

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 0 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90144	289.	0.692	3.644	0.920	0.412	0.215	0.270
90147	273.	0.740	3.725	1.033	0.403	0.212	0.216
MEAN	281.	0.720	3.680	0.980	0.410	0.210	0.240
S.D.	11.3	0.0339	0.0578	0.0796	0.0062	0.0015	0.0380
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 5 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90149	321.	0.632	3.604	0.875	0.458	0.227	0.168
90151	258.	0.760	3.671	0.934	0.535	0.267	0.178
MEAN	290.	0.700	3.640	0.900	0.500	0.250	0.170
S.D.	44.5	0.0900	0.0468	0.0415	0.0544	0.0283	0.0071
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 50 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90145	284.	0.743	3.838	0.961	0.426	0.194	0.211
90146	292.	0.692	4.075	1.010	0.408	0.192	0.168
MEAN	288.	0.720	3.960	0.990	0.420	0.190	0.190
S.D.	5.7	0.0362	0.1678	0.0347	0.0131	0.0013	0.0307
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 5

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 150 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90150	301.	0.625	5.020	1.000	0.452	0.306	0.153
90152	261.	0.720	4.410	1.042	0.425	0.226	0.157
MEAN	281.	0.670	4.710	1.020	0.440	0.270	0.150
S.D.	28.3	0.0677	0.4313	0.0298	0.0188	0.0563	0.0030
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: UNTREATED

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90143	1.109	0.268	0.117	0.022	0.004	0.008
90153	1.173	0.321	0.141	0.019	0.003	0.007
MEAN	1.140	0.290	0.129	0.021	0.004	0.008
S.D.	0.0454	0.0374	0.0171	0.0028	0.0007	0.0002
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 7

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 0 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90144	1.000	0.266	0.194	0.020	0.003	0.007
90147	1.136	0.282	0.111	0.022	0.004	0.007
MEAN	1.070	0.270	0.153	0.021	0.004	0.007
S.D.	0.0958	0.0110	0.0588	0.0013	0.0007	0.0005
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 8

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 5 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90149	0.888	0.221	0.232	0.021	0.004	0.007
90151	1.178	0.271	0.219	0.026	0.003	0.009
MEAN	1.030	0.250	0.226	0.023	0.004	0.008
S.D.	0.2054	0.0355	0.0090	0.0035	0.0004	0.0012
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 9

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 50 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90145	1.261	0.299	0.092	0.023	0.004	0.008
90146	1.161	0.271	0.123	0.026	0.004	0.007
MEAN	1.210	0.280	0.107	0.024	0.004	0.007
S.D.	0.0704	0.0203	0.0219	0.0022	0.0000	0.0004
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 10

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

MALE GROUP: 150 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90150	1.060	0.259	0.106	0.022	0.004	0.008
90152	0.421	0.157	0.099	0.022	0.004	0.010
MEAN	0.740	0.210	0.102	0.022	0.004	0.009
S.D.	0.4514	0.0722	0.0049	0.0001	0.0003	0.0017
N	2	2	2	2	2	2

FEMALE GROUP: UNTREATED

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90154	153.	1.046	3.882	1.039	0.477	0.176
90157	194.	0.892	4.000	0.871	0.546	0.211
MEAN	174.	0.970	3.940	0.960	0.510	0.190
S.D.	29.0	0.1089	0.0832	0.1189	0.0490	0.0247
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 0 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90158	182.	0.978	4.176	1.022	0.467	0.209
90161	195.	0.985	3.872	0.964	0.456	0.267
MEAN	189.	0.980	4.020	0.990	0.460	0.240
S.D.	9.2	0.0047	0.2150	0.0409	0.0075	0.0409
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90156	201.	0.896	4.279	0.970	0.438	0.279
90159	179.	0.989	4.084	0.922	0.419	0.229
MEAN	190.	0.940	4.180	0.950	0.430	0.250
S.D.	15.6	0.0660	0.1378	0.0342	0.0133	0.0350
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 14

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: 50 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90160	196.	0.923	3.847	0.939	0.434	0.270
90162	193.	0.959	4.487	1.067	0.446	0.269
MEAN	195.	0.940	4.170	1.000	0.440	0.270
S.D.	2.1	0.0248	0.4526	0.0909	0.0084	0.0007
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN	LIVER	KIDNEYS	HEART	SPLEEN
90163	196.	0.898	4.704	0.867	0.398	0.342
90164	184.	1.060	4.886	0.973	0.473	0.185
MEAN	190.	0.980	4.790	0.920	0.440	0.260
S.D.	8.5	0.1144	0.1285	0.0746	0.0529	0.1111
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 16

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: UNTREATED

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90154	0.268	0.062	0.164	0.037	0.009	0.009
90157	0.175	0.060	0.177	0.032	0.005	0.012
MEAN	0.220	0.061	0.170	0.034	0.007	0.011
S.D.	0.0656	0.0013	0.0096	0.0035	0.0029	0.0021
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 17

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: 0 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90158	0.286	0.070	0.165	0.043	0.008	0.008
90161	0.179	0.059	0.152	0.052	0.006	0.010
MEAN	0.230	0.064	0.158	0.047	0.007	0.009
S.D.	0.0751	0.0075	0.0088	0.0059	0.0018	0.0010
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90156	0.279	0.051	0.218	0.031	0.008	0.008
90159	0.173	0.061	0.184	0.026	0.006	0.015
MEAN	0.230	0.056	0.201	0.029	0.007	0.012
S.D.	0.0745	0.0070	0.0236	0.0036	0.0015	0.0048
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 19

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: 50 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90160	0.173	0.054	0.146	0.034	0.007	0.012
90162	0.368	0.059	0.149	0.042	0.007	0.011
MEAN	0.270	0.057	0.147	0.038	0.007	0.012
S.D.	0.1375	0.0040	0.0018	0.0058	0.0002	0.0008
N	2	2	2	2	2	2

TABLE A12

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 20

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WTS. RELATIVE TO FINAL BODY WTS. [G/100 G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90163	0.189	0.058	0.085	0.039	0.006	0.010
90164	0.261	0.066	0.084	0.035	0.008	0.014
MEAN	0.220	0.062	0.085	0.037	0.007	0.012
S.D.	0.0510	0.0060	0.0010	0.0026	0.0012	0.0027
N	2	2	2	2	2	2

POFBWv4.25
01/03/2011

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT
SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: UNTREATED

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90143	276.	2.01	509.950	133.831	54.229	24.876	38.308
90153	243.	1.91	461.780	114.136	56.545	29.843	30.890
MEAN	260.	1.96	485.870	123.980	55.390	27.360	34.600
S.D.	23.3	0.071	34.0614	13.9262	1.6374	3.5124	5.2456
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 0 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90144	289.	2.00	526.500	133.000	59.500	31.000	39.000
90147	273.	2.02	503.465	139.604	54.455	28.713	29.208
MEAN	281.	2.01	514.980	136.300	56.980	29.860	34.100
S.D.	11.3	0.014	16.2881	4.6698	3.5670	1.6173	6.9240
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 3

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 5 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90149	321.	2.03	569.951	138.424	72.414	35.961	26.601
90151	258.	1.96	483.163	122.959	70.408	35.204	23.469
MEAN	290.	2.00	526.560	130.690	71.410	35.580	25.040
S.D.	44.5	0.049	61.3680	10.9350	1.4182	0.5349	2.2144
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 4

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 50 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90145	284.	2.11	516.588	129.384	57.346	26.066	28.436
90146	292.	2.02	589.109	146.040	58.911	27.723	24.257
MEAN	288.	2.07	552.850	137.710	58.130	26.890	26.350
S.D.	5.7	0.064	51.2804	11.7774	1.1066	1.1713	2.9547
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 5

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 150 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN	PROSTATE
90150	301.	1.88	803.723	160.106	72.340	48.936	24.468
90152	261.	1.88	612.234	144.681	59.043	31.383	21.809
MEAN	281.	1.88	707.980	152.390	65.690	40.160	23.140
S.D.	28.3	0.000	135.4035	10.9075	9.4030	12.4120	1.8806
N	2	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 6

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: UNTREATED

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90143	152.239	36.816	16.040	3.080	0.577	1.060
90153	149.215	40.838	17.932	2.356	0.414	0.942
MEAN	150.730	38.830	16.986	2.718	0.495	1.001
S.D.	2.1384	2.8438	1.3379	0.5116	0.1156	0.0829
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 7

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 0 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90144	144.500	38.500	28.085	2.945	0.475	0.945
90147	153.465	38.119	15.025	2.995	0.574	0.975
MEAN	148.980	38.310	21.555	2.970	0.525	0.960
S.D.	6.3394	0.2695	9.2350	0.0354	0.0702	0.0214
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 8

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 5 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90149	140.394	34.975	36.695	3.305	0.601	1.143
90151	155.102	35.714	28.872	3.403	0.423	1.173
MEAN	147.750	35.340	32.784	3.354	0.512	1.158
S.D.	10.4000	0.5225	5.5311	0.0690	0.1255	0.0216
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 9

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 50 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90145	169.668	40.284	12.360	3.076	0.507	1.043
90146	167.822	39.109	17.752	3.757	0.535	1.030
MEAN	168.750	39.700	15.056	3.417	0.521	1.036
S.D.	1.3059	0.8312	3.8129	0.4820	0.0195	0.0092
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

MALE GROUP: 150 MG/KG/DAY

ANIMAL	TESTES	EPIDIDYMIDES	THYMUS	ADRENAL GLANDS	PITUITARY	THYROIDS/PARATHY
90150	169.681	41.489	16.963	3.505	0.585	1.213
90152	58.511	21.809	13.745	3.016	0.574	1.383
MEAN	114.100	31.650	15.354	3.261	0.580	1.298
S.D.	78.6092	13.9165	2.2755	0.3460	0.0075	0.1203
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: UNTREATED

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN
90154	153.	1.60	371.250	99.375	45.625	16.875
90157	194.	1.73	448.555	97.688	61.272	23.699
MEAN	174.	1.67	409.900	98.530	53.450	20.290
S.D.	29.0	0.092	54.6628	1.1931	11.0639	4.8256
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 0 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN
90158	182.	1.78	426.966	104.494	47.753	21.348
90161	195.	1.92	393.229	97.917	46.354	27.083
MEAN	189.	1.85	410.100	101.210	47.050	24.220
S.D.	9.2	0.099	23.8557	4.6511	0.9891	4.0553
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN
90156	201.	1.80	477.778	108.333	48.889	31.111
90159	179.	1.77	412.994	93.220	42.373	23.164
MEAN	190.	1.79	445.390	100.780	45.630	27.140
S.D.	15.6	0.021	45.8089	10.6865	4.6075	5.6196
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 14

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 50 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN
90160	196.	1.81	416.575	101.657	46.961	29.282
90162	193.	1.85	468.108	111.351	46.486	28.108
MEAN	195.	1.83	442.340	106.500	46.720	28.690
S.D.	2.1	0.028	36.4396	6.8547	0.3357	0.8299
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	FBW(G)	BRAIN WT (GRAMS)	LIVER	KIDNEYS	HEART	SPLEEN
90163	196.	1.76	523.864	96.591	44.318	38.068
90164	184.	1.95	461.026	91.795	44.615	17.436
MEAN	190.	1.86	492.440	94.190	44.470	27.750
S.D.	8.5	0.134	44.4333	3.3914	0.2103	14.5892
N	2	2	2	2	2	2

FBW = FINAL BODY WEIGHT

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 16

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: UNTREATED

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90154	25.625	5.919	15.656	3.494	0.875	0.887
90157	19.653	6.740	19.884	3.543	0.566	1.370
MEAN	22.640	6.329	17.770	3.519	0.721	1.129
S.D.	4.2227	0.5806	2.9897	0.0351	0.2182	0.3411
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 17

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 0 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90158	29.213	7.124	16.831	4.421	0.848	0.848
90161	18.229	5.995	15.458	5.245	0.578	0.990
MEAN	23.720	6.559	16.145	4.833	0.713	0.919
S.D.	7.7671	0.7982	0.9709	0.5823	0.1911	0.0999
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 18

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 5 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90156	31.111	5.672	24.322	3.506	0.861	0.900
90159	17.514	6.141	18.650	2.655	0.559	1.508
MEAN	24.310	5.907	21.486	3.080	0.710	1.204
S.D.	9.6145	0.3317	4.0111	0.6012	0.2134	0.4303
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT PAGE 19

SPONSOR:AMERICAN PETROLEUM INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 50 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90160	18.785	5.818	15.840	3.685	0.790	1.348
90162	38.378	6.195	15.524	4.400	0.724	1.173
MEAN	28.580	6.006	15.682	4.043	0.757	1.261
S.D.	13.8549	0.2665	0.2231	0.5055	0.0465	0.1238
N	2	2	2	2	2	2

TABLE A13

PROJECT NO.:WIL-402018M — 14-DAY RAT DERMAL STUDY OF LIGHT PARAFFINIC DISTILLATE SOLVENT — PAGE 20

SPONSOR:AMERICAN PETROLEUM — INDIVIDUAL ORGAN WEIGHTS RELATIVE TO BRAIN WEIGHTS [G/100 G]

FEMALE GROUP: 150 MG/KG/DAY

ANIMAL	UTERUS	OVARIES/ OVIDUCTS	THYMUS	ADRENAL GLANDS	PITU ITARY	THYROIDS /PARATHY
90163	21.023	6.403	9.500	4.301	0.682	1.119
90164	24.615	6.226	7.913	3.292	0.733	1.308
MEAN	22.820	6.314	8.706	3.797	0.708	1.214
S.D.	2.5404	0.1257	1.1223	0.7133	0.0364	0.1332
N	2	2	2	2	2	2

POFBWv4.25
01/03/2011