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Wilmington, Delaware 19898

October 6, 1992

Certified Mail
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Mr. Frank Benenanti
Office of Pollution Prevention and Toxics (TS-778)
U.S. Environmental Protection Agency
401 M Street SW
Washington, D.C. 20460

Dear Mr. Benenanti:

NMP Study

Enclosed please find two copies of the October 5, 1990 study: 1-Methyl-2-Pyrrolidone (NMP): Reproductive and Developmental Toxicity in the Rat. DuPont waives any claims of confidentiality on this voluntary submission.

Very Truly Yours,

Mark H. Christman
Legal D-7158
1007 Market Street
Wilmington DE 19898

cc: Mr. David Williams w/o attach
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Washington, D.C. 20460

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1-METHYL-2-PYRROLIDINONE (NMP): REPRODUCTIVE AND DEVELOPMENTAL TOXICITY IN THE RAT

MEDICAL RESEARCH PROJECT NUMBER 3872-001

HASKELL LABORATORY REPORT NUMBER 294-90

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Study Title

1-Methyl-2-Pyrrolidinone (NMP): Reproductive and Developmental Toxicity in the Rat

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Author

Robert E. Staples, Ph.D.

Study Completed

October 5, 1990

Performing Laboratory

E. I. du Pont de Nemours and Company
Haskell Laboratory for Toxicology and Industrial Medicine
Elkton Road, P.O. Box 50
Newark, Delaware 19714

Medical Research No.

3872-001

Laboratory Project ID

Haskell Laboratory Report No. 294-90

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GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

The subject study was conducted, where feasible, according to the applicable Good Laboratory Practice Regulations as proposed in 1981 and by the standard operating procedures in effect at Haskell Laboratory at that time.

Areas of noncompliance, if any, have been retained in permanent records. No significant deviations existed that would affect the quality or integrity of the study.

Robert E. Staples 9/29/90

Robert E. Staples
Study Director
Staff Teratologist
Consultant Group

Date

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QUALITY ASSURANCE DOCUMENTATION

STUDY: MR 3872-001
H# 14,099

1-METHYL-2-PYRROLIDINONE (NMP):
REPRODUCTIVE AND DEVELOPMENTAL TOXICITY IN THE RAT

Audits	Audit Dates	Audit Report #	Date Findings Reported to Management & Study Director
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1 month (Conduct, Records)	7/22, 8/31, 9/1/81	272	No Action Required/audit issued
3 month (Conduct, Records)	10/26-29/81	282	No Action Required/audit issued
6 month (Conduct, Records)	1/19-20/82	293	1/22/82
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Reported by: Kimberly B. Brebner
Kimberly B. Brebner
Quality Assurance Auditor

1-METHYL-2-PYRROLIDINONE (NMP): REPRODUCTIVE AND DEVELOPMENTAL TOXICITY IN THE RAT

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Reviewed and Approved for Issue by: R E Staples — 10/5/90
R. E. Staples, Ph.D.
Study Director

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY STUDY ON NMP

REPORT AND COMPOUND INFORMATION

Material Tested:	1-methyl-2-pyrrolidinone
Haskell No:	14,099
Synonyms:	• NMP • N-methylpyrrolidone • N-Pyrol • N-methyl- -butyrolactam
Other Codes:	• SRL 1141-107, Lot 26 • CAS# 872-50-4
Vapor Pressure:	0.29 mm Hg @20°C
Purity:	99.867%
Solubility:	Completely miscible with water and most organic solvents
Sponsor:	Fibers E. I. du Pont de Nemours and Company Wilmington, Delaware 19898
Material Submitted by:	W. M. Eareckson
Test Facility:	Haskell Laboratory for Toxicology and Industrial Medicine E. I. du Pont de Nemours and Company Newark, Delaware 19714
Study Initiation Date:	7/17/81
Study Completion Date:	10/5/90
In-Life Phase Initiated/Completed:	Initiated (first exposure date) - 7/15/81 Completed (last sacrifice date) - 2/21/82
Teratology Section Notebooks:	E-26794, pp. 1-156 E-26798, pp. 1-156 E-26825, pp. 1-156 E-26833, pp. 1-156 E-26834, pp. 1-156 E-26854, pp. 1-156 E-26855, pp. 1-156 E-28220, pp. 1-156 E-28222, pp. 1-156 E-28226, pp. 1-57 E-21197, pp. 89-97, 100, 103-106

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REPORT AND COMPOUND INFORMATION (CONT.)

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Acute Investigations
Section Notebooks:

E-26778, pp. 1-149	E-26819, pp. 1-153
E-26795, pp. 1-153	E-26832, pp. 1-153
E-26796, pp. 1-153	E-26838, pp. 1-153
E-26818, pp. 1-155	E-26844, pp. 1-156

There are 408 pages in this report.

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1-METHYL-2-PYRROLIDINONE (NMP): REPRODUCTIVE AND DEVELOPMENTAL TOXICITY IN THE RAT

ABBREVIATIONS

A. In This Report

NMP	1-methyl-2-pyrrolidinone
PPM	parts per million
Conc	concentration
C-I	Control Group I - controls for Reproductive and Developmental Phase
C-II	Control Group II - an additional control group for the Reproductive Phase
E-I	Experimental Group I - 10 ppm NMP target for P0 males and females (Reproductive Phase)
E-II	Experimental Group II - 50 ppm NMP target for P0 males and females (Reproductive Phase)
E-III	Experimental Group III - 300 ppm NMP target for P0 males and females (Reproductive and Developmental Phase)
E-IV	Experimental Group IV - 300 ppm NMP target for P0 females only (Reproductive Phase)
E-V	Experimental Group V - 300 ppm NMP target for P0 males only (Reproductive Phase)
P0	parental generation (the only generation that inhaled NMP)
F1	offspring from the P0 generation
F2	offspring from the F1 generation
M	male
F	female
#	number eg. # copulated, or female #306878
S	sperm sparse (- indicated no sperm detected; + indicated sperm positive)
G	as in Day 1 G = first day of gestation (the day that mating was confirmed)
PP	as in Day 1 PP = first day of the postpartum period (the day that birth was detected)
Pre-	when preceeding Day 4 PP means before standardization of litters
Post-	when preceeding Day 4 PP means after standardization of litters
N	number of observations
-	No data (eg. Individual Survival: F1 Pups), except regarding sperm
...	No data (eg. Maternal Body Weight and Body Weight Changes: F1)
SD	standard deviation of the mean
SE	standard error of the mean

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B. In Pathology Report No. 41-82 (Appendix B) - Tables 1 & 2

N - normal
L - lesion - grades of severity: 1 = minimal
2 = mild
3 = moderate
4 = severe or marked
P - lesion present, but not graded
O - tissue missing

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1-METHYL-2-PYRROLIDINONE (NMP): REPRODUCTIVE AND DEVELOPMENTAL TOXICITY IN THE RAT

SUMMARY

Starting at 34 days of age male and female rats (P0) of the Crl:CD®(SD)BR strain inhaled NMP (99.867% pure) at targeted concentration levels of 0, 10, 50, and 130 ppm for 6 hr/day, 7 days/week. For the P0 males exposure continued till 134 days of age (the end of the mating period); for the P0 developmental toxicity phase females till Day 20 G, and for the P0 reproductive toxicity phase females till Day 21 PP, but interrupted from Day 20 G through Day 4 PP. The actual exposure levels achieved were 0, 10.3, 50.8, and 116.0 ppm NMP; the 130 ppm concentration resulted in condensation of NMP in the chamber.

We killed one-half of the P0 males in each group at the end of the mating period; the remainder 21 days later. The females assigned to the developmental toxicity phase (0 and 130 ppm groups) were killed on Day 21 G; those assigned to the reproductive toxicity phase (0, 10, 50, and 130 ppm groups) were killed on Day 21 PP. We also killed one pup of each sex from each F1 litter on Day 21 PP. On Day 70 PP we selected one of each sex/litter/exposure level which later mated to newly purchased adults of the opposite sex to produce an F2 generation. On Day 2 PP we killed the F2 generation and the F1 breeder females. We examined the reproductive system of all P0 and selected F1 rats, weighed the testes and ovaries at specified times during the study, and calculated reproductive indexes for the P0 and F1 generations.

Minimal porphyrin secretion on the snout and/or around the eyes occurred among the control and experimental groups, which indicated the presence of some stress during the study. It did not appear to be due to inhalation of NMP and its presence did not result in the detection of any adverse effect on the P0 generation, on their reproductive function, or on the F1 or F2 offspring. While in the inhalation chambers the 130 ppm group had a detectable decrease in response to sound; no effect occurred at 50 or 10 ppm.

In the developmental toxicity phase the only adverse effect identified was a significant reduction in fetal weight which occurred in the 130 ppm group. This effect also appeared in the reproductive toxicity phase as a significant dose-related effect from birth till Day 21 PP among the offspring of dams that continued to inhale NMP at 130 ppm from Day 5-21 PP. Thereafter, the male and female offspring of this group and those of the remaining groups in the reproductive toxicity phase survived, matured, mated with newly purchased rats of the opposite sex, and delivered pups without detection of adverse effects.

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Hence, in this study a "reduced response to sound" appeared only during exposure to NMP in the 130 ppm group. No other sign of NMP toxicity was detected among the adult rats. A developmental effect appeared in the 130 ppm group as a reduction in fetal weight on Day 21 G, which was detectable in the pups of the reproductive phase till 21 days after birth when NMP inhalation by the mother ceased. Thereafter, the body weight of the offspring was comparable to that of the control values. No detectable reproductive or developmental effects appeared in the 10 or 50 ppm groups.

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1-METHYL-2-PYRROLIDINONE (NMP): REPRODUCTIVE AND DEVELOPMENTAL TOXICITY IN THE RAT

I. INTRODUCTION

A. Background

Industry uses N-methyl pyrrolidinone (NMP) mainly as a solvent and as a chemical intermediate. More specific uses include polymer preparation, resin manufacture, petroleum processing, dispersement of pigments, and as a spinning agent for polyvinyl chloride. During such use, NMP may be inhaled. As a result, we received a request from C. T. Handy, Fibers Department, to conduct an inhalation study to determine the sensitivity of mammalian reproduction and development to NMP. Expansion of the scope of the study upon the recommendation of Haskell Laboratory resulted when early data from the current study indicated that the highest exposure level of NMP adversely affected the body weight of fetuses, and the body weight and testes weight of pups.

B. MR Requests and Protocols

Signature of the MR request (Part I) for the study on July 18, 1980, led to distribution of a draft protocol on July 9, 1981. The protocol issued on July 24, 1981, was amended on March 25 and April 14, 1982 (Appendix A). Approval of MR requests (Parts II and III) for extension of the study occurred on January 6 and May 17, 1982, respectively. The detailed protocol for extending the study was signed on March 3, 1982, distributed on March 4, 1982, and amended on March 25, 1982. On July 12, 1990, a change in the Study Director for the purpose of writing this report necessitated an additional amendment, and on September 20, 1990, another amendment updated the terminology used in the title of this project to that used in this report.

C. Purpose

The object of this two-generation study was to identify the lowest exposure of NMP given by inhalation that would adversely affect reproduction or development in the rat, and to identify the most sensitive endpoint(s) affected.

II. MATERIALS AND METHODS

Groups of post-weaning rats of both sexes (P0) received NMP by inhalation during which period they matured, bred, and weaned litters (F1). Exposure of the P0 generation to NMP ceased on Day 21 PP. Weaning of the litters and autopsy of the P0 dams occurred on the same day.

II. MATERIALS AND METHODS (CONT.)

Production of an F2 generation resulted from the within-group breeding of randomly selected F1 rats to "new" rats purchased for ths purpose to avoid matings between siblings. We examined the reproductive system of rats from both parental generations for the presence of structural or functional alterations. In addition, we examined the fetuses of some of the control dams and others exposed to NMP at the highest level of exposure on Day 21 G to determine developmental toxicity.

A. Test Material

1. Physical characteristics - NMP is a colorless liquid with a boiling point of 202°C, and a pH of about 7.0. Its molecular weight is 99.1 and its molecular formula is C5H9NO. The sample of NMP used in the study was 99.867% pure. The impurities present in the sample included: 1,5 or isomer-dimethyl-2-pyrrolidinone (986 ppm), N-methyl-succinimide (251 ppm), 2-pyrrolidinone (14 ppm), low boiling impurities (36 ppm), and the remaining high boiling impurities (40 ppm).

2. Source - W. M. Eareckson, Fibers Department, Spruance Plant, Richmond, Virginia, supplied the NMP used in this study.

3. Test concentration selection - The exposure levels selected for the main study were 0, 10, 50, and 130 ppm NMP. The high level was 130 ppm NMP since a two-week exposure to 183 ppm NMP was lethal to 23/30 rats (1), exposure to 98.8 ppm during a 2-year chronic study in rats resulted in a significant 6% decrease in the body weight of the males (2), and exposure to 89 ppm apparently had no adverse effect during a teratogenicity study in rats (3). The intermediate level selected was 50 ppm since exposure to 104 ppm and 22 ppm for two weeks was reported to result in slight testicular atrophy and lethargy. However, the possibility of the presence of aerosols was not excluded from the experiment. Both effects were dose related and reversible (1). The low level selected was 10 ppm since this level apparently had no adverse effect during a 2-year chronic study (2).

B. Animals

On July 2, 1981, 110 male and 214 female (nulliparous) rats, (Crl:CD®(SD)BR), that were 21 days old arrived from Charles River Breeding Laboratory, North Wilmington, Massachusetts. Upon arrival, body weight ranges were 32.1 - 47.9 and 32.7 - 50.1 g, for male and female rats, respectively. Each rat received a unique number and a combination of ear punches and toe clips as well as a cage card bearing that number identified each rat. This group of animals comprised the P0 generation.

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II. MATERIALS AND METHODS (CONT.)

B. Animals (Cont.)

A second group of 64 female rats (Crl:CD®(SD)BR) that were 56 days old arrived on September 10, 1981, from the same supplier and breeding colony. Identification was by an ear slash for the even numbered females and a cage card. This group of "practice" females provided mating experience for the P0 males.

The third group of 82 male and 78 female rats (Crl:CD®(SD)BR) that were 64 days old, arrived on December 31, 1981 from the same supplier and breeding colony. The males weighed between 206.3-253.1 g and the females weighed between 165.5-216.6 g. Each rat received a unique number, and a combination of ear punches and toe clips as well as a cage card bearing that number identified each rat. They served as mates for the F1 rats to provide the F2 generation without inter-sibling matings.

The identification number given each offspring of the P0 generation was that of the dam with the addition of a -1 (male) or -2 (female) to indicate sex. A cage card and a combination of ear punches and toe clips identified each F1 rat selected for mating. Only a cage card identified their littermates.

We chose the Crl:CD®(SD)BR rat for this study because extensive background information from previous toxicity and teratogenicity testing exists at Haskell Laboratory on this species and strain.

C. Environmental Conditions

The rats arrived in a climate-controlled truck. Quarantine lasted for 13 days for the P0 rats, 10 days for the "practice" female rats, and 9 days for the "new" rats for mating to the F1 breeders. Housing was in suspended cages made of stainless steel wire mesh. The P0 control and NMP exposed groups were held in separate rooms. The F1 and F2 groups were held in the same room since they were not being exposed to NMP. The rats consumed water (Wilmington Suburban Water Corporation) and feed (Purina Certified Rodent Chow®, #5002, checkers) at will, except during exposure to NMP. Fluorescent illumination of the animal rooms was from 6 a.m. to 6 p.m. daily. The temperature was 72°±2°F and the relative humidity was 40-60% as monitored by 24 hr/day status system. In addition, during the breeding periods, we recorded hygrothermographic readings in the animal rooms. Excursions outside of these ranges were minimal and brief and in our opinion did not affect the outcome of the study.

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II. MATERIALS AND METHODS (CONT.)

D. Experimental Design and Schedule of Procedures

The experimental design presented below outlines the P0 animal groups studied, and their distribution among chambers for the exposure period. The second control group (C-II) provided data for possible use as an indication of the degree of variability present among control rats. The E-IV and E-V groups provided similar indication for the highest exposure level tested and provided data to help identify sex-related differences should any be present. We exposed all groups to room air or NMP concurrently.

Group	Exposure	Reprod.	Terat.	Chamber Designation
Control-I (C-I)	Room air	10 M	10 M	Chamber 1 (750 L)
	Room air	20 F	20 F	Chamber 1
Control-II (C-II)	Room air	10 M		Chamber 1
	Room air	20 F		Chamber 1
Experimental-I (E-I)	10 ppm NMP	10 M		Chamber 2 (750 L)
		20 F		Chamber 2
Experimental-II (E-II)	50 ppm NMP	10 M		Chamber 3 (750 L)
		20 F		Chamber 3
Experimental-III (E-III)	130 ppm NMP	10 M	10 M	Chamber 4 (900 L)
		20 F	20 F	Chamber 4
Experimental-IV (E-IV)	Room air	10 M		Chamber 5 (150 L)
	130 ppm NMP	20 F		Chamber 4
Experimental-V (E-V)	130 ppm NMP	10 M		Chamber 4
	Room air	20 F		Chamber 6 (150 L)

The flow chart presented below outlines the timing of the major procedures for both the reproductive and developmental toxicity phases of the study.

P0 Generation

Date	Day of Age	Function and Description
7/02/81	21	Receipt of P0 rats; Quarantine - 13 days

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II. MATERIALS AND METHODS (CONT.)

D. Experimental Design and Schedule of Procedures (Cont.)

P0 Generation (Cont.)

Date	Day of Age	Function and Description
7/15/81	34	Start of exposure: 6 hr/day; 7 days/week Duration of exposure: M-134 days (till end of breeding period) F-Developmental Toxicity Phase - 140-144 days (till Day 20 G) -Reproductive Toxicity Phase - 147-177 days (interrupted between Day 21 G and Day 4 PP)
9/10/81	56	Receipt of females for practice mating; Quarantine - 10 days
9/19/81	100	P0 males cohabited with practice females for a five day period
10/08/81	119	P0 males cohabited with P0 females for a 15 day period
10/23/81	134	Killed one half of the males in each P0 group (reproductive tissues)
10/29/81	140	Started killing P0 dams selected for the Developmental Toxicity Phase
10/30/81	141	P0 dams in Reproductive Phase started delivering litters
11/13/81	155	Killed remaining P0 males after 21 day recovery period (reproductive tissues)
11/15/81	157	Killed unmated females
11/20/81	161	Exposure stopped for P0 dams at Day 21 PP Started killing P0 dams after weaning of litters (reproductive tissues)
12/04/81		Last exposure day for P0 females

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II. MATERIALS AND METHODS (CONT.)

D. Experimental Design and Schedule of Procedures (Cont.)

F1 Generation

Date	Day of Age	Function and Description
10/30/81	1	Examined offspring
11/02/81	4	Standardized litters
11/20/81	21	Killed one male and one female pup/litter (examined reproductive system)
12/19/81	35	Killed all pups in groups C-II and E-V
12/31/81	64	Receipt of "new" rats for breeding with F1; Quarantine - 9 days
1/08/82	70	Mating period began for F1 breeders in the Reproductive Phase (one male and one female/ litter with "new" rats) Killed one male and one female/litter (examined reproductive system) Discarded all remaining F1 offspring
1/24/82	86	Killed all F1 males (examined reproductive system)
1/29/82	91	Dams started delivering litters
1/30/82	92	Started to kill dams on Day 2 PP (examined reproductive system)
2/15/82		Started to kill unmated F1 females
2/21/82		Last unmated F1 females killed

F2 Generation

2/21/82		Last Day 2 PP dam and pups killed Last F1 females not mated killed

E. Randomization

Before exposure, assignment of male and female rats (P0) to control and experimental groups was based on body weight through use of a randomized block design.

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II. MATERIALS AND METHODS (CONT.)

F. Exposure

We chose the inhalation route for this study because it is the most likely route for human exposure. While housed in chambers, PO male and female rats inhaled NMP or room air for 6 hr/day, 7 days/week, from 34 days of age till the end of the mating period, for the males, or till Day 21 PP for the females - except for the period from Day 20 G through Day 4 PP to prevent the occurrence of parturition during exposure and to insure adequate feeding of the offspring during the early postpartum period. The groups of PO rats that did not receive NMP occupied animal rooms separate from the remaining groups. No offspring inhaled NMP.

Employees of the Acute Investigations Section, Haskell Laboratory, conducted the exposures. The procedures for generating and measuring NMP vapors, and for measuring and maintaining proper ranges of temperature and oxygen concentration are in Appendix B.

G. Body Weight Measurements and Clinical Signs

We weighed all PO rats upon arrival and twice more before exposure; thereafter, weekly till killed for the males, and, weekly till mated, plus on Days 1 and 21 G and on Days 1, 4, 14, and 21 PP for the females. We weighed F1 males on Days 1, 4, 14, and 21 PP and then once a week till they were killed. F1 females were weighed on Days 1, 4, 14, and 21 PP, weekly before mating, then on Days 1 and 21 G and on Days 1 and 2 PP. We weighed F2 offspring on Day 1 PP.

We took clinical signs as follows:

- upon arrival and twice before exposure began for PO males and females
- while the rats were in the chambers (group signs)
- upon removal of rats from the chamber (individual signs) with re-examination in the a.m. before the next exposure for rats with clinical signs
- before, during, and after exposure during gestation and
- on Days 1, 4, 14, and 21 PP, and then weekly for F1 males till killed.

We observed F1 females on Days 1, 4, 14, and 21 PP, weekly before mating, and then on Days 1-21G and on Days 1 and 2 PP. Observation of non-mated females continued on a weekly basis, and of all rats for mortality and death on a daily basis.

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II. MATERIALS AND METHODS (CONT.)

H. Mating

When they attained 100 days of age we cohabited pairs of PO males with "practice" females for five days to gain mating experience. At 119 days of age, housing of each PO male was with two PO females of the same group for a 15-day mating period. After each five day period cohabitation of non-mated females was with different males of the same group.

Verification of mating was by detection of spermatozoa in the vaginal lavage each morning following cohabitation. Cohabitation continued for females that had only few sperm in their vaginal lavage. We kept records of estrous cycles for the unmated females and of the mating history of both sexes.

Similar procedures were used during the F1 mating period. The only differences were that we cohabitated each male with only one female and that we mated F1 rats to "new" rats of the opposite sex. "New" rats were used to prevent sibling matings among the F1 generation and to aid identification of the responsible sex if sex-related effects occurred.

I. Reproductive Segment

Housing for PO dams selected for the reproductive segment of the study was 13" X 15" polycarbonate cages containing Bed-O-Cobs® bedding beginning three days before expected delivery. Observation of "non-mated" females continued for 24 days following the end of the breeding period to permit females with undetected matings to produce a litter. We did not expose offspring to NMP, but they were counted, sexed, weighed, and examined on Day 1 PP. We examined pups that died between Days 4 and 21 PP to determine cause of death, if possible. On Day 4 PP pooling of the pups from litters within each group preceded their re-distributation among the dams (4/sex/litter). We used a list of random numbers to achieve standardization of number and sex of pups per litter and we then weighed the litters and examined the pups again for adverse clinical signs.

Calculation of the indices of reproductive function was as follows:

$$\text{Female Mating Index (\%)} = \frac{\text{Number copulating}^{a}}{\text{Number cohoused}} \times 100$$

$$\text{Male Mating Index (\%)} = \frac{\text{Number copulating}^{b}}{\text{Number cohoused}} \times 100$$

$$\text{Female Fertility Index (\%)} = \frac{\text{Number bearing litters}}{\text{Number copulating}^{a}} \times 100$$

$$\text{Male Fertility Index (\%)} = \frac{\text{Number bearing litters}}{\text{Number copulating}^{b}} \times 100$$

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II. MATERIALS AND METHODS (CONT.)

I. Reproductive Segment (Cont.)

Gestation Index (%) = $\frac{\text{Number of litters with at least one live pup}}{\text{Number of litters}} \times 100$

Pups Born Alive (%)[b] = $\frac{\text{Number of pups born alive}}{\text{Number of pups born}} \times 100$

Viability Index (%)[c,d] = $\frac{\text{Number of pups alive Day 4 Pre-standardization/pooling}}{\text{Number of pups born alive}} \times 100$

Lactation Index (%)[c,d] = $\frac{\text{Number of pups alive at weaning (Day 21 postpartum)}}{\text{Number of pups alive Day 4 after litter standardization/pooling}} \times 100$

Litter Survival (%)[d] = $\frac{\text{Number of litters weaned}}{\text{Number of viable litters delivered}} \times 100$

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[a] Based upon the number of females classified as either sperm positive or sperm sparse or upon those that delivered a litter if sperm were undetected in the vagina.
[b] Based upon the number of males that mated with one or more females classified as determined by footnote a.
[c] Determined for each litter; calculated the mean, standard deviation, and standard error of the mean for each group
[d] Excluding litters with maternal death during lactation

When F1 offspring reached 70 days of age, one male and one female from each litter for groups C-I, E-I, E-II, and E-III mated with "new" rats of the opposite sex to produce an F2 generation. The procedures followed were the same as those used for the P0 dams, except that killing of both dams and offspring occurred on Day 2 PP.

J. Gross and Histopathological Examination of Reproductive Organs

After the 15-day breeding period, we weighed the P0 males and then randomly selected and killed one-half of the males from each group. We examined their reproductive systems grossly, removed the epididymides, and removed and weighed the testes, before fixing both organs in

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II. MATERIALS AND METHODS (CONT.)

J. Gross and Histopathological Examination of Reproductive Organs (Cont.)

Bouin's solution for three days before transfer into 70% ethanol. After a 21-day recovery period, we similarily processed the remaining males in each group. At 21 and 70 days of age, and after the breeding period (85 days of age), we similarily processed one F1 male per litter.

We weighed and killed all P0 and F1 females that produced litters on Days 21 or 2 PP, respectively. After gross examination of the reproductive systems we removed, weighed, and fixed the ovaries, with the oviducts attached, in 10% neutral buffered formalin. We used the same procedure for non-parturient females at 24 days post-mating or post-cohabitation and for one F1 female per litter at 21 and 70 days of age.

K. Developmental Toxicity Phase

While in chambers, the prospective P0 parents of the fetuses to be examined inhaled room air or NMP for 6 hr/day, 7 days/week, from 34 days of age till the end of the mating period for the males, or till Day 21 G for the females. Between exposures the rats resided in the same animal rooms as did the rats in the reproductive phase of this study; that is, with rats exposed to NMP in one room, and those exposed to room air in another.

We recorded body weights of the dams on Days 1 and 21 G and clinical signs daily before, during, and after exposure. Each dam received a unique code number before entering the laboratory on Day 21 G so that personnel involved with the study did not know the group to which a dam or fetus belonged. After death by CO_2 asphyxiation, we examined the dam for gross pathological changes, removed and weighed the liver, and counted the corpora lutea at a magnification of 2.5X (Ednalite®). We recorded the number and position of all live, dead, and resorbed fetuses, and the weight of each uterus both while intact and empty. Use of an ammonium sulfide staining procedure (4) identified, among apparently empty uteruses, those that contained very early resorptions. The results of the staining procedure served only to more accurately determine the incidence of pregnancy.

Examination of live fetuses at a magnification of 2X revealed external alterations and sex; confirmation of sex subsequently resulted during internal examination. We examined one-half of the live fetuses in each litter, as well as the stunted and malformed fetuses, for viseral alterations by use of Staples' dissection technique (5). Removal of fetal eyelids at sacrifice revealed the eyes of all fetuses from the first seven litters of the control and high dose groups and of all stunted and malformed fetuses. We measured the eyes only if microphthalmia was suspected. The heads of all fetuses examined

II. MATERIALS AND METHODS (CONT.)

K. Developmental Toxicity Phase (Cont.)

internally were fixed in Bouin's solution for examination by the technique of Barrow and Taylor (6). We processed all fetuses, except for the heads fixed in Bouin's solution, for skeletal examination by evisceration, maceration in 1% KOH, and staining with alizarin red S. All fetuses, except for the heads of those fixed in Bouin's solution, were examined for skeletal alterations after being fixed in 70% ethanol, eviscerated (if not done previously), macerated in 1% aqueous KOH solution, and stained with alizarin red S.

L. Control of Bias

The coding of dams on Day 21 G till the completion of raw data collection and classification of all structural alterations limited bias during the conduct of these procedures.

M. Statistical Analyses

We analyzed body weights, body weight gains, organ weights, and gestation length by one-way analysis of variance. When the test for differences among test groups (F test) was significant, pair-wise comparisons between test and control groups was by Dunnett's test. We used Bartlett's test for homogeneity of variances on all of the endpoints given above and, when significant (alpha = 0.005), analysis was by nonparametric procedures.

We analyzed the incidence of clinical observations by Fisher's exact test and, if significant, by the Cochran-Armitage test for trend. Either Fisher's exact test (mating, fertility, and gestation indexes and litter survival) or the two-tailed Mann-Whitney U test (pup numbers, survival, weights, viability index, and lactation index) served to analyze reproduction and lactation performance.

Except for Bartlett's test, significance was achieved when alpha = 0.05.

For the developmental toxicity portion of this study we considered the litter (the proportion of affected fetuses/litter or litter mean) to be the experimental unit for statistical evaluation (7) and selected $p \leq 0.05$ as the level of significance with the exceptions given above. We applied a test for trend and a pair-wise test between the control and experimental groups to each parameter. They are the following:

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II. MATERIALS AND METHODS (CONT.)

M. Statistical Analyses (Cont.)

Parameter	Test for Linear Trend	Pair-Wise Test Between Groups
Incidence of pregnancy Clinical signs Maternal death	Cochran-Armitage (8)	Fisher's exact (9)
Maternal body weight Maternal body weight change Liver weight (absolute & relative)	Orthogonal polynominal of dose ranks (8)	Dunnett's (10) when one-way ANOVA was significant
Nidations Live fetuses Dead fetuses Resorptions Percent resorptions Corpora lutea Fetal weight Incidence of fetal alterations	Jonckheere's (11)	Mann-Whitney U (12,13)

Detection of differences among groups and lots was by two-way analysis of variance. When more than 75% ties occurred in reproductive and fetal parameters, use of the Cochran-Armitage test (8) detected dose responses and use of the Fisher's exact test detected significant differences between groups (9).

The use of the words "significant" or "significantly" indicates a statistically significant difference between the experimental and control groups.

N. Archiving

Storage of the raw data is in the Information Section, Haskell Laboratory, or in the Du Pont Hall of Records. Fixed specimens of soft tissue and skeletons are in Building H9 Haskell Laboratory. Histologic slides and tissue mounted on blocks are in Room 405B Haskell Laboratory.

DWI

III. RESULTS

A. Exposure to NMP

Exposure to PO male and female rats with NMP at targeted exposure levels of 10, 50, or 130 ppm for 6 hr/day, 7 days/week, from 34 days of age till they were killed, resulted in actual exposure levels ($x \pm SD$) of 10.3 ± 3.4 ppm, 50.8 ± 7.6 ppm and 116.4 ± 17.5 ppm, respectively (Appendix B, Tables 1-3). Technical restraints prevented attainment of a concentration of 130 ppm due to condensation on the inside of the high dose chambers. For the purpose of this report exposure levels will be referred to by the targeted levels of NMP. The PO rats not given NMP also remained in chambers for the same duration as the NMP-exposed rats, but they inhaled room air.

The mean daily temperatures in the exposure chambers during the 114 to 143 day exposure period appear in Appendix B, Table 4.

B. Mortality

One female from group C-I (#306764) died on Day 10 of exposure from an injury received while being loaded into an exposure module. Another female from the same group (#306770) died on Day 110 of exposure, four days after the breeding period ended. She was not pregnant. A female from group E-II (#306858) died on Day 113 of exposure, Day 24 of gestation. At necropsy, her uterus contained 13 dead fetuses and one early resorption site.

C. Clinical Signs

Reduced response to the sound of tapping on the glass surface of the chambers during exposure (Appendix B) occurred more frequently among the rats exposed to 130 ppm NMP than among the control rats ($p \leq 0.05$, Fisher's exact test). In addition, by the fourth to the fifth week of exposure a detectable degree of porphyrin secretion occurred among the rats exposed to NMP at 130 ppm which was noted upon their removal from the chamber. Most of the secretion consisted of a few pin-prick sized spots of reddish-brown discoloration around the tip of the snout and/or around the eyes. Evidence of porphyrin secretion disappeared by the morning following each daily exposure. The incidence then increased till the end of the sixth week of exposure when the application of more air conditioning to the top surface of the chambers reduced the incidence of secretion by about one-half within one week. By the 10th week of exposure, and thereafter, the incidence among the male and female rats in the 130 ppm chamber was comparable ($p > 0.05$) to the incidence among the rats in the control chamber. Among the rats in the chambers exposed to NMP at 10 or 50 ppm any significant differences from the control incidence disappeared by the 8th week of exposure. Among the female rats of each group, including the control groups, the incidence of staining increased from the 15th week to the end of the exposure period which was during pregnancy and lactation; the incidence was not dose related ($p > 0.05$).

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III. RESULTS (CONT.)

D. Body Weight and Body Weight Change: PO

1. Males:

The weekly body weights of the PO males during exposure did not differ significantly among groups (Table 1; Appendix E). Presentation of the same data as mean body weight change (Table 2; Appendix F) revealed a significant dose-response trend between exposure days 42-49, but only for an increase above the control value for the 50 ppm group. A significant dose-response trend did not support the occurrence of additional scattered significant differences from control values.

During the 21-day recovery period after cessation of NMP exposure no significant exposure-related trends or group differences were detected for the PO male whether the data were analyzed by weekly body weight or by weekly body weight change.

2. Females:

The weekly body weight means of the PO females during the 84 exposure days of the premating period did not differ significantly (Table 3; Appendix J). Upon analysis of body weight gain a statistically significant trend was obtained between 21 and 28 days of exposure, but none of the NMP-exposed groups differed significantly from the value for the control group during that week. A significant dose-response trend did not support the occurrence of additional significant differences from control values.

During gestation, neither maternal body weight on Days 1 or 21 G nor body weight change during this interval differed significantly whether analyzed for all groups in the study (Table 7; Appendix M) or for only the developmental toxicity phase of the study (Table 9; Appendix Q).

Similarily, on Day 21 PP the body weight of the PO females for the reproductive phase of the study did not differ significantly in trend or between the control group and the NMP-exposed groups (Table 16; Appendix N).

E. Testes and Ovaries: PO

The absolute and relative testes weight after breeding (Table 5; Appendix G) and after a 21-day recovery period (Table 6; Appendix H) did not differ significantly between the control and experimental groups. At autopsy, the term "small" described the testes and epididymides of one rat in E-I (killed post breeding; #306654); the male did not successfully mate with a female during this study. This was the only alteration of this type noted in the control or experimental groups.

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III. RESULTS (CONT.)

E. Testes and Ovaries: PO (Cont.)

The absolute and relative ovarian weight on Day 21 PP (Table 8; Appendix O) did not differ significantly between the control and experimental groups.

We did not microscopically evaluate the testes and ovaries in the absence of adverse effects noted in structure (at autopsy) or in function (reproductive indexes). In addition, previous microscopic examination of the testes and ovaries of rats exposed to 10 or 98.8 ppm NMP for one year did not detect adverse effects (14).

F. Developmental Toxicity Phase

1. Exposure to NMP

Exposure of 10 male and 15 female rats with NMP at the targeted exposure level of 130 ppm for 6 hr/day, 7 days/week, from 34 days of age till they were killed, resulted in an actual exposure level (x±SD) of 114.9 ± 10.8 ppm. In addition, 10 male and 14 female rats inhaled room air while chambered for the same duration as the NMP-exposed rats. The temperature was (x±SD) 75.6 ± 1.9°F (range 68.4 - 81.9°F) in the control chamber and 78.7 ± 1.8°F (range 74.8 - 84.0°F) in the experimental chamber; during gestation the temperatures were 73.7 ± 1.9°F (range 68.4 - 76.4°F) and 77.4 ± 1.0°F (range 74.8 - 80.0°F), respectively.

2. Clinical Signs

No dams died during gestation (Table 11), and the clinical signs seen did not appear to be dose-related (Appendix P). The clinical signs noted in the E-III group appeared before the mating period began.

3. Maternal Body Weight and Liver Weight

On Day 1 or 21 G the body weight of the NMP-exposure dams did not differ significantly from that for the control group (Table 9; Appendix Q). Similarily, neither absolute liver weight, nor liver weight relative to the corrected or non-corrected body weight on Day 21 PP, differed significantly between the control and the NMP-exposed group (Table 10; Appendix R).

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III. RESULTS (CONT.)

F. Developmental Toxicity Phase (Cont.)

4. Reproductive Outcome

The only effect detected was a significant decrease in mean fetal weight for the female pups alone or for total pups (Table 11; Appendix S) in the E-III group in which both parents inhaled NMP at 130 ppm. The weight of the male pups also was reduced in the NMP- exposed group, but the difference was not significant.

5. Fetal Malformations and Variations

The incidence of malformed fetuses per litter (Table 12; Appendix T) and the incidence of fetuses with variations per litter (Table 13; Appendix T) for the E-III group that was exposed to 130 ppm NMP were not significantly different than the incidence for the control group. The above statement refers not only to the proportion of affected fetuses per litter for all malformations or variations in each group, but for each endpoint listed as well. For example, the incidence of partially ossified skulls (Table 13) was increased in the NMP-exposed group vs. the incidence for the control group, but the difference was not statistically significant.

G. Reproductive Performance: P0

1. Male Performance

We did not detect an adverse effect of NMP upon the mating or fertility competence of the male rat at the exposure levels tested (Table 14) based upon calculation of the Mating Index and the Fertility Index for each group and the application of a trend test and pair wise comparisons vs. the control group. Moreover, it took no longer for the NMP-exposed males to successfully copulate during the mating period than it took for the control males. For example, the average time was 3.56 days for the C-I group vs. 2.39 days for the E-III group.

2. Female Performance

We did not detect an adverse effect of NMP upon the mating or fertility competence of the female rat, or upon the length of gestation, at the exposure levels tested (Table 15; Appendices L, U, V, and W). In addition, the post-partum body weight and weight gains of the NMP exposed dams did not differ significantly from the control values (Table 16; Appendix N).

We killed one of the dams from the E-IV group (#306761) on Day 9 PP since her litter died by Day 5 PP. We did not see milk in the pups' stomachs or exuding from the mammary tissue upon incision during autopsy.

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III. RESULTS (CONT.)

H. F1 Offspring

The mean number of pups born per litter, and their survival to weaning did not differ significantly from the control incidence (Table 17; Appendix V). A slight shift in the sex ratio resulted in a significant difference between the control group and the E-I group, but this occurred in the absence of a significant dose-response trend. Although not presented in tabular form, the incidence of clinical signs among the F1 pups (Appendix U) also was not significantly dose related. The appearance of hematomas and lacerations across all groups probably resulted from normal maternal activity.

A significant dose-related decrease in pup body weight occurred in the E-III group in which both parents were exposed to NMP at 130 ppm. The dose-related effect lasted from birth till Day 21 PP (Table 18; Appendix W). This finding supports and extends the significant decrease in fetal weight detected in the E-III group of the developmental toxicity phase of this study. The pups born to the groups in which only one of the parents received NMP at the same exposure level also weighed less than the control pups; in the E-IV group differences did not attain statistical significance till after the culling of pups during the litter standardization process; in the E-V group the pups rapidly made up the difference.

A significant reduction in pup weight, versus the control value, also occurred in the E-I group (Table 18; Appendix W) from Day 1-35 PP, but it did not occur in the E-II group. However, the E-I group had an average of about one-half of one more pup born alive per litter than did the control or E-II dams (Table 17). This difference in number of pups born per litter accounted for differences in statistical significance among these three groups.

On Day 21 PP neither absolute nor relative testes weight of the F1 males resulted in a significant dose-response trend or in significant differences between the control group and either the E-II or E-III groups (Table 19; Appendix X). The absolute testes weight for the E-I group differed significantly from the control group, but the relative testes weight did not since the final body weight of the E-I males also was significantly less than the value for the control males. However, although the absolute testes weight did not differ significantly from the control value, the relative testes weight of the E-V group, the male offspring whose male parents inhaled NMP at 130 ppm till mated to their dams, was significantly smaller than the control value. This was one of the reasons that we decided to extend this study to permit testing of the fertility of NMP- exposed males, despite our realization that this potentially adverse finding did not occur in the comparably-exposed males of another group (E-III).

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III. RESULTS (CONT.)

H. F1 Offspring (Cont.)

On Day 70 PP (Table 20; Appendix Y) and on Day 85 PP (Table 21; Appendix Z) neither absolute nor relative testes weight of the F1 males resulted in significant dose-response trends or in significant differences between the control group and the experimental groups.

On Day 21 PP the body weight of the F1 female offspring was significantly dose-related and a significant decrease occurred for the E-III group vs. the control value (Table 22; Appendix AA). However, significant changes in F1 female body weight did not occur on Day 70 PP (Table 23; Appendix BB), during gestation, or on Day 1 or 2 PP (Table 25; Appendix EE). The absolute or relative ovarian weights for the F1 females also did not differ significantly at these specific times (ibid, and also Table 24; Appendix CC).

Reproductive function of the F1 rats of both sexes was normal. The Mating Index and the Fertility Index for the F1 males (Table 26) and females (Table 27) revealed no significant differences between the groups whose parents were exposed to NMP and those whose parents were nonexposed. In addition, the Gestation Index and the % pups born alive (Table 27) did not differ significantly between the NMP-exposed groups and the control group.

I. F2 Offspring

After collection and analysis of data on the number of pups born per litter, on their weight and survival to Day 2 PP (Table 28; Appendix GG), and external examination of each pup, we did not detect any adverse effect from the NMP exposure received by their grandparents from Day 34 of age through mating and by their grandmothers through pregnancy and the lactation period.

IV. DISCUSSION

The PO rats in the 130 ppm groups had "slightly" less response to sound during exposure to NMP than did the control group; but the incidence was significantly different between the two groups. The sound was produced by tapping a coin against the glass wall of each chamber. While this technique successfully identified various degrees of narcosis among rats exposed to some solvents, for example, the endpoint is subjective by nature. In addition, the findings could be subject to bias since the person conducting the test knew the exposure levels under study in each chamber, and since only a few of the rats in each chamber were visible through the glass. This finding may be related to the lethargy reported in previous studies in rats that

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IV. DISCUSSION (CONT.)

inhaled NMP (1,3), but neither narcosis nor lethargy was noticed in rats that inhaled NMP at 165 ppm for 6 hr/day from Day 4-20 G (15) or at 150 ppm for 6 hr/day from Day 7-20G (16).

The porphyrin secretion detected during the exposure period was minimal expression of the presence of stress, but in this study etiology could not be established with certainty. The greatest frequency was in the 900 L chamber that contained 90 rats which inhaled NMP at 130 ppm. The mean daily temperature exceeded 80°F on 29 days during the 1st six weeks of exposure vs. the 750 L control chamber with 90 rats which exceeded 80°F on only 12 days during the same period. The extra heat probably resulted from the vaporized NMP. That chamber animal load was not the only source of heat was demonstrated by the 750 L chamber which was occupied only by the 30 rats of the 50 ppm group; the temperature still exceeded 80°F on 18 days during the same period. The second highest incidence of porphyrin secretion occurred in the 50 ppm group during this period.

NMP itself was not the cause of the increased incidence of porphyrin secretion seen since the use of cool air blowing on the top surface of the chambers starting on the 43rd day of exposure reduced the incidence by one-half in the 130 ppm chamber within the next week even though NMP exposure continued. Moreover, no indication of porphyrin secretion was reported in previous inhalation studies in this laboratory where rats inhaled 89 ppm in a teratogenicity study (1) or 98.8 ppm in a 2-year study (2), or in another country where rats inhaled 165 or 150 ppm from Day 4-20 G or Day 7-20 G, respectively (15,16).

In any case, there was no indication that the transient, minimal porphyrin secretion seen in this study had any adverse effect on the PO generation or on their offspring according to the endpoints investigated.

The only potentially NMP-related effect detected among the offspring of the developmental and reproductive phases of this study was a significant decrease in fetal and pup weight which occurred in the 130 ppm group vs. the control value. The reduction in pup weight was dose-related and it persisted till Day 21 PP. On that day NMP inhalation of the dams ceased and the pups were weaned. The next week their body weight was comparable to that of the control group ($p>0.05$). This effect was not seen in a previous study following NMP inhalation by dams at 89 ppm from Day 6-15 G, but it was noted in both studies conducted recently (15,16) at 165 and 150 ppm from Day 4-20 G and Day 7-20 G, respectively. In the former, the decrease did not quite attain statistical significance and since the experiment included only one exposure level a dose-response relationship could not be ascertained. In the latter, a statistically significant decrease resulted, and the

IV. DISCUSSION (CONT.)

difference persisted to adulthood. Again the study included only one exposure level, but with the same effect noted in three studies after exposure to NMP at 130 ppm (nominal) or more in the absence of significant maternal toxicity, the effect is probably real. However, in the current study the reproductive performance of the offspring was not adversely affected.

The relative testes weight of the E-V group, the male offspring of male rats exposed to NMP at 130 ppm till mated to their dams, was significantly smaller than the control value (Table 19). Although their body weight on Day 21 PP was not significantly different from the control group, their weight did exceed the control value. Also, although their absolute testes weight was not significantly different from the control group, the testes weight was less than the control value. These differences from the control values were probably responsible for the attainment of the significant difference, upon calculation of the relative testes weight, rather than a biologic effect due to NMP. The fact that the relative testes weight of the E-III males did not differ significantly from the control value on Day 21 PP and that the effect was not seen in the E-III group on Day 70 or 85 PP supports this scenario. Furthermore, no adverse effect on reproductive function was detected in the siring of F2 litters by the E-III males.

V. CONCLUSION

Exposure of male and female rats to 10, 50 or 130 ppm NMP daily for 6 hr/day, 7 day/week, from 34 days of age to the end of the mating period for the males and to Day 20 G for the females did not adversely affect their reproductive morphology or function or those of their offspring. Minimal porphyrin secretion occurred among the control and experimental groups, which indicated the presence of some stress during the study. It did not appear to be due to inhalation of NMP and its presence did not result in the detection of any adverse effect on the P0 generation, on their reproductive function, or on the F1 or F2 offspring. While in the inhalation chambers the 130 ppm group had a detectable decrease in response to sound; no effect occurred at 50 or 10 ppm. Developmental toxicity occurred at 130 ppm as a significant decrease in fetal weight, after exposure of both parents to NMP from weaning to the end of the mating period for the male and to term for the dam. In addition, it occurred among pups born to dams that continued to inhale NMP at 130 ppm from Day 5-21 PP. Thereafter, the body weight of the offspring was comparable to that of the control rats. We did not detect any permanent adverse effect among the rats exposed to NMP up to 130 ppm (actually determined to be 116 ppm) or among their F1 or F2 offspring.

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VI. ACKNOWLEDGMENTS

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 1

MEAN BODY WEIGHT OF MALE RATS: PO[a,b]

CONC. (PPM)	0	10	50	130
N	40	10	10	30
EXPOSURE DAYS				
1	111.4	111.9	111.8	111.9
7	169.4	169.4	170.5	168.8
14	226.9	229.7	231.1	226.9
21	283.3	287.4	284.4	284.5
28	333.6	336.7	337.7	332.7
35	367.0	374.4	378.6	367.1
42	401.8	410.3	412.4	398.7
49	428.2	436.3	445.3	428.4
56	450.1	463.2	473.8	450.4
63	469.8	477.6	490.7	477.9
70	479.5	489.3	492.5	477.9
77	488.2	499.9	506.8	487.5
84	501.4	517.9	526.6	502.7
91	513.8	526.6	537.0	512.4
98	526.0	539.4	542.7	527.5
N[c]	20	5	5	15
138	539.7	552.4	547.3	543.1
145	551.4	560.4	554.2	554.4
152	565.0	572.3	564.6	566.4
155	573.6	581.9	574.5	576.4

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 1 (CONT.)

MEAN BODY WEIGHT OF MALE RATS: PO

FOOTNOTES:

[a] Grams
[b] For statistical analyses combined 0 ppm groups (CI, CII, EIV) represented the control group. The 130 ppm groups (EIII, EV) were combined to represent the high level group. For individual data, standard deviations and standard errors see Appendix E.
[c] After 100 days of exposure, we killed one-half of the males from each group for pathological evaluation of the reproductive system.

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 2

MEAN BODY WEIGHT CHANGE IN MALE RATS: PO[a,b]

CONC. (PPM)	0	10	50	130
N	40	10	10	30
EXPOSURE DAYS				
1-7	58.0	57.5	58.7	56.9
7-14	57.5	60.4	60.6	58.1
14-21	56.4	57.7	53.7	57.6
21-28	50.3	49.3	52.8	48.2
28-35	33.4	37.7	40.9	34.4
35-42	34.7	35.9	33.8	31.6
42-49[†]	26.4	26.1	32.8*	29.7
49-56	21.9	26.9	28.5*	22.0
56-63	19.7	14.4**	16.9	16.7
63-70	9.7	11.7	1.7	10.8
70-77	8.7	10.6	14.4	9.6
77-84	13.1	18.0	19.8*	15.2
84-91	12.5	8.7	10.4	9.7
91-98	12.2	12.8	5.7*	15.1
N[c]	20	5	5	15
98-5[d]	13.3	17.2	13.0	14.8
5-12[d]	11.7	8.0	6.8	11.3
12-19[d]	13.6	11.9	10.4	12.0
19-22[d]	8.6	9.6	9.9	10.1

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 2 (CONT.)

MEAN BODY WEIGHT CHANGE IN MALE RATS: P0

FOOTNOTES:

[a] Grams
[b] For statistical analyses combined 0 ppm groups (CI, CII, EIV) represented the control group. The 130 ppm groups (EIII, EV) were combined to represent the high level group. For individual data, standard deviations and standard errors see Appendix F.
[c] After 100 days of exposure, we killed one-half of the males from each group for pathological evaluation of the reproductive system.
[d] Days 5, 12, 19, and 22 are post-exposure days.
* Significantly different ($p \leq 0.05$) from control values by Dunnett's test
** Significantly different ($p \leq 0.05$) from control values by Dunnett's test based on an analysis of the ranked values
† Significant trend ($p \leq 0.05$) by linear combination of dose ranks

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 3

MEAN BODY WEIGHT OF FEMALE RATS DURING PREMATING: PO[a,b]

CONC. (PPM)	0	10	50	130
N	79	20	20	60
EXPOSURE DAYS				
1	105.2	105.0	105.2	105.1
7	147.6	147.0	147.2	146.3
14	179.2	179.0	178.5	178.7
21	205.5	202.6	203.5	206.2
28	229.1	228.9	225.8	226.6
35	245.5	243.3	240.5	244.9
42	261.9	259.2	257.4	261.4
49	273.7	273.1	269.6	272.6
56	282.4	283.1	278.3	283.5
63	295.0	289.2	287.5	291.7
70	298.6	296.3	289.6	297.4
77	303.7	304.6	204.0	305.4
84	309.6	311.0	304.4	311.5

[a] Grams

[b] For statistical analyses combined 0 ppm groups (CI, CII, EV) represented the control group. The 130 ppm groups (EIII, EIV) were combined to represent the high level group. For individual data, standard deviations and standard errors see Appendix J.

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq .05$) resulted by use of linear combination of dose ranks.

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TABLE 4

MEAN BODY WEIGHT CHANGE IN FEMALE RATS DURING PREMATING: PO[a,b]

CONC. (PPM)	0	10	50	130
N	79	20	20	60
EXPOSURE DAYS				
1-7	42.4	42.0	42.0	41.2
7-14	31.6	32.0	31.3	32.4
14-21	26.3	23.6	25.0	27.5
21-28†	23.6	26.3	22.3	20.4
28-35	16.3	14.4	14.7	18.3
35-42	16.5	15.8	17.0	16.5
42-49	11.7	13.8	12.2	11.2
49-56	8.7	10.1	8.7	10.9
56-63	12.6	6.0**	9.1	8.2
63-70	3.6	7.2	2.1	5.7
70-77	5.2	8.3	14.4*	8.0
77-84	5.9	6.4	0.4	6.1

[a] Grams
[b] For statistical analyses combined 0 ppm groups (CI, CII, EV) represented the control group. The 130 ppm groups (EIII, EIV) were combined to represent the high level group. For separate individual data, standard deviations, and standard error of the means for each group see Appendix <>.
* Significantly different ($p \leq 0.05$) from control values by Dunnett's test
** Significantly different based on an analysis of the ranked values
† Significant trend ($p \leq 0.05$) by linear combination of dose ranks

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 5

MEAN TESTES WEIGHT AFTER BREEDING: PO[a]

GROUP	DOSE (PPM)	N	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[b]
CONTROL	0	20	529.3	3.47	0.66
EI	10	5	547.4	3.56	0.65
EII	50	5	559.2	3.65	0.66
HIGH	130	15	530.0	3.60	0.68

[a] For statistical analyses combined 0 ppm groups (CI, CII, EIV) represented the control group. The 130 ppm groups (EIII, EV) were combined to represent the high level group. For individual data, standard deviations, and standard errors see Appendix G.

[b] Grams of testes per 100 grams of final body weight

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 6

MEAN TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: PO[a]

GROUP	DOSE (PPM)	N	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[b]
CONTROL	0	20	573.6	3.66	0.64
EI	10	5	581.9	3.84	0.67
EII	50	5	574.5	3.54	0.63
HIGH	130	15	576.4	3.73	0.65

[a] For statistical analyses combined 0 ppm groups (CI, CII, EIV) represented the control group. The 130 ppm groups (EIII, EV) were combined to represent the high level group. For individual data, standard deviations, and standard errors see Appendix <>.

[b] Grams of testes per 100 grams of final body weight

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 7

MEAN MATERNAL BODY WEIGHT AND WEIGHT CHANGE DURING GESTATION: PO[a,b,c]

GROUP	CONC. (PPM)	N	1	21	1-21
CONTROL	0	48	310.1	449.3	139.3
EI	10	14	308.0	438.8	130.8
EII	50	14	305.6	444.1	138.5
EIII	130	32	308.4	450.4	142.0
EIV[d]	...	13	313.0	449.3	136.3
EV[e]	...	15	312.8	449.6	136.8

[a] Grams
[b] Data from females that were not pregnant, found dead, or from those with undetermined or questionable gestation lengths were excluded from the calculations.
[c] For statistical analyses combined 0 ppm groups (CI, CII) represented the control group vs. only experimental groups EI to EIII for trend testing. Only pair-wise comparisons were done for the control group vs. EIV and EV. For individual data, standard deviations, and standard errors see Appendix M.
[d] These female rats inhaled NMP at 130 ppm and were mated to stock male rats not exposed to NMP.
[e] These female rats inhaled NMP and were mated to male rats exposed to NMP at 130 ppm.

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

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TABLE 8

MEAN OVARIAN WEIGHT ON DAY 21 PP: PO[a]

GROUP	CONC. (PPM)	N	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[b]
Control	0	56	369.8	142.0	38.40
EI	10	16	361.8	130.6	36.03
EII	50	15	360.9	133.3	36.89
High	130	36	369.3	135.8	36.95

[a] For statistical analyses combined 0 ppm groups (CI, CII, EV) represented the control group. The 130 ppm groups (EIII, EIV) were combined to represent the high level group. For individual data, standard deviations, and standard errors see Appendix O.

[b] Milligrams of ovary per 100 grams of final body weight

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 9

MEAN MATERNAL BODY WEIGHT AND
WEIGHT CHANGE DURING GESTATION: DEVELOPMENTAL TOXICITY PHASE[a,b]

GROUP	DOSE (PPM)	N	1	21	1-21
CI	0	14	307.5	447.7	140.2
EIII	130	13	314.9	451.5	136.6

[a] Data from non-pregnant females were excluded from the calculations. For individual data with standard deviations and standard errors see Appendix Q.
[b] Grams

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 10

MEAN MATERNAL LIVER WEIGHT: DEVELOPMENTAL TOXICITY PHASE[a,b]

GROUP	DOSE (PPM)	N	LIVER WEIGHT	CORRECTED DAY 21 BODY WEIGHT[c]	RELATIVE LIVER WEIGHT[d]	DAY 21 BODY WEIGHT[e]	RELATIVE LIVER WEIGHT[f]
CI	0	14	18.4	368.1	5.0	447.7	4.1
EIII	130	13	19.3	384.2	5.0	451.5	4.3

[a] Grams
[b] Data from non-pregnant females were excluded from the calculations. For individual data with standard deviations and standard errors see Appendix R.
[c] Weight in grams on Day 21 G excluding the products of conception
[d] Grams of liver per 100 grams of corrected day 21 body weight
[e] Weight in grams on Day 21 G
[f] Grams of liver per 100 grams of day 21 body weight

NOTE: No significant differences ($p \leq 0.05$) from the control group resulted by use of Dunnett's test.

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TABLE 11

REPRODUCTIVE OUTCOME: DEVELOPMENTAL TOXICITY PHASE[a]

GROUP:		CI	EIII
DOSE RATE:		0	130
No. Mated		14	15
No. Pregnant		14	13
No. Aborted		0	0
No. Deaths		0	0
No. Females With Total Resorptions		0	0
No. Litters		14	13
No. Live Fetuses		205	185
No. Dead Fetuses		0	0
No. Fetal Resorptions		12	21
Means Per Litter			
Live Fetuses:	Total	14.6	14.2
	Males	8.0	6.5
	Females	6.6	7.7
Resorptions[b]:	Total	0.9	1.6
	Early	0.9	1.6
	Late	0.0	0.0
Nidations		15.5	15.8
Mean Corpora Lutea		17.3	16.8
Mean Percent Non-viable Conceptuses		6.2	9.5
Percent Resorptions Per Litter:	Total	6.2	9.5
	Early	6.2	9.5
	Late	0.0	0.0
Mean Fetal Weight[c]:	Total	3.62	3.37*
	Males	3.72	3.55
	Females	3.49	3.22*
No. Stunted Fetuses		2	1

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 11 (CONT.)

REPRODUCTIVE OUTCOME: DEVELOPMENTAL TOXICITY PHASE

FOOTNOTES:

[a] For individual litter reproductive data with standard deviations and standard errors see Appendix S; for individual fetal weights see Appendix T.

[b] Early Resorption - Comprised of placental and/or fetal tissue with no digital rays evident

Late Resorption - Comprised of placental and fetal tissue with digital rays clearly evident

[c] Grams; weights of stunted fetuses were excluded from the calculated means

[*] Significantly different ($p \leq 0.025$) from the control group by the Mann-Whitney U test

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 12

FETAL MALFORMATIONS[a]

GROUP:	CI	EIII
DOSE RATE[b]:	0	130
EXTERNAL		
No. examined	205[14][c]	185[13]
Mouth - Micrognathia	1(1)[d]	...
No. affected	1[1]	0[0]
Mean percent affected	0.5	0.0
per litter (SE)	(0.51)	
(SD)	(1.91)	
VISCERAL		
No. examined	110[14]	97[13]
Heart &/or greater vessels - Malformation	1(1)[e]	...
Kidney - Papilla - none	...	1(1)
No. affected	1[1]	1[1]
Mean percent affected	0.8	1.0
per litter (SE)	(0.79)	(0.96)
(SD)	(2.97)	(3.47)
HEAD		
No. examined	110[14]	97[13]
Aglossia	1(1)[d]	...
Brain - Third ventricle distended	...	2(1)
No. affected	1[1]	2[1]
Mean percent affected	0.9	1.9
per litter (SE)	(0.89)	(1.92)
(SD)	(3.34)	(1.69)
SKELETAL		
No. examined	205[14]	185[13]
Clavicle - Misshapen	1(1)[e]	...
Pelvis - Misshapen	1(1)[e]	...
Scapula - Misshapen	1(1)[e]	...
Sternebra		
- Fused	1(1)[e]	...
- Hemi	1(1)[e]	...
Vertebra - Fused	1(1)[e]	...
No. affected	1[1]	0[0]
Mean percent affected	0.5	0.0
per litter (SE)	(0.48)	
(SD)	(1.78)	

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 12 (CONT.)

FETAL MALFORMATIONS[a]

GROUP:	CI	EIII
DOSE RATE[b]:	0	130
TOTAL NUMBER AFFECTED	2(2)	1(1)
MEAN PERCENT AFFECTED	1.0	0.5
PER LITTER (SE)	(0.67)	(0.51)
(SD)	(2.51)	(1.85)

[a] For individual fetal alterations see Appendix T.
[b] Parts per million per day
[c] Fetuses (litters)
[d] All indicated findings occurred in dam number 306702, fetus number 7.
[e] All indicated findings occurred in dam number 306751, fetus number 10.

NOTE: No significant differences ($p \leq 0.05$) between groups resulted by use of the Fisher exact test.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 13

FETAL VARIATIONS[a]

GROUP:	CI	EIII
DOSE RATE[b]:	0	130
DEVELOPMENTAL VARIATIONS		
EXTERNAL		
No. examined	205[14][c]	185[13]
No. affected	0[0]	0[0]
Mean percent affected per litter	0.0	0.0
VISCERAL		
No. examined	110[14]	97[13]
Innominate - Absent	1(1)	0(0)
Pulmonary arteries - Common trunk	4(3)	3(3)
Kidney - Pelvis large	2(2)	...
No. affected	6[3]	3[3]
Mean percent affected per litter (SE)	5.6	2.8
(SD)	(3.44)	(1.49)
	(12.89)	(5.39)
HEAD		
No. examined	110[14]	97[13]
No. affected	0[0]	0[0]
Mean percent affected per litter	0.0	0.0
SKELETAL		
No. examined	205[14]	185[13]
Rib		
- Rudimentary	12(8)	14(6)[d]
- Rudimentary cervical	...	2(2)
Vertebra - Bipartite centrum	1(1)	1(1)[d]
No. affected	13[9]	16[7]
Mean percent affected per litter (SE)	7.3	8.6
(SD)	(2.07)	(3.35)
	(7.74)	(12.08)

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 13 (CONT.)

FETAL VARIATIONS[a]

GROUP:	CI	EIII
DOSE RATE[b]:	0	130
TOTAL WITH DEVELOPMENTAL VARIATIONS	18(10)	19(7)
MEAN PERCENT AFFECTED PER LITTER (SE)	9.8	10.0
(SE)	(2.46)	(3.36)
(SD)	(9.22)	(12.11)
VARIATIONS DUE TO RETARDED DEVELOPMENT		
EXTERNAL		
No. examined	205[14]	185[13]
No. affected	0[0]	0[0]
Mean percent affected per litter	0.0	0.0
VISCERAL		
No. examined	111[14]	97[13]
Kidney - Papilla reduced	3(2)	1(1)
No. affected	3[2]	1[1]
Mean percent affected per litter (SE)	2.6	1.0
(SE)	(1.82)	(0.95)
(SD)	(6.81)	(3.69)
HEAD		
No. examined	110[14]	97[13]
No. affected	0[0]	0[0]
Mean percent affected per litter	0.0	0.0

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TABLE 13 (CONT.)

FETAL VARIATIONS[a]

GROUP:	CI	EIII
DOSE RATE[b]:	0	130
SKELETAL		
No. examined	205[14]	185[13]
Pelvis - Partially ossified	3(3)	9(3)
Skull - Partially ossified	16(7)	31(11)
Sternebra		
- Partially ossified	27(7)	38(8)
- Unossified	2(1)	4(2)
Vertebra		
- Partially ossified centrum	3(2)	2(2)
- Unossified	...	2(1)
No. affected	46[9]	66[13]
Mean percent affected	24.8	34.9
per litter (SE)	(6.56)	(6.02)
(SD)	(24.53)	(21.71)
TOTAL WITH VARIATIONS DUE TO RETARDED DEVELOPMENT	49(10)	67(13)
MEAN PERCENT AFFECTED	26.1	35.5
PER LITTER (SE)	(6.52)	(6.21)
(SD)	(24.40)	(22.40)
TOTAL NUMBER FETUSES WITH VARIATIONS	65(14)	82(13)
MEAN PERCENT FETUSES	33.5	42.9
WITH VARIATIONS (SE)	(5.82)	(5.70)
(SD)	(21.77)	(20.56)

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 13 (CONT.)

FETAL VARIATIONS

FOOTNOTES:

[a] Malformed fetuses were excluded from all calculations. For individual fetal alterations see Appendix T.
[b] Parts per million per day
[c] Fetuses (litters) except for SE or SD
[d] One fetus (dam #306750) displayed both of these conditions.

NOTE: No significant differences ($p \leq 0.05$) between groups resulted by use of the Mann-Whitney U test.

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TABLE 14

REPRODUCTIVE INDEXES FOR MALE RATS: P0[a]

PATERNAL GROUP: CONCENTRATION (PPM):	CI/CII 0	EI 10	EII 50	EIII 130
Mating Index (%) (# copulated/cohoused)[b]	90.0 (27/30)	80.0 (8/10)	90.0 (9/10)	90.0 (18/20)
Fertility Index (%) (# pregnant/copulated)[c]	100 (27/27)	100 (8/8)	88.89 (8/9)	94.44 (17/18)
N	30	10	10	20

PATERNAL GROUP: CONCENTRATION (PPM):	CI/CII 0	EIV 0	EV 130
Mating Index (%) (# copulated/cohoused)[b]	90.0 (27/30)	100 (10/10)	90.0 (9/10)
Fertility Index (%) (# pregnant/copulated)	100 (27/27)	100 (10/10)	88.89 (8/9)
N	30	10	10

[a] For individual mating data see Appendix L.
[b] "# copulated" included only matings resulting in sperm positive females.
[c] "# pregnant" included males that sired at least one litter

NOTE: A combined 0 ppm group (CI, CII) served for statistical analyses. The Fisher exact test did not detect an significant differences ($p \leq 0.05$) from the control group. The Cochran-Armitage test did not reveal any significant trends ($p \leq 0.05$) across groups.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 15

REPRODUCTIVE INDEXES FOR FEMALE RATS: PO[a,b]

MATERNAL GROUP:	CI/CII	EI	EII	EIII
CONCENTRATION (PPM):	0	10	50	130
Mating Index (%) (# copulated/cohoused)[c]	96.6• (56/58)	90.0 (18/20)	94.7 (18/19)	100.0• (40/40)
Fertility Index (%) (# pregnant/copulated)[d]	91.4• (53/58)	88.9 (16/18)	83.3 (15/18)	92.5• (37/40)
Mean Gestation Length[f] (days)	22.6	22.5	22.6	22.7
N	34	15	14	14

MATERNAL GROUP:	CI/CII	EIV	EV
CONCENTRATION (PPM):	0	130	0
Mating Index (%) (# copulated/cohoused)[c]	96.6• (56/58)	100.0 (20/20)	100.0 (20/20)
Fertility Index (%) (# pregnant/copulated)	91.4• (53/58)	75.0 (15/20)	85.0 (17/20)
Mean Gestation Length[f] (days)	22.6	22.7	22.6
N	34	19	13

[a] Calculations did not include females that died.
[b] For individual mating data and gestation lengths (days) see Appendix L and for individual litter data see Appendices U, V, and W.
[c] "# copulated" included females that were sperm positive, sperm sparse, or that delivered a litter.
[d] "# pregnant" included dams that bore a litter
• Includes animals assigned to the reproductive and developmental toxicity phases of the study
[f] Includes only females assigned to the reproductive phase that were sperm positive

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 15 (CONT.)

REPRODUCTIVE INDEXES FOR FEMALE RATS: PO[a,b]

NOTES:

Statistical analyses were by the Fisher's exact test for pair-wise comparisons of groups, and by the Cochran-Armitage test for linear trend for the mating and fertility indexes; by the ANOVA and Dunnett's test with the orthogonal polynomial of dose ranks test for length of gestation data. Trend tests included only the control group and EI through EIII.

For mating index, fertility index, and gestation length a combined CI and CII group served as the control group for statistical analyses.

There were no statistically significant differences ($p \leq 0.05$).

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 16

MEAN POST-PARTUM BODY WEIGHTS AND WEIGHT CHANGES: PO[a,b,c]

GROUP	CONC. (PPM)	N	DAYS POST-PARTUM 1	4	14	21	1-4	4-14	14-21
CONTROL	0	39	342.7	353.7	372.5	370.9	11.0	18.8	-1.6
EI	10	16	340.4	348.9	360.8	361.8	8.4	12.0	1.0
EII	50	15	341.0	350.5	357.4	360.9	9.5	6.9	3.5
EIII	130	22	346.7	354.6	366.3	367.9	7.9	11.7	1.6
EIV[d]		15[e]	347.1	353.3	374.2	371.6	9.9	17.3	-2.7
EV[f]		17	348.5	358.9	368.6	367.0	10.4	9.7	-1.6

[a] For statistical analyses combined 0 ppm groups (CI, CII) represented the control group vs. only experimental groups EI to EIII for trend testing. Only pair-wise comparisons were done for the control group vs. EIV and EV. For individual data with standard deviations and standard errors see Appendix N.
[b] Grams
[c] Data from non-pregnant females or those found dead were excluded from the calculations.
[d] These female rats inhaled NMP at 130 ppm and were mated to stock male rats not exposed to NMP.
[e] We killed one dam (#306761) on Day 9 PP since all of her pups died by Day 5 PP.
[f] These female rats, not exposed to NMP, were mated to male rats exposed to NMP at 130 ppm.

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 17

MEAN PUP NUMBERS AND SURVIVAL: F1[a]

PO FEMALE GROUP:	CI/CII	EI	EII	EIII
CONCENTRATION (PPM):	0	10	50	130
PO MALE GROUP:	CI/CII	EI	EII	EIII
CONCENTRATION (PPM):	0	10	50	130
MEAN NUMBER OF PUPS/LITTER				
Born	13.7	14.0	13.7	14.2
Born Alive	13.5	13.9	13.5	14.1
Day 4 Preculling	13.4	13.9	13.3	13.9
Day 4 Postculling	8.0	7.9	7.9	8.0
Day 14	8.0	7.9	7.9	8.0
Day 21	8.0	7.8	7.9	8.0
SURVIVAL (%)				
Sex Ratio (% males)[†]	0.53	0.46*	0.43	0.46
Gestation Index[b]	100.0	100.0	100.0	100.0
Mean % Born Alive	99.0	99.2	99.2	98.8
Viability Index[c]	99.3	100.0	98.6	98.3
Lactation Index[d]	100.0	98.4	99.0	100.0
Litter Survival[e]	100.0	100.0	100.0	100.0
NUMBER OF LITTERS	39	16	15	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 17 (CONT.)

MEAN PUP NUMBERS AND SURVIVAL: F1[a]

PO FEMALE GROUP:	CI/CII	EIV	EV
CONCENTRATION (PPM):	0	130	0
PO MALE GROUP:	CI/CII	EIV	EV
CONCENTRATION (PPM):	0	0	130
MEAN NUMBER OF PUPS/LITTER			
Born	13.7	13.9	14.7
Born Alive	13.5	13.9	14.6
Day 4 Preculling	13.4	13.6	14.3
Day 4 Postculling	8.0	8.0	7.9
Day 14	8.0	8.0	7.9
Day 21	8.0	8.0	7.9
SURVIVAL (%)			
Sex Ratio (% males)	0.53	0.48	0.50
Gestation Index	100.0	100.0	100.0
Mean % Born Alive	99.0	100.0	99.7
Viability Index[c]	99.3	98.0	97.7
Lactation Index[d]	100.0	100.0	100.0
Litter Survival[e]	100.0	100.0	100.0
NUMBER OF LITTERS	39	14	17

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TABLE 17 (CONT.)

MEAN PUP NUMBERS AND SURVIVAL: F1

FOOTNOTES:

[a] For individual pup survival data see Appendix U.
[b] Percent litters having at least one live pup
[c] Mean percent survival per litter from Day 1-4 PP
[d] Mean percent survival from Day 4 PP after litter pooling and standardization to Day 21 PP
[e] Percent viable litters born with at least one pup still alive on Day 21 PP

Statistical Methods: The Mann-Whitney U test was used to analyze the mean number of pups at each time interval, the sex ratios, the mean percent born alive, the viability index, and the lactation index. Fisher's exact test was used to analyze the gestation index and litter survival.

There were no significant differences ($p \leq 0.05$) from the combined control group (CI, CII) by the Fisher exact test.

* Significantly different ($p \leq 0.05$) from the combined control group (CI, CII) by the Mann-Whitney U test.
† Significant trend by Jonckheere's test ($p \leq 0.05$).

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 18

MEAN PUP WEIGHT FROM DAYS 1-70 PP: F1[a,b]

GROUP	CONTROL	EI	EII	EIII	EIV[c] Exposed	EV[d] Unexposed
CONC. (PPM)	0	10	50	130	...	...
N	39	16	15	22	15[e,f]	17[g]
POST-PARTUM DAYS						
1†	7.48	7.03*	7.14	6.66*	7.11	7.29
4[h,†]	10.8	10.0*	10.3	9.6*	10.1	10.5
4[i,†]	10.7	9.9*	10.2	9.6*	9.9*	10.6
14†	30.8	27.8*	29.5	28.7*	28.6*	32.0
21†	49.1	45.6*	47.4	46.9*	47.2	51.6*
28	82.6	77.9	82.2	82.2	82.1	85.8
35	130.0	121.5**	127.7	126.1	128.5	134.9
42	182.7	172.8**	179.6	175.8	179.6	185.4
49	222.1	217.0	223.1	219.2	222.2	...
56	260.1	254.8	261.9	256.8	259.1	...
63	288.0	283.8	291.6	286.0	306.6	...
70	313.5	310.4	317.0	308.7	316.4	...

[a] For statistical analyses combined 0 ppm groups (CI, CII) represented the control group vs. only EI-EIII for trend testing. Only pairwise comparisons were done for Control vs. EIV and V. For individual data with standard deviations and standard errors see Appendix W.
[b] Grams
[c] These offspring resulted from mating female rats exposed to NMP at 130 ppm to new male rats not exposed to NMP.
[d] These offspring resulted from mating new female rats not exposed to NMP, to male rats exposed to NMP at 130 ppm.
[e] From Day 14 PP through Day 35 PP the N for this group was 14.
[f] The N's for Day 42 PP to Day 70 PP were 13, 12, 7, 5 and 14, respectively.
[g] The N for Day 42 PP was 11.
[h] Pre-culling mean litter weight
[i] Post-culling mean litter weight
* Significantly different ($p \leq 0.05$) from control values by the Mann-Whitney U test
** Significantly different ($p \leq 0.05$) from control values by Dunnett's test
† Significant trend ($p \leq 0.05$) across groups by Jonckheere's test

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 19

MEAN TESTES WEIGHT ON DAY 21 PP: F1[a]

GROUP	DOSE (PPM)	N	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT[b]
CONTROL	0	39	50.89	250	489
EI	10	16	46.28*	215*	463
EII	50	15	49.31	237	481
EIII	130	22	48.21	228	472
EIV[c]	...	14	45.92**	225	490
EV[d]	...	16	53.52	243	454**

[a] For statistical analyses combined 0 ppm groups (CI, CII) represented the control group vs. only experimental groups EI to EIII for trend testing. Only pair-wise comparisons were done for the control group vs. EIV and EV. For individual data, standard deviations, and standard errors see Appendix X.

[b] Milligrams of testes per 100 grams of final body weight

[c] These offspring resulted from female rats exposed to NMP at 130 ppm mated to stock male rats not exposed to NMP.

[d] These offspring resulted from stock female rats not exposed to NMP, but mated to male rats exposed to NMP at 130 ppm.

* Significantly different ($p<0.05$) from control values by Dunnett's test.

** Significantly different ($p\leq0.05$) from control values by Student's t test.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 20

MEAN MALE AND TESTES WEIGHT ON DAY 70 PP: F1[a]

GROUP	DOSE (PPM)	N	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[b]
CI	0	20	387.9	3.37	0.870
EI	10	16	391.9	3.39	0.867
EII	50	14	388.9	3.26	0.844
EIII	130	21	368.9	3.21	0.874
EIV[c]	...	14	400.5	3.25	0.812

[a] Statistical analyses were done using group CI vs. only experimental groups EI to EIII to test for trend by linear combination of dose ranks. Only pair-wise comparisons between CI and EIV were by Student's t test. For individual data, standard deviations, and standard errors see Appendix Y.

[b] Grams of testes per 100 grams of final body weight

[c] These offspring resulted from mating female rats exposed to NMP at 130 ppm to stock male rats not exposed to NMP.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 21

MEAN TESTES WEIGHT ON DAY 85 PP: F1[a]

GROUP	DOSE (PPM)	N	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[b]
CI	0	20	439.3	3.36	0.766
EI	10	16	448.4	3.65	0.814
EII	50	15	457.4	3.35	0.735
EIII	130	22	448.6	3.42	0.767

[a] For individual data, standard deviations, and standard errors see Appendix Z.

[b] Grams of testes per 100 grams of final body weight

NOTE: No significant differences ($p \leq 0.05$) from control values resulted from use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted from use of linear combination of dose ranks.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 22

MEAN OVARIAN WEIGHT ON DAY 21 PP: F1[a]

GROUP	CONC. (PPM)	N	FINAL BODY WEIGHT (g)[†]	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[b]
CONTROL	0	38	49.18	25.87	52.74
EI	10	16	45.64	22.89	49.86
EII	50	15	47.06	26.10	55.57
EIII	130	22	44.30*	24.34	55.07
EIV[c]	...	14	48.32	26.40	54.56
EV[d]	...	16	49.90	25.80	51.55

[a] For statistical analyses combined 0 ppm groups (CI, CII) represented the control group. We used only pair-wise comparisons between Control vs. EIV and EV. For individual data, standard deviations, and standard errors see Appendix AA.
[b] Milligrams of ovary per 100 grams of final body weight
[c] These offspring resulted from mating female rats exposed to NMP at 130 ppm to male rats not exposed to NMP.
[d] These offspring resulted from mating stock female rats not exposed to NMP to male rats exposed to NMP at 130 ppm.
[†] Significant trend ($p \leq 0.05$) across groups (Control, EI, EII, and EIII) by linear combination of dose ranks
[*] Significantly different ($p \leq 0.05$) from control values by Dunnett's test (for EI, EII, and EIII)

TABLE 23

MEAN OVARIAN WEIGHT ON DAY 70 PP: F1[a]

GROUP	CONC. (PPM)	N	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[b]
CI	0	20	238.74	145.5	60.5
EI	10	16	245.43	143.1	59.4
EII	50	14	248.04	152.8	61.4
EIII	130	22	238.69	147.7	61.4
EIV[c]	...	14	246.69	140.0	56.4

[a] For individual data, standard deviations, and standard errors see Appendix BB.
[b] Milligrams of ovary per 100 grams of final body weight.
[c] These offspring resulted from mating female rats exposed to NMP at 130 ppm to stock male rats not exposed to NMP.

NOTE: No significant differences ($p \leq 0.05$) from control values resulted by use of Dunnett's test (Control vs. EI-EIII) or by Student's t test (Control vs. EIV). No significant trends ($p \leq 0.05$) resulted by use of linear combination of dose ranks.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 24

MEAN OVARIAN WEIGHT ON DAY 2 PP: F1[a]

GROUP	CONC. (PPM)	N	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[b]
CI	0	17	315.8	189	68
EI	10	14	320.5	218	64
EII	50	14	330.2	210	62
EIII	130	19	318.9	198	60

[a] For individual data, standard deviations, and standard errors see Appendix CC.
[b] Milligrams of ovary per 100 grams of final body weight

NOTE: No significant differences ($p \leq 0.05$) from control values resulted from use of Dunnett's test. No significant trends ($p \leq 0.05$) resulted from use of linear combination of dose ranks.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 25

MEAN MATERNAL BODY WEIGHT AND WEIGHT CHANGE: F1[a]

GROUP	CONC. (PPM)	N	DAY 1G	DAY 21G	DAY 1-21G	DAY 1PP	N[b]	DAY 2PP
CI[c]	0	17	245.1	407.3	162.1	308.4	17	315.8
CI[d]	0	18	236.6	376.8	140.5	288.0	...	...
EI[c]	10	14	254.0	416.2	162.2	315.0	14	320.5
EI[d]	10	14	236.2	382.8	146.7	290.3	...	...
EII[c]	50	14	256.7	423.8	167.1	321.6	14	330.2
EII[d]	50	15	238.4	379.7	141.3	289.1	...	...
EIII[c]	130	19	243.1	406.8	164.2	315.2	19	318.9
EIII[d]	130	22	230.0	380.1	150.1	288.0	...	...

[a] Grams; for individual data, standard deviations, and standard errors see Appendix EE
[b] After Day 1 PP, all "new" females were not weighed.
[c] Includes data from F1 dams mated to "new" males
[d] Includes data "new" dams which were mated to F1 males

NOTE: No significant differences ($p \leq 0.05$) from control values resulted from use of Dunnett's test or from use of linear combination of dose ranks ($p \leq 0.05$) among groups with the same superscript.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 26

REPRODUCTIVE INDEXES FOR MALE RATS: F1[a]

PATERNAL GROUP:	CI	EI	EII	EIII
CONCENTRATION (PPM):	0	10	50	130
Mating Index (%)	100	93.8	100	100
(# copulated/# cohoused)[b]	(20/20)	(15/16)	(15/15)	(22/22)
Fertility Index (%)	90.0	93.3	93.3	86.4
(# pregnant/# copulated)[c]	(18/20)	(14/15)	(14/15)	(19/22)
N[d]	20	16	15	22

[a] For individual mating data see Appendix EE.
[b] "# copulated" included the number of males that deposited detectable sperm in the female, or that sired a litter
[c] "# pregnant" included males that sired a litter
[d] Included only males that were descendants of NMP-exposed rats

NOTE: No significant differences ($p \leq 0.05$) from the control group incidence resulted by use of Fisher's exact test. No significant trends ($p \leq 0.05$) across groups resulted by use of the Cochran-Armitage test.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 27

REPRODUCTIVE INDEXES FOR FEMALE RATS: F1[a]

MATERNAL GROUP:	CI	EI	EII	EIII
CONCENTRATION (PPM):	0	10	50	130
Mating Index (%) (# copulated/# cohoused)[b]	95.0 (19/20)	93.8 (15/16)	100 (15/15)	100 (22/22)
Fertility Index (%) (# pregnant/# copulated)[c]	94.7 (18/19)	93.3 (14/15)	93.3 (14/15)	86.4 (19/22)
Gestation Index (%) (# of litters with at least one live pup/ # of litters)	94.4 (17/18)	100 (14/14)	100 (14/14)	100 (19/19)
Pups Born Alive (%) (# born alive/# born)	99.8 (487/488)	99.0 (412/416)	100 (430/430)	99.5 (562/565)
N[d]	20	16	15	22

[a] For individual mating data and gestation duration (days) see Appendix EE and for individual litter data see Appendices FF and GG.
[b] "# copulated" includes females that were sperm positive, sperm sparce, or that delivered a litter
[c] "# pregnant" included dams that bore a litter
[d] Included only females that were descendants of NMP-exposed rats

NOTE: No significant differences ($p \leq 0.05$) from control group resulted by use of the Fisher exact test. No significant trends ($p \leq 0.05$) across groups resulted by use of the Cochran-Armitage test.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

TABLE 28

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP	CONC. (PPM)	N	MEAN NUMBER OF PUPS BORN/LITTER	POST-PARTUM DAY 1 MEAN NUMBER ALIVE/LITTER	POST-PARTUM DAY 1 MEAN LITTER WEIGHT[b]	POST-PARTUM DAY 2 MEAN NUMBER ALIVE/LITTER	POST-PARTUM DAY 2 MEAN LITTER WEIGHT[b]
CI[c]	0	17	14.71	14.65	6.70	14.59	7.52
CI[d]	0	18	13.22	13.22	6.44	13.22	7.31
EI[c] ♀	10	14	16.14	15.93	6.53	15.93	7.32
EI[d] ♂	10	14	13.57	13.50	6.33	13.29	7.15
EII[c] ♀	50	14	15.71	15.71	6.67	15.64	7.54
EII[d] ♂	50	15	14.00	14.00	6.42	14.00	7.17
EIII[c] ♀	130	19	13.89	13.79	6.89	13.79	7.70
EIII[d] ♂	130	22	13.68	13.64	6.49	13.59	7.31

[a] For individual litter data with standard deviations and standard errors see Appendix GG.
[b] Grams
[c] Includes data from F1 dams mated to "new" males
[d] Includes data from "new" dams which were mated to F1 males

NOTE: No significant differences from control values resulted by use of the Mann-Whitney U test ($p \leq 0.025$) or of the Jonckheere's test ($p \leq 0.05$) among groups with the same superscript.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A

E. I. DU PONT DE NEMOURS AND COMPANY
HASKELL LABORATORY FOR TOXICOLOGY
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PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF 1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT

MEDICAL RESEARCH PROJECT NUMBER 3872-001

I. BACKGROUND

N-methyl pyrrolidinone (NMP) is a widely used industrial solvent to which workers may be exposed by inhalation. Therefore a study was requested by C. T. Handy of the Textile Fibers Department to determine its effects on mammalian reproduction.

The approximate lethal concentration, as determined by a single 4-hr exposure in ChR-CD® rats, was found to be 1.7 mg/L or 420 ppm (HLR-378-76, MR-2382, H-10,108). Coincident effects at this exposure level were weight loss, irregular respiration, hyperemia and salivation. In a subacute test, groups of ChR-CD® rats (15/sex/level), inhaled NMP for 6 hours/day, 5 days/week, for four weeks (HLR-582-77, MR-2391, H-10,108). At the highest exposure level, 0.740 mg/L (183 ppm), 23/30 rats died within two weeks. No deaths were noted within the groups exposed to either 0.423 mg/L (104 ppm) or 0.088 mg/L (22 ppm). The two lower exposure levels produced no major clinical or pathologic anomalies. However, slight testicular atrophy, which was reversible within 14 days after exposure, was detected. In addition, all groups experienced lethargy and irregular respiration which increased in severity as the concentration of NMP was increased. At the highest exposure level, other reversible pathologic abnormalities were myelotoxic effects evidenced by bone marrow hypoplasia, and atrophy and/or necrosis of the lymphoid tissue of the thymus, spleen and lymph nodes.

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APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF 1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
MR-3872-001

I. BACKGROUND (CONT)

Data were collated after the 12th and 18th month and at the completion of a 2-year inhalation study with NMP (Clinical Laboratory Report MR-2612, H-10,108, C-02207; Pathology Reports 8-78, 15-79 and 11-80, MR-2612, H-10,108, C-02207). Experimental groups of ChR-CD® rats were exposed to either 10 ppm or 100 ppm NMP for 6 hours/day, 5 days/week. Pathologic observations after 18 months of exposure revealed no abnormalities. Clinical abnormalities reported within the group of male rats exposed to 100 ppm NMP included higher than normal ($p<0.05$) hematocrits, alkaline phosphatase and urine volumes. In addition, their urine was darker than the urine of the control rats. The final pathological report noted a significant decrease in the mean absolute testis weight in rats exposed to 100 ppm, while the mean relative testis weight was not significantly different. The report concluded that the difference in absolute mean testis weight was incidental.

The teratogenic potential of NMP has been studied in both mice and rats by the dermal, ip and respiratory routes.

Schmidt (Biol. Rundsch. 14,1:38-41/76) reported that doses of NMP ranging from 74-166 mg/kg administered ip on Day 7 or 9, or Days 7 through 11 of gestation resulted in teratogenic and embryotoxic changes in the offspring of AB-Jena and C57BL strains of mice. Malformations seen, but not quantified were exencephaly, microphthalmia, cleft palate, oligodactyly, short or bent tails and fusions of cervical vertebrae, thoracic vertebrae, vertebral arches, ribs and sternebrae. Visceral examinations were not conducted and statistical analyses of the other data obtained apparently were not performed.

Pregnant ChR-CD® rats were exposed to NMP by inhalation at levels of 0.10 mg/kg (25 ppm) and 0.36 mg/kg (89 ppm) for 6 hours/day from Days 6 through 15 of gestation (HLR-541-77, MR-2391, H-10,108). No signs of maternal toxicity, embryotoxicity or teratogenicity were observed.

In a third study, undiluted NMP was applied dermally to Sprague-Dawley rats (The Toxicologist 1:29-30, 1981). In the main study, the highest level applied (750 mg/kg/day) from Days 6 through 15 of gestation was toxic

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF 1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
MR-3872-001

I. BACKGROUND (CONT)

to both the dam and fetus and was teratogenic. Fetuses in 4/22 litters showed skeletal defects such as fused or split ribs and fusion of the atlas to the exocciptal. However, application of NMP at 237 mg/kg/day or 75 mg/kg/day was neither toxic nor teratogenic.

The purpose of the present study is to determine the effect of NMP on the reproduction and development of the rat. In general, this protocol for a reproduction/teratogenicity study conforms to the guidelines most recently proposed by F.I.F.R.A. (Federal Register, Vol. 43, No. 163, Tuesday, August 22, 1978, pp. 37384-37388).

II. MATERIALS AND METHODS

A. Test Chemical

NMP (CAS No. 872-50-4) was received by Haskell Laboratory from the Textile Fibers Department and assigned Haskell No. 14,099. It is 99.9% active ingredient.

B. Animals

Male and female Crl-CD®(SD)BR rats that are twenty-one days old (51-75 g) will be supplied by Charles River Breeding Laboratories, Inc., North Wilmington, MA. After arrival by air conditioned truck, each rat will be identified by a combination of ear punches and toe clips, and by a cage card on which an assigned identification number is recorded. Animals will be quarantined for at least one week. At the end of quarantine, the rats will be housed singly in wire-mesh stainless steel cages and given water and Purina Certified Rodent Chow®, 5002, Checkers ad libitum. The environment in the animal room will be maintained at 68-75°F in air-conditioned quarters with 12 to 15 air changes per hour. The light/dark cycle will be 12 hr and identical to that used by the supplier.

The Crl-CD®(SD)BR rat was selected for this study because this strain was used in acute, subacute, teratogenic and long-term inhalation studies at Haskell Laboratory (termed ChR-CD®).

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APPENDIX A (CONT.)

B. Animals (Cont)

The potential effects of dietary contaminants have been considered and, on the basis of data provided by the manufacturer, the contaminant levels are believed to be within acceptable ranges. No other contaminants are expected to be capable of interfering with the results of this study. The potential effects of those water contaminants reported by the Wilmington Suburban Water Corporation (WSWC) have been considered and appear to be within acceptable ranges. To supplement the WSWC data, Haskell Laboratory has initiated an analytical program to monitor these and other contaminants reasonably anticipated to be present in its water supply.

C. Exposure

1. Route

The inhalation route was chosen since it is the most likely route for human exposure.

2. Exposure Chambers and Housing

Exposure chambers to be used for this study will be located in Room 211/213. These chambers are constructed of welded stainless steel and glass, with neoprene gaskets between door-closure and glass/stainless steel interfaces. Chamber volumes vary; two are 150 L, three are 750 L and one is 900 L. The high level group will be exposed to NMP in the largest chamber.

For exposure, dams will be placed in compartmentalized, stainless steel, wire-mesh cage modules. During exposure, these modules are suspended from racks mounted to the inner walls of the chamber.

3. Atmospheric Generation

Atmospheres will be generated dynamically. Liquid NMP will be pumped through an inclined tube furnace. NMP vapors, thus produced, will be swept from the tube furnace with a houseline nitrogen stream, diluted with room air before chamber entry, and introduced tangentially into the top of each exposure chamber. The control chamber will receive room air. Approximate furnace temperature, nitrogen flow rate, and airflow rate will be determined at the time of set-up.

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APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
MR-3872-001

C. Exposure (Cont).

Atmospheres will be vented from the bottom of each chamber and passed through an aqueous scrubbing tower to remove NMP from exhaust air.

4. Atmospheric Analysis

Gas chromatographic analysis will be conducted using a Hewlett Packard 5000 series gas chromatograph (GC) equipped with a nitrogen/phosphorous specific detector. Samples will be taken at regular intervals (1/2-1 hr) by midget impinger, with either acetone or ethanol as a trapping solvent. Standards will be prepared by dilution of the test material in the solvent chosen. These will be injected into the GC and a standard curve will be prepared by plotting peak height versus standard concentration. Samples will be injected similarly and the concentrations generated will be determined directly from the standard curve.

D. Exposure Levels

The high level of 130 ppm NMP was selected since a two-week exposure to 183 ppm NMP was lethal to 23/30 rats, since exposure to 100 ppm during a 2-year chronic study resulted only in slight clinical changes and since administration of 89 ppm during a teratogenicity study apparently had no adverse effect. However, technical restraints may lower this level to 100 ppm.

An intermediate level of 50 ppm was selected since exposures to levels of 104 and 22 ppm for two weeks caused slight testicular atrophy and lethargy.

The low level of 10 ppm was selected since this exposure during a 2-year study was not reported to result in adverse effects.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
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E. Experimental Design

1. Animal Distribution

Before exposure, males and females will be ranked by body weight, then assigned to groups by rotation in order of rank. The dose group to which the first animal of a rotation is assigned will be randomized. If this process of animal distribution results in statistically significant difference in body weights among groups, then minimal switching between groups will be done before the test period.

2. Experimental Groups

Group Identification for Study		Group Description
C-I	Room Air	Controls 20 males, 40 females
C-II	Room Air	Controls 10 males, 20 females
E-I	10 ppm NMP	Exposed 10 males, 20 females
E-II	50 ppm	Exposed 10 males, 20 females
E-III	130 ppm	Exposed 20 males, 40 females
E-IV	130 ppm (females only)	Exposed 20 females, 10 males unexposed
E-V	130 ppm (males only)	Exposed 10 males, 20 females unexposed

C-I, and C-II, will be housed singly in both the exposure chamber and the animal room. They will be exposed to room air for 6 hours/day, 7 days/week. Five experimental groups will be used in this study. Groups E-I through E-III will be exposed to NMP, to determine reproductive effects on both parents. This procedure will be altered so that only the females of Group E-IV and only the males of Group E-V will be exposed to NMP; their mates will not be exposed. Thus, the effect of NMP on either the males' or females' reproductive performance can be assessed. Lastly, 20 females from C-I, and 20 females from Group E-III will be killed on Day 21 of gestation for a detailed teratologic examination.

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
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E. Experimental Design (Cont)

3. Exposure Schedule

The exposure period will be started at Day 34 of age; it will end for the males upon completion of the breeding period, and for the females upon weaning of the litters. Daily clinical observations will be made before, during, and after the exposure. During the exposure period till Day 1 of gestation, body weights will be measured weekly.

4. Breeding

On Day 100 of age, pairs of males will be housed with one female for five days to permit mating experience. These mated females will be allowed to deliver and will be used as practice animals for cross-fostering techniques. They will be quarantined at least seven days before use. Data obtained from them will not be considered a part of this study.

The mating period for the experimental and control groups will begin on the 119th day of exposure to NMP or room air at which time each male will be placed in a cage with two females. After each five days of cohabitation, males in a breeding set will be rotated among pairs of females in the same treatment group. Females will be checked daily for the presence of sperm (Day 1 of gestation) or to determine evidence of estrus. Fifteen days will be allowed for mating. Females in which sperm are not detected will continue to be housed in the exposure chambers till the last day of the parturition period for the remaining pregnant females. Those females not delivering will be sacrificed to determine reproductive status and to collect selected tissues if indicated.

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
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E. Experimental Design (Cont)

5. Gestation and Parturition

During the period of gestation, observations for clinical signs of toxicity will be continued. Maternal body weight will be determined on Days 1 and 21 of gestation. Food consumed from Day 1 through 21 of gestation will be measured if indicated. After exposure on Day 19 of gestation pregnant females will be housed singly in plastic delivery boxes containing Bed-O-Cobs® nesting material. Exposure will be interrupted after exposure on Day 20 of gestation till Day 4 postpartum (pp) to prevent deliveries during exposure and to insure continuous feeding of the offspring during the early postnatal period. Day 1 pp will be defined as the 24-hr day on which each litter is delivered; the 24-hr day will start at 9 AM. The weight and sex of each pup and the number per litter will be determined on Day 1 pp. On Day 4 pp, litters will be standardized to eight pups, four of each sex, by pooling pups and redistributing them within groups for each parturition day.

F. Record Maintenance

Records will be maintained for each animal. The raw data will be forwarded to the Information Section of Haskell Laboratory for archiving when the study is completed and the final report is issued.

G. Safety Precautions and Disposal of Waste Material

Chamber atmospheres will be passed through aqueous scrubbing towers for collection of NMP before venting into the air. Other NMP waste material will be packaged in polyethylene-lined Fiberpaks® and disposed of according to Haskell procedure. All personnel involved in the handling of test animals will wear protective latex gloves, Tyvek® suits, head covers, laboratory issued shoes and respirators. Air samples will be taken to determine the level of NMP in the work environment. If the Industrial Hygiene Section determines that these levels are within safe limits, then only protective gloves will be required.

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
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H. Reproduction: Parameters To Be Studied

1. Adult

a. Body Weight: Body weight of adult males and females will be taken weekly. During pregnancy dams will be weighed on Days 1 and 21 of gestation.

b. Estrous Cycle: Verified by lavage during the 15-day mating period.

c. Mating: Mating will be detected by lavage during the 15-day mating period.

d. Fertility: The fertility index (% matings resulting in pregnancy) will be calculated for each group.

e. Delivery: The number of pups, their viability, and their sex and weight will be determined as soon after parturition as feasible. The Viability Index (% animals born that survived four days or more) will be calculated for each litter.

f. Gestation Index: (% matings resulting in live births) will be calculated for each group.

g. Lactation Performance: Lactation will be detected by observation of each pup's stomach, and by neonatal weight gain. The lactation index (% animals alive at four days that survived to 21 days pp) will be calculated for each litter.

h. Pathology: One-half of the PO males of each group will be sacrificed immediately after the breeding period, and their testes will be weighed and stored in 10% neutral buffered formalin. The remaining one-half of the males will be sacrificed after a 21-day recovery period and their testes will be weighed and fixed similarly. If adverse effects are not noted after histologic evaluation of the testes obtained in the control and high exposure groups during the first sacrifice period, no further histologic preparation is planned for the remaining test.

APPENDIX A (CONT.)

h. Pathology (Cont):

The ovaries from all dams will be collected and weighed on Day 21 pp. Only those from the control and high exposure level females will be processed for histopathologic examination. The ovaries from the other groups will be processed and evaluated only if adverse effects are noted in the high exposure groups.

2. Postpartum Offspring

a. Litter: The number and sex of the pups will be determined on Days 1, 4, 14 and 21 pp. Maternal body weights will also be measured on these days.

b. Clinical Observations: Clinical signs among of the pups will be noted daily.

2. Postpartum Offspring (Cont)

c. Pathology: At 21 days of age, gonadal tissue from one male and one female per litter (chosen randomly) will be weighed and fixed in 10% phosphate buffered formalin. Those from the control and high exposure level groups will be processed for microscopic evaluation; if adverse effects are noted in the high exposure level tissues additional levels also may be processed and evaluated.

d. Mating: If preliminary data obtained so indicate and if the sponsoring department agrees, selected individuals from the F_1 generation will be reared to adulthood and mated.

I. Teratology: Parameters to be Measured

1. Maternal Data

a. Dam Coding: The dams of both groups will be coded from the day before sacrifice till all data are collected.

b. Dam Body Weight: Body weight will be measured and recorded on Days 1 and 21 of gestation.

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APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
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1. Maternal Data (Cont)

c. Liver Weights: Absolute weight will be determined and recorded, and if indicated, presentation relative to corrected body weight also will be provided.

d. Clinical Signs: Observed and recorded upon arrival at Haskell Laboratory, at breeding, and daily during the exposure and post-exposure periods. On Days 6 through 15 of gestation, clinical observations will be made on individual dams (before and after each day's exposure, and for each group at the midpoint of each daily exposure period). On Days 16 through 21 gestation, clinical observations will be made on individual dams each morning.

e. Corpora lutea: The number of corpora lutea will be counted and recorded for each ovary.

f. Implantation Sites: Implantation sites will be counted and recorded for each pregnant rat; the uterus of each apparently "non-pregnant" rat will be stained with ammonium sulfide to detect very early resorptions.

g. Resorptions: Resorptions will be recorded for each rat (not including those detected by stain only).

h. Uterine Weight: The intact and empty uterus of each dam having one or more fetuses will be weighed to permit calculations of actual maternal body weight gain during gestation.

i. Feed Consumption: Feed consumption will be measured from Day 1 through 21 of gestation, if the body weights of the exposed females are significantly lower than the control value before the mating period begins. Spillage will be weighed whenever possible. From these and body weight data, food efficiency (g body weight gain/g food consumed) will be determined.

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2. Fetal Data

a. Fetuses: The number, condition and location of each fetus will be determined and recorded.

b. Fetal Weights: The weights of all live as well as "dead" fetuses will be determined and recorded.

c. External Alterations: An external examination will be conducted on each live fetus.

d. Soft Tissue Alterations: Visceral examinations will be undertaken for the first live fetus and thereafter for each alternate live fetus from each litter. In addition, stunted fetuses and all live fetuses with external malformations will be examined for visceral alterations. The eyelids of all fetuses from the first seven litters in the control and high dose group that are scheduled for soft tissue examination will be removed at sacrifice to permit measurement of both eyes.

In addition, similar eye measurements will be made of fetuses which are stunted or suspected of having microphthalmia. Unless otherwise indicated, the size of the eyes of the remaining fetuses will not be measured.

e. Skeletal Alterations: All live and dead fetuses will be examined for skeletal alterations. The heads of fetuses which were examined for soft tissue alterations will be excluded. The data from dead fetuses will not be tabulated or analyzed statistically with that from live fetuses.

III. STATISTICS

The litter will be used as the experimental unit. The Fisher's exact test will be used to determine significant differences in the incidence of pregnancy and, maternal mortality in the reproduction study. Jonckheere's test will be used to determine the presence of a dose response. Dunnett's test will be used to detect significant differences in maternal body weight and body weight gain of the adults. For all other parameters the Mann-Whitney U or Fisher's exact test will be applied to detect significant differences between the control group and individual experimental groups. The level of significance will be $p<0.05$.

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
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IV. CRITICAL DATES

Starting - July 15, 1981

Estimated
Completion - a) Teratology - Dec. 2, 1981
Reproduction - Dec. 2, 1981
Necropsy - Jan. 1, 1982
Histopathology - To be scheduled after slides are prepared

b) Final Report -

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL FOR REPRODUCTION/TERATOGENICITY STUDY OF
1-METHYL-2-PYRROLIDINONE BY INHALATION IN THE RAT
MR-3872-001

Prepared by: Howard M. Solomon
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Approved by: R E Staples
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G. L. Kennedy
G. L. Kennedy
Chief, Acute Investigations Section
Toxicology and Pathology

HMS/BAB/RES/GLK/jtd
Date: July 17, 1981

DW!

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

E. I. DU PONT DE NEMOURS & CO., INC.
HASKELL LABORATORY FOR TOXICOLOGY AND INDUSTRIAL MEDICINE
CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
ELKTON ROAD, P. O. BOX 50
NEWARK, DELAWARE 19711

PROTOCOL AMENDMENT FOR
REPRODUCTION/TERATOGENICITY STUDY (PART I):
1-METHYL-2-PYRROLIDINONE (NMP)

MEDICAL RESEARCH PROJECT NUMBER 3872-001

The protocol should be amended as follows:

Page 4

II. MATERIALS AND METHODS

C. Exposure

2. Exposure Chambers and Housing

Paragraph 2, Line 1: change the word "dams" to "rats"

Page 7

E. Experimental Design

4. Breeding

Paragraph 2, Line 3: change the word "exposure" to "age"

Page 9

H. Reproduction: Parameters to be Studied

1. Adult

h. Pathology

Paragraph 1, Line 1: change the first two sentences to, "One-half of the F_0 males of each group will be sacrificed immediately after the breeding period to examine the

APPENDIX A (CONT.)

PROTOCOL AMENDMENT FOR REPRODUCTION/
TERATOGENICITY STUDY (PART I):
1-METHYL-2-PYRROLIDINONE (NMP)
MR 3872-001

h. Pathology

reproductive organs, to fix the epididymides and to weigh and fix the testes. The remaining one-half of the males will be sacrificed after a 21-day recovery period, and their reproductive organs will be processed similarly."

Page 10

h. Pathology (cont)

Paragraph 1, Line 1: change the first sentence to, "Dams will be sacrificed on Day 21 PP to examine the reproductive organs, and to weigh and fix the ovaries."

2. Postpartum Offspring

a. Litter:

Paragraph 1, Line 1: change the first line to, "The number, weight, and sex of the pups...."

2. Postpartum Offspring (Cont) - heading should be deleted

c. Pathology:

Paragraph 1, Line 4: omit "...in 10% phosphate buffered formalin."

Page 12

I. Teratology: Parameters to be Measured

2. Fetal Data

a. Fetuses:

Sentence 1, Line 1: change the first line to, "The number, sex, condition, and location..."

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL AMENDMENT FOR REPRODUCTION/
TERATOGENICITY STUDY (PART I):
1-METHYL-2-PYRROLIDINONE (NMP)
MR 3872-001

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

E. I. DU PONT DE NEMOURS & CO., INC.
HASKELL LABORATORY FOR TOXICOLOGY AND INDUSTRIAL MEDICINE
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PROTOCOL AMENDMENT FOR

REPRODUCTION/TERATOGENICITY STUDY (PART I):
1-METHYL-2-PYRROLIDINONE (NMP)

MEDICAL RESEARCH PROJECT NUMBER 3872-001

The protocol should be amended as follows:

Page 7

II. MATERIALS AND METHODS

E. Experimental Design (Cont)

4. Breeding

Paragraph 2, Line 3: omit "to NMP or room air"

Page 8

E. Experimental Design (Cont)

5. Gestation and Parturition

Paragraph 1, Line 10: change "till" to "through"

Page 11

I. Teratology: Parameters to be Measured (Cont)

1. Maternal Data

d. Clinical Signs: change paragraph to read, "Observed and recorded upon arrival at Haskell Laboratory, at breeding and before, during and after daily exposure."

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL AMENDMENT FOR REPRODUCTION/
TERATOGENICITY STUDY (PART I):
1-METHYL-2-PYRROLIDINONE (NMP)
MR 3872-001

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

E. I. DU PONT DE NEMOURS & CO., INC.
HASKELL LABORATORY FOR TOXICOLOGY AND INDUSTRIAL MEDICINE
CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
ELKTON ROAD
NEWARK, DELAWARE

1-METHYL-2-PYRROLIDINONE (NMP):
OUTLINE OF PROTOCOL FOR
EXTENSION OF REPRODUCTION/TERATOGENICITY STUDY

MEDICAL RESEARCH PROJECT NUMBER 3872-001

ANIMALS

Strain: Crl:CD®(SD)BR
Age: Day 70 postpartum (PP)
Sex: males and females

EXPERIMENTAL DESIGN

Group	Number of Litters (6 Pups/ Litter)	Mate 1 Male & 1 Female/ Litter	Sacrifice 1 Male & 1 Female/ Litter	Discard 1 Male & 1 Female/ Litter
CI	20	✓	✓	✓
EI	16	✓	✓	✓
EII	15	✓	✓	✓
EIII	22	✓	✓	✓
EIV	15	---	✓	✓*

* Discard two males and two females/litter

BREEDING

Day 71 PP

- one male/litter from the NMP study (F_1) X one stock female
- one female/litter from the NMP study (F_1) X one stock male

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APPENDIX A (CONT.)

NMP: OUTLINE OF PROTOCOL FOR
EXTENSION OF REPRODUCTION/
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MR 3872-001

WEIGHTS

- Groups CI, EI, II, and III male and female pups (F_1) weekly from Day 28 PP till Day 70 PP
- Group EIV male and female pups (F_1) on Days 35 and 70 PP
- mated females on Days 1 and 21 of gestation (G) and on Days 1 and 2 PP
- males after the 15-day breeding period (Day 85 PP)
- offspring (F_2) on Day 1 PP

CLINICAL SIGNS

- Groups CI, EI, II, and III male and female pups (F_1) weekly from Day 28 to Day 70 PP; check daily for dead or animals in extremis
- Group EIV male and female pups (F_1) on Days 35 and 70 PP; check daily for dead or animals in extremis
- sperm positive females, check daily throughout gestation; non-sperm positive females and the males used for mating, continue weekly observations
- dams and F_2 pups Days 1 and 2 PP

SACRIFICE

A. Day 70 PP (F_1 Males and Females)

Sacrifice one male and one female/litter, examine reproductive organs, weigh and fix testes and ovaries

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

NMP: OUTLINE OF PROTOCOL FOR
EXTENSION OF REPRODUCTION/
TERATOGENICITY STUDY
MR 3872-001 PAGE 3

SACRIFICE (CONT)

B. End of Breeding Period (F_1 Males)

Sacrifice on Day 85 PP, examine reproductive organs, weigh and fix testes

C. Day 2 PP (F_1 Females)

Examine reproductive organs, weigh and fix ovaries

D. Non-Pregnant Females

21 days after the end of the mating period, weigh and fix ovaries

DISCARD

One male and one female/litter (CI, EI, II, and III)

Two males and two females/litter (ETV)

F_2 GENERATION

Count number of pups/litter on Days 1 and 2 PP, weigh pups Day 1 PP.

PARAMETERS

A. F_1

1. weekly body weight till Day 70 PP
2. testes and ovary weight Day 70 PP
3. estrous cycle

DWI

APPENDIX A (CONT.)

NMP: OUTLINE OF PROTOCOL FOR
EXTENSION OF REPRODUCTION/
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MR 3872-001

PAGE 4

PARAMETERS (CONT)

A. F_1 (cont)

4. conception rate
5. fertility rate
6. gestation rate

B. F_2

1. weight of pups
2. survival rate

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

NMP: OUTLINE OF PROTOCOL FOR
EXTENSION OF REPRODUCTION/
TERATOGENICITY STUDY
MR 3872-001

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

E. I. DU PONT DE NEMOURS & CO., INC.
HASKELL LABORATORY FOR TOXICOLOGY AND INDUSTRIAL MEDICINE
CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
ELKTON ROAD, P. O. BOX 50
NEWARK, DELAWARE 19711

1-METHYL-2-PYRROLIDINONE (NMP): DETAILED PROTOCOL FOR EXTENDING THE REPRODUCTION/TERATOGENICITY STUDY

MEDICAL RESEARCH PROJECT NUMBER 3872-001

I. BACKGROUND

Data from the NMP study were collected during the pre-mating and mating periods and through gestation to weaning. Statistical analyses indicated that the mean body weight of Group EIII pups taken on Days 1, 4, and 14 postpartum (PP) was significantly lower than the control value (Group III; both parents were exposed). Their body weights also were lower than the controls on Days 21 and 28 PP, but the differences were not significant. In addition, the absolute testes weight of Group EIV pups sacrificed on Day 21 PP was significantly lower than the control value (EIV; only the female parents were exposed).

The purpose of extending this study is to determine if the weight changes noted are temporary or permanent and whether the reproductive ability of the offspring are affected adversely by NMP exposure *in utero*.

II. MATERIALS AND METHODS

A. Experimental Design

In this study, the pups will be mated to new rats, sacrificed to collect reproductive organs, or discarded. The following table outlines the experimental design:

DW1

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING THE REPRODUCTION/TERATOGENICITY STUDY MR 3872-001

A. Experimental Design (cont)

Group	Number of Litters (6 Pups/ Litter)	Mate 1 Male & 1 Female/ Litter	Sacrifice 1 Male & 1 Female/ Litter	Discard 1 Male & 1 Female/ Litter
CI	20	✓	✓	✓
CII	19			✓**
EI	16	✓	✓	
EII	15	✓	✓	✓
EIII	22	✓	✓	✓
EIV	15		✓	✓*
EV	17			✓**

* Discard two males and two females/litter
** Discard three males and three females/litter

The litters in each group contain three male and three female pups (F_1). On Day 70 PP, one pup of each sex from each litter in Groups CI, EI, EII, EIII, and EIV will be sacrificed; the testes and epididymides, or ovaries will be removed and processed. A second male and female pup from each litter in Groups CI, EI, EII, and EIII, and two male and two female pups from each litter in Group EIV will be discarded. On Day 71 PP, the remaining male pup and female pup in each litter will be mated to a stock rat of the opposite sex to produce an F_2 generation. Pups will be selected randomly for mating, sacrificing, or discarding.

F_1 pups from Groups CII and EV will not be mated because their body weights and the absolute weight of their gonads are similar to control group C-I.

B. Test Material

NMP (CAS No. 872-50-4) was received at Haskell Laboratory from the Textile Fibers Department and assigned Haskell No. 14,099. It is 99.9% active ingredient.

C. Animals

The male and female pups from the Crl-CD®(SD)BR parents will be bred to new male and female

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING THE REPRODUCTION/TERATOGENICITY STUDY MR 3872-001

C. Animals (cont)

Crl-CD®(SD)BR rats from Charles River Breeding Laboratories that will be about 70 days of age and weighing about 300 g and 200 g, respectively. Each rat will be identified by a combination of ear punches and toe clips, and by a cage card on which an assigned identification number is recorded. These new rats will be quarantined for at least one week. The experimental rats will be mated to the new rats by overnight cohabitation. Mating will be verified by detection of spermatozoa in the vaginal lavage (Day 1 of gestation).

D. Animal Distribution

Before mating, the new rats will be stratified by body weight and assigned to each group (CI, EI, EII, and EIII) by random sampling within each strata. If the distribution process results in statistically significant differences in body weight among groups of new rats before mating, then minimal switching between groups will be used to alleviate the differences. New rats that do not gain weight or that are found ill before mating will be discarded.

E. Husbandry

Upon arrival at Haskell Laboratory, the new rats will be housed two per cage in suspended wire-mesh stainless steel cages. Purina Certified Rodent Chow® 5002, Checkers, and water from Wilmington Suburban Water Corporation (WSWC) will be provided ad libitum to all rats. In the animal rooms, a 12-hr light-dark cycle will be maintained throughout the study. Males and females will be housed individually after each night of cohabitation. After mating, dams will be caged individually.

The potential effects of dietary contaminants were considered, and, on the basis of the manufacturer's data, contaminant levels are believed to be within

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING
THE REPRODUCTION/TERATOGENICITY STUDY
MR 3872-001

E. Husbandry (cont)

acceptable ranges. No other contaminants reasonably anticipated to be present in the feed are expected to interfere with the results of this study. The potential effects of water contaminants reported by WSWC were considered and appear to be within acceptable ranges. To supplement the WSWC data, Haskell Laboratory initiated an analytical program that monitors these and other contaminants reasonably anticipated to be present in its water supply.

F. Records Maintenance

Records for parameters in the protocol will be maintained for each animal. When the study is completed and the final report is issued, the raw data will be forwarded to the Information Section of Haskell Laboratory for archiving.

G. Safety Precautions

All personnel handling rats will wear Kevlar® gloves and laboratory coats. At sacrifice, all personnel will wear latex gloves.

H. Parameters to be Studied

1. Body Weight

a. Groups CI, EI, EII, and EIII

Before mating, male and female pups (F_1) will be weighed weekly from Days 28 PP till 70 PP. During the mating and post-mating periods, mated females will be weighed on Days 1 and 21 of gestation (G), and on Days 1 and 2 PP; the males will be weighed on Days 7 and 15 of the breeding period (Days 77 and 86 PP, respectively). Non-pregnant females will be weighed weekly and at sacrifice.

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING THE REPRODUCTION/TERATOGENICITY STUDY MR 3872-001

b. Group EIV

Male and female pups (F_1) will be weighed on Days 35 and 70 PP.

c. Group CII and EV

Male and female pups (F_1) will be weighed on Day 35 PP, then discarded.

d. New Rats

Male and female rats will be weighed upon arrival and before breeding. During the mating and post-mating periods, mated females will be weighed on Days 1 and 21 G and Day 1 PP; the males will be weighed on Days 7 and 15 of the mating period. Non-pregnant females will be weighed weekly and at sacrifice.

e. F_2 Pups

All F_2 pups will be weighed on Days 1 and 2 PP.

2. Clinical Signs

a. Noted for each animal at weighing

b. Noted daily for dams during gestation

c. Noted for dams and F_2 pups on Days 1 and 2 PP

d. All cages will be checked daily for dead animals or animals in extremis

3. Necropsy

a. Groups CI, EI, EII, and EIII

One male and one female pup (F_1) per litter will be sacrificed on Day 70 PP to examine the reproductive organs, and to weigh and to fix the epididymides, and to fix the testes and ovaries. All males used

DW1

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING THE REPRODUCTION/TERATOGENICITY STUDY MR 3872-001

a. Groups CI, EI, EII, and EIII (cont)

for mating will be sacrificed at the end of the 15-day mating period to examine the reproductive organs, to weigh and fix the testes, and to fix the epididymides. All dams will be sacrificed on Day 2 PP to examine the reproductive organs, and to weigh and fix the ovaries. Non-pregnant females will be sacrificed on Day 24 G to examine the reproductive organs, and to weigh and fix ovaries.

b. Group EIV

One male and one female pup (F_1) per litter will be sacrificed on Day 70 PP to examine the reproductive organs, to fix epididymides, and to weigh and fix the testes and ovaries.

c. New Rats

Female rats that do not deliver by Day 24 G will be sacrificed to examine the reproductive organs, and to weigh and fix the ovaries.

4. Histopathology

The following reproductive tissues from rats of Groups CI and EIII will be processed and examined:

- testes and ovaries from Day 70 PP rats (F_1)
- testes from rats (F_1), immediately after the 15-day breeding period
- ovaries from dams (F_1), Day 2 PP

Testes and ovaries collected from other groups (EI, EII, and EIV) and from females that were cohabited but did not produce a litter will be processed, if indicated.

DWI

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING THE REPRODUCTION/TERATOGENICITY STUDY MR 3872-001

5. Estrous Cycle

Verify estrus by vaginal lavage during the 15-day breeding period

6. Conception Rate

Calculated as the percentage of females with sperm detected in the vaginal lavage per total number of females cohabited

7. Gestation Rate

Calculated as the percentage of females delivering per total number of sperm positive females

8. Survival Rate (F_2 Generation)

a. Count the number of live and dead pups on Days 1 and 2 PP

b. Calculate the percentage of pups that survive to Day 2 PP

III. STATISTICS

Fisher's exact test will be used to determine significant differences in the incidence of pregnancy. Dunnett's test will be used to detect significant differences in body and organ weights. For all other parameters, the Mann-Whitney U test will be used to detect significant differences between the control group and individual experimental groups. The level of significance will be $p \leq 0.05$.

IV. CRITICAL DATES

Start (breeding date) - January 8, 1982

Completion - March 3, 1982

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

NMP: DETAILED PROTOCOL FOR EXTENDING
THE REPRODUCTION/TERATOGENICITY STUDY
MR 3872-001

PREPARED BY: Howard M. Solomon

H. M. Solomon, Ph.D.
Study Director
Research Teratologist
Teratology Section
Toxicology & Pathology

APPROVED BY: R E Staples

R. E. Staples, Ph.D.
Staff Teratologist
Teratology Section
Toxicology & Pathology

HMS/mle
3/3/82

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

E. I. DU PONT DE NEMOURS & CO., INC.
HASKELL LABORATORY FOR TOXICOLOGY AND INDUSTRIAL MEDICINE
CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
ELKTON ROAD, P. O. BOX 50
NEWARK, DELAWARE 19711

PROTOCOL AMENDMENT FOR
EXTENDING THE REPRODUCTION/TERATOGENICITY
STUDY: 1-METHYL-2-PYRROLIDINONE (NMP)

MEDICAL RESEARCH PROJECT NUMBER 3872-001

The protocol should be amended as follows:

Page 5

II. MATERIALS AND METHODS

H. Parameters to be Studied

3. Necropsy

a. Groups CI, EI, EII, and EIII

Paragraph 1, Sentence 1: change the sentence to, "One male and one female pup (F_1) per litter will be sacrificed on Day 70 PP to examine the reproductive organs, to fix the epididymides, and to weigh and fix the testes and ovaries."

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

PROTOCOL AMENDMENT FOR EXTENDING THE
REPRODUCTION/TERATOGENICITY STUDY:
1-METHYL-2-PYRROLIDINONE (NMP)
MR 3872-001

PREPARED BY: Howard M. Solomon

H. M. Solomon, Ph.D.
Study Director
Research Teratologist
Teratology Section
Toxicology and Pathology

APPROVED BY: R E Staples

R. E. Staples, Ph.D.
Staff Teratologist
Teratology Section
Toxicology and Pathology

HMS/mle
3/25/82

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
HASKELL LABORATORY FOR TOXICOLOGY
AND INDUSTRIAL MEDICINE

Figure

July 12, 1990

To: Medical Research Project Number 3872-001

From: R. E. Staples, Staff Teratologist

Subject: Change in Study Director for Reproduction/Teratogenicity Study: 1-Methyl-2-Pyrrolidinone (NMP)

Protocol Amendment #4

A change in Study Director for this project is required since the report (HLR #491-82) was not completed and since the original Study Director, Howard M. Solomon, is no longer with Du Pont. A report for this project (MR-3872) was initiated by Howard M. Solomon, Study Director, after completion of the study on February 21, 1982. However, that version of the report (HLR #491-82) was not issued as it was not completed before the Study Director resigned from Du Pont. Since the Textile Fibers Department still wants the study reported, I have been authorized by James G. Aftosmis, Sr. Staff Consultant, to assume the responsibility of Study Director to complete the report under HLR #294-90. The change is effective as of this date.

Prepared by: R E Staples 7/12/90
R. E. Staples
Study Director
Staff Teratologist

Approved by: GA Aftosmis 7/12/90
J. G. Aftosmis
Sr. Staff Consultant

cc: QA Files
G.L. Kennedy, Jr.
G.G. Smith

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX A (CONT.)

CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
HASKELL LABORATORY FOR TOXICOLOGY
AND INDUSTRIAL MEDICINE

September 19, 1990

To: Medical Research Project Number 3872-001

From: R.E. Staples, Staff Teratologist

Subject: Title Change for Reproduction/Teratogenicity Study: 1-Methyl-2-Pyrrolidinone (NMP)

Protocol Amendment #5

A change in the title for this project is indicated to update the terminology currently used versus that in vogue when the project began. The new title is "1-Methyl-2-Pyrrolidinone (NMP): Reproductive and Developmental Toxicity in the Rat". The running title used for the report presenting this project is "Reproductive and Developmental Toxicity of NMP".

Prepared by: Robert E. Staples 7/20/90
R.E. Staples
Study Director
Staff Teratologist

Approved by: J.G. Aftosmis
J.G. Aftosmis
Sr. Staff Consultant

cc: QA Files

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B

FOR DU PONT USE ONLY
REVISED REPORT

E. I. du Pont de Nemours and Co., Inc.
Haskell Laboratory for Toxicology and Industrial Medicine
Elkton Road, P. O. Box 50,
Newark, Delaware 19711

MR NO. 3872-001

Material Tested	Haskell No.	Other Codes
2-Pyrrolidinone, 1-methyl-	14,099	NMP

Study Initiated/Completed
7/15/81 - 12/4/81

Material Submitted by
W. M. Eareckson
Spruance Plant
Textile Fibers Department
Richmond, Virginia

IN-HOUSE REPORT: INHALATION EXPOSURE RESULTS FOR THE NMP REPRODUCTION/TERATOLOGY STUDY

I. SUMMARY

Male and female Crl:CD® rats were exposed 6 hours a day, 7 days a week for 114-143 days to atmospheres containing N-methylpyrrolidone in air. Male and female air control groups were exposed simultaneously. Overall atmospheric concentrations were determined to be 10.3, 50.8, 116 ppm of N-methylpyrrolidone.

No clinical observations were noted in rats exposed to 10.3 or 50.8 ppm. Reduced response to sound was noted in rats exposed to 116 ppm. No other clinical signs were noted.

II. INTRODUCTION

This report summarizes the methodologies for generation and analysis, and results of exposure atmospheres for the inhalation reproduction teratology study of N-methylpyrrolidone.

III. PROCEDURES

A. Protocol

All rats for this study were supplied and cared for by Haskell's teratology group. Group assignments were made on the basis of exposure concentration and mating schedules. Group assignments, design levels and chambers used for exposure were:

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

- o Air controls - 0 ppm

  Group C1-20 ♂ and 40♀ - 750 L Chamber
  Group C2-10 ♂ and 20♀ - 750 L Chamber
  Group E4-10 ♂ - 150 L Chamber
  Group E5-20 ♀ - 150 L Chamber

- o Low Level - 10 ppm

  Group E1-10 ♂ and 20♀ - 750 L Chamber

- o Intermediate Level - 50 ppm

  Group E2-10 ♂ and 20♀ - 750 L Chamber

- o High Level - 130 ppm

  Group E3-20 ♂ and 40♀ - 900 L Chamber
  Group E4-20 ♀ - 900 L Chamber
  Group E5-10 ♂ - 900 L Chamber

Test rats were exposed in 750 L or 900 L glass and stainless steel chambers. Control rats were exposed in 150 L and 750 L chambers. Chamber size was selected on the basis of group size and chamber availability. During exposure, rats were housed singly in compartmentalized, stainless steel, wire-mesh modules. These modules are suspended from racks mounted to the inner walls of the chamber. X-Cold Bricks®, placed on the outside surface of the chambers were used to control chamber temperature during the beginning of the test. As rats grew in size chamber temperatures could not be maintained below 80°F by use of X-Cold Bricks® so a 23,000 BTU air conditioning unit was installed (Exposure #43) to blow cold air over the tops of chambers. This controlled chamber temperature below 80°F.

B. Atmospheric Generation

Atmospheres were generated dynamically. Liquid NMP was pumped through an inclined tube furnace heated between 195-210°C. The resulting NMP vapors were swept from the tube furnace with a houseline nitrogen stream, diluted with approximately 700 L of room air, and introduced tangentially into the top of each exposure chamber.

Atmospheres were vented from the bottom of each chamber and passed through an aqueous scrubbing tower to remove NMP from exhaust air.

C. Atmospheric Analysis

Chamber samples were collected at approximately 60-minute intervals by drawing chamber atmosphere through 2 tandem midget impingers containing acetone as a trapping solvent. Standards were prepared by dilution of the test material in acetone.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

Standards and samples were analyzed using a Hewlett Packard Model 5710A gas chromatograph equipped with a nitrogen/phosphorous detector. Samples were chromatographed on a 3 foot, 2 MM ID glass column packed with Carbowax 20M on 80/100 mesh Chromsorb® G/HP.

A mean concentration (± standard deviation) was calculated for each exposure and overall for each design concentration.

Chamber temperature was monitored each hour with a thermometer. Oxygen was monitored once a day using a Biomarine Oxygen Analyzer (Model 225R).

IV. RESULTS

In the high level only, NMP condensed on the chamber walls. Analytical results are summarized in Tables 1 through 3. Chamber temperature data are summarized in Table 4. Chamber oxygen concentrations did not fall below ambient room levels (approximately 21%).

During exposure no clinical observations were noted in controls, low or intermediate level rats. Reduced response to sound was observed in high level rats. No other overt clinical signs were noted in exposed rats.

Purity: 99.867%

Contaminants: Low boiling impurities - 36 ppm
Dimethyl-2-pyrrolidone (1,5 or isomer) 986 ppm
N-methyl succinimide - 251 ppm
2-pyrrolidinone - 14 ppm
All other high boiling impurities - 40 ppm

CAS Registry No.: 872-50-4

Other Name: NMP

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

Work and Report by: Clarence Hutt
Clarence Hutt
Technician

Supervised by: Joseph C. Hamill
Joseph C. Hamill
Technologist

Bruce A. Burgess
Bruce A. Burgess
Research Toxicologist

Approved by: Gerald L. Kennedy, Jr.
Gerald L. Kennedy, Jr.
Section Supervisor
Acute Investigations

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E-26838, pp. 1-153
E-26844, pp. 1-156

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

ACKNOWLEDGMENT

The following people assisted in the conduct of these exposures: R. L. Ferenz, S. D. Nash, W. J. Fasano, S. C. Carpenter, M. K. Koechert, M. G. Godwin, and M. A. Hartsky.

18cv794 NRDC v EPA

ED_001632C_00000093-00118

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 1

Analytical Data - 10 ppm Design Level

Exposure	Range	Mean + S.D.
1	(8.6 - 13.2)	10.2 ± 1.2
2	(2.3 - 12.6)	9.8 ± 2.5
3	(8.3 - 12.1)	10.4 ± 1.4
4	(8.3 - 11.9)	10.5 ± 1.1
5	(8.5 - 14.2)	10.7 ± 1.7
6	(7.2 - 10.7)	9.5 ± 1.1
7	(2.8 - 9.3)	6.9 ± 2.5
8	(4.5 - 26.3)	9.4 ± 5.5
9	(8.6 - 13.7)	10.6 ± 1.7
10	(5.3 - 13.7)	8.4 ± 2.5
11	(4.6 - 9.5)	8.7 ± 1.3
12	(8.7 - 12.2)	10.6 ± 0.9
13	(5.8 - 13.5)	11.5 ± 2.0
14	(2.8 - 12.2)	10.3 ± 2.6
15	(8.7 - 13.4)	10.6 ± 1.4
16	(8.2 - 10.7)	10.0 ± 0.7
17	(9.2 - 11.8)	10.3 ± 0.9
18	(10.4 - 12.3)	11.2 ± 0.5
19	(10.8 - 11.6)	11.2 ± 0.2
20	(7.4 - 15.0)	10.8 ± 1.9
21	(9.7 - 10.9)	10.8 ± 1.2
22	(8.3 - 11.5)	9.9 ± 1.1
23	(6.4 - 12.0)	10.0 ± 1.7
24	(8.7 - 12.6)	10.3 ± 1.4
25	(7.4 - 13.6)	11.9 ± 2.0
26	(9.5 - 12.3)	10.6 ± 0.9
27	(8.6 - 12.9)	10.1 ± 1.4
28	(2.5 - 11.9)	9.7 ± 2.6
29	(5.9 - 11.8)	9.9 ± 2.1
30	(7.9 - 12.9)	10.5 ± 1.4
31	(8.6 - 12.0)	10.1 ± 1.1
32	(7.8 - 14.4)	10.7 ± 2.5
33	(9.5 - 12.5)	9.9 ± 3.1
34	(8.8 - 14.7)	11.6 ± 1.9
35	(7.9 - 12.3)	10.3 ± 1.3
36	(8.0 - 12.9)	10.4 ± 1.6
37	(8.5 - 14.0)	10.1 ± 1.6
38	(7.3 - 11.8)	9.8 ± 1.3
39	(7.0 - 14.3)	10.7 ± 1.7
40	(8.3 - 12.5)	10.2 ± 1.4
41	(8.2 - 15.0)	10.1 ± 2.2
42	(6.6 - 13.0)	9.7 ± 1.8
43	(2.4 - 13.8)	10.3 ± 2.9
44	(8.7 - 12.0)	10.6 ± 1.2

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 1 (Cont'd.)

Analytical Data - 10 ppm Design Level

Exposure	Range	Mean + S.D.
45	(7.0 - 14.8)	9.8 ± 2.0
46	(10.0 - 13.2)	11.5 ± 0.9
47	(9.1 - 12.7)	10.8 ± 1.1
48	(8.7 - 12.5)	10.1 ± 1.4
49	(8.6 - 13.3)	10.8 ± 1.5
50	(6.4 - 11.8)	10.8 ± 1.5
51	(8.0 - 13.1)	10.3 ± 1.3
52	(8.0 - 11.9)	9.6 ± 1.3
53	(8.4 - 14.6)	11.2 ± 2.0
54	(3.4 - 13.5)	10.1 ± 2.5
55	(8.3 - 15.0)	11.5 ± 1.9
56	(8.2 - 13.0)	10.0 ± 1.5
57	(9.6 - 14.2)	10.8 ± 3.2
58	(8.1 - 13.5)	10.3 ± 1.8
59	(9.7 - 12.1)	11.2 ± 0.9
60	(10.2 - 14.6)	12.5 ± 2.0
61	(11.3 - 13.6)	12.3 ± 1.1
62	(9.0 - 14.1)	10.9 ± 2.2
63	(11.5 - 13.3)	11.9 ± 0.9
64	(8.0 - 12.5)	10.3 ± 1.5
65	(8.5 - 10.2)	9.3 ± 0.6
66	(8.0 - 11.0)	9.4 ± 1.1
67	(8.8 - 10.0)	9.6 ± 0.5
68	(9.2 - 10.3)	9.5 ± 0.4
69	(8.1 - 11.0)	9.7 ± 1.0
70	(7.9 - 10.4)	8.8 ± 1.0
71	(7.6 - 12.3)	8.8 ± 1.7
72	(9.6 - 13.6)	12.1 ± 1.8
73	(8.1 - 12.9)	10.0 ± 1.5
74	(9.1 - 15.8)	11.3 ± 2.3
75	(10.1 - 12.7)	11.3 ± 1.0
76	(8.2 - 12.1)	10.0 ± 1.5
77	(8.0 - 11.7)	10.0 ± 1.5
78	(8.3 - 12.5)	10.0 ± 1.4
79	(11.0 - 13.9)	12.6 ± 1.2
80	(9.5 - 12.4)	11.0 ± 0.9
81	(9.2 - 12.4)	10.5 ± 1.2
82	(9.5 - 11.9)	10.9 ± 0.8
83	(7.1 - 10.5)	9.3 ± 1.3
84	(9.4 - 12.3)	11.3 ± 1.1
85	(7.5 - 12.4)	9.2 ± 1.7
86	(9.3 - 11.4)	10.6 ± 0.7
87	(9.0 - 10.4)	9.8 ± 0.6
88	(8.3 - 10.5)	9.8 ± 0.8

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 1 (Cont'd.)

Analytical Data - 10 ppm Design Level

Exposure	Range	Mean ± S.D.
89	(8.5 - 15.2)	10.6 ± 2.4
90	(8.7 - 11.6)	10.0 ± 1.1
91	(8.8 - 10.1)	9.6 ± 0.4
92	(9.5 - 11.9)	10.6 ± 0.9
93	(9.6 - 12.6)	11.3 ± 1.1
94	(10.7 - 11.9)	11.3 ± 0.5
95	(8.9 - 16.5)	11.2 ± 2.8
96	(6.8 - 10.7)	9.1 ± 1.4
97	(7.8 - 10.5)	9.6 ± 1.0
98	(10.5 - 12.0)	11.4 ± 0.7
99	(8.9 - 11.0)	10.3 ± 0.7
100	(8.6 - 11.0)	10.0 ± 1.0
101	(7.1 - 10.2)	9.0 ± 1.3
102	(9.3 - 12.3)	10.5 ± 1.1
103	(8.6 - 10.3)	9.3 ± 0.6
104	(9.6 - 12.1)	10.9 ± 1.0
105	(10.2 - 11.9)	10.7 ± 0.7
106	(10.2 - 11.5)	10.6 ± 0.5
107	(8.7 - 12.4)	9.9 ± 1.4
108	(9.4 - 12.3)	10.2 ± 1.1
109	(6.5 - 11.1)	9.6 ± 1.6
110	(9.5 - 11.5)	10.7 ± 1.0
111	(9.2 - 10.9)	10.0 ± 0.7
112	(9.1 - 13.6)	10.1 ± 1.8
113	(8.8 - 10.4)	9.2 ± 0.6
114	(10.2 - 11.0)	10.5 ± 0.3
115	(11.2 - 14.2)	11.2 ± 1.9
116	(7.5 - 9.7)	8.9 ± 0.9
117	(9.1 - 10.6)	10.0 ± 0.5
118	(9.0 - 11.1)	10.3 ± 0.8
119	(8.3 - 10.1)	9.6 ± 0.7
120	(9.1 - 10.9)	10.0 ± 0.7
121	(9.9 - 11.1)	10.4 ± 0.4
122	(9.8 - 13.2)	11.6 ± 1.2
123	(5.1 - 10.3)	8.4 ± 1.9
124	(10.4 - 12.6)	11.5 ± 0.8
125	(9.6 - 12.3)	10.7 ± 0.9
126	(9.2 - 10.7)	10.0 ± 0.6
127	(9.6 - 13.0)	10.8 ± 1.5
128	(6.5 - 15.7)	10.8 ± 3.8
129	(10.2 - 12.1)	10.7 ± 0.8
130	(7.9 - 11.7)	9.5 ± 1.4
131	(7.8 - 12.8)	9.2 ± 1.8
132	(9.6 - 13.8)	10.4 ± 1.6
133	(9.1 - 10.8)	9.9 ± 0.6

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 1 (Cont'd.)

Analytical Data - 10 ppm Design Level

Exposure	Range	Mean + S.D.
134	(7.8 - 14.1)	10.7 ± 2.0
135	(7.9 - 10.7)	9.8 ± 1.1
136	(7.0 - 11.6)	8.9 ± 1.7
137	(7.0 - 8.6)	7.7 ± 0.6
138	(8.7 - 12.9)	11.4 ± 1.4
139	(7.5 - 11.4)	9.6 ± 1.6
140	(9.1 - 11.5)	10.3 ± 0.9
141	(9.0 - 10.5)	9.7 ± 0.6
142	(9.4 - 11.3)	10.1 ± 0.7
Overall+	(2.3 - 26.3)	10.3 ± 3.4

+ Mean and S.D. of all samples throughout the exposure period.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 2

Analytical Data - 50 ppm Design Level

Exposure	Range	Mean + S.D.
1	(11.5 - 77.8)	42.1 ± 18.0
2	(31.9 - 76.2)	55.1 ± 12.6
3	(17.8 - 70.4)	51.8 ± 13.8
4	(22.3 - 74.4)	48.9 ± 13.5
5	(24.5 - 67.0)	49.6 ± 15.3
6	(38.0 - 67.9)	53.4 ± 9.1
7	(18.2 - 80.1)	53.0 ± 19.0
8	(39.2 - 55.9)	46.1 ± 4.7
9	(44.5 - 66.2)	53.8 ± 8.6
10	(6.3 - 65.8)	48.1 ± 17.1
11	(28.5 - 57.1)	48.4 ± 8.4
12	(42.6 - 62.9)	51.8 ± 8.8
13	(27.8 - 57.3)	49.8 ± 7.9
14	(25.2 - 59.5)	46.6 ± 9.7
15	(38.5 - 67.1)	48.6 ± 6.6
16	(43.6 - 53.4)	48.1 ± 2.7
17	(46.0 - 55.6)	49.1 ± 2.9
18	(40.3 - 49.6)	44.8 ± 2.8
19	(37.7 - 44.5)	40.1 ± 1.7
20	(42.9 - 53.9)	50.2 ± 3.4
21	(42.9 - 54.2)	48.7 ± 3.4
22	(37.4 - 50.5)	45.9 ± 4.6
23	(37.2 - 57.1)	45.5 ± 6.4
24	(37.0 - 60.4)	51.6 ± 6.5
25	(49.1 - 69.7)	56.2 ± 6.1
26	(42.9 - 59.3)	52.7 ± 5.1
27	(37.9 - 61.2)	51.3 ± 7.4
28	(31.0 - 69.8)	47.7 ± 10.2
29	(42.8 - 63.5)	50.1 ± 5.0
30	(37.9 - 68.1)	54.5 ± 8.7
31	(50.0 - 59.9)	53.9 ± 2.9
32	(47.4 - 59.2)	53.8 ± 3.9
33	(46.8 - 62.0)	51.1 ± 4.0
34	(42.1 - 55.4)	51.6 ± 5.0
35	(42.1 - 60.8)	52.6 ± 5.0
36	(43.7 - 56.9)	51.0 ± 4.0
37	(35.9 - 53.3)	47.0 ± 4.9
38	(30.9 - 54.3)	45.5 ± 6.2
39	(35.2 - 56.7)	48.6 ± 5.5
40	(41.3 - 62.0)	53.9 ± 5.3
41	(45.6 - 55.1)	51.0 ± 3.2
42	(42.9 - 55.4)	48.5 ± 3.9
43	(43.7 - 60.9)	51.8 ± 5.4
44	(36.1 - 55.5)	50.0 ± 6.4

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 2 (Cont'd.)

Analytical Data - 50 ppm Design Level

Exposure	Range	Mean + S.D.
45	(49.4 - 58.9)	54.7 ± 3.3
46	(48.8 - 61.9)	56.1 ± 4.2
47	(43.1 - 58.6)	50.5 ± 5.0
48	(40.0 - 57.8)	47.6 ± 4.8
49	(39.7 - 55.2)	50.5 ± 4.8
50	(42.5 - 68.2)	54.0 ± 6.5
51	(40.1 - 54.0)	49.4 ± 8.4
52	(39.1 - 57.0)	46.9 ± 4.1
53	(34.0 - 66.5)	51.1 ± 9.5
54	(40.3 - 49.4)	47.3 ± 4.7
55	(33.0 - 62.1)	49.1 ± 9.0
56	(41.9 - 57.6)	47.0 ± 4.4
57	(37.8 - 52.2)	47.6 ± 4.1
58	(40.8 - 52.0)	47.6 ± 4.6
59	(50.2 - 59.6)	53.7 ± 3.2
60	(46.6 - 55.4)	51.9 ± 3.6
61	(44.8 - 62.7)	52.1 ± 6.1
62	(49.5 - 55.4)	52.7 ± 2.2
63	(44.3 - 67.0)	56.5 ± 7.1
64	(43.5 - 59.0)	51.8 ± 5.5
65	(44.8 - 56.3)	50.2 ± 4.1
66	(43.2 - 54.1)	50.4 ± 4.1
67	(43.4 - 50.7)	49.3 ± 3.3
68	(43.0 - 58.1)	48.8 ± 5.4
69	(48.3 - 56.6)	54.6 ± 3.3
70	(42.4 - 59.1)	51.0 ± 5.0
71	(44.7 - 57.5)	51.8 ± 4.0
72	(47.4 - 59.9)	53.0 ± 4.0
73	(47.9 - 55.8)	51.8 ± 3.1
74	(45.9 - 57.8)	51.3 ± 4.2
75	(42.5 - 55.6)	48.4 ± 4.5
76	(41.3 - 56.2)	48.7 ± 5.4
77	(17.4 - 62.6)	43.6 ± 14.1
78	(43.0 - 49.8)	46.4 ± 2.2
79	(46.7 - 57.8)	54.4 ± 4.1
80	(49.3 - 55.2)	52.9 ± 2.3
81	(45.8 - 59.0)	53.6 ± 4.5
82	(45.9 - 60.2)	54.9 ± 5.7
83	(45.9 - 55.0)	50.7 ± 4.0
84	(51.9 - 58.9)	54.7 ± 2.5
85	(47.5 - 60.9)	51.8 ± 4.8
86	(46.2 - 55.1)	50.4 ± 2.9
87	(46.8 - 53.7)	49.2 ± 3.0
88	(37.1 - 57.6)	50.7 ± 7.1

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 2 (Cont'd.)

Analytical Data - 50 ppm Design Level

Exposure	Range	Mean + S.D.
89	(41.4 - 54.7)	48.4 ± 4.7
90	(48.9 - 52.7)	50.8 ± 1.4
91	(43.3 - 56.5)	51.0 ± 4.8
92	(50.8 - 60.8)	54.5 ± 3.4
93	(55.0 - 61.0)	57.4 ± 2.3
94	(48.5 - 61.5)	54.9 ± 5.1
95	(48.6 - 57.1)	51.5 ± 3.1
96	(47.2 - 57.2)	50.0 ± 3.7
97	(52.0 - 54.8)	52.9 ± 2.4
98	(53.4 - 61.1)	57.4 ± 2.6
99	(31.8 - 58.6)	47.2 ± 10.7
100	(41.9 - 59.6)	54.3 ± 6.5
101	(39.9 - 54.0)	45.9 ± 5.4
102	(42.4 - 57.2)	49.2 ± 5.7
103	(35.0 - 48.9)	41.5 ± 4.6
104	(41.3 - 55.9)	50.2 ± 5.7
105	(49.6 - 55.2)	51.4 ± 7.2
106	(49.4 - 54.6)	52.7 ± 2.3
107	(45.8 - 56.7)	51.8 ± 3.9
108	(47.8 - 54.2)	51.3 ± 2.2
109	(47.2 - 57.2)	52.5 ± 3.6
110	(43.3 - 55.6)	51.3 ± 4.4
111	(50.3 - 52.4)	51.0 ± 1.1
112	(48.9 - 58.6)	54.0 ± 3.0
113	(42.0 - 62.3)	51.1 ± 6.7
114	(50.1 - 59.1)	54.3 ± 3.7
115	(52.2 - 59.9)	57.2 ± 2.8
116	(39.2 - 52.6)	46.0 ± 5.2
117	(47.3 - 59.9)	52.8 ± 4.8
118	(47.1 - 63.4)	55.1 ± 5.7
119	(49.7 - 60.1)	53.6 ± 4.1
120	(50.1 - 59.6)	54.3 ± 3.2
121	(49.1 - 59.7)	54.8 ± 4.2
122	(38.6 - 69.8)	54.1 ± 11.1
123	(32.3 - 58.5)	43.2 ± 9.2
124	(48.4 - 56.0)	53.9 ± 3.0
125	(53.8 - 60.8)	56.0 ± 2.7
126	(50.3 - 58.5)	53.9 ± 2.8
127	(45.0 - 49.5)	49.1 ± 2.9
128	(36.8 - 76.3)	52.6 ± 15.7
129	(41.2 - 65.5)	56.1 ± 9.2
130	(41.1 - 57.2)	50.0 ± 5.6
131	(38.5 - 65.2)	52.4 ± 10.1
132	(47.4 - 60.0)	54.4 ± 5.3

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 2 (Cont'd.)

Analytical Data - 50 ppm Design Level

Exposure	Range	Mean ± S.D.
133	(46.3 - 53.6)	50.4 ± 2.9
134	(51.1 - 65.2)	57.4 ± 5.7
135	(29.9 - 68.4)	53.3 ± 13.7
136	(53.4 - 61.3)	56.6 ± 2.9
137	(45.9 - 92.7)	57.8 ± 17.7
138	(47.9 - 64.9)	54.0 ± 6.9
139	(42.6 - 61.5)	53.8 ± 8.2
140	(39.1 - 65.8)	51.3 ± 9.8
141	(28.9 - 71.7)	53.9 ± 16.5
Overall+	(6.3 - 92.7)	50.8 ± 7.6

+ Mean ± S.D. of all samples throughout the exposure

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 3

Analytical Data - 130 ppm Design Level

Exposure	Range	Mean ± S.D.
1	(54.5 - 141)	88.7 ± 21.6
2	(90.9 - 140)	113 ± 13.8
3	(91.6 - 124)	111 ± 11.0
4	(91.9 - 143)	115 ± 14.9
5	(90.4 - 148)	115 ± 16.8
6	(93.3 - 139)	114 ± 11.3
7	(90.9 - 131)	120 ± 12.0
8	(48.5 - 155)	107 ± 24.1
9	(75.6 - 158)	121 ± 25.0
10	(99.1 - 159)	130 ± 21.2
11	(87.5 - 138)	123 ± 12.3
12	(112 - 139)	123 ± 8.3
13	(44.0 - 178)	132 ± 40.1
14	(94.5 - 132)	111 ± 13.1
15	(88.0 - 144)	114 ± 17.3
16	(89.1 - 115)	105 ± 9.5
17	(105 - 137)	120 ± 9.5
18	(68.8 - 106)	91.9 ± 9.7
19	(67.7 - 111)	86.3 ± 13.4
20	(84.1 - 143)	124 ± 15.4
21	(97.8 - 140)	121 ± 13.9
22	(75.7 - 143)	108 ± 18.9
23	(82.9 - 111)	101 ± 8.0
24	(94.8 - 140)	112 ± 12.1
25	(92.2 - 148)	113 ± 15.6
26	(97.6 - 124)	108 ± 7.7
27	(108 - 148)	122 ± 13.1
28	(88.8 - 135)	110 ± 13.2
29	(76.0 - 120)	103 ± 10.6
30	(77.2 - 135)	113 ± 17.2
31	(98.4 - 141)	119 ± 11.4
32	(98.7 - 150)	124 ± 15.2
33	(104 - 130)	120 ± 9.3
34	(70.8 - 115)	105 ± 6.9
35	(102 - 129)	115 ± 10.0
36	(98.4 - 127)	115 ± 8.3
37	(94.5 - 139)	112 ± 12.4
38	(89.6 - 125)	108 ± 9.6
39	(98.5 - 148)	113 ± 13.3
40	(82.7 - 146)	123 ± 15.3
41	(93.6 - 142)	121 ± 12.5
42	(93.6 - 125)	109 ± 8.4
43	(92.3 - 167)	121 ± 20.3
44	(75.7 - 155)	124 ± 21.5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 3 (Cont'd.)

Analytical Data - 130 ppm Design Level

Exposure	Range	Mean + S.D.
45	(112 - 149)	126 ± 12.1
46	(90.6 - 144)	122 ± 14.7
47	(74.0 - 110)	99.1 ± 9.7
48	(94.4 - 116)	107 ± 6.8
49	(102 - 127)	108 ± 7.7
50	(97.7 - 132)	115 ± 10.7
51	(82.0 - 127)	108 ± 13.3
52	(92.8 - 112)	101 ± 6.4
53	(60.4 - 137)	113 ± 13.8
54	(94.0 - 128)	106 ± 9.5
55	(93.0 - 147)	117 ± 20.9
56	(94.5 - 130)	109 ± 10.6
57	(100 - 144)	112 ± 13.9
58	(100 - 135)	109 ± 12.5
59	(104 - 121)	113 ± 6.6
60	(92.2 - 113)	101 ± 9.1
61	(75.7 - 117)	98.5 ± 13.8
62	(90.1 - 114)	102 ± 9.3
63	(108 - 128)	118 ± 7.1
64	(94.8 - 105)	98.7 ± 5.3
65	(87.5 - 115)	102 ± 9.9
66	(79.1 - 107)	92.1 ± 10.3
67	(73.8 - 115)	101 ± 14.6
68	(99.7 - 118)	106 ± 6.9
69	(98.5 - 117)	108 ± 6.1
70	(80.8 - 109)	94.7 ± 8.8
71	(99.3 - 117)	108 ± 5.9
72	(101 - 129)	118 ± 9.7
73	(109 - 127)	118 ± 7.3
74	(97.5 - 120)	110 ± 9.2
75	(86.0 - 130)	108 ± 17.4
76	(82.7 - 106)	96.3 ± 7.0
77	(99.5 - 126)	113 ± 9.6
78	(93.7 - 120)	104 ± 10.9
79	(93.4 - 102)	98.7 ± 4.2
80	(103 - 128)	114 ± 9.2
81	(117 - 148)	120 ± 40.4
82	(111 - 150)	138 ± 14.7
83	(109 - 130)	119 ± 6.9
84	(102 - 117)	108 ± 6.0
85	(121 - 136)	130 ± 5.4
86	(119 - 133)	124 ± 5.6
87	(114 - 130)	120 ± 7.0
88	(90.2 - 129)	114 ± 13.2

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 3 (Cont'd.)

Analytical Data - 130 ppm Design Level

Exposure	Range	Mean + S.D.
89	(113 - 151)	124 ± 13.7
90	(82.3 - 123)	109 ± 10.4
91	(115 - 132)	125 ± 5.7
92	(107 - 130)	122 ± 9.2
93	(122 - 144)	131 ± 8.1
94	(108 - 140)	122 ± 11.8
95	(108 - 157)	132 ± 15.7
96	(113 - 120)	116 ± 5.3
97	(114 - 131)	123 ± 6.2
98	(126 - 145)	132 ± 7.6
99	(115 - 136)	129 ± 7.1
100	(102 - 132)	118 ± 13.0
101	(88 - 138)	121 ± 16.2
102	(120 - 152)	135 ± 11.0
103	(99.6 - 131)	118 ± 10.7
104	(114 - 133)	125 ± 7.9
105	(124 - 135)	128 ± 3.8
106	(119 - 137)	129 ± 6.9
107	(116 - 145)	128 ± 12.7
108	(120 - 150)	138 ± 7.3
109	(120 - 128)	123 ± 3.5
110	(107 - 129)	117 ± 8.2
111	(112 - 142)	130 ± 11.3
112	(113 - 168)	129 ± 21.1
113	(116 - 160)	132 ± 20.7
114	(107 - 160)	130 ± 21.1
115	(118 - 146)	134 ± 9.6
116	(87.5 - 127)	114 ± 14.7
117	(125 - 128)	128 ± 5.1
118	(120 - 126)	122 ± 2.5
119	(116 - 151)	133 ± 11.5
120	(113 - 137)	130 ± 9.0
121	(126 - 165)	149 ± 14.8
122	(120 - 147)	133 ± 12.3
123	(101 - 152)	124 ± 17.2
124	(111 - 153)	133 ± 17.7
125	(112 - 141)	127 ± 12.2
126	(128 - 146)	139 ± 6.2
127	(100 - 153)	134 ± 20.3
128	(120 - 177)	138 ± 23.3
129	(108 - 133)	122 ± 10.8
130	(105 - 145)	127 ± 13.2
131	(114 - 142)	126 ± 11.8
132	(124 - 143)	131 ± 7.2

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 3 (Cont'd.)

Analytical Data - 130 ppm Design Level

Exposure	Range	Mean + S.D.
133	(125 - 133)	128 ± 3.1
134	(122 - 151)	133 ± 12.7
135	(113 - 153)	130 ± 13.0
136	(96.2 - 119)	107 ± 8.4
137	(105 - 151)	128 ± 18.9
138	(109 - 149)	129 ± 12.9
139	(125 - 139)	132 ± 5.4
140	(113 - 149)	137 ± 12.9
141	(110 - 153)	132 ± 17.0
142	(116 - 140)	132 ± 8.6
143	(120 - 141)	130 ± 8.7
Overall+	(44.0 - 178)	116 ± 17.5

+ Mean and S.D. of all samples throughout the exposure period.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 4

CHAMBER TEMPERATURE DATE - °F
(Mean + S.D.)

Exposure	Air Controls			Exposure Groups		
	C1&2	E4	E5	E1	E2	E3,4,5
1	79.9 ± 1.1	76.2 ± 1.4	75.6 ± 1.4	73.1 ± 1.1	77.8 ± 1.2	78.8 ± 2.6
2	78.6 ± 0.8	73.4 ± 2.5	79.7 ± 0.9	74.1 ± 1.5	77.9 ± 1.3	77.5 ± 1.4
3	79.7 ± 1.6	72.8 ± 1.3	75.4 ± 2.6	76.1 ± 2.3	76.7 ± 4.0	78.4 ± 0.6
4	78.2 ± 2.0	74.0 ± 1.0	79.7 ± 0.0	76.4 ± 0.9	79.9 ± 0.7	81.2 ± 0.7
5	80.2 ± 0.4	76.1 ± 1.0	80.1 ± 0.9	75.9 ± 1.6	80.0 ± 0.8	81.3 ± 0.8
6	77.2 ± 1.1	77.7 ± 1.0	79.3 ± 0.8	76.5 ± 1.1	80.5 ± 0.5	80.9 ± 1.8
7	80.1 ± 2.3	76.4 ± 0.8	76.6 ± 0.8	78.0 ± 1.1	78.6 ± 1.3	81.5 ± 1.7
8	77.8 ± 1.4	74.3 ± 1.6	77.9 ± 0.9	78.0 ± 0.6	78.8 ± 0.9	81.4 ± 1.8
9	75.2 ± 0.8	71.3 ± 0.5	77.0 ± 0.0	77.3 ± 0.5	77.7 ± 0.9	80.2 ± 1.8
10	79.0 ± 0.5	72.9 ± 0.9	77.2 ± 0.4	75.9 ± 1.7	76.8 ± 1.1	79.4 ± 2.1
11	75.1 ± 1.2	74.5 ± 1.0	80.8 ± 0.4	78.1 ± 1.3	78.9 ± 1.5	81.5 ± 0.5
12	81.0 ± 2.3	74.5 ± 0.7	81.0 ± 0.5	76.8 ± 3.3	80.0 ± 1.2	84.0 ± 1.2
13	77.6 ± 0.4	76.3 ± 0.7	78.4 ± 0.8	78.5 ± 2.1	67.4 ± 1.8	82.1 ± 2.3
14	80.0 ± 1.4	76.5 ± 1.2	76.6 ± 0.8	77.7 ± 0.7	77.2 ± 2.2	81.4 ± 2.4
15	80.4 ± 0.9	77.0 ± 0.0	76.8 ± 0.4	78.6 ± 0.5	78.4 ± 0.5	81.4 ± 0.9
16	81.6 ± 1.1	74.1 ± 1.7	73.2 ± 1.1	75.0 ± 0.6	79.6 ± 0.5	78.2 ± 1.1
17	81.9 ± 2.6	75.7 ± 2.1	77.0 ± 1.5	77.9 ± 1.9	80.7 ± 1.6	79.9 ± 1.9
18	78.2 ± 0.5	74.5 ± 0.9	74.5 ± 0.9	75.6 ± 1.2	80.6 ± 1.6	79.9 ± 1.6
19	77.9 ± 1.4	77.9 ± 1.3	73.4 ± 0.0	75.6 ± 1.5	80.1 ± 2.1	79.9 ± 2.8
20	79.9 ± 1.8	77.2 ± 1.3	74.7 ± 0.5	75.1 ± 1.3	81.1 ± 1.7	79.5 ± 1.5
21	80.8 ± 2.6	74.1 ± 1.9	74.8 ± 0.8	75.3 ± 3.1	80.4 ± 0.8	81.2 ± 1.7
22	81.6 ± 3.0	73.1 ± 1.4	76.7 ± 0.5	76.7 ± 1.2	80.6 ± 1.3	81.4 ± 1.9
23	78.7 ± 1.0	73.7 ± 1.6	75.2 ± 1.1	77.1 ± 0.8	80.4 ± 0.4	80.6 ± 2.1
24	80.0 ± 0.7	71.6 ± 2.5	75.2 ± 0.0	74.3 ± 3.0	79.5 ± 0.5	78.9 ± 0.6
25	80.5 ± 2.7	76.1 ± 1.3	78.8 ± 0.0	73.6 ± 3.8	78.9 ± 0.6	80.2 ± 1.2
26	80.4 ± 2.4	74.7 ± 2.0	75.7 ± 2.9	75.6 ± 1.4	80.8 ± 0.8	80.2 ± 1.1
27	78.5 ± 1.9	73.8 ± 1.0	76.1 ± 1.6	77.3 ± 1.8	80.4 ± 0.9	80.8 ± 0.2
28	78.8 ± 3.1	75.2 ± 2.0	76.4 ± 1.0	78.0 ± 0.3	80.7 ± 1.2	81.1 ± 1.1
29	78.0 ± 2.4	72.2 ± 1.0	75.2 ± 3.1	76.4 ± 2.5	79.2 ± 1.4	81.0 ± 1.8
30	78.0 ± 2.7	72.4 ± 1.5	77.7 ± 2.2	76.9 ± 0.2	80.0 ± 0.0	80.6 ± 1.2
31	78.0 ± 3.1	76.1 ± 1.0	75.2 ± 1.5	77.6 ± 0.8	79.6 ± 1.7	82.2 ± 1.4
32	75.0 ± 4.1	78.1 ± 1.5	79.2 ± 2.7	79.6 ± 0.5	80.8 ± 1.9	81.6 ± 0.9
33	79.2 ± 1.8	78.2 ± 0.5	77.7 ± 1.5	78.1 ± 1.0	81.2 ± 0.9	81.4 ± 1.3
34	79.2 ± 2.0	75.0 ± 0.0	75.6 ± 0.9	75.6 ± 0.4	80.2 ± 3.2	80.6 ± 0.7
35	77.9 ± 1.6	71.8 ± 1.9	74.3 ± 4.5	75.9 ± 0.5	80.1 ± 3.7	78.1 ± 1.7
36	77.7 ± 1.7	73.6 ± 1.1	76.8 ± 0.4	76.6 ± 0.2	78.7 ± 1.0	80.3 ± 0.7
37	78.6 ± 2.3	75.5 ± 1.9	76.8 ± 0.4	76.9 ± 0.7	78.3 ± 0.9	79.6 ± 0.9
38	79.8 ± 3.0	74.7 ± 1.4	74.6 ± 1.0	76.5 ± 1.5	77.9 ± 1.0	78.1 ± 0.8
39	79.2 ± 3.0	77.2 ± 1.4	74.1 ± 0.4	75.6 ± 0.7	78.3 ± 1.0	80.5 ± 1.7
40	79.0 ± 3.5	73.4 ± 0.4	76.4 ± 1.1	76.4 ± 0.2	79.1 ± 0.9	81.0 ± 0.9
41	79.2 ± 0.9	73.9 ± 0.9	76.1 ± 1.3	78.5 ± 0.8	79.5 ± 0.8	81.5 ± 2.2
42	77.7 ± 3.5	76.2 ± 0.3	72.0 ± 2.7	75.6 ± 1.4	78.8 ± 0.6	78.3 ± 1.3

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 4 (Cont'd.)

CHAMBER TEMPERATURE DATE - °F
(Mean + S.D.)

Exposure	Air Controls			Exposure Groups		
	C1&2	E4	E5	E1	E2	E3,4,5
43	76.1 ± 0.6	76.8 ± 1.0	78.1 ± 1.0	75.8 ± 0.6	76.6 ± 1.2	80.0 ± 1.4
44	77.3 ± 0.5	77.0 ± 0.0	76.8 ± 1.2	77.9 ± 0.4	77.7 ± 0.5	78.9 ± 0.7
45	77.2 ± 0.4	78.3 ± 0.8	78.5 ± 1.3	77.6 ± 0.7	77.8 ± 0.7	78.5 ± 0.4
46	76.5 ± 0.5	76.4 ± 2.8	77.0 ± 0.0	76.5 ± 0.6	75.3 ± 0.1	77.6 ± 0.7
47	76.1 ± 0.6	76.5 ± 2.5	77.7 ± 1.3	76.3 ± 0.7	75.2 ± 0.0	77.1 ± 0.3
48	77.2 ± 0.9	77.9 ± 1.0	76.1 ± 3.6	76.6 ± 0.4	76.0 ± 0.7	77.6 ± 0.8
49	77.1 ± 1.4	78.6 ± 0.6	77.5 ± 1.2	77.8 ± 1.5	76.4 ± 1.5	77.5 ± 1.4
50	75.4 ± 2.2	77.0 ± 0.8	77.4 ± 2.4	75.8 ± 1.2	76.3 ± 1.2	78.3 ± 1.2
51	76.2 ± 1.6	77.9 ± 0.2	77.7 ± 0.4	74.3 ± 1.0	76.9 ± 1.5	77.7 ± 1.3
52	74.6 ± 1.2	77.7 ± 1.0	78.4 ± 1.5	75.2 ± 0.0	77.0 ± 0.0	78.1 ± 0.9
53	77.1 ± 0.3	78.6 ± 0.4	77.4 ± 0.9	75.2 ± 0.0	76.3 ± 0.9	77.1 ± 0.3
54	75.6 ± 0.7	78.6 ± 1.1	77.0 ± 1.3	74.6 ± 0.7	76.7 ± 0.5	77.0 ± 0.0
55	75.1 ± 1.2	78.1 ± 0.9	77.2 ± 1.8	76.3 ± 1.2	75.9 ± 0.9	77.5 ± 0.8
56	76.1 ± 1.0	78.2 ± 0.4	78.3 ± 1.7	76.8 ± 1.5	77.3 ± 0.5	77.8 ± 1.1
57	74.0 ± 1.3	76.5 ± 0.5	76.1 ± 0.7	74.4 ± 1.3	75.6 ± 1.1	76.0 ± 1.3
58	75.0 ± 1.5	76.5 ± 0.5	77.0 ± 0.6	76.8 ± 1.8	76.7 ± 1.3	76.9 ± 0.9
59	76.2 ± 0.9	75.0 ± 1.3	76.8 ± 1.0	77.3 ± 1.5	76.9 ± 1.2	77.6 ± 0.7
60	76.8 ± 0.4	79.7 ± 1.3	77.9 ± 1.3	75.5 ± 1.0	78.9 ± 1.3	79.4 ± 1.2
61	74.7 ± 2.2	76.5 ± 0.9	78.8 ± 2.2	78.8 ± 2.3	77.7 ± 2.0	78.7 ± 1.0
62	76.0 ± 1.0	77.5 ± 0.5	76.1 ± 0.9	76.7 ± 1.4	77.2 ± 0.4	77.2 ± 0.6
63	74.7 ± 1.4	77.0 ± 0.9	76.5 ± 3.0	74.5 ± 1.7	74.7 ± 1.2	77.4 ± 1.1
64	74.6 ± 0.8	76.6 ± 1.4	76.6 ± 3.2	74.8 ± 1.5	74.7 ± 1.1	76.9 ± 0.3
65	75.8 ± 1.4	77.9 ± 0.2	78.8 ± 1.3	76.3 ± 1.2	76.1 ± 1.1	77.0 ± 0.0
66	76.5 ± 0.8	77.2 ± 1.4	78.1 ± 1.0	75.3 ± 1.5	75.2 ± 0.9	77.0 ± 0.0
67	74.9 ± 1.4	77.4 ± 1.0	78.6 ± 1.0	75.2 ± 1.9	75.1 ± 0.3	76.3 ± 1.0
68	76.1 ± 1.1	78.0 ± 0.9	80.3 ± 1.3	75.0 ± 1.2	76.9 ± 0.8	79.5 ± 0.9
69	75.5 ± 1.5	76.7 ± 0.3	77.4 ± 0.5	75.9 ± 1.7	76.3 ± 1.2	77.4 ± 1.0
70	75.0 ± 1.3	77.7 ± 1.9	78.1 ± 1.6	75.0 ± 1.9	76.1 ± 0.9	77.0 ± 0.0
71	75.6 ± 2.0	78.4 ± 2.0	77.7 ± 1.6	78.2 ± 1.4	76.9 ± 0.5	77.7 ± 0.7
72	75.0 ± 0.8	77.7 ± 1.5	78.3 ± 1.9	76.6 ± 0.7	76.3 ± 1.0	76.8 ± 0.7
73	75.3 ± 1.3	76.6 ± 0.8	77.7 ± 1.6	77.4 ± 0.7	76.6 ± 0.5	77.0 ± 0.0
74	77.4 ± 1.5	78.1 ± 1.7	80.6 ± 2.1	75.3 ± 0.6	76.5 ± 1.7	77.5 ± 1.5
75	77.0 ± 3.5	78.4 ± 2.0	79.0 ± 2.7	77.9 ± 2.6	77.7 ± 3.6	81.1 ± 3.5
76	73.6 ± 0.4	76.8 ± 0.4	78.2 ± 1.9	74.9 ± 1.2	74.7 ± 0.5	77.2 ± 1.3
77	74.3 ± 1.8	76.1 ± 0.6	77.7 ± 1.3	75.6 ± 1.4	75.5 ± 1.6	78.0 ± 1.6
78	73.4 ± 1.1	77.9 ± 1.1	77.7 ± 1.6	76.7 ± 1.2	75.1 ± 0.3	77.7 ± 0.8
79	75.4 ± 1.8	77.0 ± 0.9	77.7 ± 1.6	77.3 ± 0.5	76.8 ± 0.6	78.6 ± 0.6
80	75.0 ± 1.5	77.7 ± 0.4	77.0 ± 2.2	76.5 ± 1.4	77.2 ± 0.6	79.0 ± 1.3
81	75.6 ± 1.1	76.9 ± 0.3	79.7 ± 1.6	76.9 ± 0.3	76.5 ± 1.0	79.3 ± 1.2
82	74.9 ± 1.5	77.0 ± 1.6	77.1 ± 2.3	76.5 ± 1.1	77.2 ± 0.6	78.8 ± 1.2
83	77.0 ± 1.5	77.4 ± 0.8	79.0 ± 1.5	77.0 ± 1.5	76.3 ± 0.7	77.9 ± 1.5
84	74.7 ± 1.2	77.4 ± 2.0	76.3 ± 1.6	75.7 ± 0.4	75.2 ± 0.0	77.3 ± 0.6

18cv794 NRDC v EPA ED_001632C_00000093-00132

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 4 (Cont'd.)

CHAMBER TEMPERATURE DATE - °F
(Mean ± S.D.)

	Air Controls			Exposure Groups		
Exposure	C1&2	E4	E5	E1	E2	E3,4,5
85	75.1 ± 1.8	76.5 ± 0.9	77.4 ± 0.8	74.7 ± 1.0	76.5 ± 0.5	77.5 ± 1.0
86	73.6 ± 2.4	76.8 ± 0.4	76.1 ± 1.8	74.7 ± 1.6	75.2 ± 0.0	77.0 ± 0.0
87	75.7 ± 1.2	76.4 ± 1.2	77.4 ± 0.8	75.5 ± 1.0	77.1 ± 0.3	77.4 ± 0.8
88	74.4 ± 0.9	65.7 ± 1.7	75.9 ± 0.9	70.7 ± 1.0	73.1 ± 1.3	77.1 ± 0.3
89	77.7 ± 1.8	74.6 ± 1.5	76.7 ± 0.7	75.6 ± 1.2	76.2 ± 1.6	80.0 ± 2.1
90	74.7 ± 1.7	78.3 ± 1.1	77.9 ± 1.5	75.3 ± 1.3	76.5 ± 0.8	77.5 ± 1.4
91	74.5 ± 0.9	77.4 ± 0.5	77.5 ± 0.8	74.9 ± 0.8	76.9 ± 0.3	78.4 ± 1.0
92	75.0 ± 1.4	77.0 ± 0.0	77.0 ± 0.0	74.9 ± 1.2	76.8 ± 0.4	77.6 ± 1.1
93	74.7 ± 1.4	77.9 ± 0.8	77.3 ± 0.7	74.8 ± 0.9	76.8 ± 0.4	77.2 ± 0.9
94	74.1 ± 0.7	77.2 ± 0.9	74.7 ± 0.8	74.7 ± 0.8	76.5 ± 0.8	78.0 ± 0.9
95	74.3 ± 2.1	79.7 ± 0.6	79.2 ± 1.9	74.0 ± 1.1	76.2 ± 1.2	77.9 ± 1.9
96	73.9 ± 1.8	77.0 ± 0.0	77.9 ± 1.0	74.4 ± 1.0	75.5 ± 0.8	76.4 ± 1.3
97	74.6 ± 1.3	79.5 ± 1.6	77.9 ± 1.5	75.6 ± 1.0	75.8 ± 0.9	77.8 ± 1.3
98	74.6 ± 1.2	77.9 ± 0.9	75.6 ± 1.7	75.8 ± 1.3	76.8 ± 0.4	77.7 ± 1.0
99	75.8 ± 0.9	78.1 ± 1.6	74.8 ± 2.0	75.6 ± 1.3	76.5 ± 0.9	78.2 ± 1.1
100	76.4 ± 1.0	79.2 ± 1.4	77.4 ± 1.9	77.0 ± 0.8	77.4 ± 0.8	79.0 ± 1.5
101	73.5 ± 1.5		77.0 ± 3.0	75.1 ± 0.5	75.3 ± 0.3	77.0 ± 0.6
102	73.0 ± 1.5		78.6 ± 2.4	74.3 ± 1.5	76.3 ± 1.4	77.7 ± 2.6
103	72.9 ± 1.4		78.2 ± 1.9	73.0 ± 2.2	74.4 ± 0.7	77.2 ± 1.9
104	72.3 ± 0.7		77.4 ± 0.8	73.8 ± 1.2	75.6 ± 0.8	76.4 ± 1.2
105	74.7 ± 0.8		77.5 ± 0.8	74.8 ± 0.5	77.6 ± 0.4	78.1 ± 1.6
106	74.4 ± 1.2		77.4 ± 0.8	73.8 ± 0.5	76.2 ± 0.9	77.5 ± 0.6
107	72.7 ± 1.0		77.4 ± 0.9	73.5 ± 0.9	76.7 ± 1.2	78.1 ± 1.1
108	71.5 ± 0.6		76.3 ± 1.3	71.8 ± 0.6	74.5 ± 1.0	75.1 ± 1.2
109	71.6 ± 1.2		73.4 ± 3.4	73.4 ± 0.0	76.4 ± 0.8	77.1 ± 0.3
110	68.4 ± 0.8		77.0 ± 0.0	71.6 ± 0.0	74.8 ± 1.0	74.8 ± 1.1
111	71.6 ± 0.0		76.5 ± 0.9	73.5 ± 0.3	77.0 ± 0.0	76.4 ± 0.8
112	71.6 ± 0.0		76.8 ± 0.4	74.2 ± 0.7	76.5 ± 0.7	76.2 ± 0.9
113	71.6 ± 0.0		77.0 ± 0.0	75.9 ± 1.4	75.9 ± 1.0	77.0 ± 1.7
114	72.8 ± 0.7		77.0 ± 0.0	74.9 ± 0.5	77.1 ± 0.7	77.5 ± 0.5
115	72.4 ± 1.5		77.0 ± 0.0	74.5 ± 1.3	76.4 ± 1.4	77.1 ± 0.6
116	75.0 ± 2.1		76.1 ± 0.6	74.6 ± 0.9	76.9 ± 1.5	78.3 ± 0.9
117	73.6 ± 2.1		77.0 ± 0.0	75.4 ± 2.0	77.9 ± 2.6	78.8 ± 3.2
118	72.0 ± 1.0		77.4 ± 0.9	74.4 ± 0.7	75.1 ± 1.4	76.3 ± 1.8
119	72.8 ± 0.9		76.3 ± 0.9	73.8 ± 0.8	76.3 ± 3.8	77.1 ± 0.7
120	73.2 ± 1.5		73.6 ± 3.5	74.8 ± 0.5	75.3 ± 0.7	77.0 ± 0.0
121	72.2 ± 0.8		78.4 ± 1.0	74.3 ± 0.5	74.2 ± 0.9	75.3 ± 1.3
122	72.3 ± 1.0		75.4 ± 0.5	74.4 ± 0.7	74.7 ± 1.3	76.4 ± 1.4
123	72.2 ± 1.4		76.8 ± 0.4	73.8 ± 0.8	73.4 ± 0.0	75.3 ± 2.2
124	71.5 ± 1.2		76.5 ± 2.7	73.7 ± 0.6	72.9 ± 1.1	75.0 ± 1.5
125	72.8 ± 1.2		76.4 ± 2.7	73.5 ± 0.8	75.6 ± 1.5	76.8 ± 1.5
126	71.8 ± 1.1		77.9 ± 2.3	72.6 ± 0.7	74.1 ± 1.3	75.6 ± 0.5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX B (CONT.)

TABLE 4 (Cont'd.)

CHAMBER TEMPERATURE DATE - °F
(Mean + S.D.)

Exposure	Air Controls			Exposure Groups		
	C1&2	E4	E5	E1	E2	E3,4,5
127	71.9 ± 0.9		75.2 ± 2.5	72.9 ± 0.8	74.2 ± 0.9	74.2 ± 1.6
128	72.2 ± 0.9		77.2 ± 2.7	72.8 ± 0.7	74.4 ± 1.3	75.2 ± 1.5
129	73.5 ± 1.3		76.5 ± 1.2	72.9 ± 1.0	74.5 ± 1.7	73.7 ± 1.5
130	74.3 ± 0.9		77.4 ± 0.9	73.8 ± 0.8	77.0 ± 1.5	78.3 ± 1.5
131	73.0 ± 0.9		75.6 ± 0.5	72.5 ± 0.8	75.1 ± 1.9	76.6 ± 1.5
132	71.8 ± 1.0		75.6 ± 1.2	72.8 ± 0.8	75.1 ± 1.5	75.3 ± 1.2
133	71.6 ± 0.5		75.2 ± 0.0	72.5 ± 1.0	75.3 ± 1.4	73.5 ± 1.4
134	72.4 ± 0.9		72.9 ± 0.5	74.0 ± 0.7	76.2 ± 0.5	76.1 ± 1.8
135	71.5 ± 1.0		71.9 ± 1.1	73.8 ± 1.1	76.3 ± 0.9	76.5 ± 1.9
136	71.3 ± 1.1		73.1 ± 0.5	73.8 ± 0.5	74.9 ± 1.5	75.0 ± 1.6
137	72.3 ± 0.6		71.6 ± 0.0	73.8 ± 0.5	74.5 ± 1.3	75.2 ± 1.0
138	73.6 ± 1.2		72.2 ± 0.7	75.2 ± 1.5	78.0 ± 0.7	77.9 ± 2.4
139	69.4 ± 1.5		70.7 ± 0.0	73.4 ± 1.0	75.8 ± 2.2	73.7 ± 0.9
140	69.5 ± 1.4		71.4 ± 1.7	73.8 ± 0.5	75.3 ± 2.1	73.7 ± 0.9
141	69.4 ± 1.4		71.6 ± 0.0	73.7 ± 0.7	75.2 ± 1.9	73.2 ± 0.6
142				73.9 ± 0.6		73.8 ± 1.3
143						73.3 ± 0.6

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX C

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CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT

PATHOLOGY REPORT NO. 41-82

1-methyl-2-pyrrolidinone (NMP)

H-14099, MR-3872-001 - Teratology

Reproduction/Teratogenicity Study in CD® Rats

June 1, 1982

Summary

Histopathological studies of testes and ovaries from control CD® rats and offspring from CD® rats exposed to NMP revealed no lesions or observations that would not be expected from a similar size group of control animals. Since all microslides were coded, no comments regarding distribution of observations by group will be included in this report.

Introduction

In this study offspring from NMP-treated CD® rats and offspring from CD® control rats, were upon reaching 70 days of age, mated to new rats (untreated rats). After a 15-day breeding period, male rats (85 days of age) were necropsied and the reproductive organs were examined for abnormalities. Testes from these rats were fixed and processed for histopathology. The female rats were allowed to produce litters and necropsied at 2 days post-partum. The reproductive tract was examined and the ovaries were fixed and processed for histopathology. Testes and ovaries from all of the rats were weighed prior to fixation. Since the slides were coded and the pathologist's copy of the protocal did not include the treatment of each group nor the size of each group, that information will not be included in this report.

Results and Discussion

Only two observations were seen in the testes of the test rats. One rat (# 308) had a minimal atrophy of seminiferous tubules that was unilateral. This change is occasionally seen in control rats at

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX C (CONT.)

this age at Haskell Laboratory. Another rat (# 286) had an atypical giant cell in the seminiferous tubules adjacent to the rete testes. This change was unilateral and minimal.

The ovaries and oviducts when present were examined microscopically. One ovary (rat # 324) had a fluid filled cyst lined by flattened basophilic cells. Some rats had a minimal congestion of the ovaries. Since the vagina was not processed in these animals no correlation of this change could be made with stage of estrous cycle. Hyperemia of visceral organs is occasionally seen in euthanized rats. It should be emphasized that this change was very minimal and not accompanied by inflammation or cell degeneration and necrosis.

Conclusions

Since the pathologist was unaware of the group assignments for each rat, no conclusions based on observations can be made at the time of this report.

Report by: Gary T. Burger
Gary T. Burger, D.V.M.
Senior Research Pathologist

Approved by: William C. Krauss
William C. Krauss, D.V.M.
Manager, Pathology Division

GTB:WCK:smk

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APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE I

HISTOPATHOLOGY OF MALE RATS

Code Number:	279	280	281	282	283	284	285	286	287
Animal Number 306:	813-1	725-1	710-1	819-1	785-1	855-1	692-1	757-1	885-1
ORGANS/OBSERVATIONS									
TESTES	N	N	N	N	N	N	N	L	N
Atypical giant cells, focal, seminiferous tubule adjacent to rete testes	-	-	-	-	-	-	-	P	-

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18cv794 NRDC v EPA

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APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE I (Cont'd)

Part 2

HISTOPATHOLOGY OF MALE RATS

Code Number:	288	289	290	291	292	293	294	295	296
Animal Number 306:	784-1	891-1	849-1	714-1	698-1	749-1	846-1	727-1	782-1
ORGANS/OBSERVATIONS									
TESTES	N	N	N	N	N	N	N	N	N

18cv794 NRDC v EPA

ED_001632C_00000093-00138

APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE I (Cont'd)

Part 3

HISTOPATHOLOGY OF MALE RATS

Code Number:	297	298	299	300	301	302	303	304	305
Animal Number 306:	775-1	811-1	857-1	881-1	689-1	737-1	851-1	873-1	779-1
ORGANS/OBSERVATIONS									
TESTES	N	N	N	N	N	N	N	N	N

DWI

18cv794 NRDC v EPA

ED_001632C_00000093-00139

APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE I (Cont'd)

Part 4

HISTOPATHOLOGY OF MALE RATS

Code Number:	306	307	308	309	310	311	312	313	314
Animal Number 306:	713-1	897-1	825-1	815-1	835-1	755-1	781-1	765-1	766-1
ORGANS/OBSERVATIONS									
TESTES	N	N	L	N	N	N	N	N	N
Atrophy, germinal epithelium, seminiferous tubules	-	-	1	-	-	-	-	-	-

18cv794 NRDC v EPA
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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE I (Cont'd)

Part 5

HISTOPATHOLOGY OF MALE RATS

Code Number:	315	316	317	318	319	320
Animal Number 306:	864-1	823-1	838-1	848-1	786-1	801-1
ORGANS/OBSERVATIONS						
TESTES	N	N	N	N	N	N

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18cv794 NRDC v EPA

ED_001632C_00000093-00141

APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE II

HISTOPATHOLOGY OF FEMALE RATS

Code Number:	321	222	323	324	325	326	327	328	329
Animal Number 306:	725-2	710-2	819-2	785-2	855-2	692-2	757-2	885-2	784-2
ORGANS/OBSERVATIONS									
OVARIES	L	N	N	L	N	N	N	N	N
Cyst, focal	-	-	-	P	-	-	-	-	-
Congestion (hyperemia)	1	-	-	1	-	-	-	-	-
OVIDUCTS	N	N	O	N	N	N	N	N	O

H-14099
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TABLE II (Cont'd)

Part 2

HISTOPATHOLOGY OF FEMALE RATS

Code Number:	330	331	332	333	334	335	336	337	338A
Animal Number 306:	891-2	849-2	714-2	698-2	749-2	727-2	782-2	775-2	811-2
ORGANS/OBSERVATIONS									
OVARIES	N	N	N	N	N	N	N	N	L
Congestion (hyperemia)	-	-	-	-	-	-	-	-	1
OVIDUCTS	N	N	N	N	N	N	N	N	N

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18cv794 NRDC v EPA
ED_001632C_00000093-00143

APPENDIX C (CONT.)

H-14099
MR-3872-001

TABLE II (Cont'd)

HISTOPATHOLOGY OF FEMALE RATS

Part 3

Code Number:	339	340	341	342	343	344	345	346	347
Animal Number 306:	857-2	881-2	689-2	737-2	851-2	873-2	713-2	897-2	825-2
ORGANS/OBSERVATIONS									
OVARIES	N	N	N	L	N	L	N	N	N
Congestion (hyperemia)	-	-	-	1	-	1	-	-	-
OVIDUCTS	N	N	N	N	N	N	N	N	N

18cv794 NRDC v EPA

ED_001632C_00000093-00144

H-14099
MR-3872-001

TABLE II (Cont'd)

HISTOPATHOLOGY OF FEMALE RATS

Part 4

Code Number:	348	349	350	351	352	353	354	355	356	357
Animal Number 306:	815-2	835-2	755-2	781-2	765-2	766-2	823-2	838-2	848-2	786-2
ORGANS/OBSERVATIONS										
OVARIES	N	N	N	N	N	L	N	N	N	L
Congestion (hyperemia)	-	-	-	-	-	1	-	-	-	1
OVIDUCTS	N	O	N	N	N	O	N	N	N	N

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX D

INDIVIDUAL CLINICAL OBSERVATIONS OF MALE RATS: PO

GROUP: CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306590	Alopecia both front legs	9/17 PM - 10/23AM
306599	Bilateral submandibular Swelling	9/28 PM - 10/1 PM
	Red nasal discharge	9/29 PM - 9/30 PM 10/1 PM - 10/2 AM
306616	Red nasal discharge	10/1 AM
	Bilateral submandibular swelling	9/29 PM - 10/2 AM
306645	Alopecia both front legs	9/30 PM - 11/13AM
	Stained shoulders	9/1 PM- 11/13 AM
306646	Red discharge from penis	10/28 AM
306653	Stained shoulders	9/1 PM - 10/23 AM
306655	Bilateral submandibular swelling*	9/28 PM - 9/30 PM
	Knot in neck	10/1 AM,PM
306683	Brown discharge from right eye	10/29 AM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX D (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF MALE RATS: PO

GROUP: EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306636	Brown stained shoulders	10/28 AM - 11/13 AM
306654	Alopecia right front leg	10/12 PM - 10/22 PM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX D (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF MALE RATS: PO

GROUP: EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306675	Broken toe nail on left Rear foot	9/21 AM - 9/22 PM
	Alopecia left front leg	10/30 AM,11/2 AM - 11/13 AM
	Alopecia right front leg	11/6 AM - 11/13 AM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX D (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF MALE RATS: PO

GROUP: EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306576	Slight red nasal discharge	7/16 PM
306594	Infected left fore paw	8/20 PM 8/25 PM
	Slight nasal discharge	7/16 PM
306630	Sore on right shoulder	7/31 PM - 8/4 AM 8/13 PM - 8/30 AM
	Sore on left shoulder	8/19 AM - 9/17 AM
306650	Slight salivation	8/11 PM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX D (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF MALE RATS: PO

GROUP: EIV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306618	Diarrhea	8/18 AM - 8/19 AM
306624	Red discharge right eye	9/30 PM - 10/6 PM 10/8 PM - 10/12 PM 10/13 PM
306679	Brown stained shoulders	10/15 PM - 10/18 AM 10/28 AM - 11/11 AM

DW

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX D (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF MALE RATS: PO

GROUP: EV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306587	Dark brown stain right periocular	10/2 PM - 10/7 PM
306619	Bleeding left rear paw	7/30 PM
306663	Bloody front paws	7/21 PM
306677	Severe diarrhea	10/31 AM

* Swelling decreased, but knot remained in neck

DW

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306681	100.1	153.7	207.0	262.7	319.5	350.6	378.6
306683	102.5	156.3	223.1	272.3	330.4	364.3	396.3
306598	107.2	161.6	219.5	273.9	321.2	357.1	383.4
306599	98.1	126.5	178.1	234.2	282.1	323.5	357.1
306667	112.2	170.6	223.8	265.3	321.7	349.0	373.1
306607	112.7	174.1	227.7	284.6	327.5	355.1	398.2
306635	114.1	174.6	227.7	289.2	327.1	368.1	395.6
306655	117.4	174.9	235.3	294.4	343.2	377.6	414.5
306669	121.2	189.1	245.3	310.4	358.3	391.3	429.7
306616	122.6	183.1	257.2	308.4	350.9	383.2	413.4
306645	101.6	154.4	208.7	275.6	331.0	365.7	403.2
306586	103.8	159.6	213.8	255.3	302.1	324.8	350.8
306646	107.2	166.2	233.4	293.9	352.2	387.5	429.2
306653	109.4	173.2	232.9	299.8	346.8	377.0	413.7
306639	109.7	162.9	212.2	253.7	302.1	326.4	363.6
306643	112.6	169.6	229.4	292.8	350.4	384.0	429.7
306638	114.1	162.5	215.8	266.7	311.1	341.6	376.7
306673	117.7	177.6	243.6	302.9	352.1	398.6	428.9
306590	120.4	181.6	235.5	299.1	349.2	392.0	423.8
306660	122.6	179.5	229.8	293.0	333.6	355.1	379.5
GROUP MEAN	111.4	167.6	225.0	281.4	330.6	363.6	397.0
SD	7.61	13.89	16.86	20.54	20.45	23.08	25.61
SE	1.70	3.10	3.77	4.59	4.57	5.16	5.73
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306681	398.9	415.7	433.2	441.5	454.1	460.2	483.8
306683	422.8	446.9	467.7	468.1	480.2	497.5	517.5
306598	417.0	436.7	453.5	466.8	480.4	493.5	511.5
306599	385.8	411.6	439.5	426.3	423.2	430.4	441.1
306667	400.0	418.9	428.3	433.8	445.1	458.6	472.2
306607	425.0	452.8	468.4	487.0	499.0	510.6	516.1
306635	414.0	434.0	451.9	465.4	475.7	484.2	499.9
306655	437.3	463.6	484.1	486.6	498.0	487.9	514.9
306669	450.9	474.1	494.1	507.7	512.6	530.5	539.0
306616	435.8	459.3	485.1	498.5	510.0	500.2	521.9
306645	430.2	448.6	477.6	477.3	498.5	512.5	518.4
306586	366.9	380.3	399.4	397.3	408.0	412.3	435.7
306646	456.2	482.6	499.7	506.5	521.3	543.7	547.2
306653	432.1	455.9	480.5	495.4	505.9	516.9	522.6
306639	386.8	403.6	422.3	433.7	436.3	452.1	464.7
306643	458.5	482.9	505.0	517.8	525.6	541.3	560.1
306638	402.2	421.6	440.3	448.6	461.9	476.8	485.2
306673	451.6	470.9	489.0	477.4	475.7	493.3	513.8
306590	449.9	468.3	485.1	498.4	513.8	533.0	535.6
306660	417.0	428.2	443.0	453.3	460.2	486.0	484.9
GROUP MEAN	421.9	442.8	462.4	469.4	479.3	491.1	504.3
SD	25.86	28.23	29.21	31.93	33.67	35.50	33.27
SE	5.78	6.31	6.53	7.14	7.53	7.94	7.44
N	20	20	20	20	20	20	20

DW1

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 98	5[c]	12[c]	19[c]	22[c]
306681	485.9	...	...	...	...
306683	526.9	542.9	560.2	581.3	597.1
306598	526.0	...	...	...	...
306599	457.5	...	...	...	...
306667	480.5	494.5	500.4	507.0	509.0
306607	530.8	551.5	551.9	564.7	569.4
306635	510.9	530.2	550.7	575.3	585.2
306655	529.0	...	...	...	...
306669	547.8	...	...	...	...
306616	539.8	...	...	...	...
306645	531.8	546.6	558.7	575.3	585.1
306586	450.8	454.9	453.2	452.4	466.3
306646	550.3	569.2	585.4	599.9	600.2
306653	542.7	...	...	...	...
306639	469.4	...	...	...	...
306643	571.9	582.5	597.8	609.3	616.0
306638	495.9	515.0	510.5	518.2	532.6
306673	518.8	535.2	546.7	558.9	564.0
306590	554.2	...	...	...	...
306660	504.6	...	...	...	...
GROUP MEAN	516.3	532.3	541.5	554.2	562.5
SD	33.63	36.97	42.70	48.04	46.63
SE	7.52	11.69	13.50	15.19	14.74
N	20	10[b]	10[b]	10[b]	10[b]

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306676	99.5	157.4	198.2	255.9	307.9	338.8	370.3
306604	101.9	161.4	213.3	262.8	307.4	332.5	369.3
306611	106.4	152.1	204.2	263.8	314.9	349.5	388.7
306649	108.7	177.3	241.6	298.8	359.8	396.8	441.5
306627	111.6	169.4	222.8	279.6	321.5	351.0	387.3
306674	113.6	182.1	243.8	303.9	354.1	384.6	423.8
306637	115.6	178.2	232.3	279.2	320.4	336.4	363.1
306597	116.7	179.8	235.1	285.4	336.8	383.2	426.1
306672	120.1	188.2	258.7	307.4	357.6	388.2	416.4
306664	122.2	190.2	255.5	317.0	358.6	392.5	413.1
GROUP MEAN	111.6	173.6	230.6	285.4	333.9	365.3	400.0
SD	7.50	13.02	20.64	20.88	21.95	25.86	27.66
SE	2.37	4.12	6.53	6.60	6.94	8.18	8.75
N	10	10	10	10	10	10	10

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP CII CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306676	393.2	419.0	434.9	445.0	449.8	466.1	480.4
306604	390.7	411.9	434.3	438.0	449.1	460.9	473.9
306611	423.9	447.9	468.2	489.0	496.8	513.9	533.6
306649	469.6	501.1	526.9	534.6	537.8	545.8	567.2
306627	408.1	426.5	451.2	453.7	459.5	469.7	487.5
306674	447.2	468.5	486.5	492.8	493.4	511.0	533.0
306637	386.1	407.4	424.2	430.0	443.7	455.4	463.5
306597	454.9	487.7	512.7	553.1	540.6	556.2	579.9
306672	437.4	462.2	481.5	496.3	504.9	507.8	525.0
306664	428.5	438.3	448.7	467.4	463.0	484.3	497.2
GROUP MEAN	424.0	447.0	466.9	480.0	483.9	497.1	514.1
SD	28.90	32.24	34.62	41.06	36.27	35.56	39.88
SE	9.14	10.20	10.95	12.98	11.47	11.24	12.61
N	10	10	10	10	10	10	10

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP CII CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 98	5[c]	12[c]	19[c]	22[c]
306676	500.1	...	...	...	...
306604	500.6	507.2	520.4	537.4	550.8
306611	549.5	...	...	...	...
306649	585.3	587.6	603.5	620.1	635.8
306627	501.5	...	...	...	...
306674	545.8	...	...	...	...
306637	476.8	491.5	501.3	516.2	521.0
306597	596.4	615.1	620.4	639.4	650.8
306672	539.1	554.4	567.3	570.5	586.4
306664	502.4	...	...	...	...
GROUP MEAN	529.8	551.2	562.6	576.7	589.0
SD	39.92	52.25	51.42	52.58	55.00
SE	12.62	23.37	22.99	23.51	24.60
N	10	5[b]	5[b]	5[b]	5[b]

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306641	100.5	156.1	243.7	286.0	326.6	371.6	409.0
306633	103.1	160.0	221.9	287.1	348.7	392.4	430.3
306654	105.9	161.1	222.2	278.2	336.2	372.1	404.6
306583	109.6	171.9	231.6	293.4	349.4	381.7	426.5
306606	111.7	164.2	217.7	278.9	326.3	365.9	404.8
306636	113.4	166.6	216.2	262.3	298.6	322.6	348.8
306603	114.5	172.6	243.2	304.8	347.3	380.4	410.4
306632	117.5	179.1	233.8	288.2	331.2	369.7	398.7
306601	118.9	175.9	239.9	298.6	346.7	389.9	429.5
306662	124.1	186.4	227.2	296.7	355.8	397.7	439.9
GROUP MEAN	111.9	169.4	229.7	287.4	336.7	374.4	410.3
SD	7.36	9.49	10.29	12.20	16.91	21.04	25.58
SE	2.33	3.00	3.25	3.86	5.35	6.65	8.09
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EI CONT.
CONCENTRATION: 10 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306641	439.7	465.4	478.3	492.8	495.5	503.0	520.7
306633	459.5	485.4	502.1	516.8	523.3	540.9	550.6
306654	428.5	459.0	474.9	473.3	496.7	515.3	506.0
306583	457.1	485.6	500.6	518.5	543.2	559.1	569.4
306606	432.6	462.8	476.8	490.0	501.1	522.3	540.5
306636	373.3	389.2	400.9	393.3	385.4	405.3	417.4
306603	434.0	455.5	463.1	487.8	499.5	516.9	526.7
306632	420.0	452.2	475.8	481.9	492.1	518.8	523.1
306601	452.3	488.6	502.6	518.9	534.0	559.8	558.1
306662	466.1	488.3	501.1	519.9	528.1	537.9	553.7
GROUP MEAN	436.3	463.2	477.6	489.3	499.9	517.9	526.6
SD	26.75	29.72	30.57	37.95	44.20	43.86	43.11
SE	8.46	9.40	9.67	12.00	13.98	13.87	13.63
N	10	10	10	10	10	10	10

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EI CONT.
CONCENTRATION: 10 PPM

ANIMAL NUMBER	EXPOSURE DAYS 98	5[c]	12[c]	19[c]	22[c]
306641	530.0	...	...	...	...
306633	563.1	...	...	...	...
306654	520.8	...	...	...	...
306583	578.8	606.7	592.5	593.8	604.6
306606	551.6	574.7	577.2	596.0	600.7
306636	428.5	427.3	454.7	467.3	474.8
306603	538.1	...	...	...	...
306632	541.8	559.6	575.1	594.2	610.8
306601	565.4	...	...	...	...
306662	575.7	593.9	602.5	610.4	618.7
GROUP MEAN	539.4	552.4	560.4	572.3	581.9
SD	43.46	72.23	60.15	59.12	60.27
SE	13.74	32.30	26.90	26.44	26.95
N	10	5[b]	5[b]	5[b]	5[b]

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306675	100.3	160.1	218.5	266.1	319.8	364.4	402.2
306610	101.7	165.5	229.8	293.1	357.5	410.5	455.8
306605	107.3	169.3	233.9	293.1	346.5	379.9	414.8
306657	108.3	164.5	226.2	269.6	310.9	341.2	368.1
306628	110.7	176.1	231.6	290.9	344.5	400.1	443.5
306614	113.1	162.5	221.9	283.1	341.2	377.9	413.0
306644	115.6	166.7	225.6	271.7	312.2	344.6	365.8
306602	116.4	171.2	230.1	297.9	338.6	375.1	421.2
306682	121.2	182.1	238.0	297.4	350.3	396.6	430.5
306626	123.1	186.7	255.5	285.5	355.2	395.6	409.4
GROUP MEAN	111.8	170.5	231.1	284.8	337.7	378.6	412.4
SD	7.61	8.68	10.28	11.84	17.26	23.25	28.88
SE	2.41	2.74	3.25	3.74	5.46	7.35	9.13
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP EII CONT.
CONCENTRATION: 50 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306675	430.9	457.2	470.5	453.9	460.2	493.1	503.2
306610	484.5	524.2	548.5	526.0	569.7	581.7	596.0
306605	444.1	473.3	487.3	494.3	517.5	531.7	542.4
306657	390.7	417.1	423.4	430.8	429.8	438.2	452.4
306628	490.1	529.7	553.4	560.5	574.5	603.0	607.7
306614	442.7	472.6	486.2	504.6	516.9	533.4	555.6
306644	385.2	406.3	415.1	417.4	419.7	425.8	433.5
306602	458.7	487.9	518.1	529.4	542.0	567.5	564.3
306682	462.0	482.4	504.0	493.2	518.4	545.3	567.1
306626	463.9	487.4	500.8	514.7	519.7	546.3	547.3
GROUP MEAN	445.3	473.8	490.7	492.5	506.8	526.6	537.0
SD	35.21	39.68	45.93	45.57	53.73	58.17	57.37
SE	11.13	12.55	14.52	14.41	16.99	18.39	18.14
N	10	10	10	10	10	10	10

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EII CONT.
CONCENTRATION: 50 PPM

ANIMAL NUMBER	EXPOSURE DAYS 98	5[c]	12[c]	19[c]	22[c]
306675	512.8	517.6	519.5	529.3	538.5
306610	610.2	626.4	631.6	640.9	653.5
306605	552.4	567.1	582.7	594.7	604.2
306657	455.1	...	...	...	...
306628	596.7	...	...	...	...
306614	564.4	...	...	...	...
306644	427.3	441.1	444.5	453.7	464.4
306602	576.1	...	...	...	...
306682	568.8	584.5	592.6	604.3	612.0
306626	563.0	...	...	...	...
GROUP MEAN	542.7	547.3	554.2	564.6	574.5
SD	59.75	71.05	73.34	73.91	74.07
SE	18.89	31.78	32.80	33.05	33.13
N	10	5[b]	5[b]	5[b]	5[b]

DWI

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306661	101.1	154.4	211.2	273.2	321.1	355.6	394.6
306651	103.9	152.1	219.7	276.7	322.3	358.0	391.8
306659	107.1	161.8	219.3	278.4	318.3	341.8	370.2
306574	109.2	158.6	208.5	253.9	302.1	338.5	370.9
306656	110.5	170.3	236.3	288.1	335.9	370.6	400.2
306642	112.5	164.1	221.0	258.8	296.1	318.8	344.9
306622	115.4	175.5	235.0	286.8	336.3	375.8	409.6
306625	116.7	183.6	236.0	308.8	362.0	397.0	429.0
306630	121.2	186.1	229.4	304.1	353.4	393.7	422.5
306613	121.8	180.7	250.6	315.7	370.7	410.4	440.0
306680	100.4	151.5	207.0	262.5	310.7	336.2	365.5
306584	105.6	165.0	235.3	290.8	334.9	371.7	401.7
306575	106.5	163.0	223.1	284.4	339.5	382.7	422.5
306589	109.1	158.0	209.4	262.5	305.6	343.4	381.8
306666	110.8	170.6	232.2	296.2	349.8	388.4	418.7
306647	113.6	167.6	224.4	284.8	333.9	371.1	400.9
306593	114.6	170.9	223.0	281.4	313.4	339.3	356.8
306650	118.1	180.0	243.0	301.3	351.5	397.7	425.3
306594	118.8	181.8	237.9	290.7	333.9	363.2	390.7
306576	122.7	179.0	234.9	294.2	354.9	396.5	432.1
GROUP MEAN	112.0	168.7	226.9	284.7	332.3	367.5	398.5
SD	6.71	10.86	12.17	16.79	20.85	25.55	27.01
SE	1.50	2.43	2.72	3.75	4.66	5.71	6.04
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306661	427.9	453.6	481.6	495.8	495.7	520.0	512.8
306651	420.3	444.6	464.8	481.0	494.6	510.1	519.3
306659	404.1	429.6	440.8	447.5	455.1	474.4	490.0
306574	409.1	426.1	437.2	455.3	457.8	480.5	490.5
306656	420.3	441.8	450.6	474.6	471.2	485.9	500.0
306642	373.9	390.5	400.0	415.9	429.4	436.8	455.6
306622	448.2	468.2	485.3	507.4	512.6	530.8	540.7
306625	453.0	479.0	494.6	502.6	517.5	533.2	540.4
306630	456.3	470.4	491.8	516.6	523.9	546.7	547.9
306613	471.3	503.1	512.8	513.9	515.6	539.6	541.9
306680	395.2	417.2	427.6	432.2	445.8	453.3	460.1
306584	421.6	431.1	446.0	456.1	469.4	472.3	483.0
306575	452.9	471.1	493.4	502.3	521.3	538.2	553.3
306589	409.4	437.2	452.7	462.1	473.2	493.9	494.4
306666	454.0	487.6	503.8	509.6	530.5	539.1	550.3
306647	431.1	480.6	473.0	480.6	488.3	488.3	501.4
306593	375.7	396.4	410.6	416.8	420.0	433.8	453.3
306650	459.3	451.9	500.2	513.7	523.1	536.7	552.7
306594	422.2	443.6	457.8	457.3	464.3	480.7	490.2
306576	469.0	488.5	503.1	520.8	523.3	536.8	545.9
GROUP MEAN	428.7	450.6	466.4	478.1	486.6	501.6	511.2
SD	28.90	30.63	32.69	33.71	34.20	36.31	34.01
SE	6.46	6.85	7.31	7.54	7.65	8.12	7.61
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 98	5[c]	12[c]	19[c]	22[c]
306661	532.8	...	...	...	...
306651	537.5	...	...	...	...
306659	502.5	519.6	522.3	535.3	545.5
306574	501.2	508.6	529.9	544.7	555.9
306656	515.3	...	...	...	...
306642	479.7	499.5	514.7	523.8	534.8
306622	556.7	...	...	...	...
306625	562.5	577.7	588.4	601.3	614.9
306630	561.8	...	...	...	...
306613	551.7	568.0	582.1	596.5	607.8
306680	475.8	...	...	...	...
306584	502.4	...	...	...	...
306575	560.7	578.7	582.7	595.5	603.8
306589	512.5	...	...	...	...
306666	569.2	584.4	592.5	607.3	621.3
306647	519.5	529.0	550.4	566.7	573.6
306593	472.7	502.1	523.2	536.7	542.2
306650	572.7	584.8	607.0	619.7	627.3
306594	497.8	...	...	...	...
306576	550.1	...	...	...	...
GROUP MEAN	526.8	545.2	559.3	572.8	582.7
SD	32.91	36.52	34.80	35.30	36.07
SE	7.36	11.55	11.00	11.16	11.41
N	20	10[b]	10[b]	10[b]	10[b]

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EIV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306624	97.6	153.5	209.9	258.3	327.3	334.7	366.4
306608	105.3	163.8	219.8	269.2	305.9	352.8	399.1
306612	106.3	169.1	230.5	294.4	352.7	393.4	431.8
306585	109.7	164.0	211.8	264.9	315.8	349.8	378.9
306617	110.1	163.5	211.8	295.9	351.8	370.2	403.6
306640	112.3	163.2	220.8	282.5	331.8	353.0	382.8
306629	113.8	168.5	229.7	277.7	323.1	364.1	405.3
306618	116.8	175.0	236.8	269.2	328.1	403.0	443.6
306679	118.8	176.7	244.1	315.5	366.8	398.5	434.2
306652	123.6	192.6	255.9	324.1	389.7	436.4	486.7
GROUP MEAN	111.4	169.0	227.1	285.2	339.3	375.6	413.2
SD	7.44	10.59	15.23	21.96	25.58	31.30	36.14
SE	2.35	3.35	4.82	6.95	8.09	9.90	11.43
N	10	10	10	10	10	10	10

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO*

GROUP EIV CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306624	399.0	424.4	439.4	451.9	466.5	484.8	475.8
306608	429.6	455.9	474.1	467.3	478.1	499.5	508.3
306612	467.4	502.6	526.0	536.2	549.0	566.6	573.9
306585	399.4	415.1	422.1	428.4	430.5	444.6	449.3
306617	449.5	484.9	510.2	516.0	534.1	552.8	560.0
306640	405.1	412.7	432.1	449.0	465.2	488.3	505.2
306629	433.2	450.5	466.5	491.3	501.3	511.1	518.1
306618	470.5	502.0	520.7	546.2	560.3	572.5	575.2
306679	463.7	480.6	504.3	513.9	519.4	528.2	538.9
306652	532.6	547.7	579.0	593.5	601.2	614.1	621.9
GROUP MEAN	445.0	467.6	487.4	499.4	510.6	526.3	532.7
SD	41.31	43.92	49.48	51.44	52.01	50.51	51.64
SE	13.06	13.89	15.65	16.27	16.45	15.97	16.33
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EIV CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 98	5[c]	12[c]	19[c]	22[c]
306624	500.0	508.2	518.7	532.8	537.8
306608	509.8	515.7	553.5	570.2	580.0
306612	586.6	...	...	...	...
306585	445.0	...	...	...	...
306617	578.9	594.3	607.0	627.5	637.0
306640	515.8	...	...	...	...
306629	524.5	530.4	546.2	558.0	560.2
306618	569.7	...	...	..	...
306679	548.8	567.7	575.0	585.5	587.3
306652	638.4	...	...	...	...
GROUP MEAN	541.8	543.3	560.1	574.8	580.5
SD	54.43	36.59	33.06	35.21	36.99
SE	17.21	16.37	14.79	15.75	16.54
N	10	5[b]	5[b]	5[b]	5[b]

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 0	7	14	21	28	35	42
306580	100.1	150.8	197.8	264.1	318.9	360.9	403.1
306631	105.6	156.0	217.8	275.3	329.0	352.7	391.7
306663	106.9	164.2	228.3	284.1	345.7	376.1	409.2
306670	109.0	163.6	217.4	271.9	310.9	338.1	366.6
306587	110.5	163.9	221.3	273.2	328.2	362.3	375.1
306619	112.6	172.1	236.9	301.8	343.2	386.4	424.6
306578	114.1	169.6	228.3	275.3	325.1	353.8	397.1
306677	116.7	187.2	250.2	310.7	361.2	401.9	434.9
306600	119.9	176.5	230.2	278.6	320.3	351.8	377.8
306591	121.9	184.9	240.6	305.3	350.9	378.3	409.9
GROUP MEAN	111.7	168.9	226.9	284.0	333.3	366.2	399.0
SD	6.72	11.68	14.52	16.07	16.09	19.16	21.89
SE	2.12	3.69	4.59	5.08	5.09	6.06	6.92
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EV CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84	91
306580	439.0	462.9	480.5	486.4	500.2	511.8	523.1
306631	420.5	454.0	461.6	478.2	487.4	507.3	526.2
306663	445.8	462.3	489.2	511.0	513.4	529.2	548.4
306670	388.9	407.8	427.2	430.4	440.3	457.2	460.3
306587	398.1	410.7	435.2	438.4	453.5	479.4	489.7
306619	458.2	483.2	497.6	506.7	512.9	521.0	530.7
306578	419.1	431.3	453.6	461.5	474.1	490.1	489.0
306677	469.0	494.7	513.6	516.6	532.0	556.4	569.0
306600	406.2	428.6	451.7	462.7	474.5	482.1	484.8
306591	432.3	465.3	475.4	483.0	504.0	516.5	528.0
GROUP MEAN	427.7	450.1	468.6	477.5	489.2	505.1	514.9
SD	26.00	29.44	27.62	29.51	28.74	28.58	33.10
SE	8.22	9.31	8.74	9.33	9.09	9.04	10.47
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX E (CONT.)

INDIVIDUAL MALE BODY WEIGHT: PO[a]

GROUP EV CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	98	5[c]	12[c]	19[c]	22[c]
306580	540.0	547.5	552.8	548.6	559.9
306631	541.5	556.0	570.3	591.1	602.2
306663	554.7	...	...	...	...
306670	484.2	485.2	489.1	500.0	507.5
306587	507.9	...	...	...	...
306619	544.1	...	...	...	...
306578	508.9	...	...	...	...
306677	564.7	596.5	596.6	609.2	619.0
306600	501.9	509.0	514.2	519.1	530.8
306591	541.7	...	...	...	...
GROUP MEAN	529.0	538.8	544.6	553.6	563.9
SD	26.23	43.19	43.12	46.33	46.89
SE	8.29	19.32	19.28	20.72	20.97
N	10	5[b]	5[b]	5[b]	5[b]

[a] Grams
[b] After 100 days of exposure, one half of the males from each group were sacrificed for pathological evaluation of selected reproductive organs.
[c] Post exposure days

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306681	53.6	53.3	55.7	56.8	31.1	28.0	20.3
306683	53.8	66.8	49.2	58.1	33.9	32.0	26.5
306598	54.4	57.9	54.4	47.3	35.9	26.3	33.6
306599	28.4	51.6	56.1	47.9	41.4	33.6	28.7
306667	58.4	53.2	41.5	56.4	27.3	24.1	26.9
306607	61.4	53.6	56.9	42.9	27.6	43.1	26.8
306635	60.5	53.1	61.5	37.9	41.0	27.5	18.4
306655	57.5	60.4	59.1	48.8	34.4	36.9	22.8
306669	67.9	56.2	65.1	47.9	33.0	38.4	21.2
306616	60.5	74.1	51.2	42.5	32.3	30.2	22.4
306645	52.8	54.3	66.9	55.4	34.7	37.5	27.0
306586	55.8	54.2	41.5	46.8	22.7	26.0	16.1
306646	59.0	67.2	60.5	58.3	35.3	41.7	27.0
306653	63.8	59.7	66.9	47.0	30.2	36.7	18.4
306639	53.2	49.3	41.5	48.4	24.3	37.2	23.2
306643	57.0	59.8	63.4	57.6	33.6	45.7	28.8
306638	48.4	53.3	50.9	44.4	30.5	35.1	25.5
306673	59.9	66.0	59.3	49.2	46.5	30.3	22.7
306590	61.2	53.9	63.6	50.1	42.8	31.8	26.1
306660	56.9	50.3	63.2	40.6	21.5	24.4	37.5
GROUP MEAN	56.2	57.4	56.4	49.2	33.0	33.3	25.0
SD	7.89	6.59	8.21	6.11	6.60	6.31	5.13
SE	1.76	1.47	1.84	1.37	1.47	1.41	1.15
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-90	91-98
306681	16.8	17.5	8.3	12.6	6.1	23.6	2.1
306683	24.1	20.8	0.4	12.1	17.3	20.0	9.4
306598	19.7	16.8	13.3	13.6	13.1	18.0	14.5
306599	25.8	27.9	-13.2	-3.1	7.2	10.7	16.4
306667	18.9	9.4	5.5	11.3	13.5	13.6	8.3
306607	27.8	15.6	18.6	12.0	11.6	5.5	14.7
306635	20.0	17.9	13.5	10.3	8.5	15.7	11.0
306655	26.3	20.5	2.5	11.4	-10.1	27.0	14.1
306669	23.2	20.0	13.6	4.9	17.9	8.5	8.8
306616	23.5	25.8	13.4	11.5	-9.8	21.7	17.9
306645	18.4	29.0	-0.3	21.2	14.0	5.9	13.4
306586	13.4	19.1	-2.1	10.7	4.3	23.4	15.1
306646	26.4	17.1	6.8	14.8	22.4	3.5	3.1
306653	23.8	24.6	14.9	10.5	11.0	5.7	20.1
306639	16.8	18.7	11.4	2.6	15.8	12.6	4.7
306643	24.4	22.1	12.8	7.8	15.7	18.8	11.8
306638	19.4	18.7	8.3	13.3	14.9	8.4	10.7
306673	19.3	18.1	-11.6	-1.7	17.6	20.5	5.0
306590	18.4	16.8	13.3	15.4	19.2	2.6	18.6
306660	11.2	14.8	10.3	6.9	25.8	-1.1	19.7
GROUP MEAN	20.9	19.6	7.0	9.9	11.8	13.2	12.0
SD	4.48	4.62	8.67	5.74	9.13	8.17	5.45
SE	1.00	1.03	1.94	1.28	2.04	1.83	1.22
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306681	...	...	...	...
306683	16.0	17.3	21.1	15.8
306598	...	...	...	...
306599	...	...	...	...
306667	14.0	5.9	6.6	2.0
306607	20.7	0.4	12.8	4.7
306635	19.3	20.5	24.6	9.9
306655	...	...	...	...
306669	...	...	...	...
306616	...	...	...	...
306645	14.8	12.1	16.6	9.8
306586	4.1	-1.7	-0.8	13.9
306646	18.9	16.2	14.5	0.3
306653	...	...	...	...
306639	...	...	...	...
306643	10.6	15.3	11.5	6.7
306638	19.1	-4.5	7.7	14.4
306673	16.4	11.5	12.2	5.1
306590	...	...	...	...
306660	...	...	...	...
GROUP MEAN	15.4	9.3	12.7	8.3
SD	4.98	8.74	7.28	5.37
SE	1.58	2.76	2.30	1.70
N	10[c]	10[c]	10[c]	10[c]

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306676	57.9	40.8	57.7	52.0	30.9	31.5	22.9
306604	59.5	51.9	49.5	44.6	25.1	36.8	21.4
306611	45.7	52.1	59.6	51.1	34.6	39.2	35.2
306649	68.6	64.3	57.2	61.0	37.0	44.7	28.1
306627	57.8	53.4	56.8	41.9	29.5	36.3	20.8
306674	68.5	61.7	60.1	50.2	30.5	39.2	23.4
306637	62.6	54.1	46.9	41.2	16.0	26.7	23.0
306597	63.1	55.3	50.3	51.4	46.4	42.9	28.8
306672	68.1	70.5	48.7	50.2	30.6	28.2	21.0
306664	68.0	65.3	61.5	41.6	33.9	20.6	15.4
GROUP MEAN	62.0	56.9	54.8	48.5	31.5	34.6	24.0
SD	7.20	8.58	5.40	6.23	7.85	7.67	5.46
SE	2.28	2.71	1.71	1.97	2.48	2.43	1.73
N	10	10	10	10	10	10	10

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP CII
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-91	91-98
306676	25.8	15.9	10.1	4.8	16.3	14.3	19.7
306604	21.2	22.4	3.7	11.1	11.8	13.0	26.7
306611	24.0	20.3	20.8	7.8	17.1	19.7	15.9
306649	31.5	25.8	7.7	3.2	8.0	21.4	18.1
306627	18.4	24.7	2.5	5.8	10.2	17.8	14.0
306674	21.3	18.0	6.3	0.6	17.6	22.0	12.8
306637	21.3	16.8	5.8	13.7	11.7	8.1	13.3
306597	32.8	25.0	40.4	-12.5	15.6	23.7	16.5
306672	24.8	19.3	14.8	8.6	2.9	17.2	14.1
306664	9.8	10.4	18.7	-4.4	21.3	12.9	5.2
GROUP MEAN	23.1	19.9	13.1	3.9	13.3	17.0	15.6
SD	6.54	4.83	11.44	7.74	5.39	4.90	5.51
SE	2.07	1.53	3.62	2.45	1.71	1.55	1.74
N	10	10	10	10	10	10	10

DW1

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP CII
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306676	...	...	...	...
306604	6.6	13.2	17.0	13.4
306611	...	...	...	...
306649	2.3	15.9	16.6	15.7
306627	...	...	...	...
306674	...	...	...	...
306637	14.7	9.8	14.9	4.8
306597	18.7	5.3	19.0	11.4
306672	15.3	12.9	3.2	15.9
306664	...	...	...	...
GROUP MEAN	11.5	11.4	14.1	12.2
SD	6.80	4.05	6.29	4.55
SE	3.04	1.81	2.81	2.03
N	5[c]	5[c]	5[c]	5[c]

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306641	55.6	87.6	42.3	40.6	45.0	37.4	30.7
306633	56.9	61.9	65.2	61.6	43.7	37.9	29.2
306654	55.2	61.1	56.0	58.0	35.9	32.5	23.9
306583	62.3	59.7	61.8	56.0	32.3	44.8	30.6
306606	52.5	53.5	61.2	47.4	39.6	38.9	27.8
306636	53.2	49.6	46.1	36.3	24.0	26.2	24.5
306603	58.1	70.6	61.6	42.5	33.1	30.0	23.6
306632	61.6	54.7	54.4	43.0	38.5	29.0	21.3
306601	57.0	64.0	58.7	48.1	43.1	39.7	22.8
306662	62.3	40.8	69.5	59.1	41.9	42.2	26.2
GROUP MEAN	57.5	60.4	57.7	49.3	37.7	35.9	26.1
SD	3.59	12.65	8.34	8.84	6.51	6.12	3.36
SE	1.14	4.00	2.64	2.80	2.06	1.93	1.06
N	10	10	10	10	10	10	10

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP EI
CONCENTRATION: 10 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-91	91-98
306641	25.7	12.9	14.5	2.7	7.5	17.7	9.3
306633	25.9	16.7	14.7	6.5	17.6	9.7	12.5
306654	30.5	15.9	-1.6	23.4	18.6	-9.3	14.8
306583	28.5	15.0	17.9	24.7	15.9	10.3	9.4
306606	30.2	14.0	13.2	11.1	21.2	18.2	11.1
306636	15.9	11.7	-7.6	-7.9	19.9	12.1	11.1
306603	21.5	7.6	24.7	11.7	17.4	9.8	11.4
306632	32.2	23.6	6.1	10.2	26.7	4.3	18.7
306601	36.3	14.0	16.3	15.1	25.8	-1.7	7.3
306662	22.2	12.8	18.8	8.2	9.8	15.8	22.0
GROUP MEAN	26.9	14.4	11.7	10.6	18.0	8.7	12.8
SD	5.94	4.10	9.88	9.50	6.08	8.75	4.54
SE	1.88	1.30	3.12	3.00	1.92	2.77	1.43
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EI
CONCENTRATION: 10 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306641	...	...	...	...
306633	...	...	...	...
306654	...	...	...	...
306583	27.9	-14.2	1.3	10.8
306606	23.1	2.5	18.8	4.7
306636	-1.2	27.4	12.6	7.5
306603	...	...	...	...
306632	17.8	15.5	19.1	16.6
306601	...	...	...	...
306662	18.2	8.6	7.9	8.3
GROUP MEAN	17.2	8.0	11.9	9.6
SD	11.06	15.46	7.55	4.49
SE	4.95	6.91	3.38	2.01
N	5[c]	5[c]	5[c]	5[c]

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306675	59.8	58.4	47.6	53.7	44.6	37.8	28.7
306610	63.8	64.3	63.3	64.4	53.0	45.3	28.7
306605	62.0	64.6	59.2	53.4	33.4	34.9	29.3
306657	56.2	61.7	43.4	41.3	30.3	26.9	22.6
306628	65.4	55.5	59.3	53.6	55.6	43.4	46.6
306614	49.4	59.4	61.2	58.1	36.7	35.1	29.7
306644	51.1	58.9	46.1	40.5	32.4	21.2	19.4
306602	54.8	58.9	67.8	40.7	36.5	46.1	37.5
306682	60.9	55.9	59.4	52.9	46.3	33.9	31.5
306626	63.6	68.8	30.0	69.7	40.4	13.8	54.5
GROUP MEAN	58.7	60.6	53.7	52.8	40.9	33.8	32.8
SD	5.55	4.19	11.57	9.89	8.71	10.55	10.67
SE	1.76	1.33	3.66	3.13	2.76	3.33	3.37
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EII
CONCENTRATION: 50 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-91	91-98
306675	26.3	13.3	-16.6	6.3	32.9	10.1	9.6
306610	39.7	24.3	-22.5	43.7	12.0	14.3	14.2
306605	29.2	14.0	7.0	23.2	14.2	10.7	10.0
306657	26.4	6.3	7.4	-1.0	8.4	14.2	2.7
306628	39.6	23.7	7.1	14.0	28.5	4.7	-11.0
306614	29.9	13.6	18.4	12.3	16.5	22.2	8.8
306644	21.1	8.8	2.3	2.3	6.1	7.7	-6.2
306602	29.2	30.2	11.3	12.6	25.5	-3.2	11.8
306682	20.4	21.6	-10.8	25.2	26.9	21.8	1.7
306626	23.5	13.4	13.9	5.0	26.6	1.0	15.7
GROUP MEAN	28.5	16.9	1.7	14.4	19.8	10.4	5.7
SD	6.72	7.62	13.69	13.32	9.41	8.25	8.81
SE	2.12	2.41	4.33	4.21	2.98	2.61	2.79
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EII
CONCENTRATION: 50 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306675	4.8	1.9	9.8	9.2
306610	16.2	5.2	9.3	12.6
306605	14.7	15.6	12.0	9.5
306657	...	...	...	...
306628	...	...	...	...
306614	...	...	...	...
306644	13.8	3.4	9.2	10.7
306602	...	...	...	...
306682	15.7	8.1	11.7	7.7
306626	...	...	...	...
GROUP MEAN	13.0	6.8	10.4	9.9
SD	4.70	5.41	1.35	1.83
SE	2.10	2.42	0.60	0.82
N	5[c]	5[c]	5[c]	5[c]

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306661	53.3	56.8	62.0	47.9	34.5	39.0	33.3
306651	48.2	67.6	57.0	45.6	35.7	33.8	28.5
306659	54.7	57.5	59.1	39.9	23.5	28.4	33.9
306574	49.4	49.9	45.4	48.2	36.4	32.4	38.2
306656	59.8	66.0	51.8	47.8	34.7	29.6	20.1
306642	51.6	36.9	37.8	37.3	22.7	26.1	29.0
306622	60.1	59.5	51.8	49.5	39.5	33.8	38.6
306625	66.9	52.4	72.8	53.2	35.0	32.0	24.0
306630	64.9	43.3	74.7	49.3	40.3	28.8	33.8
306613	58.9	69.9	65.1	55.0	39.7	29.6	31.3
306680	51.1	55.5	55.5	48.2	25.5	29.3	29.7
306584	59.4	70.3	55.5	44.1	36.8	30.0	19.9
306575	56.5	60.1	61.3	55.1	43.2	39.8	30.4
306589	48.9	51.4	53.1	43.1	37.8	38.4	27.6
306666	59.8	61.6	64.0	53.6	38.6	30.3	35.3
306647	54.0	56.8	60.4	49.1	37.2	29.8	30.2
306593	56.3	52.1	58.4	32.0	25.9	17.5	18.9
306650	61.9	63.0	58.3	50.2	46.2	27.6	34.0
306594	63.0	56.1	52.8	43.2	29.3	27.5	31.5
306576	56.3	55.9	59.3	60.7	41.6	35.6	36.9
GROUP MEAN	56.8	58.1	57.8	47.6	35.2	31.0	30.3
SD	5.37	6.90	8.36	6.61	6.60	5.06	5.82
SE	1.20	1.54	1.87	1.48	1.47	1.13	1.30
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-91	91-98
306661	25.7	28.0	14.2	-0.1	24.3	-7.2	20.0
306651	24.3	20.2	16.2	13.6	15.5	9.2	18.2
306659	25.5	11.2	6.7	7.6	19.3	15.6	12.5
306574	17.0	11.1	18.1	2.5	22.7	10.0	10.7
306656	21.5	8.8	24.0	-3.4	14.7	14.1	15.3
306642	16.6	9.5	15.9	13.5	7.4	18.8	24.1
306622	20.0	17.1	22.1	5.2	18.2	9.9	16.0
306625	26.0	15.6	8.0	14.9	15.7	7.2	22.1
306630	14.1	21.4	24.8	7.3	22.8	1.2	13.9
306613	31.8	9.7	1.1	1.7	24.0	2.3	9.8
306680	22.0	10.4	4.6	13.6	7.5	6.8	15.7
306584	9.5	14.9	10.1	13.3	2.9	10.7	19.4
306575	18.2	22.3	8.9	19.0	16.9	15.1	7.4
306589	27.8	15.5	9.4	11.1	20.7	0.5	18.1
306666	33.6	16.2	5.8	20.9	8.6	11.2	18.9
306647	49.5	-7.6	7.6	7.7	0.0	13.1	18.1
306593	20.7	14.2	6.2	3.2	13.8	19.5	19.4
306650	-7.4	48.3	13.5	9.4	13.6	16.0	20.0
306594	21.4	14.2	-0.5	7.0	16.4	9.5	7.6
306576	19.5	14.6	17.7	2.5	13.5	9.1	4.2
GROUP MEAN	21.9	15.8	11.7	8.5	14.9	9.6	15.6
SD	10.84	10.40	7.27	6.45	6.83	6.61	5.35
SE	2.42	2.32	1.62	1.44	1.53	1.48	1.20
N	20	20	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306661	...	...	...	...
306651	...	...	...	...
306659	17.1	2.7	13.0	10.2
306574	7.4	21.3	14.8	11.2
306656	...	...	...	...
306642	19.8	15.2	9.1	11.0
306622	...	...	...	...
306625	15.2	10.7	12.9	13.6
306630	...	...	...	...
306613	16.3	14.1	14.4	11.3
306680	...	...	...	...
306584	...	...	...	...
306575	18.0	4.0	12.8	8.3
306589	...	...	...	...
306666	15.2	8.1	14.8	14.0
306647	9.5	21.4	16.3	6.9
306593	29.4	21.1	13.5	5.5
306650	12.1	22.2	12.7	7.6
306594	...	...	...	...
306576	...	...	...	...
GROUP MEAN	16.0	14.1	13.4	10.0
SD	6.07	7.46	1.92	2.82
SE	1.92	2.36	0.61	0.89
N	10[c]	10[c]	10[c]	10[c]

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP EIV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306624	55.9	56.4	48.4	69.0	7.4	31.7	32.6
306608	58.5	56.0	49.4	36.7	46.9	46.3	30.5
306612	62.8	61.4	63.9	58.3	40.7	38.4	35.6
306585	54.3	47.8	53.1	50.9	34.0	29.1	20.5
306617	53.4	48.3	84.1	55.9	18.4	33.4	45.9
306640	50.9	57.6	61.7	49.3	21.2	29.8	22.3
306629	54.7	61.2	48.0	45.4	41.0	41.2	27.9
306618	58.2	61.8	32.4	58.9	74.9	40.6	26.9
306679	57.9	67.4	71.4	51.3	31.7	35.7	29.5
306652	69.0	63.3	68.2	65.6	46.7	50.3	45.9
GROUP MEAN	57.6	58.1	58.1	54.1	36.3	37.7	31.8
SD	5.20	6.30	14.75	9.53	18.74	7.06	8.67
SE	1.64	1.99	4.67	3.01	5.93	2.23	2.74
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO*

GROUP EIV
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-91	91-98
306624	25.4	15.0	12.5	14.6	18.3	-9.0	24.2
306608	26.3	18.2	-6.8	10.8	21.4	8.8	1.5
306612	35.2	23.4	10.2	12.8	17.6	7.3	12.7
306585	15.7	7.0	6.3	2.1	14.1	4.7	-4.3
306617	35.4	25.3	5.8	18.1	18.7	7.2	18.9
306640	7.6	19.4	16.9	16.2	23.1	16.9	10.6
306629	17.3	16.0	24.8	10.0	9.8	7.0	6.4
306618	31.5	18.7	25.5	14.1	12.2	2.7	-5.5
306679	16.9	23.7	9.6	5.5	8.8	10.7	9.9
306652	15.1	31.3	14.5	7.7	12.9	7.8	16.5
GROUP MEAN	22.6	19.8	11.9	11.2	15.7	6.4	9.1
SD	9.50	6.63	9.49	4.99	4.85	6.60	9.73
SE	3.01	2.10	3.00	1.58	1.53	2.09	3.08
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EIV
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306624	8.2	10.5	14.1	5.0
306608	5.9	37.8	16.7	9.8
306612	...	...	...	...
306585	...	...	...	...
306617	15.4	12.7	20.5	9.5
306640	...	...	...	...
306629	5.9	15.8	11.8	2.2
306618	...	...	...	...
306679	18.9	7.3	10.5	1.8
306652	...	...	...	...
GROUP MEAN	10.9	16.8	14.7	5.7
SD	5.95	12.13	4.00	3.85
SE	2.66	5.43	1.79	1.72
N	5[c]	5[c]	5[c]	5[c]

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306580	50.7	47.0	66.3	54.8	42.0	42.2	35.9
306631	50.4	61.8	57.5	53.7	23.7	39.0	28.8
306663	57.3	64.1	55.8	61.6	30.4	33.1	36.6
306670	54.6	53.8	54.5	39.0	27.2	28.5	22.3
306587	53.4	57.4	51.9	55.0	34.1	12.8	23.0
306619	59.5	64.8	64.9	41.4	43.2	38.2	33.6
306578	55.5	58.7	47.0	49.8	28.7	43.3	22.0
306677	70.5	63.0	60.5	50.5	40.7	33.0	34.1
306600	56.6	53.7	48.4	41.7	31.5	26.0	28.4
306591	63.0	55.7	64.7	45.6	27.4	31.6	22.4
GROUP MEAN	57.2	58.0	57.2	49.3	32.9	32.8	28.7
SD	6.04	5.64	6.90	7.27	6.87	9.02	6.01
SE	1.91	1.78	2.18	2.30	2.17	2.85	1.90
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO

GROUP EV
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84	84-91	91-98
306580	23.9	17.6	5.9	13.8	11.6	11.3	16.9
306631	33.5	7.6	16.6	9.2	19.9	18.9	15.3
306663	16.5	26.9	21.8	2.4	15.8	19.2	6.3
306670	18.9	19.4	3.2	9.9	16.9	3.1	23.9
306587	12.6	24.5	3.2	15.1	25.9	10.3	18.2
306619	25.0	14.4	9.1	6.2	8.1	9.7	13.4
306578	12.2	22.3	7.9	12.6	16.0	-1.1	19.9
306677	25.7	18.9	3.0	15.4	24.4	12.6	-4.3
306600	22.4	23.1	11.0	11.8	7.6	2.7	17.1
306591	33.0	10.1	7.6	21.0	12.5	11.5	13.7
GROUP MEAN	22.4	18.5	8.9	11.7	15.9	9.8	14.0
SD	7.47	6.24	6.16	5.20	6.23	6.65	7.92
SE	2.36	1.97	1.95	1.64	1.97	2.10	2.51
N	10	10	10	10	10	10	10

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX F (CONT.)

INDIVIDUAL MALE BODY WEIGHT CHANGES: PO[a]

GROUP EV
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 98-5[b]	5-12[b]	12-19[b]	19-22[b]
306580	7.5	5.3	-4.2	11.3
306631	14.5	14.3	20.8	11.1
306663	...	...	...	...
306670	1.0	3.9	10.9	7.5
306587	...	...	...	...
306619	...	...	...	...
306578	...	...	...	...
306677	31.8	0.1	12.6	9.8
306600	7.1	5.2	4.9	11.7
306591	...	...	...	...
GROUP MEAN	12.4	5.8	9.0	10.3
SD	11.86	5.22	9.31	1.71
SE	5.30	2.33	4.16	0.76
N	5[c]	5[c]	5[c]	5[c]

[a] Grams
[b] Days 5, 12, 19, and 22 are post exposure days
[c] After 100 days of exposure, one half of the males from each group were sacrificed for pathological evaluation of the reproductive system.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: P0

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306590	557.3	3.85	0.69
306660	508.1	3.03	0.60
306681	492.4	2.95	0.60
306599	464.0	3.71	0.80
306669	549.9	3.20	0.58
306639	470.6	3.13	0.67
306598	526.8	3.64	0.69
306616	539.2	4.05	0.75
306655	539.1	3.72	0.69
306653	545.5	3.67	0.67
GROUP MEAN	519.3	3.495	0.674
SD	33.65	0.3824	0.0685
SE	10.64	0.1209	0.0217
N	10	10	10

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: PO

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306674	543.6	4.09	0.75
306627	497.7	2.98	0.60
306611	551.6	3.77	0.68
306664	502.7	3.47	0.69
306676	499.7	3.37	0.67
GROUP MEAN	519.1	3.536	0.678
SD	26.27	0.4194	0.0536
SE	11.75	0.1874	0.0240
N	5	5	5

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: P0

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306601	573.7	3.61	0.63
306654	522.6	2.61	0.50
306641	533.5	3.66	0.69
306603	540.7	3.92	0.72
306633	566.6	4.02	0.71
GROUP MEAN	547.4	3.564	0.650
SD	21.87	0.5604	0.0908
SE	9.78	0.2506	0.0406
N	5	5	5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: PO

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306626	565.7	3.74	0.66
306657	463.3	3.23	0.70
306628	612.8	3.75	0.61
306602	586.8	3.64	0.62
306614	567.5	3.90	0.69
GROUP MEAN	559.2	3.652	0.656
SD	56.88	0.2535	0.0404
SE	25.44	0.1134	0.0181
N	5	5	5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: PO

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306661	537.1	3.37	0.63
306680	475.2	3.84	0.81
306656	507.9	3.58	0.70
306622	556.8	3.27	0.59
306594	507.4	3.76	0.74
306576	557.5	3.54	0.63
306584	508.0	3.48	0.69
306589	522.1	3.65	0.70
306651	538.7	3.51	0.65
306630	566.6	4.25	0.75
GROUP MEAN	527.7	3.625	0.689
SD	28.75	0.2769	0.0662
SE	9.09	0.0876	0.0209
N	10	10	10

DWT

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: PO

GROUP EIV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306618	586.1	3.27	0.56
306640	526.4	3.15	0.60
306585	449.3	3.31	0.74
306652	651.1	3.59	0.55
306612	585.2	3.45	0.59
GROUP MEAN	559.6	3.354	0.608
SD	75.83	0.1699	0.0766
SE	33.91	0.0760	0.0343
N	5	5	5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX G (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER BREEDING: PO

GROUP EV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306663	555.6	3.54	0.64
306619	552.4	3.10	0.56
306587	506.9	3.92	0.77
306591	542.5	3.85	0.71
306578	515.7	3.35	0.65
GROUP MEAN	534.6	3.552	0.666
SD	22.05	0.3426	0.0789
SE	9.86	0.1532	0.0353
N	5	5	5

* Grams of testes per 100 grams of final body weight

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: PO

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306667	509.0	3.56	0.70
306673	564.0	3.99	0.71
306683	597.1	3.36	0.56
306635	585.2	3.72	0.64
306645	585.1	3.20	0.55
306638	532.6	3.73	0.70
306607	569.4	3.56	0.63
306586	466.3	3.40	0.73
306646	600.2	3.67	0.61
306643	616.0	3.57	0.58
GROUP MEAN	562.5	3.576	0.641
SD	46.63	0.2222	0.0661
SE	14.74	0.0702	0.0209
N	10	10	10

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: PO

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306672	586.4	3.57	0.61
306597	650.8	4.28	0.66
306637	521.0	3.39	0.65
306604	550.8	3.73	0.68
306649	635.8	3.75	0.59
GROUP MEAN	589.0	3.744	0.638
SD	55.00	0.3328	0.0370
SE	24.60	0.1488	0.0166
N	5	5	5

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: PO

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306583	604.6	4.04	0.67
306662	618.7	3.87	0.63
306606	600.7	3.97	0.66
306632	610.8	3.82	0.63
306636	474.8	3.52	0.74
GROUP MEAN	581.9	3.844	0.666
SD	60.27	0.2003	0.0450
SE	26.95	0.0896	0.0201
N	5	5	5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: P0

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306675	538.5	3.82	0.71
306605	604.2	2.98	0.49
306644	464.4	3.60	0.78
306682	612.0	3.42	0.56
306610	653.5	3.90	0.60
GROUP MEAN	574.5	3.544	0.628
SD	74.07	0.3672	0.1165
SE	33.13	0.1642	0.0521
N	5	5	5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: PO

GROUP FIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306613	607.8	3.62	0.60
306625	614.9	3.81	0.62
306659	545.5	4.08	0.75
306642	534.8	3.78	0.71
306575	603.8	3.47	0.57
306647	573.6	3.71	0.65
306574	555.9	3.91	0.70
306650	627.3	3.33	0.53
306666	621.3	3.72	0.60
306593	542.2	3.72	0.69
GROUP MEAN	582.7	3.715	0.642
SD	36.07	0.2113	0.0697
SE	11.41	0.0668	0.0220
N	10	10	10

DW1

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: P0

GROUP EIV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306624	537.8	3.17	0.59
306629	560.2	3.65	0.65
306679	587.3	3.84	0.65
306608	580.0	4.26	0.73
306617	637.0	3.73	0.59
GROUP MEAN	580.5	3.730	0.642
SD	36.99	0.3915	0.0576
SE	16.54	0.1751	0.0258
N	5	5	5

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX H (CONT.)

INDIVIDUAL TESTES WEIGHT AFTER 21 DAY RECOVERY PERIOD: PO

GROUP EV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306600	530.8	4.40	0.83
306631	602.2	3.31	0.55
306670	507.5	3.69	0.73
306677	619.0	3.75	0.61
306580	559.9	3.61	0.64
GROUP MEAN	563.9	3.752	0.672
SD	46.89	0.3998	0.1096
SE	20.97	0.1788	0.0490
N	5	5	5

[a] Grams of testes per 100 grams of final body weight

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306692	Stained shoulders	11/3,4 AM
306702	Sore under left shoulder	8/3 PM - 8/16 AM
	Sore on right shoulder	8/4 PM - 8/16 AM
	Sore on both shoulders	8/16 PM - 8/17 PM
	Sore on left shoulder	8/18 AM - 8/23 PM
306714	Alopecia both front paws	9/28 AM - 10/24 AM
	Sore on right front leg	10/6 PM - 10/11 PM
	Alopecia both front legs	10/24 PM - 11/4
		11/5-6 AM
		11/6 PM - 11/19 PM
	Alopecia right rear hip	10/29 AM - 11/19 PM
		11/6 PM - 11/19 PM
306718	Alopecia both front legs	9/30 PM - 10/30 AM
306727	Stained left shoulder	11/7,8 AM
		11/9 AM - 11/16 pm
306748	Alopecia abdomen	10/23 PM - 11/1 AM
		11/2-6 AM
306749	Red discharge from both eyes	10/27 PM - 10,28 AM
306751	Head caught in cage door	7/17 PM
306757	Stained shoulders	11/3,4 AM
		11/5 AM - 11/19 PM
306770	Dry brown discharge around both eyes	9/26 AM - 10/6 PM
	Stained left shoulder	10/22 AM -10/31 AM
306775	Stained shoulders	10/4 PM - 11/7 AM
		11/8 AM,
		11/9 - 11/16 PM
		11/18 AM - 11/19 PM
	Sore on right front leg	10/31 AM - 11/7 AM
		11/8 AM, 11/9 PM
	Stained on both sides	11/2 PM - 11/7 AM
		11/8 AM
		11/9 PM - 11/16 PM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
	Stained right side	11/17 AM - 11/19 PM
	Sore on right front paw	11/18 AM - 11/19PM
306777	Not eating[b]	8/27 AM,8/28 AM 8/29 AM
306782	Clear discharge from right eye	11/10 - 11/11 AM
	Swollen right eye	11/10 - 11/11 AM
306785	Stained shoulders	9/8 PM - 9/29 AM 10/30,31,11/1-6 AM 11/16 AM - 11/19 PM
	Stained shoulders	11/9 PM - 11/15 PM
	Stained face	11/9 PM - 11/15 PM
306811	Infected toe on right front paw	8/17 PM - 8/25 PM
	Infected toe #100	8/25 PM
	Alopecia head	10/15 AM - 10/20 AM
306813	Infected toes on right front paw	8/18 PM - 8/25 PM
	Sore on left side of the face	10/19 PM - 10/29 AM
306819	Infected toe on left front paw	8/18 AM - 8/25 PM
306822	Bilateral submandibular swelling	9/29 AM - 9/30 PM
	Knot on neck[c]	10/1 AM,PM
	Alopecia both front paws	9/29 PM - 10/24 AM
	Alopecia both front legs	10/24 PM - 11/3 PM
	Red nasal discharge	9/29 PM -9/30 AM
	Stained nose	11/2 PM - 11/3 PM
306828	Weight loss[d]	9/1 AM
306856	Stained abdomen	11/2 PM - 11/5 AM 11/6-8 AM 11/9 PM - 11/11 AM
	Stain on both front paws	8/24 PM - 9/26 AM
	Stain on both front legs	9/26 PM - 11/5 AM 11/6 - 11/8 AM 11/9 PM - 11/11 AM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
	Alopecia both front legs	10/6 AM - 11/5 AM 11/6-8 AM 11/9 PM - 11/11 AM
306883	Red periocular discharge from left eye	10/22 AM - 11/1 PM
306891	Stain on left side	11/5AM 11/6 AM-11/15 PM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306686	Diarrhea	11/21 PM
306688	Right hind paw infected	8/21 PM - 8/25 PM
	Stained shoulders	11/3 AM
		11/4 PM - 11/22 AM
	Stain on back of neck	11/11 AM - 11/18 PM
306752	Stain right front leg	11/8 PM - 11/21 AM
	Alopecia right front leg	11/8 PM - 11/21 AM
306789	Infected left front toe	8/20 PM - 8/25 PM
	Stained left shoulder	11/6,7,8 AM
306792	Infected toe on right paw	8/22 PM - 8/25 PM
	Alopecia both front paws	8/25 PM
	Alopecia both front legs	9/2 PM - 10/28 PM
		10/29-31AM,11/1 AM
		11/2 AM - 11/10 PM
		11/11 AM - 11/22 AM
306812	Stained face/nose	11/9 PM - 11/11 PM
306816	Infected toe #700	8/21 PM - 8/27 AM
	Brown stained shoulder	10/28 PM - 10/30 AM
306826	Alopecia both front legs	8/18 PM - 10/28 PM
306852	Stained shoulders	9/8 PM - 9/17 AM
	Stained left shoulder	11/3 AM, 11/4 PM
		11/5 AM
		11/6 AM - 11/24 AM
306876	Cut toe on right hind paw	8/21 PM - 8/25 AM
	Infect toe #1000 on left Hind paw	8/25 PM
306876	Sore on right front leg	9/17 PM - 9/24 PM
	Slight alopecia right Side of chest	10/13 PM - 10/19 AM
	Slight stain on head	11/15 PM - 11/16 PM
306889	Stained right shoulder	11/3 AM - 11/10 PM
	Alopecia right shoulder	11/3 AM - 11/21 AM

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306717	Alopecia both front legs	9/15 AM - 9/17 AM
		10/4 PM - 11/3 AM
		11/4,5,6 AM
		11/7 AM - 11/25 AM
306719	Alopecia both front legs	9/17 PM - 10/4 AM
	Alopecia over right eye	11/10 PM - 11/22 AM
306723	Red ocular discharge	8/17 PM - 8/27 AM
306809	Alopecia both front legs	9/17 PM - 11/4 AM
		11/5,6,7 AM
		11/8 AM - 11/26 AM
306859	Alopecia both front legs	9/1 PM - 10/29 AM
		10/30,31 AM
		11/1,2,3,4 AM
		11/4 PM - 11/21 AM
	Alopecia left rear leg	10/20 PM - 10/23 AM
	Alopecia left rear hip	10/30,31,11/1-4 AM
		11/4 PM - 11/11 AM
		11/12 PM - 11/21 AM
	Diarrhea	11/20 PM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306709	Stain top of head	11/12,11/13 AM
	Stained perineal area	11/30 AM - 12/1 PM
	Thin with humped back	11/30 AM - 12/1 PM
306778	Diarrhea	11/21,22 PM
306795	Wet perineal area	10/13PM 10/14PM-10/1PM 10/18PM,10/19PM, 10/20,21 PM
	Stained perineal area	10/16 PM - 11/23 AM
306829	Slight salivation	7/15PM
	Both eyes protruding	11/22 PM
306858	Slight salivation	7/15PM,7/20PM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306689	Alopecia both front legs	10/4 PM - 10/6 AM
	Stained shoulders	10/23 PM - 10/29 AM
		10/30,31 AM
		11/1,2,3 AM
		11/3 PM,11/4 AM
		11/5 AM - 11/21 AM
306696	End of tail missing•	8/1 PM - 8/6 AM
	Alopecia both front legs	10/4 PM - 11/5 AM
		11/6,7,8 AM
		11/9 AM - 11/15 AM
306737	Infected toe on right Front paw	8/17 PM - 8/25 PM
306746	Alopecia both front legs	10/4 PM - 10/29 PM
306754	Weight loss[f]	9/1
306755	Diarrhea	11/21 PM
306765	Alopecia both front legs	10/23 PM - 10/29 AM
		10/30,31 AM
		11/1,2,3 AM
		11/3 PM - 11/4 AM
		11/5 AM - 11/23 AM
	Stain top of head	11/7 AM,PM
306779	Alopecia both front paws	9/25 AM - 10/4 AM
	Bloody right rear paw	7/22 PM
306781	Stained right shoulder	11/3 AM - 11/4 AM
		11/5 AM - 11/17 PM
	Diarrhea	11/22 PM
306807	Brown stained nose and head	7/24 PM
	Infected toe left front paw	8/18 PM - 8/25 PM
306823	Teeth trimmed	10/1
	Ocular discharge right eye	10/21 PM - 10/22 AM
	Alopecia right ear area	10/23 - 10/31 PM
306848	Infected toe left front paw	8/20 PM - 8/25 PM

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306851	Alopecia both front legs	10/2 PM - 10/21 AM 10/21 pm - 10/29 AM 10/30,31 AM 11/1,2,3 AM 11/3 PM - 11/17 PM
	Infected toe left front paw	8/1 PM - 8/25 PM
306861	Stain shoulders and chest	10/22 AM - 11/4 AM 11/5 AM 11/6 AM - 11/15 AM
	Discharge both eyes	10/23 PM 10/30 PM - 11/2 AM
306864	Diarrhea	11/21 PM
306873	Slight salivation	7/16 PM
	Weight loss	9/1
	Alopecia both front legs	10/21 PM - 10/29 AM 10/30,31 AM 11/1,2,3 AM 11/3 PM - 11/4 PM 11/5 AM - 11/17 PM
	Stain shoulders	11/6 PM - 11/15 PM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306693	Red stain periocular	
	Both eyes	10/4 PM - 10/7 PM
		10/14 PM - 10/15 PM
	Red/brown stain periocular	
	Both eyes	10/24 PM - 10/25 PM
	Stain back of neck	11/4,5 AM
306720	Corneal opacity right eye	10/16 PM
		10/21 PM - 10/29 AM
		10/30,31 AM
		10/31 PM - 11/1 AM
		11/2 AM
		11/3 AM - 11/20 AM
306739	Yellow stain left side	11/4 AM
		11/5 AM - 11/8 AM
		11/9 AM
		11/10 AM - 11/23 AM
	Stain shoulders	11/23 AM
306814	Stain perineal area	10/22 AM - 10/25 PM
306820	Diarrhea	11/20 PM
306836	Red periocular stain left eye	10/1 AM - 10/4 AM
306875	Brown stain right shoulder	11/4,5,6,7 AM
306877	Sore base of tail	7/28 PM - 8/9 PM
306887	Alopecia both front legs	10/12 PM - 11/4 AM
		11/5,6,7,8 AM
		11/8 PM - 11/30 AM
	Diarrhea	11/21 PM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

GROUP: EV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306703	Sore on tip of tail	8/19 AM - 8/28 PM
306771	Stained shoulders	10/21 AM - 10/29 PM
	Brown stain head/shoulders	11/10 AM -11/11 AM
306773	Stain back of neck	11/19 PM - 11/27 AM
306796	Alopecia left front leg	10/16 PM - 11/5 AM
		11/6,7,8 AM
		11/9 AM - 11/25 AM
306798	Sore on right shoulder	10/12 PM - 10/19 AM
306804	Alopecia right rear hip	10/12 PM - 11/4 AM
		11/5,6,7 AM
		11/7 PM - 11/24 AM
	Alopecia abdomen/right rear leg	11/2 PM - 11/4 AM
		11/5,6,7 AM
		11/7 PM - 11/24 AM
	Alopecia left front leg	11/8 AM - 11/24 AM
	Alopecia tail base	11/16 AM - 11/24 AM
306824	Stain on both legs	11/7,8,9 AM
		11/9 PM - 11/12 AM
	Slight corneal opacity left eye	11/15 PM - 11/26 PM
306878	Alopecia both front legs	10/24 PM - 11/7 AM
		11/8,9 AM
		11/9 PM - 11/30 AM
306880	Stained face/head	11/8 PM - 11/9 AM
306892	Stain right leg	11/5 AM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX I (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS OF FEMALE RATS: PO

FOOTNOTES:

[a] Lower teeth trimmed on 9/29 and 10/4 AM
[b] Left upper tooth broken off at gum and lower teeth appeared slightly longer than normal; lower teeth were trimmed
[c] Submandibular swelling went down but knot remained on neck
[d] Lower teeth slightly longer than normal; teeth clipped
[e] Caught in cage
[f] Lower teeth slightly longer than normal; teeth clipped on 9/1/81
[g] Sore no longer recorded after 8/29 AM because not compound related; it appears that tail was caught in cage door

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306699	92.2	134.4	167.3	186.5	214.8	229.1	243.3
306784	95.5	134.7	161.8	186.2	210.3	216.9	246.9
306832	97.4	141.5	178.6	215.8	252.6	272.1	297.1
306777	97.8	133.7	164.9	192.9	211.1	228.0	220.7
306888	100.4	142.1	168.7	196.6	224.4	243.0	258.6
306706	100.9	143.6	176.9	208.9	234.9	249.1	260.7
306692	103.1	137.6	153.6	174.6	200.1	212.8	215.2
306702	103.4	158.2	191.6	227.0	256.2	277.1	300.3
306748	104.1	143.1	179.5	195.5	222.2	241.1	249.4
306891	105.3	147.1	178.4	199.8	230.5	246.0	263.2
306844	106.8	146.5	191.8	208.5	243.9	254.9	276.5
306901	107.6	141.1	159.6	177.4	188.8	207.3	209.4
306718	108.9	147.6	177.4	198.3	212.2	226.6	244.1
306757	110.2	142.2	175.8	204.3	226.6	247.6	267.4
306849	110.6	151.2	180.4	204.6	226.4	244.1	255.6
306770	112.5	160.9	194.8	225.9	254.4	267.6	283.6
306856	114.3	168.2	204.1	230.2	256.8	285.5	304.8
306794	114.9	153.2	177.4	207.1	235.8	245.4	261.1
306775	116.9	160.8	197.6	217.7	254.2	272.3	284.6
306698	94.2	130.8	153.5	181.1	197.8	215.9	233.0
306811	95.6	135.8	178.3	212.4	240.2	249.0	266.6
306822	97.5	136.4	169.0	212.4	222.7	237.5	251.9
306885	99.3	136.3	158.1	186.7	205.8	219.3	228.3
306725	99.8	135.0	164.6	192.5	213.5	226.6	240.2
306883	100.6	152.4	190.2	218.6	242.7	258.9	279.8
306828	101.4	148.1	171.2	204.6	215.1	236.3	258.6
306763	103.1	146.2	172.6	202.6	233.7	252.6	267.7
306716	103.3	144.7	174.4	201.8	221.6	235.7	249.1
306819	104.1	148.2	183.4	218.5	248.5	262.1	285.8
306749	104.8	154.2	189.8	231.5	250.3	266.3	285.5
306846	106.8	155.4	188.7	218.6	241.6	253.7	269.1
306727	107.6	138.3	174.5	205.6	229.5	246.8	271.5
306710	107.8	151.2	178.9	200.8	220.3	234.1	242.8

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306751	110.1	155.4	195.8	220.3	240.7	261.2	277.1
306813	110.9	147.9	171.5	200.6	223.6	235.1	253.8
306785	113.1	152.8	169.4	193.9	206.3	233.9	236.1
306714	114.4	170.0	209.0	241.6	279.3	284.8	310.8
306782	114.6	137.0	169.6	193.0	198.9	220.0	233.3
306855	115.6	160.2	180.1	221.6	236.0	269.4	291.1
GROUP MEAN	105.3	146.8	177.5	205.6	228.8	245.3	260.9
SD	6.63	9.80	13.14	15.57	19.83	20.19	24.72
SE	1.06	1.57	2.10	2.49	3.18	3.23	3.96
N	39	39	39	39	39	39	39

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306699	249.6	261.9	270.5	270.4	280.8	278.6
306784	252.8	262.1	269.0	271.1	283.2	292.0
306832	313.6	326.0	338.7	339.5	360.5	365.5
306777	218.1	252.3	254.3	262.9	262.3	272.7
306888	261.8	274.9	284.0	285.6	294.3	299.7
306706	265.9	274.3	287.4	289.3	293.6	299.8
306692	232.0	246.4	253.3	259.2	269.0	280.6
306702	317.5	323.1	348.2	353.7	355.7	353.9
306748	272.9	277.0	383.3	302.7	296.8	312.9
306891	278.4	281.4	293.6	298.9	300.1	304.9
306844	289.5	300.3	309.6	320.0	317.1	328.8
306901	221.8	226.6	242.7	247.2	248.3	252.1
306718	251.4	255.6	264.0	281.6	278.7	280.2
306757	270.8	284.0	298.3	298.2	308.7	309.8
306849	271.4	276.0	282.3	291.1	393.7	305.8
306770	289.6	296.4	304.3	311.8	254.7	206.0
306856	326.0	341.6	359.9	364.3	368.8	381.6
306794	269.2	280.0	287.7	283.6	299.8	307.7
306775	310.2	304.0	323.9	318.8	316.5	334.6
306698	240.7	248.8	265.0	268.1	266.3	275.7
306811	286.8	303.8	303.7	308.7	310.8	312.6
306822	253.2	242.8	269.7	257.9	270.4	293.9
306885	246.6	255.9	259.4	267.8	265.3	276.8
306725	245.9	247.9	261.3	271.8	273.1	276.7
306883	293.4	304.4	318.5	321.4	322.4	337.6
306828	193.9	244.9	270.1	286.1	295.9	304.9
306763	285.2	295.6	309.7	313.0	322.2	328.3
306716	259.9	266.0	271.6	275.2	277.5	288.7
306819	297.6	312.2	322.9	333.6	340.8	341.6
306749	310.6	318.0	327.5	330.0	334.7	345.7
306846	288.0	284.7	304.8	302.3	313.6	321.6
306727	286.9	292.5	311.8	308.6	316.8	320.8

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306710	252.1	262.7	254.4	268.4	273.9	280.6
306751	295.6	286.7	309.8	311.7	318.0	326.6
306813	264.0	279.9	295.4	300.8	300.0	307.7
306785	260.0	261.6	266.0	279.4	284.3	302.9
306714	326.6	325.6	343.4	345.2	351.1	355.8
306782	245.2	240.3	258.3	258.1	264.4	275.2
306855	310.9	307.1	330.6	335.5	345.0	344.4
GROUP MEAN	271.9	280.1	295.1	297.3	303.3	307.3
SD	30.80	27.93	33.44	29.29	34.35	33.69
SE	4.93	4.47	5.35	4.69	5.50	5.40
N	39	39	39	39	39	39

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306847	91.4	132.6	174.2	203.1	226.9	246.4	268.5
306803	95.2	143.6	178.3	204.4	232.9	244.6	265.1
306812	96.9	146.4	186.5	215.4	231.6	261.3	280.3
306863	98.7	150.9	186.2	205.4	241.1	258.7	273.8
306685	100.3	144.4	187.5	207.4	226.9	237.5	255.7
306852	101.1	145.8	188.1	191.1	219.4	231.0	247.7
306686	102.5	142.4	177.6	205.3	221.1	242.1	265.9
306821	102.9	145.4	175.2	202.7	230.2	230.5	239.6
306791	103.2	143.4	174.7	198.9	217.5	242.1	254.1
306889	103.9	151.7	183.7	202.8	226.2	246.0	259.6
306789	105.8	138.8	172.6	194.2	205.8	223.9	225.8
306752	106.1	153.2	195.5	213.9	252.5	274.0	296.1
306818	107.2	152.6	193.2	223.1	248.1	278.3	302.7
306792	108.7	156.6	193.8	226.6	256.4	273.6	302.3
306876	110.0	154.8	188.8	224.7	244.5	269.7	282.6
306730	111.3	158.1	182.3	216.3	228.4	250.7	268.7
306688	112.4	144.6	171.5	180.0	238.1	211.0	224.1
306816	114.1	158.1	183.8	215.6	200.9	246.6	267.1
306826	114.7	156.9	181.5	203.1	222.3	245.1	264.2
306860	117.3	160.1	194.3	216.9	235.7	249.3	260.3
GROUP MEAN	105.2	149.0	183.5	207.5	230.3	248.1	265.2
SD	6.91	7.37	7.63	11.74	14.23	17.43	21.57
SE	1.54	1.65	1.71	2.62	3.18	3.90	4.82
N	20	20	20	20	20	20	20

DWI

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP CII
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306847	276.6	284.3	296.1	303.2	303.4	301.6
306803	272.1	276.7	289.1	293.0	297.0	293.2
306812	293.2	300.1	308.6	309.1	223.2	326.4
306863	286.6	309.7	319.9	328.9	336.5	355.6
306685	267.6	274.8	276.8	288.0	293.5	297.7
306852	263.2	259.8	275.1	282.7	286.4	293.8
306686	276.5	283.0	299.1	303.0	306.2	317.8
306821	245.7	263.8	265.8	273.0	276.2	286.2
306791	266.2	265.4	285.1	288.6	304.2	292.9
306889	273.4	286.6	289.2	298.8	309.5	315.7
306789	246.7	248.7	267.6	268.6	273.0	288.1
306752	307.9	322.9	341.3	347.9	353.5	359.2
306818	308.3	317.1	334.3	328.9	341.6	335.3
306792	314.6	335.0	357.9	361.0	363.1	369.9
306876	298.2	305.8	310.2	319.7	325.5	329.0
306730	277.9	291.4	306.8	308.7	316.2	321.2
306688	226.2	243.7	242.0	249.6	263.4	261.3
306816	286.4	300.0	306.5	324.6	324.7	330.6
306826	273.8	283.6	293.6	296.8	306.7	312.2
306860	272.2	280.4	288.7	295.5	303.5	307.3
GROUP MEAN	276.7	286.6	297.7	303.5	305.4	314.8
SD	21.99	24.22	27.31	26.68	32.31	27.18
SE	4.92	5.42	6.11	5.97	7.23	6.08
N	20	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306684	93.8	134.6	165.2	193.6	230.2	242.8	252.2
306859	95.5	134.7	162.9	192.1	220.2	225.4	244.9
306797	91.4	133.1	162.9	178.5	204.5	221.9	234.5
306894	99.3	145.4	176.7	200.3	219.6	234.9	249.4
306827	100.4	147.6	186.8	205.2	234.7	249.5	262.4
306788	101.1	141.1	173.8	196.3	233.7	248.4	262.7
306697	102.1	151.3	184.9	216.4	233.3	256.3	279.4
306719	103.1	150.4	187.1	215.7	243.6	264.1	280.9
306700	103.2	152.4	180.5	211.1	248.6	252.0	264.2
306723	104.7	138.9	170.9	194.9	222.7	241.1	257.0
306717	105.5	151.1	182.4	212.1	233.7	253.8	228.1
306756	105.9	141.8	163.3	184.3	201.4	215.5	267.7
306809	107.6	141.7	168.1	182.2	204.4	215.0	231.5
306898	108.5	157.7	189.2	213.8	236.6	244.5	272.5
306837	109.1	150.3	174.9	203.1	223.9	234.9	252.6
306707	111.1	151.6	179.2	199.5	221.5	236.1	254.8
306834	112.9	162.1	201.4	214.3	245.5	257.9	271.4
306843	113.1	149.2	184.5	200.1	227.4	245.8	263.3
306790	115.1	148.6	188.2	218.8	246.3	264.4	273.5
306817	115.9	156.4	196.3	219.5	245.8	262.3	280.3
GROUP MEAN	105.0	147.0	179.0	202.6	228.9	243.3	259.2
SD	6.91	7.96	11.20	12.53	14.26	15.27	15.82
SE	1.55	1.78	2.50	2.80	3.19	3.41	3.54
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EI
CONCENTRATION: 10 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306684	270.5	283.4	287.7	292.1	306.7	317.0
306859	254.9	247.9	273.6	267.2	267.3	268.9
306797	241.1	261.8	268.6	277.2	276.1	290.4
306894	257.0	271.6	280.9	285.2	290.2	298.2
306827	280.0	286.0	292.2	295.9	315.4	322.3
306788	278.7	288.6	292.8	305.8	310.2	313.2
306697	296.8	310.8	317.5	331.8	335.0	338.1
306719	287.7	307.3	316.8	321.5	332.4	348.7
306700	286.4	290.1	299.3	301.6	313.5	315.8
306723	271.6	287.7	283.1	292.2	305.9	311.8
306717	280.6	293.2	295.7	311.6	317.1	327.5
306756	231.0	245.8	249.5	253.7	263.4	261.1
306809	238.7	249.2	246.7	263.9	268.0	273.8
306898	283.8	284.4	287.8	300.9	312.0	309.4
306837	269.1	270.6	280.2	286.8	290.7	300.9
306707	275.8	287.9	289.5	293.5	305.2	306.8
306834	292.6	294.1	303.6	305.1	318.7	316.0
306843	268.9	288.6	292.7	300.4	312.1	331.5
306790	292.5	300.9	304.5	313.1	315.8	317.0
306817	303.7	313.1	320.2	326.6	337.0	352.5
GROUP MEAN	273.1	283.1	289.1	296.3	304.6	311.0
SD	19.89	19.84	19.72	20.39	22.02	24.26
SE	4.45	4.44	4.41	4.56	4.92	5.42
N	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306709	92.6	130.6	171.3	200.1	226.2	242.8	251.9
306795	94.3	129.4	155.0	182.1	223.5	236.7	246.1
306691	97.7	145.2	183.2	211.7	231.3	253.0	268.9
306871	98.3	144.4	183.2	205.5	225.2	242.2	254.9
306858	100.2	143.5	162.1	183.4	202.4	212.3	220.2
306831	100.9	144.3	188.7	225.5	237.8	273.8	293.9
306865	102.6	140.2	169.3	189.3	208.0	221.1	236.4
306879	102.8	148.1	184.3	200.4	218.6	227.7	257.8
306759	103.4	144.5	153.9	175.2	198.3	197.8	218.6
306704	104.5	153.3	187.5	223.3	246.8	260.1	284.5
306854	105.1	146.5	175.2	198.3	217.9	230.7	249.4
306776	106.2	154.5	184.4	198.0	229.3	231.6	265.3
306853	107.1	138.4	172.4	192.5	208.5	223.1	235.5
306687	108.2	154.6	186.2	216.1	235.9	248.2	265.1
306829	109.6	148.8	175.7	210.9	226.8	250.0	265.5
306778	111.2	150.6	171.7	195.5	232.9	236.7	245.2
306899	112.7	157.3	196.4	222.4	239.8	263.5	283.4
306841	113.3	152.1	179.6	198.1	212.1	229.3	241.3
306731	115.6	159.9	196.0	224.4	248.3	263.8	287.9
306708	117.1	158.1	194.5	217.1	246.1	264.9	276.9
GROUP MEAN	105.2	147.2	178.5	203.5	225.8	240.5	257.4
SD	6.81	8.36	12.37	15.04	14.73	19.55	21.54
SE	1.52	1.87	2.77	3.36	3.29	4.37	4.82
N	20	20	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP EII
CONCENTRATION: 50 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306709	264.5	275.4	283.9	290.5	285.2	297.4
306795	266.7	274.3	284.3	253.4	291.0	304.3
306691	283.1	289.0	294.8	305.5	303.4	314.2
306871	267.3	270.8	284.6	293.9	291.0	294.4
306858	233.8	236.4	244.5	249.5	253.6	253.4
306831	320.1	326.8	327.9	341.5	354.9	364.5
306865	252.7	261.8	264.6	274.2	276.9	277.1
306879	264.3	274.6	287.0	287.2	301.0	308.0
306759	223.7	234.9	238.5	241.2	256.1	258.8
306704	292.6	305.6	318.1	316.7	338.4	332.0
306854	263.4	276.1	277.2	279.7	287.3	287.2
306776	274.6	282.6	298.3	300.8	318.2	323.0
306853	242.8	242.4	249.3	243.2	256.0	261.9
306687	280.8	278.0	305.6	292.9	294.0	298.2
306829	275.3	291.0	303.1	303.3	313.8	319.9
306778	261.4	270.8	274.0	269.4	283.6	289.5
306899	294.3	299.5	316.7	327.0	329.8	337.4
306841	247.6	261.9	266.9	276.3	380.7	286.0
306731	297.3	314.7	318.2	323.9	338.9	340.3
306708	286.4	300.3	311.5	321.7	326.8	340.6
GROUP MEAN	269.6	278.3	287.5	289.6	304.0	304.4
SD	23.12	24.36	25.81	28.99	33.82	29.94
SE	5.17	5.45	5.77	6.48	7.56	6.70
N	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306873	93.9	132.4	163.2	184.4	208.1	216.6	239.2
306766	95.7	140.4	182.2	199.8	224.4	244.6	268.7
306802	97.4	140.9	171.8	199.7	212.3	238.5	253.3
306857	99.3	144.8	182.9	209.9	225.7	252.3	272.4
306890	99.9	141.7	178.8	200.9	230.2	251.7	262.7
306755	100.6	145.8	190.7	216.6	243.1	263.4	276.2
306807	102.2	144.8	180.8	213.2	236.9	254.1	271.1
306881	102.9	145.5	183.5	210.3	235.3	259.3	271.2
306696	103.4	147.8	182.3	230.2	242.4	271.1	302.5
306779	103.5	138.6	158.0	181.8	202.6	216.9	227.6
306762	105.8	155.6	183.3	199.9	223.4	240.5	248.9
306838	106.5	140.6	134.4	194.6	217.6	232.7	256.5
306746.	107.4	149.0	185.1	219.7	241.3	244.3	279.6
306870	107.9	146.9	182.4	179.5	234.1	248.9	266.9
306713	109.1	145.9	187.2	216.6	218.0	243.6	264.2
306840	110.9	133.5	160.2	209.3	196.4	210.8	222.5
306864	112.9	162.3	192.8	218.8	245.9	267.1	284.6
306740	114.3	164.1	197.1	230.5	247.0	259.3	272.0
306848	115.6	147.1	176.2	215.1	227.1	251.3	267.5
306750	116.3	158.4	192.0	224.1	238.7	261.9	272.8
306815	92.9	140.6	177.2	207.7	224.2	241.0	256.4
306781	95.8	134.7	165.5	185.9	212.6	231.5	247.2
306868	96.9	141.7	167.7	199.3	220.0	242.3	267.7
306774	99.3	144.9	180.9	208.7	237.5	249.8	261.2
306897	100.2	145.7	180.8	209.1	230.9	248.0	253.2
306823	101.1	141.0	176.1	194.8	211.2	228.1	242.5
306768	102.2	141.6	166.5	196.8	211.4	232.1	251.0
306801	103.1	142.2	187.1	211.7	239.4	266.5	275.1
306835	103.1	140.9	163.5	191.3	210.4	228.8	242.0
306862	104.4	150.6	167.8	202.0	221.7	232.9	256.5
306689	105.6	146.3	164.3	200.5	221.0	241.8	261.1
306737	106.7	139.1	173.8	200.1	219.3	227.0	247.3
306754	107.5	146.8	182.2	199.9	207.2	234.3	256.6

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306799	108.3	151.3	184.5	212.1	229.4	248.0	263.2
306882	109.2	154.8	194.3	231.2	232.4	258.2	276.6
306786	111.1	151.6	196.2	220.1	248.3	268.4	283.6
306851	111.7	159.2	190.0	210.8	234.5	238.9	255.4
306861	113.1	154.1	189.7	226.1	247.4	264.5	282.2
306765	114.5	146.5	176.9	197.5	209.6	226.5	243.2
306825	115.9	153.3	192.7	205.4	229.1	254.2	253.6
GROUP MEAN	105.2	146.3	178.6	206.6	226.2	244.8	261.4
SD	6.40	7.36	12.67	13.10	13.58	15.19	16.05
SE	1.01	1.16	2.00	2.07	2.15	2.40	2.54
N	40	40	40	40	40	40	40

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306873	238.9	252.3	261.8	254.2	274.8	278.7
306766	272.6	285.3	289.9	301.6	307.0	314.9
306802	267.2	273.8	284.2	289.2	291.7	306.7
306857	282.3	275.5	295.6	308.4	308.9	307.1
306890	269.2	283.4	289.9	293.1	302.1	310.9
306755	293.5	298.3	308.8	315.3	320.2	337.4
306807	274.7	296.1	308.7	311.2	319.2	326.2
306881	284.7	291.7	299.7	299.3	323.1	324.3
306696	306.4	324.4	330.8	341.7	344.2	357.8
306779	233.4	250.5	258.2	258.3	267.0	267.6
306762	255.0	275.8	275.8	286.8	290.6	304.2
306838	271.5	270.2	290.8	301.0	305.1	313.4
306746	291.9	311.0	316.4	316.0	332.8	334.0
306870	284.4	291.6	305.3	306.6	311.6	326.5
306713	276.4	288.0	290.3	306.5	308.8	302.3
306840	230.6	245.6	251.7	260.2	267.0	269.4
306864	302.8	307.4	302.6	315.5	330.2	337.7
306740	294.8	297.1	302.2	303.5	308.9	317.8
306848	274.0	279.3	294.9	307.7	312.2	318.0
306750	284.4	302.6	318.3	317.8	320.0	330.8
306815	259.2	274.9	283.7	284.8	280.6	290.5
306781	254.4	267.6	277.1	282.6	284.8	288.1
306868	276.3	294.3	307.2	319.4	317.3	324.9
306774	272.3	286.4	290.0	298.2	301.9	307.5
306897	272.5	286.8	291.3	302.2	306.4	307.6
306823	251.7	258.3	259.9	271.7	261.5	278.3
306768	275.5	271.6	289.9	283.7	294.5	303.1
306801	296.7	313.4	308.2	336.7	334.5	346.3
306835	254.6	266.0	273.5	281.9	295.8	292.4
306862	274.8	279.9	283.2	296.7	308.2	304.7
306689	269.0	278.3	288.9	294.0	308.7	313.9
306737	255.4	258.6	262.9	269.3	278.0	289.1
306754	254.2	275.2	285.2	289.7	289.6	304.0

DW

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306799	272.0	284.9	290.1	292.0	297.3	303.8
306882	292.9	305.8	295.7	315.4	313.3	324.8
306786	285.1	308.4	317.3	318.1	336.1	336.5
306851	266.2	280.0	283.6	292.1	302.0	306.4
306861	285.4	298.2	305.4	319.8	325.0	327.4
306765	248.9	259.1	269.8	274.4	282.8	282.3
306825	272.1	271.6	288.8	289.3	292.6	293.3
GROUP MEAN	271.9	283.0	290.7	297.6	303.9	310.3
SD	17.92	18.42	17.78	19.80	19.93	20.79
SE	2.83	2.91	2.81	3.13	3.15	3.29
N	40	40	40	40	40	40

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306814	91.8	136.8	170.8	196.2	219.9	238.5	260.5
306693	95.8	138.2	181.0	213.1	237.7	269.5	293.8
306761	96.1	128.9	152.9	176.0	196.8	223.6	242.0
306695	99.6	139.1	168.5	199.8	222.9	242.1	256.7
306739	99.9	146.1	185.5	210.3	230.4	251.7	276.0
306767	100.5	130.9	158.2	172.1	189.8	207.1	217.4
306836	101.2	142.1	173.8	196.9	211.2	223.1	240.3
306690	103.1	135.6	178.4	207.6	226.9	243.4	250.3
306875	103.1	153.9	182.4	211.6	229.6	239.4	256.7
306720	104.7	143.6	176.1	208.6	214.6	242.3	260.0
306744	105.3	146.1	175.4	199.2	227.1	238.6	245.2
306887	106.3	145.2	161.2	193.6	209.9	235.5	247.1
306839	106.9	149.1	182.1	213.4	237.7	251.3	267.0
306884	107.8	159.1	182.5	211.9	238.6	245.3	265.9
306877	109.3	150.8	192.7	208.1	236.3	240.8	262.8
306780	110.9	155.0	195.2	217.4	245.4	256.9	276.1
306738	112.0	150.2	180.3	210.6	229.4	251.4	266.6
306745	113.3	148.7	183.6	212.1	236.4	257.3	274.6
306820	115.3	162.8	201.2	225.8	256.2	271.1	290.1
306895	115.9	162.5	199.2	223.6	251.1	270.9	276.7
GROUP MEAN	104.9	146.2	179.1	205.4	227.4	245.0	261.3
SD	6.67	9.65	12.79	13.67	16.84	16.20	18.04
SE	1.49	2.16	2.86	3.06	3.77	3.62	4.03
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO*

GROUP EIV
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306814	265.8	285.2	293.8	294.5	308.9	317.0
306693	311.4	321.3	339.1	326.1	355.8	364.8
306761	251.2	253.4	272.9	277.1	287.9	286.0
306695	264.7	272.1	278.7	286.3	291.6	298.0
306739	288.7	296.0	310.1	318.2	317.7	331.1
306767	234.9	231.1	239.5	228.7	255.2	261.1
306836	255.4	267.3	267.0	261.4	293.8	298.4
306690	278.2	283.3	294.7	300.4	307.5	319.3
306875	268.9	284.4	285.1	294.3	303.4	305.3
306720	264.4	277.6	282.2	288.1	294.0	297.5
306744	265.3	271.7	282.6	284.3	303.5	300.9
306887	262.9	274.3	295.2	301.5	309.8	316.5
306839	289.1	293.4	302.6	306.9	321.3	319.3
306884	283.6	294.3	299.4	305.0	315.5	325.8
306877	267.9	276.6	284.9	288.8	296.3	294.9
306780	287.2	292.5	296.7	297.7	311.0	306.9
306738	270.0	287.0	300.1	305.2	311.9	326.6
306745	281.9	299.2	305.1	305.9	312.2	325.0
306820	294.0	313.9	316.8	319.7	335.6	336.5
306895	293.2	314.4	327.8	330.7	337.3	348.8
GROUP MEAN	273.9	284.5	293.7	297.0	308.5	314.0
SD	17.59	20.97	21.81	21.80	20.91	23.05
SE	3.93	4.69	4.88	4.87	4.68	5.15
N	20	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1	7	14	21	28	35	42
306742	91.6	129.0	160.3	181.2	210.9	216.7	226.1
306703	95.9	137.6	160.8	188.4	210.3	221.6	236.3
306896	97.3	141.4	174.4	194.1	216.1	235.6	244.4
306771	99.1	145.7	195.3	214.5	241.1	258.1	270.1
306810	99.9	139.5	171.8	195.0	214.2	238.5	256.2
306867	100.6	143.4	160.9	188.1	212.6	223.5	248.1
306878	101.3	156.5	189.6	210.9	246.8	260.7	293.7
306872	103.0	143.6	173.2	194.1	211.1	223.3	238.5
306736	103.2	151.9	181.6	216.2	242.6	255.4	287.9
306787	103.6	147.3	171.4	200.5	225.2	250.5	267.4
306798	105.0	137.9	157.6	185.9	196.7	205.3	220.1
306824	106.7	139.3	167.5	180.9	197.9	212.8	224.2
306892	107.1	137.1	164.8	196.4	222.4	232.0	247.4
306880	108.3	154.4	187.5	211.5	235.7	248.8	267.1
306796	110.4	163.5	197.4	226.7	255.1	267.0	291.2
306743	111.3	155.8	168.9	198.7	227.1	232.9	253.2
306734	111.6	159.3	197.3	223.1	248.6	264.7	285.4
306728	114.0	157.3	188.6	212.4	263.8	258.9	273.2
306804	115.4	166.2	201.4	236.5	241.3	294.0	311.1
306773	115.7	152.8	194.8	214.4	250.9	263.1	272.8
GROUP MEAN	105.1	148.0	178.3	203.5	228.5	243.2	260.7
SD	6.72	10.07	14.56	15.77	19.63	22.52	25.47
SE	1.50	2.25	3.26	3.53	4.39	5.04	5.70
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX J (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT: PO[a]

GROUP EV
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49	56	63	70	77	84
306742	235.9	237.7	247.7	257.4	255.1	308.9
306703	253.1	262.2	267.7	278.1	278.5	285.5
306896	258.9	265.4	273.2	284.3	283.5	299.0
306771	278.6	284.4	296.1	299.0	299.8	270.2
306810	279.3	298.9	297.5	304.6	307.8	314.0
306867	255.7	267.7	275.1	278.4	287.4	289.9
306878	311.3	310.5	334.0	343.7	350.7	360.7
306872	250.8	245.4	262.6	267.5	275.8	279.1
306736	306.1	330.2	329.4	331.2	332.1	334.2
306787	289.6	296.5	305.3	326.8	322.1	323.2
306798	230.3	239.9	244.6	243.8	262.9	269.1
306824	236.8	236.0	251.0	249.7	263.5	263.6
306892	266.3	275.0	279.3	281.8	291.3	296.4
306880	270.4	282.4	295.5	296.9	303.5	311.2
306796	301.9	310.2	321.8	323.1	331.4	333.9
306743	266.6	269.6	273.8	278.2	283.0	297.1
306734	297.5	303.8	317.5	318.2	329.8	329.9
306728	286.9	300.1	315.5	312.3	321.5	319.8
306804	312.6	323.7	333.8	329.5	343.5	345.4
306773	293.8	309.6	319.9	318.5	336.1	346.9
GROUP MEAN	274.1	282.5	292.1	296.2	303.0	308.9
SD	25.65	29.02	29.46	29.13	29.10	27.95
SE	5.74	6.49	6.59	6.51	6.51	6.25
N	20	20	20	20	20	20

[a] Grams
[b] One female rat (#306764) died as a result of a technical error on the 10th day of exposure (age 43 days). Body weights for the 1st and 7th exposure day (ages 33 and 40, respectively) are not presented and were excluded from the calculations.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO*

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306699	42.2	32.9	19.2	28.3	14.3	14.2	6.3
306784	39.2	27.1	24.4	24.1	6.6	30.0	5.9
305832	44.1	37.1	37.2	36.8	19.5	25.0	16.5
306777	35.9	31.2	28.0	18.2	16.9	-7.3	-2.6
306888	41.7	26.6	27.9	27.8	18.6	15.6	3.2
306706	42.7	33.3	32.0	26.0	14.2	11.6	5.2
306692	34.5	16.0	21.0	25.5	12.7	2.4	16.8
306702	54.8	33.4	35.4	29.2	20.9	23.2	17.2
306748	39.0	36.4	16.0	26.7	18.9	8.3	23.5
306891	41.8	31.3	21.4	30.7	15.5	17.2	15.2
306844	39.7	45.3	16.7	35.4	11.0	21.6	13.0
306901	33.5	18.5	17.8	11.4	18.5	2.1	12.4
306718	38.7	29.8	20.9	13.9	14.4	17.5	7.3
306757	32.0	33.6	28.5	22.3	21.0	19.8	3.4
306849	40.6	29.2	24.2	21.8	17.7	11.5	15.8
306770	48.4	33.9	31.1	28.5	13.2	16.0	6.0
306856	53.9	35.9	26.1	26.6	28.7	19.3	21.2
306794	38.3	24.2	29.7	28.7	9.6	15.7	8.1
306775	43.9	36.8	20.1	36.5	18.1	12.3	25.6
306698	36.6	22.7	27.6	16.7	18.1	17.1	7.7
306811	40.2	42.5	34.1	27.8	8.8	17.6	20.2
306822	38.9	32.6	43.4	10.3	14.8	14.4	1.3
306885	37.0	21.8	28.6	19.1	13.5	9.0	18.3
306725	35.2	29.6	27.9	21.0	13.1	13.6	5.7
306883	51.8	37.8	28.4	24.1	16.2	20.9	13.6
306828	46.7	23.1	33.4	10.5	21.2	22.3	-64.7
306763	43.1	26.4	30.0	31.1	18.9	15.1	17.5
306716	41.4	29.7	27.4	19.8	14.1	13.4	10.8
306819	44.1	35.2	35.1	30.0	13.6	23.7	11.8
306749	49.4	35.6	41.7	18.8	16.0	19.2	25.1
306846	48.6	33.3	29.9	23.0	12.1	15.4	18.9
306727	30.7	36.2	31.1	23.9	17.3	24.7	15.4

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306710	43.4	27.7	21.9	19.5	13.8	8.7	9.3
306751	45.3	40.4	24.5	20.4	20.5	15.9	18.5
306813	37.0	23.6	29.1	23.0	11.5	18.7	10.2
306785	39.7	16.6	24.5	12.4	27.6	2.2	23.9
306714	55.6	39.0	32.6	37.7	5.5	26.0	15.8
306782	22.4	32.6	23.4	5.9	21.1	13.3	11.9
306855	44.6	19.9	41.5	14.4	33.4	21.7	19.8
GROUP MEAN	41.5	30.7	28.0	23.3	16.4	15.6	11.1
SD	6.77	7.01	6.70	7.74	5.57	7.41	14.25
SE	1.08	1.12	1.07	1.24	0.89	1.19	2.28
N	39	39	39	39	39	39	39

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO*

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306699	12.3	8.6	-0.1	10.4	-2.2
306784	9.3	6.9	2.1	12.1	8.8
306832	12.4	12.7	0.8	21.0	5.0
306777	34.2	2.0	8.6	-0.6	10.4
306888	13.1	9.1	1.6	8.7	5.4
306706	8.4	13.1	1.9	4.3	6.2
306692	14.4	6.9	5.9	9.8	11.6
306702	5.6	25.1	5.5	2.0	-1.8
306748	4.1	106.3	-80.6	-5.9	16.1
306891	3.0	12.2	5.3	1.2	4.8
306844	10.8	9.3	10.4	-2.9	11.7
306901	4.8	16.1	4.5	1.1	3.8
306718	4.2	8.4	17.6	-2.9	1.5
306757	13.2	14.3	-0.1	10.5	1.1
306849	4.6	6.3	8.8	102.6	-87.9
306770	6.8	7.9	7.5	-57.1	-48.7
306856	15.6	18.3	4.4	4.5	12.8
306794	10.8	7.7	-4.1	16.2	7.9
306775	-6.2	19.9	-5.1	-2.3	18.1
306698	8.1	16.2	3.1	-1.8	9.4
306811	17.0	-0.1	5.0	2.1	1.8
306822	-10.4	26.9	-11.8	12.5	23.5
306885	9.3	3.5	8.4	-2.5	11.5
306725	2.0	13.4	10.5	1.3	3.6
306883	11.0	14.1	2.9	1.0	15.2
306828	51.0	25.2	16.0	9.8	9.0
306763	10.4	14.1	3.3	9.2	6.1
306716	6.1	5.6	3.6	2.3	11.2
306819	14.6	10.7	10.7	7.2	0.8
306749	7.4	9.5	2.5	4.7	11.0
306846	-3.3	20.1	-2.5	11.3	8.0

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306727	5.6	19.3	-3.2	8.2	4.0
306710	10.6	-8.3	14.0	5.5	6.7
306751	-8.9	23.1	1.9	6.3	8.6
306813	15.9	15.5	5.4	-0.8	7.7
306785	1.6	4.4	13.4	4.9	18.6
306714	-1.0	17.8	1.8	5.9	4.7
306782	-4.9	18.0	-0.2	6.3	10.8
306855	-3.8	23.5	4.9	9.5	-0.6
GROUP MEAN	8.2	15.0	2.2	6.0	4.0
SD	10.84	16.80	14.82	19.60	18.51
SE	1.74	2.69	2.37	3.14	2.96
N	39	39	39	39	39

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306847	41.2	41.6	28.9	23.8	19.5	22.1	8.1
306803	48.4	34.7	26.1	28.5	11.7	20.5	7.0
306812	49.5	40.1	28.9	16.2	29.7	19.0	12.9
306863	52.2	35.3	19.2	35.7	17.6	15.1	12.8
306685	44.1	43.1	19.9	19.5	10.6	18.2	11.9
306852	44.7	42.3	3.0	28.3	11.6	16.7	15.5
306686	39.9	35.2	27.7	15.8	21.0	23.8	10.6
306821	42.5	29.8	27.5	27.5	0.3	9.1	6.1
306791	40.2	31.3	24.2	18.6	24.6	12.0	12.1
306889	47.8	32.0	19.1	23.4	19.8	13.6	13.8
306789	33.0	33.8	21.6	11.6	18.1	1.9	20.9
306752	47.1	42.3	18.4	38.6	21.5	22.1	11.8
306818	45.4	40.6	29.9	25.0	30.2	24.4	5.6
306792	47.9	37.2	32.8	29.8	17.2	28.7	12.3
306876	44.8	34.0	35.9	19.8	25.2	12.9	15.6
306730	46.8	24.2	34.0	12.1	22.3	18.0	9.2
306688	32.2	26.9	8.5	58.1	-27.1	13.1	2.1
306816	44.0	25.7	31.8	-14.7	45.7	20.5	19.3
306826	42.2	24.6	21.6	19.2	22.8	19.1	9.6
306860	42.8	34.2	22.6	18.8	13.6	11.0	11.9
GROUP MEAN	43.8	34.4	24.1	22.8	17.8	17.1	11.5
SD	4.99	6.08	8.22	13.78	13.99	6.17	4.51
SE	1.12	1.36	1.84	3.08	3.13	1.38	1.01
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO

GROUP CII
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306847	7.7	11.8	7.1	0.2	-1.8
306803	4.6	12.4	3.9	4.0	-3.8
306812	6.9	8.5	0.5	-85.9	103.2
306863	23.1	10.2	9.0	7.6	19.1
306685	7.2	2.0	11.2	5.5	4.2
306852	-3.4	15.3	7.6	3.7	7.4
306686	6.5	16.1	3.9	3.2	11.6
306821	18.1	2.0	7.2	3.2	10.0
306791	-0.8	19.7	3.5	15.6	-11.3
306889	13.2	2.6	9.6	10.7	6.2
306789	2.0	18.9	1.0	4.4	15.1
306752	15.0	18.4	6.6	5.6	5.7
306818	8.8	17.2	-5.4	12.7	-6.3
306792	20.4	22.9	3.1	2.1	6.8
306876	7.6	4.4	9.5	5.8	3.5
306730	13.5	15.4	1.9	7.5	5.0
306688	17.5	-1.7	7.6	13.8	-2.1
306816	13.6	6.5	18.1	0.1	5.9
306826	9.8	10.0	3.2	9.9	5.5
306860	8.2	8.3	6.8	8.0	3.8
GROUP MEAN	10.0	11.0	5.8	1.9	9.4
SD	6.87	6.93	4.86	21.10	23.18
SE	1.54	1.55	1.09	4.72	5.18
N	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306684	40.8	30.6	28.4	36.6	12.6	9.4	18.3
306859	39.2	28.2	29.2	28.1	5.2	19.5	10.0
306797	41.7	29.8	15.6	26.0	17.4	12.6	6.6
306894	46.1	31.3	23.6	19.3	15.3	14.5	7.6
306827	47.2	39.2	18.4	29.5	14.8	12.9	17.6
306788	40.0	32.7	22.5	37.4	14.7	14.3	16.0
306697	49.2	33.6	31.5	16.9	23.0	23.1	17.4
306719	47.3	36.7	28.6	27.9	20.5	16.8	6.8
306700	49.2	28.1	30.6	37.5	3.4	12.2	22.2
306723	34.2	32.0	24.0	27.8	18.4	15.9	14.6
306717	45.6	31.3	29.7	21.6	20.1	-25.7	52.5
306756	35.9	21.5	21.0	17.1	14.1	52.2	-36.7
306809	34.1	26.4	14.1	22.2	10.6	16.5	7.2
306898	49.2	31.5	24.6	22.8	7.9	28.0	11.3
306837	41.2	24.6	28.2	20.8	11.0	17.7	16.5
306707	40.5	27.6	20.3	22.0	14.6	18.7	21.0
306834	49.2	39.3	12.9	31.2	12.4	13.5	21.2
306843	36.1	35.3	15.6	27.3	18.4	17.5	5.6
306790	33.5	39.6	30.6	27.5	18.1	9.1	19.0
306817	40.5	39.9	23.2	26.3	16.5	18.0	23.4
GROUP MEAN	42.0	32.0	23.6	26.3	14.4	15.8	13.9
SD	5.52	5.20	5.97	6.16	5.05	13.40	15.69
SE	1.23	1.16	1.34	1.38	1.13	3.00	3.51
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP EI
CONCENTRATION: 10 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306684	12.9	4.3	4.4	14.6	10.3
306859	-7.0	25.7	-6.4	0.1	1.6
306797	20.7	6.8	8.6	-1.1	14.3
306894	14.6	9.3	4.3	5.0	8.0
306827	6.0	6.2	3.7	19.5	6.9
306788	9.9	4.2	13.0	4.4	3.0
306697	14.0	6.7	14.3	3.2	3.1
306719	19.6	9.5	4.7	10.9	16.3
306700	3.7	9.2	2.3	11.9	2.3
306723	16.1	-4.6	9.1	13.7	5.9
306717	12.6	2.5	15.9	5.5	10.4
306756	14.8	3.7	4.2	9.7	-2.3
306809	10.5	-2.5	17.2	4.1	5.8
306898	0.6	3.4	13.1	11.1	-2.6
306837	1.5	9.6	6.6	3.9	10.2
306707	12.1	1.6	4.0	11.7	1.6
306834	1.5	9.5	1.5	13.6	-2.7
306843	19.7	4.1	7.7	11.7	19.4
306790	8.4	3.6	8.6	2.7	1.2
306817	9.4	7.1	6.4	10.4	15.5
GROUP MEAN	10.1	6.0	7.2	8.3	6.4
SD	7.25	6.04	5.61	5.45	6.54
SE	1.62	1.35	1.26	1.22	1.46
N	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO*

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306709	38.0	40.7	28.8	26.1	16.6	9.1	12.6
306795	35.1	25.6	27.1	41.4	13.2	9.4	20.6
306691	47.5	38.0	28.5	19.6	21.7	15.9	14.2
306871	46.1	38.8	22.3	19.7	17.0	12.7	12.4
306858	43.3	18.6	21.3	19.0	9.9	7.9	13.6
306831	43.4	44.4	36.8	12.3	36.0	20.1	26.2
306865	37.6	29.1	20.0	18.7	13.1	15.3	16.3
306879	45.3	36.2	16.1	18.2	9.1	30.1	6.5
306759	41.1	9.4	21.3	23.1	-0.5	20.8	5.1
306704	48.8	34.2	35.8	23.5	13.3	24.4	8.1
306854	41.4	28.7	23.1	19.6	12.8	18.7	14.0
306776	48.3	29.9	13.6	31.3	2.3	33.7	9.3
306853	31.3	34.0	20.1	16.0	14.6	12.4	7.3
306687	46.4	31.6	29.9	19.8	12.3	16.9	15.7
306829	39.2	26.9	35.2	15.9	23.2	15.5	9.8
306778	39.4	21.1	23.8	37.4	3.8	8.5	16.2
306899	44.6	39.1	26.0	17.4	23.7	19.9	10.9
306841	38.8	27.5	18.5	14.0	17.2	12.0	6.3
306731	44.3	36.1	28.4	23.9	15.5	24.1	9.4
306708	41.0	36.4	22.6	29.0	18.8	12.0	9.5
GROUP MEAN	42.0	31.3	25.0	22.3	14.7	17.0	12.2
SD	4.61	8.38	6.38	7.54	8.15	7.12	5.18
SE	1.03	1.87	1.43	1.69	1.82	1.59	1.16
N	20	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO*

GROUP EII
CONCENTRATION: 50 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306709	10.9	8.5	6.6	-5.3	12.2
306795	7.6	10.0	-30.9	37.6	13.3
306691	5.9	5.8	10.7	-2.1	10.8
306871	3.5	13.8	9.3	-2.9	3.4
306858	2.6	8.1	5.0	4.1	-0.2
306831	6.7	1.1	13.6	13.4	9.6
306865	9.1	2.8	9.6	2.7	0.2
306879	10.3	12.4	0.2	13.8	7.0
306759	11.2	3.6	2.7	14.9	2.7
306704	13.0	12.5	-1.4	21.7	-6.4
306854	12.7	1.1	2.5	7.6	-0.1
306776	8.0	15.7	2.5	17.4	4.8
306853	-0.4	6.9	-6.1	12.8	5.9
306687	-2.8	27.6	-12.7	1.1	4.2
306829	15.7	12.1	0.2	10.5	6.1
306778	9.4	3.2	-4.6	14.2	5.9
306899	5.2	17.2	10.3	2.8	7.6
306841	14.3	5.0	9.4	104.4	-94.7
306731	17.4	3.5	5.7	15.0	1.4
306708	13.9	11.2	10.2	5.1	13.8
GROUP MEAN	8.7	9.1	2.1	14.4	0.4
SD	5.32	6.52	10.21	23.36	22.95
SE	1.19	1.46	2.28	5.22	5.13
N	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306873	38.5	30.8	21.2	23.7	8.5	22.6	-0.3
306766	44.7	41.8	17.6	24.6	20.2	24.1	3.9
306802	43.5	30.9	27.9	12.6	26.2	14.8	13.9
306857	45.5	38.1	27.0	15.8	26.6	20.1	9.9
306890	41.8	37.1	22.1	29.3	21.5	11.0	6.5
306755	45.2	44.9	25.9	26.5	20.3	12.8	17.3
306807	42.6	36.0	32.4	23.7	17.2	17.0	3.6
306881	42.6	38.0	26.8	25.0	24.0	11.9	13.5
306696	44.4	34.5	47.9	12.2	28.7	31.4	3.9
306779	35.1	19.4	23.8	20.8	14.3	10.7	5.8
306762	49.8	27.7	16.6	23.5	17.1	8.4	6.1
306838	34.1	-6.2	60.2	23.0	15.1	23.8	15.0
306746	41.6	36.1	34.6	21.6	3.0	35.3	12.3
306870	39.0	35.5	-2.9	54.6	14.8	18.0	17.5
306713	36.8	41.3	29.4	1.4	25.6	20.6	12.2
306840	22.6	26.7	49.1	-12.9	14.4	11.7	8.1
306864	49.4	30.5	26.0	27.1	21.2	17.5	18.2
306740	49.8	33.0	33.4	16.5	12.3	12.7	22.8
306848	31.5	29.1	38.9	12.0	24.2	16.2	6.5
306750	42.1	33.6	32.1	14.6	23.2	10.9	11.6
306815	47.7	36.6	30.5	16.5	16.8	15.4	2.8
306781	38.9	30.8	20.4	26.7	18.9	15.7	7.2
306868	44.8	26.0	31.6	20.7	22.3	25.4	8.6
306774	45.6	36.0	27.8	28.8	12.3	11.4	11.1
306897	45.5	35.1	28.3	21.8	17.1	5.2	19.3
306823	39.9	35.1	18.7	16.4	16.9	14.4	9.2
306768	39.4	24.9	30.3	14.6	20.7	18.9	24.5
306801	39.1	44.9	24.6	27.7	27.1	8.6	21.6
306835	37.8	22.6	27.8	19.1	18.4	13.2	12.6
306862	46.2	17.2	34.2	19.7	11.2	23.6	18.3
306689	40.7	18.0	36.2	20.5	20.8	19.3	7.9

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306737	32.4	34.7	26.3	19.2	7.7	20.3	8.1
306754	39.3	35.4	17.7	7.3	27.1	22.3	-2.4
306799	43.0	33.2	27.6	17.3	18.6	15.2	8.8
306882	45.6	39.5	36.9	1.2	25.8	18.4	16.3
306786	40.5	44.6	23.9	28.2	20.1	15.2	1.5
306851	47.5	30.8	20.8	23.7	4.4	16.5	10.8
306861	41.0	35.6	36.4	21.3	17.1	17.7	3.2
306765	32.0	30.4	20.6	12.1	16.9	16.7	5.7
306825	37.4	39.4	12.7	23.7	25.1	-0.6	18.5
GROUP MEAN	41.1	32.2	28.1	19.6	18.6	16.6	10.5
SD	5.61	9.20	10.52	10.20	6.24	6.64	6.52
SE	0.89	1.45	1.66	1.61	0.99	1.05	1.03
N	40	40	40	40	40	40	40

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO*

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306873	13.4	9.5	-7.6	20.6	3.9
306766	12.7	4.6	11.7	5.4	7.9
306802	6.6	10.4	5.0	2.5	15.0
306857	-6.8	20.1	12.8	0.5	-1.8
306890	14.2	6.5	3.2	9.0	8.8
306755	4.8	10.5	6.5	4.9	17.2
306807	21.4	12.6	2.5	8.0	7.0
306881	7.0	8.0	-0.4	23.8	1.2
306696	18.0	6.4	10.9	2.5	13.6
306779	17.1	7.7	0.1	8.7	0.6
306762	20.8	0.0	11.0	3.8	13.6
306838	-1.3	20.6	10.2	4.1	8.3
306746	19.1	5.4	-0.4	16.8	1.2
306870	7.2	13.7	1.3	5.0	14.9
306713	11.6	2.3	16.2	2.3	-6.5
306840	15.0	6.1	8.5	6.8	2.4
306864	4.6	-4.8	12.9	14.7	7.5
306740	2.3	5.1	1.3	5.4	8.9
306848	5.3	15.6	12.8	4.5	5.8
306750	18.2	15.7	-0.5	2.2	10.8
306815	15.7	8.8	1.1	-4.2	9.9
306781	13.2	9.5	5.5	2.2	3.3
306868	18.0	12.9	12.2	-2.1	7.6
306774	14.1	3.6	8.2	3.7	5.6
306897	14.3	4.5	10.9	4.2	1.2
306823	6.6	1.6	11.8	-10.2	16.8
306768	-3.9	18.3	-6.2	10.8	8.6
306801	16.7	-5.2	28.5	-2.2	11.8
306835	11.4	7.5	8.4	13.9	-3.4
306862	5.1	3.3	13.5	11.5	-3.5
306689	9.3	10.6	5.1	14.7	5.2

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306737	3.2	4.3	6.4	8.7	11.1
306754	21.0	10.0	4.5	-0.1	14.4
306799	12.9	5.2	1.9	5.3	6.5
306882	12.9	-10.1	19.7	-2.1	11.5
306786	23.3	8.9	0.8	18.0	0.4
306851	13.8	3.6	8.5	9.9	4.4
306861	12.8	7.2	14.4	5.2	2.4
306765	10.2	10.7	4.6	8.4	-0.5
306825	-0.5	17.2	0.5	3.3	0.7
GROUP MEAN	11.0	7.7	7.0	6.3	6.4
SD	7.20	6.52	7.00	6.86	5.96
SE	1.14	1.03	1.11	1.08	0.94
N	40	40	40	40	40

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306814	45.0	34.0	25.4	23.7	18.6	22.0	5.3
306693	42.4	42.8	32.1	24.6	31.8	24.3	17.6
306761	32.8	24.0	23.1	20.8	26.8	18.4	9.2
306695	39.5	29.4	31.3	23.1	19.2	14.6	8.0
306739	46.2	39.4	24.8	20.1	21.3	24.3	12.7
306767	30.4	27.3	13.9	17.7	17.3	10.3	17.5
306836	40.9	31.7	23.1	14.3	11.9	17.2	15.1
306690	32.5	42.8	29.2	19.3	16.5	6.9	27.9
306875	50.8	28.5	29.2	18.0	9.8	17.3	12.2
306720	38.9	32.5	32.5	6.0	27.7	17.7	4.4
306744	40.8	29.3	23.8	27.9	11.5	6.6	20.1
306887	38.9	16.0	32.4	16.3	25.6	11.6	15.8
306839	42.2	33.0	31.3	24.3	13.6	15.7	22.1
306884	51.3	23.4	29.4	26.7	6.7	20.6	17.7
306877	41.5	41.9	15.4	28.2	4.5	22.0	5.1
306780	44.1	40.2	22.2	28.0	11.5	19.2	11.1
306738	38.2	30.1	30.3	18.8	22.0	15.2	3.4
306745	35.4	34.9	28.5	24.3	20.9	17.3	7.3
306820	47.5	38.4	24.6	30.4	14.9	19.0	3.9
306895	46.6	36.7	24.4	27.5	19.8	5.8	16.5
GROUP MEAN	41.3	32.8	26.3	22.0	17.6	16.3	12.6
SD	5.77	7.12	5.29	5.89	7.21	5.58	6.83
SE	1.29	1.59	1.18	1.32	1.61	1.25	1.53
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: P0[a]

GROUP EIV
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306814	19.4	8.6	0.7	14.4	8.1
306693	9.9	17.8	-13.0	29.7	9.0
306761	2.2	19.5	4.2	10.8	-1.9
306695	7.4	6.6	7.6	5.3	6.4
306739	7.3	14.1	8.1	-0.5	13.4
306767	-3.8	8.4	-10.8	26.5	5.9
306836	11.9	-0.3	14.4	12.4	4.6
306690	5.1	11.4	5.7	7.1	11.8
306875	15.5	0.7	9.2	9.1	1.9
306720	13.2	4.6	5.9	5.9	3.5
306744	6.4	10.9	1.7	19.2	-2.6
306887	11.4	20.9	6.3	8.3	6.7
306839	4.3	9.2	4.3	14.4	-2.0
306884	10.7	5.1	5.6	10.5	10.3
306877	8.7	8.3	3.9	7.5	-1.4
306780	5.3	4.2	1.0	13.3	-4.1
306738	17.0	13.1	5.1	6.7	14.7
306745	17.3	5.9	0.8	6.3	12.8
306820	19.9	2.9	2.9	15.9	0.9
306895	21.2	13.4	2.9	6.6	11.5
GROUP MEAN	10.5	9.3	3.3	11.5	5.5
SD	6.55	5.92	6.14	7.24	5.96
SE	1.46	1.32	1.37	1.62	1.33
N	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO*

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	EXPOSURE DAYS 1-7	7-14	14-21	21-28	28-35	35-42	42-49
306742	37.4	31.3	20.9	29.7	5.8	9.4	9.8
306703	41.7	23.2	27.6	21.9	11.3	14.7	16.8
306896	44.1	33.0	19.7	22.0	19.5	8.8	14.5
306771	46.6	49.6	19.2	26.6	17.0	12.0	8.5
306810	39.6	32.3	23.2	19.2	24.3	17.7	23.1
306867	42.8	17.5	27.2	24.5	10.9	24.6	7.6
306878	55.2	33.1	21.3	35.9	13.9	33.0	17.6
306872	40.6	29.6	20.9	17.0	12.2	15.2	12.3
306736	48.7	29.7	34.6	26.4	12.8	32.5	18.2
306787	43.7	24.1	29.1	24.7	25.3	16.9	22.2
306798	32.9	19.7	28.3	10.8	8.6	14.8	10.2
306824	32.6	28.2	13.4	17.0	14.9	11.4	12.6
306892	30.0	27.7	31.6	26.0	9.6	15.4	18.9
306880	46.1	33.1	24.0	24.2	13.1	18.3	3.3
306796	53.1	33.9	29.3	28.4	11.9	24.2	10.7
306743	44.5	13.1	29.8	28.4	5.8	20.3	13.4
306734	47.7	38.0	25.8	25.5	16.1	20.7	12.1
306728	43.3	31.3	23.8	51.4	-4.9	14.3	13.7
306804	50.8	35.2	35.1	4.8	52.7	17.1	1.5
306773	37.1	42.0	19.6	36.5	12.2	9.7	21.0
GROUP MEAN	42.9	30.3	25.2	25.0	14.7	17.5	13.4
SD	6.72	8.30	5.60	9.71	11.09	6.82	5.84
SE	1.50	1.85	1.25	2.17	2.48	1.53	1.31
N	20	20	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX K (CONT.)

INDIVIDUAL PREMATING FEMALE WEIGHT CHANGES: PO[a]

GROUP EV
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	EXPOSURE DAYS 49-56	56-63	63-70	70-77	77-84
306742	1.8	10.0	9.7	-2.3	53.8
306703	9.1	5.5	10.4	0.4	7.0
306896	6.5	7.8	11.1	-0.8	15.5
306771	5.8	11.7	2.9	0.8	-29.6
306810	19.6	-1.4	7.1	3.2	6.2
306867	12.0	7.4	3.3	9.0	2.5
306878	-0.8	23.5	9.7	7.0	10.0
306872	-5.4	17.2	4.9	8.3	3.3
306736	24.1	-0.8	1.8	0.9	2.1
306787	6.9	8.8	21.5	-4.7	1.1
306798	9.6	4.7	-0.8	19.1	6.2
306824	-0.8	15.0	-1.3	13.8	0.1
306892	8.7	4.3	2.5	9.5	5.1
306880	12.0	13.1	1.4	6.6	7.7
306796	8.3	11.5	1.3	8.3	2.5
306743	3.0	4.2	4.4	4.8	14.1
306734	6.3	13.7	0.7	11.6	0.1
306728	13.2	15.4	-3.2	9.2	-1.7
306804	11.1	10.1	-4.3	14.0	1.9
306773	15.8	10.3	-1.4	17.6	10.8
GROUP MEAN	8.3	9.6	4.1	6.8	5.9
SD	7.01	6.02	6.10	6.55	14.45
SE	1.57	1.35	1.36	1.47	3.23
N	20	20	20	20	20

[a] Grams
[b] One female rat (#306764) died as a result of a technical error on the 10th day of exposure (age 43 days). Her body weight for the 1st and 7th exposure day (ages 33 and 40 days, respectively) were not presented and were excluded from the calculations.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: CI, CII CONCENTRATION: 0 PPM

MALE GROUP: CI, CII CONCENTRATION: 0 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306692	(306599)	+					+	22
306698[a]	(306616)	-	(306655)	S	(306683)	-	+	...
306699[b]	(306681)	+					+	...
306702[b]	(306599)	+					+	...
306706[b]	(306598)	+					+	...
306710	(306638)	+					+	22
306714[a]	(306590)	S	(306646)	-	(306598)	-	+	...
306716[b]	(306653)	+					+	...
306718[b]	(306635)	+					+	...
306725	(306586)	+					+	22
306727	(306643)	-	(306586)	+			+	23
306748[c]	(306667)	+					-	...
306749	(306639)	-	(306645)	+			+	23
306751[b]	(306638)	-	(306586)	+			+	...
306757	(306635)	+					+	22
306763[b]	(306653)	-	(306616)	+			+	...
306770[d]	(306655)	-	(306635)	-	(306681)	-	-	...
306775[a]	(306616)	-	(306655)	S	(306681)	-	+	...
306777[b]	(306683)	+					+	...
306782	(306590)	-	(306653)	+			+	23
306784	(306681)	+					+	23
306785	(306673)	+					+	23

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: CI, CII CONCENTRATION: 0 PPM

MALE GROUP: CI, CII CONCENTRATION: 0 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306794[b]	(306669)	+					+	...
306811	(306645)	-	(306669)	-	(306683)	+	+	23
306813[a]	(306673)	S	(306646)	-	(306598)	-	+	...
306819	(306639)	+					+	23
306822[b]	(306645)	-	(306669)	+			+	...
306828[b]	(306646)	+					+	...
306832[c]	(306683)	+					-	...
306844[b]	(306607)	+					+	...
306846	(306643)	-	(306645)	+			+	23
306849	(306655)	+					+	23
306855	(306660)	+					+	23
306856[c]	(306669)	-	(306635)	+			-	...
306883[b]	(306646)	-	(306616)	+			+	...
306885	(306586)	+					+	22
306888[b]	(306598)	+					+	21
306891	(306667)	+					+	23
306901[c]	(306607)	+					-	...
306685	(306611)	-	(306604)	-	(306676)	+	+	22
306686	(306649)	+					+	23
306688	(306672)	+					+	22
306730	(306597)	-	(306627)	+			+	23
306752[a]	(306674)	S	(306649)	S	(306676)	-	+	...

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: CI, CII CONCENTRATION: 0 PPM

MALE GROUP: CI, CII CONCENTRATION: 0 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306789	(306674)	-	(306611)	+			+	22
306791	(306627)	-	(306611)	+			+	23
306792	(306637)	+					+	22
306803	(306676)	-	(306604)	+			+	23
306812	(306604)	+					+	23
306816[c]	(306672)	-	(306674)	-	(306604)	-	-	...
306818	(306637)	-	(306649)	-	(306604)	+	+	23
306821	(306649)	+					+	22
306826	(306664)	S	(306674)	+			+	23
306847	(306676)	+					+	23
306852	(306611)	+					+	22
306860	(306664)	+					+	22
306863	(306604)	+					+	23
306876	(306597)	-	(306627)	+			+	23
306889	(306627)	+					+	23

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: EI CONCENTRATION: 10 PPM

MALE GROUP: EI CONCENTRATION: 10 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306684[c]	(306641)	-	(306654)	S	(306583)	-	-	...
306697	(306583)	+					+	22
306700	(306606)	-	(306583)	+			+	23
306707	(306632)	+					+	23
306717	(306636)	+					+	23
306719	(306583)	+					+	23
306723	(306606)	+					+	22
306756	(306636)	+					+	23
306788[a]	(306654)	-			(306641)	-	+	...
306790	(306662)	+					+	22
306797	(306633)	+					+	22
306809	(306603)	-	(306583)	+			+	22
306817	(306662)	S	(306636)	+			+	23
306827[c]	(306654)	-	(306633)	S	(306641)	S	-	...
306834[c]	(306601)	-	(306606)	-	(306633)	S	-	...
306837	(306632)	+					+	23
306843[a]	(306601)	S	(306633)	S	(306633)	-	+	...
306859	(306641)	+					+	22
306894[c]	(306633)	-	(306654)	-	(306583)	-	-	...
306898	(306603)	+					+	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: EII CONCENTRATION: 50 PPM

MALE GROUP: EII CONCENTRATION: 50 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306687	(306644)	-	(306605)	+			+	22
306691[a]	(306610)	-	(306675)	-	(306605)	+	+	...
306704	(306628)	+					+	22
306708	(306626)	+					+	22
306709	(306675)	-	(306610)	-	(306605)	+	+	23
306731[c]	(306626)	+					-	...
306759	(306628)	+					+	23
306776[c]	(306614)	+					-	...
306778	(306602)	-	(306657)	+			+	22
306795	(306675)	+					+	22
306829	(306602)	-	(306657)	+			+	23
306831	(306605)	+					+	23
306841[c]	(306682)	-	(306628)	-	(306675)	S	-	...
306853	(306644)	+					+	23
306854	(306614)	+					+	23
306858[d]	(306605)	-	(306610)	+			-	...
306865	(306657)	+					+	23
306871	(306610)	-	(306675)	+			+	23
306879[c]	(306657)	-	(306605)	-	(306675)	-	-	...
306899	(306682)	+					+	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: EIII CONCENTRATION: 130 PPM

MALE GROUP: EIII CONCENTRATION: 130 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306689	(306647)	+					+	22
306696[c]	(306656)	–	(306574)	+	(306659)	S	–	...
306713	(306625)	+					+	23
306737	(306647)	+					+	23
306740[b]	(306630)	+					+	...
306746[b]	(306622)	+					+	...
306750[b]	(306613)	–	(306656)	+			+	...
306754[b]	(306593)	+					+	...
306755	(306659)	+					+	23
306762[b]	(306642)	+					+	...
306765	(306576)	+					+	23
306766[a]	(306661)	S	(306659)	–	(306574)	–	+	...
306768[b]	(306589)	+					+	...
306774[b]	(306584)	+					+	...
306779	(306656)	+					+	23
306781	(306680)	+					+	23
306786	(306650)	–	(306622)	+			+	22
306799[b]	(306593)	–	(306622)	+			+	...
306801	(306589)	–	(306642)	S	(306659)	+	+	23
306802[b]	(306651)	S	(306659)	+			+	...
306807[b,c]	(306574)	–	(306651)	+			+	...
306815	(306680)	+					+	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: EIII CONCENTRATION: 130 PPM

MALE GROUP: EIII CONCENTRATION: 130 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306823	(306575)	+					+	22
306825	(306576)	+					+	23
306835[a]	(306666)	S	(306642)	-	(306651)	-	+	...
306838	(306642)	-	(306574)	+			+	23
306840[b,c]	(306625)	+					+	...
306848	(306613)	-	(306656)	+			+	23
306851[a]	(306594)	S	(306625)	-	(306661)	-	+	...
306857	(306651)	+					+	22
306861[c]	(306594)	S	(306625)	-	(306661)	-	-	...
306862[c]	(306666)	+					-	...
306864	(306630)	+					+	22
306868[b]	(306584)	+					+	...
306870[b]	(306622)	+					+	...
306873	(306661)	+					+	23
306881	(306574)	+					+	22
306882[b]	(306650)	+					+	...
306890[b]	(306659)	-	(306651)	+			+	...
306897	(306575)	+					+	23

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: EIV CONCENTRATION: 130 PPM

MALE GROUP: EIV CONCENTRATION: 0 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306690[c]	(306585)	+					-	...
306693	(306624)	+					+	23
306695[c]	(306608)	S	(306612)	-	(306640)	-	-	...
306720	(306617)	+					+	22
306738	(306679)	+					+	23
306739	(306612)	+					+	22
306744	(306640)	-	(306585)	+			+	22
306745	(306679)	+					+	23
306761	(306608)	+					+	22
306767	(306612)	S	(306608)	-	(306617)	+	+	23
306780	(306618)	+					+	23
306814[a]	(306624)	S	(306612)	-	(306617)	-	+	...
306820	(306652)	+					+	23
306836	(306585)	S	(306612)	+			+	23
306839	(306629)	+					+	23
306875[c]	(306617)	+					-	...
306877[c]	(306618)	S	(306585)	-	(306640)	-	-	...
306884	(306629)	+					+	23
306887[a]	(306640)	+					+	28
306895[c]	(306652)	+					-	...

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FEMALE GROUP: EV CONCENTRATION: 0 PPM

MALE GROUP: EV CONCENTRATION: 130 PPM

FEMALE ANIMAL#	MALE #1 ANIMAL#	SPERM POSITIVE	MALE #2 ANIMAL#	SPERM POSITIVE	MALE #3 ANIMAL#	SPERM POSITIVE	LITTER PRODUCED	GESTATION LENGTH (days)
306703[c]	(306580)	+					-	...
306728	(306600)	-	(306619)	+			+	23
306734	(306600)	+					+	23
306736[c]	(306587)	+					-	...
306742	(306580)	S	(306631)	+			+	23
306743	(306677)	-	(306631)	-	(306631)	+	+	22
306771	(306631)	-	(306663)	-	(306580)	+	+	22
306773	(306591)	-	(306619)	+			+	22
306787[a]	(306587)	S	(306663)	-	(306580)	-	+	...
306796	(306677)	-	(306587)	+			+	23
306798	(306619)	+					+	23
306804	(306591)	+					+	23
306810	(306663)	+					+	23
306824	(306619)	-	(306670)	+			+	23
306867	(306663)	+					+	22
306872	(306670)	+					+	22
306878	(306670)	S	(306631)	+			+	23
306880[a]	(306578)	-	(306670)	-	(306631)	-	+	...
306892[c]	(306578)	+					-	...
306896	(306631)	+					+	23

DWI

18cv794 NRDC v EPA

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX L (CONT.)

INDIVIDUAL MATING DATA AND GESTATION LENGTH: PO

FOOTNOTES:

[a] Gestation day 1 could not be determined. Data were excluded from the calculations.
[b] Sacrificed on day 21 of gestation; data excluded from the calculation
[c] Not pregnant
[d] Found dead
[e] Due to a questionable gestation length, this animal was excluded from the calculation of the mean gestation length.

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ED_001632C_00000093-00264

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	1	21	1-21
306699[b]	284.3	418.1	133.8
306784	286.0	407.4	121.4
306832[c]	...	...	...
306777[b]	271.9	397.8	125.9
306888[b]	302.9	438.0	135.1
306706[b]	304.2	437.5	133.3
306692	280.8	467.8	187.0
306702[b]	349.4	490.2	140.8
306748[c]	...	...	...
306891	310.2	462.5	152.3
306844[b]	327.2	471.3	144.1
306901[c]	...	...	...
306718[b]	284.5	442.5	158.0
306757	311.9	444.2	132.3
306849	312.8	442.1	129.3
306770[c,d]	...	...	...
306856[c]	...	...	...
306794[b]	314.7	445.3	130.6
306775[e]	...	...	...
306698[e]	...	...	...
306811	311.3	430.2	118.9
306822[b]	283.2	442.1	158.9
306885	280.2	413.7	133.5
306725	290.5	419.1	128.6
306883[b]	342.5	503.1	160.6
306828[b]	307.5	449.1	141.6
306763[b]	334.9	480.2	145.3
306716[b]	278.7	369.2	90.5
306819	345.2	485.8	140.6
306749	357.2	459.8	102.6
306846	326.2	436.0	109.8
306727	313.0	486.3	173.3

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	1	21	1-21
306710	281.6	488.2	206.6
306751[b]	319.5	483.5	164.0
306813[c]	...	...	...
306785	296.0	436.7	140.7
306714[c]	...	...	...
306782	276.8	430.6	153.8
306855	350.6	473.6	123.0
GROUP MEAN	307.9	448.4	140.5
SD	25.09	31.11	23.78
SE	4.58	5.68	4.34
N	30	30	30

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	1	21	1-21
306847	314.0	439.9	125.9
306803	291.9	421.5	129.6
306812	325.1	449.6	124.5
306863	358.0	451.4	93.4
306685	304.4	453.0	148.6
306852	293.1	441.2	148.1
306686	323.2	432.5	109.3
306821	286.0	428.5	142.5
306791	307.4	456.5	149.1
306889	312.5	465.3	152.8
306789	284.6	457.4	172.8
306752[a]	...	...	...
306818	348.6	473.5	124.9
306792	358.8	520.3	161.5
306876	324.2	447.2	123.0
306730	325.1	485.0	159.9
306688	275.0	421.7	146.7
306816[c]	...	...	...
306826	306.7	434.4	127.7
306860	309.0	437.2	128.2
GROUP MEAN	313.8	450.9	137.1
SD	24.11	24.28	19.84
SE	5.68	5.72	4.68
N	18	18	18

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO•

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	1	21	1-21
306684c	...	...	...
306859	276.2	448.8	172.6
306797	286.2	424.9	138.7
306894c	...	...	...
306827c	...	...	...
306788•	...	...	...
306697	331.8	472.2	140.4
306719	337.9	506.6	168.7
306700	318.8	424.5	105.7
306723	307.9	442.8	134.9
306717	330.7	460.7	130.0
306756	260.5	374.3	113.8
306809	281.9	391.9	110.0
306898	304.8	433.4	128.6
306837	302.9	418.3	115.4
306707	307.3	434.7	127.4
306834c	...	...	...
306843•	...	...	...
306790	316.9	430.3	113.4
306817	348.2	479.1	130.9
GROUP MEAN	308.0	438.8	130.8
SD	25.19	34.23	20.12
SE	6.73	9.15	5.38
N	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	1	21	1-21
306709	299.0	387.9	88.9
306795	303.7	475.8	172.1
306691[b]	...	...	...
306871	303.5	412.7	109.2
306858[d]	...	...	...
306831	355.2	508.4	153.2
306865	282.6	424.3	141.7
306879[c]	...	...	...
306759	257.3	406.4	149.1
306704	320.6	502.3	181.7
306854	294.4	414.6	120.2
306776[c]	...	...	...
306853	259.0	392.3	133.3
306687	311.3	472.8	161.5
306829	318.7	449.5	130.8
306778	297.8	380.4	82.6
306899	338.8	500.0	161.2
306841[c]	...	...	...
306731[c]	...	...	...
306708	337.2	490.4	153.2
GROUP MEAN	305.6	444.1	138.5
SD	28.10	46.59	29.69
SE	7.51	12.45	7.93
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	1	21	1-21
306873	265.7	391.1	125.4
306766[e]	...	...	...
306802[b]	306.2	423.2	117.0
306857	298.6	460.4	161.8
306890[b]	318.1	467.6	149.5
306755	332.0	472.0	140.0
306807[b,c]	...	...	...
306881	325.8	500.0	174.2
306696[c]	...	...	...
306779	259.1	409.5	150.4
306762[b]	301.7	449.5	147.8
306838	316.9	436.2	119.3
306746[b]	341.3	481.5	140.2
306870[b]	313.2	453.4	140.2
306713	303.3	458.8	155.5
306840[b,c]	...	...	...
306864	322.4	511.5	189.1
306740[b]	314.6	439.6	125.0
306848	318.2	449.1	130.9
306750[b]	343.8	487.1	143.3
306815	269.7	440.2	170.5
306781	287.1	447.9	160.8
306868[b]	322.0	464.2	142.2
306774[b]	307.8	392.6	84.8
306897	310.6	432.4	121.8
306823	285.5	430.3	144.8
306768[b]	297.4	412.2	114.8
306801	360.0	516.1	156.1
306835[e]	...	...	...
306862[c]	...	...	...
306689	308.9	447.5	138.6
306737	285.0	460.2	175.2
306754[b]	299.6	467.7	168.1

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	1	21	1-21
306799[b]	310.2	452.6	142.4
306882[b]	317.6	478.3	160.7
306786	351.5	472.8	121.3
306851[c]	...	...	...
306861[c]	...	...	...
306765	287.6	395.4	107.8
306825	287.2	413.5	126.3
GROUP MEAN	308.4	450.4	142.1
SD	23.45	32.09	22.44
SE	4.14	5.67	3.97
N	32	32	32

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	1	21	1-21
306814[a]	...	...	...
306693	355.0	489.6	134.6
306761	278.2	402.8	124.6
306695[c]	...	...	...
306739	336.1	466.6	130.5
306767	265.1	404.2	139.1
306836	304.5	439.0	134.5
306690[c]	...	...	...
306875[c]	...	...	...
306720	296.1	437.6	141.5
306744	301.4	450.9	149.5
306887[f]	...	...	...
306839	323.7	455.0	131.3
306884	316.7	417.1	100.4
306877[c]	...	...	...
306780	301.1	434.9	133.8
306738	323.1	466.6	143.5
306745	329.0	477.6	148.6
306820	338.6	498.7	160.1
306895[c]	...	...	...
GROUP MEAN	313.0	449.3	136.3
SD	25.13	30.52	14.36
SE	6.97	8.47	3.98
N	13	13	13

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES DURING GESTATION: PO[a]

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	1	21	1-21
306742	271.1	355.2	84.1
306703[c]	...	...	...
306896	297.8	480.5	182.7
306771	304.0	440.7	136.7
306810	304.0	441.3	137.3
306867	292.3	438.3	146.0
306878	371.9	527.8	155.9
306872	290.6	434.3	143.7
306736[c]	...	...	...
306787[b]	...	...	176.4
306798	288.5	406.1	117.6
306824	271.8	431.5	159.7
306892[c]	...	...	...
306880[b]	...	...	...
306796	337.7	484.1	146.4
306743	326.2	397.3	71.1
306734	329.2	456.4	127.2
306728	320.1	434.8	114.7
306804	348.0	509.3	161.3
306773	338.7	506.5	167.8
GROUP MEAN	312.8	449.6	136.8
SD	29.07	46.06	30.27
SE	7.50	11.89	7.81
N	15	15	15

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX M (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND
BODY WEIGHT CHANGES DURING GESTATION: PO

FOOTNOTES:

[a] Grams
[b] Assigned to the teratogenicity phase of the study
[c] Not pregnant; data omitted from the calculations
[d] Found dead; data omitted from the calculations
[e] Gestation days 1 and 21 could not be determined; data omitted from calculations
[f] Due to a questionable gestation length, data were omitted from the calculations.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N

INDIVIDUAL MATERNAL POSTPARTUM BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
306784	323.1	340.3	354.1	350.2	17.2	13.8	-3.9
306832[b]	...	...	...	...	...	...	...
306692	335.9	344.1	356.4	368.3	8.2	12.3	11.9
306748[b]	...	...	...	...	...	...	...
306891	340.6	312.6	370.0	407.0	-28.0	57.4	37.0
306901[b]	...	...	...	...	...	...	...
306757	337.8	344.6	361.7	376.3	6.8	17.1	14.6
306849	328.9	333.4	371.6	361.1	4.5	38.2	-10.5
306770[b,c]	...	...	...	...	...	...	...
306856[b]	...	...	...	...	...	...	...
306775	395.0	409.2	445.7	420.4	14.2	36.5	-25.3
306698	316.2	328.0	377.2	354.3	11.8	49.2	-22.9
306811	334.1	355.0	365.6	356.7	20.9	10.6	-8.9
306885	309.8	323.6	318.2	339.4	13.8	-5.4	21.2
306725	299.0	317.0	334.7	329.2	18.0	17.7	-5.5
306819	372.7	392.4	420.4	429.8	19.7	28.0	9.4
306749	339.9	355.1	416.0	383.4	15.2	60.9	-32.6
306846	351.6	366.7	378.2	359.7	15.1	11.5	-18.5
306727	357.8	361.5	399.7	378.7	3.7	38.2	-21.0
306710	298.6	315.2	312.8	333.7	16.6	-2.4	20.9
306813	314.7	327.6	349.7	350.6	12.9	22.1	0.9
306785	344.9	359.7	370.3	375.0	14.8	10.6	4.7
306714	365.2	370.5	401.1	400.1	5.3	30.6	-1.0
306782	293.6	307.9	341.7	338.7	14.3	33.8	-3.0
306855	378.6	385.1	405.6	404.1	6.5	20.5	-1.5
GROUP MEAN	336.9	347.5	372.5	370.8	10.6	25.1	-1.7
SD	27.75	28.07	34.36	29.14	10.43	18.10	17.65
SE	6.21	6.28	7.68	6.52	2.33	4.05	3.95
N	20	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N (CONT.)

INDIVIDUAL MATERNAL POSTPARTUM
BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
308847	342.1	364.8	388.4	389.5	22.7	23.6	1.1
306803	314.5	330.1	354.2	353.4	15.6	24.1	-0.8
306812	357.2	377.2	379.9	396.7	20.0	2.7	16.8
306863	393.3	378.3	382.7	383.3	-15.0	4.4	0.6
306685	308.8	327.7	296.2	348.1	18.9	-31.5	51.9
306852	335.5	351.9	366.2	374.2	16.4	14.3	8.0
306686	362.7	362.3	380.8	375.4	-0.4	18.5	-5.4
306821	331.7	347.7	360.4	362.8	16.0	12.7	2.4
306791	349.8	349.9	381.4	373.5	0.1	31.5	-7.9
306889	359.3	373.8	372.6	378.8	14.5	-1.2	6.2
306789	325.6	340.5	357.9	351.1	14.9	17.4	-6.8
306752	360.8	373.8	383.0	408.7	13.0	9.2	25.7
306818	366.1	374.6	411.5	388.0	8.5	36.9	-23.5
306792	384.0	410.8	421.8	406.5	26.8	11.0	-15.3
306876	353.5	360.1	367.8	306.3	6.6	7.7	-61.5
306730	407.8	400.6	429.1	390.6	-7.2	28.5	-38.5
306688	318.2	327.9	342.5	342.4	9.7	14.6	-0.1
306816[b]	...	...	...	...	...	...	...
306826	335.5	359.8	359.3	357.6	24.3	-0.5	-1.7
306860	322.5	334.1	342.2	362.6	11.6	8.1	20.4
GROUP MEAN	348.9	360.3	372.5	371.0	11.4	12.2	-1.5
SD	27.05	23.35	30.18	24.90	10.79	14.99	23.94
SE	6.21	5.36	6.92	5.71	2.47	3.44	5.49
N	19	19	19	19	19	19	19

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N (CONT.)

INDIVIDUAL MATERNAL POSTPARTUM
BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
306684[b]	...	...	...	...	...	...	...
306859	324.9	342.4	353.0	379.0	17.5	10.6	26.0
306797	316.1	318.8	322.7	354.5	2.7	3.9	31.8
306894[b]	...	...	...	...	...	...	...
306827[b]	...	...	...	...	...	...	...
306788	339.9	363.2	383.2	362.9	23.3	20.0	-20.3
306697	360.8	369.3	386.9	375.0	8.5	17.6	-11.9
306719	383.8	387.5	386.6	388.5	3.7	-0.9	1.9
306700	352.3	364.3	391.9	378.1	12.0	27.6	-13.8
306723	367.7	374.1	379.2	366.3	6.4	5.1	-12.9
306717	357.2	355.5	372.3	346.1	-1.7	16.8	-26.2
306756	280.3	296.1	320.9	331.1	15.8	24.8	10.2
306809[c]	307.5	302.6	319.1	328.6	-4.9	16.5	9.5
306898	346.1	348.6	364.0	352.1	2.5	15.4	-11.9
306837	330.6	356.5	355.8	367.5	25.9	-0.7	11.7
306707	322.0	331.5	348.1	350.7	9.5	16.6	2.6
306834[b]	...	...	...	...	...	...	...
306843	363.2	366.4	381.2	374.8	3.2	14.8	-6.4
306790	329.0	335.2	342.1	342.7	6.2	6.9	0.6
306817	365.2	369.9	366.6	391.2	4.7	-3.3	24.6
GROUP MEAN	340.4	348.9	360.9	361.8	8.5	12.0	1.0
SD	26.74	26.08	24.67	19.08	8.55	9.27	17.12
SE	6.69	6.52	6.17	4.77	2.14	2.32	4.28
N	16	16	16	16	16	16	16

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N (CONT.)

INDIVIDUAL MATERNAL POSTPARTUM
BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
306709	331.2	340.3	295.9	327.2	9.1	-44.4	31.3
306795	354.1	363.1	350.7	340.5	9.0	-12.4	-10.2
306691	357.5	377.8	387.8	381.8	20.3	10.0	-6.0
306871	344.1	334.9	348.8	347.9	-9.2	13.9	-0.9
306858[c]	...	...	...	...	...	...	...
306831	372.3	407.8	418.7	401.2	35.5	10.9	-17.5
306865	325.2	323.2	267.2	338.6	-2.0	-56.0	71.4
306879[b]	...	...	...	...	...	...	...
306759	307.2	322.8	331.3	328.2	15.6	8.5	-3.1
306704	363.1	381.2	394.3	402.2	18.1	13.1	7.9
306854	309.0	334.8	350.3	340.0	25.8	15.5	-10.3
306776[b]	...	...	...	...	...	...	...
306853	283.0	302.1	336.3	328.9	19.1	34.2	-7.4
306687	355.4	338.3	361.2	379.0	-17.1	22.9	17.8
306829	345.0	345.1	355.4	360.2	0.1	10.3	4.8
306778	319.0	339.8	375.1	388.5	20.8	35.3	13.4
306899	382.2	359.2	392.9	394.0	-23.0	33.7	1.1
306841[b]	...	...	...	...	...	...	...
306731[b]	...	...	...	...	...	...	...
306708	367.1	387.0	395.5	355.1	19.9	8.5	-40.4
GROUP MEAN	341.0	350.5	357.4	360.9	9.5	6.9	3.5
SD	27.88	28.38	39.91	27.69	16.54	26.31	24.97
SE	7.20	7.33	10.31	7.15	4.27	6.79	6.45
N	15	15	15	15	15	15	15

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N (CONT.)

INDIVIDUAL MATERNAL POSTPARTUM
BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
306873	313.6	308.6	382.9	303.5	-5.0	74.3	-79.4
306766	362.2	366.9	356.9	361.3	4.7	-10.0	4.4
306857	341.8	359.9	371.2	362.7	18.1	11.3	-8.5
306755	386.1	388.3	399.1	404.0	2.2	10.8	4.9
306881	370.9	372.7	362.2	386.0	1.8	-10.5	23.8
306696[b]	...	...	...	...	...	...	...
306779	315.0	340.7	363.4	356.8	25.7	22.7	-6.6
306838	336.2	351.1	375.4	363.2	14.9	24.3	-12.2
306713	332.2	365.2	402.7	375.4	33.0	37.5	-27.3
306864	410.1	395.4	409.0	400.1	-14.7	13.6	-8.9
306848	351.6	362.5	397.0	375.2	10.9	34.5	-21.8
306815	335.4	304.2	387.1	304.2	-31.2	82.9	-82.9
306781	336.5	357.5	376.2	379.7	21.0	18.7	3.5
306897	337.5	353.8	363.7	330.4	16.3	9.9	-33.3
306823	323.8	331.0	342.9	371.2	7.2	11.9	28.3
306801	377.1	352.9	411.2	405.8	-24.2	58.3	-5.4
306835	334.7	346 7	293.8	365.4	12.0	-52.9	71.6
306862[b]	...	...	...	...	...	...	...
306689	367.8	373.5	335.9	387.1	5.7	-37.6	51.2
306737	374.5	377.2	306.5	369.1	2.7	-70.7	62.6
306786	378.2	383.8	402.3	404.1	5.6	18.5	1.8
306851	345.5	360.2	310.2	387.7	14.7	-50.0	77.5
306861[b]	...	...	...	...	...	...	...
306765	278.8	315.1	347.2	343.8	36.3	32.1	-3.4
306825	318.1	333.8	362.6	358.0	15.7	28.8	-4.6
GROUP MEAN	346.7	354.6	366.3	367.9	7.9	11.7	1.6
SD	29.61	24.61	33.34	28.41	16.38	38.79	40.80
SE	6.31	5.25	7.11	6.06	3.49	8.27	8.70
N	22	22	22	22	22	22	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N (CONT.)

INDIVIDUAL MATERNAL POSTPARTUM
BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
306814	332.5	349.9	368.4	358.4	17.4	18.5	-10.0
306693	384.9	383.0	392.1	391.8	-1.9	9.1	-0.3
306761[d]	347.6	302.4	...	...	...	...	...
306695[b]	...	...	...	...	...	...	...
306739	360.8	373.6	368.2	386.1	12.8	-5.4	17.9
306767	316.9	330.6	365.6	361.4	13.7	35.0	-4.2
306836	327.7	346.4	380.0	372.3	18.7	33.6	-7.7
306690[b]	...	...	...	...	...	...	...
306875[b]	...	...	...	...	...	...	...
306720	316.4	307.1	367.6	370.0	-9.3	60.5	2.4
306744	334.7	355.8	334.9	340.2	21.1	-20.9	5.3
306887	361.8	365.4	379.9	364.8	3.6	14.5	-15.1
306839	353.7	356.1	369.6	376.2	2.4	13.5	6.6
306884	356.3	360.1	360.7	355.5	3.8	0.6	-5.2
306877[b]	...	...	...	...	...	...	...
306780	350.4	371.1	388.6	349.9	20.7	17.5	-38.7
306738	346.5	363.8	374.5	391.5	17.3	10.7	17.0
306745	358.2	366.6	373.9	371.6	8.4	7.3	-2.3
306820	358.1	367.9	415.3	412.1	9.8	47.4	-3.2
306895[b]	...	...	...	...	...	...	...
GROUP MEAN	347.1	353.3	374.2	371.6	9.9	17.3	-2.7
SD	18.54	23.33	18.01	19.05	9.18	21.19	13.96
SE	4.79	6.02	4.81	5.09	2.45	5.66	3.73
N	15	15	14	14	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX N (CONT.)

INDIVIDUAL MATERNAL POSTPARTUM
BODY WEIGHT AND WEIGHT CHANGES: PO[a]

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAYS 1	4	14	21	1-4	4-14	14-21
306742	305.2	313.3	341.0	327.0	8.1	27.7	-14.0
306703[b]	...	...	...	...	...	...	...
306896	370.5	376.6	379.6	379.5	6.1	3.0	-0.1
306771	338.8	347.9	364.5	362.3	9.1	16.6	-2.2
306810	351.7	351.5	366.7	363.2	-0.2	15.2	-3.5
306867	332.5	345.6	358.1	364.4	13.1	12.5	6.3
306878	415.5	413.6	416.1	395.3	-1.9	2.5	-20.8
306872	344.3	347.7	344.4	337.0	3.4	-3.3	-7.4
306736[b]	...	...	...	...	...	...	...
306787	339.0	364.1	397.8	406.7	25.1	33.7	8.9
306798	306.8	320.5	326.0	340.8	13.7	5.5	14.8
306824	316.1	331.2	363.4	338.7	15.1	32.2	-24.7
306892[b]	...	...	...	...	...	...	...
306880	325.6	358.4	370.1	368.1	32.8	11.7	-2.0
306796	385.2	386.6	316.4	389.8	1.4	-70.2	73.4
306743	346.2	353.5	393.1	376.2	7.3	39.6	-16.9
306734	370.3	368.8	371.0	362.6	-1.5	2.2	-8.4
306728	346.5	351.7	353.4	353.5	5.2	1.7	0.1
306804	381.4	383.3	407.2	398.3	1.9	23.9	-8.9
306773	349.4	387.7	398.2	376.4	38.3	10.5	-21.8
GROUP MEAN	348.5	358.9	368.6	367.0	10.4	9.7	-1.6
SD	29.09	25.62	27.93	22.97	11.74	24.21	22.23
SE	7.06	6.21	6.77	5.57	2.85	5.87	5.39
N	17	17	17	17	17	17	17

[a] Grams
[b] Not pregnant; data omitted from the calculations
[c] Found dead; data omitted from the calculations
[d] Sacrificed on Day 9 PP due to the death of all offspring

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306832[b]	...	130	...
306748[b]	...	120	...
306901[b]	...	140	...
306856[b]	...	130	...
306813	350.6	140	39.93
306725	329.2	60	18.23
306710	333.7	140	41.95
306819	429.8	140	32.57
306785	375.0	120	32.00
306855	404.1	200	49.49
306692	368.3	150	40.73
306757	376.3	160	42.52
306885	339.4	140	41.25
306784	350.2	140	39.98
306891	407.0	140	34.40
306849	361.1	120	33.23
306714	400.1	180	44.99
306698	354.3	140	39.51
306749	383.4	150	39.12
306846	359.7	130	36.14
306727	378.7	160	42.25
306782	338.7	160	47.25
306775	420.4	200	47.57
306811	356.7	150	42.05
306770[c]	...	...	...
GROUP MEAN	370.84	144.5	39.258
SD	29.144	29.82	6.9647
SE	6.527	6.67	1.5574
N	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O (CONT.)

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306816[b]	...	130	...
306889	378.8	140	36.96
306821	362.8	120	33.08
306752	408.7	120	29.36
306847	389.5	130	33.38
306686	375.4	120	31.97
306792	406.5	200	49.20
306688	342.4	70	20.44
306860	362.6	80	22.06
306812	396.7	140	35.29
306863	383.3	230	60.01
306852	374.2	150	40.09
306876	306.3	170	55.50
306789	351.1	160	45.57
306730	390.6	180	46.08
306826	357.6	150	41.95
306803	353.4	120	33.96
306791	373.5	110	29.45
306818	388.0	150	38.66
306685	348.1	140	40.22
GROUP MEAN	371.03	141.1	38.064
SD	24.896	37.99	10.2213
SE	5.712	8.716	2.3449
N	19	19	19

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O (CONT.)

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306684[b]	...	130	...
306894[b]	...	200	...
306827[b]	...	100	...
306834[b]	...	130	...
306898	352.1	110	31.24
306790	342.7	90	26.26
306859	379.0	150	39.58
306697	375.0	130	34.67
306719	388.5	150	38.61
306797	354.5	80	22.57
306756	331.1	120	36.24
306723	366.3	130	35.49
306707	350.7	100	28.51
306717	346.1	140	40.45
306837	367.5	140	38.10
306817	391.2	130	33.23
306809	328.6	130	39.56
306788	362.9	190	52.36
306700	378.1	170	44.96
306843	374.8	130	34.69
GROUP MEAN	361.82	130.6	36.032
SD	19.083	27.92	7.1636
SE	4.771	6.98	1.7909
N	16	16	16

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O (CONT.)

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306731[b]	...	150	...
306776[b]	...	150	...
306879[b]	...	110	...
306841[b]	...	70	...
306899	394.0	160	40.61
306831	401.2	130	32.40
306759	328.2	110	33.52
306854	340.0	110	32.35
306704	402.2	170	42.27
306708	355.1	100	28.16
306865	338.6	140	41.35
306795	340.5	180	52.86
306853	328.9	100	30.40
306829	360.2	140	38.87
306687	379.0	170	44.85
306778	388.5	140	36.04
306871	347.9	140	40.24
306691	381.8	110	28.81
306709	327.2	100	30.56
306858[c]	...	...	...
GROUP MEAN	360.89	133.3	36.887
SD	27.690	27.69	6.9320
SE	7.149	7.15	1.7898
N	15	15	15

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O (CONT.)

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306862[b]	...	90	...
306696[b]	...	150	...
306861[b]	...	120	...
306857	362.7	100	27.57
306881	386.0	140	36.27
306689	387.1	190	49.08
306737	369.1	90	24.38
306851	387.7	80	20.63
306873	303.5	160	52.72
306779	356.8	80	22.42
306713	375.4	220	58.60
306897	330.4	160	48.43
306825	358.0	80	22.35
306815	304.2	170	55.88
306835	365.4	120	32.84
306755	404.0	100	24.75
306781	379.7	200	52.67
306765	343.8	120	34.90
306766	361.3	140	38.75
306864	400.1	160	39.99
306823	371.2	90	24.25
306838	363.2	120	33.04
306848	375.2	200	53.30
306786	404.1	160	39.59
306801	405.8	140	34.50
GROUP MEAN	367.94	137.3	37.588
SD	28.409	42.89	12.2855
SE	6.057	9.14	2.6193
N	22	22	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O (CONT.)

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306895[b]	...	190	...
306690[b]	...	140	...
306875[b]	...	130	...
306695[b]	...	140	...
306877[b]	...	140	...
306720	370.0	140	37.84
306839	376.2	160	42.53
306884	355.5	120	33.76
306780	349.9	90	25.72
306814	358.4	170	47.43
306738	391.5	120	30.65
306745	371.6	110	29.60
306820	412.1	160	38.83
306739	386.1	150	38.85
306693	391.8	140	35.73
306744	340.2	140	41.15
306836	372.3	100	26.86
306887	364.8	140	38.38
306767	361.4	130	35.97
306761[b]	303.6	...	...
GROUP MEAN	371.56	133.6	35.950
SD	19.053	23.41	6.1322
SE	5.092	6.26	1.6389
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX O (CONT.)

INDIVIDUAL DAM OVARIAN WEIGHT ON DAY 21 PP: PO

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	PAIRED OVARIAN WEIGHT (mg)	RELATIVE OVARIAN WEIGHT[a]
306703[b]	...	130	...
306736[b]	...	180	...
306892[b]	...	140	...
306896	379.5	150	39.53
306872	337.0	130	38.58
306810	363.2	130	35.79
306787	406.7	170	41.80
306880	368.1	120	32.60
306798	340.8	130	38.15
306804	398.3	140	35.15
306867	364.4	180	49.40
306734	362.6	120	33.09
306742	327.0	160	48.93
306824	338.7	150	44.29
306796	389.8	100	25.65
306728	353.5	120	33.95
306773	376.4	120	31.88
306878	395.3	170	43.01
306771	362.3	120	33.12
306743	376.8	140	37.16
GROUP MEAN	367.08	138.2	37.768
SD	22.982	22.15	6.2607
SE	5.573	5.37	1.5185
N	17	17	17

[a] Milligrams of paired ovaries per 100 grams of final body weight
[b] Non-pregnant; data excluded from the calculations
[c] Found dead; data excluded from the calculations

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX P

INDIVIDUAL CLINICAL OBSERVATIONS: DEVELOPMENTAL TOXICITY PHASE

GROUP: CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306702	Sore under left shoulder	8/3 PM - 8/16 AM
	Sore on right shoulder	8/4 PM - 8/16 AM
	Sore on both shoulders	8/16 PM - 8/17 PM
	Sore on left shoulder	8/18 AM - 8/23 PM
306718	Alopecia both front legs	9/30 PM - 10/30 AM
306751	Head caught in cage door	7/17 PM
306777	Not eating[a]	8/27 AM,8/28 AM 8/29 AM
306822	Bilateral submandibular swelling	9/29 AM - 9/30 PM
	Knot on neck[b]	10/1 AM,PM
	Alopecia both front paws	9/29 PM - 10/24 AM
	Alopecia both front legs	10/24 PM - 11/3 PM
	Red nasal discharge	9/29 PM -9/30 AM
	Stained nose	11/2 PM - 11/3 PM
306828	Weight loss[c]	9/1 AM
306883	Red periocular discharge From left eye	10/22 AM - 11/1 PM
306891	Stain on left side	11/5AM 11/6 AM-11/15 PM

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX P (CONT.)

INDIVIDUAL CLINICAL OBSERVATIONS: DEVELOPMENTAL TOXICITY PHASE

GROUP: EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	CLINICAL SIGNS	DATES
306746	Alopecia both front legs	10/4 PM - 10/29 PM
306754	Weight loss[c]	9/1
306807	Brown stained nose and head	7/24 PM
	Infected toe left front paw	8/18 PM - 8/25 PM

[a] Left upper tooth broken off at gum and lower teeth appeared slightly longer than normal; lower teeth were trimmed
[b] Submandibular swelling went down but knot remained on neck
[c] Lower teeth slightly longer than normal; teeth clipped

DWI

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Q

MATERNAL BODY WEIGHT AND WEIGHT CHANGES DURING GESTATION: DEVELOPMENTAL TOXICITY PHASE*

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	1	21	1-21
306699	284.3	418.1	133.8
306702	349.4	490.2	140.8
306706	304.2	437.5	133.3
306716	278.7	369.2	90.5
306718	284.5	442.5	158.0
306751	319.5	483.5	164.0
306763	334.9	480.2	145.3
306777	271.9	397.8	125.9
306794	314.7	445.3	130.6
306822	283.2	442.1	158.9
306828	307.5	449.1	141.6
306844	327.2	471.3	144.1
306883	342.5	503.1	160.6
306888	302.9	438.0	135.1
GROUP MEAN	307.5	447.7	140.2
SD	24.96	36.76	18.76
SE	6.67	9.82	5.01
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Q (CONT.)

MATERNAL BODY WEIGHT AND WEIGHT CHANGES
DURING GESTATION: DEVELOPMENTAL TOXICITY PHASE[a]

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	1	21	1-21
306740	314.6	439.6	125.0
306746	341.3	481.5	140.2
306750	343.8	487.1	143.3
306754	299.6	467.7	168.1
306762	301.7	449.5	147.8
306768	297.4	412.2	114.8
306774	307.8	392.6	84.8
306799	310.2	452.6	142.4
306802	306.2	423.2	117.0
306807[b]	325.4	350.8	25.4
306840[b]	271.5	306.1	34.6
306868	322.0	464.2	142.2
306870	313.2	453.4	140.2
306882	317.6	478.3	160.7
306890	318.1	467.6	149.5
GROUP MEAN	314.9	451.5	136.6
SD	14.33	28.19	21.75
SE	3.98	7.82	6.03
N	13	13	13

[a] Grams
[b] Not pregnant; data omitted from the calculations

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX R

INDIVIDUAL LIVER WEIGHT: DEVELOPMENTAL TOXICITY PHASE[a]

GROUP CI: 0 PPM

ANIMAL NUMBER	LIVER WEIGHT	CORRECTED DAY 21 BODY WEIGHT[b]	RELATIVE LIVER WEIGHT[c]	DAY 21 BODY WEIGHT[d]	RELATIVE LIVER WEIGHT[e]
306699	16.5	339.5	4.8	418.1	3.9
306702	19.7	411.0	4.8	490.2	4.0
306706	16.2	356.1	4.6	437.5	3.7
306716	16.5	346.9	4.7	369.2	4.5
306718	19.6	354.4	5.5	442.5	4.4
306751	19.3	400.7	4.8	483.5	4.0
306763	20.3	411.5	4.9	480.2	4.2
306777	16.9	319.8	5.3	397.8	4.2
306794	17.5	354.8	4.9	445.3	3.9
306822	17.5	351.5	5.0	442.1	4.0
306828	18.6	366.6	5.1	449.1	4.1
306844	19.9	379.2	5.3	471.3	4.2
306883	20.7	408.6	5.1	503.1	4.1
306888	18.7	352.7	5.3	438.0	4.3
MEAN	18.4	368.1	5.0	447.7	4.1
SD	1.55	29.33	0.26	36.76	0.21
SE	0.41	7.84	0.07	9.82	0.06
N	14	14	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX R (CONT.)

INDIVIDUAL LIVER WEIGHT: DEVELOPMENTAL TOXICITY PHASE[a]

GROUP EIII: 130 PPM

ANIMAL NUMBER	LIVER WEIGHT	CORRECTED DAY 21 BODY WEIGHT[b]	RELATIVE LIVER WEIGHT[c]	DAY 21 BODY WEIGHT[d]	RELATIVE LIVER WEIGHT[e]
306740	18.1	362.1	5.0	439.6	4.1
306744	15.7	414.8	3.8	392.6	4.0
306746	19.9	409.0	4.9	481.5	4.1
306750	20.1	403.4	5.0	487.1	4.1
306754	21.4	383.7	5.6	467.7	4.6
306762	19.4	380.7	5.1	449.5	4.3
306768	17.7	350.4	5.0	412.2	4.3
306799	20.0	373.3	5.3	452.6	4.4
306802	19.8	357.1	5.5	423.2	4.7
306807[f]	...	...	...	...	...
306840[f]	14.1	...	...	...	...
306868	21.1	393.3	5.4	464.2	4.6
306870	19.1	393.4	4.9	453.4	4.2
306882	20.7	389.9	5.3	478.3	4.3
306890	18.6	383.9	4.8	467.6	4.0
MEAN	19.3	384.2	5.0	451.5	4.3
SD	1.55	19.62	0.46	28.19	0.22
SE	0.43	5.44	0.13	7.82	0.06
N	13	13	13	13	13

[a] Grams
[b] Weight in grams on day 21 of gestation excluding the products of conception
[c] Grams of liver per 100 grams of corrected day 21 body weight
[d] Weight in grams on day 21 of gestation
[e] Grams of liver per 100 grams of day 21 body weight
[f] Not pregnant; data excluded from the calculations

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX S

INDIVIDUAL REPRODUCTIVE DATA: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM

ANIMAL NUMBER	CORPORA LUTEA	NIDA-TIONS	RESORPTIONS TOTAL	RESORPTIONS EARLY	RESORPTIONS LATE	DEAD FETUSES	LIVE FETUSES TOTAL	LIVE FETUSES FEMALE	LIVE FETUSES MALE	MEAN FETAL WEIGHT (G)
306699	16	16	2	2	0	0	14	7	7	3.75
306702	17	16	2	2	0	0	14	8	6	4.08*
306706	16	16	1	1	0	0	15	6	9	3.67
306716	21	5	1	1	0	0	4	2	2	3.09
306718	18	18	0	0	0	0	18	8	10	3.32
306751	15	15	0	0	0	0	15	7	8	3.70*
306763	16	14	1	1	0	0	13	4	9	3.52
306777	17	17	1	1	0	0	16	6	10	3.25
306794	21	17	1	1	0	0	16	7	9	3.59
306822	17	18	2	2	0	0	16	8	8	3.74
306828	15	15	0	0	0	0	15	7	8	3.81
306844	18	17	1	1	0	0	16	7	9	3.95
306883	16	17	0	0	0	0	17	8	9	3.52
306888	19	16	0	0	0	0	16	8	8	3.63
MEAN	17.3	15.5	0.9	0.9	0.0	0.0	14.6	6.6	8.0	3.62
SD	1.94	3.23	0.77	0.77	0.00	0.00	3.32	1.74	2.04	0.27
SE	0.52	0.86	0.21	0.21	0.00	0.00	0.89	0.46	0.54	0.07
N	14	14	14	14	14	14	14	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX S (CONT.)

INDIVIDUAL REPRODUCTIVE DATA: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM

ANIMAL NUMBER	CORPORA LUTEA	NIDA-TIONS	RESORPTIONS TOTAL	RESORPTIONS EARLY	RESORPTIONS LATE	DEAD FETUSES	LIVE FETUSES TOTAL	LIVE FETUSES FEMALE	LIVE FETUSES MALE	MEAN FETAL WEIGHT (G)
306740	16	17	5	5	0	0	12	7	5	4.91
306744	16	7	0	0	0	0	7	4	3	3.71
306746	19	18	4	4	0	0	14	9	5	3.34
306750	...	17	1	1	0	0	16	11	5	3.50
306754	18	19	2	2	0	0	17	8	9	3.37
306762	17	16	3	3	0	0	13	6	7	3.43
306768	14	14	0	0	0	0	14	5	9	2.67[a]
306799	17	17	0	0	0	0	17	11	6	3.00
306802	16	14	0	0	0	0	14	7	7	2.81
306807[b]	...	...	...	...	...	...	...	...	...	...
306840[b]	...	...	...	...	...	...	...	...	...	...
306868	17	17	2	2	0	0	15	10	5	3.42
306870	17	15	3	3	0	0	12	9	3	3.07
306882	17	17	0	0	0	0	17	5	12	3.30
306890	17	18	1	1	0	0	17	8	9	3.27
MEAN	16.8	15.8	1.6	1.6	0.0	0.0	14.2	7.7	6.5	3.37
SD	1.22	3.05	1.71	1.71	0.00	0.00	2.86	2.29	2.63	0.54
SE	0.35	0.85	0.47	0.47	0.00	0.00	0.79	0.63	0.73	0.15
N	12	13	13	13	13	13	13	13	13	13

[a] One stunted fetus was excluded.
[b] Not pregnant; data omitted from calculations

DEFINITIONS:

Early Resorption - Comprised of placental and/or fetal tissue with no digital rays evident

Late Resorption - Comprised of placental and fetal tissue with digital rays clearly evident

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306699				
1	3.74	...	NAD	...
2	3.75	Subcutis	Hematoma (lt lower jaw)	N
3	3.82	...	NAD	...
4	3.63	Sternebra	Misaligned (#4)	N
5	3.99	Subcutis	Hemorrhage (petechiae below lt ear)	N
6	3.57	...	NAD	...
7	3.18	...	NAD	...
8	3.30	...	NAD	...
9	3.82	Kidney	Small papilla (rt)	VR
10	3.91	...	NAD	...
11	3.94	Rib	Rudimentary (lul bil)	DV
12	4.22	...	NAD	...
13	3.93	...	NAD	...
14	3.72	Subcutis	Hemorrhage (petechiae rt side of head)	N
306702				
1	3.91	...	NAD	...
2	4.14	...	NAD	...
3	4.19	...	NAD	...
4	3.36	Subcutis	Hematoma (top of head)	N
5	4.27	...	NAD	...
6	3.75	...	NAD	...
7	2.63	Mouth	Micrognathia	M
		Eye	Small (rt smaller than lt)	N
		Mouth	Aglossia	M
		Rib	Rudimentary (lul bil)	DV
		Sternebra	Misaligned (#3,4)	N
		Sternebra	Unossified (#6)	VR
8	4.24	Bladder	Red Foci	N

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306702 (Cont.)				
9	4.44	...	NAD	...
10	4.06	...	NAD	...
11	4.28	...	NAD	...
12	4.33	Rib	Rudimentary (lul lt)	DV
13	3.95	...	NAD	...
14	4.06	...	NAD	...
306706				
1	3.71	Lung	Colored (lt lobe red)	N
2	3.85	...	NAD	...
3	4.18	Pulmonary arteries	Common trunk	DV
4	3.76	...	NAD	...
5	3.27	Subcutis	Hemorrhage (petechiae head)	N
6	3.20	Subcutis	Hemorrhage (petechiae right hip)	N
		Skull	Partially ossified (supraoccipital)	VR
7	3.62	Subcutis	Hemorrhage (petechiae jaw and around eye)	N
8	3.71	Skull	Partially Ossified (hyoid)	VR
9	3.52	Eye	Folded retina (lt)	N
10	3.95	Subcutis	Hemorrhage (petechiae right rear limb)	N
		Eye	Colored matter between cornea and lens of rt eye	N
11	3.27	...	NAD	...
12	3.90	Sternebra	Misaligned sternebra (#4)	N
13	3.74	Kidney	Large pelvis (rt slightly distended)	DV
14	3.33	Skull	Partially ossified (interparietal)	VR
15	4.03	Sternebra	Misaligned (#4)	N

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306716				
1	3.29	Sternebra	Partially ossified (#6)	VR
2	3.35	Sternebra	Partially ossified (#6)	VR
3	2.78	...	NAD	...
4	2.92	Rib	Rudimentary (lul lt)	DV
		Sternebra	Partially ossified (#6)	VR
306718				
1	3.29	Sternebra	Partially ossified (#6)	VR
2	3.10	Subcutis	Hematoma (interscapular)	N
		Subcutis	Hemorrhage (petechiae lt side of neck)	N
		Sternebra	Partially ossified (#6)	VR
3	3.46	Rib	Rudimentary (lul bil)	DV
4	3.63	Rib	Rudimentary (lul bil)	DV
		Sternebra	Partially ossified (#6)	VR
5	3.38	...	NAD	...
6	3.34	...	NAD	...
7	3.36	Sternebra	Partially ossified (#6)	VR
8	3.12	...	NAD	...
9	3.24	...	NAD	...
10	3.22	Sternebra	Partially ossified (#6)	VR
11	3.08	Sternebra	Partially ossified (#6)	VR
12	3.39	Subcutis	Hemorrhage (petechiae head and snout)	N
		Skull	Partially ossified (interparietal, rt squamosal)	VR
13	3.76	Subcutis	Hemorrhage (petechiae back and head)	N
14	2.89	Subcutis	Hemorrhage (petechiae top of head)	N
		Sternebra	Misaligned (#3,4)	N
		Sternebra	Partially ossified (#6)	VR

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306718 (Cont.)				
15	3.56	Eye	Folded retina (lt)	N
16	3.42	...	NAD	...
17	3.51	Subcutis	Hematoma (back)	N
		Subcutis	Hemorrhage (petechiae back)	N
18	3.02	Sternebra	Misaligned (#3,4)	N
		Sternebra	Partially ossified (#6)	VR
306751				
1	3.67	...	NAD	...
2	3.41	Sternebra	Misaligned (#4)	N
3	3.84	Subcutis	Hemorrhage (petechiae back)	N
		Sternebra	Misaligned (#4)	N
4	3.73	Subcutis	Hemorrhage (petechiae head)	N
		Sternebra	Misaligned (#3)	N
5	3.45	...	NAD	...
6	3.88	...	NAD	...
7	3.48	...	NAD	...
8	4.06	...	NAD	...
9	3.94	Subcutis	Hematoma (rt forelimb & lt hindlimb)	N
10	1.93	Subcutis	Hemorrhage (petechiae lt side of head and body)	N
		Heart &/or greater vessels	Malformation (see raw data sheet)	M
		Sternebra	Bipartite (#3)	DV
		Vertebra	Bipartite (th9 centrum)	DV
		Clavicle	Misshapen (rt-narrow portion)	M
		Pelvis	Misshapen (ischium 1/3 smaller)	M
		Scapula	Misshapen (rt-narrow spine)	M
		Sternebra	Fused (3 to 4)	M

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306751 (Cont.)				
10 (Cont.)		Sternebra	Hemi (#1)	M
		Vertebra	Fused (th7,8,lu4)	M
		Sternebra	Partially ossified (#6)	VR
		Vertebra	Partially ossified (atlas rt,arches ce5,7bil, 6lt)	VR
		Vertebra	Partially ossified (th1 centrum)	VR
		Vertebra	Unossified (th10,11,13 centra)	VR
11	3.38	Tail	Alteration (curly, not kinked)	N
		Rib	Rudimentary (lu1 rt)	DV
12	3.72	Rib	Rudimentary (lu1 rt)	DV
13	3.70	Subcutis	Hemorrhage (petechiae center of back)	N
14	4.06	...	NAD	...
15	3.53	Subcutis	Hemorrhage (petechiae snout,eye,head)	N
306763				
1	3.49	Sternebra	Unossified (#6)	VR
2	3.66	Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR
3	3.57	...	NAD	...
4	3.59	...	NAD	...
5	3.49	...	NAD	...
6	3.69	...	NAD	...
7	3.68	...	NAD	...
8	3.35	Skull	Partially ossified (interparietal and supraoccipital)	VR
9	2.87	Sternebra	Partially ossified (#6)	VR
10	3.45	...	NAD	...
11	3.36	Sternebra	Partially ossified (#6)	VR
12	3.45	Sternebra	Unossified (#6)	VR
13	4.14	...	NAD	...

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306777				
1	3.20	Sternebra	Partially ossified (#6)	VR
2	3.33	...	NAD	...
3	3.29	...	NAD	...
4	3.42	Subcutis	Hemorrhage (petechiae lt side of body)	N
5	3.32	...	NAD	...
6	3.63	Subcutis	Hematoma (rt hind limb)	N
		Sternebra	Misaligned (#3)	N
7	3.05	Sternebra	Partially ossified (#6)	VR
8	3.03	Sternebra	Misaligned (#4)	N
9	2.99	Subcutis	Hematoma (behind lt ear)	N
		Subcutis	Hemorrhage (petechiae lt side of face)	N
10	3.22	...	NAD	...
11	3.37	...	NAD	...
12	3.44	Subcutis	Hemorrhage (petechiae rt snout)	N
13	3.32	...	NAD	...
14	3.23	Skull	Partially ossified (supraoccipital)	VR
15	3.00	Subcutis	Hematoma (interscapular)	N
16	3.18	...	NAD	...
306794				
1	3.35	...	NAD	...
2	3.61	...	NAD	...
3	3.74	Subcutis	Hemorrhage (petechiae interscapular)	N
4	3.89	...	NAD	...
5	3.68	...	NAD	...
6	3.80	...	NAD	...

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306794 (Cont.)				
7	3.61	...	NAD	...
8	3.14	...	NAD	...
9	3.63	...	NAD	...
10	3.81	Subcutis	Hematoma (above rt shoulder)	N
11	3.42	Subcutis	Hemorrhage (petechiae over lt eye)	N
12	3.06	Rib	Rudimentary (lul bil)	DV
13	3.73	...	NAD	...
14	3.53	...	NAD	...
15	3.55	...	NAD	...
16	3.86	Subcutis	Hemorrhage (rt snout)	N
306822				
1	3.64	...	NAD	...
2	3.64	...	NAD	...
3	4.12	...	NAD	...
4	3.86	Subcutis	Hemorrhage (petechiae snout)	N
5	3.99	Pulmonary arteries	Common trunk	DV
6	3.92	...	NAD	...
7	4.08	...	NAD	...
8	3.86	Rib	Rudimentary (lul rt)	DV
9	3.62	...	NAD	...
10	3.56	Rib	Rudimentary (lul rt)	DV
11	3.65	...	NAD	...
12	3.60	...	NAD	...
13	3.36	...	NAD	...
14	3.66	...	NAD	...
15	3.84	Subcutis	Hematoma (rt side of neck)	N
16	3.46	Subcutis	Hematoma (back)	N
		Rib	Rudimentary (lul bil)	DV

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306828				
1	3.72	...	NAD	...
2	4.08	...	NAD	...
3	4.05	Subcutis	Hemorrhage (petechiae above lt eye)	N
4	3.53	Skull	Partially ossified (lt parietal,interparietal, hyoid)	VR
5	4.07	...	NAD	...
6	3.73	Skull	Partially ossified (hyoid)	VR
7	3.81	...	NAD	...
8	3.65	Subcutis	Hemorrhage (petechiae lt side of head)	N
9	3.83	...	NAD	...
10	3.85	Subcutis	Hemorrhage (petechiae top of head)	N
11	3.57	Bladder	Red Foci	N
12	3.82	...	NAD	...
13	3.46	Pelvis	Partially ossified (pubis lt)	VR
14	3.98	Subcutis	Hematoma (interscapular 7mmx6mm)	N
15	3.98	...	NAD	...
306844				
1	3.65	Sternebra	Misaligned (#4)	N
		Sternebra	Partially ossified (#6)	VR
2	3.80	...	NAD	...
3	4.01	Sternebra	Partially ossified (#6)	VR
4	4.25	Sternebra	Partially ossified (#6)	VR
5	3.91	Sternebra	Partially ossified (#6)	VR
6	4.31	...	NAD	...
7	4.12	Adrenal	Red foci (lt - 1/2 surface red color)	N
8	4.16	...	NAD	...
9	4.03	...	NAD	...

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306844 (Cont.)				
10	3.11	Sternebra	Partially ossified (#6)	VR
11	3.71	Sternebra	Partially ossified (#6)	VR
12	3.80	Sternebra	Partially ossified (#6)	VR
13	4.08	...	NAD	...
14	4.05	Sternebra	Partially ossified (#6)	VR
15	3.80	Sternebra	Partially ossified (#6)	VR
16	4.36	...	NAD	...
306883				
1	3.58	...	NAD	...
2	3.45	Subcutis	Hemorrhage (petechiae shoulder & back)	N
		Sternebra	Misaligned (#4)	N
3	3.40	...	NAD	...
4	3.45	...	NAD	...
5	3.55	Pelvis	Partially ossified (ischium lt, pubis bil)	VR
		Sternebra	Partially ossified (#6)	VR
6	3.38	Vertebra	Partially ossified (th5 centrum)	VR
7	3.60	...	NAD	...
8	3.72	Skull	Partially ossified (supraoccipital)	VR
9	3.35	Pulmonary arteries	Common trunk	DV
		Vertebra	Bipartite (th12 centrum)	DV
10	3.44	Skull	Partially ossified (supraoccipital)	VR
11	3.47	Pulmonary arteries	Common trunk	DV
12	3.38	Skull	Partially ossified (supraoccipital)	VR
		Vertebra	Partially ossified (dumbbelled th12 centrum)	VR

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306883 (Cont.)				
13	3.55	Kidney	Small papilla (rt)	VR
14	3.51	Subcutis	Hemorrhage (petechiae snout,shoulder)	N
15	3.50	Kidney	Large pelvis (rt)	DV
16	3.65	...	NAD	...
17	3.93	Innominate	Absent	DV
		Ureter	Distended (bil)	N
		Kidney	Small papilla (bil)	VR
306888				
1	3.73	Subcutis	Hemorrhage (petechiae snout)	N
2	3.80	Pelvis	Partially ossified (pubis bil,ischium rt)	VR
		Skull	Partially ossified (interparietal and supraoccipital)	VR
3	3.65	Vertebra	Partially ossified (dumbbelled th13 centrum)	VR
4	3.76	...	NAD	...
5	3.93	Eye	Folded retina (retinal fold rt)	N
6	3.54	Sternebra	Misaligned (#3,4)	N
7	3.66	Subcutis	Hemorrhage (petechiae snout)	N
8	3.28	Skull	Partially ossified (hyoid,interparietal, supraoccipital)	VR
9	3.75	Subcutis	Hemorrhage (petechiae rt face)	N
10	3.43	Skull	Partially ossified (hyoid, supraoccipital)	VR
11	3.70	...	NAD	...
12	3.39	...	NAD	...

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP CI: 0 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306888 (Cont.)				
13	3.70	...	NAD	...
14	3.57	...	NAD	...
15	3.67	Rib	Rudimentary (lul lt)	DV
16	3.49	Subcutis	Hemorrhage (petechiae lt rear pav)	N
		Skull	Partially ossified (hyoid, interparietal, supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306740				
1	3.89	...	NAD	...
2	5.19	...	NAD	...
3	3.97	...	NAD	...
4	4.91	...	NAD	...
5	4.59	...	NAD	...
6	5.29	...	NAD	...
7	4.40	...	NAD	...
8	5.85	...	NAD	...
9	5.03	Bladder	Red foci	N
10	5.99	Skull	Partially ossified (hyoid)	VR
11	3.94	...	NAD	...
12	5.88	...	NAD	...
306744				
1	3.70	...	NAD	...
2	3.59	Skull	Partially ossified (supraoccipital)	VR
3	3.80	...	NAD	...
4	3.87	Rib	Rudimentary (lul bil)	DV
		Skull	Partially ossified (supraoccipital)	VR
5	3.59	Adrenal	Red Foci (slight, bil)	N
6	3.95	...	NAD	...
7	3.46	...	NAD	...
306746				
1	3.33	Subcutis	Hemorrhage (petechiae snout & lt side of head)	N
2	3.39	...	NAD	...
3	3.33	...	NAD	...
4	2.88	Sternebra	Misaligned (#3)	N
		Sternebra	Partially ossified (#6)	VR

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306746 (Cont.)				
5	3.65	Adrenal	Red foci (lt)	N
6	3.28	...	NAD	...
7	3.36	Adrenal	Red foci (bil)	N
8	2.98	Sternebra	Partially ossified (#6)	VR
9	3.39	Rib	Rudimentary (lul bil)	DV
10	3.22	...	NAD	...
11	3.68	Adrenal	Red foci (lt)	N
		Rib	Rudimentary (lul rt)	DV
12	3.60	Rib	Rudimentary (lul bil)	DV
13	3.13	Eye	Retina, raised surface	N
		Rib	Rudimentary (lul rt)	DV
14	3.59	Rib	Rudimentary (lul lt)	DV
306750				
1	3.93	Rib	Rudimentary (lul rt)	DV
2	3.32	Subcutis	Hematoma (back)	N
3	3.67	...	NAD	...
4	3.16	Rib	Rudimentary (lul bil)	DV
		Vertebra	Bipartite (th13 centrum)	DV
5	3.30	Sternebra	Misaligned (#4)	N
6	3.65	...	NAD	...
7	3.45	...	NAD	...
8	3.78	Rib	Rudimentary (lul rt)	DV
9	3.75	Rib	Rudimentary (lul bil)	DV
10	2.74	Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR
11	3.33	Sternebra	Partially ossified (#6)	VR
12	3.56	Sternebra	Partially ossified (#6)	VR
13	3.59	...	NAD	...

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306750 (Cont.)				
14	3.58	Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR
15	3.52	Rib	Rudimentary cervical (#7 lt)	DV
16	3.59	...	NAD	...
306754				
1	3.77	...	NAD	...
2	3.33	...	NAD	...
3	2.99	...	NAD	...
4	3.34	...	NAD	...
5	2.94	...	NAD	...
6	3.21	Skull	Partially ossified (supraoccipital)	VR
7	3.67	...	NAD	...
8	3.79	Subcutis	Hematoma (rt head, lt side)	N
		Skull	Partially ossified (hyoid,supraoccipital)	VR
		Vertebra	Partially ossified (dumbbelled centrum th11)	VR
9	3.50	...	NAD	...
10	3.31	...	NAD	...
11	3.01	Subcutis	Hematoma (lt rear paw)	N
12	3.85	Skull	Partially ossified (hyoid,supraoccipital)	VR
13	3.40	...	NAD	...
14	3.40	Subcutis	Hemorrhage (petechiae lt side of face)	N
		Skull	Partially ossified (supraoccipital)	VR

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306754 (Cont.)				
15	3.20	...	NAD	...
16	3.21	Subcutis	Hematoma (rt shoulder)	N
		Subcutis	Hemorrhage (snout)	N
17	3.35	Subcutis	Hemorrhage (petechiae head)	N
		Subcutis	Hematoma (head)	N
306762				
1	3.96	Subcutis	Hematoma (below lt shoulder)	N
2	3.62	...	NAD	...
3	3.41	...	NAD	...
4	3.54	Skull	Partially ossified (rt parietal,interparietal, supraoccipital,hyoid)	VR
5	2.51	Sternebra	Misaligned (#3)	N
		Pelvis	Partially ossified (pubis bil,ischium bil)	VR
		Sternebra	Partially ossified (#6)	VR
6	3.79	...	NAD	...
7	3.77	...	NAD	...
8	3.75	...	NAD	...
9	3.20	...	NAD	...
10	3.31	...	NAD	...
11	3.41	...	NAD	...
12	2.87	Skull	Partially ossified (interparietal)	VR
		Sternebra	Partially Ossified (#6)	VR
13	3.43	Bladder	Red Foci	N
306768				
1	1.77	Subcutis	Hemorrhage (above lt eye)	N
		Brain	Distended (third ventricle)	M
		Pelvis	Partially ossified (pubis bil,ischium bil)	VR

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306768 (Cont.)				
1 (Cont.)		Sternebra	Partially ossified (#1)	VR
		Sternebra	Unossified (#3,4,6)	VR
		Vertebra	Partially ossified (th2 centrum)	VR
		Vertebra	Unossified (th1 centrum)	VR
2	1.95	Subcutis	Hemorrhage (face,snout,tail,inguinal area)	N
		Pelvis	Partially ossified (pubis bil, ischium bil)	VR
		Sternebra	Partially ossified (#1,3)	VR
		Sternebra	Unossified (#4,6)	VR
		Vertebra	Partially ossified (th2 centrum)	VR
		Vertebra	Unossified (th1 centrum)	VR
3	2.61	Sternebra	Partially ossified (#6)	VR
4	2.81	Sternebra	Misaligned (#3,4)	N
		Skull	Partially ossified (supraoccipital)	VR
5	2.85	Sternebra	Misaligned (#3,4)	N
6	2.83	Subcutis	Hemorrhage (rt side,scrotum,rt rear paw)	N
7	2.48	Brain	Distended (third ventricle)	M
		Sternebra	Partially ossified (#4,6)	VR
8	2.45	Subcutis	Hemorrhage (rt rear paw & head)	N
		Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#4)	VR
9	2.81	Sternebra	Partially ossified (#6)	VR
10	3.32	Sternebra	Partially ossified (#6)	VR
11	2.75	Subcutis	Hemorrhage (interscapular)	N
		Sternebra	Partially ossified (#6)	VR

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306768 (Cont.)				
12	2.59	Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR
13	2.86	Sternebra	Partially ossified (#6)	VR
14	2.41	Subcutis	Hemorrhage (lt mandible)	N
		Pelvis	Partially ossified (pubis bil)	VR
		Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#1,4)	VR
		Sternebra	Unossified (#6)	VR
		Vertebra	Unossified (thl centrum)	VR
306799				
1	3.24	....	NAD	...
2	2.88	Sternebra	Partially ossified (#6)	VR
3	2.24	Sternebra	Partially ossified (#1)	VR
		Sternebra	Unossified (#6)	VR
4	3.22	...	NAD	...
5	3.39	...	NAD	...
6	3.10	Sternebra	Partially ossified (#6)	VR
7	3.16	Subcutis	Hemorrhage (rt rear leg)	N
		Rib	Rudimentary (lul bil)	DV
		Sternebra	Partially ossified (#6)	VR
8	3.15	...	NAD	...
9	2.68	Subcutis	Hemorrhage (back)	N
		Heart &/or greater vessels	Common Trunk (pulmonary arteries)	DV
10	3.22	...	NAD	...
11	2.86	Sternebra	Unossified (#6)	VR

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306799 (Cont.)				
12	3.00	Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR
13	2.93	...	NAD	...
14	3.14	Sternebra	Misaligned (#4)	N
		Sternebra	Partially ossified (#6)	VR
15	3.09	...	NAD	...
16	2.83	Subcutis	Hemorrhage (hindquarter)	N
		Sternebra	Misaligned (#4)	N
		Sternebra	Partially ossified (#6)	VR
17	2.79	Sternebra	Partially ossified (#6)	VR
306802				
1	2.94	Pelvis	Partially ossified (ischium rt)	VR
2	2.76	Subcutis	Hemorrhage (top of head)	N
		Skull	Partially ossified (hyoid)	VR
3	2.65	Subcutis	Hemorrhage (top of head)	N
4	2.90	Skull	Partially ossified (hyoid)	VR
5	2.67	Subcutis	Hemorrhage (top of head)	N
6	2.76	Pelvis	Partially ossified (ischium bil)	VR
		Skull	Partially ossified (hyoid, interparietal, supraoccipital)	VR
7	2.55	Subcutis	Hemorrhage (top of head)	N
		Pelvis	Partially ossified (ischium bil)	VR
8	2.83	Subcutis	Hemorrhage (top of head)	N
		Pelvis	Partially ossified (ischium rt)	VR
		Skull	Partially ossified (hyoid)	VR

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306802 (Cont.)				
9	2.91	Subcutis	Hemorrhage (top of head)	N
10	2.84	Subcutis	Hemorrhage (top of head)	N
		Pelvis	Partially ossified (ischium rt)	VR
		Skull	Partially ossified (hyoid)	VR
11	2.91	Pelvis	Partially ossified (ischium rt)	VR
12	2.76	...	NAD	...
13	2.79	Subcutis	Hemorrhage (top of head)	N
14	3.02	Subcutis	Hemorrhage (top of head)	N
		Skull	Partially ossified (hyoid)	VR
306868				
1	3.31	Ureter	Distended (bil)	DV
		Kidney	No Papilla (rt)	M
		Kidney	Small Papilla (lt)	VR
2	3.41	Skull	Partially ossified (supraoccipital)	VR
3	3.87	Pulmonary arteries	Common trunk	DV
		Kidney	Small papilla (rt)	VR
		Sternebra	Misaligned (#4)	N
4	3.63	Skull	Partially ossified (supraoccipital and interparietal)	VR
		Sternebra	Partially ossified (#6)	VR
5	3.67	...	NAD	...
6	3.82	Skull	Partially ossified (supraoccipital)	VR

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306868 (Cont.)				
7	2.90	...	NAD	...
8	3.37	Rib	Rudimentary cervical (#7 rt)	DV
		Skull	Partially ossified (supraoccipital)	VR
9	2.82	Sternebra	Partially ossified (#6)	VR
10	3.16	Skull	Partially ossified (supraoccipital)	VR
11	3.49	...	NAD	...
12	3.17	Skull	Partially ossified (supraoccipital)	VR
13	3.27	...	NAD	...
14	3.78	Skull	Partially ossified (supraoccipital)	VR
15	3.60	...	NAD	...
306870				
1	2.77	Sternebra	Misaligned (#3,4)	N
		Sternebra	Partially ossified (#6)	VR
2	2.95	Sternebra	Misaligned (#3)	N
		Sternebra	Partially ossified (#6)	VR
3	3.23	...	NAD	...
4	2.96	Sternebra	Partially ossified (#6)	VR
5	2.99	Adrenal	Red Foci (red in color, bil)	N
		Sternebra	Partially ossified (#6)	VR
6	2.94	Sternebra	Partially ossified (#6)	VR
7	3.47	Bladder	Red foci	N
		Sternebra	Misaligned (#3,4)	N
8	3.08	...	NAD	...
9	3.10	...	NAD	...
10	3.24	...	NAD	...
11	3.17	Adrenal	Red foci (red in color, bil)	N
12	2.99	Sternebra	Partially ossified (#6)	VR

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306882				
1	3.52	...	NAD	...
2	3.34	...	NAD	...
3	3.26	...	NAD	...
4	3.24	Skull	Partially ossified (supraoccipital)	VR
5	3.04	Sternebra	Misaligned (#4)	N
6	3.34	...	NAD	...
7	3.37	...	NAD	...
8	3.08	Subcutis	Hemorrhage (petechiae over lt eye)	N
9	3.15	...	NAD	...
10	3.40	...	NAD	...
11	3.35	...	NAD	...
12	3.12	Rib	Rudimentary (lul lt)	DV
13	3.21	...	NAD	...
14	3.45	...	NAD	...
15	3.31	Eye	Folded retina (retinal fold, rt)	N
16	3.53	Rib	Rudimentary (lul lt)	DV
17	3.39	...	NAD	...
306890				
1	3.70	Subcutis	Hemorrhage (lt head)	N
		Heart &/or greater vessels	Common trunk (pulmonary arteries)	DV
2	3.66	Rib	Rudimentary (lul lt)	DV
3	3.26	Subcutis	Hemorrhage (snout,face and over lt eye)	N
4	3.31	Sternebra	Partially ossified (#6)	VR
5	3.66	Bladder	Red foci	N

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX T (CONT.)

INDIVIDUAL FETAL FINDINGS: DEVELOPMENTAL TOXICITY PHASE

GROUP EIII: 130 PPM CONT.

DAM #/ FETUS #	FETUS WT.	STRUCTURE	FINDING(S)	CLASSIF-ICATION
306890 (Cont.)				
6	3.42	...	NAD	...
7	3.32	Subcutis	Hemorrhage (lt front leg)	N
		Sternebra	Partially ossified (#6)	VR
8	3.22	Sternebra	Misaligned (#4)	N
9	3.63	...	NAD	...
10	3.27	...	NAD	...
11	3.01	...	NAD	...
12	3.11	Subcutis	Hemorrhage (over lt eye)	N
13	2.87	...	NAD	...
14	3.10	Sternebra	Partially ossified (#6)	VR
15	3.11	Sternebra	Partially ossified (#6)	VR
16	2.52	Skull	Partially ossified (supraoccipital)	VR
		Sternebra	Partially ossified (#6)	VR
17	3.37	Subcutis	Hemorrhage (top of head)	N

Note; unless discussed in the text of the report, notes are not considered to be biologically significant. They are excluded when calculating the total incidence of each type of alteration.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306692	DAY 0	1 OF 16	Scratch under lower jaw
	DAY 4 PRE	1 OF 16	Cannibalized
	DAY 21	1 OF 8	Rt eye partially closed
		1 OF 8	Eyes partially closed
306698	No abnormalities detected		
306710	DAY 0	1 OF 13	Laceration between shoulders
306714	No abnormalities detected		
306725	DAY 21	1 OF 8	Small, both eye(s)
306727	DAY 0	1 OF 16	Laceration, right rear paw
		1 OF 16	Hematoma, left rear paw
	DAY 1 AND 2	1 OF 16	Bent tail
306749	No abnormalities detected		
306757	No abnormalities detected		
306775	No abnormalities detected		
306782	DAY 0	1 OF 18	Bent tail
		1 OF 18	Hematoma, right side of nose
	DAY 4 PRE	1 OF 15	Bent tail
306784	DAY 21	1 OF 8	Red stain on nose
		2 OF 8	Partially closed eyes
306785	DAY 14	1 OF 8	Laceration on neck
	DAY 21	1 OF 8	Alopecia neck
		1 OF 8	Lt eye closed
		1 OF 8	Rt eye red in color w/an irregular surface

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306811	DAY 0	1 OF 12	Hematoma, right side face and on front paw(s)
		1 OF 12	Hematoma on nose
306813	No abnormalities detected		
306819	No abnormalities detected		
306846	DAY 0	1 OF 13	Hematoma on nose
306849	No abnormalities detected		
306855	No abnormalities detected		
306885	No abnormalities detected		
306891	DAY 21	3 OF 8	Partially closed eye(s)

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306685	DAY 0	1 OF 18	Hematoma, right side ofnose
		1 OF 18	Hematoma between shoulders
306686	DAY 0	1 OF 9	Hematoma, left side of nose
306688	No abnormalities detected		
306730	DAY 0	1 OF 9	Laceration on head
306752	No abnormalities detected		
306789	DAY 0	1 OF 16	Hematoma, center of back
	DAY 4 PRE	2 OF 16	Bent tail
306791	DAY 4 PRE	1 OF 12	Laceration, right rear paw
	DAY 4 POST	1 OF 8	Laceration, right rear paw
306792	DAY 0	1 OF 18	Laceration, right side of face
	DAY 4 PRE	2 OF 18	No milkspot in stomach
306803	DAY 4 PRE	1 OF 14	Bent tail
	DAY 21	1 OF 8	Partially closed eye
306812	No abnormalities detected		
306818	DAY 0	1 OF 15	Hematoma, left rear paw
		1 OF 15	Hematoma, nose
306821	No abnormalities detected		
306826	DAY 0	1 OF 12	Hematoma, right rear paw
	DAY 4 POST	1 OF 8	Laceration, head

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP CII CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306847	DAY 0	1 OF 13	Hematoma, center of back
	DAY 4 PRE	1 OF 13	Scab on back
306852	No abnormalities detected		
306860	No abnormalities detected		
306863	No abnormalities detected		
306876	DAY 4 POST	2 OF 8	Bent tail
	DAY 14	2 OF 8	Bent tail
	DAY 15	2 OF 8	Bent tail
306889	No abnormalities detected		

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306697	DAY 0	1 OF 15	Hematoma, right side of nose
306700	DAY 0	1 OF 8	Laceration, left rear paw
306707	No abnormalities detected		
306717	DAY 0	1 OF 13	Laceration, left hind quarters
	DAY 4 PRE	1 OF 13	Laceration, left hind quarters
	DAY 4 POST	1 OF 8	Laceration, left hind quarters
	DAY 14	1 OF 4	Scar on left hind quarter
306719	DAY 0	1 OF 17	Hematoma center of back
	DAY 4 PRE	3 OF 17	Hematoma center of back
		3 OF 17	Hematoma between shoulder(s)
	DAY 4 POST	1 OF 8	Hematoma center of back
306723	No abnormalities detected		
306756	No abnormalities detected		
306788	No abnormalities detected		
306790	DAY 20	1 OF 8	Alopecia both front leg
		5 OF 8	Alopecia both front paw
306797	DAY 0	1 OF 16	Hematoma, center of back
	DAY 4 PRE	1 OF 16	Hematoma, center of back
	DAY 4 POST	1 OF 8	Hematoma, center of back
		3 OF 8	Hematoma between of shoulder
306809	DAY 0	1 OF 13	Cannibalized
	DAY 4 PRE	2 OF 12	Laceration, right side nose
	DAY 4 POST	1 OF 8	Hematoma, nose
		1 OF 8	Hematoma, head

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EI CONT.
CONCENTRATION: 10 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306817	DAY 4 PRE	1 OF 17	Hematoma, nose
		1 OF 17	Hematoma, head
	DAY 4 POST	1 OF 8	Laceration, right side of nose
306837	No abnormalities detected		
306843	DAY 0	1 OF 14	Hematoma, right rear leg
		1 OF 14	Hematoma, left side of face
	DAY 4 PRE	2 OF 14	Bent tail
	DAY 4 POST	1 OF 8	Bent tail
306859	DAY 0	1 OF 17	Hematoma, center of back
	DAY 11	1 OF 7	Scab head (days 11-15)
306898	DAY 0	2 OF 14	Hematoma, back
		1 OF 14	Hematoma, tail

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306687	DAY 4 POST	2 OF 8	Yellow stain on skin
306691	No abnormalities detected		
306704	No abnormalities detected		
306708	DAY 0	1 OF 15	Hematoma, center of back
		1 OF 15	Hematoma, nose
306709	DAY 0	1 OF 7	Hematoma, nose
	DAY 18-20	7 OF 7	Weak thin
306759	No abnormalities detected		
306778	no abnormalities detected		
306795	no abnormalities detected		
306829	DAY 0	2 OF 14	Hematoma, nose
	DAY 5	1 OF 4	Yellow stain on skin
306831	No abnormalities detected		
306853	DAY 4 PRE	1 OF 14	Cannibalized
306854	No abnormalities detected		
306865	No abnormalities detected		
306871	DAY 0	1 OF 9	Hematoma, nose
		1 OF 9	Hematoma, tail
306899	DAY 0	1 OF 16	Hematoma, nose

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306689	DAY 4 PRE	2 OF 8	Cannibalized
306713	No abnormalities detected		
306737	DAY 0	3 OF 12	Partially cannibalized tail
	DAY 4 PRE	3 OF 12	Partially cannibalized tail
	DAY 14	1 OF 8	Scab, left ear
	DAY 21	1 OF 8	Scab, left ear
306755	No abnormalities detected		
306765	No abnormalities detected		
306766	DAY 4 POST	1 OF 8	Pallor
306779	No abnormalities detected		
306781	DAY 4 PRE	1 OF 16	Laceration right side head
		1 OF 16	Hematoma between shoulder
306786	DAY 0	1 OF 15	Hematoma, tail
306801	No abnormalities detected		
306815	DAY 0	1 OF 15	Hematoma, left nose
		1 OF 15	Hematoma, right side of neck
		1 OF 15	No milkspot in stomach
		1 OF 15	Cannibalized
306823	No abnormalities detected		
306825	DAY 0	1 OF 12	Hematoma, left side of face

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306835	DAY 0	1 OF 14	Hematoma, center of back
306838	DAY 0		Hematoma, right rear leg
306848	No abnormalities detected		
306851	DAY 0	1 OF 15	Hematoma, left side of nose
		1 OF 15	Hematoma, center of back
		1 OF 15	Laceration right side(s) nose
	DAY 4 PRE	1 OF 15	Hematoma, center of back
		1 OF 15	Hematoma, center of back and neck
	DAY 14	7 OF 8	Ruffled fur
306857	DAY 0	1 OF 16	Hematoma, nose
		1 OF 16	Hematoma, center of back
306864	No abnormalities detected		
306873	DAY 0	1 OF 11	Hematoma, center of back
306881	DAY 4 PRE	2 OF 15	Partially cannibalized tail
	DAY 4 POST	2 OF 8	Partially cannibalized tail
	DAY 14	2 OF 8	Partially cannibalized tail
	DAY 21	2 OF 8	Partially cannibalized tail
306897	No abnormalities detected		

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306693	DAY 0	1 OF 13	Bent tail (through day 3)
	DAY 4 POST	4 OF 8	Bent tail
306720	DAY 0	2 OF 17	Hematoma, center of back
		2 OF 17	Hematoma, between shoulder(s)
			Hematoma, right hind quarters
			Hematoma, right rear leg
		1 OF 17	No milkspot in stomach
		1 OF 17	Petechiae, head
	DAY 4 PRE	1 OF 17	Laceration, right front paw
		1 OF 17	Cannibalized
306738	DAY 4 POST	1 OF 8	Partially cannibalized tail
	DAY 14	1 OF 8	Partially cannibalized tail
	DAY 21	1 OF 8	Partially cannibalized tail
306739[a]	DAY 0	1 OF 16	Partially cannibalized tail
		1 OF 16	Pallor
		1 OF 16	Hematoma, left side of nose
	DAY 4 PRE	1 OF 16	Partially cannibalized tail
		1 OF 16	Violet stain left side of head
		1 OF 16	Violet stain on chest
		1 OF 16	Hematoma, left side of head and lt shoulder
			Hematoma, left shoulder
306744	DAY 0	1 OF 14	HEmatoma, nose
		1 OF 14	Pallor
	DAY 6	6 OF 8	Yellow stain on skin
306745[a]	DAY 4 PRE	1 OF 13	Violet stain on side of head

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EIV CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306761[b]	DAY 4 PRE	4 OF 7	No milkspot in stomach
		1 OF 7	Hematoma, left side of nose
	DAY 4 POST	3 OF 4	Cannibalized
	DAY 4 POST	3 OF 4	Cannibalized
		1	No milkspot in stomach
306767	No abnormalities detected		
306780	DAY 0	1 OF 12	Hematoma, tail
306814	DAY 0	1 OF 18	Petechiae, left side of nose
			Petechiae, face
			Petechiae, nose
			Hematoma, center of back
		1 OF 18	Hematoma, both side of nose
306820	DAY 4 PRE	1 OF 16	Hematoma, left side head
		1 OF 16	Hematoma, left shoulder
306836	DAY 4 POST	1 OF 8	Scratch, left shoulder
306839	DAY 0	1 OF 13	Laceration above right eye
306884	No abnormalities detected		
306887	DAY 0	1 OF 11	Scratch, left shoulder
	DAY 4 PRE	1 OF 11	Scratch, left shoulder

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306728	No abnormalities detected		
306734	No abnormalities detected		
306742	No abnormalities detected		
306743	No abnormalities detected		
306771	DAY 0	1 OF 16	Hematoma, right rear paw
	DAY 4 PRE	1 OF 16	End of tail missing
306773	DAY 0	1 OF 18	Hematoma, left ear
		1 OF 18	Hematoma, face
306787	DAY 0	1 OF 20	Hematoma, right side head
	DAY 4	2 OF 20	Cannibalized
306796	DAY 0	1 OF 16	Hematoma, right side face
		1 OF 16	Laceration, rt side of face
		1 OF 16	Hematoma, tail
	DAY 4 PRE	1 OF 16	No milkspot in stomach
306798	DAY 0	1 OF 13	Hematoma on tail
306804	DAY 0	1 OF 12	Skin yellowish in color
	DAY 4 PRE	1 OF 12	Cannibalized
	DAY 21	2 OF 8	Partially closed eye(s)
306810	No abnormalities detected		
306824	DAY 0	1 OF 16	Hematoma, nose
306867	DAY 0	1 OF 15	Hematoma, back

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX U (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F1

GROUP EV CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	LACTATION DAY	SIGN INCIDENCE	OBSERVATIONS
306872	No abnormalities detected		
306878	DAY 0	1 OF 15	Hematoma, nose
		1 OF 15	Hematoma, left side of head
306880	DAY 4 PRE	1 OF 14	Cannibalized
306896	No abnormalities detected		

[a] Stains were apparently caused by the ink used to tattoo the pups. Data were excluded from the calculations.
[b] 100% litter mortality by day 9 of lactation

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V

INDIVIDUAL LITTER SURVIVAL: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	NUMBER OF PUPS BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306692	16	16	14	8	8	8
306698	13	13	13	8	8	8
306710	13	13	13	8	8	8
306714	15	15	15	8	8	8
306725	13	13	13	8	8	8
306727	17	16	16	8	8	8
306748[c]	...	...	...	...	...	...
306749	15	15	15	8	8	8
306757	15	15	15	8	8	8
306770[d]	...	...	...	...	...	...
306775	18	15	15	8	8	8
306782	18	18	15	8	8	8
306784	13	13	13	8	8	8
306785	13	13	13	8	8	8
306811	12	12	12	8	8	8
306813	13	13	13	8	8	8
306819	15	15	15	8	8	8
306832[c]	...	...	...	...	...	...
306846	13	13	13	8	8	8
306849	8	8	8	8	8	8
306855	13	13	13	8	8	8
306856[c]	...	...	...	...	...	...
306885	14	14	14	8	8	8
306891	14	14	14	8	8	8
306901[c]	...	...	...	...	...	...
GROUP MEAN	13.7	13.9	13.6	8.0	8.0	8.0
SD	2.26	2.01	1.70	0.00	0.00	0.00
SE	0.51	0.45	0.38	0.00	0.00	0.00
N	20	20	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	NUMBER OF PUPS: SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306692	0.38	100.0	87.5	100.0
306698	0.38	100.0	100.0	100.0
306710	0.69	100.0	100.0	100.0
306714	0.47	100.0	100.0	100.0
306725	0.62	100.0	100.0	100.0
306727	0.65	94.1	100.0	100.0
306749	0.33	100.0	100.0	100.0
306757	0.67	100.0	100.0	100.0
306775	0.61	83.3	100.0	100.0
306782	0.44	100.0	83.3	100.0
306784	0.62	100.0	100.0	100.0
306785	0.69	100.0	100.0	100.0
306811	0.67	100.0	100.0	100.0
306813	0.62	100.0	100.0	100.0
306819	0.80	100.0	100.0	100.0
306846	0.62	100.0	100.0	100.0
306849	0.50	100.0	100.0	100.0
306855	0.38	100.0	100.0	100.0
306885	0.50	100.0	100.0	100.0
306891	0.43	100.0	100.0	100.0
GROUP MEAN	0.55	98.9	98.5	100.0
SD	0.132	3.89	4.54	0.00
SE	0.029	0.87	1.02	0.00
N	20	20	20	20

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	NUMBER OF PUPS					
	BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306685	19	18	18	8	8	8
306686	9	9	9	8	8	8
306688	13	13	13	8	8	8
306730	9	9	9	8	8	8
306752	14	14	14	8	8	8
306789	16	16	16	8	8	8
306791	13	12	12	8	8	8
306792	18	18	18	8	8	8
306803	14	14	14	8	8	8
306812	14	14	14	8	8	8
306816[c]	...	...	...	...	...	...
306818[c]	15	15	15	8	8	8
306821	13	13	13	8	8	8
306826	13	12	12	8	8	8
306847	13	13	13	8	8	8
306852	14	14	14	8	8	8
306860	15	15	15	8	8	8
306863	6	6	6	8	8	8
306876	11	11	11	8	8	8
306889	15	15	15	8	8	8
GROUP MEAN	13.4	13.2	13.2	8.0	8.0	8.0
SD	3.06	2.99	2.99	0.00	0.00	0.00
SE	0.70	0.69	0.69	0.00	0.00	0.00
N	19	19	19	19	19	19

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP CII CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	NUMBER OF PUPS			
	SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306685	0.42	94.7	100.0	100.0
306686	0.56	100.0	100.0	100.0
306688	0.54	100.0	100.0	100.0
306730	0.33	100.0	100.0	100.0
306752	0.64	100.0	100.0	100.0
306789	0.31	100.0	100.0	100.0
306791	0.46	92.3	100.0	100.0
306792	0.44	100.0	100.0	100.0
306803	0.50	100.0	100.0	100.0
306812	0.57	100.0	100.0	100.0
306818	0.73	100.0	100.0	100.0
306821	0.38	100.0	100.0	100.0
306826	0.38	92.3	100.0	100.0
306847	0.62	100.0	100.0	100.0
306852	0.71	100.0	100.0	100.0
306860	0.67	100.0	100.0	100.0
306863	0.17	100.0	100.0	100.0
306876	0.55	100.0	100.0	100.0
306889	0.60	100.0	100.0	100.0
GROUP MEAN	0.50	98.9	100.0	100.0
SD	0.148	2.62	0.00	0.00
SE	0.034	0.60	0.00	0.00
N	19	19	19	19

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	NUMBER OF PUPS					
	BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306684[c]	...	...	...	...	...	...
306697	15	15	15	8	8	8
306700	7	7	7	8	8	8
306707	16	16	16	8	7	7
306717	13	13	13	8	8	8
306719	18	17	17	8	8	8
306723	8	8	8	8	8	8
306756	14	14	14	8	8	8
306788	14	14	14	8	8	7
306790	15	15	15	8	8	8
306797	16	16	16	8	8	8
306809	13	12	12	8	8	8
306817	17	17	17	8	8	8
306827[c]	...	...	...	...	...	...
306834[c]	...	...	...	...	...	...
306837	13	13	13	8	8	8
306843	14	14	14	8	8	8
306859	17	17	17	7	7	7
306894[c]	...	...	...	...	...	...
306898	14	14	14	8	8	8
GROUP MEAN	14.0	13.9	13.9	7.9	7.9	7.8
SD	2.97	2.92	2.92	0.25	0.34	0.40
SE	0.74	0.73	0.73	0.06	0.09	0.10
N	16	16	16	16	16	16

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EI CONT.
CONCENTRATION: 10 PPM

	NUMBER OF PUPS			
ANIMAL NUMBER	SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306697	0.47	100.0	100.0	100.0
306700	0.43	100.0	100.0	100.0
306707	0.38	100.0	100.0	87.5
306717	0.54	100.0	100.0	100.0
306719	0.65	94.4	100.0	100.0
306723	0.50	100.0	100.0	100.0
306756	0.36	100.0	100.0	100.0
306788	0.43	100.0	100.0	87.5
306790	0.33	100.0	100.0	100.0
306797	0.56	100.0	100.0	100.0
306809	0.46	92.3	100.0	100.0
306817	0.41	100.0	100.0	100.0
306837	0.38	100.0	100.0	100.0
306843	0.50	100.0	100.0	100.0
306859	0.53	100.0	100.0	100.0
306898	0.36	100.0	100.0	100.0
GROUP MEAN	0.46	99.2	100.0	98.4
SD	0.087	2.30	0.00	4.27
SE	0.022	0.57	0.00	1.07
N	16	16	16	16

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	NUMBER OF PUPS					
	BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306687	14	14	14	8	8	8
306691	15	15	15	8	8	8
306704	17	17	17	8	8	8
306708	15	15	15	8	8	8
306709	7	7	7	7	7	6
306731[c]	...	...	...	...	...	...
306759	14	14	14	8	8	8
306776[c]	...	...	...	...	...	...
306778	18	17	17	8	8	8
306795	13	13	12	8	8	8
306829	15	14	14	8	8	8
306831	17	17	17	8	8	8
306841[c]	...	...	...	...	...	...
306853	14	14	13	8	8	8
306854	8	8	8	8	8	8
306858[d]	...	...	...	...	...	...
306865	13	13	13	8	8	8
306871	9	9	9	8	8	8
306879[c]	...	...	...	...	...	...
306899	16	16	15	8	8	8
GROUP MEAN	13.7	13.5	13.3	7.9	7.9	7.9
SD	3.29	3.18	3.15	0.26	0.26	0.52
SE	0.85	0.82	0.81	0.07	0.07	0.13
N	15	15	15	15	15	15

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EII CONT.
CONCENTRATION: 50 PPM

ANIMAL NUMBER	NUMBER OF PUPS SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306687	0.14	100.0	100.0	100.0
306691	0.27	100.0	100.0	100.0
306704	0.47	100.0	100.0	100.0
306708	0.33	100.0	100.0	100.0
306709	0.71	100.0	100.0	85.7
306759	0.64	100.0	100.0	100.0
306778	0.44	94.4	100.0	100.0
306795	0.31	100.0	92.3	100.0
306829	0.53	93.3	100.0	100.0
306831	0.41	100.0	100.0	100.0
306853	0.71	100.0	92.9	100.0
306854	0.25	100.0	100.0	100.0
306865	0.38	100.0	100.0	100.0
306871	0.22	100.0	100.0	100.0
306899	0.63	100.0	93.8	100.0
GROUP MEAN	0.43	99.2	98.6	99.0
SD	0.183	2.16	2.92	3.69
SE	0.047	0.56	0.75	0.95
N	15	15	15	15

DW.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	NUMBER OF PUPS BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306689	10	8	6	8	8	8
306696[c]	...	...	...	...	...	...
306713	14	14	14	8	8	8
306737	12	12	12	8	8	8
306755	14	14	14	8	8	8
306765	15	15	15	8	8	8
306766	8	8	8	8	8	8
306779	16	16	16	8	8	8
306781	16	16	16	8	8	8
306786	15	15	15	8	8	8
306801	20	20	19	8	8	8
306815	15	15	14	8	8	8
306823	16	15	15	8	8	8
306825	12	12	12	8	8	8
306835	14	14	14	8	8	8
306838	15	15	15	8	8	8
306848	15	15	15	8	8	8
306851	15	15	15	8	8	8
306857	16	16	16	8	8	8
306861[c]	...	...	...	...	...	...
306862[c]	...	...	...	...	...	...
306864	15	15	15	8	8	8
306873	11	11	11	8	8	8
306881	15	15	15	8	8	8
306897	14	14	14	8	8	8
GROUP MEAN	14.2	14.1	13.9	8.0	8.0	8.0
SD	2.47	2.64	2.78	0.00	0.00	0.00
SE	0.53	0.56	0.59	0.00	0.00	0.00
N	22	22	22	22	22	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	NUMBER OF PUPS SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306689	0.40	80.0	75.0	100.0
306713	0.43	100.0	100.0	100.0
306737	0.25	100.0	100.0	100.0
306755	0.57	100.0	100.0	100.0
306765	0.47	100.0	100.0	100.0
306766	0.75	100.0	100.0	100.0
306779	0.56	100.0	100.0	100.0
306781	0.25	100.0	100.0	100.0
306786	0.47	100.0	100.0	100.0
306801	0.45	100.0	95.0	100.0
306815	0.27	100.0	93.3	100.0
306823	0.38	93.8	100.0	100.0
306825	0.50	100.0	100.0	100.0
306835	0.36	100.0	100.0	100.0
306838	0.53	100.0	100.0	100.0
306848	0.53	100.0	100.0	100.0
306851	0.40	100.0	100.0	100.0
306857	0.63	100.0	100.0	100.0
306864	0.53	100.0	100.0	100.0
306873	0.55	100.0	100.0	100.0
306881	0.53	100.0	100.0	100.0
306897	0.36	100.0	100.0	100.0
GROUP MEAN	0.46	98.8	98.3	100.0
SD	0.125	4.41	5.49	0.00
SE	0.027	0.94	1.17	0.00
N	22	22	22	22

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	NUMBER OF PUPS BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306690[c]	...	...	...	...	...	...
306693	13	13	13	8	8	8
306695[c]	...	...	...	...	...	...
306720	17	17	16	8	8	8
306738	15	15	15	8	8	8
306739	16	16	16	8	8	8
306744	14	14	14	8	8	8
306745	13	13	13	8	8	8
306761[d]	7	7	4	4	8	0
306767	14	14	14	8	8	8
306780	12	12	12	8	8	8
306814	18	18	15	8	8	8
306820	17	17	16	8	8	8
306836	15	15	15	8	8	8
306839	13	13	13	8	8	8
306875[c]	...	...	...	...	...	...
306877[c]	...	...	...	...	...	...
306884	7	7	7	8	8	8
306887	11	11	11	8	8	8
306895[c]	...	...	...	...	...	...
GROUP MEAN	13.9	13.9	13.6	8.0	8.0	8.0
SD	2.84	2.84	2.44	0.00	0.00	0.00
SE	0.76	0.76	0.65	0.00	0.00	0.00
N	14	14	14	14	14	14

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EIV CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	NUMBER OF PUPS			
	SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306693	0.31	100.0	100.0	100.0
306720	0.47	100.0	94.1	100.0
306738	0.47	100.0	100.0	100.0
306739	0.50	100.0	100.0	100.0
306744	0.64	100.0	100.0	100.0
306745	0.46	100.0	100.0	100.0
306761*	...	...	...	...
306767	0.36	100.0	100.0	100.0
306780	0.42	100.0	100.0	100.0
306814	0.44	100.0	83.3	100.0
306820	0.53	100.0	94.1	100.0
306836	0.73	100.0	100.0	100.0
306839	0.46	100.0	100.0	100.0
306884	0.57	100.0	100.0	100.0
306887	0.36	100.0	100.0	100.0
GROUP MEAN	0.48	100.0	98.0	100.0
SD	0.113	0.00	4.72	0.00
SE	0.030	0.00	1.26	0.00
N	14	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	NUMBER OF PUPS					
	BORN	BORN ALIVE	PRE-CULLING[a] DAY 4	POST-CULLING[b] DAY 4	DAY 14	DAY 21
306703[c]	...	...	...	...	...	...
306728	12	12	12	8	8	8
306734	13	13	13	8	8	8
306736[c]	...	...	...	...	...	...
306742	7	7	7	7	7	7
306743	19	19	19	8	8	8
306771	17	16	16	8	8	8
306773	18	18	18	8	8	8
306787	20	20	18	8	8	8
306796	16	16	16	8	8	8
306798	13	13	13	8	8	8
306804	12	12	11	8	8	8
306810	14	14	14	8	8	8
306824	16	16	16	8	8	8
306867	15	15	14	8	8	8
306872	14	14	14	8	8	8
306878	15	15	15	8	8	8
306880	15	15	13	8	8	8
306892[c]	...	...	...	...	...	...
306896	14	14	14	8	8	8
GROUP MEAN	14.7	14.6	14.3	7.9	7.9	7.9
SD	3.04	3.00	2.89	0.24	0.24	0.24
SE	0.74	0.73	0.70	0.06	0.06	0.06
N	17	17	17	17	17	17

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL LITTER SURVIVAL: F1

GROUP EV CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	NUMBER OF PUPS: SEX RATIO (MALES)	PERCENT BORN ALIVE	0-4 DAY VIABILITY	LACTATION INDEX
306728	0.42	100.0	100.0	100.0
306734	0.77	100.0	100.0	100.0
306742	0.57	100.0	100.0	100.0
306743	0.47	100.0	100.0	100.0
306771	0.47	94.1	100.0	100.0
306773	0.44	100.0	100.0	100.0
306787	0.40	100.0	90.0	100.0
306796	0.63	100.0	100.0	100.0
306798	0.46	100.0	100.0	100.0
306804	0.42	100.0	91.7	100.0
306810	0.43	100.0	100.0	100.0
306824	0.50	100.0	100.0	100.0
306867	0.47	100.0	93.3	100.0
306872	0.50	100.0	100.0	100.0
306878	0.60	100.0	100.0	100.0
306880	0.47	100.0	86.7	100.0
306896	0.57	100.0	100.0	100.0
GROUP MEAN	0.50	99.7	97.7	100.0
SD	0.095	1.43	4.37	0.00
SE	0.023	0.35	1.06	0.00
N	17	17	17	17

[a] Number on Day 4 PP before pooling and standardization of litters
[b] Number on Day 4 PP after pooling and standardization of litters
[c] Not pregnant
[d] Found dead
[e] We killed this female on Day 9 PP, as her litter died by Day 5 PP, and excluded her data from the calculations.

DW

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306692	6.8	9.2	9.7	25.7	41.9	73.2
306698	9.1	13.8	12.5	38.2	62.0	97.6
306710	6.5	9.8	11.0	28.6	48.1	80.7
306714	7.6	10.9	11.9	34.0	56.3	88.6
306725	7.7	11.4	10.3	28.9	45.3	77.0
306727	7.6	10.9	9.5	31.7	51.3	84.7
306749	7.2	10.1	10.5	30.3	48.1	84.1
306757	6.9	10.1	11.4	30.6	49.0	81.1
306775	7.9	11.6	10.3	33.8	53.2	90.3
306782	6.2	7.5	11.1	28.6	47.3	84.7
306784	7.0	9.5	11.6	30.6	48.8	85.8
306785	8.0	11.9	10.6	31.1	48.2	74.1
306811	7.7	11.7	11.8	30.3	47.6	83.1
306813	6.9	10.3	10.3	30.7	47.8	80.4
306819	8.0	11.5	10.2	35.5	55.8	85.4
306846	7.4	10.9	10.4	31.4	50.5	83.6
306849	8.9	13.1	11.3	30.0	50.1	81.9
306855	8.3	11.6	9.9	31.8	48.5	80.3
306885	6.6	8.9	10.3	22.3	36.8	59.7
306891	7.5	9.8	11.7	24.0	41.1	72.9
GROUP MEAN	7.5	10.7	10.8	30.4	48.9	81.5
SD	0.76	1.45	0.82	3.66	5.51	7.78
SE	0.17	0.32	0.18	0.82	1.23	1.74
N	20	20	20	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP CI
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306692	118.9	167.4	206.4	241.5	265.6	293.6
306698	151.5	209.3	262.3	308.7	341.7	373.2
306710	128.3	182.1	229.3	262.8	290.2	309.9
306714	132.4	183.1	228.1	272.4	309.5	337.3
306725	121.1	174.3	216.4	256.9	279.2	299.8
306727	130.5	180.9	219.3	248.3	282.8	306.9
306749	121.8	178.8	224.9	261.2	282.0	313.3
306757	129.7	178.9	222.5	258.2	285.5	315.6
306775	138.4	186.9	231.7	268.9	297.2	321.0
306782	128.3	175.9	210.9	242.5	264.0	282.7
306784	132.1	187.2	231.5	265.9	304.7	329.6
306785	124.8	173.2	216.6	255.3	280.0	309.3
306811	128.4	180.4	223.9	265.9	293.8	323.5
306813	126.6	177.6	221.0	260.1	286.2	307.9
306819	137.9	190.9	236.0	273.0	302.9	329.5
306846	125.8	179.1	223.9	257.6	285.0	304.3
306849	129.2	182.8	229.6	268.5	295.7	321.8
306855	125.0	166.1	215.0	250.1	274.3	303.0
306885	102.3	144.6	185.7	229.9	257.8	285.6
306891	117.8	166.7	206.7	255.4	281.9	300.1
GROUP MEAN	127.5	178.3	222.1	260.1	288.0	313.5
SD	9.62	12.42	14.88	15.85	18.45	20.14
SE	2.15	2.78	3.33	3.54	4.13	4.50
N	20	20	20	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306685	5.9	7.6	7.6	23.3	30.5	53.3
306686	8.1	12.1	10.7	29.4	47.6	84.1
306688	7.8	11.1	10.7	33.3	52.1	87.7
306730	8.1	12.2	11.5	30.8	48.9	90.3
306752	7.7	11.6	10.9	35.0	56.5	91.6
306789	6.8	9.4	9.8	29.9	47.2	80.1
306791	7.7	12.1	12.2	31.1	48.2	84.5
306792	6.4	9.3	10.7	34.0	55.6	89.1
306803	7.7	11.2	11.0	33.4	52.8	90.5
306812	7.4	10.9	10.5	32.1	50.8	82.6
306818	7.7	11.0	10.7	33.8	52.5	86.0
306821	7.0	10.4	10.7	33.0	53.8	86.6
306826	7.5	11.2	11.9	34.5	56.0	95.8
306847	7.8	11.0	10.9	32.4	51.1	85.4
306852	7.0	9.8	10.6	29.3	48.1	80.5
306860	6.9	10.5	9.9	30.4	46.5	81.4
306863	8.5	13.4	11.1	27.9	43.9	78.3
306876	8.1	11.9	11.1	28.5	42.8	77.6
306889	7.9	10.7	10.1	32.1	51.8	86.4
GROUP MEAN	7.5	10.9	10.7	31.3	49.3	83.8
SD	0.65	1.28	0.95	2.85	5.96	8.78
SE	0.15	0.29	0.22	0.65	1.37	2.01
N	19	19	19	19	19	19

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP CII
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306685	86.6	...	...	...	...	...
306686	134.3	191.1	...	...	...	...
306688	139.6	199.6	...	...	...	...
306730	137.7	185.3	...	...	...	...
306752	142.9	191.3	...	...	...	...
306789	127.6	184.2	...	...	...	...
306791	131.1	178.8	...	...	...	...
306792	136.7	192.1	...	...	...	...
306803	141.1	...	...	...	...	...
306812	132.0	184.3	...	...	...	...
306818	135.5	...	...	...	...	...
306821	138.1	195.8	...	...	...	...
306826	149.6	201.9	...	...	...	...
306847	135.5	191.5	...	...	...	...
306852	127.6	180.5	...	...	...	...
306860	131.1	188.5	...	...	...	...
306863	126.6	180.1	...	...	...	...
306876	128.5	182.5	...	...	...	...
306889	136.4	184.8	...	...	...	...
GROUP MEAN	132.6	188.3	0.0	0.0	0.0	0.0
SD	12.57	6.89	0.00	0.00	0.00	0.00
SE	2.88	1.72	0.00	0.00	0.00	0.00
N	19	16	0	0	0	0

DWJ

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306697	6.7	10.6	9.8	31.4	49.8	85.7
306700	9.1	13.9	10.0	28.8	48.7	82.8
306707	6.7	8.7	8.9	22.2	38.4	66.4
306717	7.1	10.4	11.0	29.9	48.7	86.4
306719	6.5	8.6	9.0	25.9	44.0	74.1
306723	7.4	11.7	10.3	27.5	45.0	74.3
306756	6.8	9.6	10.9	28.2	47.0	78.6
306788	7.6	9.0	10.9	31.8	50.0	82.4
306790	6.9	9.8	9.6	27.1	42.3	77.5
306797	6.3	8.4	8.3	19.1	35.8	61.3
306809	6.6	9.7	10.0	25.5	42.9	75.1
306817	7.1	10.2	10.2	31.3	50.4	84.6
306837	7.8	11.6	11.1	32.3	48.0	85.1
306843	6.9	10.3	10.3	30.8	49.0	81.3
306859	6.2	8.5	8.7	24.6	42.8	71.0
306898	6.7	8.5	8.9	29.1	46.8	79.3
GROUP MEAN	7.0	10.0	9.9	27.8	45.6	77.9
SD	0.70	1.49	0.90	3.69	4.29	7.20
SE	0.18	0.37	0.23	0.92	1.07	1.80
N	16	16	16	16	16	16

06933

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EI
CONCENTRATION: 10 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306697	131.1	185.2	229.9	272.5	295.1	322.2
306700	128.3	185.5	236.2	271.9	305.2	341.8
306707	106.1	145.7	189.0	222.7	251.7	273.6
306717	132.6	183.6	230.2	263.4	302.4	332.2
306719	117.5	164.5	207.5	246.8	272.5	298.1
306723	117.4	164.1	206.4	242.1	264.9	289.5
306756	120.9	166.6	206.9	244.4	269.5	296.0
306788	128.3	188.4	230.5	268.3	298.1	317.3
306790	125.0	177.0	224.8	259.7	289.6	320.2
306797	100.8	153.1	200.7	242.5	270.7	294.6
306809	115.3	160.6	202.4	234.3	256.5	278.6
306817	128.7	180.8	225.0	259.8	288.8	317.9
306837	130.5	183.7	232.4	263.8	296.5	328.5
306843	125.9	184.3	226.6	276.7	311.6	340.0
306859	111.2	159.1	198.1	242.6	267.1	288.1
306898	125.2	182.1	226.2	265.2	300.7	327.6
GROUP MEAN	121.5	172.8	217.0	254.8	283.8	310.4
SD	9.41	13.51	14.95	15.63	18.86	21.92
SE	2.35	3.38	3.74	3.91	4.72	5.48
N	16	16	16	16	16	16

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306687	7.6	8.7	8.4	24.8	43.1	74.3
306691	6.7	9.7	9.7	31.1	49.8	86.9
306704	6.4	9.5	10.3	31.3	51.4	87.4
306708	6.9	10.5	9.9	31.0	46.7	85.5
306709	8.1	11.9	11.9	24.9	28.2	53.0
306759	7.4	11.0	11.2	31.4	51.9	89.7
306778	6.0	8.7	8.6	27.8	43.7	77.2
306795	6.6	10.7	10.7	29.8	47.2	30.9
306829	6.3	8.3	8.5	26.1	44.5	79.4
306831	7.0	9.7	10.4	31.5	52.2	86.5
306853	7.2	9.9	9.8	27.3	45.1	78.2
306854	7.9	13.0	10.5	30.0	48.2	86.1
306865	7.6	10.5	10.6	29.8	51.7	85.0
306871	8.4	12.8	12.8	32.8	54.0	91.6
306899	6.9	10.0	9.8	33.4	53.7	91.7
GROUP MEAN	7.1	10.3	10.2	29.5	47.4	82.2
SD	0.69	1.41	1.22	2.73	6.44	9.64
SE	0.18	0.36	0.31	0.71	1.66	2.49
N	15	15	15	15	15	15

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX V (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EII
CONCENTRATION: 50 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306687	115.1	164.1	204.3	236.1	263.9	288.9
306691	129.3	185.8	229.4	274.5	305.5	339.3
306704	135.4	189.9	239.3	283.7	310.3	340.7
306708	131.8	185.9	237.6	285.0	317.9	337.1
306709	96.1	150.8	190.9	245.4	284.5	317.5
306759	141.5	193.7	240.5	280.7	307.0	328.1
306778	119.0	167.4	207.7	240.3	270.3	295.4
306795	124.9	172.6	214.3	251.4	277.7	302.0
306829	120.7	173.9	199.6	230.7	266.1	290.0
306831	136.5	189.1	241.0	282.1	309.0	332.6
306853	123.6	176.2	218.9	244.3	282.7	308.6
306854	136.6	192.3	246.7	291.6	312.8	344.5
306865	130.6	179.1	219.7	252.7	279.7	301.5
306871	133.1	177.1	211.5	235.6	259.4	276.0
306899	141.0	196.8	245.6	294.6	327.2	353.5
GROUP MEAN	127.7	179.6	223.1	261.9	291.6	317.0
SD	11.77	12.68	18.15	23.08	22.14	24.08
SE	3.04	3.27	4.69	5.96	5.72	6.22
N	15	15	15	15	15	15

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306689	5.9	9.8	9.0	26.6	45.8	80.7
306713	7.3	11.2	9.1	29.3	47.3	83.3
306737	6.3	9.9	9.8	29.4	48.3	83.4
306755	7.2	10.4	10.6	27.4	46.9	81.1
306765	6.8	9.2	10.0	28.2	45.7	82.3
306766	8.4	13.4	9.1	30.4	49.3	81.7
306779	7.1	9.6	9.1	29.9	48.9	87.6
306781	7.0	9.2	10.5	29.8	48.2	84.0
306786	6.3	9.4	9.7	32.8	52.6	87.7
306801	6.3	9.3	9.2	28.3	49.0	82.8
306815	5.7	6.6	10.4	28.5	45.9	84.4
306823	5.9	8.7	9.8	30.2	50.7	88.9
306825	6.8	9.6	9.2	26.1	42.8	74.8
306835	6.6	9.8	9.8	28.5	47.6	83.4
306838	6.7	9.0	10.1	29.0	46.3	80.3
306848	7.0	10.2	9.6	31.0	50.2	84.6
306851	6.1	8.6	9.2	27.5	44.8	75.8
306857	6.1	8.8	9.9	25.8	41.1	75.1
306864	6.1	8.5	9.5	30.6	50.7	85.4
306873	7.0	10.2	10.3	28.3	45.4	85.5
306881	7.1	10.5	8.9	24.7	40.1	74.3
306897	6.9	10.1	9.3	28.0	44.9	80.4
GROUP MEAN	6.7	9.6	9.6	28.7	46.9	82.2
SD	0.62	1.25	0.52	1.88	3.10	4.16
SE	0.13	0.27	0.11	0.40	0.66	0.89
N	22	22	22	22	22	22

DWI 6937

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306689	125.1	173.5	216.9	255.4	282.4	298.8
306713	125.9	172.8	214.6	246.8	266.7	281.1
306737	130.6	176.3	217.6	263.3	288.1	312.4
306755	130.9	181.6	227.6	265.2	295.6	323.8
306765	130.4	176.9	224.6	256.9	285.6	312.0
306766	125.9	175.0	220.1	261.6	295.4	322.8
306779	131.6	181.9	228.3	268.0	298.3	315.9
306781	129.6	177.3	218.6	261.4	286.3	314.8
306786	134.9	191.8	234.2	281.2	313.4	335.4
306801	120.1	175.8	219.5	255.3	288.8	318.6
306815	127.6	176.8	218.1	259.2	283.4	295.5
306823	134.0	187.9	227.4	261.7	290.6	312.2
306825	116.1	170.3	211.9	236.1	271.6	297.1
306835	122.7	173.4	223.3	261.2	290.5	313.5
306838	124.2	170.8	214.8	249.9	280.1	303.1
306848	126.8	175.4	217.2	247.3	277.5	301.9
306851	118.9	165.0	211.1	256.8	283.0	295.8
306857	116.6	166.6	206.9	247.1	271.2	296.6
306864	132.6	184.6	228.6	266.9	294.5	319.4
306873	130.3	181.1	215.7	241.5	285.9	309.3
306881	118.0	165.1	213.4	254.1	281.4	313.3
306897	122.2	168.1	212.9	252.1	281.4	299.1
GROUP MEAN	126.1	175.8	219.2	256.8	286.0	308.7
SD	5.70	7.02	6.87	9.91	10.20	12.29
SE	1.21	1.50	1.47	2.11	2.17	2.62
N	22	22	22	22	22	22

DWL

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306693	7.6	11.3	11.4	31.7	50.6	83.3
306720	6.1	8.6	8.9	26.0	43.0	73.3
306738	7.2	10.6	9.8	28.3	50.1	87.1
306739	6.4	8.9	10.2	26.1	44.7	77.7
306744	7.1	10.1	9.9	26.3	41.8	80.9
306745	7.7	11.2	9.4	27.8	45.7	78.3
306761	6.2	4.8	4.8	...	...	...
306767	7.1	10.1	10.2	29.7	46.5	76.0
306780	7.7	11.3	10.0	29.9	49.5	82.9
306814	5.9	8.9	10.8	29.9	49.0	88.4
306820	6.9	9.7	10.8	29.4	51.2	87.5
306836	7.3	10.2	11.3	29.1	47.0	82.4
306839	7.5	10.9	10.8	29.0	49.1	85.7
306884	8.0	12.7	10.2	27.3	44.0	78.2
306887	7.9	11.5	10.6	30.5	48.5	87.7
GROUP MEAN	7.1	10.1	9.9	28.6	47.2	82.1
SD	0.68	1.82	1.56	1.75	2.98	4.86
SE	0.18	0.47	0.40	0.47	0.80	1.30
N	15	15	15	14	14	14

DWT 06939

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EIII
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306689	125.1	173.5	216.9	255.4	282.4	298.8
306713	125.9	172.8	214.6	246.8	266.7	281.1
306737	130.6	176.3	217.6	263.3	288.1	312.4
306755	130.9	181.6	227.6	265.2	295.6	323.8
306765	130.4	176.9	224.6	256.9	285.6	312.0
306766	125.9	175.0	220.1	261.6	295.4	322.8
306779	131.6	181.9	228.3	268.0	298.3	315.9
306781	129.6	177.3	218.6	261.4	286.3	314.8
306786	134.9	191.8	234.2	281.2	313.4	335.4
306801	120.1	175.8	219.5	255.3	288.8	318.6
306815	127.6	176.8	218.1	259.2	283.4	295.5
306823	134.0	187.9	227.4	261.7	290.6	312.2
306825	116.1	170.3	211.9	236.1	271.6	297.1
306835	122.7	173.4	223.3	261.2	290.5	313.5
306838	124.2	170.8	214.8	249.9	280.1	303.1
306848	126.8	175.4	217.2	247.3	277.5	301.9
306851	118.9	165.0	211.1	256.8	283.0	295.8
306857	116.6	166.6	206.9	247.1	271.2	296.6
306864	132.6	184.6	228.6	266.9	294.5	319.4
306873	130.3	181.1	215.7	241.5	285.9	309.3
306881	118.0	165.1	213.4	254.1	281.4	313.3
306897	122.2	168.1	212.9	252.1	281.4	299.1
GROUP MEAN	126.1	175.8	219.2	256.8	286.0	308.7
SD	5.70	7.02	6.87	9.91	10.20	12.29
SE	1.21	1.50	1.47	2.11	2.17	2.62
N	22	22	22	22	22	22

DWJ

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306693	7.6	11.3	11.4	31.7	50.6	83.3
306720	6.1	8.6	8.9	26.0	43.0	73.3
306738	7.2	10.6	9.8	28.3	50.1	87.1
306739	6.4	8.9	10.2	26.1	44.7	77.7
306744	7.1	10.1	9.9	26.3	41.8	80.9
306745	7.7	11.2	9.4	27.8	45.7	78.3
306761	6.2	4.8	4.8	...	...	...
306767	7.1	10.1	10.2	29.7	46.5	76.0
306780	7.7	11.3	10.0	29.9	49.5	82.9
306814	5.9	8.9	10.8	29.9	49.0	88.4
306820	6.9	9.7	10.8	29.4	51.2	87.5
306836	7.3	10.2	11.3	29.1	47.0	82.4
306839	7.5	10.9	10.8	29.0	49.1	85.7
306884	8.0	12.7	10.2	27.3	44.0	78.2
306887	7.9	11.5	10.6	30.5	48.5	87.7
GROUP MEAN	7.1	10.1	9.9	28.6	47.2	82.1
SD	0.68	1.82	1.56	1.75	2.98	4.86
SE	0.18	0.47	0.40	0.47	0.80	1.30
N	15	15	15	14	14	14

DWI 06939

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EIV
CONCENTRATION: 130 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306693	127.6	176.6	...	235.0	...	278.1
306720	117.7	168.1	209.9	274.9	280.0	304.4
306738	139.1	190.9	230.9	272.8	...	329.9
306739	123.5	169.9	215.6	247.6	...	305.0
306744	126.8	174.6	209.7	247.4	355.1	306.5
306745	125.7	177.8	221.6	255.9	...	317.7
306761	...	...	...	...	...	...
306767	123.9	...	...	...	...	288.3
306780	127.5	176.4	221.4	...	290.5	311.2
306814	133.5	189.6	234.1	...	299.4	324.2
306820	138.2	187.6	232.6	279.9	...	345.7
306836	126.6	173.6	209.2	...	...	307.6
306839	130.6	182.6	231.0	...	...	340.7
306884	122.8	177.8	222.8	...	308.0	333.8
306887	135.2	189.1	227.5	...	...	335.9
GROUP MEAN	128.5	179.6	222.2	259.1	306.6	316.4
SD	6.16	7.67	9.31	16.98	29.03	19.82
SE	1.65	2.13	2.69	6.42	12.98	5.30
N	14	13	12	7	5	14

DWJ

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	AGE IN DAYS 1	4	4	14	21	28
306728	7.7	11.6	11.0	29.5	48.5	89.7
306734	8.1	12.3	12.3	33.1	53.6	89.8
306742	7.9	12.7	12.7	32.3	52.5	86.9
306743	6.0	8.1	8.1	30.9	48.3	82.9
306771	6.9	8.7	8.8	30.9	47.0	79.0
306773	6.7	9.2	9.4	32.7	52.3	88.8
306787	6.3	9.3	9.9	33.1	53.5	87.4
306796	6.9	9.7	10.4	31.9	50.5	87.9
306798	8.0	11.1	10.6	29.9	48.4	83.3
306804	8.3	12.3	11.3	32.7	53.9	85.9
306810	7.4	11.3	11.1	33.4	53.6	85.7
306824	7.3	9.6	9.6	31.7	51.0	84.8
306867	6.7	9.8	11.2	33.2	54.1	87.5
306872	7.0	9.3	11.5	33.1	54.5	83.1
306878	7.4	11.1	11.2	33.3	54.2	91.3
306880	7.6	10.9	10.5	29.5	49.8	83.5
306896	7.8	11.7	9.9	33.5	51.8	80.1
GROUP MEAN	7.3	10.5	10.6	32.0	51.6	85.8
SD	0.65	1.39	1.20	1.41	2.44	3.43
SE	0.16	0.34	0.29	0.34	0.59	0.83
N	17	17	17	17	17	17

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX W (CONT.)

INDIVIDUAL MEAN LITTER WEIGHT: F1

GROUP EV
CONCENTRATION: 0 PPM CONT.

ANIMAL NUMBER	AGE IN DAYS 35	42	49	56	63	70
306728	144.1	...	...	...	...	...
306734	136.6	192.1	...	...	...	...
306742	139.6	190.5	...	...	...	...
306743	133.9	...	...	...	...	...
306771	125.3	...	...	...	...	...
306773	132.1	...	...	...	...	...
306787	139.4	186.3	...	...	...	...
306796	139.7	...	...	...	...	...
306798	133.1	182.7	...	...	...	...
306804	135.2	187.4	...	...	...	...
306810	132.1	186.9	...	...	...	...
306824	131.2	176.3	...	...	...	...
306867	135.8	188.9	...	...	...	...
306872	134.7	185.5	...	...	...	...
306878	143.7	...	...	...	...	...
306880	129.9	181.6	...	...	...	...
306896	126.9	181.1	...	...	...	...
GROUP MEAN	134.9	185.4	0.0	0.0	0.0	0.0
SD	5.28	4.63	0.00	0.00	0.00	0.00
SE	1.28	1.40	0.00	0.00	0.00	0.00
N	17	11	0	0	0	0

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT[a]
306811	48.6	228.6	470.4
306727	58.1	292.8	504.0
306775	61.1	290.2	475.0
306782	48.8	257.6	527.9
306749	49.1	236.2	481.1
306846	50.8	236.4	465.4
306784	47.9	248.2	518.2
306891	38.6	173.4	449.2
306849	58.9	281.4	477.8
306714	58.7	304.0	517.9
306698	60.5	346.4	572.6
306819	53.8	242.6	450.9
306785	53.6	284.0	529.9
306855	46.7	214.0	458.2
306692	44.2	218.8	495.0
306757	51.6	238.0	461.2
306885	40.6	161.2	397.0
306725	49.2	242.4	492.7
306710	45.3	197.2	435.3
306813	50.1	241.2	481.4
GROUP MEAN	50.81	246.73	483.06
SD	6.348	44.499	38.988
SE	1.419	9.950	8.718
N	20	20	20

DWI

18cv794 NRDC v EPA

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP CII
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT*
306688	52.7	302.6	574.2
306860	49.1	273.8	557.6
306889	54.5	232.9	427.3
306821	53.8	263.2	489.2
306752	59.3	268.0	451.9
306812	50.0	261.6	523.2
306863	48.2	259.8	539.0
306852	47.6	201.2	422.7
306847	50.9	264.4	519.4
306686	53.3	246.0	461.5
306792	54.7	244.0	446.1
306685	32.4	146.8	453.1
306818	52.6	244.0	463.9
306791	50.0	256.8	513.6
306803	55.4	247.6	446.9
306730	51.1	290.0	567.5
306826	57.1	300.0	525.4
306876	46.8	290.2	620.1
306789	49.3	205.6	417.0
GROUP MEAN	50.99	252.55	495.77
SD	5.585	37.489	58.698
SE	1.281	8.600	13.466
N	19	19	19

DWI

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT*
306788	61.7	286.6	464.5
306700	45.2	214.0	473.5
306817	50.0	220.4	440.8
306809	47.3	254.0	537.0
306717	43.5	203.8	468.5
306837	46.0	225.2	489.6
306707	40.3	175.2	434.7
306756	40.6	209.6	516.3
306723	49.0	221.4	451.8
306719	44.7	202.8	453.7
306797	34.6	121.0	364.2
306898	49.0	213.0	434.7
306790	41.4	166.0	401.0
306859	45.7	208.2	455.6
306697	50.2	246.4	490.8
306843	51.3	270.4	527.1
GROUP MEAN	46.28	215.19	462.74
SD	6.045	39.274	44.732
SE	1.511	9.819	11.183
N	16	16	16

DWT 06945

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT*
306709	30.8	159.4	517.5
306691	54.4	252.0	463.2
306871	58.0	298.6	514.8
306829	48.6	218.2	449.0
306687	43.6	212.0	486.2
306778	41.6	184.2	442.8
306853	46.4	221.8	478.0
306865	54.9	286.2	521.3
306795	51.2	265.8	519.1
306831	52.8	256.4	485.6
306759	52.3	256.4	490.2
306854	55.0	240.0	436.4
306704	51.3	272.0	530.2
306708	43.6	196.2	450.0
306899	55.1	234.0	424.7
GROUP MEAN	49.31	236.88	480.60
SD	7.089	38.683	34.878
SE	1.830	9.988	9.006
N	15	15	15

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT*
306801	51.5	243.2	472.2
306786	50.1	207.0	413.2
306838	49.5	238.2	481.2
306848	51.5	233.4	453.2
306823	48.7	237.0	486.7
306755	52.2	235.6	451.3
306781	50.9	251.4	493.9
306765	43.9	249.0	567.2
306766	54.4	239.2	439.7
306864	50.0	249.6	499.2
306873	45.9	222.0	483.7
306779	37.1	145.8	393.0
306713	56.7	268.8	474.1
306897	47.8	236.2	494.1
306825	47.0	264.0	567.1
306815	46.1	232.4	504.1
306835	46.7	207.8	445.0
306857	47.1	224.6	476.9
306881	40.5	186.4	460.2
306689	44.0	188.0	427.3
306737	51.3	244.0	475.6
306851	47.7	206.0	431.9
GROUP MEAN	48.21	227.71	472.06
SD	4.407	28.329	41.589
SE	0.940	6.040	8.867
N	22	22	22

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT[a]
306836	47.1	252.4	535.9
306887	49.6	217.2	437.9
306744	39.2	204.0	520.4
306693	48.4	266.0	549.6
306739	43.2	183.2	424.1
306738	39.2	170.0	433.7
306745	43.8	211.4	482.6
306820	50.2	232.0	462.2
306814	44.2	227.6	514.9
306884	50.5	268.4	531.5
306780	48.3	223.6	462.9
306720	42.4	197.0	464.6
306839	47.3	248.0	524.3
306767	49.5	256.0	517.2
GROUP MEAN	45.92	225.49	490.13
SD	3.906	30.512	42.313
SE	1.044	8.155	11.309
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX X (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 21 PP: F1

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (mg)	RELATIVE TESTES WEIGHT[a]
306896	52.2	225.6	432.2
306872	57.0	262.0	459.6
306798	52.1	225.6	433.0
306804	63.0	299.0	474.6
306867	60.2	238.6	396.3
306787	54.5	240.8	441.8
306880	51.8	254.0	490.3
306810	55.7	258.8	464.6
306743	44.2	168.0	380.1
306771[b]	...	200.2	...
306878	54.8	255.6	466.4
306796	52.1	241.4	463.3
306728	43.2	199.2	461.1
306773	51.8	211.4	408.1
306824	51.6	243.4	471.7
306742	56.1	292.0	520.5
306734	56.0	277.6	495.7
GROUP MEAN	53.52	243.31	453.71
SD	5.003	33.464	37.069
SE	1.251	8.366	9.267
N	16	16	16

[a] Milligrams of testes per 100 grams of final body weight
[b] It could not be determined which male pup was used for the male testes weight.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Y

INDIVIDUAL TESTES WEIGHT ON DAY 70 PP: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306811	384.6	3.04	0.79
306727	391.0	3.45	0.88
306775	381.1	3.45	0.91
306782	341.0	3.30	0.97
306749	393.1	3.46	0.88
306846	395.7	3.22	0.81
306784	404.7	5.01	1.24
306891	358.8	2.90	0.81
306849	407.3	2.97	0.73
306714	403.6	3.18	0.79
306698	437.7	3.65	0.83
306819	399.2	3.36	0.84
306785	434.4	3.69	0.85
306855	418.2	3.64	0.87
306692	344.4	2.84	0.82
306757	383.7	3.03	0.79
306885	301.7	3.06	1.01
306725	401.3	3.20	0.80
306710	382.1	3.31	0.87
306813	394.2	3.57	0.91
GROUP MEAN	387.9	3.366	0.870
SD	31.94	0.4635	0.1091
SE	7.14	0.1036	0.0244
N	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Y (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 70 PP: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306788	396.7	3.39	0.85
306700	418.7	3.87	0.92
306817	391.0	3.32	0.85
306809	354.4	3.20	0.90
306717	458.9	3.39	0.74
306837	417.2	3.47	0.83
306707	341.3	3.16	0.93
306756	339.6	3.00	0.88
306723	372.7	3.05	0.82
306719	406.4	3.62	0.89
306797	364.3	3.23	0.89
306898	386.2	3.42	0.89
306790	408.1	3.21	0.79
306859	384.8	3.42	0.89
306697	397.4	3.94	0.99
306843	432.1	3.48	0.81
GROUP MEAN	391.9	3.386	0.867
SD	32.56	0.2610	0.0604
SE	8.14	0.0652	0.0151
N	16	16	16

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Y (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 70 PP: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306709	308.2	2.89	0.94
306691	410.6	3.04	0.74
306871[b]	...	...	...
306829	360.3	3.21	0.89
306687	354.9	3.03	0.85
306778	349.8	3.02	0.86
306853	398.7	2.75	0.69
306865	381.7	3.74	0.98
306795	353.9	3.25	0.92
306831	419.6	3.60	0.86
306759	397.9	3.21	0.81
306854	407.4	3.81	0.94
306704	450.3	3.61	0.80
306708	427.0	3.28	0.77
306899	423.9	3.23	0.76
GROUP MEAN	388.9	3.261	0.844
SD	38.90	0.3194	0.0857
SE	10.40	0.0854	0.0229
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Y (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 70 PP: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306801	368.7	3.31	0.90
306786	413.7	3.12	0.75
306838	389.7	3.26	0.84
306848	335.1	2.84	0.85
306823	374.4	3.23	0.86
306755	354.4	2.85	0.80
306781	379.6	3.20	0.84
306765	375.8	2.99	0.80
306766	382.4	3.54	0.93
306864	379.9	3.61	0.95
306873	367.1	3.08	0.84
306779	339.4	3.61	1.06
306713	332.0	2.86	0.86
306897	375.3	3.17	0.84
306825	340.8	3.05	0.89
306815	357.3	3.39	0.95
306835	386.9	3.18	0.82
306857	349.2	3.48	1.00
306881	427.0	2.97	0.70
306689	368.1	3.41	0.93
306737	349.7	3.32	0.95
306851[c]	237.6	...	...
GROUP MEAN	362.9	3.213	0.874
SD	36.77	0.2395	0.0837
SE	7.84	0.0523	0.0183
N	22	21	21

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Y (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 70 PP: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306836	381.4	2.75	0.72
306887	424.1	3.39	0.80
306744	383.9	3.22	0.84
306693	407.2	2.84	0.70
306739	363.3	3.29	0.91
306738	421.6	3.54	0.84
306745	405.9	3.29	0.81
306820	432.4	3.38	0.78
306814	408.7	3.29	0.80
306884	419.5	3.49	0.83
306780	409.6	3.27	0.80
306720	358.6	3.31	0.92
306839	423.9	3.27	0.77
306767	366.6	3.13	0.85
GROUP MEAN	400.5	3.247	0.812
SD	24.93	0.2185	0.0613
SE	6.66	0.0584	0.0164
N	14	14	14

[a] Grams of testes per 100 grams of final body weight
[b] There was only one male pup in this litter which was used for breeding.
[c] No testes weight available

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Z

INDIVIDUAL TESTES WEIGHT ON DAY 85 PP: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306811-1	488.0	3.82	0.78
306727-1	433.6	3.56	0.82
306775-1	448.5	3.42	0.76
306782-1	377.5	3.10	0.82
306749-1	454.2	3.06	0.67
306846-1	469.9	3.37	0.72
306784-1	418.9	3.60	0.86
306891-1	418.3	3.39	0.81
306849-1	458.7	3.37	0.73
306714-1	486.7	3.73	0.77
306698-1	540.3	4.55	0.84
306819-1	511.3	3.34	0.65
306785-1	302.9	2.47	0.82
306855-1	388.4	3.08	0.79
306692-1	407.0	2.91	0.71
306757-1	431.5	3.35	0.78
306885-1	424.8	3.12	0.73
306725-1	419.1	3.30	0.79
306710-1	452.1	3.05	0.67
306813-1	453.5	3.67	0.81
GROUP MEAN	439.26	3.363	0.767
SD	51.102	0.4200	0.0600
SE	11.427	0.0939	0.0134
N	20	20	20

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Z (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 85 PP: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT[a]
306778-1	452.2	3.74	0.83
306700-1	473.4	3.75	0.79
306817-1	459.5	3.49	0.76
306809-1	439.9	4.35	0.99
306717-1	448.4	3.01	0.67
306837-1	470.3	3.58	0.76
306707-1	416.6	3.17	0.76
306756-1	422.9	3.70	0.87
306723-1	481.2	3.09	0.64
306719-1	425.4	3.17	0.75
306797-1	430.4	4.83	1.12
306898-1	455.5	3.70	0.81
306790-1	421.1	3.21	0.76
306859-1	425.7	3.17	0.74
306697-1	486.1	4.30	0.88
306843-1	465.6	4.18	0.90
GROUP MEAN	448.39	3.616	0.814
SD	22.996	0.5566	0.1191
SE	5.749	0.1391	0.0298
N	16	16	16

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Z (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 85 PP: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306709-1	480.4	3.19	0.66
306691-1	471.7	3.34	0.71
306871-1	410.7	3.71	0.90
306829-1	399.6	2.80	0.70
306687-1	394.8	2.58	0.65
306778-1	418.3	3.47	0.83
306853-1	450.1	3.22	0.72
306865-1	456.9	3.29	0.72
306795-1	418.7	3.48	0.83
306831-1	468.7	3.55	0.76
306759-1	459.6	3.58	0.78
306854-1	529.4	3.68	0.70
306704-1	465.7	3.23	0.69
306708-1	544.4	3.60	0.66
306899-1	491.2	3.51	0.71
GROUP MEAN	457.35	3.349	0.735
SD	44.200	0.3170	0.0720
SE	11.413	0.0818	0.0186
N	15	15	15

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX Z (CONT.)

INDIVIDUAL TESTES WEIGHT ON DAY 85 PP: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	TESTES WEIGHT (g)	RELATIVE TESTES WEIGHT*
306801-1	481.3	3.30	0.69
306786-1	501.9	3.75	0.75
306838-1	451.4	3.65	0.81
306848-1	462.9	3.39	0.73
306823-1	423.6	3.48	0.82
306755-1	512.5	3.38	0.66
306781-1	510.7	3.15	0.62
306765-1	440.2	3.40	0.77
306766-1	493.6	3.86	0.78
306864-1	436.4	3.56	0.82
306873-1	457.7	2.93	0.64
306779-1	475.3	3.62	0.76
306713-1	412.6	3.60	0.87
306897-1	382.3	3.46	0.91
306825-1	394.7	3.27	0.83
306815-1	445.4	3.16	0.71
306835-1	434.9	3.30	0.76
306857-1	416.2	3.35	0.80
306881-1	456.3	3.56	0.78
306689-1	424.9	3.50	0.82
306737-1	447.3	3.58	0.80
306851-1	406.6	3.01	0.74
GROUP MEAN	448.58	3.421	0.767
SD	36.488	0.2301	0.0719
SE	7.779	0.0491	0.0153
N	22	22	22

* Grams of testes per 100 grams of final body weight

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX AA

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306811	44.1	26.0	59.0
306727	51.5	24.4	47.4
306775	50.2	30.0	59.8
306782	43.6	22.0	50.5
306749	45.3	28.0	61.8
306846	52.7	23.2	44.0
306784	48.9	33.8	69.1
306891	42.9	28.0	65.3
306849	48.2	28.2	58.5
306714	51.4	28.4	55.3
306698	63.2	37.8	59.8
306819	63.2	30.6	48.4
306785	48.6	20.0	41.2
306855	46.1	23.8	51.6
306692	40.6	19.0	46.8
306757	50.1	32.2	64.3
306885	43.0	18.2	42.3
306725	47.6	23.0	48.3
306710	50.9	25.8	50.7
306813	46.4	25.0	53.9
GROUP MEAN	48.93	26.37	53.90
SD	5.910	5.020	8.031
SE	1.322	1.122	1.796
N	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX AA (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP CTI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306688	55.6	24.4	43.9
306860	49.9	27.8	55.7
306889	48.2	22.8	47.3
306821	51.2	26.8	52.3
306752	51.2	25.8	50.4
306812	50.7	19.8	39.1
306863	41.7	20.8	49.9
306852	47.8	27.8	58.2
306847	52.5	26.0	49.5
306686	48.4	30.0	62.0
306792	55.0	25.6	46.5
306685[b]	30.2	...	...
306818	54.8	23.4	42.7
306791	46.5	22.2	47.7
306803	54.5	28.2	51.7
306730	34.4	20.6	59.9
306826	57.5	31.4	54.6
306876	43.0	29.4	68.4
306789	47.3	22.0	46.5
GROUP MEAN	49.46	25.27	51.46
SD	5.696	3.463	7.349
SE	1.343	0.816	1.732
N	18	18	18

DWL

APPENDIX AA (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306788	46.7	28.2	60.4
306700	49.2	25.8	52.4
306817	51.7	26.8	51.8
306809	43.7	22.0	50.3
306717	44.1	27.0	61.7
306837	42.4	22.0	51.9
306707	36.4	12.6	34.6
306756	50.1	22.2	44.3
306723	51.0	30.0	58.8
306719	47.9	23.6	49.3
306797	37.9	17.4	45.9
306898	46.9	16.4	35.0
306790	42.8	20.2	47.2
306859	47.2	24.0	50.8
306697	44.8	20.4	45.5
306843	47.4	27.4	57.8
GROUP MEAN	45.64	22.89	49.86
SD	4.336	4.738	7.901
SE	1.084	1.185	1.975
N	16	16	16

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX AA (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306709	32.5	16.1	49.5
306691	48.1	20.0	41.6
306871	53.1	32.0	60.3
306829	46.4	27.0	58.2
306687	41.4	22.6	54.6
306778	41.5	28.0	67.5
306853	44.4	27.0	60.8
306865	50.2	27.2	54.2
306795	45.0	28.8	64.0
306831	55.8	29.8	53.4
306759	57.2	33.0	57.7
306854	46.6	25.6	54.9
306704	44.9	28.4	63.3
306708	45.4	22.2	48.9
306899	53.4	23.8	44.6
GROUP MEAN	47.06	26.10	55.57
SD	6.331	4.515	7.266
SE	1.635	1.166	1.876
N	15	15	15

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX AA (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT*
306801	49.4	19.2	38.9
306786	53.7	22.0	41.0
306838	48.0	39.2	81.7
306848	50.1	30.0	59.9
306823	47.8	20.4	42.7
306755	46.3	25.8	55.7
306781	45.2	21.4	47.3
306765	40.0	20.4	51.0
306766	52.9	28.0	52.9
306864	45.1	28.2	62.5
306873	41.5	22.0	53.0
306779	38.5	19.2	49.9
306713	26.5	15.0	56.6
306897	33.9	15.8	46.6
306825	45.7	24.6	53.8
306815	48.6	36.8	75.7
306835	47.9	20.0	41.8
306857	31.1	20.4	65.6
306881	41.1	26.4	63.8
306689	43.0	22.2	51.6
306737	50.8	25.6	50.4
306851	47.4	32.8	69.2
GROUP MEAN	44.30	24.34	55.07
SD	6.933	62.43	11.151
SE	1.478	13.31	2.377
N	22	22	22

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX AA (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306836	50.5	31.2	61.8
306887	48.4	26.8	55.4
306744	43.1	24.0	55.7
306693	52.5	30.0	57.1
306739	47.6	22.2	46.6
306738	49.1	20.4	41.5
306745	52.1	27.0	51.8
306820	49.4	28.2	57.1
306814	45.0	25.4	56.4
306884	45.7	24.0	52.5
306780	54.6	29.0	53.1
306720	42.4	19.6	46.2
306839	47.8	29.8	62.3
306767	48.3	32.0	66.3
GROUP MEAN	48.32	26.40	54.56
SD	3.494	1.053	6.715
SE	0.934	3.940	1.795
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX AA (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 21 PP: F1

GROUP EV
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306896	48.3	25.2	52.2
306872	54.1	32.0	59.1
306798	45.0	24.0	53.3
306804	56.4	30.6	54.3
306867	53.8	26.6	49.4
306787[c]	48.0	6.2	12.9
306880	50.3	25.6	50.9
306810	51.7	39.0	75.4
306743	48.3	22.2	46.0
306771	...	...	...
306878	43.3	26.2	60.5
306796	50.2	26.2	52.2
306728	47.5	26.4	55.6
306773	48.3	28.2	58.4
306824	49.9	26.0	52.1
306742	51.0	23.2	45.5
306734	53.6	25.2	47.0
GROUP MEAN	50.11	27.11	54.13
SD	3.524	4.148	7.438
SE	0.910	1.071	1.920
N	15	15	15

[a] Milligrams of paired ovaries per 100 grams of final body weight
[b] Uncertain ovary weight; data not included in calculations
[c] Ovarian weight appears incorrect; data excluded from calculations

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX BB

INDIVIDUAL OVARIAN WEIGHT ON DAY 70 PP: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306811	260.0	150	60
306727	240.6	140	60
306775	221.5	130	60
306782	221.6	170	80
306749	230.7	150	70
306846	269.1	170	60
306784	229.4	120	50
306891	229.3	120	50
306849	231.5	140	60
306714	240.3	130	50
306698	290.7	110	40
306819	247.0	150	60
306785	300.2	270	90
306855	222.3	140	60
306692	224.6	160	70
306757	249.2	130	50
306885	186.3	110	60
306725	229.8	120	50
306710	222.3	160	70
306813	228.3	140	60
GROUP MEAN	238.74	145.5	60.5
SD	25.750	34.41	11.46
SE	5.758	7.69	2.56
N	20	20	20

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX BB (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 70 PP: F1

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT*
306788	324.6	140	40
306700	270.0	160	60
306817	242.4	120	50
306809	206.8	110	50
306717	262.8	130	50
306837	259.4	120	50
306707	225.8	170	80
306756	245.7	110	40
306723	187.5	190	100
306719	248.9	190	80
306797	221.3	180	80
306898	250.9	110	40
306790	240.8	130	50
306859	215.2	80	40
306697	246.1	160	70
306843	278.7	190	70
GROUP MEAN	245.43	143.1	59.4
SD	31.914	35.59	18.43
SE	7.979	8.65	4.61
N	16	16	16

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX BB (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 70 PP: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306709[b]	...	...	...
306691	259.0	130	50
306871	263.6	120	50
306829	200.8	110	50
306687	239.9	170	70
306778	244.2	160	70
306853	262.8	190	70
306865	223.4	150	70
306795	254.1	160	60
306831	253.4	160	60
306759	288.1	190	70
306854	254.0	170	70
306704	253.8	160	60
306708	213.6	160	70
306899	261.8	110	40
GROUP MEAN	248.04	152.8	61.4
SD	22.556	26.14	10.27
SE	6.028	6.99	2.74
N	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX BB (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 70 PP: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT*
306801	234.1	120	50
306786	251.5	150	60
306838	224.8	140	60
306848	239.7	160	70
306823	249.1	200	80
306755	241.0	160	70
306781	219.2	130	60
306765	256.8	140	50
306766	230.3	110	50
306864	245.3	110	40
306873	231.6	160	70
306779	270.0	180	70
306713	205.8	120	60
306897	223.5	150	70
306825	247.1	170	70
306815	238.4	170	70
306835	255.9	160	60
306857	226.9	120	50
306881	255.7	120	50
306689	233.8	140	60
306737	233.1	140	60
306851	237.6	200	70
GROUP MEAN	238.69	147.7	61.4
SD	14.654	26.35	9.90
SE	3.124	5.62	2.11
N	22	22	22

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX BB (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 70 PP: F1

GROUP EIV
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306836	246.9	120	50
306887	265.5	150	60
306744	244.8	110	40
306693	242.8	130	50
306739	233.9	150	60
306738	243.1	180	70
306745	232.7	130	60
306820	259.1	160	60
306814	239.2	160	70
306884	269.1	150	60
306780	209 8	160	80
306720	254.6	110	40
306839	274.6	120	40
306767	237.5	130	50
GROUP MEAN	246.69	140.0	56.4
SD	16.970	21.48	12.16
SE	4.536	5.74	3.25
N	14	14	14

[a] Grams of ovaries per 100 grams of final body weight
[b] Only one female pup in litter, which was used for breeding

DW1

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX CC

INDIVIDUAL OVARIAN WEIGHT ON DAY 2 PP: F1

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306811-2[b]	303.7	210	70
306727-2	297.3	190	60
306775-2	289.5	160	60
306782-2	302.1	210	70
306749-2	324.6	210	60
306846-2[b]	287.4	210	70
306784-2	317.8	180	60
306891-2	312.2	170	50
306849-2	318.3	180	60
306714-2	360.3	150	40
306698-2	334.4	160	50
306819-2	327.1	170	50
306785-2	293.5	230	80
306855-2	316.9	200	60
306692-2	316.8	170	50
306757-2	348.7	220	60
306885-2	299.4	170	60
306725-2	303.2	230	80
306710-2	306.1	220	70
306813-2[b]	...	190	...
GROUP MEAN	315.78	189.4	60.0
SD	19.170	26.33	10.61
SE	4.649	6.39	2.57
N	17	17	17

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX CC (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 2 PP: F1

GROUP FI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306788-2	331.0	270	80
306700-2	354.6	270	80
306817-2	318.0	190	60
306809-2	267.5	180	70
306717-2	331.0	220	70
306837-2[b]	296.5	200	70
306707-2	290.6	210	70
306756-2	348.8	210	60
306723-2[b]	268.2	150	60
306719-2	298.5	260	90
306797-2	300.9	210	70
306898-2	304.0	160	50
306790-2	320.2	180	60
306859-2	316.4	200	60
306697-2	332.2	220	70
306843-2	373.2	270	70
GROUP MEAN	320.49	217.9	68.6
SD	27.687	36.62	10.27
SE	7.400	9.79	2.75
N	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX CC (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 2 PP: F1

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306709-2	293.2	220	70
306691-2	350.8	210	60
306871-2	350.3	200	60
306829-2[b]	285.5	170	60
306687-2	359.9	240	70
306778-2	281.4	170	60
306853-2	265.2	180	70
306865-2	304.0	210	70
306795-2	309.0	230	70
306831-2	358.9	290	80
306759-2	339.6	180	50
306854-2	335.9	210	60
306704-2	353.8	170	50
306708-2	356.8	230	60
306899-2	363.4	200	60
GROUP MEAN	330.16	210.0	63.6
SD	32.972	32.11	8.42
SE	8.812	8.58	2.25
N	14	14	14

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX CC (CONT.)

INDIVIDUAL OVARIAN WEIGHT ON DAY 2 PP: F1

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	FINAL BODY WEIGHT (g)	OVARIAN WEIGHT (mg)	RELATIVE OVARY WEIGHT[a]
306801-2[b]	216.2	120	60
306786-2	324.6	190	60
306838-2	334.4	190	60
306848-2	288.5	210	70
306823-2	341.4	220	60
306755-2	323.1	210	60
306781-2	328.5	180	50
306765-2	336.4	170	50
306766-2	371.7	220	60
306864-2[b]	303.1	140	50
306873-2	312.1	170	50
306779-2[b]	326.3	190	60
306713-2	321.9	220	70
306897-2	280.8	180	60
306825-2	277.3	220	80
306815-2	312.2	210	70
306835-2	308.6	220	70
306857-2	325.6	220	70
306881-2	257.2	140	50
306689-2	326.9	260	80
306737-2	343.2	180	50
306851-2	344.1	160	50
GROUP MEAN	318.87	198.4	61.6
SD	27.322	28.53	10.15
SE	6.268	6.55	2.33
N	19	19	19

[a] Milligrams of paired ovaries per 100 grams of final body weight
[b] Nonpregnant; data omitted from calculations

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX DD

INDIVIDUAL CLINICAL OBSERVATIONS IN BREEDER FEMALES: F1

GROUP	CONC. (PPM)	ANIMAL NUMBER	SIGN	DATE(S) OBSERVED	G DAY OBSERVED
CI	0	317824	Brown stain on back of neck	2/4-2/7	21-PP2
		317875	Brown stain on back of neck	2/5-2/8	21-PP2
		317881	Brown stain on neck	2/7-2/8	PP1-PP2
		317853	Alopecia both front legs	2/13	G24
EI	10	306790	Alopecia both front paws	2/5	PP1
		306717	Alopecia stomach	2/4-2/12	16-PP2
		317891	Brown stain on top of head	2/5-PP2	21-PP2
		306817	Red vaginal discharge	2/9-2/10	PP1-PP2
		306829	Red vaginal discharge	2/9-2/10	PP1-PP2
EII	50	317867	Red vaginal discharge	2/9-2/10	PP1-PP2
		317863	Brown stain on back of neck	2/12-2/15	21-PP2
		317866	Red vaginal discharge	2/2-2/3	PP1-PP2

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	G1	G21	G1-G21	PP1	PP2[b]
306692-2	240.8	389.2	148.4	316.7	316.8
306698-2	261.8	426.2	164.4	319.5	334.4
306710-2	235.7	395.5	159.8	305.5	306.1
306714-2	295.9	483.1	187.2	345.7	360.3
306725-2	229.7	406.1	176.4	300.3	303.2
306727-2	207.2	383.9	176.7	293.5	297.3
306749-2	254.9	396.5	141.6	320.0	324.6
306757-2	283.3	444.4	161.1	343.9	348.7
306775-2	218.1	374.2	156.1	275.9	289.5
306782-2	225.0	403.8	178.8	291.1	302.1
306784-2	256.0	407.8	151.8	301.9	317.8
306785-2	227.8	372.2	144.4	294.1	293.5
306811-2[c]	225.2	328.9	103.7	...	...
306813-2[c]	251.2	293.7	42.6	...	...
306819-2	264.8	421.5	156.7	313.5	327.1
306846-2[d]	...	...	...	...	...
306849-2	243.6	410.0	166.4	302.2	318.3
306855-2	249.9	411.9	162.0	327.0	316.9
306885-2	237.7	386.2	148.5	291.1	299.4
306891-2	234.8	410.9	176.1	300.1	312.2
317820	235.0	349.9	114.9	269.0	...
317822	242.7	397.7	155.0	299.7	...
317823	241.7	388.8	147.1	294.0	...
317824	222.6	346.1	123.5	273.9	...
317826	246.2	380.3	134.3	301.9	...
317833	243.7	392.5	148.8	294.1	...
317843	234.1	374.9	145.8	288.0	...
317848	245.8	395.7	149.9	313.9	...
317853[c]	255.0	278.3	23.3	...	...
317862	229.4	378.4	149.0	279.2	...
317865	232.4	360.4	128.0	283.4	...
317874	228.9	370.1	141.2	283.3	...

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	G1	G21	G1-G21	PP1	PP2[b]
317875	220.2	350.7	130.5	256.8	...
317877	228.3	365.6	137.3	284.5	...
317879	241.5	392.7	151.2	302.1	...
317881	233.4	378.1	144.7	293.4	...
317884	225.8	359.6	133.8	276.3	...
317886	271.1	425.7	154.6	308.5	...
317889	236.4	375.0	139.5	282.7	...
317895[c]	226.1	254.5	28.3	...	...
GROUP MEAN[e]	245.1	407.3	162.1	308.4	315.8
SD	22.80	26.97	13.30	18.80	19.71
SE	5.53	6.54	3.23	4.56	4.65
N	17	17	17	17	17
GROUP MEAN[f]	236.6	376.8	140.5	288.0	
SD	11.64	20.20	11.21	14.46	
SE	2.74	4.76	2.64	3.41	
N	18	18	18	18	

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	G1	G21	G1-G21	PP1	PP2[b]
306697-2	250.7	430.2	179.5	316.0	332.2
306700-2	288.7	465.1	176.4	347.7	354.6
306707-2	224.8	390.8	166.0	279.4	290.6
306717-2	296.1	459.4	163.3	321.1	331.0
306719-2	219.3	384.6	165.3	301.7	298.5
306723-2[d]	...	...	...	...	...
306756-2	271.6	447.0	175.4	348.4	348.8
306788-2	255.0	423.4	168.4	331.0	331.0
306790-2	239.1	395.3	156.2	319.9	320.2
306797-2	232.4	391.6	159.2	295.4	300.9
306809-2	209.4	366.0	156.6	257.6	267.5
306817-2	296.7	416.4	119.6	310.1	318.0
306837-2[c]	261.2	295.3	34.1	...	...
306843-2	294.0	484.9	190.9	365.1	373.2
306859-2	244.5	403.8	159.3	317.1	316.4
306898-2	233.6	368.5	134.9	299.2	304.0
317829	237.8	395.2	157.4	284.4	...
317839	217.1	358.7	141.6	278.5	...
317851	260.5	440.8	180.3	348.1	...
317852	236.6	371.6	135.0	285.6	...
317858[c]	233.4	268.8	35.4	...	...
317859	230.9	389.7	158.8	302.9	...
317860	250.9	415.2	164.3	266.7	...
317861	230.9	373.8	142.9	275.8	...
317868	244.4	373.6	129.2	302.6	...
317869	225.4	382.1	157.0	299.8	...
317870	228.4	371.2	143.1	292.8	...
317880[d]	...	...	...	...	...
317882	244.3	392.1	147.8	304.2	...
317890	228.2	365.4	137.2	277.2	...
317891	238.4	353.5	115.1	249.4	...
317897	232.9	376.8	143.9	296.1	...
GROUP MEAN[a]	254.0	416.2	162.2	315.0	320.5
SD	30.33	37.01	17.99	28.30	27.69
SE	8.10	9.89	4.81	7.56	7.40
N	14	14	14	14	14[c]

DWT

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP EI CONT.
CONCENTRATION: 10 PPM

GROUP MEAN[f]	236.19	382.8	146.7	290.3
SD	11.16	23.05	16.17	22.84
SE	2.98	6.16	4.32	6.10
N	14	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	G1	G21	G1-G21	PP1	PP2[b]
306687-2	266.3	436.0	169.7	348.3	359.9
306691-2	271.5	451.7	180.2	338.6	350.8
306704-2	285.3	452.2	166.9	335.0	353.8
306708-2	261.1	456.3	195.2	350.7	356.8
306709-2	219.2	371.8	152.6	283.2	293.2
306759-2	265.1	453.5	188.4	319.9	339.6
306778-2	227.8	356.1	128.3	274.4	281.4
306795-2	253.7	406.9	153.2	315.3	309.0
306829-2[c]	250.0	274.0	24.1	...	...
306831-2	273.3	450.7	177.4	347.9	358.9
306853-2	209.1	333.1	124.0	255.1	265.2
306854-2	263.1	416.4	153.3	324.7	335.9
306865-2	243.5	405.0	161.5	304.2	304.0
306871-2	262.1	470.4	208.3	353.7	350.3
306899-2	292.2	472.6	180.4	342.8	363.4
317825	235.6	381.4	145.8	283.7	...
317828	260.6	391.1	130.5	315.6	...
317832	229.5	371.0	141.5	279.4	...
317836	253.4	432.5	179.1	323.6	...
317841	209.4	332.4	123.0	256.4	...
317842	223.9	329.3	105.4	288.2	...
317854	240.2	363.2	123.0	266.8	...
317856	219.0	369.1	150.1	280.6	...
317857	230.6	383.7	153.1	273.5	...
317863	250.6	385.3	134.7	291.5	...
317867	248.9	404.1	155.2	291.5	...
317876	254.6	408.9	154.3	313.4	...
317887	237.2	359.6	122.4	285.9	...
317888	248.3	395.2	147.1	300.2	...
317893	233.5	389.0	155.5	285.5	...
GROUP MEAN[a]	256.7	423.8	167.1	321.6	330.2
SD	24.04	43.99	23.84	31.22	32.97
SE	6.43	11.76	6.37	8.35	8.81
N	14	14	14	14	14

DWI

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP EII (CONT.)
CONCENTRATION: 50 PPM

GROUP MEAN[f]	238.4	379.7	141.3	289.1
SD	14.50	27.24	18.40	18.22
SE	3.74	7.03	4.75	4.70
N	15	15	15	15

DWI 7106981

18cv794 NRDC v EPA

ED_001632C_00000093-00400

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	G1	G21	G1-G21	PP1	PP2[b]
306689-2	247.1	416.5	169.4	324.1	326.9
306713-2	234.9	418.3	183.4	306.3	321.9
306737-2	263.9	442.3	188.4	337.9	343.2
306755-2	249.8	399.6	149.8	327.8	323.1
306765-2	248.9	419.0	170.1	324.3	336.4
306766-2	269.4	484.5	215.1	359.5	371.7
306779-2[c]	334.0	333.3	-0.7	...	...
306781-2	250.6	413.6	163.0	328.1	328.5
306786-2	253.1	414.2	161.1	318.7	324.6
306801-2[c]	234.1	261.6	27.5	...	...
306815-2	229.7	385.3	155.6	311.0	312.2
306823-2	259.3	427.4	168.1	344.4	341.1
306825-2	220.5	348.3	127.8	280.0	277.3
306835-2	229.6	386.4	156.8	303.9	308.6
306838-2	254.2	447.1	192.9	321.6	334.4
306848-2	221.3	377.2	155.9	288.2	288.5
306851-2	260.2	420.4	160.2	336.8	344.1
306857-2	244.9	450.8	205.9	315.5	325.6
306864-2[c]	274.1	302.5	28.4	...	...
306873-2	243.1	412.3	169.2	310.1	312.1
306881-2	209.5	324.8	115.3	264.9	257.2
306897-2	229.1	341.9	112.8	286.4	280.8
317821	225.9	393.1	167.2	294.4	...
317830	233.0	375.6	142.6	272.6	...
317831	224.9	370.7	145.8	251.9	...
317834	233.1	395.4	162.3	324.3	...
317837	212.0	361.3	149.3	273.6	...
317838	225.7	365.4	139.7	302.8	...
317844	219.9	326.4	106.5	273.2	...
317845	220.0	378.0	158.0	279.0	...
317846	226.4	372.6	146.2	280.4	...
317847	212.4	362.7	150.3	287.3	...
317849	228.1	372.2	144.1	288.3	...
317850	233.1	397.8	164.7	293.9	...

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX EE (CONT.)

INDIVIDUAL MATERNAL BODY WEIGHT AND BODY WEIGHT CHANGES: F1[a]

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	G1	G21	G1-G21	PP1	PP2[b]
317855	219.5	368.1	148.6	268.9	...
317864	246.3	408.5	162.2	285.3	...
317866	237.4	419.2	181.8	319.0	...
317871	229.9	380.0	150.1	279.8	...
317872	256.5	405.5	149.0	290.4	...
317873	224.8	344.6	119.8	251.9	...
317878	253.3	386.7	133.4	319.3	...
317885	225.9	404.4	178.5	310.8	...
317894	232.2	377.9	147.7	295.6	...
317896	240.5	395.6	155.1	300.4	...
GROUP MEAN[e]	243.1	406.8	164.2	315.2	318.9
SD	16.32	39.54	26.81	23.47	27.31
SE	3.74	9.07	6.17	5.38	6.26
N	19	19	19	19	19
GROUP MEAN[f]	230.0	380.1	150.1	288.3	
SD	11.50	21.79	16.96	19.68	
SE	2.45	4.64	3.62	4.20	
N	22	22	22	22	

[a] Any rat number ending with "-2" indicates that the dam was an F1 rat bred to a "new" male; those without "-2" indicates that the dam was a "new" rat bred to an F1 male.
[b] After Day 1 PP, all "new" dams were not weighed.
[c] The rat was non-pregnant; body weight data were excluded from analyses.
[d] The rat was not sperm positive; body weight data were excluded from analyses.
[e] Includes data from F1 dams bred to "new" males
[f] Includes data from "new" dams bred to an F1 male

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX FF

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F2

GROUP	CONC. (PPM)	ANIMAL NUMBER	SIGN OBSERVED	DAY 1 PP DATE	# OF PUPS/ # IN LITTER	DAY 2 PP DATE	# OF PUPS/ # IN LITTER
CI	0	317884	Hematoma	2/4	1/13	...	...
			No milk spot in stomach	...	...	2/5	1/13
		305725-2	Hematoma	...	...	2/3	1/16
		306785-2	Hematoma	...	...	2/4	2/14
		306757-2	Hematoma	2/4	1/16	2/5	1/16
		317875	Hematoma	2/7	1/15	2/8	1/15
		317822	Hematoma	2/12	1/15	...	...
		306782-2	Hematoma	2/12	1/17	...	...
EI	10	317839	No milk spot in stomach	...	...	2/4	2/13
		306859-2	Hematoma	2/3	1/15	2/4	1/15
		317869	Hematoma	2/6	1/14	2/7	1/14
		306717-2	No milk spot in stomach	...	...	2/12	1/21
		317868	Hematoma	2/7	1/11	2/8	1/11
		317860	Hematoma	2/11	2/18	2/12	1/17
		317851	Hematoma	2/16	4/13	2/17	2/12
		306843-2	Hematoma	2/17	2/21	2/18	2/21
			Tip of tail missing (appears to have been cannibalized)	2/17	1/21	2/18	1/21
EII	50	317832	Hematoma	2/5	1/14	2/6	2/14
		306759-2	Hematoma	2/4	1/17	...	...
		306854-2	Hematoma	2/4	1/15	...	--
		306704-2	Hematoma	2/7	2/19	2/8	2/19
		317884	Hematoma	2/4	1/11	...	...
		317876	Hematoma	2/5	1/15	2/6	1/15
		306795-2	Hematoma	2/4	2/16	...	...
		317888	Hematoma	2/9	3/15	2/10	2/15
		306871	No milk spot in stomach	...	...	2/14	1/17
		317863	Hematoma	...	...	2/15	1/15

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX FF (CONT.)

INDIVIDUAL LITTER CLINICAL OBSERVATIONS: F2[a]

GROUP	CONC. (PPM)	ANIMAL NUMBER	SIGN OBSERVED	DAY 1 PP DATE	# OF PUPS/ # IN LITTER	DAY 2 PP DATE	# OF PUPS/ # IN LITTER
EII Cont.	50	306691-2	No milk spot in stomach	...	...	2/14	1/17
		317836	Hematoma	...	...	2/17	2/16
		317855	Hematoma	2/2	2/16	2/3	1/16
EIII	130	317871	Hematoma	2/3	1/13	2/4	1/13
		317850	No milk spot in stomach	...	...	2/5	1/16
		317849	Hematoma	...	...	2/10	1/11
		317894	Hematoma	2/7	2/14	2/8	2/14
		317864	Tip of tail missing (appears to have been cannabalized)	2/15	1/16	2/16	1/16
			Hematoma	...	...	2/16	1/16

[a] Any animal number ending "-2" indicates that the dam was an F1 rat bred to a "new" male. All other dams were "new" rats bred to F1 males.

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2a

GROUP CI
CONCENTRATION: 0 PPM

ANIMAL NUMBER	TOTAL BORN	POST-PARTUM DAY 1 NO. ALIVE	POST-PARTUM DAY 1 MEAN LITTER WEIGHT	POST-PARTUM DAY 2 NO. ALIVE	POST-PARTUM DAY 2 MEAN LITTER WEIGHT
306692-2	9.0	9.0	6.86	9.0	8.06
306698-2	15.0	15.0	7.00	15.0	7.72
306710-2	15.0	15.0	5.95	15.0	6.69
306714-2	15.0	15.0	6.55	15.0	7.45
306725-2	16.0	16.0	5.81	16.0	6.87
306727-2	16.0	16.0	6.34	16.0	6.79
306749-2	10.0	10.0	7.88	10.0	9.06
306757-2	16.0	16.0	6.90	16.0	7.72
306775-2	15.0	15.0	5.83	14.0	6.39
306782-2	17.0	17.0	6.97	17.0	7.68
306784-2	15.0	15.0	7.45	15.0	8.39
306785-2	15.0	14.0	6.01	14.0	6.64
306819-2	15.0	15.0	6.43	15.0	7.25
306849-2	15.0	15.0	6.68	15.0	7.35
306855-2	15.0	15.0	7.41	15.0	8.19
306885-2	15.0	15.0	7.30	15.0	8.23
306891-2	16.0	16.0	6.61	16.0	7.36
317820	13.0	13.0	5.51	13.0	6.67
317822	15.0	15.0	6.25	15.0	6.88
317823	14.0	14.0	6.60	14.0	7.53
317824	10.0	10.0	6.47	10.0	7.23
317826	12.0	12.0	6.62	12.0	7.36
317833	14.0	14.0	6.01	14.0	6.66
317843	14.0	14.0	6.18	14.0	6.91
317848	13.0	13.0	6.78	13.0	7.59
317862	14.0	14.0	6.29	14.0	6.94
317865	12.0	12.0	7.47	12.0	8.42
317874	13.0	13.0	7.06	13.0	7.81
317875	15.0	15.0	6.06	15.0	6.82

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP CI CONT.
CONCENTRATION: 0 PPM

ANIMAL NUMBER	TOTAL BORN	POST-PARTUM DAY 1 NO. ALIVE	POST-PARTUM DAY 1 MEAN LITTER WEIGHT	POST-PARTUM DAY 2 NO. ALIVE	POST-PARTUM DAY 2 MEAN LITTER WEIGHT
317877	12.0	12.0	6.69	12.0	7.41
317879	12.0	12.0	6.49	12.0	8.81
317881	13.0	13.0	6.24	13.0	7.27
317884	13.0	13.0	6.32	13.0	7.00
317886	17.0	17.0	6.11	17.0	6.72
317889	12.0	12.0	6.68	12.0	7.62
GROUP MEAN[b]	14.71	14.65	6.70	14.59	7.52
SD	2.054	2.060	0.606	2.063	0.721
SE	0.498	0.500	0.147	0.500	0.173
N	17	17	17	17	17
GROUP MEAN[c]	13.22	13.22	6.44	13.22	7.31
SD	1.555	1.555	0.436	1.555	0.593
SE	0.367	0.367	0.103	0.367	0.140
N	18	18	18	18	18

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP EI
CONCENTRATION: 10 PPM

ANIMAL NUMBER	TOTAL BORN	POST-PARTUM DAY 1 NO. ALIVE	POST-PARTUM DAY 1 MEAN LITTER WEIGHT	POST-PARTUM DAY 2 NO. ALIVE	POST-PARTUM DAY 2 MEAN LITTER WEIGHT
306697-2	13.0	13.0	7.00	13.0	8.08
306700-2	18.0	17.0	6.21	17.0	6.49
306707-2	16.0	16.0	6.36	16.0	7.22
306717-2	21.0	21.0	5.72	21.0	6.33
306719-2	16.0	15.0	6.12	15.0	6.93
306756-2	17.0	17.0	7.38	17.0	8.33
306788-2	16.0	16.0	6.39	16.0	7.24
306790-2	13.0	13.0	7.60	13.0	8.53
306797-2	14.0	14.0	6.44	14.0	7.26
306809-2	17.0	17.0	5.54	17.0	6.13
306817-2	17.0	17.0	7.07	17.0	7.80
306843-2	22.0	21.0	5.78	21.0	6.20
306859-2	15.0	15.0	6.39	15.0	7.21
306898-2	11.0	11.0	7.68	11.0	8.66
317829	14.0	14.0	6.26	13.0	7.19
317839	13.0	13.0	7.42	13.0	7.95
317851	13.0	13.0	6.63	12.0	7.87
317852	14.0	14.0	6.13	14.0	6.85
317859	13.0	13.0	6.07	13.0	7.16
317860	18.0	18.0	5.74	17.0	6.01
317861	16.0	16.0	6.15	16.0	6.84
317868	11.0	11.0	6.16	11.0	7.68
317869	14.0	14.0	5.85	14.0	6.43
317870	13.0	13.0	7.31	13.0	8.32
317882	14.0	13.0	6.04	13.0	6.98
317890	12.0	12.0	6.25	12.0	6.98
317891	12.0	12.0	6.61	12.0	7.11
317897	13.0	13.0	5.94	13.0	6.78
GROUP MEAN[b]	16.14	15.93	6.53	15.93	7.32
SD	2.983	2.814	0.693	2.814	0.860
SE	0.797	0.752	0.185	0.752	0.230
N	14	14	14	14	14

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REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP EI CONT.
CONCENTRATION: 10 PPM

GROUP MEAN[c]	13.57	13.50	6.33	13.29	7.15
SD	1.742	1.743	0.505	1.590	0.621
SE	0.465	0.466	0.135	0.423	0.166
N	14	14	14	14	14

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP EII
CONCENTRATION: 50 PPM

ANIMAL NUMBER	TOTAL BORN	POST-PARTUM DAY 1 NO. ALIVE	POST-PARTUM DAY 1 MEAN LITTER WEIGHT	POST-PARTUM DAY 2 NO. ALIVE	POST-PARTUM DAY 2 MEAN LITTER WEIGHT
306687-2	15.0	15.0	7.57	15.0	8.52
306691-2	17.0	17.0	6.94	17.0	7.53
306704-2	19.0	19.0	5.78	19.0	7.32
306708-2	16.0	16.0	6.18	16.0	7.04
306709-2	15.0	15.0	5.62	15.0	6.47
306759-2	17.0	17.0	6.29	17.0	6.85
306778-2	14.0	14.0	6.78	14.0	8.11
306795-2	16.0	16.0	6.26	15.0	7.15
306831-2	14.0	14.0	7.81	14.0	8.82
306853-2	12.0	12.0	6.66	12.0	7.34
306854-2	15.0	15.0	6.43	15.0	7.37
306865-2	17.0	17.0	7.06	17.0	7.41
306871-2	17.0	17.0	6.68	17.0	7.38
306899-2	16.0	16.0	7.33	16.0	8.21
317825	15.0	15.0	6.80	15.0	7.50
317828	15.0	15.0	5.75	15.0	6.81
317832	14.0	14.0	6.92	14.0	7.43
317836	16.0	16.0	6.38	16.0	6.92
317841	11.0	11.0	6.50	11.0	7.34
317842	8.0	8.0	6.80	8.0	8.14
317854	14.0	14.0	7.31	14.0	8.30
317856	15.0	15.0	5.90	15.0	6.53
317857	15.0	15.0	6.67	15.0	7.40
317863	15.0	15.0	6.05	15.0	6.69
317867	17.0	17.0	6.01	17.0	6.44
317876	15.0	15.0	6.25	15.0	7.05
317887	11.0	11.0	6.82	11.0	7.58
317888	15.0	15.0	5.89	15.0	6.43
317893	14.0	14.0	6.32	14.0	6.94
GROUP MEAN[b]	15.71	15.71	6.67	15.64	7.54
SD	1.729	1.729	0.638	1.737	0.654
SE	0.462	0.462	0.170	0.464	0.173
N	14	14	14	14	14

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP EII CONT.
CONCENTRATION: 50 PPM

GROUP MEAN[c]	14.00	14.00	6.42	14.00	7.17
SD	2.299	2.299	0.456	2.300	0.573
SE	0.594	0.594	0.118	0.594	0.148
N	15	15	15	14	14

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2*

GROUP EIII
CONCENTRATION: 130 PPM

ANIMAL NUMBER	TOTAL BORN	POST-PARTUM DAY 1 NO. ALIVE	POST-PARTUM DAY 1 MEAN LITTER WEIGHT	POST-PARTUM DAY 2 NO. ALIVE	POST-PARTUM DAY 2 MEAN LITTER WEIGHT
306689-2	14.0	14.0	6.74	14.0	7.43
306713-2	18.0	17.0	6.22	17.0	6.28
306737-2	17.0	17.0	6.49	17.0	7.10
306755-2	9.0	9.0	6.93	9.0	8.26
306765-2	13.0	13.0	7.89	13.0	8.76
306766-2	18.0	18.0	6.48	18.0	7.59
306781-2	13.0	13.0	7.47	13.0	8.18
306786-2	17.0	17.0	6.16	17.0	6.71
306815-2	8.0	8.0	8.32	8.0	9.74
306823-2	15.0	15.0	6.67	15.0	6.99
306825-2	11.0	11.0	7.88	11.0	8.89
306835-2	15.0	15.0	6.06	15.0	6.93
306838-2	16.0	16.0	7.25	16.0	8.01
306848-2	15.0	15.0	7.18	15.0	7.88
306851-2	14.0	14.0	7.12	14.0	7.74
306857-2	17.0	17.0	6.22	17.0	6.82
306873-2	16.0	16.0	6.18	16.0	7.10
306881-2	10.0	9.0	6.68	9.0	8.00
306897-2	8.0	8.0	6.89	8.0	7.96
317821	13.0	13.0	6.95	13.0	8.01
317830	14.0	14.0	7.01	14.0	6.94
317831	13.0	13.0	6.71	13.0	7.55
317834	14.0	14.0	6.26	14.0	6.91
317837	14.0	14.0	6.24	14.0	6.89
317838	13.0	13.0	7.33	13.0	8.25
317844	6.0	6.0	8.28	6.0	9.38
317845	14.0	14.0	6.16	14.0	6.92
317846	14.0	14.0	6.19	14.0	6.86
317847	11.0	11.0	6.30	11.0	7.57

DWI

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY OF NMP

APPENDIX GG (CONT.)

PUP SURVIVAL AND MEAN LITTER WEIGHT: F2[a]

GROUP EIII CONT.
CONCENTRATION: 130 PPM

ANIMAL NUMBER	TOTAL BORN	POST-PARTUM DAY 1 NO. ALIVE	POST-PARTUM DAY 1 MEAN LITTER WEIGHT	POST-PARTUM DAY 2 NO. ALIVE	POST-PARTUM DAY 2 MEAN LITTER WEIGHT
317849	12.0	12.0	6.32	11.0	7.35
317850	16.0	16.0	6.28	16.0	6.94
317855	16.0	16.0	5.93	16.0	6.60
317864	16.0	16.0	6.24	16.0	6.75
317866	16.0	15.0	6.54	15.0	7.05
317871	13.0	13.0	6.68	13.0	7.55
317872	15.0	15.0	6.49	15.0	7.06
317873	16.0	16.0	5.93	16.0	6.12
317878	12.0	12.0	6.35	12.0	7.47
317885	14.0	14.0	7.27	14.0	8.29
317894	14.0	14.0	4.89	14.0	7.40
317896	15.0	15.0	6.36	15.0	7.03
GROUP MEAN[b]	13.89	13.79	6.89	13.79	7.70
SD	3.281	3.293	0.654	3.293	0.857
SE	0.753	0.755	0.150	0.755	0.197
N	19	19	19	19	19
GROUP MEAN[c]	13.68	13.64	6.49	13.59	7.31
SD	2.234	2.194	0.647	2.239	0.698
SE	0.476	0.468	0.138	0.477	0.149
N	22	22	22	22	22

[a] Any rat ending with "-2" indicates that the dam was an F1 rat bred to a "new" male; all other rats originated from a "new" rat bred to an F1 male.
[b] Includes data from F1 dams bred to "new" males
[c] Includes data from "new" dams bred to an F1 male

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