ARMY PUBLIC HEALTH CENTER (Provisional)

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Toxicology Directorate

Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-Nitro-1,2,4-Triazol-5-One (NTO), October 2013-March 2014

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Toxicology Directorate
Toxicity Evaluation Program
Army Public Health Center (Provisional)

PHC FORM 432-E (MCHB-CS-IP), NOV12

General Medical:500C Toxicity Test

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14. ABSTRACT

Rats were given ad libitum access to NTO in drinking water at four concentrations (0, 144, 720, or 3600 mg/l NTO). Treatment of the P generation began two (females) to four (males) weeks pre-mating and continued until weaning of litters. Direct dosing of F1 animals occurred from weaning through puberty. Number and sex of pups, stillbirths, live births, and the presence of gross anomalies were determined on post-natal day (PND) 0/1. Ano-genital distance (AGD) was measured on PND 4 and males were examined for the presence of nipples on PND 13. F1 offspring were examined daily for vaginal opening (VO) and preputial separation (PPS). At termination, blood samples were collected for clinical chemistry, hematology, and thyroid hormone analyses and a gross necropsy was conducted. Mating index, fertility index, pre-coital interval, gestation index, litter size, number of live and stillborn pups, and sex ratio did not differ among control and NTO treated groups. Nipple retention was increased in NTO exposed males compared to controls. Age at PPS was increased by 2.6 days in the 3600 mg/l group compared to controls.

15. SUBJECT TERMS

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Data Requirement

OECD Guidelines for the Testing of Chemicals, Section 4, Test No. 443: Extended One-Generation Reproductive Toxicity Study

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Good Laboratory Practice Compliance Statement

The study described in this report was conducted in compliance with Title 40, Code of Federal Regulations (CFR), Part 792, Good Laboratory Practice Standards, except for the following:

1. The statistical analyses of the histopathology data were performed by the Army Public Health Center (Provisional) statisticians. It is not known if these analyses were conducted in accordance with Good Laboratory Practice Standards.

Submitted By:

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19 April 2016
Date

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TOXICOLOGICAL STUDY NO. S.0022062-14
PROTOCOL NO. 56-13-02-01
EXTENDED ONE-GENERATION REPRODUCTIVE TOXICITY TEST IN RATS EXPOSED TO 3-NITRO-1,2,4-TRIAZOL-5-ONE (NTO), FEBRUARY 2013–MARCH 2014

1 Summary

1.1 Purpose

The main objective of the Extended One-Generation Reproductive Toxicity Study is to evaluate specific life stages not covered by other types of toxicity studies (e.g., reproductive toxicity screen and endocrine disruptor screening assays) and test for effects that may occur as a result of pre- and postnatal exposure to NTO. The purpose of this study is to test for effects of NTO on reproductive endpoints that require the interaction of males with females, females with conceptus, and females with offspring and effects occurring in the F1 generation after sexual maturity.

1.2 Conclusions

To evaluate whether the testicular toxicity previously observed in rats orally dosed with NTO is indicative of further reproductive/developmental effects, a modified extended one-generation reproductive toxicity test was conducted. This study evaluated the effects of NTO on male and female reproductive systems, pre- and postnatal effects of NTO on development, as well as systemic toxicity in pregnant and lactating females and young and pubertal offspring. NTO did not affect measures of fertility including, mating index, pre-coital interval, gestation index, litter size, number of live and stillborn pups, and sex ratio. Reproductive development of male, but not female, offspring was altered by exposure to NTO. Both the proportion of pups that had retained nipples and number of nipples retained were increased in NTO exposed males compared to controls. Attainment of puberty was delayed by 2.6 days in the 3600 mg/l NTO exposed males relative to controls. Pubertal males in the 3600 mg/l NTO group exhibited reduced mass of the testis, epididymides, and accessory sex organs and associated histologic changes consistent with seminiferous tubule hypoplasia or degeneration/atrophy. Comparison of the reproductive developmental effects of NTO with those of anti-androgens highlights the absence of malformations of the genital tract in NTO exposed males. Non-receptor mediated modes of action and the role of developmental stage-specific effects should be investigated for NTO.

2 References

See Appendix A for a listing of references.

3 Authority

This study was conducted with funding from the Strategic Environmental Research and Development Program (SERDP) (Project number ER-2223). This toxicology study addresses, in part, the environmental safety and occupational health requirements outlined in Army Regulations (AR) 200-1, AR 40-5, and AR 70-1; Department of Defense Instruction 4715.4; and Army Environmental Requirements and Technology Assessments (AERTA) [1-6]. It was performed as part of an on-going effort by the U.S. Army Environmental Quality Technology (EQT), Ordnance

Environmental Program Pollution Prevention Team, to produce safer ordnance. This program is under the direction of the U.S. Army Research, Development, and Engineering Command Environmental Acquisition Logistics & Sustainment Program and EQT Pollution Prevention.

4 Background

NTO has demonstrated limited toxicity in acute toxicity tests, with an LD_{50} >5g/kg in rats and mice, negative results in the eye irritation and dermal sensitization tests, and mild skin irritation in the rabbit primary skin irritation test [7]. Subacute and subchronic oral studies in rats have demonstrated similar limited toxic effects of NTO. Hematological effects (slight anemia) and liver hyperplasia/hypertrophy were observed at or exceeding 1000 mg/kg-day NTO. The most pronounced effects of NTO exposure were testicular and epididymal toxicity and hypospermia [8]. Testes weights were reduced compared to controls in male rats administered 500 mg/kg-day NTO and greater in the subacute study. In the subchronic study, testes and epididymides weights and sperm counts were reduced at doses of 315 mg/kg-day and greater. Testicular hypoplasia was also increased at doses of 315 mg/kg-day and greater [8].

To determine whether the testicular toxicity of NTO is indicative of further reproductive and/or endocrine disrupting effects, a reproductive/developmental screening test and a battery of *in vivo* endocrine disruptor screening tests were conducted. In a reproductive screening study in which NTO was administered at doses between 31.25 and 500 mg/kg-day for 2 weeks pre-mating, mating and pregnancy rate did not differ between controls and the NTO treated groups [9]. Sperm counts were not analyzed at the time of mating; however, two weeks later (total of four weeks of exposure) sperm count was reduced by 93% in the 500 mg/kg-day group [9].

The Hershberger and uterotrophic assays did not demonstrate anti-androgenic or estrogenic activity, respectively, for NTO at doses up to 1000 mg/kg-day [10]. NTO had no effect on timing of pubertal development in the male and female pubertal development and thyroid function assays. In females, there was no effect on tissue mass; however, in males, reductions in the mass of the testes and epididymides were observed. Testis mass was reduced to 70% and 35% of control in the 250 and 500 mg/kg-day groups, while epididymides were reduced to 76% of control in the 500 mg/kg-day group. Non-significant reductions in dorsolateral prostate (to 76% of control) and ventral prostate (to 81% of control) mass were also observed in the 500 mg/kg-day group. These results may indicate effects on steroidogenesis; however, direct testicular toxicity is likely given the lack of effects on pubertal timing. The limited effects on accessory tissues may be secondary to testicular toxicity and impaired testicular endocrine function [11].

The present study, an extended one-generation reproductive toxicity study, was conducted to bridge the gaps between the previously conducted studies by evaluating specific life stages not evaluated by other types of studies and testing for effects that may occur as a result of combined pre- and post-natal exposure. Additionally, this study incorporated further measures of developmental and reproductive toxicity, as well as evaluated developmental immunotoxicity.

The following table identifies the dates of critical study events.

Table 1. Critical Study Events

Critical Event	Date of Event
Animal Use Protocol Approved	02/04/2013
Pilot Study Initiation	02/26/2013
Protocol Modification 1 Approved	09/03/2013
Main Study Initiation	10/28/2013
Parental Generation Necropsy	01/27/2014 – 01/24/2014
Mating Period (staggered)	11/25/2013 – 12/14/2013
Recovery Male Necropsy	03/19/2014
F1 Generation Necropsy	01/2/2014 – 02/24/2014
Experimental Completion	08/11/2014
Study Completion	04/19/2016

5 Materials and Methods

5.1 Animals and Housing Conditions*

For the parental generation, 100 female (240.7 ± 9.0 g) and 100 male (290.5 ± 10.6 g) Sprague Dawley (Crl:CD(SD) CD®; Charles River Laboratories, Wilmington, Massachusetts) rats, approximately 10 and 8 weeks of age, respectively, were acclimated to the animal facility for 5 days before initiation of dosing. Assignment to dose groups was accomplished using a stratified random procedure, with animals stratified according to body mass and dose groups assigned by random draw. Females and males were each divided into five time-separated necropsy groups, with animals from each test group approximately evenly distributed across necropsy groups. For the recovery groups, ten males (294.5 ± 6.2 g) were randomly assigned to either the control or high dose group. Body mass did not differ among dose groups prior to initiation of dosing. All F1 animals were maintained on the treatment assigned to the parent. Each rat beyond weaning age was uniquely identified by number via cage card and tail marking. Pups were uniquely identified within litters using paw tattoos.

All animals were housed in temperature-, relative humidity-, and light-controlled rooms. The target conditions of the rooms were 68-72 °F and 30-70 percent humidity. An automatically controlled 12:12-hour light/dark cycle was maintained, with the dark period beginning at 1800 hours. A certified pesticide-free rodent chow (Harlan Teklad®, 2016C Certified Rodent Diet) was available *ad libitum*. Control animals were provided filtered tap water *ad libitum* whereas treated rats were provided solutions of NTO in filtered tap water *ad libitum*. In the parental generation, female rats were individually housed and male rats were pair housed by dosage group. All F1 rats were same

* Animal use procedures were approved by the United States Army Public Health Command (USAPHC) Institutional Animal Care and Use Committee. Animal care and use was conducted in accordance with *The Guide for the Care and Use of Laboratory Animals* and all applicable Federal and DOD regulations. The USAPHC Animal Care and Use Program is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International.

sex pair housed by dosage group. All rats were housed in suspended polycarbonate cages with Diamond Dry® bedding.

5.2 Quality Assurance

The AIPH Quality Systems Office audited critical study phases. Appendix B provides the dates of these audits, the phases audited and the dates that the results of the inspections were reported to the Study Director (SD) and Management.

5.3 Study Personnel

Appendix C lists the names of individuals contributing to the study performance.

5.4 Dose Selection and Test Substance Administration

Dose selection was based on the ultimate objective of being able to detect reproductive, developmental, and immunotoxic effects, if present. To that end, it is recommended that "the highest dose should be chosen with the aim to induce some systemic toxicity, but not death or severe suffering of the animals" [12]. In subacute and subchronic toxicity studies with NTO [8], the limit dose (1000 mg/kg-day) produced minimal systemic toxicity. Testicular toxicity was the primary effect, occurring at doses as low as 315 mg/kg-day in the 90-day study and 500 mg/kg-day in the 14-day study. Reproductive toxicity was not, however, observed at 500 mg/kg-day in the reproductive toxicity and developmental toxicity screening study. Reduced sperm counts were observed in the reproductive screen after four weeks of dosing at 500 mg/kg-day [9]. As such, this study was conducted with the same nominal high dose of 500 mg/kg-day, but with the pre-mating dosing period extended to four weeks to induce testicular toxicity prior to mating. Subsequent dose groups were set at five-fold intervals (*i.e.,* 100 and 20 mg/kg-day). To determine approximately equivalent doses via drinking water, a default water intake of 0.037 L/day and a default body weight of 0.267 kg were used to arrive at a rate of 0.139 L/kg-day in young adult male rats. This resulted in a drinking water concentration of 3597 mg/l. The selected doses were therefore 3600, 720, 144, and 0 mg/l. NTO was administered 7-days per week via drinking water at a constant dietary concentration (mg/l).

Neat NTO (CAS # 932-64-9; lot 11C305-009; purity: 100%) was obtained from BAE Systems, Inc. Dosing solutions were prepared by weighing the required amount of NTO, transferring to a 4L volumetric flask, adding approximately 3.5L of water from the animal room, stirring using a magnetic stir bar and stir plate until dissolved, and adding water to 4L. Three drinking water dosing solutions, 144, 720, and 3600 milligrams NTO per liter (mg/l) of water, were used throughout the study. Solutions were prepared as needed according to the consumption rate of the rats. Drinking water/dosing reservoirs were refilled as needed and reservoirs were changed and solutions replaced completely every 2 weeks. A one milliliter sample was taken from each batch of dosing solution prepared and analyzed by Army Institute of Public Health (AIPH) Laboratory Sciences Portfolio via high performance liquid chromatography with ultra violet detection to verify the concentration. Manufacturer reported purity of the neat compound (100%) was also verified via HPLC by AIPH. NTO was previously determined to be stable in water for at least three weeks [13]; therefore a stability study was not conducted.

5.5 Study Design

Rats were given NTO in drinking water at four concentrations (control and three NTO doses) from pre-mating of the P generation through puberty of the offspring (F1). The P generation consisted of four groups of 25 sexually-mature males and four groups of 25 sexually-mature females. Two recovery groups (control and high dose) of 10 males per group were dosed concurrently with the main study animals and held for a period of 10 weeks following cessation of dosing. The purpose of the recovery group was to evaluate the reversibility or persistence of the testicular toxicity and reduced sperm count associated with NTO exposure. NTO was administered to P generation males and females during a pre-mating exposure period and a two-week co-housing period. The pre-mating period was four weeks for males and two weeks for females. Administration of NTO via drinking water was continued for both males and females during pregnancy and lactation until termination of the P generation after weaning of the litters (*i.e.,* total of 10 and 12 weeks of treatment for females and males, respectively). Males in the recovery groups (control and high dose) were dosed until termination of the P generation, at which time treatment was stopped and they began receiving untreated (control) water for 10 weeks.

At weaning, pups (F1) were randomly selected, with the exception that obvious runts (animals with a body weight more than two standard deviations below the mean pup weight of the respective litter) were not included as they were unlikely to be representative of the treatment group, for continuation on study (20 pups/sex/group; one male and one female/litter/group). F1 males and females were given NTO in drinking water beginning at weaning (post-natal day (PND) 22±1). NTO in drinking water provided to the P females was also available to nursing/weanling pups during the weaning period; therefore, direct dosing of the F1 generation likely began prior to PND 22±1. Selected F1 offspring were maintained on the NTO treatment through puberty (PND 42±1 and 53±1 for females and males, respectively). A subset of pups not selected were bled, euthanized, and submitted for gross necropsy (10/sex/group).

Evaluation of P generation males and females included systemic toxicity with emphasis on the reproductive systems, clinical pathology, thyroid hormones, and selected reproductive parameters (i.e., mating/fertility indices; pre-coital interval, numbers of corpora lutea, implantations, and resorptions; live births/litter; and percent pre- and post-implantation losses). F1 offspring were evaluated for systemic toxicity and effects on reproductive development, immune system, clinical pathology, and thyroid function. Unselected weanlings were sacrificed on PND 22 and evaluated for systemic toxicity and thyroid function.

5.6 Clinical Observations, Body Mass, Food Consumption

All animals were observed twice daily for signs of toxicity, morbidity, and mortality. All animals were given handheld physical examinations at least once per week. In addition, P females were carefully examined at the time of expected parturition for signs of dystocia, while dams were observed for abnormalities in nesting behavior, nursing, or failure to care for litters.

P animals were weighed on the first day of dosing, weekly thereafter, and at termination (pre-fasted and fasted). During pregnancy, female rats were weighed on the day on which a sperm plug was found (gestational day (GD) 0), every two days thereafter, and on GD 21. F1 animals were weighed on PND 21±1, at least weekly thereafter, the day puberty was attained (completion of preputial separation (PPS) or vaginal opening (VO)), and at termination (pre-fasted and fasted). During lactation, females were weighed on the same days as pups in their litters (i.e., PND 0 or 1, 4, 7, 14, and 21). Food consumption was monitored weekly during pre-mating, pregnancy, and lactation. Food and water consumption were not monitored during the 2-week co-housing period. Food consumption was monitored weekly for all recovery and F1 animals. Frequency of water consumption monitoring varied based on consumption rate. Water consumption was determined every 3-4 days in P1 males, 2-3 days in P1 females, and 6-7 days in F1 animals.

5.7 Breeding Procedure

Each P female was co-housed in a solid bottom cage with a wire bottom insert with a single, randomly selected, unrelated male from the same dose group (1:1 pairing). Cages were examined for the presence of sperm plugs each morning during the co-housing period. Animals were paired until a sperm plug was found or 2 weeks elapsed, whichever occurred first. The day on which a sperm plug was found was defined as GD 0. For each pairing date of pairing, date of mating, and number of sperm plugs observed were recorded.

5.8 Litter Parameters

Litters were examined as soon after delivery as possible to determine the number of stillbirths, live births, runts, and the presence of gross abnormalities in each litter. The number of live and dead pups and the sex and body weight of each pup were determined on PND 0/1, 4, 7, 14, and 21. On PND 4, litter size was standardized to 10. Culled pups were selected randomly within sex and, where possible, litters were culled to five males and five females.

5.9 Weaning and Selection of Pups

At weaning (PND 21±1), 20 litters per dose group and control group were selected for further use. One male and one female per litter per dose group were randomly selected (20/sex/group) for continuation on treatment. This group represents Cohort 1A in the Extended One Generation Reproductive Toxicity Test. Cohorts 2 and 3 (neurotoxicity and immunotoxicity) were not included in this study as the data generated from them was not considered to be highly relevant for this compound. Obvious runts (animals with a body weight more than two standard deviations below the mean pup weight of the respective litter) were not included. Additionally, one PND 22 weanling/sex/litter (10/sex/group) was randomly selected for necropsy, thyroid hormone analyses, and measurement of organ weights.

5.10 Reproductive Development: Endocrine Sensitive Endpoints

The ano-genital distance (AGD) of each pup was measured PND 4 using digital calipers and was analyzed as absolute AGD and relative to the cube root of body weight [14]. Male pups were examined for the presence of nipples/areolae on PND 13 [15]. All selected F1 animals were evaluated, at approximately the same time daily, for VO [16, 17] beginning on PND 22 or for PPS beginning on PND 30 [18]. Age and body weight were recorded on the day these markers of puberty were observed.

5.11 Clinical Pathology and Thyroid Hormone Assessment

Fasted blood samples were taken from P1, PND 22 weanlings (thyroid hormones only), and F1 animals (10 randomly selected/sex/group) at scheduled necropsy and subjected to clinical chemistry, hematology, and thyroid hormone analyses.

Blood for clinical chemistry analyses was transferred to collection tubes free of additives and was allowed to clot at room temperature for 30 to 40 minutes, and then was centrifuged for approximately 2.5 minutes at 12,000 x g. Serum was removed and immediately analyzed for clinical chemistry parameters. Aliquots (100 microliters (µl)) were also placed in siliconized tubes and stored at approximately -35 °C for subsequent thyroid hormone assays (triiodothyronine (T_3), total thyroxine (T_4), (TSH)). The following clinical chemistry parameters were evaluated using the Idexx VetTest® 8008 Chemistry Analyzer: albumin (ALB), alkaline phosphatase (ALKP), alanine aminotransferase (ALT), aspartate aminotransferase (AST), blood urea nitrogen (BUN), cholesterol (CHOL), glucose (GLU), and total protein (TP).

Blood for hematology analyses was transferred to tubes containing tripotassium ethylenediamine-tetraacetic acid (K_3EDTA). The following hematology parameters were evaluated using the Cell-Dyn 3700 Hematology Analyzer (Abbott Laboratories, Abbott Park, IL 60064): erythrocyte count (RBC), hematocrit (HCT), hemoglobin concentration (HGB), mean cell volume (MCV), mean cell hemoglobin (MCH), mean cell hemoglobin concentration (MCHC), red blood cell distribution width (RDW), total white blood cell count (WBC), and differential leukocyte count (neutrophils: NEU, lymphocytes: LYM, monocytes: MONO, eosinophils: EOS, basophils: BASO), platelet count (PLT), and mean platelet volume (MPV). To determine average activated prothrombin time, blood was transferred to a tube containing sodium citrate, the blood mixed, then centrifuged for approximately 2.5 minutes at 12,000 x g. The plasma was analyzed using the BFT II Analyzer (Siemens Health Care Diagnostics, Tarrytown, NY 10591).

Triiodothyronine and total thyroxine were determined using the TOSOH® Bioscience AIA®-360 Automated Enzyme Immunoassay System (TOSOH Bioscience, Inc., South San Francisco, CA 94080).

Analysis of TSH was conducted using a commercially available rat TSH Enzyme linked Immunosorbant Assay kit purchased from ALPCO™ Immunoassays. Due to detection of interfering substances during assay validation, samples were pre-treated by precipitation with 25% polyethylene glycol (PEG-6000) prior to use in the assay [19-21]. PEG-6000 (100 µl) was added to each sample, the sample was vortexed and then centrifuged for approximately 5 minutes at 4000 x g. Assays were then conducted using the supernatant according to the manufacturer's instructions as follows. Assay materials were equilibrated to room temperature prior to use in the assay. Twenty-five microliters (µl) of standard, blank or sample was added, in duplicate, to the appropriate wells of the 96-well plate pre-coated with TSH monoclonal antibodies. Enzyme-labeled anti-rat TSH-antibody (200 µl) was then added to all wells, the plate covered with the adhesive strip, and the plate incubated for 18-20 hours at 4±2 °C. The plate contents were discarded and the plate was washed four times with 300 µl of diluted wash solution. Tetra-Methyl-Benzidine substrate solution (200 µl) was added to each well and the plate incubated in the dark for 30±1 minutes at room temperature (approximately 19 °C). Stop solution (50 µl) was added to each well, the plate gently mixed to ensure completion of color change, and the plate read within 15 minutes. The optical density of each well was determined at 450 nanometers (nm) and 630 nm using a BioTek® Synergy HT Multi-Mode microplate reader with Gen5™ data analysis software. Mean absorbance for each sample was calculated after adjustment for the absorbance at 630 nm. The TSH values were calculated from the calibration curve for each assay using ReaderFit© software. The external quality control standards (Rat Control 1 and 2) were within the target reference ranges. The intra-assay coefficients of variation were 4.0% and 2.7%, respectively, and the inter-assay coefficients of variation were 9.1% and 12.3%, respectively.

5.12 Thymic and Splenic Lymphocyte Subpopulation Analysis

At necropsy of the F1 generation, a portion of the spleen and ½ the thymus from selected animals (10 randomly selected per sex dose group) were transferred to cold RPMI ((Roswell Park Memorial Institute) 1640; Fisher Scientific, Pittsburg, PA, USA) medium and maintained on ice until processed for flow cytometry analysis (FCA). Prior to dissociation of the tissues, the weights of the spleen and thymus portions were recorded. Tissues were dissociated by rubbing the tissue against a nylon strainer screen (70 micron; Corning # 352350; Fisher Scientific). The cell suspensions were centrifuged at 300 x g, 4 °C, 5 minutes and the supernatant was then decanted. To remove red blood cells, splenic cell suspension pellets were re-suspended into 2 mL red blood cell lysis buffer (0.8 g NH_4Cl/ 84 mg $NaHCO_3$/ 0.2 mL 450 mM EDTA per mL H_2O; NH4Cl (Fisher Scientific # A660); $NaHCO_3$ (Fisher Scientific #S233); EDTA (Pulpdent, Watertown MA, USA); H_2O (molecular grade- Hyclone #SH30538, Fisher Scientific)) and incubated on ice for 5 minutes. The lysis reaction was quenched with 8 mL cold PBS (Hyclone #SH30028.03; minus Ca^{+2} and Mg^{+2}), the suspension centrifuged (250 x g, 4 °C, 5 min), and the supernatant decanted. Thymic and red blood cell free splenic pellets were re-suspended in 10 mL PBS and aliquots were removed for cell counting. The volume necessary to provide 2×10^7 cells was taken, centrifuged, re-suspended in 1 mL PBS containing 1% FBS (DCC-FBS- Heat Inactivated- Hyclone # AVH78911, Fisher Scientific), and stored on ice until the antibody staining step.

All antibodies used for this study were purchased from BD Biosciences (spleen: FITC-α-Rat CD3 (G41.8), PECy5-α-Rat CD45RA (OX-33), and PE-α-Rat CD161a (NKR-P1A); thymus: FITC-α-Rat CD4 (OX-38), PE-α-Rat CD8 alpha (OX-8) and PerCP-α-Rat Thy-1 (OX-7); isotype matched controls: FITC-mouse-IgG2a (G155-178), FITC-mouse IgG3 (A112-3), and PerCP-mouse-IgG1 (MOPC-31C); San Jose, CA, USA). For both the spleen and thymus samples the antibodies were optimized prior to FCA.

Propidium iodide (PI), individual antibodies, and antibody cocktail stock staining solutions were prepared each day of FCA and maintained on ice under darkened conditions. Fifty microliters of each staining solution were aliquoted to tubes and then 50 µL of cells (either splenocytes or thymocytes) were added and then incubated in the dark at 4 °C for 30 minutes. After incubation, 1 mL of cold PBS was added to each tube and the tubes were centrifuged. The supernatant was decanted and this wash step was repeated. The cells were re-suspended in 300 µL of 1 percent FBS PBS and FCA was performed using the BD FACSVerse.

On each day of analysis, the default lyse/wash settings were verified using either single stained splenocytes or single stained thymocytes (using samples from the negative control animals). FCA then proceeded with the following tubes for each sample: unstained, PI, single stained samples (for negative control animals), antibody cocktails (splenocytes=CD3/CD45RA/CD161a; thymocytes=Thy-1/CD4/CD8), and isotype control cocktails (splenocytes=IgG1/IgG3; thymocytes=IgG1/IgG2). Populations of interest (and negative for PI) were gated and the stopping criterion was 10,000 events. For thymus samples, quadrants for the populations of interest were developed to discern the percent double negative (DN; both CD4 and CD8 negative), double positive (DP; both CD4 and CD8 positive), CD4+ and CD8+ cells. For spleen samples, data for the percent B cell (CD45RA), T cell (CD3), and natural killer cell (CD161a) populations were collected. Cells positive for PI were counted separately to yield percent viability.

The total cellularity for each tissue was determined by counting cells from a sample after the disruption step and dividing this number by the gram weight of the corresponding sample (=cell/g tissue).

5.13 Pathology

Animals were anesthetized with CO_2, blood was collected by intracardiac puncture, and rats were euthanized using CO_2 followed by thoracotomy. A complete necropsy was performed on all P1 and F1 animals and a subset of PND 22 weanlings. Adrenals, brain, heart, kidneys, epididymides, liver, ovaries (without oviducts), prostate, seminal vesicles with coagulating glands (weighed with and without fluid), spleen, testes, thymus, and thyroid (trimmed and weighed post-fixation) were collected, weighed, and preserved for all groups with the exception of male secondary sex organs in the PND 22 weanlings.

All tissues were preserved in10% buffered formalin except the testes and epididymides which were placed in Davidson's fixative no longer than 24 hours. After fixation, all tissues were rinsed and stored in 70% ethanol.

A complete necropsy was performed on three animals that died prior to scheduled termination; one male from the 3600 mg/l group found dead on study day 4, one female control found dead on PPD 0, and one female from the 3600 mg/l group found dead on PND 14. No tissues were collected from the male or the control female due to autolysis.

5.14 Histopathology

Preserved tissues from the high dose and control groups from each generation were prepared using standard techniques and sectioned approximately 4 µm thick. Tissues were stained with hematoxylin and eosin, except for male reproductive tissues which were stained with periodic acid-Schiff/hematoxylin (PAS-H), and examined by a board certified veterinary pathologist via light microscopy. Tissues from lower dose groups were examined if exposure-related effects were seen in the high-dose group, gross lesions were present, or other signs of organ toxicity were noted in the dose group (e.g., changes in organ mass). Male reproductive tissues were examined in all dose groups in the P and F1 generations. Histopathologic findings were subjectively graded across a 5-point scale in male somatic tissue and all female tissues, where Grade 0 (normal) referred to no abnormalities or background lesions; Grade 1 (minimal) referred to a change which affected ≤10 percent of the presented tissue area, and Grade 2 (mild) referred to a change which affected 11 to 25 percent of the tissue area. Grade 3 (moderate) was scaled to refer to a change of which affected at least 26 to 50 percent of the tissue area, and Grade 4 (severe) was scaled for lesions affecting greater than 50 percent of the tissue. Male reproductive tissues were evaluated on a six-point scale. Tissues with ≤5% of tubules affected were assigned a Grade of 0 (normal). Tissues in which >5% of tubules were affected were assigned a Grade 1 (minimum), tissues with 6 to 20% of tubules affected were given a Grade 2 (mild), tissues in which 21 to 50% of tubules were affected were given a Grade 3 (moderate). Grade 4 (marked) was assigned to tissues with 51 to 75% of tubules affected, and Grade 5 (severe) was assigned to tissues with >75% of tubules affected.

5.15 Sperm Analysis

Cauda epididymal sperm counts were determined using a computer assisted sperm analyzer (TOX IVOS-CASA; Hamilton-Thorne Research, Beverly, Massachusetts). The cauda was weighed and placed in a well of a petri dish containing 10 ml M199 medium at 34-37 °C and the surface minced using a scalpel to release sperm. The cauda was incubated for 5 minutes at 34-37 °C, gently mixed to uniformly suspend the sperm, and 0.5 ml of the suspension transferred to another well containing 4 ml of medium. The number of sperm, number of motile sperm, and number of progressive sperm was determined in duplicate for each animal.

5.16 Data Collection, Calculations, and Statistical Analyses

Experimental data generated during the course of this study were recorded by hand and tabulated, summarized, and/or statistically analyzed using Microsoft® Excel and SPSS® 21.0. Environmental data were automatically recorded using MetaSys® Building Management System.

Reproductive indices were calculated as described in the Guideline [12]. Organ mass ratios were calculated relative to final body mass and brain mass. AGD was normalized to the cubed root of body weight [14]. Nipple retention data were converted to percent of pups per litter with retained nipples for analysis. The litter was used as the experimental unit, where appropriate. Non-pregnant females were excluded from analyses of reproductive parameters and body mass. All analyses were performed separately by sex. Continuous data were analyzed using a one-way ANOVA with dose group as the main effect. Age and body weight at VO and PPS were analyzed by ANCOVA using body weight at PND 21±1 as the covariate. Absolute organ mass was analyzed by Analysis of Covariance (ANCOVA), with dose group as the main effect and body mass at the end of the study as the covariate [22]. Interpretation of changes in absolute organ mass, organ-to-body mass ratio, and organ-to-brain mass ratio in the evaluation of compound related effects was based on published analysis of control animal data [22]. Weekly body weight and food consumption data were analyzed using repeated measures ANOVA to determine dose effect. If the interaction between within and between subject factors was significant, the effect of dose group on the parameter was determined within each sampling day using a one-factor ANOVA. When significant main effects were observed ($p<0.05$), appropriate post hoc tests were used to compare dose groups to the control group [e.g., Tukey's multiple comparison test, Dunnett's T3 (if variances were unequal), or Sidak (for ANCOVA)]. Variance equality was determined by Levene's test. If the data were not normally distributed, the data were either log transformed or arcsine transformed prior to ANOVA/ANCOVA. The following hematology, clinical chemistry, and hormone parameters violated the assumptions of normality and were analyzed using nonparametric tests (Kruskal-Wallis test): NEU (F1), %NEU (P1, F1), LYM (P1), %LYM (P1), MONO (F1), EOS (P1, F1), %EOS (F1), BASO (F1), HCT (P1), MCHC (P1), MPV (F1), PT (P1, F1), PLT (F1), ALB (P1), ALKP (P1), ALT (P1, F1), AST (F1), BUN (P1, F1), CHOL (F1), CREA (P1, F1), GLOB (P1, F1), GLU (F1), TP (P1), and T4 (P1).

Fisher exact test was used to determine significant differences between treated and control groups for nominal or count data (e.g., mating, conception, fertility, gestation indices, histology, etc.).

6 Results

6.1 Analytical Chemistry

The analytical chemistry results are summarized in Appendix D. Mean analytical concentrations were 137 ± 4.9, 681 ± 15.5, and 3344 ± 52.7 mg/l for the 144, 720 and 3400 mg/l NTO solutions, respectively. All results were within the 70-130% recovery limits for the analysis. As such, all results were reported using the nominal concentrations.

6.2 Water Intake and Calculated Doses

Approximate administered dose levels for each generation were estimated based on drinking water consumption data, corresponding body weight data, and nominal concentrations (Table 3). Target dose levels were 20, 100, and 500 mg/kg-day. Calculated administered dose levels were generally lower than target dose levels due to reduced water consumption in higher dose groups likely associated with taste aversion. Additionally, P1 males were considerably larger than the average male used to estimate experiment-wide dose levels. The combination of these factors resulted in dose levels in the P1 males of approximately 9, 45, and 157 mg/kg-day. Intake in the P1 females varied during the course of gestation and lactation, resulting in doses that were 50-244% of target. Doses at the high end of this range occurred during PPD 14-21 and likely resulted from inflation of the drinking water consumption value due to consumption by the weanlings. Excluding the period impacted by weanling intake, P1 female doses ranged from 11-32 mg/kg-day in the 20 mg/kg-day group, 88-158 mg/kg-day in the 100 mg/kg-day group, and 251-573 in the 500 mg/kg-day group. The calculated doses for males and females in the F1 were 21, 82, and 335 mg/kg-day for the 20, 100, and 500 mg/kg-day groups, respectively. Although the calculated administered doses differ from the target doses, the remaining results will be reported based on drinking water concentration for ease of reading.

Table 3. Drinking Water/NTO Consumption and Approximate Dose

		0	144 mg/l			720 mg/l			3600 mg/l		
		ml/d	ml/d	mg/kg-d	% Target	ml/d	mg/kg-d	% Target	ml/d	mg/kg-d	% Target
P1 Males	**D 0-84**	34	33	9	45	30	45	45	21	157	31
P1 Females	**D 0-14**	29	22	11	55	34	88	88	19	251	50
	GD 0-21	60	51	21	105	66	137	137	30	319	64
	PPD 0-7	57	53	23	115	48	106	106	32	344	69
	PPD 7-14	83	78	32	160	77	158	158	53	573	115
	PPD 14-21	130	117	47	235	118	244	244	73	793	159
F1	**PND 22-53**	24	23	21	105	21	82	82	17	335	67

6.1 Clinical Observations

6.1.1 P1 Generation

No treatment related clinical observations were noted in P1 generation males or females. Signs were limited to abrasions/scabs and hair loss associated with aggression between pair-housed males, hazy/cloudy eye in one rat, swollen right eyelid in one rat, barbering, alopecia, and chromodacryorrhea in two rats. Yellow stained fur on nose/face and feet/stomach was noted only in NTO treated rats.

One 3600 mg/l recovery male was found dead on day 6 of dosing and one 3600 mg/l female was found dead on PPD 14 (dosing day 54) with no prior clinical signs. One control female was found dead with a partially delivered litter.

6.1.2 F1 Generation

One male in the 144 mg/l group was determined to have an undescended testis based on the presence of an abdominal mass and a single testis in the scrotum. Yellow stained fur was noted in all NTO treatment groups. Other clinical signs not related to treatment included hair loss, barbering, ring tail, and chromodacryorrhea in one rat.

6.2 Body Mass and Food Consumption

6.2.1 P1 Generation

Body mass did not differ among treated and control groups at any time for P1 generation males. In P1 females, the effect of NTO on body mass differed with time (interaction effect p=0.001). Body mass was generally unaffected by NTO treatment until the post-partum/lactation phase. During the lactation phase, body mass was reduced in females in the 3600 mg/l group compared to the remaining groups. This reduction in body mass was statistically significant at PPD 14 (p<0.001) and PPD 21 (p<0.001) (3% and 4%, respectively).

Food consumption for P1 generation females was unaffected by NTO treatment. In P1 males, the effect of NTO treatment on food consumption differed with time (interaction effect p<0.001). The only differences between control and treated groups were increases in food consumption in the 144 mg/l group during days 18-21 (7.4%, p=0.027) and 21-24 (8.8%, p=0.031). All remaining differences were due to consistently lower food consumption in the 3600 mg/l compared to the 114 mg/l group, resulting in an overall 8% lower food consumption rate (p=0.027). Food conversion efficiency (FER) was not affected by NTO treatment in P1 generation males, but was reduced in the P1 generation females in the 3600 mg/l group compared to the 144 mg/l group (p=0.031).

See Appendices E and F for details.

6.2.2 F1 Generation

In F1 pups, the effect of NTO on body mass varied over time, with no effects being evident until PND 21 (interaction effect p<0.001). On PND 21, body mass of pups in the 3600 mg/l group (46.4 grams) was reduced relative to the other NTO treatment groups (50.7 g and 49.8 g for 144 and 720 mg/l groups, respectively) but not the control group (49.3 g) (p=0.004). Body mass of the F1 females was unaffected by NTO treatment. In the F1 males, body mass did not differ between control and NTO treated groups at PND 21, but was reduced by approximately 8% in the 3600 mg/l group from PND 28 through 52 (interaction effect p=0.011; p=0.007, p=0.003, p=0.016, p=0.019, and p=0.011, for PND 28, 35, 42, 49, and 52, respectively).

Food consumption for F1 females was unaffected by NTO treatment. In F1 males, total food consumption was 10% lower in the 3600 mg/l group compared to the control and 144 mg/l group (p = 0.014). NTO treatment did not affect FER in F1 males or females.

See Appendices E and F for details.

6.3 Fertility and Reproductive Measures

NTO had no effect on male and female mating indices (96-100%) or mean pre-coital interval (2.5-3.3 days). Male and female fertility indices were lowest in the 3600 mg/l group (88%), but did not differ from the control group. All females determined to be pregnant gave birth to at least one live pup, resulting in gestation indices of 100% for all dose groups. The mean gestation interval was approximately 22 days for all dose groups. NTO did not affect mean litter size (14.41–14.9 pups litter), number of live births (13.63-14.44 per litter), still births (0.25-0.68 per litter), or the percentage of pups in each litter that were male (45.3%-53.5%). Pre- and post-implantation loss and corpora lutea number were unaffected by NTO. Pup survival index was lowest in the 3600 mg/l group and decreased in this group from PND 1 through PND 21. However, pup survival did not differ between treatment groups and the control. See Appendix G for details

6.4 Reproductive Development

6.4.1 Anogenital Distance and Nipple Retention

Absolute anogenital distance and the ratio of anogenital distance to the cube root of body weight were not affected by NTO exposure for either males or females. See Appendix H for details.

Treatment with NTO increased both the percentage of pups per litter with retained nipples (>1 nipple) and the number of nipples retained per pup (p=0.012 and p=0.028, respectively). Percent of male pups with retained nipples at PND 13 was increased in all NTO dose groups (35%, 24%, and 30%) compared to controls (8%) (p=0.027, p=0.035, and p=0.017, respectively). Pups in the 144, 720 and 3600 mg/l NTO groups retained 1.1, 0.9, and 1.0 nipples per pup, respectively, compared to 0.4 nipples retained per pup in the control group. This difference was only statistically significant for the 144 and 3600 mg/l groups (p=0.041 and p=0.049, respectively). See Appendix I for details.

6.4.2 Vaginal Opening and Preputial Separation

Age at VO and body mass at VO were not affected by treatment with NTO. Preputial separation was delayed (p<0.001) in the 3600 mg/l dose group by 2.6, 2.6, and 2.4 days relative to the control, 144 and 720 mg/l dose groups, respectively. Body mass at PPS was slightly higher in the 3600 mg/l group (218.3 g compared to 214.0 g in the controls), but did not differ between NTO treated rats and the control group. See Appendix J for details.

6.5 Organ Mass and Pathology

6.5.1 P1 Generation

In P1 females, relative brain mass was slightly (3%) increased in the 144 mg/l group compared to the control and 3600 mg/l groups (p=0.013). As a dose response was not present and a similar response was not observed in the P1 males, this effect was not considered to be treatment related. Kidney mass (analyzed with body mass as covariate) was slightly (3%) increased in the 3600 mg/l group, but was only significantly different from the 720 mg/l group (p=0.042). Kidney mass (analyzed with body mass as covariate) was also increased (7-10%) in NTO treated P1 males (p=0.003); however, only the 144 and 720 mg/l groups differed from the control (p=0.004 and 0.022, respectively). Mass of the left and right epididymides were reduced (11%) in the 3600 mg/l males (p=0.009 and p=0.001, respectively) relative to both the control and other NTO treatment groups. There were no significant treatment-related effects on other organ masses in P1 animals.

6.5.2 F1 Weanlings

There were no treatment-related effects on the mass of organs in female F1 weanlings. In weanling males, left and right testis masses were reduced (15% and 13%, respectively) in the 3600 mg/l group compared to the control and other NTO groups (p=0.006 and p=0.023). However, the reduction in the 3600 mg/l group was statistically significant compared only to the 144 mg/l (p=0.012, p=0.013, respectively) and 720 mg/l groups (p=0.020). Thymus mass differed by 24% between the 144 mg/l group and the 3600 mg/l group (p=0.016), however, neither group differed from the control nor was a dose response evident. There were no other significant treatment-related effects on organ mass in male weanlings.

6.5.3 F1 Pubertal Animals

In F1 pubertal females, only brain mass differed between NTO treated groups and the control (p=0.032); no other organs demonstrated treatment-related effects on mass. Brain mass, when analyzed using body mass as a covariate, was slightly reduced (3% and 2%) in the 720 and 3600 mg/l groups (p=0.005 and p=0.038, respectively).

In F1 pubertal males, epididymides (left and right), testis (left and right), prostate, and seminal vesicles with coagulating glands (SVCG) (with and without fluid) masses were decreased in the 3600 mg/l NTO group. Mass of the epididymides was reduced by 24-27% in the 3600 mg/l group compared to the control and other NTO groups (p<0.001). Testis mass was similarly reduced by 30-31% in the 3600 mg/l group compared to the control and other NTO groups (p<0.001). Prostate mass in the 3600 mg/l group was reduced by 12% relative to the control and 21% compared to other NTO groups; however, this reduction was only statistically significant compared to the 144 and 720 mg/l NTO groups (p=0.004 and p=0.022). Mass of the SVCG with fluid was reduced by approximately 32% in the 3600 mg/l group compared to all other groups (p<0.001). Mass of the SVCG without fluid was reduced in both the 720 (22%) and 3600 (25%) mg/l NTO groups (p=0.022 and p=0.008, respectively).

6.5.4 Recovery Males

In recovery males, mass of the epididymides (left and right) was reduced by 11% and 12%, respectively; however, this reduction was only statistically significant for the right epididymis (p=0.008). Mass of the SVCG with fluid was reduced by 13% in the 3600 mg/l recovery group compared to the control recovery group (p=0.008). No other treatment-related effects on organ mass were observed for the recovery males.

See Appendix K for details.

6.6 Histopathology

6.6.1 P1 Generation

NTO treated P generation males exhibited histologic changes consistent with seminiferous tubule degeneration or atrophy. Vacuoles within Sertoli cell cytoplasm were observed in 44% and 68% of animals in the 144 and 3600 mg/l groups (p =0.003 and p <0.001, respectively). Germ cell-free gaps were observed in 24% and 88% of animals in the 144 and 3600 mg/l groups (p = 0.022 and p <0 001, respectively). Animals in the 3600 mg/l group also exhibited retained spermatids in Stage IX-X (28%; p = 0.048), apoptotic cells (36% ; p=0.016), Sertoli-only tubules (28%), multinucleate giant cells (12%), sloughed germ cells (16%), and lack of elongating spermatids (8%). Animals in the 720 mg/l group did not exhibit similar signs of seminiferous tubule degeneration and the incidence of testicular interstitial proteinaceous fluid was lower in this group than in controls ($p = 0.021$). Reduction in sperm count and inappropriate cell types in the lumen of the epididymides were also noted for 20% of males in the 3600 mg/l group; however, the frequency of these lesions was not statistically different from control. No changes were noted in the epididymides in lower dose groups.

No treatment-related changes were noted in the accessory sex glands in P generation males. Control animals, however, had more intraluminal round cells in the seminal vesicles than did animals in the 144 and 720 mg/l groups ($p = 0.0016$ and $p = 0.004$, respectively).

Histologic findings observed in somatic tissues in the P generation male 3600 mg/l NTO group more frequently than controls included alveolar septal congestion in the lung ($p = 0.023$), mast cell infiltrate in lymph node ($p = 0.002$), changes in the parietal epithelium of the glomerular capsule in the kidney ($p = 0.001$), and minimally more extramedullary hematopoiesis (EMH) and pigment in the spleen ($p \leq 0.001$ and $p \leq 0.001$, respectively). Although seen more often in high dose rats, the scores were all ‘minimal’ or, rarely, ‘mild.’ These changes are commonly reported background lesions and were determined to be unrelated to the effect of the test article.

In P generation females, histologic findings in the kidneys, adrenal glands, and lymph nodes were observed more frequently in the 3600 mg/l group than controls. Pale eosinophilic proteinaceous fluid was noted in the renal tubules of 75% of females in the 3600 mg/l group ($p \leq 0.001$). Adrenocortical vacuolation was noted more frequently in females in the 3600 mg/l group (63%) than controls (17%; $p = 0.003$). The incidence of phagocytosed erythrocytes in the thymus-associated lymph node was greater in females in the 3600 mg/l group (43%) than controls (0%; $p = 0.043$). P generation females had a lower incidence of splenic EMH (4%) than controls (33%) ($p=0.023$). The presence of minimal splenic EMH is a normal background finding. The scores were all ‘0’ (normal) or ‘1’ (minimal), are by nature subjective, and were not considered exposure-related.

Histologic examination of the female (14-0210) from the 3600 mg/l group that died on PPD 14 revealed septicemia characterized by subacute, severe neutrophilic inflammation in multiple organs (lungs, heart, kidneys, with marked thymic involution) that was unrelated to test article administration. The data collected from this animal was excluded from all statistical evaluations of histopathologic lesions in P generation females.

No significant lesions were noted in other tissues examined in P generation males and females.

6.6.2 F1 Weanlings

Only reproductive tissues were evaluated in weanling animals. Apoptotic cells that were either condensed, pyknotic and shrunken, or appeared to have ‘ropy’ heterochromatin as if entering mitosis except the cytoplasm was pink (on PAS-H stain), separate from neighboring cells and usually bordering on luminal were noted in both control (20%) and 3600 mg/l (30%) weanling males. The frequency of this finding was not statistically significant. No histopathological changes, compared to control, were observed in the epididymides of weanling males given 3600 mg/l NTO.

No histopathological changes, compared to control, were observed in the ovaries and uterus (including cervix, vagina) of weanling females given 3600 mg/l NTO.

6.6.3 F1 Pubertal Animals

NTO treated F1 generation males exhibited histologic changes consistent with seminiferous tubule hypoplasia or degeneration/atrophy. Testes of males in the 3600 mg/l group demonstrated apoptotic cells (100%; p <0 001), sloughed germ cells (100%; p <0 001), multinucleate giant cells (95%; p <0 001), lack of elongating spermatids (100%; p <0 001), germ cell-free gaps (95%; p <0 001), Sertoli cell vacuoles (85%; p <0.001); dilatation of seminiferous tubules (55%; p=0.012), Sertoli-only tubules (30%; p=0.031), and reduced diameter of the testis (100%; p<0.001). Males in the 720 mg/l group demonstrated reduction in testis diameter (p=0.028), but did not exhibit signs of seminiferous tubule degeneration.

Corresponding increases in the frequency of epididymal hypospermia (95, and 100%, respectively) were observed in the 720 and 3600 mg/l groups (p<0.001, and p<0.001, respectively). Inappropriate cell types in the lumen (90%) and cribriform change in cauda (85%) of the epididymides were also observed in males in the 3600 mg/l group (p<0.001 and p<0.001).

No treatment-related changes were noted in the accessory sex glands in F1 generation males.

In somatic (i.e., non-reproductive) tissues, differences between F1 males in the 3600 mg/l group and control rats included a slight increase in pulmonary alveolar hemorrhage (60%; p=0.019), minimal pyknosis of the inner stripe of the kidneys (55%; p=0.001), and minimal hepatic congestion (40%; p=0.003).

For F1 females in the 3600 mg/l group, minimal increased incidence of pale eosinophilic proteinaceous fluid in renal tubules (60%; p=0.023) and hepatic congestion (50%; p=0.041) relative to controls were noted. This slight renal change was also noted in 20% of F1 females in the 720 mg/l group; however, this incidence was not different from controls.

No significant lesions were noted in other tissues examined in F1 generation males and females.

6.6.4 Recovery Males

Only reproductive tissues were evaluated for recovery males. Animals in the 3600 mg/l recovery group exhibited protein between tubules (44%), Sertoli-only tubules (22%), vacuoles within Sertoli cell cytoplasm (22%), and germ cell-free gaps (11%). The incidence of these findings was not significantly different between treated recovery males and control recovery males.

See Appendix L for details.

6.7 Clinical Chemistry

There were no treatment-related effects on clinical chemistry parameters in P1 females or F1 pubertal animals. Glucose levels were elevated in P1 males exposed to NTO compared to controls (20 - 40%) and reported normal values. This increase was statistically significant only for the 144 mg/l group compared to the controls (p=0.020). See Appendix M for details.

6.8 Hematology

Red blood cell counts (RBC) were reduced (8%) in P1 males in the 3600 mg/l group compared to those from the control (p=0.042), but were within published normal ranges. Mean cell hemoglobin (MCH) was elevated (6%) in P1 males in the 3600 mg/l group; both compared to control (p=0.002) and normal ranges. Mean cell volume (MCV) was slightly increased (6% and 4%, respectively) in both P1 males and females (p=0.002 and p=0.044, respectively).

There were no treatment-related effects on hematology parameters in F1 pubertal animals.

See Appendix N for details.

6.9 Thyroid Hormone Analyses

There was no consistent pattern of effects on thyroid hormones between sexes or across study phases. There were no treatment-related effects on thyroid hormones in P1 or F1 females or weanlings of both sexes. In P1 males, TSH levels demonstrated a non-significant dose response and were reduced (35%) in the 3600 mg/l group. In F1 males, T4 levels had a non-significant dose response and were reduced (15%) in the 3600 mg/l group. All thyroid hormone values were within previously reported control values for the species [23, 24]. See Appendix O for details.

6.10 Thymic and Splenic Lymphocyte Subpopulation Analysis

Thymocyte cellularity in F1 male and female rats did not differ between treatment groups. Thymus cellularity for one male in the 720 mg/l group (14-0276) was approximately double (14 $X10^9$) the average cellularity for that group and was dropped from further analysis. The distributions of DN/DP/CD4+/CD8+ thymocytes in female rats were not affected by treatment with NTO. In male rats, the percent of double negative cells (DN) was 33% lower in the 3600 mg/l group compared to the control (p=0.036). There were no differences between the control and NTO treated males for the remaining thymic cell types.

NTO had no effect on splenic cellularity or the proportion of B, T, and NK cells in F1 male and female spleens.

See Appendix P for details.

6.11 Sperm Analyses

All measures of sperm count were reduced in P1 males in the 3600 mg/l group compared to controls. Total sperm concentration was reduced by 20% (p=0.024) while motile (p=0.009) and progressively motile sperm concentrations (p=0.016) were reduced by 27% and 28%, respectively. The percent motile sperm did not differ between NTO treated groups and the control. Although total (44%) and motile sperm (27%) concentrations were also reduced in the 3600 mg/l recovery males compared to control recovery males, these reductions were not statistically significant.

See Appendix Q for details.

6.12 Determination of BMD and $BMDL_{10}$

Across study phases NTO showed no evidence of adverse effects on somatic tissues at the highest concentration tested. Thus, benchmark dose modeling was not conducted for systemic toxicity. The unbounded NOAEL for systemic toxicity was 3600 mg/l in P1 males (160 mg/kg-day), P1 females (250-800 mg/kg-day), F1 generation (335 mg/kg-day). F1 males in the 3600 mg/l did demonstrate a reduction in body mass associated with reduced food consumption at PND 42-52. This effect was not likely due to systemic toxicity but rather taste aversion leading to decreased water consumption and in turn decreased food consumption and body mass gain. Fertility endpoints were unaffected by NTO; however, mass of male reproductive organs and histopathology of the testes demonstrated effects in all phases of the study, and nipple retention and PPS were altered in the F1 pubertal males. Delayed PPS and nipple retention in male rats are considered indicators of altered androgen status. Retention of nipples has been shown to be a permanent effect for some chemicals [15, 25] and is therefore considered a malformation and an adverse developmental effect [26]. Histopathology endpoints were not modeled as they did not demonstrate a dose-response and the effects were only evident in highest dose group, with all other dose groups having a near zero percent response rate [27]. To establish a point of departure, dose response modeling was conducted for all other potential critical endpoints using EPA's Benchmark Dose Software (BMDS 2.6.0.1). The reproductive organ mass, sperm count, and PPS responses were modeled using all available BMDS continuous models. Nipple retention was modeled using the BMDS nested models with and without litter size as a litter specific covariate. The goodness of fit statistic, minimal Akaike Information Criterion (AIC), and scaled residuals near the benchmark response (BMR) were used to select among models for each potential critical effect.

For P1 male epididymal mass, four models: Exponential3, polynomial2, polynomial3, and power had suitable model fit and the lowest combined AIC and scaled residuals and were selected. Five models, exponential2, exponential3, linear, polynomial2, polynomial3, and power met the criteria for selection for P1 male sperm count. For PPS, exponential2 and linear models were selected. For F1 testes mass, only two models had acceptable model fit, polynomial2 and polynomial3. Three models, exponential3, polynomial2, and polynomial3 were retained for F1 epididymal mass based on combined AIC and scaled residuals. No models could be selected for SVCG mass based on the goodness of fit statistic. For nipple retention, the initial run was conducted with default parameters (*i.e.*, including litter specific covariate (LSC) and intralitter correlation (ILC)). However, the theta parameter was zero so the litter specific covariate was dropped in subsequent runs. Comparison of the AIC values between runs with and without the ILC indicated that the AIC and goodness of fit statistic were improved with the inclusion of ILC. NLogistic was selected based on lowest AIC values and residuals.

Overall, the resulting $BMDL_{10}$ values ranged from 2335 to 2775 mg/l (140-160 mg/kg-day) for reproductive effects in P1 males and 1048 to 2794 mg/l (120-310 mg/kg-day) for reproductive/developmental effects in F1 males, depending on the response variable (see Table 4 and Appendix R). These results are consistent with the study findings for these endpoints, generally falling between the LOAEL of 3600 mg/l and the NOAEL of 720 mg/l.

Table 4. BMD Modeling Summary

Critical Effect	BMD	$BMDL_{10}$
P1 Males		
epididymal mass	3465	2335
sperm count	4520	2775
F1 Pubertal Males		
nipple retention	3304	1048
PPS	1970	1420
testes mass	2839	2443
epididymal mass	1896	1149
SVCG mass	no acceptable model fit	

6.13 Standing Operating Procedure and Protocol Deviations

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

Per the protocol, animal room temperature was to be maintained between 68 and 72 ºF and humidity between 30 and 70%. The mean temperature in the mating and male holding room was 70 °F and ranged from 66 to 72 °F. Temperature was out of range in the mating and male holding room on 2/21/2014 (66-67 °F). The mean relative humidity was 59% and ranged from 19% to 100%. Relative humidity was out of range on the following dates: 11/14/2013 (28-78%), 12/1/2013 (23-27%), 1/12/2014 (27-29%), 1/16/2014 (19-26%), 2/7/2014 (26-76%), 2/21/2014 (74%), 2/24/2014 (82-100%), 2/25/2014 (73%), and 3/19/2014 (71%). The mean temperature in the delivery room and F1 holding room was 69 °F and ranged from 67 to 73 °F. Temperature was out of range in the F1 holding room on 1/18/2014 and 1/19/2014 (71-73 °F), 2/7/2014 (67 °F), and 2/21/2014 (67 °F). The mean relative humidity was 41% and ranged from 10% to 77%. Relative humidity was out of range in the F1 room on the following dates: 12/25/2013 (29%), 12/26/2013 (71-77%), 1/7/2014 (27%), 1/12/2014 (16-29%), 1/14/2014 (28%), 1/16/2014 (10-29%), 1/19/2014 (29%), 2/7/2014 (27-29%).

QC was performed on 06, 07, and 08 Jan 2014 using only a Level 1 control. TOX SOP 013 for the Cell-Dyn hematology analyzer states that reference controls of known values at three levels will be assayed. The tri-level controls, however, did not arrive in time for necropsy. The SOP also states that hematology samples can only be refrigerated overnight; therefore the samples were run immediately with the only available control rather than lose the samples. New controls arrived on the fourth day of necropsies and were used for the remainder of the study without issues. All QC parameters were within range with the exception of platelets which were not reportable for this study and required a service visit from the manufacturer.

Per the protocol, blood samples were to be collected from fasted rats. Female rats determined to be non-pregnant were not fasted prior to blood collection at scheduled necropsy.

7 Discussion

This study was conducted to determine the reproductive and developmental toxicity of NTO in rats exposed during mating and in offspring from conception through puberty. Studies conducted using subsets of this exposure paradigm demonstrated male reproductive toxicity but no effects of NTO on fertility and limited developmental toxicity. In a reproductive screening study, NTO doses up to 500 mg/kg-day had no effect on mating and pregnancy rates [9]. Sperm counts analyzed two weeks post-mating (four weeks of exposure) were, however, reduced by 93% in the 500 mg/kg-day group [9]. NTO had no effect on timing of pubertal development in the male and female pubertal development and thyroid function assays. Reductions in the mass of the testes and epididymides were observed at 250 mg/kg-day NTO and greater. Limited effects on accessory sex organs were also observed in the 500 mg/kg-day group [11]. These studies implicate the testis as the primary target organ for NTO toxicity, but suggest that effects on the reproductive system may be more pervasive. Based on the earlier studies with NTO, it was hypothesized that extending the dosing period for both the P1 males and the offspring would reveal further reproductive and developmental effects of NTO.

In the present study, NTO had no effect on reproductive indices, including mating, fertility, time to mating, gestation length, pre- and post-implantation loss, and corpora lutea number. Litter sizes, pup survival, and ovarian follicle counts were also unaffected by NTO. These results are similar to the screening study despite the increased duration of the pre-mating dosing period for the P1 males. Although sperm counts were not measured at the time of mating, when measured after 10 weeks of dosing, sperm counts were reduced by 20% compared to controls. In contrast, sperm counts measured in the screening study after 4 weeks of dosing were reduced by 93% [9]. This difference is likely due to the delivered dose in the current study being lower than anticipated due to reduced drinking water consumption. Thus, in the current study the delivered dose in the high dose group P generation males was approximately 150 mg/kg-day compared to 500 mg/kg-day in the screening study. Despite reduced sperm counts, male fertility was not affected in either study. Although changes in spermatogenesis have been correlated with fertility in some species, sperm counts and histopathology data may not be reliable indicators of infertility [28, 29]. In rodents, sperm count, motility, or velocity must be substantially reduced before fertility is affected [28, 29]. However, even in the absence of effects on fertility in rats, reductions in sperm count and quality may be predictive of infertility in humans. In humans, the distribution of sperm counts for fertile and infertile men overlap, suggesting that small reductions in sperm counts in fertile males may result in infertility [28, 30]. Thus, the NTO-induced reductions in sperm count observed in rats could reflect potential threats to human male fertility.

Although fertility endpoints were unaffected by NTO, mass and histopathology of male reproductive organs, which are more sensitive indicators of effects on the male reproductive system [29, 31, 32], demonstrated effects in all phases of the study. In P1 and recovery males, mass of the epididymides was reduced, while in weanling males effects were limited to the testis. The reduced mass of the epididymides reflects reduced sperm production, however, a similar reduction in testis mass was not observed in correlation with the changes in spermatogenesis. This could be attributed to fluid retention or edema as the degree of degeneration and tubular atrophy observed in the P generation was greater than that observed in the F1 generation. In recovery males, the frequency of lesions in the testes did not differ between treated and control males; however, epididymal mass and sperm counts remained lower in NTO treated males after 10 weeks of recovery. This suggests recovery of testicular spermatogenesis but insufficient time for epididymal transit of the sperm produced. However, recovery was not complete in two recovery males that still exhibited Sertoli only tubules. Sperm counts from these males were 38% lower than those from the remainder of the recovery group and 62% lower than the control group. In contrast, reductions in testis mass occurred in the F1 weanlings in the absence of effects on epididymal mass. The absence of effects on epididymal mass in F1 weanlings, which were sexually immature and did not have epididymal sperm, suggests that reductions in epididymal mass in other generations were due to changes in sperm content rather than epididymal development. Additionally, reduced epididymal sperm counts were observed in all phases in association with increased cellular debris, effects that are generally secondary to testicular toxicity [33]. This is in contrast to anti-androgens like flutamide and phthalate esters which cause epididymal agenesis [15, 26, 34, 35] and linuron which causes reduced testis weight secondary to increased epididymal intra-tubular pressure [25].

The reproductive developmental effects of exposure to NTO, though appearing anti-androgenic in nature, do not closely mirror those typically associated with anti-androgens. *In utero* exposure to anti-androgens typically results in alterations of androgen-mediated development in male rats [25]. This is most evident as irreversible genital and reproductive tract malformations including cryptorchidism, hypospadias, cleft phallus, vaginal pouch, and agenesis of reproductive tissues [15, 26, 34-38]. With the exception of unilateral cryptorchidism that was observed in one F1 animal in the 144 mg/l group, malformations of androgen-dependent tissues were limited to reductions in tissue mass, hypoplasia or degeneration/atrophy, and nipple retention. In F1 pubertal males, the mass of all reproductive organs and accessory glands were reduced in the 3600 mg/l NTO group. Compared to rats dosed from weaning through puberty at 250 and 500 mg/kg-day [11], the reductions in testis and prostate mass in the pubertal males in the current study were similar to the 250 mg/kg-day dose group. This may be reflective of water consumption and a delivered dose of 335 mg/kg-day. However, reductions in epididymides were similar to the 500 mg/kg-day group and reductions in seminal vesicles were greater than those observed in the 500 mg/kg-day group. These differences may reflect tissue sensitivity to testosterone relative to DHT as effects on DHT-dependent tissues (*i.e.*, prostate) were less than predicted based on dose, while effects on tissues with T-dependent development (*e.g.*, seminal vesicles and epididymides) were greater. Additionally, these differences may be due to duration and timing of dosing.

Although alterations in androgen-mediated development of male rats is most clearly evident as irreversible genital and/or reproductive tract malformations, decreased AGD, retention of areolae/nipples, and delayed attainment of puberty (PPS) have also been previously associated with exposure to anti-androgens [15, 37-42]. In the current study, AGD was not affected by NTO exposure; however, retention of nipples at PND 13 was observed in all dose groups and PPS was delayed by 2.7 days (2.4 days adjusted for body weight) in the 3600 mg/l NTO group. Although a similar pattern of effects demonstrated by disinfection by-products (DBPs) was interpreted as secondary to reduced water consumption and body mass [43], the reductions in water consumption and body mass in the current study are comparatively minimal (9% versus nearly 50% reduction in body mass).

Masculinization of reproductive tract tissues is programmed during fetal life, before morphological differentiation [44, 45]. Reduced AGD, cryptorchidism, and hypospadias are only induced by deficient androgen action during this “programming window” which occurs between GD 15.5 and 19.5 in rats [44, 45]. The lack of effects of NTO on AGD and genital tract development therefore suggests that androgen levels were not affected between GD 15.5 and 19.5. This may have been due to lack of exposure resulting from reduced maternal water consumption or limited placental transfer of NTO (not determined). In contrast, nipple retention and PPS, late events in development demonstrated effects of NTO. Regression of the nipple anlagen is mediated by locally produced DHT [25], levels of which may have been altered by NTO exposure during the post-natal period. Similarly, the delay in PPS indicates that effects of NTO on development may occur independent of fetal exposure. The absence of effect on PPS in the pubertal development assay (dosing initiated after PND 21) [11] suggests that timing and/or duration of dosing may be important. Perhaps differential sensitivity of fetal versus adult (progenitor and immature) Leydig cells plays a role in developmental reproductive effects of NTO [46-48].

When the effects of NTO are compared to AR antagonists several similarities are apparent, however, there are a number of differences, the most notable of which are the absence of malformations of the genital tract and agenesis of the prostate. *In vitro* studies have demonstrated that NTO does not bind to AR [49]. The effects of NTO on androgen-dependent reproductive development likely occur through a non-receptor mediated mechanism. Several mechanisms have been proposed to explain the effects of other putative anti-androgens with non-receptor mediated modes of action (*i.e.*, phthalate esters) [37]. Similar to NTO, the most prominent effect of DBP is testicular atrophy [50, 51]. Depletion of zinc, oxidative damage, alteration of cytoskeletal organization, Sertoli cell membrane damage and sloughing of spermatogenic cells, and reduced Leydig cell testosterone steroidogenesis due to blocked LH secretion or inhibition of transcription factors have been identified as potential mechanisms [51-59]. The role of these and other direct mechanisms in the effects of NTO on the male reproductive system should be investigated.

8 Conclusions

To evaluate whether the testicular toxicity previously observed in rats orally dosed with NTO is indicative of further reproductive/developmental effects, a modified extended one-generation reproductive toxicity test was conducted. This study evaluated the effects of NTO on male and female reproductive systems, pre- and postnatal effects of NTO on development, as well as systemic toxicity in pregnant and lactating females and young and pubertal offspring. NTO did not affect measures of fertility including, mating index, pre-coital interval, gestation index, litter size, number of live and stillborn pups, and sex ratio. Reproductive development of male, but not female, offspring was altered by exposure to NTO. Both the proportion of pups that had retained nipples and number of nipples retained were increased in NTO exposed males compared to controls. Attainment of puberty was delayed by 2.6 days in the 3600 mg/l NTO exposed males relative to controls. Pubertal males in the 3600 mg/l NTO group exhibited reduced mass of the testis, epididymides, and accessory sex organs and associated histologic changes consistent with seminiferous tubule hypoplasia or degeneration/atrophy. Comparison of the reproductive developmental effects of NTO with those of anti-androgens highlights the absence of malformations of the genital tract in NTO exposed males. Non-receptor mediated modes of action and the role of developmental stage-specific effects should be investigated for NTO.

9 Point of Contact

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Appendix A

References

1. DA, *Regulation 70-1, Army Acquisition Policy.* *http://www.apd.army.mil/pdffiles/r70_1.pdf*. 2003.

2. DA, *Regulation 200-1, Environmental Protection and Enhancement. http://www.apd.army.mil/pdffiles/r200_1.pdf.* 2007.

3. DA, *Regulation 40-5, Preventive Medicine.* *http://www.apd.army.mil/pdffiles/r70_1.pdf*. 2007.

4. DA, *(Rapid Action Revision 2009). Pamphlet 70-3, Army Acquisition Procedures for Insensitive Munitions/Unplanned Stimuli.* *http://www.apd.army.mil/pdffiles/p70_3.pdf*. 2008.

5. DOD, *Department of Defense Instruction 4715.4, Pollution Prevention. http://www.dtic.mil/whs/directives/corres/pdf/471504p.pdf*. 1996.

6. USAEC, U.S.A.E.C., *Final Report. FY09 Army Environmental Requirements and Technology Asssessments (AERTA). Aberdeen Proving Ground Maryland.* 2009.

7. London, J.E. and D.M. Smith, *A toxicological study of NTO*. 1985, US Department of Energy, Los Alamos National Laboratory.

8. Crouse, L.C.B., E.M. Lent, and G.J. Leach, *Oral Toxicity of 3-Nitro-1,2,4-triazol-5-one (NTO) in Rats.* International Journal of Toxicology, 2015. **34**(1): p. 55-66.

9. Crouse, L.C.B. and E.M. Lent, *Toxicology Report No. 85-XC-0FP4-12. Repeated-Dose and Reproductive/Developmental Toxicity of NTO in the Rat*. 2014, U.S. Army Public Health Command: Aberdeen Proving Ground, MD.

10. Quinn, M.J., et al., *Assessment of 3-nitro-1,2,4-triazol-5-one as a potential endocrine disrupting chemical in rats using the Hershberger and uterotrophic bioassays.* International Journal of Toxicology, 2014. **33**(5): p. 367-372.

11. Lent, E.M., et al., *Peri-pubertal administration of 3-nitro-1,2,4-triazol-5-one (NTO) affects reproductive organ development in male but not female Sprague Dawley rats.* Reprod Toxicol, 2015. **57**: p. 1-9.

12. OECD, *Test No. 443: Extended One-Generation Reproductive Toxicity Study, OECD Guidelines for the Testing of Chemicals, Section 4*, O. Publishing, Editor. 2011: Paris.

13. Houpt, J.T. and M. Hable, *Determination of the Water Solubility, Octanol-Water Partition Coefficient and Biodegradation Potential of 3-Nitro-1,2,4-Triazol-5-One (NTO)*. 2010, U.S. Army Public Health Command: Aberdeen Proving Ground, MD.

14. Gallavan, R.H., Jr., et al., *Interpreting the toxicologic significance of alterations in anogenital distance: potential for confounding effects of progeny body weights.* Reprod Toxicol, 1999. **13**(5): p. 383-90.

15. McIntyre, B.S., N.J. Barlow, and P.M. Foster, *Androgen-mediated development in male rat offspring exposed to flutamide in utero: permanence and correlation of early postnatal changes in anogenital distance and nipple retention with malformations in androgen-dependent tissues.* Toxicol Sci, 2001. **62**(2): p. 236-49.

16. Cooper, R.L., et al., *Effect of lindane on hormonal control of reproductive function in the female rat.* Toxicol Appl Pharmacol, 1989. **99**(3): p. 384-94.

17. Laws, S.C., et al., *The effects of atrazine on female wistar rats: an evaluation of the protocol for assessing pubertal development and thyroid function.* Toxicol Sci, 2000. **58**(2): p. 366-76.

18. Korenbrot, C.C., I.T. Huhtaniemi, and R.I. Weiner, *Preputial separation as an external sign of pubertal development in the male rat.* Biology of Reproduction, 1977. **17**: p. 298-303.

19. Dimeski, G., *Interference testing.* Clin Biochem Rev, 2008. **29 Suppl 1**: p. S43-8.

20. Sakai, H., et al., *Falsely elevated thyroid-stimulating hormone (TSH) level due to macro-TSH.* Endocr J, 2009. **56**(3): p. 435-40.

21. Tate, J. and G. Ward, *Interferences in immunoassay.* Clin Biochem Rev, 2004. **25**(2): p. 105-20.

22. Bailey, S.A., R.H. Zidell, and R.W. Perry, *Relationships between organ weight and body/brain weight in the rat: what is the best analytical endpoint?* Toxicol Pathol, 2004. **32**(4): p. 448-66.

23. Chang, S.C., et al., *Thyroid hormone status and pituitary function in adult rats given oral doses of perfluorooctanesulfonate (PFOS).* Toxicology, 2008. **243**(3): p. 330-9.

24. Christian, M.S. and N.A. Trenton, *Evaluation of Thyroid Function in Neonatal and Adult Rats: The Neglected Endocrine Mode of Action.* Pure and Applied Chemistry, 2003. **75**(11-12): p. 2055-2068.

25. McIntyre, B.S., N.J. Barlow, and P.M. Foster, *Male rats exposed to linuron in utero exhibit permanent changes in anogenital distance, nipple retention, and epididymal malformations that result in subsequent testicular atrophy.* Toxicol Sci, 2002. **65**(1): p. 62-70.

26. Foster, P.M. and B.S. McIntyre, *Endocrine active agents: implications of adverse and non-adverse changes.* Toxicol Pathol, 2002. **30**(1): p. 59-65.

27. Barnes, D.G. and M. Dourson, *Reference dose (RfD): Description and use in health risk assessment.* Regulatory Toxicology and Pharmacology, 1988. **8**: p. 471-486.

28. Hood, R.D., ed. *Developmental and Reproductive Toxicology: A Practical Approach*. Third ed. 2001, CRC Press: New York. 870.

29. ICH, *ICH Harmonised Tripartite Guideline: Detection of Toxicity to Reproduction for Medicinal Products & Toxicity to Male Fertility*. 2005, International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use.

30. Meistrich, M.L. and C.C. Brown, *Estimation of the increased risk of human infertility from alterations in semen characteristics.* Fertil Steril, 1983. **40**(2): p. 220-30.

31. Mangelsdorf, I., J. Buschmann, and B. Orthen, *Some aspects relating to the evaluation of the effects of chemicals on male fertility.* Regul Toxicol Pharmacol, 2003. **37**(3): p. 356-69.

32. Ulbrich, B. and A.K. Palmer, *Detection of Effects on Male Reproduction—A Literature Survey.* Int J Toxicol, 1995. **14**(4): p. 293-327.

33. Gopinath, C. and V. Mowat, *Altlas of Toxicologic Pathology*. 2014, New York: Springer. 285.

34. Arcadi, F.A., et al., *Oral toxicity of bis(2-ethylhexyl) phthalate during pregnancy and suckling in the Long-Evans rat.* Food Chem Toxicol, 1998. **36**(11): p. 963-70.

35. Gray, L.E., Jr., et al., *Administration of potentially antiandrogenic pesticides (procymidone, linuron, iprodione, chlozolinate, p,p'-DDE, and ketoconazole) and toxic substances (dibutyl- and diethylhexyl phthalate, PCB 169, and ethane dimethane sulphonate) during sexual differentiation*

produces diverse profiles of reproductive malformations in the male rat. Toxicol Ind Health, 1999. **15**(1-2): p. 94-118.

36. Bowman, C.J., et al., *Effects of in utero exposure to finasteride on androgen-dependent reproductive development in the male rat.* Toxicol Sci, 2003. **74**(2): p. 393-406.

37. Gray, L.E., et al., *Effects of environmental antiandrogens on reproductive development in experimental animals.* Hum Reprod Update, 2001. **7**(3): p. 248-64.

38. McIntyre, B.S., et al., *Effects of in utero exposure to linuron on androgen-dependent reproductive development in the male Crl:CD(SD)BR rat.* Toxicol Appl Pharmacol, 2000. **167**(2): p. 87-99.

39. Clark, R.L., et al., *External genitalia abnormalities in male rats exposed in utero to finasteride, a 5 alpha-reductase inhibitor.* Teratology, 1990. **42**(1): p. 91-100.

40. Gray, L.E., Jr., et al., *Environmental antiandrogens: low doses of the fungicide vinclozolin alter sexual differentiation of the male rat.* Toxicol Ind Health, 1999. **15**(1-2): p. 48-64.

41. Imperato-McGinley, J., et al., *Comparison of the effects of the 5 alpha-reductase inhibitor finasteride and the antiandrogen flutamide on prostate and genital differentiation: dose-response studies.* Endocrinology, 1992. **131**(3): p. 1149-56.

42. Ostby, J., et al., *The fungicide procymidone alters sexual differentiation in the male rat by acting as an androgen-receptor antagonist in vivo and in vitro.* Toxicol Ind Health, 1999. **15**(1-2): p. 80-93.

43. Narotsky, M.G., et al., *Reproductive toxicity of a mixture of regulated drinking-water disinfection by-products in a multigenerational rat bioassay.* Environ Health Perspect, 2015. **123**(6): p. 564-70.

44. Welsh, M., et al., *Identification in rats of a programming window for reproductive tract masculinization, disruption of which leads to hypospadias and cryptorchidism.* J Clin Invest, 2008. **118**(4): p. 1479-90.

45. Welsh, M., H. Suzuki, and G. Yamada, *The masculinization programming window.* Endocr Dev, 2014. **27**: p. 17-27.

46. Akingbemi, B.T., et al., *Modulation of rat Leydig cell steroidogenic function by di(2-ethylhexyl)phthalate.* Biol Reprod, 2001. **65**(4): p. 1252-9.

47. Parks, L.G., et al., *The plasticizer diethylhexyl phthalate induces malformations by decreasing fetal testosterone synthesis during sexual differentiation in the male rat.* Toxicol Sci, 2000. **58**(2): p. 339-49.

48. Svechnikov, K., I. Svechnikova, and O. Soder, *Inhibitory effects of mono-ethylhexyl phthalate on steroidogenesis in immature and adult rat Leydig cells in vitro.* Reprod Toxicol, 2008. **25**(4): p. 485-90.

49. Adams, V.H., *Toxicology Report No. S.0002745-12. In Vitro Endocrine Disruption Screening of 3-nitro-1,2,4-triazol-5-one (NTO)*. 2012, U.S. Army Public Health Command: Aberdeen Proving Ground, MD.

50. Gray, T.J., et al., *Species differences in the testicular toxicity of phthalate esters.* Toxicol Lett, 1982. **11**(1-2): p. 141-7.

51. Oishi, S. and K. Hiraga, *Testicular atrophy induced by phthalic acid monoesters: effects of zinc and testosterone concentrations.* Toxicology, 1980. **15**(3): p. 197-202.

52. Fukuoka, M., T. Kobayashi, and T. Hayakawa, *Mechanism of testicular atrophy induced by Di-n-butyl phthalate in rats. VI. A possible origin of testicular iron depletion.* Biol Pharm Bull, 1994. **17**(12): p. 1609-12.

53. Fukuoka, M., T. Kobayashi, and T. Hayakawa, *Mechanism of testicular atrophy induced by di-n-butyl phthalate in rats. Part 5. Testicular iron depletion and levels of ferritin, haemoglobin and transferrin in the bone marrow, liver and spleen.* J Appl Toxicol, 1995. **15**(5): p. 379-86.

54. Fukuoka, M., et al., *Mechanism of testicular atrophy induced by di-n-butyl phthalate in rats. Part 4. Changes in the activity of succinate dehydrogenase and the levels of transferrin and ferritin in the Sertoli and germ cells.* J Appl Toxicol, 1993. **13**(4): p. 241-6.

55. Fukuoka, M., et al., *Mechanism of testicular atrophy induced by di-n-butyl phthalate in rats. Part 1.* J Appl Toxicol, 1989. **9**(4): p. 277-83.

56. Fukuoka, M., et al., *Mechanism of testicular atrophy induced by di-n-butyl phthalate in rats. Part 2. The effects on some testicular enzymes.* J Appl Toxicol, 1990. **10**(4): p. 285-93.

57. Kleymenova, E., et al., *Exposure in utero to di(n-butyl) phthalate alters the vimentin cytoskeleton of fetal rat Sertoli cells and disrupts Sertoli cell-gonocyte contact.* Biol Reprod, 2005. **73**(3): p. 482-90.

58. Plummer, S.M., et al., *Identification of transcription factors and coactivators affected by dibutylphthalate interactions in fetal rat testes.* Toxicol Sci, 2013. **132**(2): p. 443-57.

59. Alam, M.S., et al., *Induction of spermatogenic cell apoptosis in prepubertal rat testes irrespective of testicular steroidogenesis: a possible estrogenic effect of di(n-butyl) phthalate.* Reproduction, 2010. **139**(2): p. 427-37.

APPENDIX B

QUALITY ASSURANCE STATEMENT

FOR: Toxicology Study No. S.0027395, Protocol No. 56-13-02-01, *entitled "Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO), February 2013-March 2014",* the following critical phases were audited by the Quality Systems Office:

PRE IN-LIFE PHASE OF THE STUDY

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Study Protocol Good Laboratory Practice Standards and Animal Care Review	01/03/2013	01/03/2013

IN-LIFE PHASE OF THE STUDY – PILOT STUDY

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Pilot Study - Test Article Dose Selection, Concentration Verification and Administration	03/01/2013	03/07/2013
Pilot-Test System-Husbandry, Body Weights, Food/Water Consumption & Assessment of Sexual Development.	03/01/2013	03/07/2013
Pilot Study - Verification of Behavior Testing Equipment	03/13/2013	03/15/2013
Pilot Study - Compliance with Study Protocol and Sub-Study Endpoint Criteria Compliance	03/13/2013	03/21/2013
Pilot Study - Euthanasia, Gross Necropsy, Tissue Collection and Preservation	03/13/2013	03/21/2013
Pilot Study - Epididymides Collection and Refinement of Sperm Analysis Techniques	03/13/2013	03/21/2013

IN-LIFE PHASE OF THE STUDY – MAIN STUDY

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Main Study - P generation Test System Quality Control, Receipt and Stabilization Procedures	10/23/2013	11/01/2013
P Generation– Test Article Storage, Control, Dose Selection, Mixing, Labeling and Administration	10/30/2013	11/08/2013
P Generation - Test System Facilities, Identification, Husbandry, Food/Water Monitoring, Enrichment	10/30/2013	11/08/2013
P Generation - Mating Co-Housing Procedures, observations, body weight and food/H2O consumption	11/27/2013	12/05/2013
P Generation-Compliance w protocol modification, animal dose group composition & special husbandry	11/27/2013	12/06/2013
P Generation - Litter and Offspring Parameter Examinations	12/30/2013	01/9/2014
Litter & Offspring (F1) - Anogenital Distance Measurement, Nipple/Areolae check, Pup ID & Husbandry	12/30/2013	01/9/2014
P Generation Males - Gross Necropsy, Organ Weight, Tissue Preservation and documentation procedures:	01/10/2014	01/17/2014

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IN-LIFE PHASE OF THE STUDY – MAIN STUDY (continued)

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
P-Generation Culled Pup (F1) and Female euthanasia, gross necropsy and sub-study endpoint criteria.	01/24/2014	01/31/2014
F1 Gen-Test System Observations, Body Weights, Food/Water Cons.& Sexual Development Assessment	01/24/2014	01/31/2014
Final Gross Necropsy, Organ Weight, Tissue Preservation and Study End Point Criteria	03/19/2014	03/27/2014

POST IN-LIFE PHASE OF THE STUDY

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Pathology Contributing Scientist Inspection - Microscopic Histopathology Exam	09/17/2015	09/19/2015
Pathology Contributing Scientist Inspection - Quality Assurance Audit of Excel Entered Data	09/17/2015	09/19/2015
Pathology Contributing Scientist Inspection - QA audit of statistician's report	09/23/2015	09/25/2015
Pathology Contributing Scientist Inspection-Interim Pathology Report GLP Standard Regulation Review	09/29/2015	10/01/2015
Pathology Contributing Scientist Inspection- Final Pathology Report GLP Standard Regulation Review	09/30/2015	10/02/2015
Pathology Contributing Scientist Inspection - Final Study Raw Data GLP Standard Regulation Review	09/30/2015	10/02/2015
Contributing Scientist Report Review - Immunotoxicity of NTO in F1 Male & Female Rats Report review	01/13/2016	01/13/2016
Final Study Raw Data Good Laboratory Practice Quality Assurance Review	01/12/2016	01/12/2016
Final Report Appendices and Excel Entered Data GLP Quality Assurance Audit	01/13/2016	01/13/2016
Final Study Report Good Laboratory Practice Quality Assurance Review	01/13/2016	01/28/2016

Note 1 All findings were made known to the Study Director and the Program Manager at the time of the audit/inspection. If there were no findings during the inspection, the inspection was reported to Management and the Study Director on the date shown in the table.

Note 2 In addition to the study specific critical phase inspections listed here, general facility and process based inspection not specifically related to this study are done monthly or annually in accordance with QA Standard Operating Procedure.

Note 3 This report has been audited by the Quality Assurance Unit (QSO), and is considered to be an accurate account of the data generated and of the procedures followed

Michael P. Kefauver — 11 FEB 2016

Michael P. Kefauver
Quality Assurance Specialist, QSO

Date

Appendix C

Archives and Study Personnel

C-1 Archives

All raw data, documentation, records, protocol, and a copy of the final report generated as a result of this study will be archived in room 1026, building E-2100, USAPHC, for a minimum of five (5) years following submission of the final report to the Sponsor. If the report is used to support a regulatory action, it shall, along with all supporting data, be retained indefinitely.

Records on animal receipt, diet, and facility environmental parameters will be archived by the Veterinary Medical Division, Toxicology Portfolio, for a minimum of five (5) years following submission of the final report to the Sponsor.

Some ancillary records pertaining to this study, such as instrument maintenance logs, animal room observation logs, etc., will not be archived until those logbooks have been completed. Once complete they will be archived in room 1026, building E-2100, USAPHC.

Wet tissues, histology slides, and paraffin blocks are stored in building E-5158.

C-2 Personnel

Management: Dr. Mark S. Johnson, Ph.D., Portfolio Director, Toxicology; Mr. Arthur J. O'Neill, Manager, Toxicity Evaluation Program (TEP); Dr. Michael J. Quinn, Ph.D., Manager, Health Effects Research Program (HERP).

Study Director: Dr. Emily May Lent, Ph.D., Toxicologist, TEP.

Quality Assurance: Michael P. Kefauver, Quality Assurance Specialist, Quality System Office.

Veterinary Support and Animal Care: Dawn C. Fitzhugh, DVM, LTC, VC; Robert Sunderland, Animal Health Technician; Rebecca Kilby, Animal Health Technician; Felicia Thomas, Animal Health Technician.

In-Life Support: Emily May Lent, Toxicologist, TEP; Lee C.B. Crouse, Biologist, TEP; Theresa L. Hanna, Biological Technician, TEP; Allison M. Jackovitz, Biologist, ORISE.

Necropsy: Alicia A. Shiflett, Biological Technician, TEP; Lee C.B. Crouse, Biologist, TEP; Emily May Lent, Toxicologist, TEP; Theresa L. Hanna, Biological Technician, TEP; Allison M. Jackovitz, Biologist, ORISE; Wilfred C. McCain, Toxicologist, TEP; William S. Eck, Biologist, HERP; Michael J. Quinn, Biologist, HERP.

Clinical Chemistry: Matthew A. Bazar, Biologist, TEP; Mark R. Way, Biologist, TEP.

Archivist: Martha L. Thompson, Data Acquisition Specialist, TEP

Appendix D

Analytical Chemistry

Table D-1
Protocol No.56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Analytical Chemistry Result
F1 Male Rats

Sample Type	Batch Date	Nominal Concentration (mg/l)	Analytical Concentration (mg/l)	% of Nominal
Purity	10/28/13	1	0.98	98
Concentration verification	10/28/13	144	140	97
Concentration verification	10/28/13	720	680	94
Concentration verification	10/28/13	3600	3300	92
Concentration verification	11/8/13	144	130	90
Concentration verification	11/8/13	720	670	93
Concentration verification	11/8/13	3600	3300	92
Concentration verification	11/14/13	144	140	97
Concentration verification	11/14/13	720	680	94
Concentration verification	11/14/13	3600	3400	94
Concentration verification	11/26/13	144	130	90
Concentration verification	11/26/13	720	670	93
Concentration verification	11/26/13	3600	3400	94
Clean 3600 Rack Verification	11/26/13	0	0	
Concentration verification	12/4/13	144	140	97
Concentration verification	12/4/13	720	670	93
Concentration verification	12/4/13	3600	3400	94
Concentration verification	12/12/13	144	140	97
Concentration verification	12/12/13	720	710	99
Concentration verification	12/13/13	144	140	97
Concentration verification	12/13/13	720	700	97
Concentration verification	12/20/13	144	130	90
Concentration verification	12/20/13	720	670	93
Concentration verification	12/20/13	3600	3300	92
Concentration verification	12/31/13	144	140	97
Concentration verification	12/31/13	720	670	93
Concentration verification	12/31/13	3600	3300	92
Concentration verification	1/6/2014	144	140	97
Concentration verification	1/6/2014	720	710	99
Concentration verification	1/6/2014	3600	3400	94
Concentration verification	1/9/2014	144	140	97
Concentration verification	1/9/2014	720	670	93
Concentration verification	1/9/2014	3600	3300	92
Concentration verification	2/4/2014	144	130	90
Concentration verification	2/4/2014	720	670	93
Concentration verification	2/4/2014	3600	3400	94
Concentration verification	2/4/2014	3600	3400	94
Concentration verification	2/12/2014	720	680	94

Appendix E

Body Mass

Table E-1

Protocol No.56-13-02-01

Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

Individual Body Mass (grams)

Male Rats

Group	Animal ID	Day 0	Day 7	Day 14	Day 21	Day 28	Day 35	Day 42	Day 49	Day 56	Day 63	Day 70	Day 77	Day 84	Day 91	Day 98	Day 105	Day 112	Day 119	Day 126	Day 133	Day 140	fasted
Control	14-0001	325.2	385.9	429.7	460.2	489.4	503	527.1	550.8	574.6	594.2	596.6											589.4
	14-0002	329.5	401.5	453.5	475.9	503.9	519.8	542.5	567.6	587	601.3	590.6											601.1
	14-0005	328.3	387.8	440.9	470.3	506.1	537.8	562.5	586.8	616.8	640	665.1											643
	14-0009	333.3	379.1	422.5	442.4	456.7	457.3	475.6	500	516.7	526	540.8											520.1
	14-0010	319.7	382	433.2	454.4	481.3	499.3	521.3	548.7	563.6	585.6	598.9											582.6
	14-0101	356.8	407.2	441.3	471.9	478.8	493.2	513.2	529.7		567.2	586.7											562.4
	14-0013	312.5	340.5	372.5	383.9	407.3	438.1	469.3	494.3	518.7	545.1	557.5											542.1
	14-0014	333.9	383.2	428.4	451.7	483.2	498.6	522.6	552.3	568.6	574.1	607.1											589.1
	14-0023	310.9	365.3	405.4	427.9	454.5	458.2	484.5	499.2	512.3	524.8	535.2											517.2
	14-0024	328.8	338.9	358.4	375.7	399.1	397.3	407.8	409	422.3	430.2	435.1											419.2
	14-0025	330.2	373	407.6	431.1	453.1	460.5	473.6	505.1	542.6	565.4	581.4											553
	14-0026	316.9	365.9	387.7	411.1	421.6	422.6	432.3	453.1	460.8	484.9	495.6											482.8
	14-0043	295.9	322.5	342.1	362.5	377.6	394.5	405.6	418.7	430.6	437.5	447.2											433.1
	14-0044	317.9	365.1	395.6	426	440.5	460.1	471.8	502.5	531.2	539.7	557.4											531.5
	14-0049	340.7	400.7	440.9	479.9	504.2	517.7	544.1	570.6	592.5	612	625.6											599.9
	14-0050	335.2	390	430.7	462.3	495.6	512	539.5	566.2	589.5	611.8	627.6											598.9

	14-0063	346.4	408.2	440.2	468.2	501.5	506.6	543	559.1	589.1	625.5	646.6	621.8
	14-0064	357.6	405.2	440.4	468	491	503.7	522.9	537.2	555.1	576.2	589.6	567.8
	14-0065	363.9	422.9	465.9	398	519.4	538.5	559.8	581.6	600.2	611.9	634.2	606.1
	14-0066	295.9	332.4	369.5	500.4	418.1	437.8	459.7	466	481.1	499.1	511.4	496.1
	14-0069	382.7	445.9	488.6	523.6	559.5	575.7	602.6	622.9	641.8	659.4	691.6	669.5
	14-0070	358.7	403.4	430.9	459	495.6	513.4	534.5	561.2	578.3	589.5	614.2	595.6
	14-0094	364	398.9	429.1	456	470.3	495.1	512.7	528.7	550.2	572.4	594	568.3
	14-0095	341.8	372.6	400.8	425.9	446	469.6	487.7	497.3	519.7	534.5	549.9	527.6
	14-0096	361.3	421.3	464.8	498.2	517.8	546.2	584.3	619.3	653.8	691.9	710.9	682.9
	Mean	**335.5**	**384.0**	**420.8**	**447.4**	**470.9**	**486.3**	**508.0**	**529.1**	**549.9**	**568.0**	**583.6**	**564.0**
	SD	**22.01**	**29.74**	**35.23**	**39.50**	**43.07**	**45.75**	**50.60**	**55.00**	**59.90**	**62.72**	**66.81**	**64.41**
	14-0007	334.9	390.3	444.1	474.4	502.7	516.7	536.6	566.4	587.1	609.9	622.5	610.9
144 mg/l	14-0008	316.2	367.6	412.1	438.5	460		517.4	535	555.4	580.8	597.5	578.2
	14-0015	328.3	389.5	436.2	457.5	476.3	495.9	521.8	551.4	575.8	603.9	621.5	595.2
	14-0016	279.2	309.4	336	357.8	372.2	374.1	388.3	396.6	415.7	427	431.2	418.9
	14-0035	331.7	373.1	407.8	438.6	467	490	512.3	532.8	554.2	568.4	580.7	564.9
	14-0036	335.4	388.3	443.2	480.2	516.4	543.2	571.1	595	618.5	637	646.4	628.2
	14-0045	336	391.7	435.2	457	482.9	496.5	524.8	542.1	562.8	570.9	579.9	563
	14-0046	336.7	382.3	418.4	443.6	469.2	487.6	517.4	543.4	570.1	589.5	609.3	584.3
	14-0047	324.7	365.6	404.2	431	461.1	480.3	505.4	521.9	536.3	555.7	563.1	545.2
	14-0048	283.1	311.5	337.3	358	369.9	375.7	384.6	394.2	396.3	403.4	414.8	404.2

	14-0051	349.8	397.6	438.1	477.7	508.6	543.8	572.1	592	603.9	617.6	638.6	614.6
	14-0052	339	394.1	438.9	478.9	504.3	512	552.9	578	608.8	628.3	652.1	623.6
	14-0053	332	391.2	434.5	463.2	485.4	504.3	534.8	557	579.3	592.2	608.9	579.9
	14-0054	338.4	404.9	459.4	492.3	521.3	533.5	577.1	612.4	638.9	651.5	658	628.4
	14-0067	354.7	409.1	443.3	480.1	507.4	513.4	518.4	535.8	547.7	561.3	576	545.3
	14-0068	365.5	416.9	461.6	490.5	518.8	536.5	551.1	583.3	602.4	621.1	637.4	605.3
	14-0071	346.8	393.2	424.4	442.4	458.4	477.1	496.1	519.5	539.3	549.6	561.5	545.9
	14-0072	343.4	397.4	427.8	458.9	483.4	496.4	517.3	539.5	560.1	571	576.6	556.8
	14-0075	364.8	407.2	437.7	472.8	495.6	513.2	541.8	555.2	570.6	581.2	598.6	579.9
	14-0076	374.8	428.5	466.6	503.4	525.2	531.9	555.9	580.5	598.4	605.5	623	597.3
	14-0078	341.1	373.5	397.1	422.4	446.6	453.7	470.8	491.2	505.1	511.2	520.4	500.9
	14-0081	344.5	384.9	410.5	431.8	463.6	478.2	504.3	505.7	522.6	540.7	556.8	528.7
	14-0082	335	374.9	405.5	429.1	455.1	456.9	486.9	505.6	519.8	537.7	557.9	534.1
	14-0089	351.8	407.8	438.3	476	511.2	539.5	582.5	594.3	619.6	644	660.5	635
	14-0090	311.2	339.8	356.5	368.3	390.2	394.9	415.3	426.6	436.5	447.6	460.2	439
	Mean	**336.0**	**383.6**	**420.6**	**449.0**	**474.1**	**489.4**	**514.3**	**534.2**	**553.0**	**568.3**	**582.1**	**560.3**
	SD	**21.92**	**28.64**	**34.42**	**39.64**	**43.30**	**48.87**	**52.95**	**57.62**	**61.66**	**64.28**	**66.31**	**63.12**
720 mg/l	14-0003	323.1	347.5	378.8	408.3	432.5	435	450.1	470.8	486.2	511.5	522.3	509.7
	14-0004	318.9	363.3	414	443.2	475	486.9	508.9	524.6	539.9	564.9	585.2	563.9
	14-0017	303.5	350.1	378.5	396.6	403.9	403.4	419.9	433.8	454.5	476.9	498.4	483
	14-0018	310.5	361.5	401.3	433.7	465.8	470.2	498.7	532.1	559.4	581.5	595	575.7

14-0029	320.1	369.3	392.5	406.9	420.5	436.2	448.2	467.2	481.6	493.8	504.6	486.5
14-0030	275	306.3	337.2	358.1	372.8	385.5	399.2	414	431.2	446.8	458.1	450.4
14-0031	309.4	347.8	371.9	387.2	405.8	405.4	429.4	445.3	469.9	494.2	509.5	494.5
14-0032	328.2	376	412.7	434.2	465.8	466.7	493.2	505.5	529.7	546.4	565.6	548.3
14-0033	346.1	400.2	452.9	477.2	513.2	531.8	559.9	580.1	612.5	641	657	634.5
14-0034	343.4	397.6	443.7	467.8	496.6	501.9	529	552	574.6	590.9	606.2	584.7
14-0037	332	381.4	411.1	443.8	469.9	490.1	515.4	541.8	575.1	610.2	631.3	631.3
14-0038	334.5	389.2	418	462.9	483.5	505.1	530.3	553.5	579.5	604.3	621.1	600.7
14-0055	347.4	400.2	439.2	468.6	499.2	496.1	536.6	561.9	578.6	608.9	623	605.7
14-0056	340.3	388.9	437.4	473.1	498.4	520.1	544.5	567.9	581.8	612.1	633.4	607.4
14-0057	345.3	397.9	447.8	487	529.4	542.6	573.9	593.3	629.1	656.9	679.6	648.8
14-0058	339.4	377.9	415.5	447.7	472.5	488.4	505.2	519.7	541.3	551.1	561	543.1
14-0061	330.9	379.7	411.5	438.6	460.4	479.3	484.5	499	515.7	526.6	543	524.5
14-0062	336.3	385.5	413.1	440.6	463.9	484.5	501.9	526.4	550.8	571.3	589.7	555.3
14-0073	348.4	406.2	439.1	463.3	484.1	486.8	517.6	544.5	576.7	599.3	618.3	601.9
14-0074	336.6	376.2	403.7	427.4	446.3	462.2	480.8	497.9	511.5	529.6	536.5	517.2
14-0083	342.3	380.2	395.8	412.5	425.8	434.8	448.6	469.5	482	497.1	505.8	493.5
14-0084	343.2	381.3	401.3	425.4	448.9	457.4	474.1	502.1	527.6	547.9	562.2	541.3
14-0093	386.2	449.3	489.5	525.5	557.4	553.3	574.2	615.3	651.1	679.6	694.8	660.9
14-0097	339.1	388.8	418.6	445.1	473.1	490.6	510.7	524	539	560.2	580.2	558.9
14-0098	353.7	409.2	452.9	484.5	515.9	525	547.9	565.9	592	614.4	629.2	603.7
Mean	**333.4**	**380.5**	**415.1**	**442.4**	**467.2**	**477.6**	**499.3**	**520.3**	**542.9**	**564.7**	**580.4**	**561.0**

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	SD	20.68	26.81	31.61	36.11	42.16	43.15	47.17	50.47	54.96	58.65	60.59	56.89
3600 mg/l	14-0011	309.1	321.6	358.4	376.8	394.8	403.2	409.5	423.9	434.1	445.8	458.4	452.7
	14-0012	308.7	347.8	390.6	412.9	437.4	442.2	457.5	475.8	498.5	516.4	534.6	524.9
	14-0019	323	364.3	407.6	428	446.6	453.8	471.4	487.9	509.6	522.7	536.5	531.3
	14-0020	311.2	344.6	378.5	404.9	420.5	427.6	449.2	463.8	481.5	493.5	504.1	496.1
	14-0021	348.7	393.3	437.3	459.1	481	487.9	515.2	523.7	544.8	547.9	559.8	547
	14-0022	312.6	352.1	389.3	410.2	432.2	439.2	464.7	474	493.1	501.5	511.2	497.6
	14-0027	330.6	365.5	389	408.9	426.6	431.1	451.8	465.9	483.7	495	512.3	498.1
	14-0028	318.2	352	378.8	395.2	415	409.1	428.1	441.3	455.3	469	478.4	465.4
	14-0039	315.5	362.4	412.9	446.3	472.2	482	506	514.7	533.3	546.3	561.3	546.9
	14-0040	328	380.3	431.4	465.7	499.8	504.1	541.1	566.7	594	603.8	629.3	612.7
	14-0041	346.8	388.6	416.9	444.9	471	492	519.7	533	560.6	590.5	602.8	585.3
	14-0042	341.8	380.4	404.9	426.5	456.3	461.5	482.3	497.4	512.8	532.9	539.1	527
	14-0059	337.8	371.6	394	421.2	437.4	446.1	457	472	483.4	496.1	498.1	489
	14-0060	350	308.4	441.8	464.7	495.9	499.6	516.2	543.8	562.5	580.5	596	580.4
	14-0079	351.6	374.3	407.2	441.2	465.8	478.8	497.1	515.4	527.2	544.8	522.1	540.5
	14-0080	341.2	377.2	408.9	436.6	456.4	463.9	482.3	502	522.2	534.6	548.7	534.6
	14-0085	332.5	371	413.4	449.2	479.4	490.7	501.1	522.6	537	553.6	563.7	549.6
	14-0086	314.2	341.8	352.6	371.8	390.1	404.8	423.3	438	450	477.8	492.5	479.5
	14-0087	337.4	373.3	401.7	429.1	452	462.6	485.7	518.3	536	556.9	575.8	561
	14-0088	343	404.9	452.4	491.9	522.5	525.4	550.4	569.3	591.3	613.8	635.8	619.4

	14-0077	353.3	383.9	418.9	443.5	469.8	482.9	505.9	525.3	543.5	559.4	575.7											560.5
	14-0091	336.5	364	386	408.1	429.6	440.1	458	481.8	505.4	524.9	537.1											524.4
	14-0092	364.9	418.7	461.6	501.9	534.3	545.9	562.8	576	587.9	595.2	610.6											596.3
	14-0099	365.4	425.5	477.6	509.7	555.1	542.4	567.1	599.5	631.7	659.3	686.3											664.7
	14-0100	371.7	415.2	445.7	485	527.1	524.4	554.1	584.3	611.2	621.1	635.4											622.4
	Mean	**335.7**	**371.3**	**410.3**	**437.3**	**462.8**	**469.7**	**490.3**	**508.7**	**527.6**	**543.3**	**556.2**											**544.3**
	SD	**18.51**	**28.07**	**30.80**	**36.13**	**42.67**	**40.84**	**44.10**	**47.33**	**50.86**	**51.96**	**55.86**											**52.85**
	14-0006	317.9	365.7	398.2	424	448.2	466.2	500.1	523.1	555.7	565.9	582.3	585.6	597.6	612.0	618.8	630.7	638.5	641.6	641.8	653.8	655.8	636.0
	14-0102	343.1	399.4	424.1	446.2	460.7	464.4	488	514.7	543.5	581.4	602.2	628.7	645.0	667.5	678.1	691.9	711.8	722.6	731.9	740.8	748.6	728.0
Control recovery	14-0105	320.7	364.5	389.6	408.4	421.7	446.4	469.3	493.8	514	528.4	543.6	556.5	567.9	583.2	589.7	604.7	612.3	623.3	625.6	634.0	647.0	620.8
	14-0106	347.9	399.2	447.6	489.4	514.7	550	573	594.7	612.7	627.8	654.1	661.7	676.2	702.9	713.2	719.9	737.5	745.5	752.2	759.2	763.5	748.0
	14-0109	340.3	380.2	419.5	453.1	486.5	514.1	535.5	560.3	580	593.5	607.3	621.3	634.5	653.6	664.8	675.2	685.0	702.2	705.7	719.4	726.9	702.3
	14-0110	313.4	351.8	381.5	402.2	421.9	445	463	483.2	500.9	503	522.2	525.2	547.2	562.6	573.0	585.3	594.0	602.9	599.5	614.4	619.0	594.7
	14-0113	343.9	402.1	436	468.5	493.4	512.1	481.8	549	575.3	589.8	607.4	613.4	621.7	634.8	644.0	654.6	662.1	674.2	679.7	689.9	702.9	676.9
	14-0114	346.3	406.1	453.4	487.9	516.7	532.1	501.1	565	587.3	603.4	622.9	631.0	650.4	652.5	664.6	679.1	691.0	696.9	704.1	717.7	724.0	700.1
	14-0119	334.7	380.1	417.5	448.7	469.2	487.6	510.1	521.4	536.4	548.7	566.3	559.4	574.6	583.4	585.7	599.5	598.8	605.7	609.6	620.9	635.6	609.7
	14-0120	354.5	395.9	425.8	445.8	462.1	477.2	493.7	515.2	531.6	548	572.6	579.3	595.6	613.0	627.4	642.0	656.5	663.2	675.5	684.5	695.3	677.1
	Mean	**336.3**	**384.5**	**419.3**	**447.4**	**469.5**	**489.5**	**501.6**	**532.0**	**553.7**	**569.0**	**588.1**	**596.2**	**611.1**	**626.6**	**635.9**	**648.3**	**658.8**	**667.8**	**672.6**	**683.5**	**691.9**	**669.4**
	SD	**14.12**	**18.87**	**23.73**	**29.81**	**33.78**	**36.14**	**32.48**	**34.52**	**35.00**	**37.56**	**38.84**	**41.97**	**41.23**	**43.72**	**45.28**	**43.89**	**48.44**	**49.29**	**52.14**	**51.14**	**50.04**	**52.04**
	14-0103	346.9	398.5	436.5	468.8	489	506.8	527.1	537.7	550.9	561.2	570.1	587.9	597.1	616.1	623.1	634.6	643.1	653.8	662.9	669.1	675.8	657.5

3600 mg/l recovery	14-0104	335.1	377.6	409.2	437.7	463.4	486.7	508.2	521.5	536.8	551	557.6	592.8	610.7	613.1	628.6	636.8	640.7	643.9	649.1	657.3	659.1	643.0
	14-0107	333.8	355.9	391.9	421	442	457.1	474.4	494.8	515.6	531.5	547.7	560.4	578.5	587.7	601.4	611.4	617.3	628.8	637.2	643.1	651.5	629.8
	14-0108	344.1	384.4	422.4	443	465.7	488.5	509	532.5	548	564.5	584.6	607.4	618.9	631.7	639.2	658.6	659.0	671.5	672.9	687.1	688.9	669.1
	14-0111	338.9	359.2	377.9	400	418.4	427.3	445.3	455.5	469.9	487.8	496.6	523.9	548.7	562.0	575.9	587.6	602.6	610.9	619.7	628.0	638.1	619.7
	14-0112	340.2	394.4	433.3	460.7	484.4	505.6	528.8	549.2	567.3	586.8	603.3	633.0	651.0	669.0	683.8	690.1	693.4	699.9	713.3	722.8	728.6	706.4
	14-0115	350.6	399.2	435.2	467.9	493.9	523.7	532.8	549.8	563	582.6	601.3	596.1	642.8	661.0	681.4	689.8	692.2	705.6	713.8	724.7	730.2	704.9
	14-0116	333.6	349.3	370.2	381.4	400.6	417.5	431.2	447.3	458.8	473.9	485.6	495.6	536.6	543.3	550.9	562.4	570.9	578.1	583.1	593.2	598.6	580.1
	14-0117	337.9	366.1	394.5	425.8	444.7	470.4	490.4	503.2	499.7	525.5	543.4	558.4	569.3	580.0	585.6	594.9	598.9	611.1	616.7	617.3	628.5	606.5
	14-0118	314.1																					
	Mean	**337.5**	**376.1**	**407.9**	**434.0**	**455.8**	**476.0**	**494.1**	**510.2**	**523.3**	**540.5**	**554.5**	**572.8**	**594.8**	**607.1**	**618.9**	**629.6**	**635.3**	**644.8**	**652.1**	**660.3**	**666.6**	**646.3**
	SD	**9.97**	**19.21**	**25.44**	**30.26**	**32.19**	**36.32**	**37.00**	**38.25**	**39.83**	**39.61**	**41.83**	**42.87**	**39.89**	**42.83**	**45.46**	**44.75**	**42.03**	**42.60**	**43.87**	**45.48**	**44.22**	**42.79**

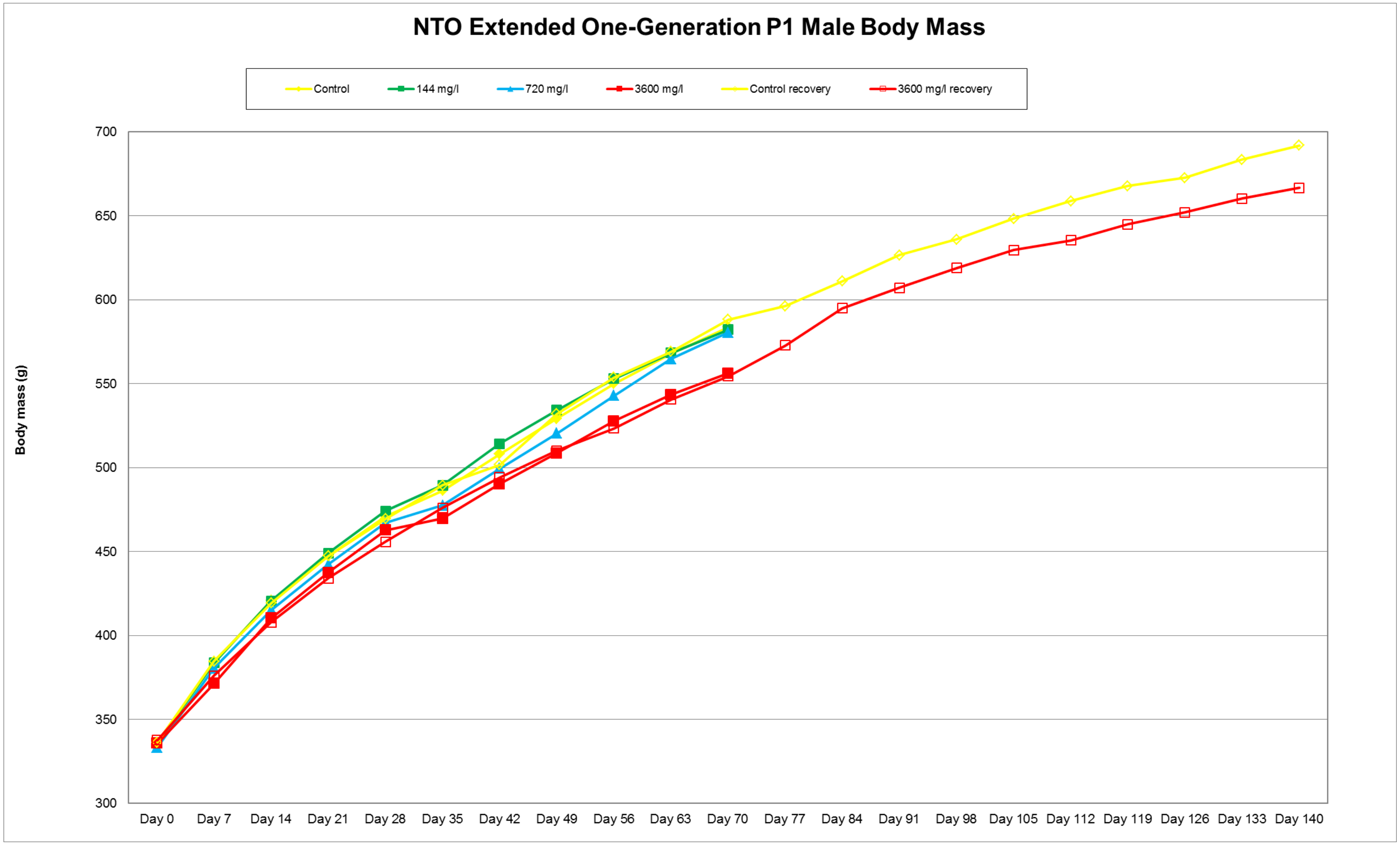
NTO Extended One-Generation P1 Male Body Mass
Control
144 mg/l
720 mg/l
3600 mg/l
Control recovery
3600 mg/l recovery
Body mass (g)
700
650
600
550
500
450
400
350
300
Day 0
Day 7
Day 14
Day 21
Day 28
Day 35
Day 42
Day 49
Day 56
Day 63
Day 70
Day 77
Day 84
Day 91
Day 98
Day 105
Day 112
Day 119
Day 126
Day 133
Day 140

Table E-2

Protocol No. 56-13-02-01

Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

Individual Body Mass (grams)

Female Rats

Group	Animal ID	Day 0	Day 7	Day 14	GD 0	GD 2	GD 4	GD 6	GD 8	GD10	GD12	GD14	GD16	GD18	GD20	GD21	PPD0/1	PPD 4	PPD 7	PPD 14	PPD 21	non-preg final	PPD22 fasted
Control	14-0121	259.7	259.7	262.2	263.3	267.2	279.6	285.7	293.2	301.0	309.7	323.9	345.4	366.7	383.7		276.4	289.4	310.1	324.8	305.3		287.9
	14-0122	241.8	249.4	258.8	267.0	275.9	286.2	300.7	311.5	312.2	327.1	345.6	364.1	392.0	421.1	424.7	300.3	320.9	337.4	351.4	336.6		303.5
	14-0130	247.2	257.6	268.5	268.4	282.4	287.3	294.5	306.0	317.9	325.4	338.5	346.2	379.1	404.6	410.8	305.2	319.1	329.5	339.2	314.0		292.5
	14-0133	271.1	282.7	295.2	290.7	304.1	321.4	328.3	339.8	357.5	371.4	383.8	396.3	433.1	463.8	460.0	308.6	317.4	334.5	309.2	342.6		303.6
	14-0136	241.8	261.1	268.2	271.1	285.3	296.3	304.5	315.0	325.1	338.1	350.7	356.8	402.9	412.8	396.2							FD
	14-0143	257.9	261.8	269.2	278.7	287.1	289.5	294.0	294.9	302.3	313.3	326.8	345.3	376.8	394.4	385.9	284.6	307.1	305.2	320.9	308.9		279.5
	14-0148	266.8	285.7	296.3	316.4	327.7	337.0	357.3	371.3	383.0	396.0	408.2	432.2	462.6	495.4	491.5	382.5	372.2	370.0	372.0	363.7		331.7
	14-0149	259.3	270.1	278.6	284.0	294.0	301.2	307.0	316.3	324.5	338.5	350.2	368.2	399.5	428.9	434.0	305.0	320.2	323.3	340.6	330.9		299.0
	14-0150	255.2	273.3	289.2	290.3	306.7	312.0	325.2	334.6	348.8	364.8	385.8	401.8	450.5	475.8	471.9	334.3	339.1	352.1	358.6	343.5		310.5
	14-0156	253.0	269.8	280.0	287.5	300.7	307.5	312.6	317.5	325.8	338.0	354.1	368.9	395.7	421.2	423.9	306.2	323.0	333.7	348.3	336.7		292.9
	14-0157	258.2	268.1	263.7	273.3	288.3	301.3	312.3	318.2	333.2	349.1	361.3	388.4	414.2	420.6		301.7	320.7	327.7	343.9	338.6		297.1
	14-0161	256.9	270.3	288.6	291.1	308.8	320.9	332.8	342.1	350.9	365.7	378.6	389.8	421.3	446.3	451.0	320.5	348.4	352.7	368.9	345.7		325.6
	14-0162	255.7	275.5	282.5	292.2	299.8	303.4	310.9	314.9	325.7	338.0	346.0	369.0	403.6	416.1	427.5	302.0	318.8	313.1	346.6	319.6		294.1
	14-0163	286.2	286.9	284.6	289.8	308.1	316.2	328.8	348.1	365.5	373.0	391.5	414.7	442.7	480.9	484.5	354.0	374.2	369.6	367.5	352.2		319.1
	14-0173	257.2	270.4	282.2	284.4	296.6	314.2	320.1	331.2	347.8	357.7	370.7	387.7	420.5	448.7	462.7	332.8	352.8	339.8	345.0	338.6		308.2
	14-0179	270.5	279.3	279.6	292.6	304.4	312.8	320.1	330.0	345.1	357.1	370.0	391.3	423.8	434.4	428.5	314.5	340.2	354.3	353.8	357.5		314.1
	14-0185	253.1	254.5	261.3	254.9	275.6	284.2	296.6	303.9	309.6	323.1	332.1	345.1	368.4	398.4	398.3	273.7	306.5	311.3	335.8	314.4		294.8
	14-0186	277.	281.	289.6	296.	304.	308.	317.	326.	337.	349.	363.	378.	403.	422.	413.	293.8	325.	338.	349.3	345.5		310.8

		7	4		6	8	2	9	8	4	4	5	8	3	8	1		9	4				
	14-0191	253.6	256.2	263.4	263.5	279.3	288.4	296.2	306.8	320.1	330.9	343.5	369.6	398.5	418.7		292.5	322.3	331.0	356.6	345.1		298.5
	14-0196	269.0	290.8	304.2	307.3	319.9	331.2	343.2	359.4	370.2	382.2	395.1	416.2	453.7	486.2	482.4	346.0	355.4	366.5	373.6	335.9		321.6
	14-0198	276.2	299.6	300.0	304.6	314.3	320.4	327.8	334.0	344.6	349.7	364.2	377.6	407.1	437.4	442.2	313.6	344.4	347.4	356.0	333.1		295.3
	14-0205	268.1	273.9	268.7	275.7	288.1	299.1	305.2	314.5	329.6	341.0	354.4	371.8	403.9	427.5	415.3	303.9	317.2	422.6	334.2	332.7		316.7
	14-0207	245.8	253.0	263.9	266.0	278.9	281.7	288.6	293.0	296.2	293.6	291.2	286.0	291.7	291.7	288.5						295.6	
	14-0215	262.7	263.5	265.8	267.5	280.8	289.1	302.8	307.8	319.0	322.4	336.3	354.4	389.3	415.5	403.8	284.9	313.7	326.2	359.4	339.3		310.4
	14-0217	260.5	264.1	266.5	272.0	291.6	294.7	308.0	318.3	328.6	334.5	345.2	371.0	401.3	428.1	422.5	290.3	308.7	314.5	334.5	322.3		282.9
	Mean	**260.2**	**270.3**	**277.2**	**282.0**	**294.8**	**303.4**	**312.8**	**322.0**	**332.9**	**343.6**	**356.4**	**373.5**	**404.1**	**427.0**	**428.1**	**309.9**	**328.6**	**339.6**	**347.4**	**334.9**	**295.6**	**303.9**
	SD	**11.04**	**12.75**	**13.53**	**15.46**	**15.18**	**15.87**	**17.43**	**19.87**	**22.17**	**23.89**	**25.93**	**29.55**	**34.52**	**40.34**	**43.40**	**25.89**	**21.31**	**26.16**	**16.41**	**15.05**		**13.66**
	14-0123	242.9	255.6	265.2	272.7	286.4	297.0	300.6	302.3	312.0	322.7	333.7	348.2	381.0	399.7	397.7	267.5	288.1	293.8	331.8	332.3		283.1
	14-0125	270.1	321.3	358.9																		443.8	
144 mg/l	**14-0129**	265.5	272.5	293.7	293.8	308.1	313.9	321.5	332.1	344.6	353.5	367.7	381.5	408.9	438.7	436.5	293.9	324.5	331.4	357.6	337.0		308.1
	14-0134	246.7	261.1	271.0	270.6	295.9	304.3	315.1	327.8	338.9	352.7	368.4	390.0	421.7	443.5	428.7	294.3	341.3	350.2	357.8	344.7		313.9
	14-0137	265.4	273.7	292.1	291.3	313.5	328.1	336.8	346.4	356.1	370.9	389.7	409.8	450.9	472.3	463.6	325.6	335.0	342.9	351.2	337.9		309.3
	14-0154	270.9	277.8	293.8	296.7	304.0	310.0	314.4	322.9	329.8	339.6	347.1	350.8	375.4	401.4	415.5	320.9	336.4	356.9	366.5	336.5		308.4
	14-0164	298.9	288.5	306.2	297.3	319.1	326.8	338.9	338.6	345.7	358.8	380.4	400.9	435.7	455.8	446.8	301.6	323.5	338.0	356.3	351.5		304.6
	14-0166	244.2	278.3	291.1	288.6	305.7	321.3	327.1	337.7	351.1	364.3	372.1	388.2	429.7	457.1	440.0	293.5	334.1	356.9	368.9	344.4		314.0
	14-0174	269.3	277.5	280.6	279.4	303.6	309.3	316.7	323.2	335.4	345.5	353.5	374.3	406.6	432.7	429.7	303.3	324.3	348.1	365.1	350.1		314.0
	14-0175	240.1	246.6	250.5	258.2	274.2	284.7	292.3	305.7	318.8	335.4	340.1	363.7	386.5	416.3	422.4	296.1	332.4	342.6	348.8	326.7		293.2
	14-0176	263.7	288.7	290.4	292.0	318.5	335.8	348.9	358.7	370.0	385.8	398.5	425.6	450.1	461.1	448.7	318.9	344.9	350.7	357.6	331.7		316.6
	14-0177	256.	267.	278.4	284.	300.	311.	324.	340.	357.	369.	374.	393.	426.	455.	460.	329.6	347.	360.	364.1	359.0		327.4

		3	2		8	2	6	0	3	4	4	2	5	6	3	8		2	1				
	14-0178	269.4	281.9	291.1	291.5	307.7	317.2	324.9	327.5	331.2	346.2	357.1	371.5	408.9	435.8	433.0	306.0	337.6	359.3	380.8	352.9		316.3
	14-0180	253.3	259.8	272.0	287.7	298.2	307.0	320.6	324.6	341.1	343.5	352.2	365.9	394.3	425.8	421.9	295.3	340.1	351.6	369.3	350.2		315.4
	14-0183	254.6	261.3	265.6	288.7	304.0	312.5	324.5	332.3	341.8	352.3	367.4	386.3	425.7	451.1	442.8	302.6	332.7	350.8	372.3	339.6		313.2
	14-0195	282.5	299.2	316.8	320.9	329.6	354.2	364.4	376.9	395.5	409.9	421.6	445.7	480.2	522.5	521.3	364.4	395.8	416.4	424.9	399.7		356.1
	14-0197	263.0	275.4	274.1	292.1	300.8	310.2	320.2	326.4	347.8	345.6	355.6	373.7	402.7	427.9	422.7	302.1	323.4	336.0	352.4	345.2		305.0
	14-0199	255.2	256.9	265.3	267.4	278.5	288.2	295.5	306.2	310.9	325.4	330.3	348.6	385.6	404.8	400.7	285.4	313.2	339.4	347.0	317.0		293.0
	14-0200	262.6	268.3	277.6	281.5	294.7	307.2	314.6	320.0	328.2	340.9	356.9	374.1	406.2	430.1	423.7	309.5	333.3	344.6	359.9	334.2		297.5
	14-0206	276.0	299.7	320.1	338.3	353.6	359.8	380.6	389.5	398.7	408.5	419.8	444.9	473.8	502.4	491.8	328.5	365.1	376.5	408.9	380.4		342.0
	14-0211	270.9	281.9	304.2	308.2	321.2	332.7	347.9	361.8	375.4	375.7	385.1	407.3	440.9	465.4	463.0	329.4	353.6	367.0	376.8	346.8		318.1
	14-0212	253.3	261.8	271.0	274.6	283.9	290.8	295.6	299.5	314.3	326.1	333.5	350.3	374.9	405.2	401.4	276.7	307.2	335.3	346.6	331.5		296.3
	14-0214	259.5	265.3	272.1	276.0	291.1	299.7	309.7	317.5	325.8	331.8	338.5	356.1	378.9	400.9	400.7	292.3	313.1	327.5	355.7	329.1		293.5
	14-0218	270.2	270.7	286.8	319.4	324.5	328.9	333.5	338.2	347.1	355.9	358.1	367.1	374.8	371.7	379.3						392.3	
	14-0220	248.9	261.0	263.0	271.6	282.6	294.0	305.4	316.5		337.4	351.1	371.7	407.5	429.8	425.8	287.7	306.7	314.8	348.1	335.8		294.0
	Mean	**262.1**	**274.1**	**286.1**	**289.3**	**304.2**	**314.4**	**323.9**	**332.2**	**344.2**	**354.1**	**364.7**	**382.9**	**413.6**	**437.8**	**434.1**	**305.4**	**332.8**	**347.4**	**363.8**	**344.1**	**418.1**	**310.1**
	SD	**13.33**	**16.49**	**22.91**	**18.40**	**18.03**	**19.10**	**21.45**	**22.35**	**23.75**	**23.42**	**24.94**	**28.01**	**30.63**	**33.99**	**31.25**	**21.10**	**21.73**	**22.95**	**20.20**	**17.70**	**36.42**	**16.40**
	14-0124	254.9	274.6	285.7	289.4	301.3	310.4	312.8	326.1	339.2	345.8	363.9	371.3	398.5	420.9	419.7	307.2	228.4	350.0	355.2	329.3		303.7
720 mg/l	**14-0128**	246.9	265.8	288.6	287.1	302.3	308.1	322.1	328.1	340.3	354.7	366.7	387.1	421.7	452.3		306.4		343.3	350.2	340.5		307.3
	14-0132	253.7	271.3	280.9	283.2	298.0	311.2	320.2	329.8	341.3	354.4	364.9	380.6	407.9	428.4	425.0	322.3	320.3	328.0	345.9	329.1		315.4
	14-0138	260.6	279.7	294.7	294.4	302.2	311.7	321.5	327.7	337.4	347.7	360.3	369.2	393.8	421.9	433.0	303.6	318.4	341.7	352.6	339.0		305.6
	14-0142	261.3	291.3	319.0	326.5	341.1	349.1	355.9	365.8	377.5	388.6	405.2	417.3	447.5	469.3	470.1	342.3	332.5	353.0	370.9	354.3		312.2
	14-0144	263.	297.	311.7	319.	331.	345.	357.	364.	379.	397.	408.	425.	468.	493.	493.	367.9	363.	377.	376.0	359.9		328.2

	8	2		9	9	1	5	8	4	3	1	4	2	4	5		4	7				
14-0145	267.2	286.6	299.5	301.1	316.1	326.8	333.1	360.6	369.6	383.6	395.5	410.8	443.4	472.8	486.1	345.8	364.3	381.4	363.8	360.7		314.4
14-0146	252.3	280.5	295.9	299.8	313.0	329.3	341.3	356.1	370.1	381.6	393.5	411.7	445.9	461.6	457.6	326.9	331.1	346.6	354.9	340.6		308.8
14-0147	258.1	279.1	284.2	300.4	312.7	325.0	337.5	342.8	354.3	363.7	370.8	382.6	410.6	438.4	438.0	306.7	328.4	350.2	354.9	332.2		312.9
14-0152	254.6	258.5	277.9	278.5	301.7	315.2	324.5	330.8	344.3	352.7	361.2	376.9	400.0	428.3	419.0	230.3	320.5	335.1	341.5	340.0		329.4
14-0153	269.4	280.8	299.4	303.3	317.4	326.5	339.3	341.2	356.7	359.9	377.2	392.2	418.4	445.4	438.2	312.6	344.3	363.7	373.3	360.9		314.6
14-0158	259.7	267.7	279.4	280.2	292.9	305.0	310.8	322.0	338.4	352.1	368.3	380.8	417.6	430.7	422.0	292.8	330.0	359.9	362.0	335.2		315.4
14-0160	252.5	267.0	268.7	283.4	291.5	302.8	311.9	322.1	330.7	340.4	349.5	368.9	388.4	415.0	424.3	294.9	298.8	309.5	330.4	324.8		286.8
14-0165	234.8	243.1	256.5	252.2	272.7	286.6	298.9	308.8	317.3	335.2	342.5	360.6	390.1	388.0	374.1	260.9	297.1	312.7	339.4	315.3		294.9
14-0169	250.2	265.4	277.7	283.4	289.9	301.3	310.3	317.1	323.6	338.9	349.4	362.7	388.2	418.3	432.2	308.4	338.7	346.2	356.2	331.8		299.5
14-0170	273.4	296.3	301.5	306.8	313.4	323.2	333.1	341.6	350.0	364.4	369.2	390.0	420.0	452.5	448.7	302.1	313.6	322.9	345.1	318.4		308.6
14-0171	269.6	282.5	305.0	304.6	317.3	322.0	327.0	343.2	346.9	337.6	373.5	398.4	434.2	462.3	462.8	319.1	342.6	355.9	368.2	343.2		315.2
14-0188	260.7	271.0	276.0	291.1	305.2	312.1	318.9	323.4	335.2	341.3	348.0	366.3	385.1	415.6	427.1	307.0	324.3	333.9	352.3	326.5		297.0
14-0190	249.9	259.2	276.8	280.4	296.4	303.3	309.6	318.8	331.0	346.6	357.8	381.5	416.5	451.7	424.5	315.6	335.8	341.9	380.4	340.4		305.5
14-0192	249.2	267.7	280.3	281.8	297.2	307.8	317.7	327.4	337.4	350.8	350.9	375.0	398.5	428.9	431.9	300.9	325.6	346.6	364.8	352.6		312.8
14-0193	261.0	269.2	271.6	272.8	290.8	304.9	322.7	331.3	344.2	354.4	366.4	389.0	417.0	451.0	439.6	306.0	329.2	348.8	371.0	354.9		315.5
14-0201	264.8	283.9	292.8	303.1	319.2	324.4	338.9	348.7	363.8	375.3	391.3	399.3	445.8	479.6	477.0	313.3	340.3	354.0	358.1	340.0		317.5
14-0202	259.3	273.9	289.5	293.8	299.8	309.5	318.0	325.6	333.3	347.5	357.4	371.9	401.8	426.4	420.7	296.4	312.2	321.4	335.2	323.7		302.0
14-0203	260.3	268.4	276.4	310.1	308.4	314.5	318.7	326.8	342.2	348.8	355.6	371.2	392.5	419.0		312.7	325.7	333.2	344.0	345.3		
14-0204	264.1	272.4	282.2	291.4	304.3	313.3	322.2	332.5	339.6	344.5	359.7	386.8	404.4	433.6	440.0	327.0	329.0	333.1	348.0	323.5		307.1
Mean	**258.1**	**274.1**	**286.9**	**292.7**	**305.5**	**315.6**	**325.0**	**334.5**	**345.7**	**356.3**	**368.3**	**385.1**	**414.2**	**440.2**	**439.4**	**309.2**	**324.8**	**343.6**	**355.8**	**338.5**		**309.6**
SD	**8.45**	**12.19**	**14.20**	**15.68**	**14.30**	**13.71**	**14.23**	**15.17**	**16.06**	**16.83**	**17.88**	**17.39**	**22.42**	**24.28**	**26.21**	**26.01**	**26.03**	**17.58**	**13.12**	**13.29**		**9.66**

	14-0126	244.1	247.1	249.2	258.8	273.4	281.1	290.2	295.4	304.5	323.3	330.9	353.1	384.1	404.3	396.4	256.9	279.0	286.7	308.2	321.5		284.0
3600 mg/l	**14-0127**	258.5	273.8	283.3	284.0	291.6	307.0	317.3	320.6	329.8	342.6	348.4	360.7	379.4	402.6	417.1	300.1	219.3	318.8	331.9	311.9		298.3
	14-0131	254.5	267.7	270.3	280.6	290.8	297.9	305.9	315.4	328.6	339.6	348.1	360.8	390.1	422.2	431.3	305.5	326.5	322.2	316.0	317.1		291.6
	14-0135	251.1	265.3	276.1	276.2	287.0	300.3	311.4	310.6	326.4	339.8	343.8	356.0	383.8	401.9	405.0	291.0	310.9	319.7	329.8	327.7		295.5
	14-0139	251.4	247.8	272.3	278.2	286.2	293.6	305.4	314.7	325.8	339.3	347.3	365.3	397.3	422.5	419.8	303.8	315.8	326.2	318.6	305.8		282.9
	14-0140	265.8	263.6	287.0	289.4	300.8	312.6	319.8	329.2	346.6	359.8	372.5	392.5	431.2	462.4	461.8	339.2	339.3	346.6	343.4	332.6		303.0
	14-0141	237.3	248.8	260.5	264.2	270.1	278.8	284.9	297.0	301.6	315.6	325.2	347.4	370.0	398.4	394.0	285.6	294.3	301.7	306.4	291.7		276.1
	14-0151	241.7	260.9	271.9	271.9	286.4	302.1	312.2	316.9	323.4	335.9	351.1	361.7	385.2	406.8	394.8	270.6	300.3	311.1	318.2	305.0		276.6
	14-0155	250.1	267.1	267.3	281.2	293.9	300.4	304.4	315.9	324.3	334.2	339.9	355.7	381.4	411.0	418.0	292.9	315.1	318.3	332.7	291.1		277.2
	14-0159	277.2	302.7	307.1	312.1	326.2	336.7	347.7	356.0	370.7	384.8	395.4	408.8	440.2	469.8	485.7	352.6	351.0	357.9	374.2	361.2		328.2
	14-0167	252.2	267.9	272.0	272.5	293.3	298.9	305.8	317.1	332.6	341.8	351.8	371.8	399.7	427.0	431.6	311.0	315.9	312.4	323.2	302.3		280.4
	14-0168	274.4	280.8	293.4	288.4	302.5	318.1	325.8	336.0	339.0	349.2	353.5	357.6	366.2	350.6	349.1						352.6	
	14-0172	292.9	328.7	359.4	342.6	364.4	372.5	382.1	387.9	398.5	415.8	429.2	449.9	486.5	515.6	512.1	392.4	401.9	399.0	394.6	374.5		352.4
	14-0181	246.2	264.0	264.8	269.4	283.8	293.2	305.4	314.3	321.8	338.1	348.1	371.1	398.3	425.8	414.8	292.5	309.8	317.6	328.0	320.4		289.0
	14-0182	276.4	287.4	292.4	307.6	320.0	327.3	337.4	346.2	355.9	368.2	377.5	401.2	440.1	461.4	454.7	316.0	337.0	338.3	346.8	329.3		289.9
	14-0184	270.9	278.1	298.8	292.4	309.0	314.0	321.7	331.3	341.8	348.1	341.0	336.5	330.4	332.0	324.5						326.9	
	14-0187	246.9	254.6	252.3	257.4	271.1	275.6	282.6	288.6	293.7	296.3	295.0	284.8	282.5	284.5	279.9						284.6	
	14-0189	256.9	261.5	272.9	273.8	284.7	291.6	301.3	315.9	325.8	339.8	344.6	371.5	405.2	401.8	371.6	263.7	295.1	296.4	323.1	324.1		311.1
	14-0194	272.3	279.7	302.3	293.3	314.2	321.8	333.6	339.9	349.5	363.5	369.4	382.6	409.7	435.9	420.9	296.4	324.6	321.7	329.2	323.9		310.7
	14-0208	262.9	276.0	301.7	297.5	322.3	331.5	335.9	344.7	358.9	383.9	398.3	425.6	471.0	476.6	470.0	346.2	325.0	341.2	358.3	324.1		316.5
	14-0209	249.6	261.6	271.4	269.7	284.1	290.4	303.0	309.9	324.9	332.2	342.4	352.7	382.1	409.5	408.8	293.1	317.7	326.4	347.1	330.6		305.7

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14-0210	299.7	317.4	341.6	358.7	371.7	380.5	391.7	402.3	412.3	429.3	444.4	467.2	506.4	540.3	536.9	371.1	414.4	438.1	383.7			FD
14-0213	263.5	264.1	278.5	279.0	293.6	300.9	309.1	322.0	332.9	349.0	358.4	381.3	408.0	438.3	449.8	325.2	335.2	340.6	351.6	332.8		319.5
14-0216	250.1	261.9	268.6	269.6	280.1	287.6	298.3	304.4	317.5	326.0	339.4	352.7	377.4	398.0	393.1	283.2	296.6	308.0	335.6	314.1		293.7
14-0219	268.1	260.5	276.7	284.3	298.2	305.1	310.6	320.9	328.2	345.8	353.9	372.2	401.9	422.4	415.6	309.5	319.2	335.9	331.6	298.8		284.0
Mean	**260.6**	**271.6**	**283.7**	**286.1**	**300.0**	**308.8**	**317.7**	**326.1**	**336.6**	**349.7**	**358.0**	**373.6**	**400.3**	**420.9**	**418.3**	**309.0**	**320.2**	**331.1**	**337.8**	**321.0**	**321.4**	**298.4**
SD	**15.60**	**19.97**	**25.22**	**23.73**	**25.47**	**25.77**	**26.19**	**26.30**	**27.07**	**29.17**	**31.73**	**36.78**	**46.26**	**52.80**	**54.82**	**33.92**	**38.94**	**33.42**	**23.22**	**20.27**	**34.34**	**19.50**

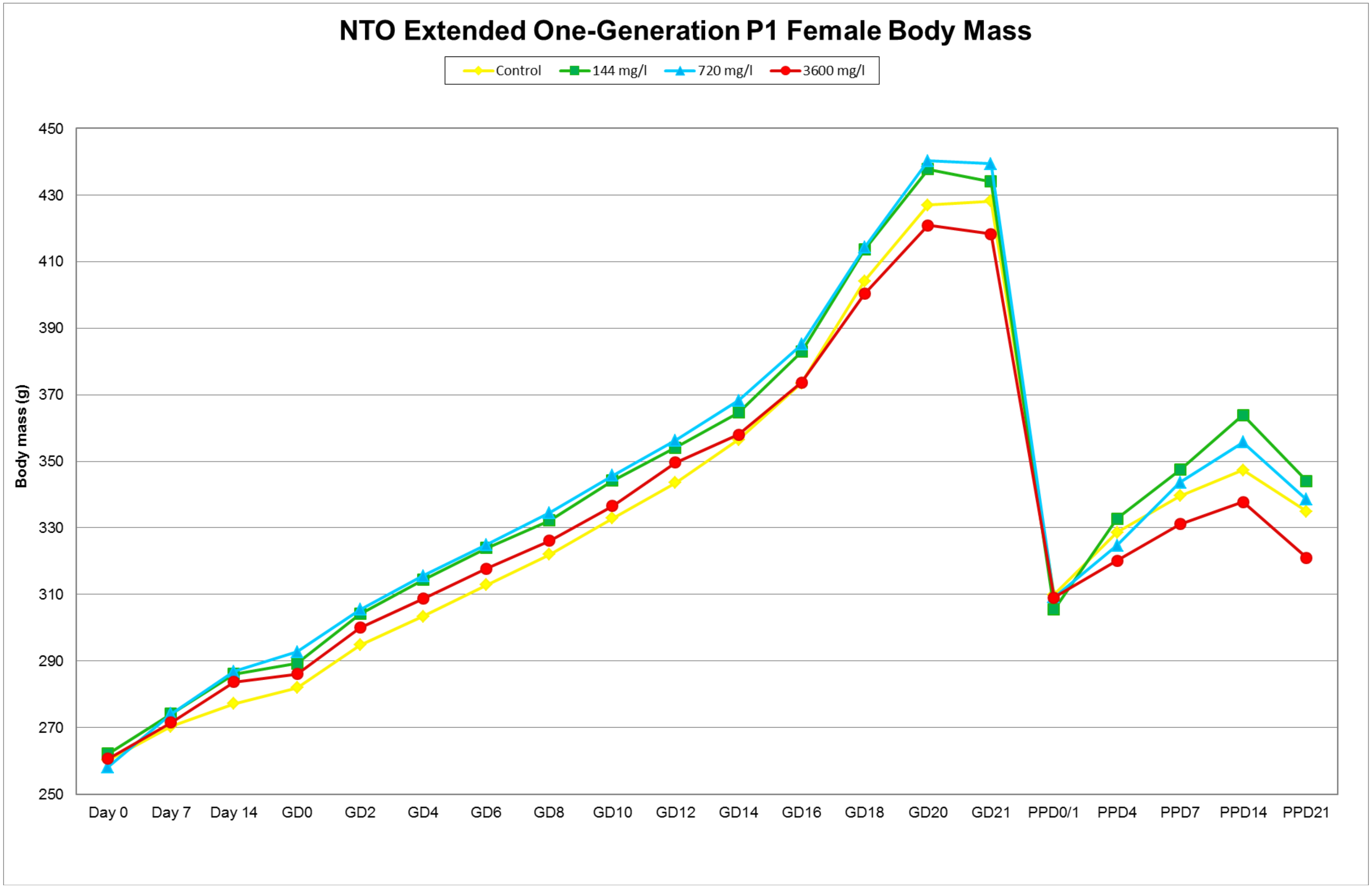
NTO Extended One-Generation P1 Female Body Mass
Control
144 mg/l
720 mg/l
3600 mg/l
Body mass (g)
450
430
410
390
370
350
330
310
290
270
250
Day 0
Day 7
Day 14
GD0
GD2
GD4
GD6
GD8
GD10
GD12
GD14
GD16
GD18
GD20
GD21
PPD0/1
PPD4
PPD7
PPD14
PPD21

Table E-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Litter Mean Body Mass (grams)

TX	Dam ID	Delivery Date	PND4 Date	PND21 Date	PND1	PND4	PND7	PND14	PND21
	14-0121	16-Dec-13	20-Dec-13	6-Jan-14	6.55	9.74	14.00	28.96	49.35
	14-0122	18-Dec-13	22-Dec-13	8-Jan-14	6.77	9.55	14.95	30.30	48.19
	14-0130	20-Dec-13	24-Dec-13	10-Jan-14	6.82	11.16	17.01	33.41	54.23
	14-0133	20-Dec-13	24-Dec-13	10-Jan-14	6.40	8.81	14.23	30.72	51.11
	14-0136	21-Dec-13	25-Dec-13	11-Jan-14	5.28				
	14-0143	21-Dec-13	25-Dec-13	11-Jan-14	6.42	10.41	15.61	32.01	54.19
	14-0148	23-Dec-13	27-Dec-13	13-Jan-14	6.77	10.72	15.96	32.42	53.81
	14-0149	20-Dec-13	24-Dec-13	10-Jan-14	5.31	7.12	11.82	24.41	40.68
	14-0150	20-Dec-13	24-Dec-13	10-Jan-14	6.34	9.09	13.70	26.23	45.21
	14-0156	21-Dec-13	25-Dec-13	11-Jan-14	6.39	9.26	15.14	30.81	51.38
	14-0157	18-Dec-13	22-Dec-13	8-Jan-14	6.50	8.79	14.83	31.00	49.20
	14-0161	20-Dec-13	24-Dec-13	10-Jan-14	7.91	10.66	15.36	29.91	48.72
Control	14-0162	20-Dec-13	24-Dec-13	10-Jan-14	6.08	8.76	13.50	28.09	46.63
	14-0163	23-Dec-13	27-Dec-13	13-Jan-14	6.09	9.64	15.45	29.66	50.00
	14-0173	19-Dec-13	23-Dec-13	9-Jan-14	5.91	8.78	14.06	28.86	46.74
	14-0179	19-Dec-13	23-Dec-13	9-Jan-14	7.22	10.05	15.35	30.83	50.85
	14-0185	21-Dec-13	25-Dec-13	11-Jan-14	5.52	7.83	12.90	26.38	44.20
	14-0186	23-Dec-13	27-Dec-13	13-Jan-14	5.79	9.07	14.50	28.73	49.18
	14-0191	19-Dec-13	23-Dec-13	9-Jan-14	6.25	8.64	13.33	28.04	46.10
	14-0196	23-Dec-13	27-Dec-13	13-Jan-14	6.06	9.09	15.76	31.07	53.63
	14-0198	24-Dec-13	28-Dec-13	14-Jan-14	6.17	9.74	15.15	28.53	47.87
	14-0205	26-Dec-13	30-Dec-13	16-Jan-14	6.27				
	14-0207								
	14-0215	24-Dec-13	28-Dec-13	14-Jan-14	6.24	10.00	16.28	31.40	52.89
	14-0217	21-Dec-13	25-Dec-13	11-Jan-14	6.91	8.85	14.36	29.71	50.45
				Mean	**6.33**	**9.35**	**14.69**	**29.61**	**49.30**
				STDEV	**0.58**	**0.95**	**1.20**	**2.15**	**3.50**
	14-0123	22-Dec-13	26-Dec-13	12-Jan-14	6.71	9.79	14.46	29.23	52.43
	14-0125								
	14-0129	22-Dec-13	26-Dec-13	12-Jan-14	6.15	8.01	13.80	31.54	50.54
	14-0134	20-Dec-13	24-Dec-13	10-Jan-14	6.71	9.16	15.22	31.80	52.96
	14-0137	19-Dec-13	23-Dec-13	9-Jan-14	7.13	9.80	14.55	28.89	50.02
	14-0154	20-Dec-13	24-Dec-13	10-Jan-14	8.08	12.69	17.49	33.84	58.93
	14-0164	20-Dec-13	24-Dec-13	10-Jan-14	6.92	10.10	15.01	31.59	54.69
	14-0166	20-Dec-13	24-Dec-13	10-Jan-14	5.96	7.56	13.19	29.43	48.46
	14-0174	21-Dec-13	25-Dec-13	11-Jan-14	6.69	8.63	13.70	29.75	49.48
	14-0175	21-Dec-13	25-Dec-13	11-Jan-14	6.98	10.86	16.12	31.98	50.50
	14-0176	19-Dec-13	23-Dec-13	9-Jan-14	5.88	8.08	14.18	29.18	46.92
	14-0177	20-Dec-13	24-Dec-13	10-Jan-14	5.53	7.85	13.91	28.72	46.69

144 mg/l	14-0178	20-Dec-13	24-Dec-13	10-Jan-14	6.07	9.59	15.27	33.76	55.91
	14-0180	24-Dec-13	28-Dec-13	14-Jan-14	6.85	9.31	14.47	28.99	47.07
	14-0183	23-Dec-13	27-Dec-13	13-Jan-14	5.72	7.71	13.68	32.67	53.08
	14-0195	24-Dec-13	28-Dec-13	14-Jan-14	6.56	9.35	15.42	33.13	55.72
	14-0197	23-Dec-13	27-Dec-13	13-Jan-14	6.45	8.96	13.87	28.20	45.34
	14-0199	22-Dec-13	26-Dec-13	12-Jan-14	5.98	9.51	15.30	31.39	52.39
	14-0200	21-Dec-13	25-Dec-13	11-Jan-14	6.00	9.50	15.74	31.67	55.39
	14-0206	24-Dec-13	28-Dec-13	14-Jan-14	6.55	8.74	14.20	29.65	50.22
	14-0211	24-Dec-13	28-Dec-13	14-Jan-14	6.69	9.81	15.57	31.96	51.37
	14-0212	23-Dec-13	27-Dec-13	13-Jan-14	5.53	8.30	13.40	27.50	47.85
	14-0214	23-Dec-13	27-Dec-13	13-Jan-14	6.06	8.48	13.29	27.79	43.49
	14-0218								
	14-0220	24-Dec-13	28-Dec-13	14-Jan-14	5.59	7.71	13.01	28.87	46.77
				Mean	**6.38**	**9.11**	**14.56**	**30.50**	**50.70**
				STDEV	**0.61**	**1.18**	**1.09**	**1.93**	**3.87**
	14-0124	20-Dec-13	24-Dec-13	10-Jan-14	6.19	9.66	15.82	30.43	50.38
	14-0128	17-Dec-13	21-Dec-13	7-Jan-14	5.76	8.11	13.24	30.86	48.93
	14-0132	20-Dec-13	24-Dec-13	10-Jan-14	6.13	8.70	14.23	28.37	49.70
	14-0138	20-Dec-13	24-Dec-13	10-Jan-14	7.74	10.42	15.08	29.82	50.30
	14-0142	20-Dec-13	24-Dec-13	10-Jan-14	6.73	8.95	13.94	29.56	53.10
	14-0144	20-Dec-13	24-Dec-13	10-Jan-14	6.65	9.99	15.69	33.25	53.30
	14-0145	20-Dec-13	24-Dec-13	10-Jan-14	7.82	11.35	17.50	33.87	52.30
	14-0146	20-Dec-13	24-Dec-13	10-Jan-14	6.01	9.03	16.12	32.34	52.37
	14-0147	23-Dec-13	27-Dec-13	13-Jan-14	7.06	10.66	16.84	32.06	58.21
	14-0152	20-Dec-13	24-Dec-13	10-Jan-14	5.94				
	14-0153	24-Dec-13	28-Dec-13	14-Jan-14	5.51	8.07	13.45	29.91	51.94
	14-0158	20-Dec-13	24-Dec-13	10-Jan-14	5.69	8.64	14.29	30.87	52.53
720 mg/l	14-0160	23-Dec-13	27-Dec-13	13-Jan-14	6.96	9.15	13.96	27.18	46.36
	14-0165	20-Dec-13	24-Dec-13	10-Jan-14	5.18	8.34	13.34	29.27	49.42
	14-0169	21-Dec-13	25-Dec-13	11-Jan-14	6.31	9.85	15.76	29.02	49.06
	14-0170	23-Dec-13	27-Dec-13	13-Jan-14	6.43	8.46	13.00	26.58	42.99
	14-0171	21-Dec-13	25-Dec-13	11-Jan-14	5.97	9.02	15.07	31.12	50.89
	14-0188	23-Dec-13	27-Dec-13	13-Jan-14	6.20	9.33	15.01	30.74	46.99
	14-0190	23-Dec-13	27-Dec-13	13-Jan-14	6.93	10.09	16.06	32.25	51.93
	14-0192	22-Dec-13	26-Dec-13	12-Jan-14	7.11	9.35	14.61	29.79	50.66
	14-0193	24-Dec-13	28-Dec-13	14-Jan-14	7.57	10.53	15.17	29.28	50.73
	14-0201	24-Dec-13	28-Dec-13	14-Jan-14	6.32	8.26	13.08	29.29	48.51
	14-0202	24-Dec-13	28-Dec-13	14-Jan-14	6.17	9.16	13.44	25.87	43.63
	14-0203	2-Jan-14	6-Jan-14	23-Jan-14	6.13	9.93	14.10	27.65	48.92
	14-0204	24-Dec-13	28-Dec-13	14-Jan-14	6.34	8.64	13.61	26.06	41.02
				Mean	**6.43**	**9.32**	**14.68**	**29.81**	**49.76**
				STDEV	**0.67**	**0.88**	**1.25**	**2.15**	**3.68**
	14-0126	22-Dec-13	26-Dec-13	12-Jan-14	5.89	9.95	14.56	27.14	44.42
	14-0127	20-Dec-13	24-Dec-13	10-Jan-14	7.37	10.29	14.35	26.59	44.38

	14-0131	21-Dec-13	25-Dec-13	11-Jan-14	6.18	9.22	15.23	29.11	43.89
	14-0135	20-Dec-13	24-Dec-13	10-Jan-14	6.79	7.84	10.76	21.34	36.31
	14-0139	23-Dec-13	27-Dec-13	13-Jan-14	7.22	9.65	14.42	27.93	45.18
	14-0140	20-Dec-13	24-Dec-13	10-Jan-14	5.73	9.08	15.11	29.77	48.87
	14-0141	20-Dec-13	24-Dec-13	10-Jan-14	6.31	9.60	13.75	26.24	40.68
	14-0151	21-Dec-13	25-Dec-13	11-Jan-14	6.16	11.56	16.74	31.00	53.67
	14-0155	23-Dec-13	27-Dec-13	13-Jan-14	7.07	11.06	16.31	30.19	50.60
	14-0159	20-Dec-13	24-Dec-13	10-Jan-14	6.49	9.39	14.49	30.36	49.03
	14-0167	22-Dec-13	26-Dec-13	12-Jan-14	7.18	9.99	14.35	25.44	41.78
	14-0168								
3600 mg/l	14-0172	21-Dec-13	25-Dec-13	11-Jan-14	6.68	9.73	16.67	33.97	54.58
	14-0181	21-Dec-13	25-Dec-13	11-Jan-14	5.82	9.66	15.61	29.67	49.02
	14-0182	24-Dec-13	28-Dec-13	14-Jan-14	5.91	9.23	14.75	29.26	47.47
	14-0184								
	14-0187								
	14-0189	23-Dec-13	27-Dec-13	13-Jan-14	5.55				
	14-0194	21-Dec-13	25-Dec-13	11-Jan-14	6.07	9.03	14.32	28.34	45.55
	14-0208	21-Dec-13	25-Dec-13	11-Jan-14	5.52	8.29	14.44	31.02	49.81
	14-0209	24-Dec-13	28-Dec-13	14-Jan-14	6.16	9.71	15.73	31.37	49.58
	14-0210	26-Dec-13	30-Dec-13	16-Jan-14	6.98	12.15	18.51	32.24	
	14-0213	22-Dec-13	26-Dec-13	12-Jan-14	7.42	10.20	16.04	30.06	48.16
	14-0216	23-Dec-13	27-Dec-13	13-Jan-14	6.44	8.70	12.84	25.17	40.76
	14-0219	25-Dec-13	29-Dec-13	15-Jan-14	5.50	7.98	13.26	27.92	44.72
				Mean	**6.38**	**9.63**	**14.87**	**28.77**	**46.42**
				STDEV	**0.62**	**1.07**	**1.60**	**2.82**	**4.53**

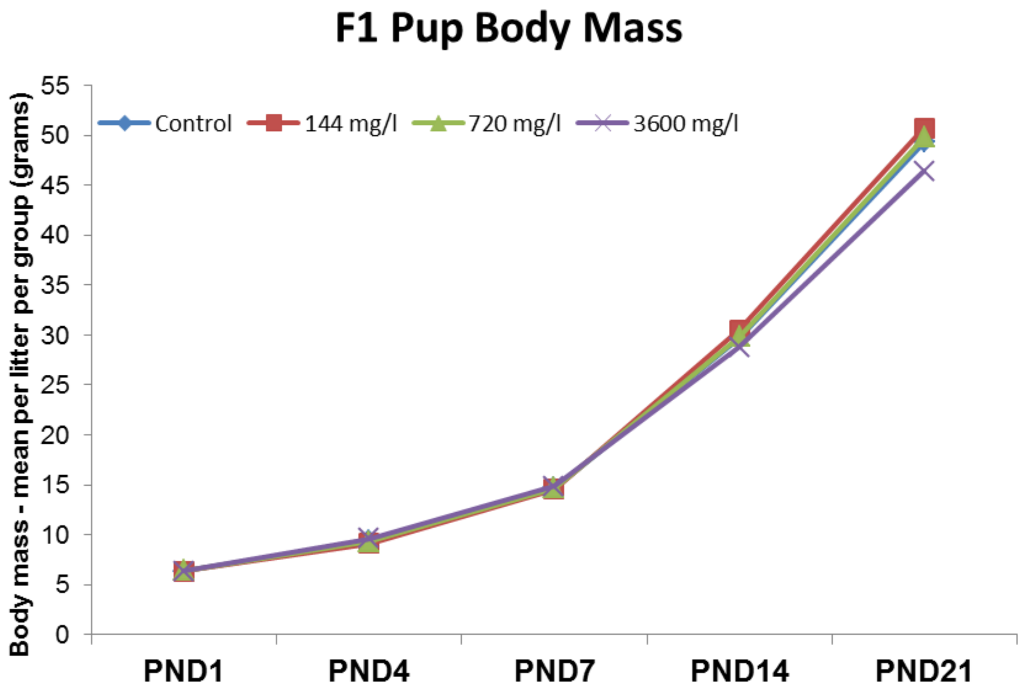
F1 Pup Body Mass
Body mass - mean per litter per group (grams)
55
50
45
40
35
30
25
20
15
10
5
0
Control
144 mg/l
720 mg/l
3600 mg/l
PND1
PND4
PND7
PND14
PND21

Table E-4
Protocol No.56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Body Mass (grams)
F1 Male Rats

Group	Cage	Animal ID	PND21	PND28	PND35	PND42	PND49	PND52	PPS	fasted
	1	14-0221	48.3	87.1	142.4	213.3	278.1	298.5	224.1	285.0
	1	14-0222	47.2	88.4	139.6	205.1	276.6	305.4	223.6	286.1
Control	2	14-0252	51.0	87.3	142.4	204.2	257.1	283.9	204.2	267.2
	2	14-0266	48.2	88.9	142.2	202.4	266.1	289.4	218.7	282.2
	3	14-0271	51.3	93.2	149.7	211.7	286.8	308.5	211.7	288.7
	3	14-0277	47.2	82.7	130.5	193.3	243.7	268.5	224.9	258.3
	4	14-0229	55.2	97.4	150.5	212.5	276.1	303.9	229.6	293.7
	4	14-0232	55.8	95.4	149.4	210.2	265.3	293.2	199.7	275.6
	5	14-0246	42.0	73.5	114.2	168.4	227.1	249.6	168.4	238.4
	5	14-0247	45.2	82.9	135.3	194.1	252.9	286.4	221.1	269.1
	6	14-0256	52.2	98.9	155.8	227.8	293.5	330.6	244.8	306.5
	6	14-0257	44.0	79.8	133.7	194.6	248.7	274.6	183.9	262.3
	7	14-0241	54.6	99.3	161.1	232.9	300.2	337.2	265.7	319.1
	7	14-0251	50.0	88.1	146.8	210.0	272.2	297.8	227.3	291.7
	8	14-0275	44.0	72.9	116.4	165.7	214.6	237.3	176.8	224.0
	8	14-0298	49.7	86.1	142.3	204.8	272.1	301.7	204.8	277.8
	9	14-0245	54.3	90.8	138.5	193.9	248.5	279.0	193.9	268.2
	9	14-0258	52.4	99.1	162.7	241.0	302.4	356.3	215.4	339.4
	10	14-0283	51.9	100.3	169.9	251.4	327.5	356.2	244.1	334.8
	10	14-0296	55.5	85.3	132.9	192.1	249.4	273.0	196.3	260.0
		Mean	**50.00**	**88.87**	**142.82**	**206.47**	**267.95**	**296.55**	**213.95**	**281.41**
		SD	**4.16**	**8.13**	**14.02**	**21.12**	**26.77**	**31.14**	**23.85**	**28.73**
	1	14-0235	51.5	95.7	159.3	235.9	212.0	341.2	235.9	326.3
	1	14-0268	49.1	82.8	131.8	196.5	253.9	276.1	196.5	262.8
144 mg/l	2	14-0233	55.9	96.9	155.1	137.1	274.7	305.9	233.9	291.4
	2	14-0259	55.0	102.4	178.5	253.3	317.6	348.6	261.1	331.1
	3	14-0261	54.2	94.5	153.5	219.1	286.9	313.3	238.1	297.2
	3	14-0269	45.1	80.4	137.1	210.5	276.9	303.9	210.5	287.8
	4	14-0270	59.4	95.3	157.5	221.2	284.3	315.7	239.5	299.3
	4	14-0267	51.9	88.0	133.1	192.1	248.1	279.4	212.2	263.3
	5	14-0285	57.7	94.7	145.1	214.6	274.5	308.9	223.6	291.5
	5	14-0223	50.9	88.3	147.8	214.5	282.2	291.2	233.9	281.6
	6	14-0228	50.3	82.8	133.8	194.5	255.1	265.0	201.8	250.4
	6	14-0284	54.1	95.0	153.3	215.0	279.0	286.8	215.0	274.5
	7	14-0274	54.6	88.0	142.8	211.4	272.3	302.0		280.9
	7	14-0282	48.8	82.7	137.8	203.9	264.6	292.3	227.3	277.3
	8	14-0293	47.7	86.1	141.8	205.4	264.2	292.6	211.3	277.5
	8	14-0295	47.2	75.5	124.6	182.2	237.1	255.5	187.1	243.4
	9	14-0272	46.2	78.6	125.5	176.9	224.9	243.4	176.9	230.3
	9	14-0281	61.9	106.9	175.6	245.1	317.8	347.4	223.5	323.1
	10	14-0292	49.8	92.8	148.6	209.4	269.2	293.6	223.5	278.9
	10	14-0300	47.7	77.4	129.8	189.5	253.1	276.5	194.5	263.3
		Mean	**51.95**	**89.24**	**145.62**	**206.41**	**267.42**	**296.97**	**218.22**	**281.60**
		SD	**4.56**	**8.54**	**15.00**	**25.34**	**26.18**	**28.14**	**20.81**	**26.30**
	1	14-0227	52.4	94.3	150.3	214.8	280.3	310.8	253.2	284.2
	1	14-0224	53.0	93.6	151.4	214.0	277.0	304.6	207.2	285.8

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720 mg/l	2	14-0231	52.2	86.9	137.3	190.1	248.3	275.1	205.2	250.9
	2	14-0236	50.7	91.8	146.6	204.6	264.4	292.1	204.6	277.4
	3	14-0240	51.9	83.7	136.1	193.5	249.9	274.8	205.9	262.6
	3	14-0242	54.9	91.0	151.4	222.1	290.5	320.1	210.1	297.4
	4	14-0243	52.9	72.0	124.2	191.2	251.6	208.2	227.6	262.4
	4	14-0253	53.6	92.9	151.8	222.1	294.8	321.1	255.6	311.7
	5	14-0260	49.5	85.8	135.7	190.5	247.8	272.1	216.9	255.2
	5	14-0264	52.1	80.9	122.4	165.8	217.4	240.1	160.2	234.0
	6	14-0278	54.7	88.4	142.2	197.1	255.3	268.6	222.2	254.7
	6	14-0244	57.0	99.7	166.2	236.1	304.6	329.9	236.1	313.7
	7	14-0255	48.7	82.7	137.0	204.1	266.5	284.8	212.0	272.1
	7	14-0263	43.9	81.9	139.9	200.5	263.8	287.2	200.5	272.8
	8	14-0276	42.8	79.4	133.4	200.2	266.3	290.3	227.9	272.5
	8	14-0249	51.9	101.2	169.2	238.8	307.1	334.2	238.8	318.1
	9	14-0279	51.7	94.1	153.7	216.6	278.2	301.2	233.1	283.4
	9	14-0286	44.4	81.1	134.7	198.1	262.8	289.0	192.6	277.0
	10	14-0288	45.7	81.2	130.1	193.0	250.2	272.8	193.0	255.9
	10	14-0287	46.6		139.3	196.5	268.4	290.0	222.1	279.4
		Mean	**50.53**	**87.51**	**142.65**	**204.49**	**267.26**	**288.35**	**216.24**	**276.06**
		SD	**3.96**	**7.55**	**12.40**	**17.26**	**21.66**	**29.81**	**22.27**	**22.06**
	1	14-0226	45.7	75.8	120.4	175.6	231.3	255.7	189.9	248.6
	1	14-0234	37.8	67.6	115.8	175.8	235.9	260.4	243.0	256.1
3600 mg/l	2	14-0238	48.7	81.0	123.4	170.3	218.8	240.6	189.2	233.9
	2	14-0239	42.1	77.5	127.9	188.3	251.8	276.1	235.9	264.6
	3	14-0254	46.8	78.8	129.5	187.4	251.4	278.7	239.3	270.7
	3	14-0230	45.2	81.6	134.1	193.3	257.4	278.7	211.0	270.1
	4	14-0248	54.5	90.8	141.3	195.5	256.3	277.1	195.5	266.4
	4	14-0265	52.7	82.7	130.9	187.3	246.5	269.8	234.8	256.6
	5	14-0280	48.0	84.2	132.5	190.7	245.4	274.2	212.8	259.3
	5	14-0289	48.5	82.8	137.5	207.8	277.1	306.5	220.6	290.8
	6	14-0291	51.7	87.0	139.8	205.6	265.9	294.6	230.2	282.6
	6	14-0225	47.7	84.5	137.9	192.9	244.5	262.6	198.8	251.8
	7	14-0262	44.4	71.5	116.0	174.5	223.9	238.4	210.5	229.6
	7	14-0294	49.6	83.6	132.9	189.5	243.9	261.7	219.7	255.4
	8	14-0237	44.2	81.1	133.0	189.7	246.2	272.2	232.6	258.8
	8	14-0250	47.7	79.2	119.6	171.3	222.3	238.1	188.6	224.6
	9	14-0297	45.0	77.5	124.4	176.8	232.9	251.2	232.9	241.0
	9	14-0273	46.8	87.7	143.2	204.3	264.3	289.6	234.2	277.2
	10	14-0290	52.5	90.9	144.0	205.0	276.7	305.3	237.9	292.9
	10	14-0299	47.7	85.6	136.2	201.3	267.4	281.8	208.2	274.1
		Mean	**47.37**	**81.57**	**131.02**	**189.15**	**248.00***	**270.67***	**218.28**	**260.26**
		SD	**3.87**	**5.87**	**8.73**	**11.99**	**17.18**	**20.02**	**18.52**	**18.89**

*Significantly different from control.

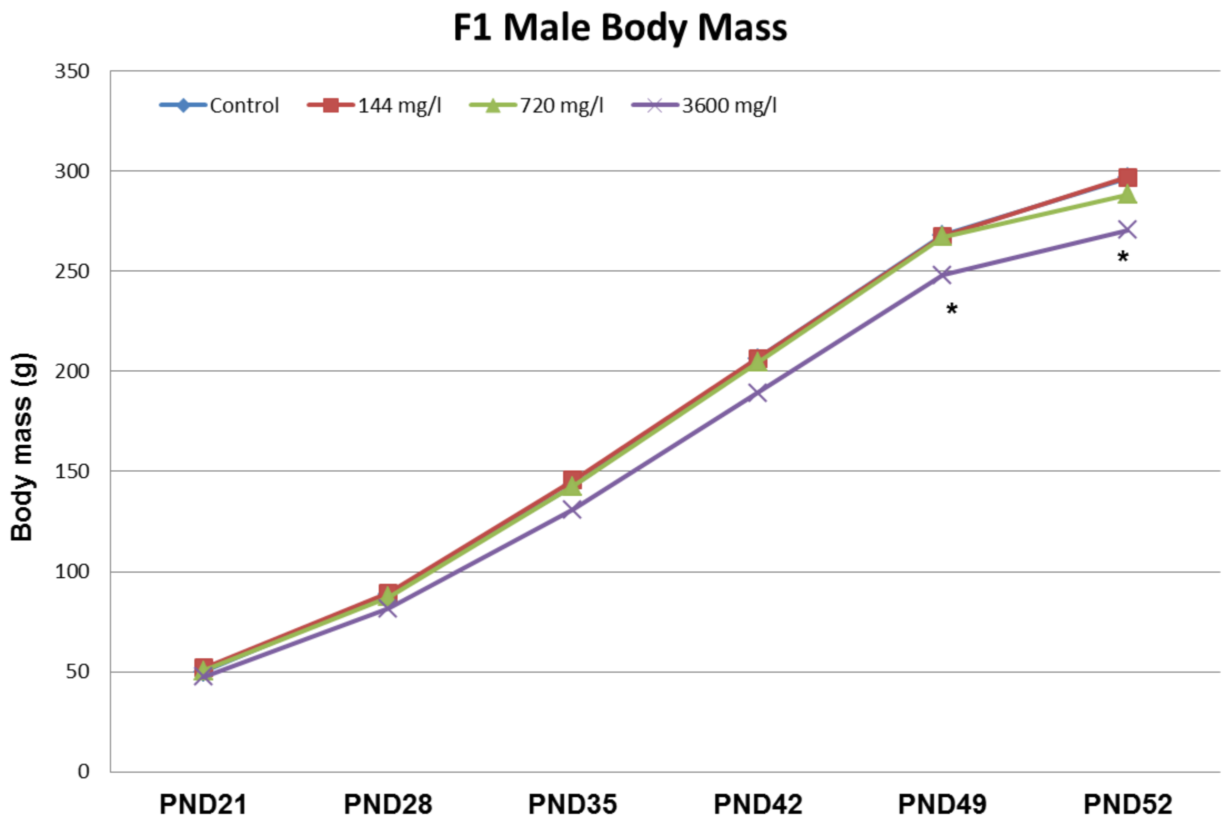
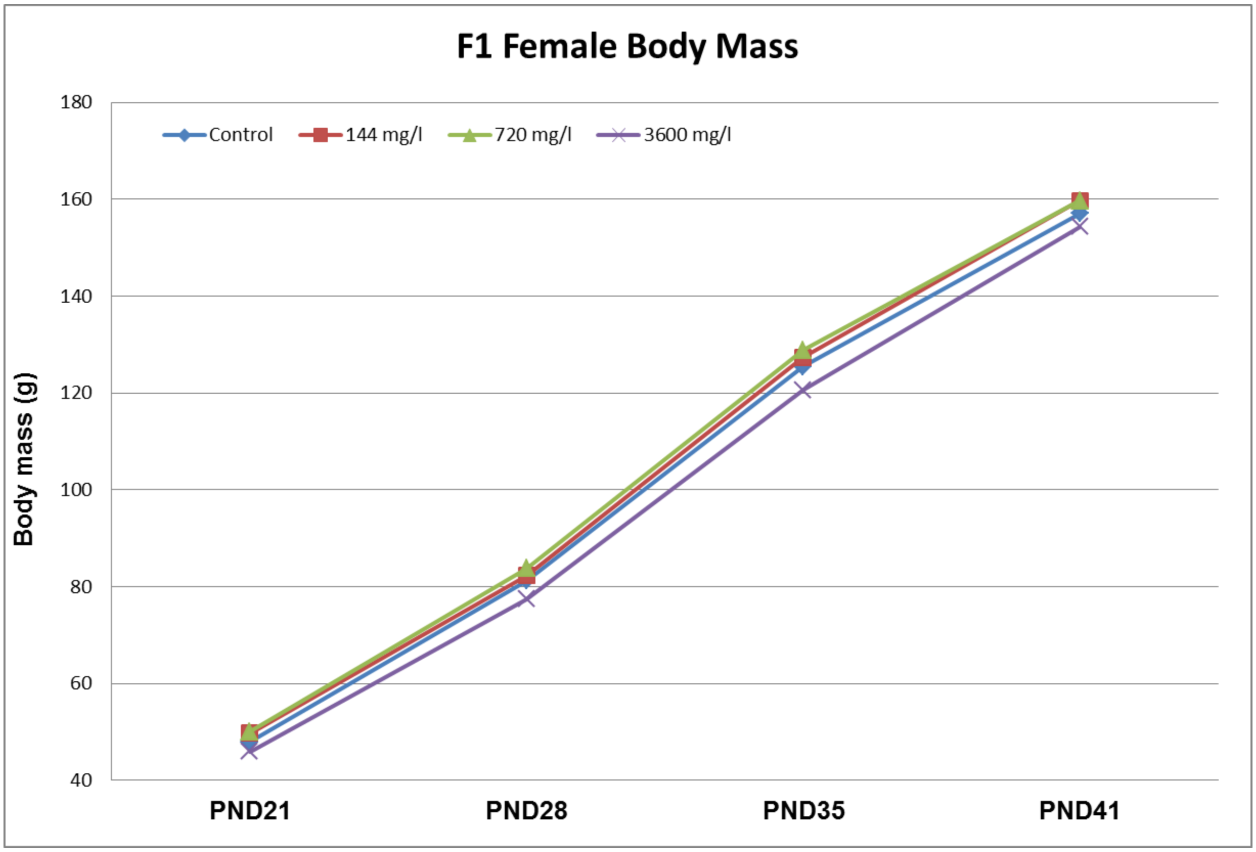

F1 Male Body Mass
Body mass (g)
350
300
250
200
150
100
50
0
Control
144 mg/l
720 mg/l
3600 mg/l
*
*
PND21
PND28
PND35
PND42
PND49
PND52

Table E-5
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Body Mass (grams)
F1 Female Rats

Group	Cage	Animal ID	PND21	PND28	PND35	PND41	VO	fasted
	1	14-0301	50.3	85.3		160.4	112.6	149.6
	1	14-0302	51.6	90.2	136.0	163.5	136.0	152.6
Control	2	14-0332	48.3	78.5	119.7	161.8	143.4	146.6
	2	14-0346	45.6	79.4	120.7	154.1	114.3	140.9
	3	14-0351	52.4	87.4	138.2	163.8	114.3	151.5
	3	14-0357	45.1	75.8	117.4	150.0	124.0	136.7
	4	14-0309	53.8	94.8	146.5	189.1	118.2	173.1
	4	14-0312	46.9	76.3	119.4	158.1	105.9	145.2
	5	14-0326	39.8	68.7	105.6	137.5	99.4	130.1
	5	14-0327	44.4	73.4	112.1	138.6	93.8	133.1
	6	14-0336	48.3	82.6	129.1	167.0	138.1	151.8
	6	14-0337	35.0	78.4	125.6	165.2	99.3	151.6
	7	14-0321	52.6	86.6	134.2	160.6	119.5	156.2
	7	14-0331	51.2	89.0	139.2	173.7	123.2	159.5
	8	14-0355	43.9	69.4	107.2	129.6	111.6	123.7
	8	14-0378	48.8	74.4	112.6	140.2	100.2	132.1
	9	14-0325	54.2	88.4	137.2	160.9	120.1	154.5
	9	14-0338	48.0	79.2	120.9	143.0	100.4	138.3
	10	14-0363	43.0	75.7	127.1	157.5	110.1	151.3
	10	14-0376	54.3	89.9	136.0	165.7	115.3	153.5
		Mean	**47.9**	**81.2**	**125.5**	**157.0**	**115.0**	**146.6**
		SD	**5.07**	**7.43**	**11.78**	**13.97**	**13.54**	**11.71**
	1	14-0315	50.6	87.0	134.1	169.4	127.4	154.1
	1	14-0348	43.9	71.4	111.5	135.0	93.7	122.9
144 mg/l	2	14-0313	52.1	87.3	136.1	170.4	129.5	160.7
	2	14-0339	54.3	95.0	147.1	181.4	139.7	174.5
	3	14-0341	47.4	84.2	133.4	167.9	105.0	156.5
	3	14-0349	45.8	76.5	125.1	163.9	125.1	147.6
	4	14-0350	56.6	85.5	135.0	167.7	118.1	155.1
	4	14-0347	52.1	87.8	132.2	164.5	112.9	154.3
	5	14-0365	57.9	90.5	135.2	160.4	120.7	150.6
	5	14-0303	50.4	85.3	129.0	151.6	106.6	141.3
	6	14-0308	47.0	75.9	119.6	153.3	108.8	141.9
	6	14-0364	55.9	92.8	138.9	175.0	119.9	165.2
	7	14-0354	52.7	77.1	116.0	148.5	116.0	140.5
	7	14-0362	44.0	76.1	126.9	158.9	126.9	152.0
	8	14-0373	44.6	77.1	121.4	155.8	107.9	145.9
	8	14-0375	41.5	70.1	107.3	140.5	107.3	131.5
	9	14-0352	47.6	80.7	124.9	158.4	118.5	146.2
	9	14-0361	57.1	95.8	151.3	191.4	136.0	177.5
	10	14-0372	47.3	74.2	110.9	138.6	112.7	127.8
	10	14-0380	46.2	75.0	110.9	140.5	101.7	127.6
		Mean	**49.8**	**82.3**	**127.3**	**159.7**	**116.7**	**148.7**
		SD	**4.92**	**7.87**	**12.21**	**14.75**	**11.78**	**14.72**
	1	14-0307	51.3	83.8	136.0	170.2	107.8	155.3
	1	14-0304	51.5	85.0	132.8	158.4	113.1	151.3

720 mg/l	**2**	**14-0311**	50.2	82.4	126.5	160.8	130.7	148.6
	2	**14-0316**	54.2	95.8	142.1	173.4	130.1	160.8
	3	**14-0320**	49.4	77.0	122.3	154.0	109.5	142.0
	3	**14-0322**	51.3	84.1	131.4	165.9	112.0	158.0
	4	**14-0323**	56.6	94.8	143.5	183.7	134.9	169.9
	4	**14-0333**	54.0	88.4	129.7	162.6	116.6	152.8
	5	**14-0340**	49.1	70.2	102.4	121.5	92.3	113.0
	5	**14-0344**	44.1	74.8	120.6	149.6	106.0	139.5
	6	**14-0358**	51.2	87.4	138.9	170.8	123.3	153.9
	6	**14-0324**	61.8	103.0	157.9	185.4	133.9	180.9
	7	**14-0335**	47.1	73.2	111.4	146.3	111.4	137.8
	7	**14-0343**	50.8	86.5	128.6	148.6	104.6	147.7
	8	**14-0356**	47.7	78.1	120.8	159.2	120.8	148.2
	8	**14-0329**	49.4	85.0	129.5	154.6	103.2	148.9
	9	**14-0359**	50.4	98.1	142.5	175.4	127.6	159.4
	9	**14-0366**	46.1	78.5	121.9	154.8	109.8	144.9
	10	**14-0368**	35.6	64.8	107.7	142.1	99.6	127.6
	10	**14-0367**	51.2		137.1	166.3	115.0	156.6
		Mean	**50.1**	**83.7**	**128.8**	**159.7**	**115.5**	**149.6**
		SD	**5.25**	**10.09**	**13.53**	**15.17**	**12.13**	**14.75**
	1	**14-0306**	46.9	76.9	116.9	147.2	126.6	138.9
	1	**14-0314**	37.0	66.6	107.3	144.8	121.3	135.0
3600 mg/l	**2**	**14-0318**	48.8	77.8	116.0	146.8	129.6	137.5
	2	**14-0319**	40.7	72.6	117.5	159.5	140.1	149.3
	3	**14-0334**	50.3	84.5	131.7	173.3	136.7	163.3
	3	**14-0310**	42.6	72.8	115.8	155.2	107.0	152.9
	4	**14-0328**	57.8	89.2	130.2	159.4	106.7	153.8
	4	**14-0345**	53.5	78.7	115.2	150.3	133.9	144.5
	5	**14-0360**	47.1	75.2	115.8	148.3	123.3	140.1
	5	**14-0369**	44.9	73.1	119.7	155.9	119.7	147.5
	6	**14-0371**	46.2	74.6	116.7	149.9	102.2	136.3
	6	**14-0305**	45.1	83.2	131.4	162.9	115.8	154.1
	7	**14-0342**	37.5	68.2	111.5	144.5	111.5	137.1
	7	**14-0374**	47.9	82.5	131.8	172.8	115.9	163.1
	8	**14-0317**	43.9	75.0	118.2	152.3	123.5	149.0
	8	**14-0330**	54.6	94.2	138.1	166.1	109.9	161.8
	9	**14-0377**	37.9	66.1	106.0	137.0	101.0	127.9
	9	**14-0353**	50.6	89.6	138.6	163.1	125.1	157.5
	10	**14-0370**	41.4	73.3	116.1	148.4	108.2	134.6
	10	**14-0379**	43.9	74.7	117.9	149.0	111.0	139.3
		Mean	**45.9**	**77.4**	**120.6**	**154.3**	**118.5**	**146.2**
		SD	**5.68**	**7.67**	**9.54**	**9.68**	**11.40**	**10.58**

Toxicity Report No. S.0027395, February 13–March 2014



Appendix F

Food Consumption

Table F-1

Protocol No. 56-13-02-01

Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

Daily Food Consumption (grams per day)

Male Rats

		Pre-Mating Period								Mating Period - Post Pairing					Post-Mating Period							
Group	**Animal ID**	**Days 0-4**	**Days 4-7**	**Days 7-10**	**Days 10-14**	**Days 14-18**	**Days 18-21**	**Days 21-24/5**	**Days 24-28**	**Days 28-31**	**Days 31-35**	**Days 35-38**	**Days 38-42**	**Days 42-45**	**Days45-49**	**Days49-52**	**Days 52-56**	**Days 56-59**	**Days 59-63**	**Days 63-67**	**Days 67-70**	**Total Minus Mating**
Control	14-0001	28.13	31.35	31.83	32.63	30.58	28.59	29.83	28.38		29.18	30.85	31.24	31.15	31.23	30.55	32.18	31.13	30.09	31.67	31.42	431.19
	14-0002	28.13	31.35	31.83	32.63	30.58	28.59	29.83	28.38		29.18	30.85	31.24	31.15	31.23	30.55	32.18	31.13	30.09	31.67	31.42	431.19
	14-0005	27.29	29.55	29.93	30.54	28.73	28.80	28.97	30.08	30.50	34.50	33.40	34.00	34.47	33.88	33.13	34.38	36.47	33.93	35.20	35.77	446.55
	14-0006																					
	14-0009	26.44	29.82	29.88	46.16	28.33	28.24	27.20	27.83		28.04	26.82	28.91	28.12	30.15	27.55	29.69	29.72	29.69	29.77	30.43	423.06
	14-0010	26.44	29.82	29.88	46.16	28.33	28.24	27.20	27.83		28.04	26.82	28.91	28.12	30.15	27.55	29.69	29.72	29.69	29.77	30.43	423.06
	14-0013	25.08	26.97	27.43	28.14	26.87	24.94	24.82	28.94		28.90	28.43	29.13	29.93	31.70	31.63	33.50	39.97	31.28	31.70	32.25	416.27
	14-0014	25.08	26.97	27.43	28.14	26.87	24.94	24.82	28.94		30.30	30.03	31.53	30.23	32.23	33.30	31.78	31.77	32.03	33.23	33.38	411.94
	14-0023	22.47	24.67	24.78	25.76	24.80	24.00	24.33	23.91			24.00	25.81	22.70	25.93	24.25	23.66	27.33	25.90	26.45	26.60	350.93
	14-0024	22.47	24.67	24.78	25.76	24.80	24.00	24.33	23.91			24.00	25.81	22.70	25.93	24.25	23.66	27.33	25.90	26.45	26.60	350.93
	14-0025	26.05	27.07	28.39	26.00	26.84	27.42	26.51	35.35		35.32	18.69	28.20	30.25	31.17	31.63	32.90	32.20	32.83	34.73	32.10	415.82
	14-0026	26.05	27.07	28.39	26.00	26.84	27.42	26.51	35.35		35.32	18.69	26.10	27.75	26.40	29.10	26.63	26.88	28.23	29.23	29.40	384.14
	14-0043	24.19	25.53	25.56	25.88	24.05	24.20	24.51		25.53	24.45	25.06	25.47	25.93	24.38		27.12	26.25	27.32	27.51	27.80	334.31
	14-0044	24.19	25.53	25.56	25.88	24.05	24.20	24.51		25.53	24.45	25.06	25.47	25.93	24.38		27.12	26.25	27.32	27.51	27.80	334.31
	14-0049	31.09	30.78	32.78	30.92	29.95	29.53	28.74			29.40	30.10	29.57	30.63	29.55	31.44	31.47	31.50	32.72	32.16	33.80	436.42
	14-	31.0	30.7	32.7	30.9	29.9	29.5	28.7			29.4	30.1	29.5	30.6	29.55	31.44	31.4	31.5	32.7	32.1	33.8	436.4

	0050	9	8	8	2	5	3	4			0	0	7	3			7	0	2	6	0	2
	14-0063	29.83	29.75	28.70	27.83	27.54	27.85	27.85	27.93		28.02	29.25	30.13	28.56	33.57	30.13	31.60	30.45	35.00	33.30	35.40	428.79
	14-0064	29.83	29.75	28.70	27.83	27.54	27.85	27.85	27.93		28.02	29.25	30.13	28.56	33.57	30.13	31.60	30.45	35.00	33.30	35.40	428.79
	14-0065	27.11	27.73	29.65	28.72	25.90	26.18	25.66	26.08		26.32	28.46	27.62	27.48	26.43	27.54	28.20	28.51	29.50	30.08	32.30	393.52
	14-0066	27.11	27.73	29.65	28.72	25.90	26.18	25.66	26.08		26.32	28.46	27.62	27.48	26.43	27.54	28.20	28.51	29.50	30.08	32.30	393.52
	14-0069	31.60	30.15	31.14	32.27	29.26	29.72	30.34	30.53		30.62	32.98	31.30	33.15	31.35	32.36	32.32	31.45	34.02	34.40	37.30	447.67
	14-0070	31.60	30.15	31.14	32.27	29.26	29.72	30.34	30.53		30.62	32.98	31.30	33.15	31.35	32.36	32.32	31.45	34.02	34.40	37.30	447.67
	14-0094	29.70	29.47	30.58	31.10	29.20	28.63	28.78	27.67		32.55	31.78	30.77	30.33	31.77	30.75	34.00	30.60	32.73	32.88	33.07	433.24
	14-0095	29.92	29.82	29.94	28.83	27.66	29.27	28.74	26.48		28.08	30.11	30.07	30.25	30.03	31.41	31.28	30.38	32.13	34.53	31.63	425.57
	14-0096	14.96	14.91	14.97	14.42	13.83	14.63	14.37	13.24		14.04	15.06	15.03	15.13	15.02	15.71	15.64	15.19	16.07	17.26	15.82	212.78
	14-0101	32.49	31.67	32.56	29.28	28.98	29.13	15.00		26.65	27.58	30.31	30.20	30.49	31.23	33.13	33.62	31.51	34.30	25.96		388.86
	Mean	**27.13**	**28.12**	**28.73**	**29.71**	**27.07**	**26.87**	**26.22**	**27.77**	**27.05**	**28.64**	**27.66**	**28.60**	**28.57**	**29.14**	**29.45**	**29.85**	**29.91**	**30.48**	**30.62**	**31.40**	**401.08**
	SD	**3.83**	**3.48**	**3.73**	**6.17**	**3.37**	**3.22**	**4.00**	**4.51**	**2.36**	**4.33**	**4.68**	**3.60**	**3.99**	**4.09**	**3.95**	**4.20**	**4.28**	**4.07**	**3.95**	**4.48**	**52.19**
	SEM	**0.77**	**0.70**	**0.75**	**1.23**	**0.67**	**0.64**	**0.80**	**1.01**	**1.18**	**0.90**	**0.94**	**0.72**	**0.80**	**0.82**	**0.82**	**0.84**	**0.86**	**0.81**	**0.79**	**0.92**	**10.44**
144 mg/l	14-0007	27.94	29.78	33.65	31.55	30.08	30.85	29.48	30.31					29.90	34.83	31.07	32.45	33.07	32.05	33.40	34.07	444.26
	14-0008	27.94	29.78	33.65	31.55	30.08	30.85	29.48	30.31					31.60	34.25	33.13	36.65	37.87	36.95	37.53	37.60	467.32
	14-0015	24.60	25.43	25.43	25.36	25.23	25.58	24.60	24.89		24.85	24.32	26.19	25.28	26.63	26.32	28.21	30.10	27.73	27.83	30.02	373.07
	14-0016	24.60	25.43	25.43	25.36	25.23	25.58	24.60	24.89		24.85	24.32	26.19	25.28	26.63	26.32	28.21	30.10	27.73	27.83	30.02	373.07
	14-0035	25.00	29.52	28.32	29.45	28.68	28.64	30.22	28.34		28.47	28.08	30.80	30.03	31.60	30.88	35.68	31.40	33.11	30.95	32.55	425.99
	14-0036	25.00	29.52	28.32	29.45	28.68	28.64	30.22	28.34		28.47	28.08	30.80	30.03	31.60	30.88	35.68	31.40	33.11	30.95	32.55	425.99
	14-0045	28.92	29.60	28.87	29.46	28.65	28.78	28.18	28.81	32.30	32.23	29.40	30.33	30.77	32.83	31.47	31.60	33.17	30.73	32.83	31.50	426.57
	14-0046	28.92	29.60	28.87	29.46	28.65	28.78	28.18	28.81	30.90	30.83	28.67	33.05	31.20	34.93	32.43	34.25	33.97	34.80	37.23	37.30	447.36

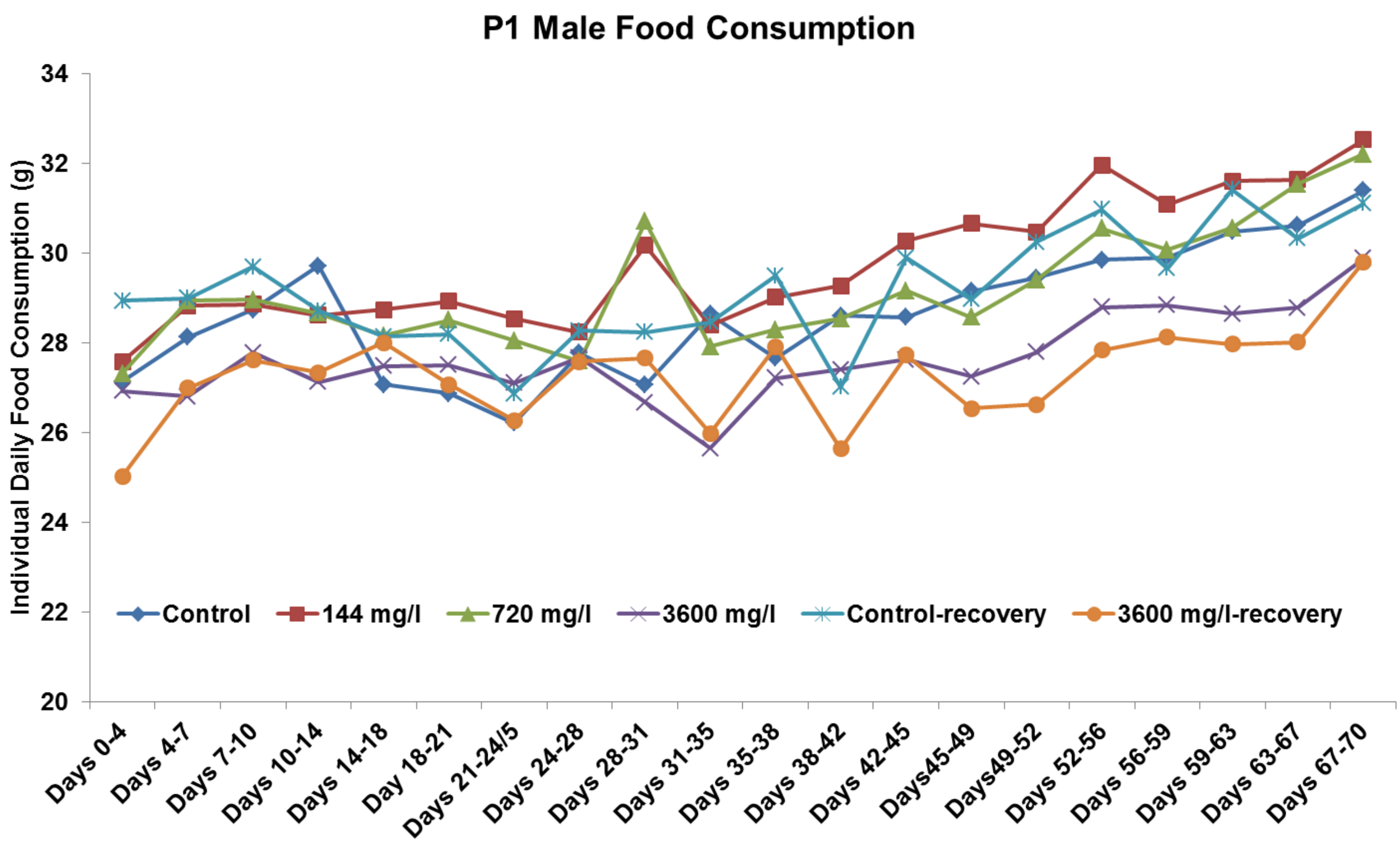
	14-0047	24.07	25.73	25.12	25.33	25.78	25.16	25.20	25.53		27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	371.95
	14-0048	24.07	25.73	25.12	25.33	25.78	25.16	25.20	25.53		27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	27.94	371.95
	14-0051	27.55	29.52	31.25	29.57	31.14	30.93	30.73		29.55	31.80	31.63	31.52	32.04	31.17	32.59	33.88	31.46	34.10	33.31	32.95	440.14
	14-0052	27.55	29.52	31.25	29.57	31.14	30.93	30.73		29.55	31.80	31.63	31.52	32.04	31.17	32.59	33.88	31.46	34.10	33.31	32.95	440.14
	14-0053	30.76	32.83	30.75	32.85	32.88	31.33	31.71		28.55	25.43	30.10	28.83	31.20	30.20	31.33	32.23	29.90	30.80	33.48	31.30	442.35
	14-0054	30.76	32.83	30.75	32.85	32.88	31.33	31.71			32.10	36.28	34.90	37.90	38.13	37.55	38.47	36.20	36.17	35.58	44.00	489.21
	14-0067	29.68	29.13	30.36	28.65	29.24	29.62	29.19	29.65		27.62	27.28	27.28	28.69	30.45	28.55	30.50	29.30	28.88	30.09	32.85	416.48
	14-0068	29.68	29.13	30.36	28.65	29.24	29.62	29.19	29.65		27.62	27.28	27.28	28.69	30.45	28.55	30.50	29.30	28.88	30.09	32.85	416.48
	14-0071	29.36	30.20	29.58	28.28	28.29	28.38	28.40	27.88		28.00	29.11	27.38	31.03	29.90	32.49	32.43	31.76	32.35	32.26	31.10	424.79
	14-0072	29.36	30.20	29.58	28.28	28.29	28.38	28.40	27.88		28.00	29.11	27.38	31.03	29.90	32.49	32.43	31.76	32.35	32.26	31.10	424.79
	14-0075	29.71	30.95	29.70	30.97	31.66	31.27	29.81	30.48		27.10	30.10	30.57	31.90	30.63	31.24	32.22	31.66	32.43	31.18	35.45	438.88
	14-0076	29.71	30.95	29.70	30.97	31.66	31.27	29.81	30.48		27.10	30.10	30.57	31.90	30.63	31.24	32.22	31.66	32.43	31.18	35.45	438.88
	14-0078	26.83	27.07	27.63	25.73	26.03	27.00	26.90	27.20		26.47	27.98	26.13	28.80	27.70	28.20	28.37	29.30	28.77	28.28	28.13	385.93
	14-0081	27.23	27.75	26.75	26.82	27.51	27.60	27.58	28.75					30.00	30.27	28.60	31.73	30.25	32.67	32.38	31.60	408.73
	14-0082	27.23	27.75	26.75	26.82	27.51	27.60	27.58	28.75		27.13	30.55	30.57	31.68	30.67	30.53	32.67	29.78	34.90	32.15	33.03	414.95
	14-0089	26.47	26.38	27.14	26.47	27.04	29.95	28.16	28.23		29.45	29.25	28.43	29.93	28.00	28.78	29.37	28.10	29.53	30.50	29.45	395.33
	14-0090	26.47	26.38	27.14	26.47	27.04	29.95	28.16	28.23		29.45	29.25	28.43	29.93	28.00	28.78	29.37	28.10	29.53	30.50	29.45	395.33
	Mean	**27.58**	**28.83**	**28.86**	**28.61**	**28.74**	**28.93**	**28.54**	**28.24**	**30.17**	**28.39**	**29.02**	**29.27**	**30.27**	**30.66**	**30.47**	**31.95**	**31.08**	**31.60**	**31.64**	**32.53**	**420.00**
	SD	**2.11**	**2.14**	**2.41**	**2.38**	**2.29**	**2.04**	**2.04**	**1.77**	**1.45**	**2.23**	**2.47**	**2.35**	**2.46**	**2.76**	**2.51**	**2.87**	**2.45**	**2.75**	**2.69**	**3.54**	**30.37**
	SEM	**0.42**	**0.43**	**0.48**	**0.48**	**0.46**	**0.41**	**0.41**	**0.39**	**0.65**	**0.47**	**0.53**	**0.50**	**0.49**	**0.55**	**0.50**	**0.57**	**0.49**	**0.55**	**0.54**	**0.71**	**6.07**
720 mg/l	14-0003	19.36	29.88	28.88	27.63	27.68	27.41	27.60	26.73		27.74	26.32	28.40	26.40	28.68	25.50	28.50	29.98	29.58	31.07	32.03	393.78
	14-0004	19.36	29.88	28.88	27.63	27.68	27.41	27.60	26.73		27.74	26.32	28.40	26.40	28.68	25.50	28.50	29.98	29.58	31.07	32.03	393.78

14-0017	23.74	26.22	24.88	25.45	25.62	24.88	25.30	24.90		24.11	24.02	25.29	24.75	26.33		26.71	27.62	27.80	29.00	29.90	343.43
14-0018	23.74	26.22	24.88	25.45	25.62	24.88	25.30	24.90		24.11	24.02	25.29	24.75	26.33		26.71	27.62	27.80	29.00	29.90	343.43
14-0029	23.15	24.22	24.00	23.75	21.35	23.65	22.73	23.51		25.81	23.12	25.41	23.67	24.53	23.18	24.95	24.38	24.90	24.57	25.75	335.11
14-0030	23.15	24.22	24.00	23.75	21.35	23.65	22.73	23.51		25.81	23.12	25.41	23.67	24.53	23.18	24.95	24.38	24.90	24.57	25.75	335.11
14-0031	23.08	25.60	25.40	25.18	24.12	28.19	24.55	25.20		24.13	23.30	25.98	25.38	25.66	24.87	26.36	26.72	27.19	28.37	28.58	363.85
14-0032	23.08	25.60	25.40	25.18	24.12	28.19	24.55	25.20		24.13	23.30	25.98	25.38	25.66	24.87	26.36	26.72	27.19	28.37	28.58	363.85
14-0033	27.27	30.02	29.93	29.89	28.10	28.58	27.70	28.88		28.59	27.97	30.45	28.25	31.44	29.13	32.34	32.10	31.36	32.47	32.34	422.65
14-0034	27.27	30.02	29.93	29.89	28.10	28.58	27.70	28.88		28.59	27.97	30.45	28.25	31.44	29.13	32.34	32.10	31.36	32.47	32.34	422.65
14-0037	29.41	29.47	29.18	28.70	29.81	30.03	27.74			29.97	31.61	30.92	32.70	30.78	33.71	34.33	33.18	34.78	35.63	37.15	443.90
14-0038	29.41	29.47	29.18	28.70	29.81	30.03	27.74			29.97	31.61	30.92	32.70	30.78	33.71	34.33	33.18	34.78	35.63	37.15	443.90
14-0056	30.52	30.53	30.71	31.48	30.85	30.35	30.91		31.20	31.83	33.19	31.12	32.09	29.28	31.25	31.42	32.23	32.92	34.24	34.80	441.49
14-0057	28.53	28.08	30.73	30.10	29.91	31.57	30.35		31.80	29.43	30.80	29.68	32.10	28.27	32.19	32.12	31.53	31.48	32.50	33.40	430.75
14-0058	28.53	28.08	30.73	30.10	29.91	31.57	30.35		31.80	29.43	30.80	29.68	32.10	28.27	32.19	32.12	31.53	31.48	32.50	33.40	430.75
14-0061	28.74	30.78	30.88	29.63	29.59	29.97	30.30	28.35		29.25	28.90	29.42	31.34	29.17	30.49	32.45	29.53	30.22	30.98	35.10	427.80
14-0062	28.74	30.78	30.88	29.63	29.59	29.97	30.30	28.35		29.25	28.90	29.42	31.34	29.17	30.49	32.45	29.53	30.22	30.98	35.10	427.80
14-0073	29.64	29.07	28.58	29.18	28.28	27.52	27.14	27.98	29.10	27.30	29.49	28.08	29.44	28.08	29.29	31.80	30.20	31.20	31.84	31.28	413.08
14-0074	29.64	29.07	28.58	29.18	28.28	27.52	27.14	27.98	29.10	27.30	29.49	28.08	29.44	28.08	29.29	31.80	30.20	31.20	31.84	31.28	413.08
14-0083	27.55	28.08	28.28	27.32	26.23	25.48	26.14	27.20		26.22	26.95	26.35	27.55	27.43	27.64	28.95	29.08	28.97	29.16	29.67	389.96
14-0084	27.55	28.08	28.28	27.32	26.23	25.48	26.14	27.20		26.22	26.95	26.35	27.55	27.43	27.64	28.95	29.08	28.97	29.16	29.67	389.96
14-0093	36.47	36.53	36.35	34.03	36.13	34.57	36.23	35.80				31.60	36.95	35.93	39.43	40.17	35.55	38.93	40.88	38.17	519.35
14-0097	32.18	31.48	32.36	32.90	32.43	31.45	32.00	31.52		30.63	33.89	29.87	32.38	29.52	31.21	31.87	31.64	32.15	33.95	33.45	448.59
14-0098	32.18	31.48	32.36	32.90	32.43	31.45	32.00	31.52		30.63	33.89	29.87	32.38	29.52	31.21	31.87	31.64	32.15	33.95	33.45	448.59

	15-0055	30.52	30.53	30.71	31.48	30.85	30.35	30.91		31.20	31.83	33.19	31.12	32.09	29.28	31.25	31.42	32.23	32.92	34.24	34.80	441.49
	Mean	**27.31**	**28.94**	**28.96**	**28.66**	**28.16**	**28.51**	**28.05**	**27.60**	**30.70**	**27.92**	**28.30**	**28.54**	**29.16**	**28.57**	**29.41**	**30.55**	**30.08**	**30.56**	**31.54**	**32.20**	**409.13**
	SD	**4.09**	**2.68**	**2.95**	**2.81**	**3.39**	**2.78**	**3.17**	**3.02**	**1.27**	**2.43**	**3.61**	**2.17**	**3.54**	**2.47**	**3.84**	**3.47**	**2.72**	**3.13**	**3.49**	**3.26**	**44.11**
	SEM	**0.82**	**0.54**	**0.59**	**0.56**	**0.68**	**0.56**	**0.63**	**0.69**	**0.52**	**0.50**	**0.74**	**0.43**	**0.71**	**0.49**	**0.80**	**0.69**	**0.54**	**0.63**	**0.70**	**0.65**	**8.82**
3600 mg/l	14-0011	23.46	24.38	26.72	28.33	28.87	27.55	27.77	27.51		16.20	26.23	26.95	26.47	28.28	27.37	27.48	30.95	30.54	29.62	31.07	392.36
	14-0012	23.46	24.38	26.72	28.33	28.87	27.55	27.77	27.51		16.20	26.23	26.95	26.47	28.28	27.37	27.48	30.95	30.54	29.62	31.07	392.36
	14-0019	24.01	25.65	26.47	26.38	26.98	26.69	25.80	25.59		27.08	25.55	27.88	25.68	27.79	39.27	27.99	28.63	28.19	28.23	28.58	390.65
	14-0020	24.01	25.65	26.47	26.38	26.98	26.69	25.80	25.59		27.08	25.55	27.88	25.68	27.79	39.27	27.99	28.63	28.19	28.23	28.58	390.65
	14-0021	27.63	28.73	28.70	28.79	28.68	27.39	26.18	25.94		26.30	25.80	27.53	26.82	27.34	25.92	26.03	27.78	26.50	26.00	28.70	384.37
	14-0022	24.01	25.65	26.47	26.38	26.98	26.69	25.80	25.59		27.08	25.55	27.88	25.68	27.79	39.27	27.99	28.63	28.19	28.23	28.58	390.65
	14-0027	24.87	24.05	24.75	23.71	24.40	22.90	23.33	23.31		22.95	21.97	23.66	22.80	23.83	23.78	24.13	25.22	23.78	24.00	24.99	337.73
	14-0028	24.87	24.05	24.75	23.71	24.40	22.90	23.33	23.31		22.95	21.97	23.66	22.80	23.83	23.78	24.13	25.22	23.78	24.00	24.99	337.73
	14-0039	25.58	27.28	28.38	27.68	29.02	28.19	27.47	27.86		28.05	26.80	29.78	28.40	28.28	28.88	28.90	29.82	27.60	27.22	30.63	394.91
	14-0040	25.58	27.28	28.38	27.68	29.02	28.19	27.47	27.86		28.05	26.80	29.78	28.40	28.28	28.88	28.90	29.82	27.60	27.22	30.63	394.91
	14-0041	26.86	27.20	28.49	27.82	26.94	27.55	27.35		27.52	27.58	29.21	27.87	29.04	27.28	28.98	32.37	28.91	30.57	30.08	32.40	402.78
	14-0042	26.86	27.20	28.49	27.82	26.94	27.55	27.35		27.52	27.58	29.21	27.87	29.04	27.28	28.98	32.37	28.91	30.57	30.08	32.40	402.78
	14-0059	29.25	30.22	29.36	28.07	28.33	27.28	28.18		29.05	25.68	27.59	26.67	27.15	25.05	27.03	28.20	26.99	27.48	27.68	25.45	388.55
	14-0060	29.25	30.22	29.36	28.07	28.33	27.28	28.18		29.05	25.68	27.59	26.67	27.15	25.05	27.03	28.20	26.99	27.48	27.68	25.45	388.55
	14-0077	27.03	25.93	26.65	26.30	24.88	25.37	25.18	26.20	25.75	27.03	26.65	25.50	28.88	27.70	4.33	28.90	26.85	29.70	29.80	30.40	359.01
	14-0079	26.46	24.10	26.06	25.27	25.24	26.52		26.98	25.30	25.10	27.18	25.78	27.24	25.65	25.55	28.03	26.63	27.82	27.41	28.55	343.28
	14-0080	26.46	24.10	26.06	25.27	25.24	26.52		26.98	25.30	25.10	27.18	25.78	27.24	25.65	25.55	28.03	26.63	27.82	27.41	28.55	343.28
	14-0085	26.44	24.80	26.09	24.87	23.51	25.57	26.40	27.58	25.25	24.47	25.94	24.58	25.41	24.07	24.64	25.52	26.60	26.12	26.99	27.95	359.55

	14-0086	26.44	24.80	26.09	24.87	23.51	25.57	26.40	27.58	25.25	24.47	25.94	24.58	25.41	24.07	24.64	25.52	26.60	26.12	26.99	27.95	359.55
	14-0087	29.06	29.22	28.75	29.18	28.76	30.02	28.46	29.73		26.00	28.45	29.05	30.33	28.65	28.86	30.82	31.30	29.83	32.00	32.83	417.74
	14-0088	29.06	29.22	28.75	29.18	28.76	30.02	28.46	29.73		26.00	28.45	29.05	30.33	28.65	28.86	30.82	31.30	29.83	32.00	32.83	417.74
	14-0091	29.57	28.57	29.80	29.87	29.71	29.97	27.55	30.18		27.98	30.63	28.65	29.45	28.70	29.39	31.48	29.46	30.57	31.23	31.65	417.50
	14-0092	29.57	28.57	29.80	29.87	29.71	29.97	27.55	30.18		27.98	30.63	28.65	29.45	28.70	29.39	31.48	29.46	30.57	31.23	31.65	417.50
	14-0099	31.70	29.37	31.46		31.44	31.83	30.80	32.95		29.23	31.66	31.22	32.69	31.65	28.85	33.52	34.31	33.45	33.33	35.57	417.27
	14-0100	31.70	29.37	31.46		31.44	31.83	30.80	32.95		29.23	31.66	31.22	32.69	31.65	28.85	33.52	34.31	33.45	33.33	35.57	417.27
	Mean	**26.93**	**26.80**	**27.78**	**27.12**	**27.48**	**27.50**	**27.10**	**27.67**	**26.66**	**25.64**	**27.22**	**27.40**	**27.63**	**27.25**	**27.79**	**28.79**	**28.84**	**28.65**	**28.78**	**29.88**	**386.35**
	SD	**2.44**	**2.17**	**1.86**	**1.85**	**2.28**	**2.25**	**1.83**	**2.59**	**1.64**	**3.30**	**2.46**	**2.08**	**2.51**	**2.15**	**6.54**	**2.68**	**2.43**	**2.45**	**2.51**	**2.96**	**26.83**
	SEM	**0.49**	**0.43**	**0.37**	**0.39**	**0.46**	**0.45**	**0.38**	**0.57**	**0.55**	**0.66**	**0.49**	**0.42**	**0.50**	**0.43**	**1.31**	**0.54**	**0.49**	**0.49**	**0.50**	**0.59**	**5.37**
Control-recovery	14-0006	27.29	29.55	29.93	30.54	28.73	28.80	28.97	29.43	30.53	28.77	31.33	30.93	30.75	31.37	32.75	33.63	33.10	32.40	33.23	33.70	433.99
	14-0101																					
	14-0102	32.49	31.67	32.56	29.28	28.98	29.13	15.00	27.70	26.65	27.58	30.31	30.20	30.49	31.23	33.13	33.62	31.51	34.30	25.96		388.86
	14-0105	26.91	28.25	28.90	27.10	27.94	28.53	28.15	28.48	29.01	29.30	30.74	30.12	29.70	29.05	30.50	31.77	30.85	33.07	32.40	33.38	416.80
	14-0106	26.91	28.25	28.90	27.10	27.94	28.53	28.15	28.48	29.01	29.30	30.74	30.12	29.70	29.05	30.50	31.77	30.85	33.07	32.40	33.38	416.80
	14-0109		26.55	27.63	27.27	26.68	27.02	26.81	26.37	27.40	28.22	28.48	26.90	29.40	28.48	29.51	29.27	26.95	29.02	28.36	28.42	361.95
	14-0110		26.55	27.63	27.27	26.68	27.02	26.81	26.37	27.40	28.22	28.48	26.90	29.40	28.48	29.51	29.27	26.95	29.02	28.36	28.42	361.95
	14-0113	30.31	32.00	31.88	31.23	30.50	30.23	29.85	30.22	28.44	29.17	29.44	20.28	31.98	29.97	31.38	31.40	31.49	33.03	32.40	32.20	437.86
	14-0114	30.31	32.00	31.88	31.23	30.50	30.23	29.85	30.22	28.44	29.17	29.44	20.28	31.98	29.97	31.38	31.40	31.49	33.03	32.40	32.20	437.86
	14-0119	28.63	27.55	28.80	28.05	26.70	26.22	27.53	27.73	27.75	27.45	27.99	27.18	27.75	26.07	26.93	28.77	26.70	28.58	28.89	29.10	388.50
	14-0120	28.63	27.55	28.80	28.05	26.70	26.22	27.53	27.73	27.75	27.45	27.99	27.18	27.75	26.07	26.93	28.77	26.70	28.58	28.89	29.10	388.50
	Mean	**28.93**	**28.99**	**29.69**	**28.71**	**28.13**	**28.19**	**26.86**	**28.27**	**28.24**	**28.46**	**29.49**	**27.01**	**29.89**	**28.97**	**30.25**	**30.97**	**29.66**	**31.41**	**30.33**	**31.10**	**403.31**

	SD	**1.98**	**2.18**	**1.80**	**1.72**	**1.52**	**1.51**	**4.31**	**1.38**	**1.10**	**0.78**	**1.24**	**3.88**	**1.47**	**1.83**	**2.12**	**1.86**	**2.52**	**2.30**	**2.51**	**2.29**	**29.37**
	SEM	**0.70**	**0.69**	**0.57**	**0.54**	**0.48**	**0.48**	**1.36**	**0.44**	**0.35**	**0.25**	**0.39**	**1.23**	**0.47**	**0.58**	**0.67**	**0.59**	**0.80**	**0.73**	**0.79**	**0.76**	**9.29**
3600 mg/l-recovery	14-0103	27.63	27.55	28.55	28.43	27.51	27.88	26.34	27.92	27.38	27.32	27.73	26.42	28.96	25.82	26.38	26.42	27.25	25.33	27.68	27.22	379.98
	14-0104	27.63	27.55	28.55	28.43	27.51	27.88	26.34	27.92	27.38	27.32	27.73	26.42	28.96	25.82	26.38	26.42	27.25	25.33	27.68	27.22	379.99
	14-0107	25.55	26.73	26.99	26.73	26.74	27.17	26.19	27.42	27.46	25.18	27.74		27.44	27.48	27.05	28.72	28.81	28.77	29.13	30.57	386.62
	14-0108	25.55	26.73	26.99	26.73	26.74	27.17	26.19	27.42	27.46	25.18	27.74		27.44	27.48	27.05	28.72	28.81	28.77	29.13	30.57	386.62
	14-0111	26.29	26.33	26.74	26.67	26.78	25.92	24.80	27.88	26.29	24.32	27.06	24.37	26.60	25.75	26.26	27.17	27.91		26.68	29.65	346.94
	14-0112	26.29	26.33	26.74	26.67	26.78	25.92	24.80	27.88	26.29	24.32	27.06	24.37	26.60	25.75	26.26	27.17	27.91		26.68	29.65	346.94
	14-0115	26.01	27.72	28.03	28.23	30.88	26.57	26.68	27.07	28.91	26.62	28.59		27.50	27.25	27.08	28.97	28.56	29.45	28.43	31.50	395.33
	14-0116	26.01	27.72	28.03	28.23	30.88	26.57	26.68	27.07	28.91	26.62	28.59		27.50	27.25	27.08	28.97	28.56	29.45	28.43	31.50	395.34
	14-0117	14.22	26.30	27.90	25.87	28.18	28.60	28.38	27.63	28.83	26.90	28.98	26.63	28.50	26.23	26.13	28.00	28.05	28.67	28.28	30.37	375.15
	Mean	**25.02**	**27.00**	**27.61**	**27.33**	**28.00**	**27.07**	**26.26**	**27.58**	**27.66**	**25.97**	**27.91**	**25.64**	**27.72**	**26.54**	**26.63**	**27.84**	**28.13**	**27.97**	**28.01**	**29.80**	**376.99**
	SD	**4.12**	**0.63**	**0.75**	**0.99**	**1.70**	**0.93**	**1.07**	**0.35**	**1.03**	**1.23**	**0.67**	**1.17**	**0.90**	**0.80**	**0.42**	**1.06**	**0.61**	**1.83**	**0.91**	**1.61**	**18.32**
	SEM	**1.37**	**0.21**	**0.25**	**0.33**	**0.57**	**0.31**	**0.36**	**0.12**	**0.34**	**0.41**	**0.22**	**0.52**	**0.30**	**0.27**	**0.14**	**0.35**	**0.20**	**0.69**	**0.30**	**0.54**	**6.11**


P1 Male Food Consumption
Individual Daily Food Consumption (g)
34
32
30
28
26
24
22
20
Control
144 mg/l
720 mg/l
3600 mg/l
Control-recovery
3600 mg/l-recovery
Days 0-4
Days 4-7
Days 7-10
Days 10-14
Days 14-18
Day 18-21
Days 21-24/5
Days 24-28
Days 28-31
Days 31-35
Days 35-38
Days 38-42
Days 42-45
Days45-49
Days49-52
Days 52-56
Days 56-59
Days 59-63
Days 63-67
Days 67-70

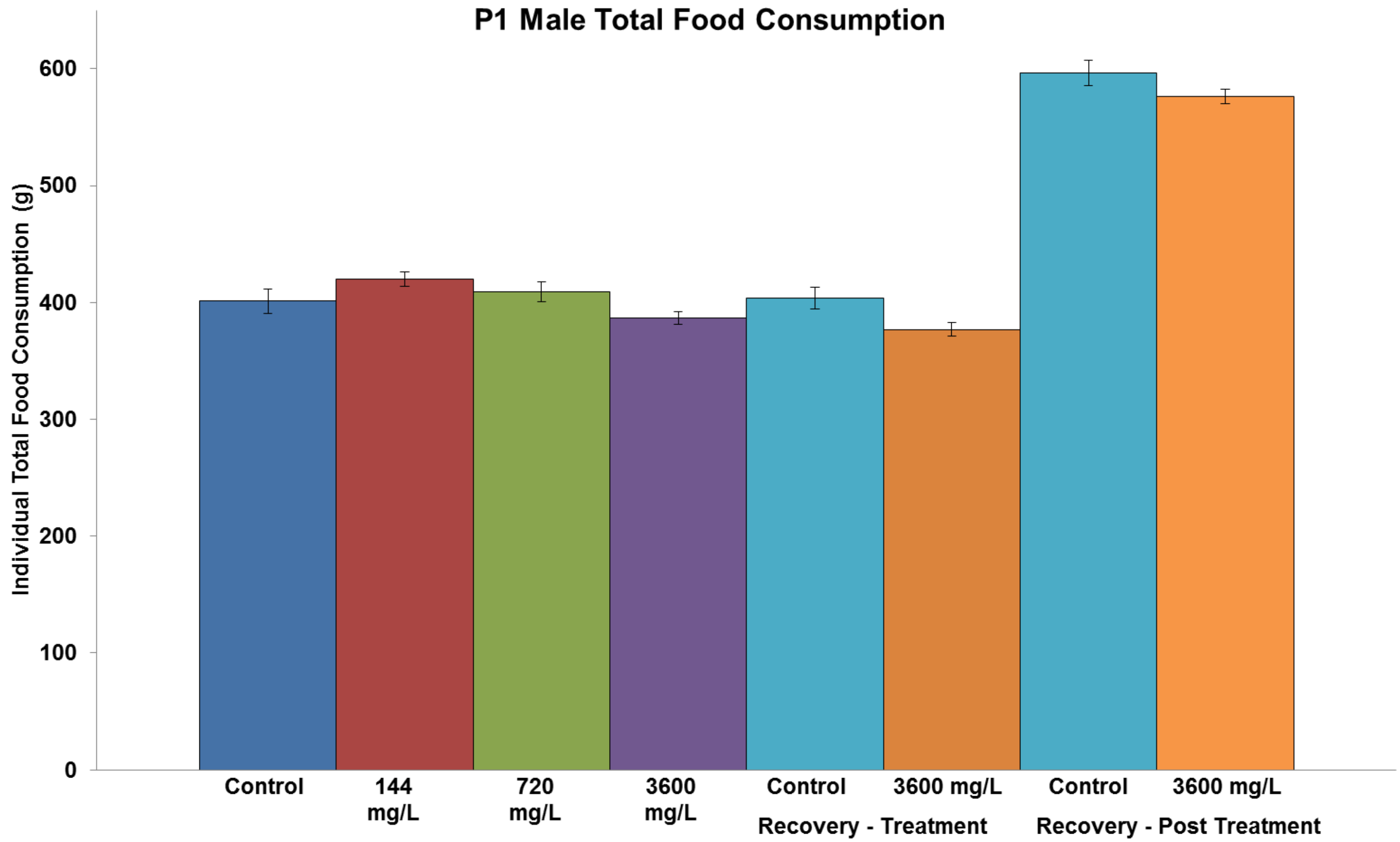

P1 Male Total Food Consumption
Individual Total Food Consumption (g)
0
100
200
300
400
500
600
Control
144 mg/L
720 mg/L
3600 mg/L
Control
3600 mg/L
Recovery - Treatment
Control
3600 mg/L
Recovery - Post Treatment

Table F-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Daily Food Consumption (grams per day)
Female Rats

Group	Animal ID	Days 0-7	Days 7-14	GD0-6	GD6-14	GD14-20	GD20-PPD4	PPD4-7	PPD7-14	PPD14-21	Total
Control	14-0121	18.5	19.3	21.1	23.6	24.5	1.0	36.8	18.5	39.7	202.8
	14-0122	17.2	18.3	23.1	26.8	29.9	3.3	35.1	20.4	41.2	215.2
	14-0130	19.7	18.3	21.5	23.6	27.7	3.7	42.6	22.2	45.2	224.8
	14-0133	21.0	21.1	25.9	28.7	30.1	3.1	36.7	21.1	51.0	238.6
	14-0136	19.4	18.3	23.3	26.8	25.0	0.0	0.0	0.0	0.0	112.9
	14-0143	16.0	18.4	19.3	21.4	23.9	2.0	31.6	19.9	42.3	195.0
	14-0148	20.8	20.6	28.4	34.1	35.5	2.1	40.9	19.5	50.2	252.1
	14-0149	18.2	18.6	21.2	24.6	25.2	3.1	26.2	15.9	39.0	191.8
	14-0150	20.4	21.5	23.9	30.1	32.0	1.8	33.6	20.0	37.5	220.8
	14-0156	20.4	20.5	23.7	26.5	28.1	3.3	46.6	23.5	46.7	239.2
	14-0157	19.2	17.8	24.2	25.6	24.4	1.0	33.8	21.6	43.1	210.7
	14-0161	22.3	20.8	26.8	28.3	30.1	5.0	35.0	18.9	41.7	229.0
	14-0162	20.4	19.2	20.9	24.3	26.6	3.8	33.0	16.3	43.3	207.9
	14-0163	21.1	20.9	27.4	35.3	35.8	4.6	49.3	18.9	45.6	258.8
	14-0173	18.8	19.7	24.5	29.1	32.2	4.2	29.3	17.7	41.6	217.0
	14-0179	17.3	17.7	21.8	25.2	26.5	1.8	31.6	20.4	48.0	210.1
	14-0185	17.8	17.7	21.7	23.8	23.7	2.2	39.5	19.8	38.6	204.7
	14-0186	18.6	18.8	21.9	24.6	24.9	0.6	43.4	19.6	45.2	217.5
	14-0191	18.1	17.6	22.0	25.9	26.9	0.8	34.3	18.3	44.8	208.7
	14-0196	22.8	22.8	27.8	32.4	32.4	2.6	56.8	22.0	48.7	268.5
	14-0198	24.0	21.8	22.0	26.7	27.9	3.6	41.4	18.7	45.1	231.2
	14-0205	18.3	16.6	21.5	25.9	27.5	3.6	20.8	10.4	11.8	156.5
	14-0207	19.0	19.7	22.0	21.5	17.7	10.5				110.3
	14-0215	17.7	18.6	23.1	25.0	24.5	2.1	48.6	22.6	49.9	232.0
	14-0217	18.9	18.8	24.9	26.2	26.2	2.8	33.0	21.0	47.1	218.9
	Mean	**19.4**	**19.3**	**23.3**	**26.6**	**27.6**	**2.9**	**35.8**	**18.6**	**41.1**	**211.0**
	SD	**1.879**	**1.559**	**2.386**	**3.481**	**4.043**	**2.046**	**11.003**	**4.777**	**11.606**	**37.601**
144 mg/l	14-0123	18.5	21.0	23.5	25.1	25.6	2.5	38.0	19.7	53.9	227.8
	14-0125	28.4	29.3								57.7
	14-0129	18.7	19.3	22.8	76.8	0.0	5.0	24.8	21.0	46.6	235.0
	14-0134	17.6	18.7	25.0	29.0	33.0	2.2	33.4	23.3	48.9	231.1
	14-0137	20.9	21.0	25.2	29.8	31.7	2.1	25.8	20.2	45.2	221.8
	14-0154	20.8	20.6	23.4	25.6	27.0	8.7	31.0	17.2	42.5	216.8

	14-0164	23.4	22.7	28.4	30.0	34.6	0.0	30.3	21.8	50.5	241.7
	14-0166	22.8	22.6	28.3	31.5	31.7	1.6	29.4	23.5	40.5	231.9
	14-0174	18.6	19.0	24.2	26.2	27.9	5.8	32.2	22.7	47.0	223.4
	14-0175	18.4	19.2	23.0	29.8	31.0	3.1	44.0	21.9	43.0	233.3
	14-0176	23.1	21.8	28.6	31.2	27.3	0.0	34.6	21.5	90.2	278.2
	14-0177	17.5	18.1	26.1	30.4	31.4	3.4	36.0	21.6	43.0	227.3
	14-0178	20.9	21.7	28.4	25.3	28.0	3.3	51.6	25.2	50.0	254.4
	14-0180	13.3	19.2	24.8	26.5	26.5	6.6	41.8	22.6	42.3	223.5
	14-0183	20.4	3.8	27.1	30.5	30.5	1.0	34.8	21.0	42.4	211.5
	14-0195	22.2	1.4	25.9	32.7	33.8	7.8	28.9	26.9	49.9	229.5
	14-0197	19.0	0.7	24.0	27.1	27.7	6.1	1.4	18.6	41.0	165.5
	14-0199	16.9	4.6	20.3	24.0	26.2	1.8	43.4	23.3	45.4	205.9
	14-0200	18.9	-0.2	24.1	26.4	28.8	3.7	51.6	23.6	45.1	221.9
	14-0206	22.1	8.6	27.3	31.3	30.7	3.2	28.4	22.0	42.1	215.6
	14-0211	20.2	87.9	27.9	29.9	28.6	3.0	45.5	22.9	43.9	309.7
	14-0212	18.8	19.1	21.0	23.5	24.1	1.8	47.6	21.8	43.5	221.2
	14-0214	19.0	18.7	23.1	25.4	23.9	3.1	30.3	17.4	35.1	196.0
	14-0218	20.6	20.9	25.3	27.4	27.0	20.5				141.6
	14-0220	17.4	18.6	22.5	24.8	23.0	3.2	32.2	19.0	42.4	203.0
	Mean	**19.9**	**19.1**	**25.0**	**30.0**	**27.5**	**4.1**	**34.6**	**21.7**	**46.7**	**217.0**
	SD	**2.871**	**16.416**	**2.387**	**10.333**	**6.635**	**4.129**	**10.739**	**2.314**	**10.317**	**45.823**
720 mg/l	14-0124	18.6	19.9	24.4	27.9	27.6	2.1	48.5	23.7	46.9	239.6
	14-0128	21.8	22.9	27.0	29.4	32.6	2.3	38.3	16.4	44.2	234.7
	14-0132	18.5	20.4	26.0	27.4	28.7	3.2	31.5	19.8	46.8	222.3
	14-0138	20.7	20.8	23.0	25.6	27.8	5.9	33.4	19.7	44.9	221.7
	14-0142	22.5	24.9	27.0	27.5	28.9	3.0	29.5	24.5	51.6	239.5
	14-0144	23.9	24.0	31.5	33.5	32.7	5.9	36.2	24.3	47.0	259.0
	14-0145	22.2	22.2	28.6	34.9	33.0	7.0	39.1	21.1	46.2	254.3
	14-0146	22.0	21.4	26.8	29.7	28.5	1.5	40.7	22.4	46.5	239.5
	14-0147	21.6	21.8	27.1	28.3	27.6	4.8	50.4	24.4	52.1	258.1
	14-0152	19.5	21.1	26.9	27.7	27.6	1.1	20.7	13.0	12.1	169.5
	14-0153	20.4	21.9	25.5	28.5	28.9	4.9	32.8	20.8	45.8	229.5
	14-0158	19.8	20.7	23.7	27.5	26.3	0.6	46.2	24.9	44.6	234.3
	14-0160	18.3	18.8	22.5	24.4	24.9	5.3	26.2	17.1	43.2	200.9
	14-0165	18.8	18.6	25.1	25.9	23.8	0.6	38.7	21.3	47.7	220.4
	14-0169	18.3	19.3	22.8	27.9	28.8	4.2	53.7	24.2	50.6	249.7
	14-0170	21.7	21.5	24.0	27.2	27.8	4.4	39.3	18.5	40.2	224.6
	14-0171	21.1	23.9	24.9	27.9	31.3	2.4	49.5	23.8	45.0	249.9
	14-0188	18.7	20.3	23.2	25.6	26.0	5.1	38.5	19.8	40.7	217.7
	14-0190	17.1	19.8	23.3	26.2	28.6	6.0	41.2	20.9	45.1	228.1
	14-0192	21.2	21.1	24.3	27.1	28.8	4.4	33.7	21.5	48.8	231.0
	14-0193	19.1	18.3	27.1	29.7	28.2	3.0	36.3	18.0	46.3	225.9

	14-0201	21.1	21.3	25.6	30.7	29.9	2.2	37.9	22.4	44.7	235.9
	14-0202	21.2	21.3	22.1	27.3	25.0	1.2	32.8	16.1	39.7	206.7
	14-0203	19.8	20.8	25.7	22.6	27.1	5.7	36.8	17.6	53.7	229.8
	14-0204	21.0	22.6	24.6	29.0	30.2	6.1	32.6	16.9	37.1	220.1
	Mean	**20.4**	**21.2**	**25.3**	**28.0**	**28.4**	**3.7**	**37.8**	**20.5**	**44.5**	**229.7**
	SD	**1.657**	**1.663**	**2.161**	**2.564**	**2.343**	**1.937**	**7.674**	**3.209**	**7.773**	**19.279**
3600 mg/l	14-0126	17.3	18.6	22.2	24.0	25.9	0.9	32.3	18.3	46.0	205.4
	14-0127	19.0	19.4	23.1	24.0	24.3	5.7	31.9	15.7	39.3	202.4
	14-0131	18.5	18.8	23.6	27.5	27.2	4.1	43.8	19.7	34.3	217.5
	14-0135	18.7	19.4	23.5	25.1	25.2	4.5	27.3	14.4	34.3	192.4
	14-0139	17.7	18.8	21.8	25.4	28.5	5.4	32.3	17.6	38.4	205.8
	14-0140	19.0	20.6	25.6	30.0	34.8	5.2	51.3	25.9	47.4	259.9
	14-0141	16.6	16.8	19.9	24.2	27.3	2.7	36.8	15.8	34.6	194.6
	14-0151	17.2	18.5	23.2	24.5	25.7	1.6	40.9	21.0	45.3	217.8
	14-0155	19.1	18.9	23.8	25.3	27.3	5.0	42.6	17.5	41.8	221.2
	14-0159	22.8	21.9	26.4	29.2	30.9	5.0	34.5	20.0	44.1	234.9
	14-0167	20.0	20.0	24.3	29.1	29.9	4.6	27.8	16.7	35.9	208.3
	14-0168	22.4	19.0	24.8	25.6	23.2	14.9				129.9
	14-0172	25.1	28.8	26.3	32.3	34.7	6.0	46.9	24.4	46.7	271.2
	14-0181	18.3	17.0	23.8	26.7	27.6	1.4	44.8	21.4	43.8	224.8
	14-0182	20.2	20.7	24.4	27.1	26.7	2.5	31.2	19.1	41.1	212.9
	14-0184	20.1	22.1	24.1	28.1	18.7	12.2				125.2
	14-0187	17.4	16.4	20.2	20.2	16.1	12.1				102.3
	14-0189	17.4	18.4	22.1	27.5	26.2	0.8	12.8	10.2	10.3	145.7
	14-0194	19.5	22.6	25.4	27.8	28.0	1.9	32.5	20.1	41.0	219.0
	14-0208	21.4	25.4	30.1	34.5	33.2	0.8	35.2	25.1	44.4	250.1
	14-0209	20.2	20.3	23.7	26.1	25.1	3.6	43.2	21.3	40.5	224.0
	14-0210	26.0	27.0	30.8	34.0	35.6	4.6	48.7	28.0		234.7
	14-0213	18.5	20.5	24.2	28.1	30.6	7.1	30.7	19.3	40.3	219.2
	14-0216	16.8	17.0	21.5	24.5	23.9	3.8	27.2	16.8	36.5	188.0
	14-0219	17.9	19.1	23.1	26.0	27.8	1.7	41.5	20.5	37.6	215.2
	Mean	**19.5**	**20.2**	**24.1**	**27.1**	**27.4**	**4.7**	**36.2**	**19.5**	**39.2**	**204.9**
	SD	**2.449**	**3.057**	**2.519**	**3.253**	**4.554**	**3.634**	**8.924**	**4.054**	**7.809**	**40.690**

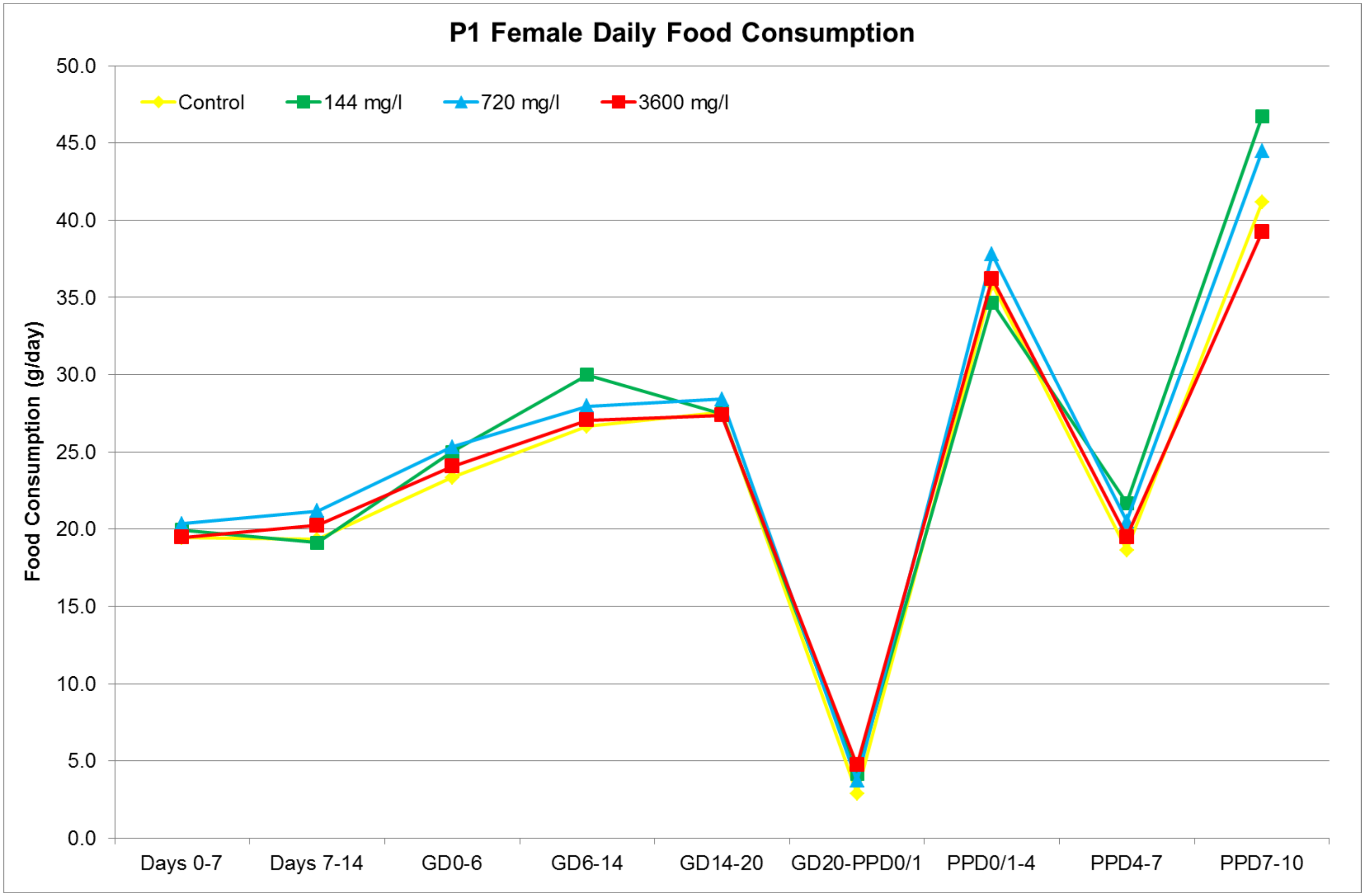

P1 Female Daily Food Consumption
Control
144 mg/l
720 mg/l
3600 mg/l
Food Consumption (g/day)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Days 0-7
Days 7-14
GD0-6
GD6-14
GD14-20
GD20-PPD0/1
PPD0/1-4
PPD4-7
PPD7-10

Table F-3
Protocol No.56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Paired Daily Food Consumption (grams per day)
F1 Male Rats

Group	Cage	Animal ID	PND 21-28	PND 28-35	PND 35-42	PND 42-49	PND49-52	Total/day
	1	14-221/222	27.41	38.33	50.24	55.83	39.67	211.48
	1							
Control	2	14-252/266	24.43	35.93	45.96	49.64	45.77	201.72
	2							
	3	14-271/277	22.53	34.91	46.66	50.50	50.87	205.47
	3							
	4	14-229/232	24.93	34.93	44.63	48.99	51.07	204.54
	4							
	5	14-246/247	21.64	31.39	42.93	48.96	52.43	197.35
	5							
	6	14-256/257	25.50	36.81	50.07	54.36	59.27	226.01
	6							
	7	14-241/251	23.50	38.73	50.53	56.19	57.47	226.41
	7							
	8	14-275/298	20.37	32.70	41.99	46.01	48.23	189.30
	8							
	9	14-245/258	26.84	38.69	51.27	70.67	69.37	256.84
	9							
	10	14-283/296	25.77	40.26	51.31	55.11	59.87	232.32
	10							
		Mean	**23.95**	**36.04**	**47.26**	**53.38**	**54.93**	**215.55**
		SD	**2.11**	**2.91**	**3.65**	**7.30**	**7.28**	**21.35**
	1	14-235/268	24.76	38.77	51.53	57.13	59.60	231.79
	1							
144 mg/l	2	14-233/259	26.97	43.26	55.40	54.89	58.00	238.51
	2							
	3	14-261/269	23.59	39.10	53.27	55.93	57.83	229.72
	3							
	4	14-267/270	24.14	38.27	41.74	59.66	46.93	210.75
	4							
	5	14-223/285	24.03	36.93	48.27	53.56	36.07	198.85
	5							
	6	14-228/284	22.86	35.63	46.07	50.54	35.37	190.47

	6							
	7	**14-274/282**	23.16	37.73	50.60	52.90	61.63	226.02
	7							
	8	**14-293/295**	22.43	34.24	44.81	50.54	58.07	210.10
	8							
	9	**14-272/281**	24.79	37.66	48.07	49.90	54.60	215.01
	9							
	10	**14-292/300**	22.61	34.51	45.84	49.46	53.43	205.86
	10							
		Mean	**23.84**	**37.48**	**48.23**	**53.04**	**51.33**	**213.92**
		SD	**1.41**	**2.73**	**4.28**	**3.37**	**9.75**	**15.28**
	1	**14-224/227**	27.67	39.57	50.99	54.26	29.67	202.15
	1							
720 mg/l	**2**	**14-231/236**	23.33	33.99	43.29	49.36	50.90	200.86
	2							
	3	**14-240/242**	21.40	35.60	47.46	50.21	52.37	207.04
	3							
	4	**14-243/253**	20.99	35.81	51.06	56.66	58.80	223.31
	4							
	5	**14-260/264**	21.80	30.94	39.57	45.11	38.87	176.30
	5							
	6	**14-278/244**	16.69	39.43	49.33	53.43	43.80	202.67
	6							
	7	**14-255/263**	22.79	35.74	38.77	50.59	55.27	203.15
	7							
	8	**14-276/249**	27.06	42.19	54.09	61.29	59.67	244.28
	8							
	9	**14-279/286**	23.09	37.91	48.83	51.44	55.47	216.74
	9							
	10	**14-287/288**						
	10							
		Mean	**22.76**	**36.80**	**47.04**	**52.48**	**49.42**	**208.50**
		SD	**3.28**	**3.37**	**5.34**	**4.65**	**10.05**	**18.60**
	1	**14-226234**	18.81	30.64	43.37	49.04	50.67	192.54
	1							
3600 mg/l	**2**	**14-238/239**	20.66	30.89	41.17	45.84	46.57	185.12
	2							
	3	**14-254/230**	21.46	33.96	45.96	51.96	45.17	198.50
	3							

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4 **4**	**14-248/265**	30.23	32.44	42.70	47.90	49.80	203.07
5 **5**	**14-280/289**	20.90	34.29	46.97	50.59	53.63	206.38
6 **6**	**14-291/225**	23.64	34.64	45.99	48.86	34.13	187.26
7 **7**	**14-262/294**	21.74	32.00	42.73	48.37	36.40	181.24
8 **8**	**14-237/250**	21.60	31.96	41.47	44.73	49.07	188.82
9 **9**	**14-297/273**	16.60	34.97	45.30	47.81	43.37	188.05
10 **10**	**14-290/299**	25.30	36.11	48.14	52.87	39.93	202.36
	Mean	**22.09**	**33.19**	**44.38**	**48.80***	**44.87***	**193.33**
	SD	**3.71**	**1.85**	**2.41**	**2.52**	**6.40**	**8.64**

*Significantly different from control.

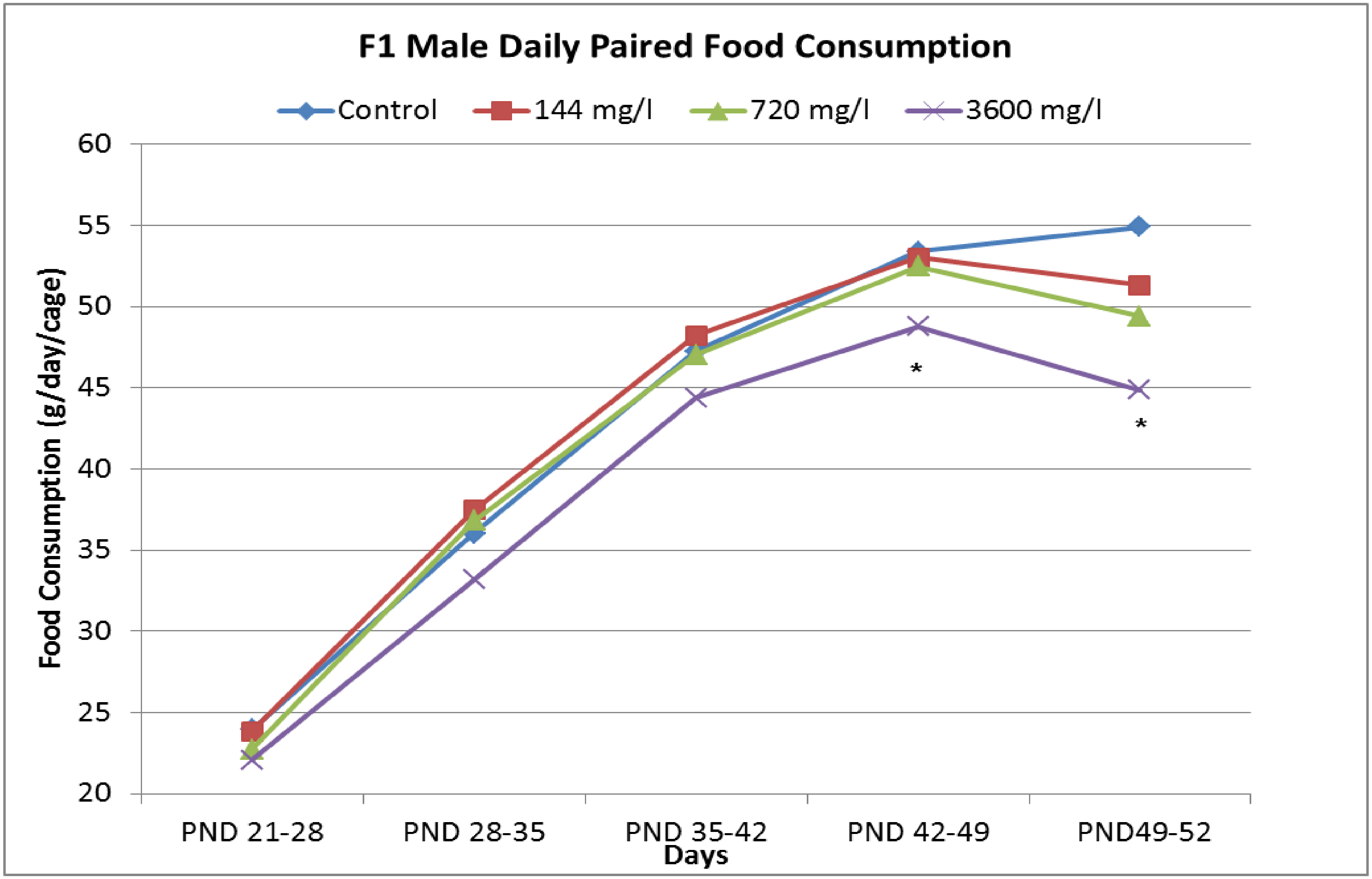
F1 Male Daily Paired Food Consumption
Control
144 mg/l
720 mg/l
3600 mg/l
Food Consumption (g/day/cage)
60
55
50
45
40
35
30
25
20
*
*
PND 21-28
PND 28-35
PND 35-42
PND 42-49
PND49-52
Days

Table F-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Paired Food Consumption (grams per day)
F1 Female Rats

Group	Cage	Animal ID	PND 21-28	PND 28-35	PND 35-41	Total/day
	1	14-301/302	24.24	32.50	37.06	93.80
	1					
Control	2	14-332/346	21.27	29.77	40.14	91.18
	2					
	3	14-351/357	20.24	31.24	42.34	93.83
	3					
	4	14-309/312	23.30	32.56	47.06	102.92
	4					
	5	14-326/327	19.86	26.51	39.32	85.69
	5					
	6	14-336/337	22.50	31.77	48.78	103.05
	6					
	7	14-321/331	22.19	33.10	44.84	100.13
	7					
	8	14-355/378	17.99	25.21	37.32	80.52
	8					
	9	14-325/338	22.46	31.41	42.94	96.81
	9					
	10	14-363/376	21.49	32.30	44.96	98.75
	10					
		Mean	21.55	30.64	42.48	94.67
		SD	1.82	2.70	4.00	7.33
	1	14-315/348	22.34	32.71	44.82	99.88
	1					
144 mg/l	2	14-313/339	24.71	20.93	51.04	96.68
	2					
	3	14-341/349	21.23	32.90	45.26	99.39

	3					
	4	14-347/350	22.61	31.50	41.58	95.69
	4					
	5	14-303/365	22.07	32.11	38.26	92.45
	5					
	6	14-308/364	21.03	32.03	44.16	97.22
	6					
	7	14-354/362	20.79	30.40	41.96	93.15
	7					
	8	14-373/375	20.36	27.49	40.84	88.68
	8					
	9	14-352/361	23.47	33.74	45.04	102.25
	9					
	10	14-372/380	19.21	25.74	36.92	81.88
	10					
		Mean	**21.78**	**29.96**	**42.99**	**94.73**
		SD	**1.60**	**4.05**	**4.02**	**6.01**
	1	14-304/307	25.14	34.73	35.66	95.53
	1					
720 mg/l	2	14-311/316	24.26	31.79	44.00	100.04
	2					
	3	14-320/322	21.40	31.57	45.06	98.03
	3					
	4	14-323/333	24.20	33.20	49.26	106.66
	4					
	5	14-344/344	17.07	26.94	35.46	79.47
	5					
	6	14-324/358	24.73	37.90	51.00	113.63
	6					
	7	14-335/343	21.21	29.60	40.60	91.41
	7					
	8	14-329/356	23.20	31.99	41.40	96.59
	8					
	9	14-359/366	23.01	33.11	44.06	100.19
	9					
	10	14-367/368				

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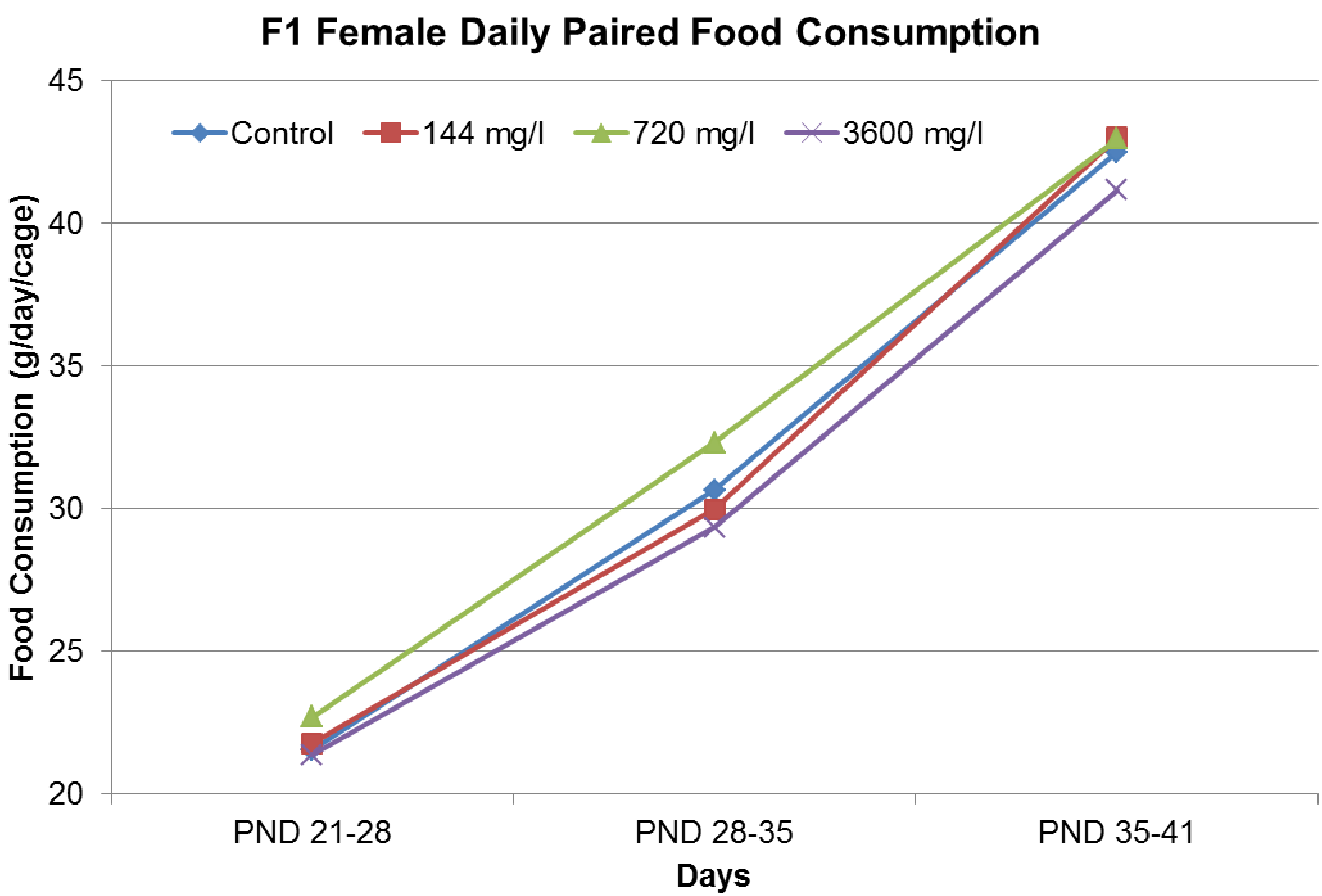
	10					
		Mean	**22.69**	**32.31**	**42.94**	**97.95**
		SD	**2.52**	**3.07**	**5.35**	**9.51**
	1	**14-306/314**	19.86	26.44	41.82	88.12
	1					
3600 mg/l	2	**14-318/319**	19.73	27.49	43.26	90.47
	2					
	3	**14-310/334**	20.80	30.93	43.46	95.19
	3					
	4	**14-328/345**	17.37	28.20	40.94	86.51
	4					
	5	**14-360/369**	17.44	28.53	41.22	87.19
	5					
	6	**14-305/371**	22.73	30.41	38.10	91.24
	6					
	7	**14-342/374**	20.53	29.50	43.06	93.09
	7					
	8	**14-317/330**	23.30	30.96	41.80	96.06
	8					
	9	**14-353/377**	30.07	31.27	40.46	101.80
	9					
	10	**14-379/370**	21.89	29.53	37.34	88.75
	10					
		Mean	**21.37**	**29.33**	**41.15**	**91.84**
		SD	**3.64**	**1.63**	**2.07**	**4.78**


F1 Female Daily Paired Food Consumption
Control
144 mg/l
720 mg/l
3600 mg/l
Food Consumption (g/day/cage)
45
40
35
30
25
20
PND 21-28
PND 28-35
PND 35-41
Days

Appendix G

Fertility Measures and Litter Data

Table G-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Mating and Delivery Results

Group	Animal Pair	Dam ID	Date Paired	Sperm Positive Date	Pre-coital Interval	No. Sperm Plugs	PPD0 Date	Gest Days	CLs	Implant Sites	Pre-Implant Loss	Post-Implant Loss	Live Pups	Stillborn Pups	Dead Pups	Total Pups	% live pups	% stillborn pups
	14-0121/ 14-0005	14-0121	11/25/13	11/26/13	1	2	12/16/13	20	16	15	1	3	12	0	0	12	100.0	0.0
Control	14-0122/ 14-0001	14-0122	11/25/13	11/27/13	2	4	12/18/13	21	30	14	16	1	13	0	0	13	100.0	0.0
	14-0130/ 14-0010	14-0130	11/25/13	11/28/13	3	6	12/20/13	22	18	14	4	2	12	0	0	12	100.0	0.0
	14-0133/ 14-0009	14-0133	11/25/13	11/28/13	3	6	12/20/13	22	24	20	4	1	19	0	0	19	100.0	0.0
	14-0136/ 14-0101	14-0136	11/25/13	11/28/13	3	5	12/21/13	23								17	0.0	0.0
	14-0143/ 14-0002	14-0143	11/25/13	11/29/13	4	3	12/21/13	22	33	15	18	5	10	0	0	10	100.0	0.0
	14-0148/ 14-0024	14-0148	11/26/13	12/1/13	5	1	12/23/13	22	23	18	5	5	13	0	0	13	100.0	0.0
	14-0149/ 14-0014	14-0149	11/26/13	11/29/13	3	6	12/20/13	21	25	17	8	0	17	0	0	17	100.0	0.0
	14-0150/ 14-0023	14-0150	11/26/13	11/28/13	2	4	12/20/13	22	28	17	11	0	16	1	0	17	94.1	5.9
	14-0156/ 14-0013	14-0156	11/26/13	11/29/13	3	2	12/21/13	22	18	15	3	0	15	0	0	15	100.0	0.0
	14-0157/ 14-0043	14-0157	11/27/13	11/28/13	1	2	12/18/13	20	20	16	4	1	15	0	0	15	100.0	0.0
	14-0161/ 14-0026	14-0161	11/27/13	11/28/13	1	3	12/20/13	22	20	14	6	2	12	0	0	12	100.0	0.0
	14-0162/ 14-0044	14-0162	11/27/13	11/29/13	2	4	12/20/13	21	17	16	1	0	16	0	0	16	100.0	0.0
	14-0163/ 14-0050	14-0163	11/27/13	12/1/13	4	4	12/23/13	22	21	17	4	1	16	0	0	16	100.0	0.0
	14-0173/ 14-0025	14-0173	11/27/13	11/28/13	1	4	12/19/13	21	22	15	7	1	13	1	0	14	92.9	7.1
	14-0179/ 14-0049	14-0179	11/27/13	11/28/13	1	1	12/19/13	21	19	13	6	1	12	0	0	12	100.0	0.0
	14-0185/ 14-0066	14-0185	11/28/13	11/29/13	1	4	12/21/13	22	35	16	19	0	16	0	0	16	100.0	0.0
	14-0186/ 14-0064	14-0186	11/28/13	12/1/13	3	5	12/23/13	22	17	15	2	1	14	0	0	14	100.0	0.0
	14-0191/ 14-0065	14-0191	11/28/13	11/29/13	1	2	12/19/13	20	16	16	0	2	14	0	0	14	100.0	0.0
	14-0196/ 14-0063	14-0196	11/28/13	12/1/13	3	6	12/23/13	22	17	17	0	0	17	0	0	17	100.0	0.0

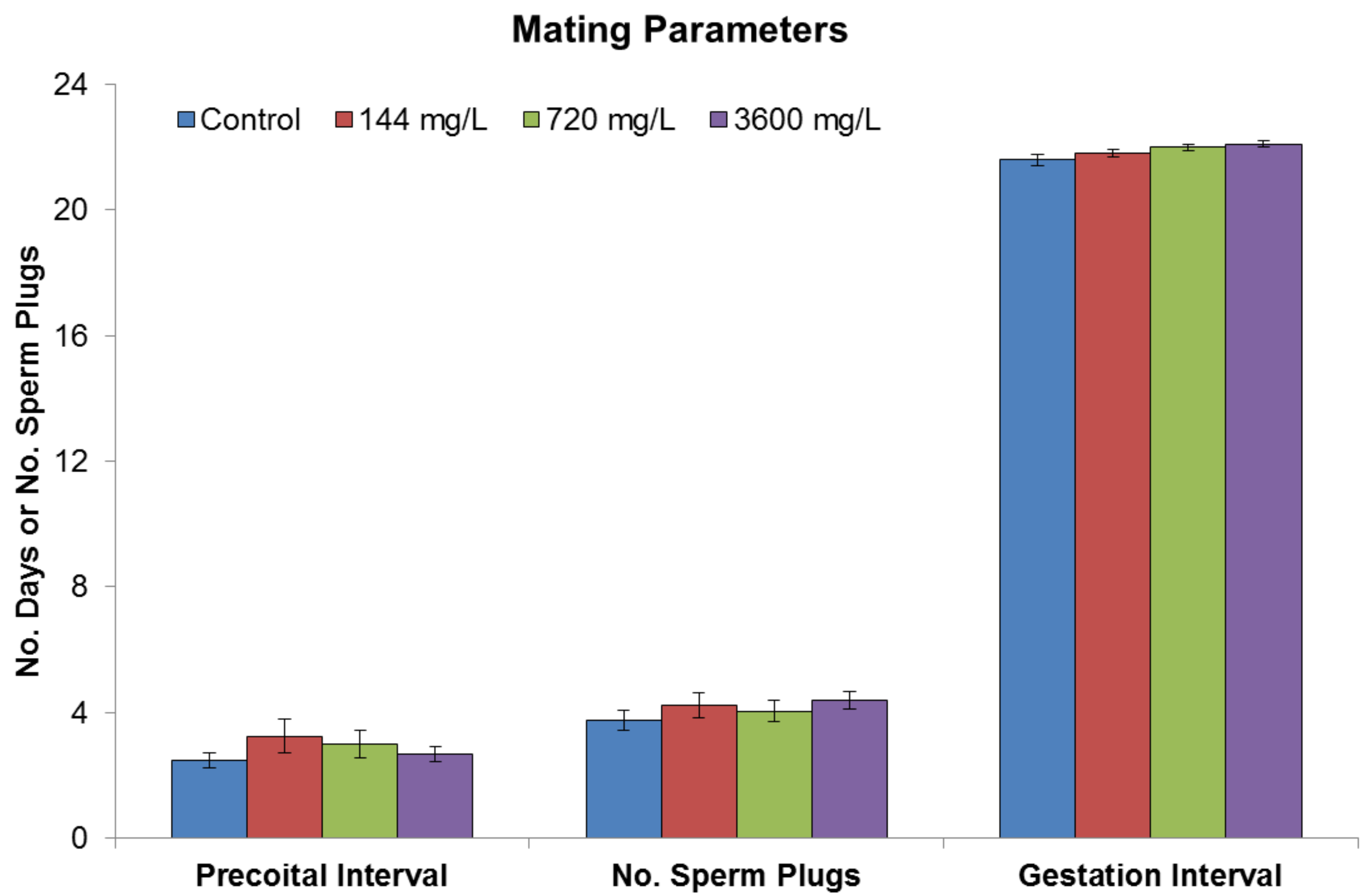
	14-0198/ 14-0069	14-0198	11/29/13	12/2/13	3	6	12/24/13	22	23	15	8	1	14	0	0	14	100.0	0.0
	14-0205/ 14-0096	14-0205	11/29/13	12/3/13	4	3	12/26/13	23	48*	15		3	10	2	0	12	83.3	16.7
	14-0207/ 14-0094	14-0207	11/29/13	12/3/13	4	3	np		15	0	15	0						
	14-0215/ 14-0070	14-0215	11/29/13	12/2/13	3	5	12/24/13	22	28	18	10	4	14	0	0	14	100.0	0.0
	14-0217/ 14-0095	14-0217	11/29/13	11/30/13	1	3	12/21/13	21	16	15	1	0	15	0	0	15	100.0	0.0
				Mean	**2.48**	**3.76**		**21.6**	**22**	**15**	**7**	**1**	**14.13**	**0.17**	**0.00**	**14.42**	**94.60**	**1.24**
				SD	**1.23**	**1.59**		**0.8**	**5.7**	**3.6**	**5.7**	**1.6**	**2.26**	**0.49**	**0.00**	**2.19**	**20.50**	**3.77**
				SEM	**0.25**	**0.32**		**0.17**	**1.2**	**0.7**	**1.2**	**0.3**	**0.47**	**0.10**	**0.00**	**0.45**	**4.18**	**0.77**
	14-0123/ 14-0015	14-0123	11/25/13	11/29/13	4	7	12/22/13	23	17	16	1	1	12	3	0	15	80.0	20.0
144 mg/l	14-0125/ 14-0008	14-0125	11/25/13				np		0	0	0	0						
	14-0129/ 14-0016	14-0129	11/25/13	11/30/13	5	7	12/22/13	22	19	17	2	1	16	0	0	16	100.0	0.0
	14-0134/ 14-0007	14-0134	11/25/13	11/28/13	3	3	12/20/13	22	19	15	4	1	14	0	0	14	100.0	0.0
	14-0137/ 14-0045	14-0137	11/26/13	11/27/13	1	5	12/19/13	22	22	15	7	1	14	0	0	14	100.0	0.0
	14-0154/ 14-0047	14-0154	11/26/13	11/28/13	2	5	12/20/13	22	19	8	11	0	8	0	0	8	100.0	0.0
	14-0164/ 14-0046	14-0164	11/26/13	11/27/13	1	4	12/20/13	23	22	16	6	1	13	2	0	15	86.7	13.3
	14-0166/ 14-0036	14-0166	11/26/13	11/28/13	2	6	12/20/13	22	22	17	5	0	16	1	0	17	94.1	5.9
	14-0174/ 14-0048	14-0174	11/26/13	11/29/13	3	5	12/21/13	22	24	17	7	1	16	0	0	16	100.0	0.0
	14-0175/ 14-0035	14-0175	11/26/13	11/29/13	3	3	12/21/13	22	15	14	1	2	11	1	0	12	91.7	8.3
	14-0176/ 14-0051	14-0176	11/27/13	11/28/13	1	1	12/19/13	21	20	16	4	0	15	1	0	16	93.8	6.3
	14-0177/ 14-0052	14-0177	11/27/13	11/29/13	2	3	12/20/13	21	18	18	0	0	18	0	0	18	100.0	0.0
	14-0178/ 14-0053	14-0178	11/27/13	11/28/13	1	2	12/20/13	22	18	18	0	1	16	1	0	17	94.1	5.9
	14-0180/ 14-0054	14-0180	11/27/13	12/2/13	5	2	12/24/13	22	18	14	4	2	12	0	0	12	100.0	0.0
	14-0183/ 14-0067	14-0183	11/28/13	12/2/13	4	4	12/23/13	21	22	18	4	1	16	0	1	17	94.1	0.0
	14-0195/	14-0195	11/28/13	12/2/13	4	4	12/24/13	22	25	19	6	4	14	1	0	15	93.3	6.7

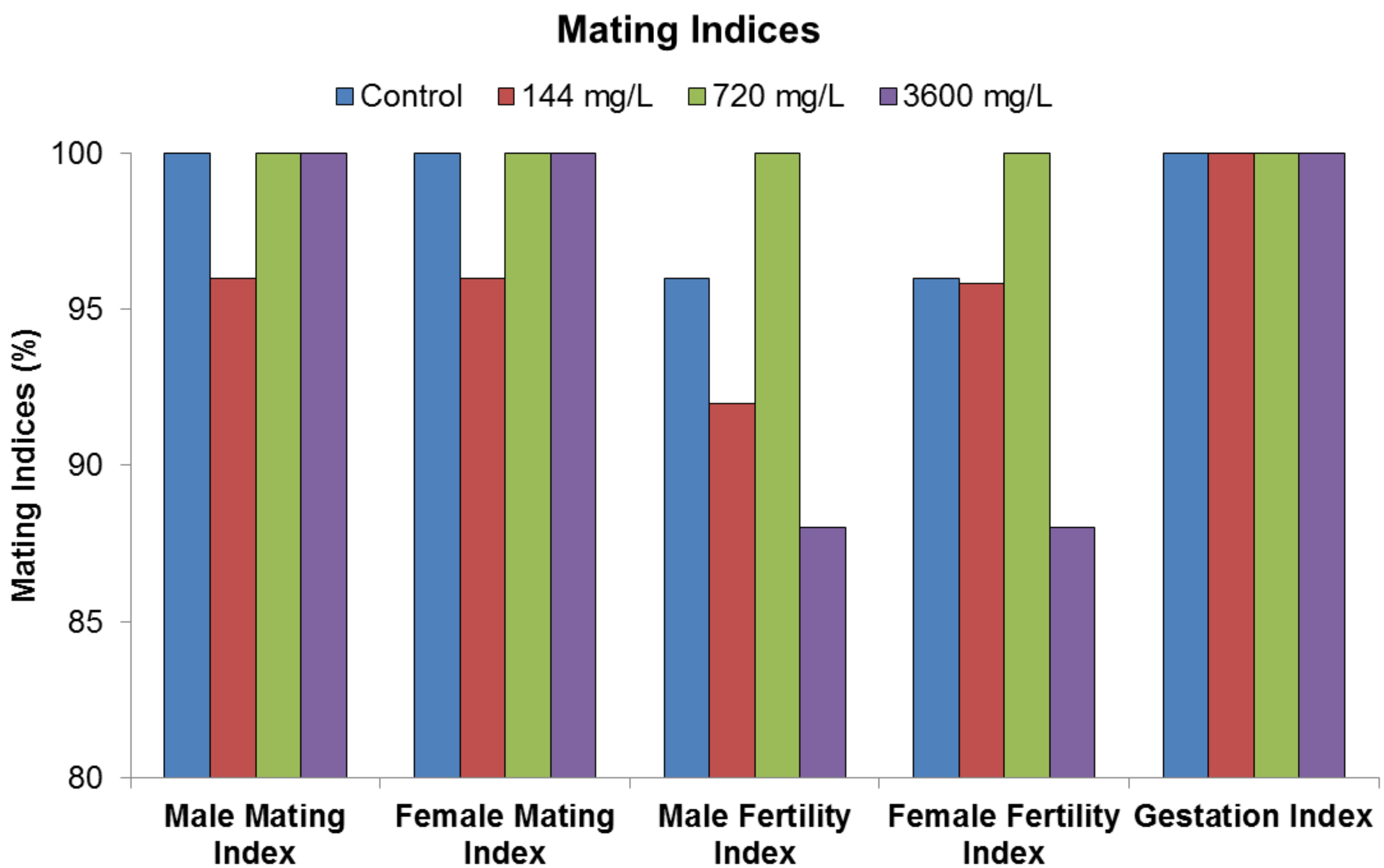
	14-0076																	
	14-0197/ 14-0072	14-0197	11/28/13	12/2/13	4	6	12/23/13	21	16	13	3	0	13	0	0	13	100.0	0.0
	14-0199/ 14-0071	14-0199	11/28/13	11/30/13	2	6	12/22/13	22	19	16	3	2	14	0	0	14	100.0	0.0
	14-0200/ 14-0075	14-0200	11/28/13	11/29/13	1	5	12/21/13	22	22	17	5	1	16	0	0	16	100.0	0.0
	14-0206/ 14-0068	14-0206	11/28/13	12/2/13	4	4	12/24/13	22	18	17	1	1	16	0	0	16	100.0	0.0
	14-0211/ 14-0082	14-0211	11/29/13	12/2/13	3	8	12/24/13	22	30	16	14	1	14	1	0	15	93.3	6.7
	14-0212/ 14-0090	14-0212	11/29/13	12/1/13	2	1	12/23/13	22	17	16	1	0	15	1	0	16	93.8	6.3
	14-0214/ 14-0078	14-0214	11/29/13	12/2/13	3	5	12/23/13	21	14	14	0	1	13	0	0	13	100.0	0.0
	14-0218/ 14-0081	14-0218	11/29/13	12/13/13	14	1	np		4	0	4	0						
	14-0220/ 14-0089	14-0220	11/29/13	12/3/13	4	5	12/24/13	21	22	18	4	0	17	0	1	18	94.4	0.0
				Mean	**3.25**	**4.25**		**21.8**	**18**	**15**	**4**	**1**	**14.30**	**0.52**	**0.09**	**14.91**	**96.06**	**3.45**
				SD	**2.63**	**1.96**		**0.6**	**6.0**	**4.9**	**3.4**	**0.9**	**2.22**	**0.79**	**0.29**	**2.27**	**5.18**	**5.27**
				SEM	**0.54**	**0.40**		**0.12**	**1.2**	**1.0**	**0.7**	**0.2**	**0.46**	**0.16**	**0.06**	**0.47**	**1.08**	**1.10**
	14-0124/ 14-0030	14-0124	11/25/13	11/28/13	3	5	12/20/13	22	15	15	0	1	14	0	0	14	100.0	0.0
720 mg/l	14-0128/ 14-0004	14-0128	11/25/13	11/26/13	1	5	12/17/13	21	28	17	11	0	17	0	0	17	100.0	0.0
	14-0132/ 14-0017	14-0132	11/25/13	11/28/13	3	5	12/20/13	22	18	16	2	1	15	0	0	15	100.0	0.0
	14-0138/ 14-0029	14-0138	11/25/13	11/28/13	3	4	12/20/13	22	16	15	1	2	13	0	0	13	100.0	0.0
	14-0142/ 14-0018	14-0142	11/25/13	11/28/13	3	2	12/20/13	22	16	16	0	0	16	0	0	16	100.0	0.0
	14-0144/ 14-0003	14-0144	11/25/13	11/28/13	3	6	12/20/13	22	24	18	6	1	16	1	0	17	94.1	5.9
	14-0145/ 14-0034	14-0145	11/26/13	11/28/13	2	3	12/20/13	22	18	13	5	0	13	0	0	13	100.0	0.0
	14-0146/ 14-0033	14-0146	11/26/13	11/28/13	2	2	12/20/13	22	19	19	0	1	18	0	0	18	100.0	0.0
	14-0147/ 14-0031	14-0147	11/26/13	11/30/13	4	3	12/23/13	23	25	15	10	1	14	0	0	14	100.0	0.0
	14-0152/ 14-0032	14-0152	11/26/13	11/27/13	1	6	12/20/13	23	41*	17		3	8	6	0	14	57.1	42.9
	14-0153/ 14-0038	14-0153	11/27/13	12/2/13	5	4	12/24/13	22	19	15	4	0	15	0	0	15	100.0	0.0

	14-0158/ 14-0056	14-0158	11/27/13	11/28/13	1	6	12/20/13	22	20	15	5	0	15	0	0	15	100.0	0.0
	14-0160/ 14-0055	14-0160	11/27/13	12/1/13	4	5	12/23/13	22	18	15	3	1	14	0	0	14	100.0	0.0
	14-0165/ 14-0037	14-0165	11/27/13	11/28/13	1	3	12/20/13	22	19	17	2	1	15	1	0	16	93.8	6.3
	14-0169/ 14-0058	14-0169	11/27/13	11/29/13	2	5	12/21/13	22	18	16	2	2	14	0	0	14	100.0	0.0
	14-0170/ 14-0057	14-0170	11/27/13	11/30/13	3	6	12/23/13	23	19	17	2	0	17	0	0	17	100.0	0.0
	14-0171/ 14-0061	14-0171	11/28/13	11/29/13	1	5	12/21/13	22	18	18	0	1	17	0	0	17	100.0	0.0
	14-0188/ 14-0062	14-0188	11/28/13	12/2/13	4	5	12/23/13	21	17	17	0	4	13	0	0	13	100.0	0.0
	14-0190/ 14-0073	14-0190	11/28/13	12/1/13	3	4	12/23/13	22	20	16	4	1	15	0	0	15	100.0	0.0
	14-0192/ 14-0074	14-0192	11/28/13	11/30/13	2	7	12/22/13	22	21	15	6	2	13	0	0	13	100.0	0.0
	14-0193/ 14-0084	14-0193	11/29/13	12/2/13	3	1	12/24/13	22	21	15	6	2	13	0	0	13	100.0	0.0
	14-0201/ 14-0098	14-0201	11/29/13	12/2/13	3	4	12/24/13	22	29	20	9	2	18	0	0	18	100.0	0.0
	14-0202/ 14-0097	14-0202	11/29/13	12/2/13	3	2	12/24/13	22	17	14	3	1	13	0	0	13	100.0	0.0
	14-0203/ 14-0093	14-0203	11/29/13	12/11/13	12	1	1/2/2014	22	22	11	11	0	11	0	0	11	100.0	0.0
	14-0204/ 14-0083	14-0204	11/29/13	12/2/13	3	2	12/24/13	22	20	16	4	2	14	0	0	14	100.0	0.0
				Mean	**3.00**	**4.04**		**22.0**	**20**	**16**	**4**	**1**	**14.44**	**0.32**	**0.00**	**14.76**	**97.80**	**2.20**
				SD	**2.16**	**1.70**		**0.5**	**3.6**	**1.9**	**3.5**	**1.0**	**2.22**	**1.22**	**0.00**	**1.83**	**8.63**	**8.63**
				SEM	**0.43**	**0.34**		**0.09**	**0.7**	**0.4**	**0.7**	**0.2**	**0.44**	**0.24**	**0.00**	**0.37**	**1.73**	**1.73**
	14-0126/ 14-0012	14-0126	11/25/13	11/29/13	4	7	12/22/13	23	20	17	3	1	16	0	0	16	100.0	0.0
3600 mg/l	14-0127/ 14-0019	14-0127	11/25/13	11/28/13	3	4	12/20/13	22	18	16	2	4	12	0	0	12	100.0	0.0
	14-0131/ 14-0020	14-0131	11/25/13	11/29/13	4	3	12/21/13	22	26	16	10	1	15	0	0	15	100.0	0.0
	14-0135/ 14-0011	14-0135	11/25/13	11/28/13	3	4	12/20/13	22	16	16	0	3	13	0	0	13	100.0	0.0
	14-0139/ 14-0021	14-0139	11/26/13	12/1/13	5	4	12/23/13	22	19	15	4	2	13	0	0	13	100.0	0.0
	14-0140/ 14-0027	14-0140	11/26/13	11/28/13	2	4	12/20/13	22	18	17	1	0	17	0	0	17	100.0	0.0
	14-0141/	14-0141	11/26/13	11/28/13	2	5	12/20/13	22	14	14	0	1	13	0	0	13	100.0	0.0

14-0039																	
14-0151/ 14-0028	14-0151	11/26/13	11/28/13	2	6	12/21/13	23	21	15	6	1	12	2	0	14	85.7	14.3
14-0155/ 14-0022	14-0155	11/26/13	11/30/13	4	3	12/23/13	23	17	14	3	2	12	0	0	12	100.0	0.0
14-0159/ 14-0040	14-0159	11/26/13	11/29/13	3	5	12/20/13	21	23	16	7	1	15	0	0	15	100.0	0.0
14-0167/ 14-0060	14-0167	11/27/13	11/30/13	3	5	12/22/13	22	18	15	3	2	12	1	0	13	92.3	7.7
14-0168/ 14-0041	14-0168	11/27/13	11/28/13	1	2	np		16	0	16	0						
14-0172/ 14-0042	14-0172	11/27/13	11/29/13	2	5	12/21/13	22	17	16	1	1	15	0	0	15	100.0	0.0
14-0181/ 14-0059	14-0181	11/27/13	11/29/13	2	7	12/21/13	22	17	15	2	0	15	0	0	15	100.0	0.0
14-0182/ 14-0087	14-0182	11/28/13	12/2/13	4	4	12/24/13	22	25	19	6	4	14	1	0	15	93.3	6.7
14-0184/ 14-0086	14-0184	11/28/13	11/29/13	1	3	np		22	9	13	9						
14-0187/ 14-0088	14-0187	11/28/13	12/1/13	3	2	np		4	0	4	0						
14-0189/ 14-0080	14-0189	11/28/13	12/1/13	3	2	12/23/13	22	32	17	15	1	11	5	0	16	68.8	31.3
14-0194/ 14-0085	14-0194	11/28/13	11/29/13	1	5	12/21/13	22	16	16	0	1	14	1	0	15	93.3	6.7
14-0208/ 14-0079	14-0208	11/28/13	11/29/13	1	7	12/21/13	22	22	19	3	2	17	0	0	17	100.0	0.0
14-0209/ 14-0100	14-0209	11/29/13	12/2/13	3	4	12/24/13	22	21	14	7	0	14	0	0	14	100.0	0.0
14-0210/ 14-0092	14-0210	11/29/13	12/3/13	4	5	12/26/13	23	17	17	0	0	12	5	0	17	70.6	29.4
14-0213/ 14-0077	14-0213	11/29/13	11/30/13	1	4	12/22/13	22	14	14	0	1	13	0	0	13	100.0	0.0
14-0216/ 14-0091	14-0216	11/29/13	12/1/13	2	6	12/23/13	22	15	13	2	1	12	0	0	12	100.0	0.0
14-0219/ 14-0099	14-0219	11/29/13	12/3/13	4	4	12/25/13	22	17	16	1	1	15	0	0	15	100.0	0.0
			Mean	**2.68**	**4.40**		**22.1**	**19**	**14**	**4**	**2**	**13.73**	**0.68**	**0.00**	**14.41**	**95.64**	**4.36**
			SD	**1.18**	**1.47**		**0.5**	**5.1**	**4.7**	**4.7**	**1.9**	**1.72**	**1.49**	**0.00**	**1.62**	**9.19**	**9.19**
			SEM	**0.24**	**0.29**		**0.10**	**1.0**	**0.9**	**0.9**	**0.4**	**0.37**	**0.32**	**0.00**	**0.35**	**1.96**	**1.96**

np=non-pregnant
*outlier excluded from mean


Mating Parameters
Control
144 mg/L
720 mg/L
3600 mg/L
No. Days or No. Sperm Plugs
0
4
8
12
16
20
24
Precoital Interval
No. Sperm Plugs
Gestation Interval


Mating Indices
Control
144 mg/L
720 mg/L
3600 mg/L
Mating Indices (%)
100
95
90
85
80
Male Mating Index
Female Mating Index
Male Fertility Index
Female Fertility Index
Gestation Index

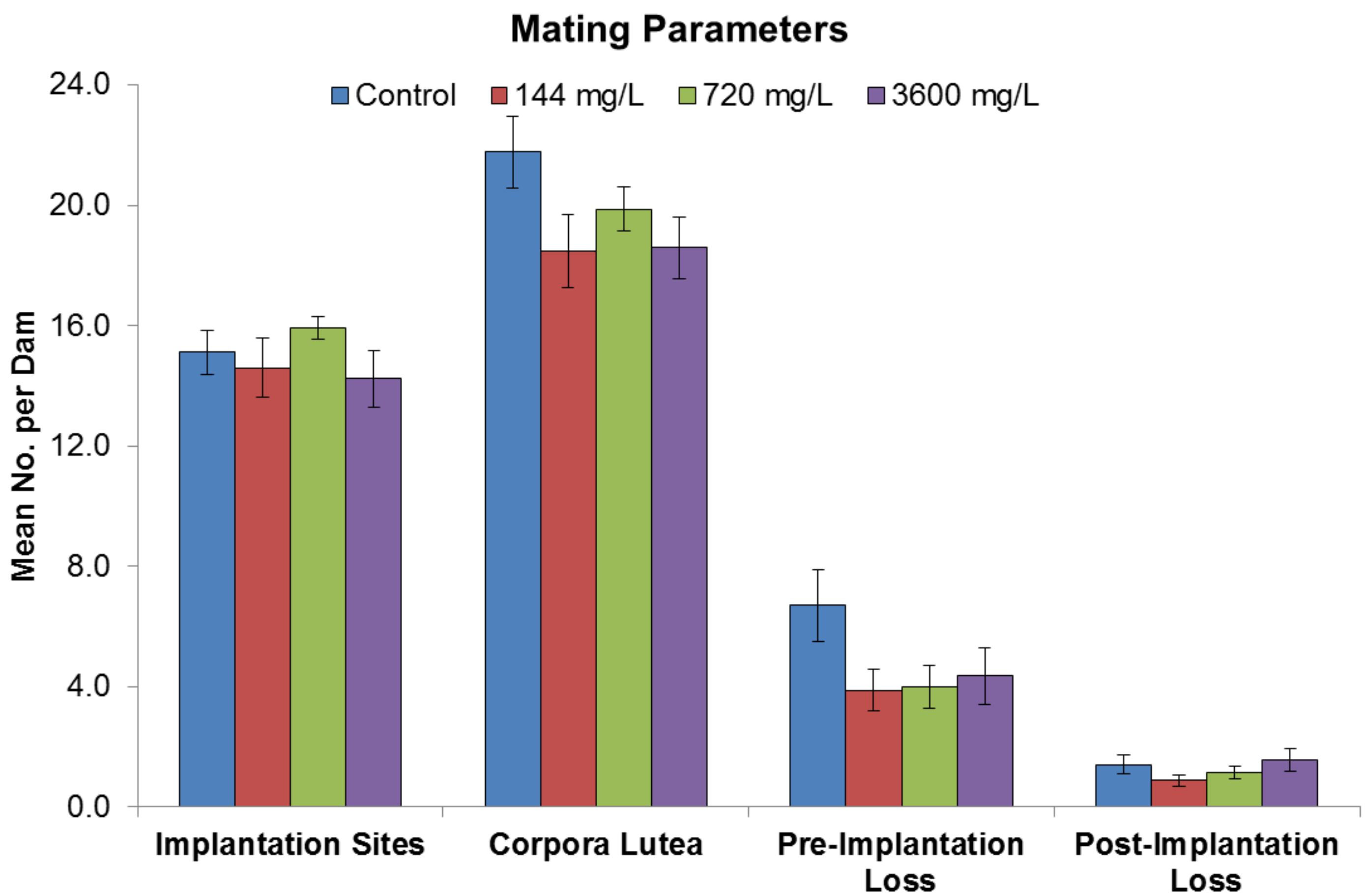

Mating Parameters
Control
144 mg/L
720 mg/L
3600 mg/L
Mean No. per Dam
24.0
20.0
16.0
12.0
8.0
4.0
0.0
Implantation Sites
Corpora Lutea
Pre-Implantation Loss
Post-Implantation Loss

Table G-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Counts and Survival

		PND1						PND4							PND7						PND14					PND21					
Dam ID	TX	a	d	sz	total	%a	%sz	a	c	d	m	total	%a	Survival Index	a	d	m	total	%a	Survival Index	a	d	total	%a	Survival Index	a	d	e	total	%a	Survival Index
14-0121		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0122		13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0130		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0133		19	0	0	19	100.0	0.0	10	8	1	0	19	94.7	94.7	10	0	0	10	100.0	94.7	10	0	10	100.0	94.7	10	0	0	10	100.0	94.7
14-0136					17																										
14-0143		10	0	0	10	100.0	0.0	9		1	0	10	90.0	90.0	9	0	0	9	100.0	90.0	9	0	9	100.0	90.0	9	0	0	9	100.0	90.0
14-0148		13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0149		17	0	0	17	100.0	0.0	10	7	0	0	17	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0150	0	16	0	1	17	94.1	5.9	10	6	0	0	16	100.0	94.1	10	0	0	10	100.0	94.1	10	0	10	100.0	94.1	9	1	0	10	90.0	88.2
14-0156		15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0157		15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0161		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0162		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0163		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0173		13	0	1	14	92.9	7.1	10	3	0	0	13	100.0	92.9	10	0	0	10	100.0	92.9	10	0	10	100.0	92.9	10	0	0	10	100.0	92.9
14-0179		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0185		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0

14-0186		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0191		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0196		17	0	0	17	100.0	0.0	10	7	0	0	17	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0198		14	0	0	14	100.0	0.0	10	3	1	0	14	92.9	92.9	10	0	0	10	100.0	92.9	10	0	10	100.0	92.9	10	0	0	10	100.0	92.9
14-0205		10	0	2	12	83.3	16.7	0	0	9	1	10	0.0	0.0	0	0	0	0		0.0	0	0	0		0.0	0	0	0	0		0.0
14-0207												0				0	0	0					0						0		
14-0215		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0217		15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
Mean		14.1	0.0	0.2	14.4	98.7	1.3	9.5	4.2	0.5	0.0	13.5	94.7	94.1	9.5	0.0	0.0	9.1	100.0	94.1	9.5	0.0	9.1	100.0	94.1	9.5	0.0	0.0	9.1	99.5	93.9
SD		2.3	0.0	0.5	2.2	3.8	3.8	2.1	2.0	1.9	0.2	3.6	20.8	20.7	2.1	0.0	0.0	2.8	0.0	20.7	2.1	0.0	2.8	0.0	20.7	2.1	0.2	0.0	2.8	2.1	20.8
SEM		0.5	0.0	0.1	0.4	0.8	0.8	0.4	0.4	0.4	0.0	0.7	4.3	4.3	0.4	0.0	0.0	0.6	0.0	4.3	0.4	0.0	0.6	0.0	4.3	0.4	0.0	0.0	0.6	0.5	4.3
Count		23	23	23	24	23.0	23.0	23	22	23	23	24	23.0	23.0	23	24	24	24	22.0	23.0	23	23	24	22.0	23.0	23	23	23	24	22.0	23.0
14-0123		12	0	3	15	80.0	20.0	10	2	0	0	12	100.0	80.0	10	0	0	10	100.0	80.0	10	0	10	100.0	80.0	10	0	0	10	100.0	80.0
14-0125																															
14-0129		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0134		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0137		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0154	144	8	0	0	8	100.0	0.0	8	0	0	0	8	100.0	100.0	8	0	0	8	100.0	100.0	8	0	8	100.0	100.0	8	0	0	8	100.0	100.0
14-0164		13	0	2	15	86.7	13.3	10	1	2	0	13	84.6	73.3	10	0	0	10	100.0	73.3	10	0	10	100.0	73.3	10	0	0	10	100.0	73.3
14-0166		16	0	1	17	94.1	5.9	10	6	0	0	16	100.0	94.1	10	0	0	10	100.0	94.1	10	0	10	100.0	94.1	10	0	0	10	100.0	94.1
14-0174		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0175		11	0	1	12	91.7	8.3	10	1	0	0	11	100.0	91.7	10	0	0	10	100.0	91.7	10	0	10	100.0	91.7	10	0	0	10	100.0	91.7
14-0176		15	0	1	16	93.8	6.3	10	4	1	0	15	93.3	87.5	10	0	0	10	100.0	87.5	10	0	10	100.0	87.5	10	0	0	10	100.0	87.5

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14-0177		18	0	0	18	100.0	0.0	10	7	0	1	18	94.4	94.4	10	0	0	10	100.0	94.4	10	0	10	100.0	94.4	10	0	0	10	100.0	94.4
14-0178		16	0	1	17	94.1	5.9	10	6	0	0	16	100.0	94.1	10	0	0	10	100.0	94.1	10	0	10	100.0	94.1	10	0	0	10	100.0	94.1
14-0180		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0183		16	1	0	17	94.1	0.0	10	6	0	0	16	100.0	94.1	10	0	0	10	100.0	94.1	10	0	10	100.0	94.1	10	0	0	10	100.0	94.1
14-0195		14	0	1	15	93.3	6.7	10	4	0	0	14	100.0	93.3	10	0	0	10	100.0	93.3	10	0	10	100.0	93.3	10	0	0	10	100.0	93.3
14-0197		13	0	0	13	100.0	0.0	10	2	1	0	13	92.3	92.3	10	0	0	10	100.0	92.3	10	0	10	100.0	92.3	10	0	0	10	100.0	92.3
14-0199		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0200		16	0	0	16	100.0	0.0	10	5	0	1	16	93.8	93.8	10	0	0	10	100.0	93.8	10	0	10	100.0	93.8	9	0	1	10	90.0	87.5
14-0206		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0211		14	0	1	15	93.3	6.7	10	4	0	0	14	100.0	93.3	10	0	0	10	100.0	93.3	10	0	10	100.0	93.3	10	0	0	10	100.0	93.3
14-0212		15	0	1	16	93.8	6.3	10	5	0	0	15	100.0	93.8	10	0	0	10	100.0	93.8	10	0	10	100.0	93.8	10	0	0	10	100.0	93.8
14-0214		13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	9	0	1	10	90.0	92.3	9	0	9	100.0	92.3	9	0	0	9	100.0	92.3
14-0218																															
14-0220		17	1	0	18	94.4	0.0	10	7	0	0	17	100.0	94.4	10	0	0	10	100.0	94.4	10	0	10	100.0	94.4	10	0	0	10	100.0	94.4
Mean		14.3	0.1	0.5	14.9	96.1	3.4	9.9	4.1	0.2	0.1	14.3	98.2	94.4	9.9	0.0	0.0	9.9	99.6	94.0	9.9	0.0	9.9	100.0	94.0	9.8	0.0	0.0	9.9	99.6	93.8
SD		2.2	0.3	0.8	2.3	5.2	5.3	0.4	2.0	0.5	0.3	2.2	3.9	6.7	0.5	0.0	0.2	0.4	2.1	6.6	0.5	0.0	0.5	0.0	6.6	0.5	0.0	0.2	0.5	2.1	6.8
SEM		0.5	0.1	0.2	0.5	1.1	1.1	0.1	0.4	0.1	0.1	0.5	0.8	1.4	0.1	0.0	0.0	0.1	0.4	1.4	0.1	0.0	0.1	0.0	1.4	0.1	0.0	0.0	0.1	0.4	1.4
Count		23	23	23	23	23.0	23.0	23	23	23	23	23	23.0	23.0	23	23	23	23	23.0	23.0	23	23	23	23.0	23.0	23	23	23	23	23.0	23.0
14-0124		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0128		17	0	0	17	100.0	0.0	10	6	0	1	17	94.1	94.1	10	0	0	10	100.0	94.1	10	0	10	100.0	94.1	10	0	0	10	100.0	94.1
14-0132	720	15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0138		13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0142		16	0	0	16	100.0	0.0	10	6	0	0	16	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0

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14-0144	16	0	1	17	94.1	5.9	10	6	0	0	16	100.0	94.1	10	0	0	10	100.0	94.1	10	0	10	100.0	94.1	10	0	0	10	100.0	94.1
14-0145	13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0146	18	0	0	18	100.0	0.0	10	7	1	0	18	94.4	94.4	10	0	0	10	100.0	94.4	10	0	10	100.0	94.4	10	0	0	10	100.0	94.4
14-0147	14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0152	8	0	6	14	57.1	42.9	0	0	6	2	8	0.0	0.0	0	0	0	0		0.0	0	0	0		0.0	0	0	0	0		0.0
14-0153	15	0	0	15	100.0	0.0	10	4	1	0	15	93.3	93.3	10	0	0	10	100.0	93.3	9	1	10	90.0	86.7	9	0	0	9	100.0	86.7
14-0158	15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0160	14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0165	15	0	1	16	93.8	6.3	10	4	1	0	15	93.3	87.5	10	0	0	10	100.0	87.5	10	0	10	100.0	87.5	10	0	0	10	100.0	87.5
14-0169	14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0170	17	0	0	17	100.0	0.0	10	7	0	0	17	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0171	17	0	0	17	100.0	0.0	10	7	0	0	17	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0188	13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0190	15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0192	13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0193	13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0201	18	0	0	18	100.0	0.0	10	8	0	0	18	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0202	13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0203	11	0	0	11	100.0	0.0	10	1	0	0	11	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0204	14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
Mean	14.4	0.0	0.3	14.8	97.8	2.2	9.6	4.4	0.4	0.1	14.4	95.0	94.5	9.6	0.0	0.0	9.6	100.0	94.5	9.6	0.0	9.6	99.6	94.3	9.6	0.0	0.0	9.6	100.0	94.3
SD	2.2	0.0	1.2	1.8	8.6	8.6	2.0	1.9	1.2	0.4	2.2	19.9	20.0	2.0	0.0	0.0	2.0	0.0	20.0	2.0	0.2	2.0	2.0	20.0	2.0	0.0	0.0	2.0	0.0	20.0
SEM	0.4	0.0	0.2	0.4	1.7	1.7	0.4	0.4	0.2	0.1	0.4	4.0	4.0	0.4	0.0	0.0	0.4	0.0	4.0	0.4	0.0	0.4	0.4	4.0	0.4	0.0	0.0	0.4	0.0	4.0
Count	25	25	25	25	25.0	25.0	25	25	25	25	25	25.0	25.0	25	25	25	25	24.0	25.0	25	25	25	24.0	25.0	25	25	25	25	24.0	25.0

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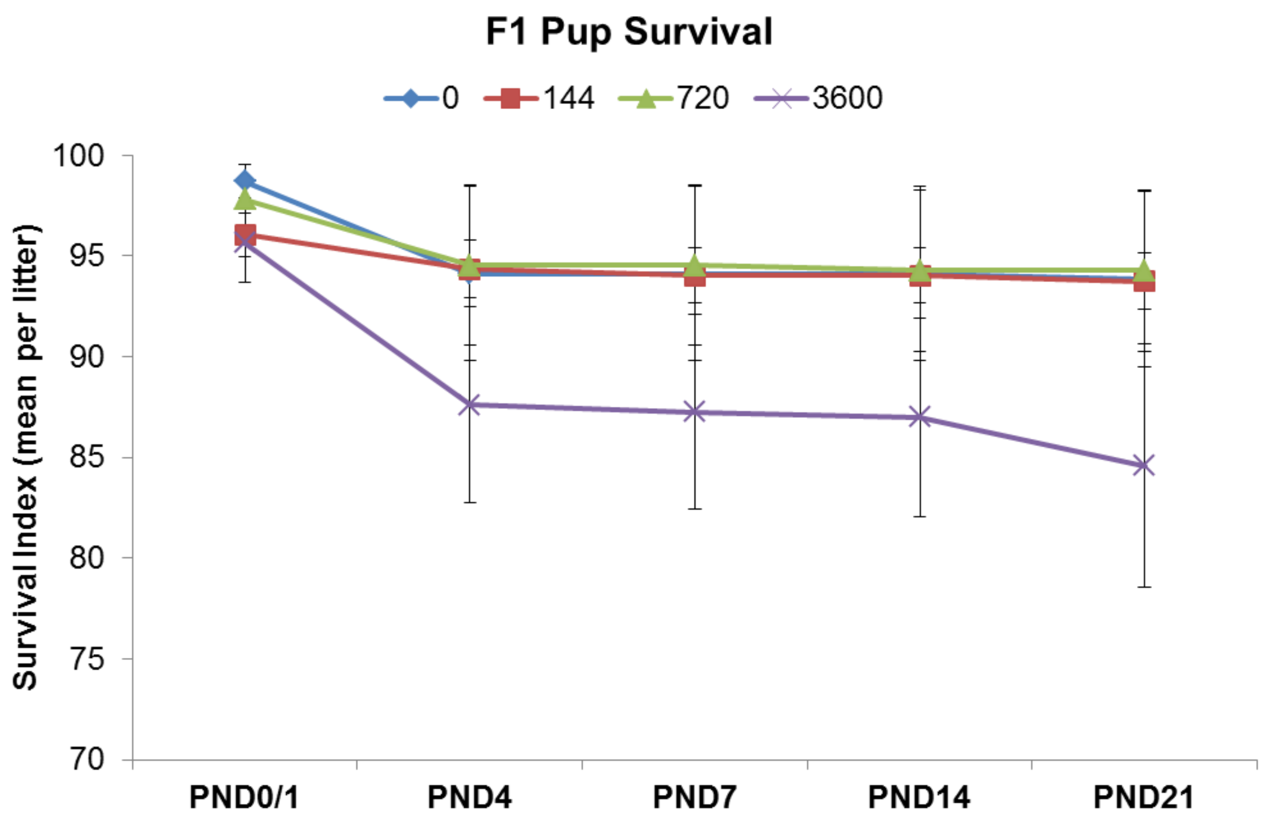
14-0126		16	0	0	16	100.0	0.0	10	1	3	2	16	68.8	68.8	10	0	0	10	100.0	68.8	10	0	10	100.0	68.8	10	0	0	10	100.0	68.8
14-0127		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0131		15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0135		13	0	0	13	100.0	0.0	10	2	1	0	13	92.3	92.3	9	1	0	10	90.0	84.6	9	0	9	100.0	84.6	9	0	0	9	100.0	84.6
14-0139		13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0140		17	0	0	17	100.0	0.0	10	7	0	0	17	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0141		13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0151		12	0	2	14	85.7	14.3	9	0	3	0	12	75.0	64.3	9	0	0	9	100.0	64.3	9	0	9	100.0	64.3	9	0	0	9	100.0	64.3
14-0155		12	0	0	12	100.0	0.0	10	2	0	0	12	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0159		15	0	0	15	100.0	0.0	10	4	1	0	15	93.3	93.3	10	0	0	10	100.0	93.3	10	0	10	100.0	93.3	10	0	0	10	100.0	93.3
14-0167	3600	12	0	1	13	92.3	7.7	10	2	0	0	12	100.0	92.3	10	0	0	10	100.0	92.3	10	0	10	100.0	92.3	10	0	0	10	100.0	92.3
14-0168																															
14-0172		15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0181		15	0	0	15	100.0	0.0	10	3	1	1	15	86.7	86.7	10	0	0	10	100.0	86.7	10	0	10	100.0	86.7	10	0	0	10	100.0	86.7
14-0182		14	0	1	15	93.3	6.7	10	3	1	0	14	92.9	86.7	10	0	0	10	100.0	86.7	10	0	10	100.0	86.7	10	0	0	10	100.0	86.7
14-0184																															
14-0187																															
14-0189		11	0	5	16	68.8	31.3			11	0	11	0.0	0.0		0	0	0		0.0		0	0		0.0		0	0	0		0.0
14-0194		14	0	1	15	93.3	6.7	10	3	1	0	14	92.9	86.7	10	0	0	10	100.0	86.7	10	0	10	100.0	86.7	10	0	0	10	100.0	86.7
14-0208		17	0	0	17	100.0	0.0	10	7	0	0	17	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0209		14	0	0	14	100.0	0.0	10	4	0	0	14	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0

14-0210	12	0	5	17	70.6	29.4	10	1	1	0	12	91.7	64.7	10	0	0	10	100.0	64.7	9	1	10	90.0	58.8	0	0	9	9	0.0	5.9
14-0213	13	0	0	13	100.0	0.0	10	3	0	0	13	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
14-0216	12	0	0	12	100.0	0.0	10	1	1	0	12	91.7	91.7	10	0	0	10	100.0	91.7	10	0	10	100.0	91.7	10	0	0	10	100.0	91.7
14-0219	15	0	0	15	100.0	0.0	10	5	0	0	15	100.0	100.0	10	0	0	10	100.0	100.0	10	0	10	100.0	100.0	10	0	0	10	100.0	100.0
Mean	13.7	0.0	0.7	14.4	95.6	4.4	10.0	3.1	1.1	0.1	13.7	90.2	87.6	9.9	0.0	0.0	9.5	99.5	87.3	9.9	0.0	9.5	99.5	87.0	9.4	0.0	0.4	9.4	95.2	84.6
SD	1.7	0.0	1.5	1.6	9.2	9.2	0.2	1.9	2.4	0.5	1.7	21.8	22.8	0.3	0.2	0.0	2.1	2.2	22.7	0.4	0.2	2.1	2.2	23.1	2.2	0.0	1.9	2.1	21.8	28.3
SEM	0.4	0.0	0.3	0.3	2.0	2.0	0.0	0.4	0.5	0.1	0.4	4.7	4.9	0.1	0.0	0.0	0.5	0.5	4.9	0.1	0.0	0.5	0.5	4.9	0.5	0.0	0.4	0.5	4.8	6.0
Count	22	22	22	22	22.0	22.0	21	21	22	22	22	22.0	22.0	21	22	22	22	21.0	22.0	21	22	22	21.0	22.0	21	22	22	22	21.0	22.0

a: alive, d: dead, s: stillborn, z: cannibalized, m: missing, e: euthanized


F1 Pup Survival
0
144
720
3600
Survival Index (mean per litter)
100
95
90
85
80
75
70
PND0/1
PND4
PND7
PND14
PND21

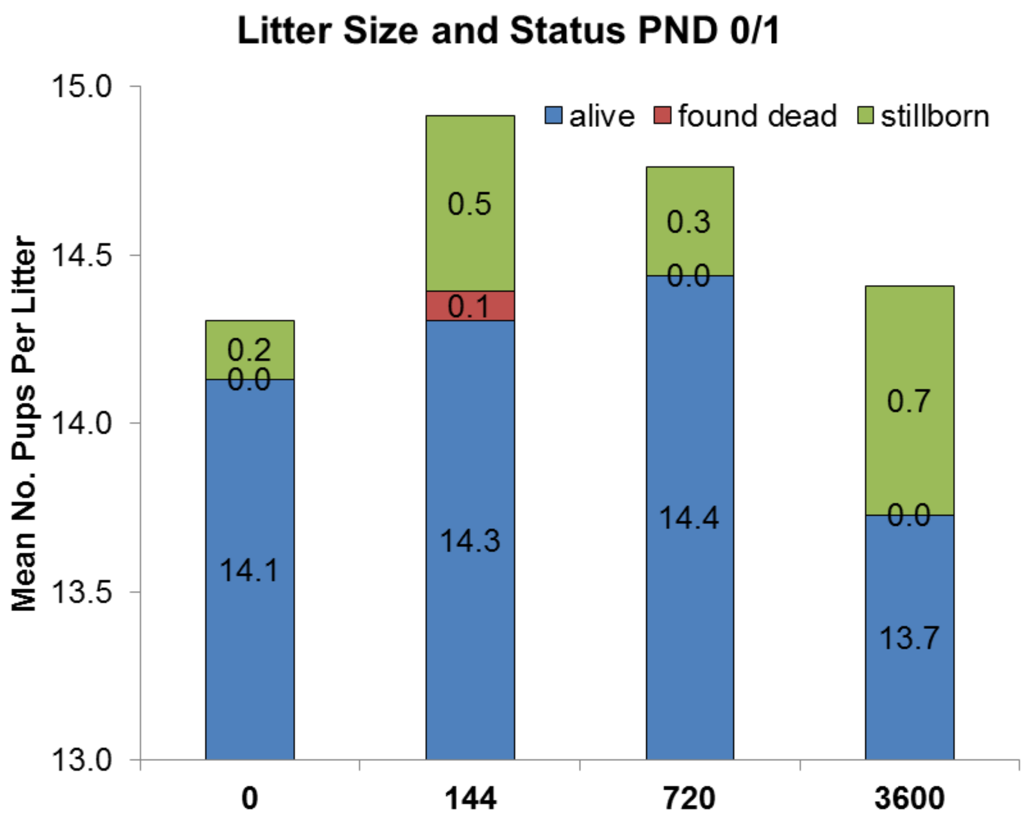

Litter Size and Status PND 0/1
Mean No. Pups Per Litter
15.0
14.5
14.0
13.5
13.0
alive
found dead
stillborn
0.2
0.0
14.1
0.5
0.1
14.3
0.3
0.0
14.4
0.7
0.0
13.7
0
144
720
3600

Table G-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Sex Ratios

		PND1				PND4				PND7				PND14				PND21			
Dam ID	**TX**	**Female**	**Male**	**Total**	**%Male**	**Female**	**Male**	**Total**	**%Male**	**Female**	**Male**	**Total**	**%Male**	**Female**	**Male**	**Total**	**%Male**	**Female**	**Male**	**Total**	**%Male**
14-0121		7	5	12	41.7	7	5	12	41.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0122		6	7	13	53.8	6	7	13	53.8	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0130		6	6	12	50.0	6	6	12	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0133		8	11	19	57.9	8	11	19	57.9	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0136		9	8	17	47.1	1	1	2	50.0												
14-0143		4	6	10	60.0	4	6	10	60.0	4	5	9	55.6	4	5	9	55.6	4	5	9	55.6
14-0148		6	7	13	53.8	6	7	13	53.8	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0149		9	8	17	47.1	9	8	17	47.1	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0150		5	12	17	70.6	4	12	16	75.0	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0156		6	9	15	60.0	6	9	15	60.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0157		7	8	15	53.3	7	8	15	53.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0161		2	10	12	83.3	2	10	12	83.3	2	8	10	80.0	2	8	10	80.0	2	8	10	80.0
14-0162	**0**	6	10	16	62.5	6	10	16	62.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0163		7	9	16	56.3	7	9	16	56.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0173		8	6	14	42.9	8	5	13	38.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0179		8	4	12	33.3	8	4	12	33.3	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0185		8	8	16	50.0	8	8	16	50.0	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0186		5	9	14	64.3	5	9	14	64.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0191		7	7	14	50.0	7	7	14	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0196		9	8	17	47.1	9	8	17	47.1	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0198		9	5	14	35.7	9	5	14	35.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0205		4	6	10	60.0	4	6	10	60.0	0	0	0		0	0	0		0	0	0	
14-0207		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	
14-0215		5	9	14	64.3	5	9	14	64.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0217		9	6	15	40.0	9	6	15	40.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
Mean		**6.4**	**7.4**	**13.8**	**53.5**	**6.0**	**7.0**	**13.1**	**53.7**	**4.4**	**4.8**	**9.1**	**52.1**	**4.4**	**4.8**	**9.1**	**52.1**	**4.4**	**4.8**	**9.1**	**52.1**
SD		**2.3**	**2.5**	**3.7**	**11.4**	**2.5**	**2.8**	**4.2**	**11.8**	**1.5**	**1.6**	**2.8**	**7.4**	**1.5**	**1.6**	**2.8**	**7.4**	**1.5**	**1.6**	**2.8**	**7.4**
SEM		**0.5**	**0.5**	**0.7**	**2.3**	**0.5**	**0.6**	**0.8**	**2.4**	**0.3**	**0.3**	**0.6**	**1.6**	**0.3**	**0.3**	**0.6**	**1.6**	**0.3**	**0.3**	**0.6**	**1.6**
Count		**25**	**25**	**25**	**24.0**	**25**	**25**	**25**	**24.0**	**24**	**24**	**24**	**22.0**	**24**	**24**	**24**	**22.0**	**24**	**24**	**24**	**22.0**

14-0123		5	10	15	66.7	5	7	12	58.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0125																					
14-0129		8	8	16	50.0	8	8	16	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0134		8	6	14	42.9	8	6	14	42.9	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0137		10	4	14	28.6	10	4	14	28.6	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0154		4	4	8	50.0	4	4	8	50.0	4	4	8	50.0	4	4	8	50.0	4	4	8	50.0
14-0164		9	6	15	40.0	7	6	13	46.2	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0166		9	7	16	43.8	9	7	16	43.8	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0174		9	7	16	43.8	9	7	16	43.8	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0175		9	3	12	25.0	9	2	11	18.2	8	2	10	20.0	8	2	10	20.0	8	2	10	20.0
14-0176		11	5	16	31.3	10	5	15	33.3	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0177		11	7	18	38.9	11	7	18	38.9	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0178	**144**	6	11	17	64.7	6	10	16	62.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0180		5	7	12	58.3	5	7	12	58.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0183		9	8	17	47.1	8	8	16	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0195		6	9	15	60.0	6	8	14	57.1	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0197		7	6	13	46.2	7	6	13	46.2	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0199		8	6	14	42.9	8	6	14	42.9	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0200		7	9	16	56.3	7	9	16	56.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0206		8	8	16	50.0	8	8	16	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0211		11	4	15	26.7	11	3	14	21.4	7	3	10	30.0	7	3	10	30.0	7	3	10	30.0
14-0212		10	6	16	37.5	10	5	15	33.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0214		6	7	13	53.8	6	7	13	53.8	5	5	10	50.0	5	4	9	44.4	5	4	9	44.4
14-0218																					
14-0220		11	7	18	38.9	10	7	17	41.2	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
Mean		**8.1**	**6.7**	**14.9**	**45.3**	**7.9**	**6.4**	**14.3**	**44.6**	**5.3**	**4.6**	**9.9**	**46.5**	**5.3**	**4.6**	**9.9**	**46.3**	**5.3**	**4.6**	**9.9**	**46.3**
SD		**2.1**	**2.0**	**2.2**	**11.5**	**2.0**	**1.9**	**2.2**	**11.7**	**0.8**	**0.8**	**0.4**	**7.8**	**0.8**	**0.8**	**0.5**	**7.7**	**0.8**	**0.8**	**0.5**	**7.7**
SEM		**0.4**	**0.4**	**0.5**	**2.4**	**0.4**	**0.4**	**0.5**	**2.4**	**0.2**	**0.2**	**0.1**	**1.6**	**0.2**	**0.2**	**0.1**	**1.6**	**0.2**	**0.2**	**0.1**	**1.6**
Count		**23**	**23**	**23**	**23.0**	**23**	**23**	**23**	**23.0**	**23**	**23**	**23**	**23.0**	**23**	**23**	**23**	**23.0**	**23**	**23**	**23**	**23.0**
14-0124		5	9	14	64.3	5	9	14	64.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0128		12	5	17	29.4	12	5	17	29.4	7	3	10	30.0	7	3	10	30.0	7	3	10	30.0
14-0132	**720**	10	5	15	33.3	10	5	15	33.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0138		1	12	13	92.3	1	12	13	92.3	1	9	10	90.0	1	9	10	90.0	1	9	10	90.0
14-0142		10	6	16	37.5	10	6	16	37.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0144		9	8	17	47.1	9	7	16	43.8	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0

14-0145		7	6	13	46.2	7	6	13	46.2	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0146		8	10	18	55.6	8	10	18	55.6	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0147		9	5	14	35.7	9	5	14	35.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0152		8	6	14	42.9	4	4	8	50.0	0	0	0		0	0	0		0	0	0	
14-0153		9	6	15	40.0	9	6	15	40.0	5	5	10	50.0	5	5	10	50.0	4	5	9	55.6
14-0158		9	6	15	40.0	9	6	15	40.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0160		9	5	14	35.7	9	5	14	35.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0165		8	8	16	50.0	8	7	15	46.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0169		4	10	14	71.4	4	10	14	71.4	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0170		11	6	17	35.3	11	6	17	35.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0171		6	11	17	64.7	6	11	17	64.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0188		8	5	13	38.5	8	5	13	38.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0190		9	6	15	40.0	9	6	15	40.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0192		4	9	13	69.2	4	9	13	69.2	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0193		5	8	13	61.5	5	8	13	61.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0201		9	9	18	50.0	9	9	18	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0202		4	9	13	69.2	4	9	13	69.2	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0203		5	6	11	54.5	5	6	11	54.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0204		5	9	14	64.3	5	9	14	64.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
Mean		**7.4**	**7.4**	**14.8**	**50.7**	**7.2**	**7.2**	**14.4**	**50.8**	**4.6**	**5.0**	**9.6**	**52.1**	**4.6**	**5.0**	**9.6**	**52.1**	**4.6**	**5.0**	**9.6**	**52.3**
SD		**2.6**	**2.1**	**1.8**	**15.5**	**2.7**	**2.2**	**2.2**	**15.5**	**1.4**	**1.4**	**2.0**	**9.8**	**1.4**	**1.4**	**2.0**	**9.8**	**1.4**	**1.4**	**2.0**	**9.8**
SEM		**0.5**	**0.4**	**0.4**	**3.1**	**0.5**	**0.4**	**0.4**	**3.1**	**0.3**	**0.3**	**0.4**	**2.0**	**0.3**	**0.3**	**0.4**	**2.0**	**0.3**	**0.3**	**0.4**	**2.0**
Count		**25**	**25**	**25**	**25.0**	**25**	**25**	**25**	**25.0**	**25**	**25**	**25**	**24.0**	**25**	**25**	**25**	**24.0**	**25**	**25**	**25**	**24.0**
14-0126		10	6	16	37.5	10	6	16	37.5	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0127		5	7	12	58.3	5	7	12	58.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0131		5	10	15	66.7	5	10	15	66.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0135		3	10	13	76.9	3	10	13	76.9	2	8	10	80.0	2	7	9	77.8	2	7	9	77.8
14-0139		4	9	13	69.2	4	9	13	69.2	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0140		13	4	17	23.5	13	4	17	23.5	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0141	**3600**	4	9	13	69.2	4	9	13	69.2	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0151		6	8	14	57.1	5	7	12	58.3	2	7	9	77.8	2	7	9	77.8	2	7	9	77.8
14-0155		8	4	12	33.3	8	4	12	33.3	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0159		9	6	15	40.0	9	6	15	40.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0167		7	6	13	46.2	6	6	12	50.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0168																					
14-0172		5	10	15	66.7	5	10	15	66.7	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0

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14-0181	10	5	15	33.3	10	5	15	33.3	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0182	10	5	15	33.3	9	5	14	35.7	6	4	10	40.0	6	4	10	40.0	6	4	10	40.0
14-0184																				
14-0187																				
14-0189	8	7	15	46.7	7	4	11	36.4	0	0	0		0	0	0		0	0	0	
14-0194	7	8	15	53.3	6	8	14	57.1	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0208	11	6	17	35.3	11	6	17	35.3	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0209	6	8	14	57.1	6	8	14	57.1	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0210	7	10	17	58.8	5	7	12	58.3	5	5	10	50.0	5	5	10	50.0	5	4	9	44.4
14-0213	6	7	13	53.8	6	7	13	53.8	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
14-0216	5	7	12	58.3	5	7	12	58.3	4	6	10	60.0	4	6	10	60.0	4	6	10	60.0
14-0219	6	9	15	60.0	6	9	15	60.0	5	5	10	50.0	5	5	10	50.0	5	5	10	50.0
Mean	**7.0**	**7.3**	**14.4**	**51.6**	**6.7**	**7.0**	**13.7**	**51.6**	**4.5**	**5.0**	**9.5**	**52.3**	**4.5**	**4.9**	**9.5**	**52.2**	**4.5**	**4.9**	**9.4**	**51.9**
SD	**2.6**	**1.9**	**1.6**	**14.5**	**2.6**	**2.0**	**1.7**	**14.8**	**1.5**	**1.5**	**2.1**	**10.6**	**1.5**	**1.4**	**2.1**	**10.4**	**1.5**	**1.4**	**2.1**	**10.5**
SEM	**0.5**	**0.4**	**0.3**	**3.1**	**0.6**	**0.4**	**0.4**	**3.1**	**0.3**	**0.3**	**0.5**	**2.3**	**0.3**	**0.3**	**0.5**	**2.3**	**0.3**	**0.3**	**0.5**	**2.3**
Count	**22**	**22**	**22**	**22.0**	**22**	**22**	**22**	**22.0**	**22**	**22**	**22**	**21.0**	**22**	**22**	**22**	**21.0**	**22**	**22**	**22**	**21.0**

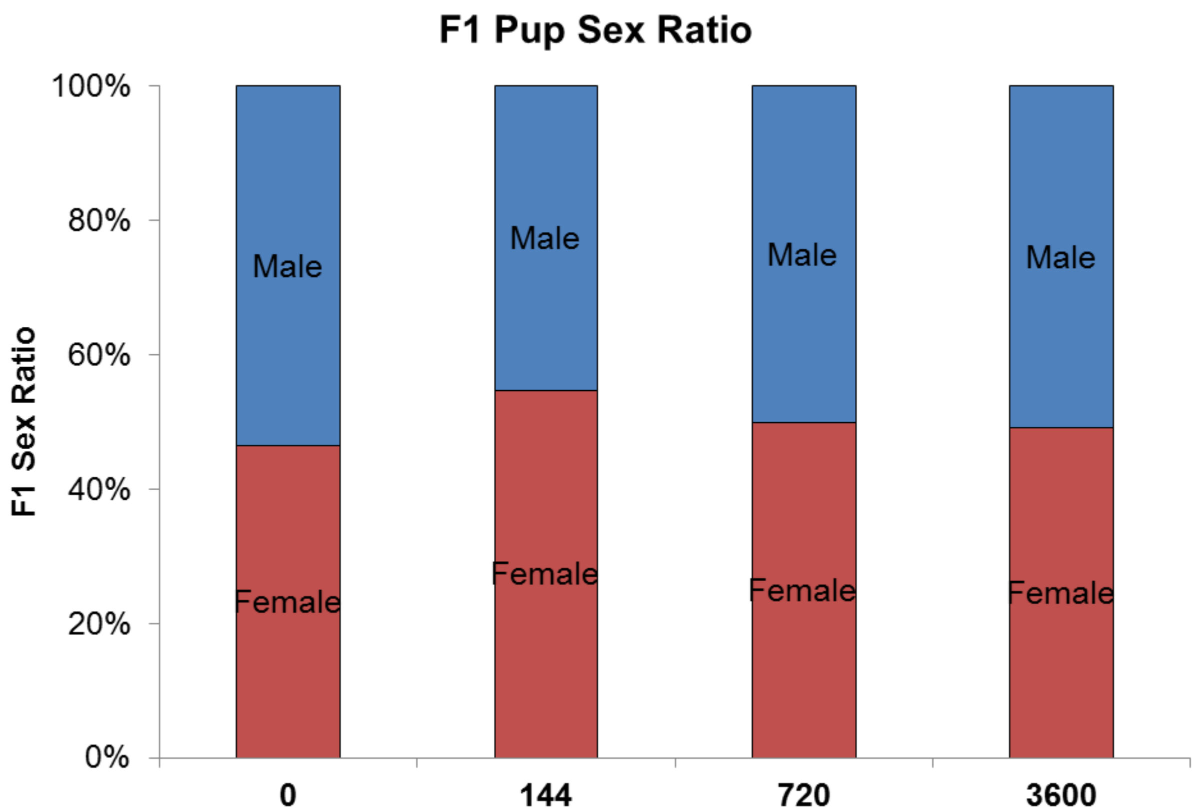
F1 Pup Sex Ratio
F1 Sex Ratio
100%
80%
60%
40%
20%
0%
Male
Female
0
144
720
3600

Table G-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Observations

TX	Dam ID	Pup #	Unique Pup#	Sex	Delivery date	PND4 date	PND21 date	Necropsy date	Litter selected	Selected for F1	Selected for weanling
0	14-0121	1	14-0121-1	male	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	2	14-0121-2	male	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	3	14-0121-3	male	12/16/2013	12/20/2013	1/6/2014	2/7/2014	yes	yes	
0	14-0121	4	14-0121-4	male	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	5	14-0121-5	male	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	6	14-0121-6	female	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	7	14-0121-7	female	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	8	14-0121-8	female	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	9	14-0121-9	female	12/16/2013	12/20/2013	1/6/2014	1/27/2014	yes	yes	
0	14-0121	10	14-0121-10	female	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	11	14-0121-11	female	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0121	12	14-0121-12	female	12/16/2013	12/20/2013	1/6/2014	1/7/2014	yes		
0	14-0122	1	14-0122-1	male	12/18/2013	12/22/2013	1/8/2014	2/9/2014	yes	yes	
0	14-0122	2	14-0122-2	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	3	14-0122-3	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	4	14-0122-4	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	5	14-0122-5	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	6	14-0122-6	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	7	14-0122-7	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	8	14-0122-8	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	9	14-0122-9	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	10	14-0122-10	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0122	11	14-0122-11	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		yes
0	14-0122	12	14-0122-12	female	12/18/2013	12/22/2013	1/8/2014	1/29/2014	yes	yes	
0	14-0122	13	14-0122-13	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0130	1	14-0130-1	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
0	14-0130	2	14-0130-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	3	14-0130-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	4	14-0130-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	5	14-0130-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	6	14-0130-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	7	14-0130-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
0	14-0130	8	14-0130-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	9	14-0130-9	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
0	14-0130	10	14-0130-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	11	14-0130-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0130	12	14-0130-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	1	14-0133-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	2	14-0133-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	3	14-0133-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	4	14-0133-4	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
0	14-0133	5	14-0133-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	6	14-0133-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	7	14-0133-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	8	14-0133-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	9	14-0133-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	10	14-0133-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	11	14-0133-11	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	12	14-0133-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	13	14-0133-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	14	14-0133-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
0	14-0133	15	14-0133-15	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
0	14-0133	16	14-0133-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	17	14-0133-17	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		

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0	14-0133	18	14-0133-18	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0133	19	14-0133-19	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0136	1	14-0136-1	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	2	14-0136-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	3	14-0136-3	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	4	14-0136-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	5	14-0136-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	6	14-0136-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	7	14-0136-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	8	14-0136-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	9	14-0136-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	10	14-0136-10	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	11	14-0136-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	12	14-0136-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	13	14-0136-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	14	14-0136-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	15	14-0136-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	16	14-0136-16	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0136	17	14-0136-17	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
0	14-0143	1	14-0143-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	2	14-0143-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	3	14-0143-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	4	14-0143-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	5	14-0143-5	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
0	14-0143	6	14-0143-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	7	14-0143-7	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
0	14-0143	8	14-0143-8	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	9	14-0143-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0143	10	14-0143-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0148	1	14-0148-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	2	14-0148-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	3	14-0148-3	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
0	14-0148	4	14-0148-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	5	14-0148-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	6	14-0148-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	7	14-0148-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	8	14-0148-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
0	14-0148	9	14-0148-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	10	14-0148-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	11	14-0148-11	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
0	14-0148	12	14-0148-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0148	13	14-0148-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0149	1	14-0149-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	2	14-0149-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	3	14-0149-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	4	14-0149-4	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
0	14-0149	5	14-0149-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	6	14-0149-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	7	14-0149-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	8	14-0149-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	9	14-0149-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	10	14-0149-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	11	14-0149-11	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
0	14-0149	12	14-0149-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	13	14-0149-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	14	14-0149-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	15	14-0149-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	16	14-0149-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0149	17	14-0149-17	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	1	14-0150-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	2	14-0150-2	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
0	14-0150	3	14-0150-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	4	14-0150-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	5	14-0150-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		

0	14-0150	6	14-0150-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	7	14-0150-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	8	14-0150-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	9	14-0150-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	10	14-0150-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	11	14-0150-11	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	12	14-0150-12	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	13	14-0150-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	14	14-0150-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0150	15	14-0150-15	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
0	14-0150	16	14-0150-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
0	14-0150	17	14-0150-17	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0156	1	14-0156-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	2	14-0156-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	3	14-0156-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	4	14-0156-4	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
0	14-0156	5	14-0156-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	6	14-0156-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	7	14-0156-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	8	14-0156-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	9	14-0156-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	10	14-0156-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
0	14-0156	11	14-0156-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	12	14-0156-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	13	14-0156-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0156	14	14-0156-14	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
0	14-0156	15	14-0156-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0157	1	14-0157-1	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		yes
0	14-0157	2	14-0157-2	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	3	14-0157-3	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	4	14-0157-4	male	12/18/2013	12/22/2013	1/8/2014	2/9/2014	yes	yes	
0	14-0157	5	14-0157-5	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	6	14-0157-6	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	7	14-0157-7	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	8	14-0157-8	male	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	9	14-0157-9	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	10	14-0157-10	female	12/18/2013	12/22/2013	1/8/2014	1/29/2014	yes	yes	
0	14-0157	11	14-0157-11	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	12	14-0157-12	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	13	14-0157-13	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	14	14-0157-14	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0157	15	14-0157-15	female	12/18/2013	12/22/2013	1/8/2014	1/9/2014	yes		
0	14-0161	1	14-0161-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	2	14-0161-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	3	14-0161-3	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
0	14-0161	4	14-0161-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	5	14-0161-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	6	14-0161-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	7	14-0161-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	8	14-0161-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	9	14-0161-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	10	14-0161-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	11	14-0161-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0161	12	14-0161-12	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
0	14-0162	1	14-0162-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	2	14-0162-2	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
0	14-0162	3	14-0162-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
0	14-0162	4	14-0162-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	5	14-0162-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	6	14-0162-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	7	14-0162-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	8	14-0162-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	9	14-0162-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	10	14-0162-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		

0	14-0162	11	14-0162-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	12	14-0162-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	13	14-0162-13	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
0	14-0162	14	14-0162-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	15	14-0162-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0162	16	14-0162-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
0	14-0163	1	14-0163-1	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
0	14-0163	2	14-0163-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	3	14-0163-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
0	14-0163	4	14-0163-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	5	14-0163-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	6	14-0163-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	7	14-0163-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	8	14-0163-8	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	9	14-0163-9	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	10	14-0163-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	11	14-0163-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	12	14-0163-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	13	14-0163-13	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
0	14-0163	14	14-0163-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	15	14-0163-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0163	16	14-0163-16	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
0	14-0173	1	14-0173-1	male	12/19/2013	12/23/2013	1/9/2014	2/10/2014	yes	yes	
0	14-0173	2	14-0173-2	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	3	14-0173-3	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	4	14-0173-4	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	5	14-0173-5	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	6	14-0173-6	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	7	14-0173-7	female	12/19/2013	12/23/2013	1/9/2014	1/30/2014	yes	yes	
0	14-0173	8	14-0173-8	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	9	14-0173-9	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	10	14-0173-10	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		yes
0	14-0173	11	14-0173-11	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	12	14-0173-12	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	13	14-0173-13	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0173	14	14-0173-14	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	1	14-0179-1	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	2	14-0179-2	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	3	14-0179-3	male	12/19/2013	12/23/2013	1/9/2014	2/10/2014	yes	yes	
0	14-0179	4	14-0179-4	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	5	14-0179-5	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	6	14-0179-6	female	12/19/2013	12/23/2013	1/9/2014	1/30/2014	yes	yes	
0	14-0179	7	14-0179-7	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	8	14-0179-8	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	9	14-0179-9	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	10	14-0179-10	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	11	14-0179-11	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0179	12	14-0179-12	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0185	1	14-0185-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	2	14-0185-2	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
0	14-0185	3	14-0185-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
0	14-0185	4	14-0185-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
0	14-0185	5	14-0185-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	6	14-0185-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	7	14-0185-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	8	14-0185-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	9	14-0185-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	10	14-0185-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	11	14-0185-11	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
0	14-0185	12	14-0185-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
0	14-0185	13	14-0185-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	14	14-0185-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	15	14-0185-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0185	16	14-0185-16	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		

0	14-0186	1	14-0186-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	2	14-0186-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	3	14-0186-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	4	14-0186-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		yes
0	14-0186	5	14-0186-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	6	14-0186-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	7	14-0186-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	8	14-0186-8	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	9	14-0186-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		yes
0	14-0186	10	14-0186-10	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	11	14-0186-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	12	14-0186-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	13	14-0186-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0186	14	14-0186-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0191	1	14-0191-1	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		yes
0	14-0191	2	14-0191-2	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	3	14-0191-3	male	12/19/2013	12/23/2013	1/9/2014	2/10/2014	yes	yes	
0	14-0191	4	14-0191-4	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	5	14-0191-5	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	6	14-0191-6	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	7	14-0191-7	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	8	14-0191-8	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	9	14-0191-9	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	10	14-0191-10	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	11	14-0191-11	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	12	14-0191-12	female	12/19/2013	12/23/2013	1/9/2014	1/30/2014	yes	yes	
0	14-0191	13	14-0191-13	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0191	14	14-0191-14	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
0	14-0196	1	14-0196-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	2	14-0196-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	3	14-0196-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	4	14-0196-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	5	14-0196-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		yes
0	14-0196	6	14-0196-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	7	14-0196-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	8	14-0196-8	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	9	14-0196-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	10	14-0196-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	11	14-0196-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	12	14-0196-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	13	14-0196-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	14	14-0196-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	15	14-0196-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	16	14-0196-16	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0196	17	14-0196-17	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
0	14-0198	1	14-0198-1	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
0	14-0198	2	14-0198-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	3	14-0198-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
0	14-0198	4	14-0198-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	5	14-0198-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
0	14-0198	6	14-0198-6	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	7	14-0198-7	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	8	14-0198-8	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	9	14-0198-9	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
0	14-0198	10	14-0198-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	11	14-0198-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	12	14-0198-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	13	14-0198-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0198	14	14-0198-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0205	1	14-0205-1	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	2	14-0205-2	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	3	14-0205-3	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	4	14-0205-4	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	5	14-0205-5	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		

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0	14-0205	6	14-0205-6	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	7	14-0205-7	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	8	14-0205-8	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	9	14-0205-9	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	10	14-0205-10	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	11	14-0205-11	NA	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0205	12	14-0205-12	NA	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
0	14-0207										
0	14-0215	1	14-0215-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	2	14-0215-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	3	14-0215-3	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
0	14-0215	4	14-0215-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	5	14-0215-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	6	14-0215-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	7	14-0215-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	8	14-0215-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	9	14-0215-9	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	10	14-0215-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	11	14-0215-11	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
0	14-0215	12	14-0215-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	13	14-0215-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0215	14	14-0215-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
0	14-0217	1	14-0217-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	2	14-0217-2	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
0	14-0217	3	14-0217-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	4	14-0217-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	5	14-0217-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	6	14-0217-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	7	14-0217-7	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	8	14-0217-8	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
0	14-0217	9	14-0217-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	10	14-0217-10	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
0	14-0217	11	14-0217-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	12	14-0217-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	13	14-0217-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	14	14-0217-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
0	14-0217	15	14-0217-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0123	1	14-0123-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
144	14-0123	2	14-0123-2	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	3	14-0123-3	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	4	14-0123-4	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
144	14-0123	5	14-0123-5	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	6	14-0123-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	7	14-0123-7	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	8	14-0123-8	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
144	14-0123	9	14-0123-9	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	10	14-0123-10	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	11	14-0123-11	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
144	14-0123	12	14-0123-12	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
144	14-0123	13	14-0123-13	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	14	14-0123-14	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0123	15	14-0123-15	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0125										
144	14-0129	1	14-0129-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	2	14-0129-2	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
144	14-0129	3	14-0129-3	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
144	14-0129	4	14-0129-4	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	5	14-0129-5	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	6	14-0129-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	7	14-0129-7	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	8	14-0129-8	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	9	14-0129-9	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	10	14-0129-10	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	11	14-0129-11	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		

144	14-0129	12	14-0129-12	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
144	14-0129	13	14-0129-13	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	14	14-0129-14	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	15	14-0129-15	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0129	16	14-0129-16	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0134	1	14-0134-1	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
144	14-0134	2	14-0134-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	3	14-0134-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	4	14-0134-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	5	14-0134-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	6	14-0134-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	7	14-0134-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	8	14-0134-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	9	14-0134-9	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
144	14-0134	10	14-0134-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	11	14-0134-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	12	14-0134-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	13	14-0134-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0134	14	14-0134-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0137	1	14-0137-1	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	2	14-0137-2	male	12/19/2013	12/23/2013	1/9/2014	2/10/2014	yes	yes	
144	14-0137	3	14-0137-3	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		yes
144	14-0137	4	14-0137-4	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	5	14-0137-5	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	6	14-0137-6	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	7	14-0137-7	female	12/19/2013	12/23/2013	1/9/2014	1/30/2014	yes	yes	
144	14-0137	8	14-0137-8	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	9	14-0137-9	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	10	14-0137-10	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	11	14-0137-11	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	12	14-0137-12	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	13	14-0137-13	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0137	14	14-0137-14	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0154	1	14-0154-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	2	14-0154-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	3	14-0154-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	4	14-0154-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	5	14-0154-5	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	6	14-0154-6	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	7	14-0154-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0154	8	14-0154-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
144	14-0164	1	14-0164-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	2	14-0164-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	3	14-0164-3	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
144	14-0164	4	14-0164-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	5	14-0164-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	6	14-0164-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	7	14-0164-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	8	14-0164-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	9	14-0164-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	10	14-0164-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	11	14-0164-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	12	14-0164-12	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
144	14-0164	13	14-0164-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	14	14-0164-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0164	15	14-0164-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	1	14-0166-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	2	14-0166-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	3	14-0166-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	4	14-0166-4	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
144	14-0166	5	14-0166-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	6	14-0166-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	7	14-0166-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	8	14-0166-8	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	

144	14-0166	9	14-0166-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
144	14-0166	10	14-0166-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	11	14-0166-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	12	14-0166-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	13	14-0166-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	14	14-0166-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	15	14-0166-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	16	14-0166-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0166	17	14-0166-17	NA	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0174	1	14-0174-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	2	14-0174-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	3	14-0174-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		yes
144	14-0174	4	14-0174-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	5	14-0174-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	6	14-0174-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	7	14-0174-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	8	14-0174-8	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	9	14-0174-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	10	14-0174-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	11	14-0174-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	12	14-0174-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	13	14-0174-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	14	14-0174-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	15	14-0174-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0174	16	14-0174-16	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
144	14-0175	1	14-0175-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	2	14-0175-2	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
144	14-0175	3	14-0175-3	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	4	14-0175-4	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	5	14-0175-5	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	6	14-0175-6	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	7	14-0175-7	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	8	14-0175-8	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
144	14-0175	9	14-0175-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	10	14-0175-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	11	14-0175-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0175	12	14-0175-12	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0176	1	14-0176-1	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	2	14-0176-2	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	3	14-0176-3	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	4	14-0176-4	male	12/19/2013	12/23/2013	1/9/2014	2/10/2014	yes	yes	
144	14-0176	5	14-0176-5	male	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	6	14-0176-6	female	12/19/2013	12/23/2013	1/9/2014	1/30/2014	yes	yes	
144	14-0176	7	14-0176-7	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	8	14-0176-8	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	9	14-0176-9	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	10	14-0176-10	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	11	14-0176-11	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	12	14-0176-12	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	13	14-0176-13	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	14	14-0176-14	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	15	14-0176-15	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0176	16	14-0176-16	female	12/19/2013	12/23/2013	1/9/2014	1/10/2014	yes		
144	14-0177	1	14-0177-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
144	14-0177	2	14-0177-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	3	14-0177-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	4	14-0177-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	5	14-0177-5	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
144	14-0177	6	14-0177-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	7	14-0177-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	8	14-0177-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
144	14-0177	9	14-0177-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	10	14-0177-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	11	14-0177-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		

144	14-0177	12	14-0177-12	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
144	14-0177	13	14-0177-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	14	14-0177-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	15	14-0177-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	16	14-0177-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	17	14-0177-17	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0177	18	14-0177-18	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	1	14-0178-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	2	14-0178-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	3	14-0178-3	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
144	14-0178	4	14-0178-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	5	14-0178-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	6	14-0178-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	7	14-0178-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	8	14-0178-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	9	14-0178-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	10	14-0178-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	11	14-0178-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	12	14-0178-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	13	14-0178-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	14	14-0178-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	15	14-0178-15	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
144	14-0178	16	14-0178-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0178	17	14-0178-17	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
144	14-0180	1	14-0180-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	2	14-0180-2	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
144	14-0180	3	14-0180-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	4	14-0180-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	5	14-0180-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	6	14-0180-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	7	14-0180-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	8	14-0180-8	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	9	14-0180-9	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
144	14-0180	10	14-0180-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0180	11	14-0180-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
144	14-0180	12	14-0180-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0183	1	14-0183-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
144	14-0183	2	14-0183-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
144	14-0183	3	14-0183-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	4	14-0183-4	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
144	14-0183	5	14-0183-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	6	14-0183-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	7	14-0183-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	8	14-0183-8	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	9	14-0183-9	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
144	14-0183	10	14-0183-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	11	14-0183-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	12	14-0183-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	13	14-0183-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	14	14-0183-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	15	14-0183-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	16	14-0183-16	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0183	17	14-0183-17	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0195	1	14-0195-1	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
144	14-0195	2	14-0195-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	3	14-0195-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	4	14-0195-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	5	14-0195-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	6	14-0195-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	7	14-0195-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	8	14-0195-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	9	14-0195-9	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
144	14-0195	10	14-0195-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	11	14-0195-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		

144	14-0195	12	14-0195-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	13	14-0195-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
144	14-0195	14	14-0195-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0195	15	14-0195-15	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0197	1	14-0197-1	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
144	14-0197	2	14-0197-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	3	14-0197-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	4	14-0197-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
144	14-0197	5	14-0197-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	6	14-0197-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	7	14-0197-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	8	14-0197-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	9	14-0197-9	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
144	14-0197	10	14-0197-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	11	14-0197-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	12	14-0197-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0197	13	14-0197-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0199	1	14-0199-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
144	14-0199	2	14-0199-2	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	3	14-0199-3	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	4	14-0199-4	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
144	14-0199	5	14-0199-5	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	6	14-0199-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	7	14-0199-7	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	8	14-0199-8	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	9	14-0199-9	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	10	14-0199-10	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
144	14-0199	11	14-0199-11	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	12	14-0199-12	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	13	14-0199-13	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0199	14	14-0199-14	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
144	14-0200	1	14-0200-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
144	14-0200	2	14-0200-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	3	14-0200-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	4	14-0200-4	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
144	14-0200	5	14-0200-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	6	14-0200-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	7	14-0200-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	8	14-0200-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	9	14-0200-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	10	14-0200-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	11	14-0200-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	12	14-0200-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	13	14-0200-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0200	14	14-0200-14	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
144	14-0200	15	14-0200-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
144	14-0200	16	14-0200-16	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
144	14-0206	1	14-0206-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	2	14-0206-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	3	14-0206-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	4	14-0206-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	5	14-0206-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	6	14-0206-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	7	14-0206-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	8	14-0206-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	9	14-0206-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	10	14-0206-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	11	14-0206-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	12	14-0206-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	13	14-0206-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	14	14-0206-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	15	14-0206-15	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0206	16	14-0206-16	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
144	14-0211	1	14-0211-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		

144	14-0211	2	14-0211-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	3	14-0211-3	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
144	14-0211	4	14-0211-4	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	5	14-0211-5	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	6	14-0211-6	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
144	14-0211	7	14-0211-7	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	8	14-0211-8	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
144	14-0211	9	14-0211-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	10	14-0211-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	11	14-0211-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	12	14-0211-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	13	14-0211-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	14	14-0211-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0211	15	14-0211-15	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0212	1	14-0212-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	2	14-0212-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	3	14-0212-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	4	14-0212-4	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	5	14-0212-5	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
144	14-0212	6	14-0212-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	7	14-0212-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	8	14-0212-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	9	14-0212-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	10	14-0212-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	11	14-0212-11	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
144	14-0212	12	14-0212-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	13	14-0212-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	14	14-0212-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	15	14-0212-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0212	16	14-0212-16	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	1	14-0214-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	2	14-0214-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	3	14-0214-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	4	14-0214-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	5	14-0214-5	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
144	14-0214	6	14-0214-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	7	14-0214-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	8	14-0214-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
144	14-0214	9	14-0214-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	10	14-0214-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	11	14-0214-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0214	12	14-0214-12	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
144	14-0214	13	14-0214-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
144	14-0218										
144	14-0220	1	14-0220-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	2	14-0220-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	3	14-0220-3	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
144	14-0220	4	14-0220-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	5	14-0220-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	6	14-0220-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	7	14-0220-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	8	14-0220-8	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	9	14-0220-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	10	14-0220-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
144	14-0220	11	14-0220-11	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
144	14-0220	12	14-0220-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	13	14-0220-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	14	14-0220-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	15	14-0220-15	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	16	14-0220-16	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	17	14-0220-17	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
144	14-0220	18	14-0220-18	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0124	1	14-0124-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	2	14-0124-2	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	

720	14-0124	3	14-0124-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	4	14-0124-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	5	14-0124-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	6	14-0124-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	7	14-0124-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	8	14-0124-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	9	14-0124-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	10	14-0124-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	11	14-0124-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	12	14-0124-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	13	14-0124-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0124	14	14-0124-14	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0128	1	14-0128-1	male	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	2	14-0128-2	male	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		yes
720	14-0128	3	14-0128-3	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	4	14-0128-4	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	5	14-0128-5	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	6	14-0128-6	male	12/17/2013	12/21/2013	1/7/2014	2/8/2014	yes	yes	
720	14-0128	7	14-0128-7	male	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	8	14-0128-8	male	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	9	14-0128-9	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	10	14-0128-10	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	11	14-0128-11	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	12	14-0128-12	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	13	14-0128-13	female	12/17/2013	12/21/2013	1/7/2014	1/28/2014	yes	yes	
720	14-0128	14	14-0128-14	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	15	14-0128-15	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	16	14-0128-16	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0128	17	14-0128-17	female	12/17/2013	12/21/2013	1/7/2014	1/8/2014	yes		
720	14-0132	1	14-0132-1	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0132	2	14-0132-2	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	3	14-0132-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	4	14-0132-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	5	14-0132-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	6	14-0132-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
720	14-0132	7	14-0132-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	8	14-0132-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	9	14-0132-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
720	14-0132	10	14-0132-10	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0132	11	14-0132-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	12	14-0132-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	13	14-0132-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	14	14-0132-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0132	15	14-0132-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	1	14-0138-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	2	14-0138-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	3	14-0138-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	4	14-0138-4	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0138	5	14-0138-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	6	14-0138-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	7	14-0138-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	8	14-0138-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	9	14-0138-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	10	14-0138-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	11	14-0138-11	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	12	14-0138-12	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0138	13	14-0138-13	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0142	1	14-0142-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	2	14-0142-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	3	14-0142-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	4	14-0142-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	5	14-0142-5	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0142	6	14-0142-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	7	14-0142-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		

720	14-0142	8	14-0142-8	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0142	9	14-0142-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	10	14-0142-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	11	14-0142-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	12	14-0142-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	13	14-0142-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	14	14-0142-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	15	14-0142-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0142	16	14-0142-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	1	14-0144-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	2	14-0144-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	3	14-0144-3	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0144	4	14-0144-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	5	14-0144-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	6	14-0144-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	7	14-0144-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	8	14-0144-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	9	14-0144-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
720	14-0144	10	14-0144-10	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0144	11	14-0144-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	12	14-0144-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	13	14-0144-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	14	14-0144-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	15	14-0144-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	16	14-0144-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0144	17	14-0144-17	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0145	1	14-0145-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	2	14-0145-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	3	14-0145-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	4	14-0145-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	5	14-0145-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	6	14-0145-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	7	14-0145-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	8	14-0145-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	9	14-0145-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	10	14-0145-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	11	14-0145-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	12	14-0145-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0145	13	14-0145-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0146	1	14-0146-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	2	14-0146-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	3	14-0146-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	4	14-0146-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	5	14-0146-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	6	14-0146-6	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0146	7	14-0146-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	8	14-0146-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	9	14-0146-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	10	14-0146-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	11	14-0146-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	12	14-0146-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	13	14-0146-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	14	14-0146-14	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0146	15	14-0146-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	16	14-0146-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	17	14-0146-17	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0146	18	14-0146-18	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0147	1	14-0147-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	2	14-0147-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	3	14-0147-3	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
720	14-0147	4	14-0147-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	5	14-0147-5	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	6	14-0147-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	7	14-0147-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		

720	14-0147	8	14-0147-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	9	14-0147-9	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
720	14-0147	10	14-0147-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
720	14-0147	11	14-0147-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	12	14-0147-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	13	14-0147-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0147	14	14-0147-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0152	1	14-0152-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	2	14-0152-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	3	14-0152-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	4	14-0152-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	5	14-0152-5	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	6	14-0152-6	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	7	14-0152-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	8	14-0152-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	9	14-0152-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	10	14-0152-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	11	14-0152-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	12	14-0152-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	13	14-0152-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0152	14	14-0152-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	no		
720	14-0153	1	14-0153-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	2	14-0153-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	3	14-0153-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	4	14-0153-4	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
720	14-0153	5	14-0153-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	6	14-0153-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	7	14-0153-7	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
720	14-0153	8	14-0153-8	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	9	14-0153-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	10	14-0153-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	11	14-0153-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	12	14-0153-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	13	14-0153-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	14	14-0153-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0153	15	14-0153-15	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0158	1	14-0158-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	2	14-0158-2	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0158	3	14-0158-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	4	14-0158-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	5	14-0158-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	6	14-0158-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	7	14-0158-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	8	14-0158-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	9	14-0158-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	10	14-0158-10	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0158	11	14-0158-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	12	14-0158-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	13	14-0158-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	14	14-0158-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0158	15	14-0158-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0160	1	14-0160-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	2	14-0160-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	3	14-0160-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	4	14-0160-4	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
720	14-0160	5	14-0160-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	6	14-0160-6	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
720	14-0160	7	14-0160-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	8	14-0160-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	9	14-0160-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	10	14-0160-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	11	14-0160-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	12	14-0160-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0160	13	14-0160-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		

720	14-0160	14	14-0160-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0165	1	14-0165-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	2	14-0165-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	3	14-0165-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	4	14-0165-4	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
720	14-0165	5	14-0165-5	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	6	14-0165-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
720	14-0165	7	14-0165-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	8	14-0165-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	9	14-0165-9	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
720	14-0165	10	14-0165-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
720	14-0165	11	14-0165-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	12	14-0165-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	13	14-0165-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	14	14-0165-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	15	14-0165-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0165	16	14-0165-16	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
720	14-0169	1	14-0169-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	2	14-0169-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	3	14-0169-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		yes
720	14-0169	4	14-0169-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	5	14-0169-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	6	14-0169-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	7	14-0169-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	8	14-0169-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	9	14-0169-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	10	14-0169-10	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	11	14-0169-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		yes
720	14-0169	12	14-0169-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	13	14-0169-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0169	14	14-0169-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	no		
720	14-0170	1	14-0170-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	2	14-0170-2	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
720	14-0170	3	14-0170-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	4	14-0170-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	5	14-0170-5	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	6	14-0170-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	7	14-0170-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	8	14-0170-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	9	14-0170-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	10	14-0170-10	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
720	14-0170	11	14-0170-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	12	14-0170-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
720	14-0170	13	14-0170-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	14	14-0170-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	15	14-0170-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	16	14-0170-16	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0170	17	14-0170-17	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0171	1	14-0171-1	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
720	14-0171	2	14-0171-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	3	14-0171-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	4	14-0171-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
720	14-0171	5	14-0171-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	6	14-0171-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	7	14-0171-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	8	14-0171-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	9	14-0171-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	10	14-0171-10	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	11	14-0171-11	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	12	14-0171-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
720	14-0171	13	14-0171-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	14	14-0171-14	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
720	14-0171	15	14-0171-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0171	16	14-0171-16	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		

720	14-0171	17	14-0171-17	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
720	14-0188	1	14-0188-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	2	14-0188-2	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
720	14-0188	3	14-0188-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
720	14-0188	4	14-0188-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	5	14-0188-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
720	14-0188	6	14-0188-6	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	7	14-0188-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	8	14-0188-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	9	14-0188-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	10	14-0188-10	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
720	14-0188	11	14-0188-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	12	14-0188-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0188	13	14-0188-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
720	14-0190	1	14-0190-1	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	2	14-0190-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	3	14-0190-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	4	14-0190-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	5	14-0190-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		yes
720	14-0190	6	14-0190-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	7	14-0190-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	8	14-0190-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	9	14-0190-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	10	14-0190-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	11	14-0190-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	12	14-0190-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	13	14-0190-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	14	14-0190-14	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0190	15	14-0190-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
720	14-0192	1	14-0192-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	2	14-0192-2	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	3	14-0192-3	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	4	14-0192-4	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	5	14-0192-5	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
720	14-0192	6	14-0192-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	7	14-0192-7	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	8	14-0192-8	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	9	14-0192-9	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	10	14-0192-10	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	11	14-0192-11	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	12	14-0192-12	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
720	14-0192	13	14-0192-13	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
720	14-0193	1	14-0193-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	2	14-0193-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
720	14-0193	3	14-0193-3	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
720	14-0193	4	14-0193-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	5	14-0193-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	6	14-0193-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	7	14-0193-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	8	14-0193-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	9	14-0193-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
720	14-0193	10	14-0193-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	11	14-0193-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	12	14-0193-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0193	13	14-0193-13	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
720	14-0201	1	14-0201-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	2	14-0201-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	3	14-0201-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	4	14-0201-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	5	14-0201-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	6	14-0201-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	7	14-0201-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	8	14-0201-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	9	14-0201-9	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		

720	14-0201	10	14-0201-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	11	14-0201-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	12	14-0201-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	13	14-0201-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	14	14-0201-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	15	14-0201-15	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	16	14-0201-16	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	17	14-0201-17	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0201	18	14-0201-18	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	no		
720	14-0202	1	14-0202-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	2	14-0202-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	3	14-0202-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	4	14-0202-4	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
720	14-0202	5	14-0202-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	6	14-0202-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	7	14-0202-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	8	14-0202-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	9	14-0202-9	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	10	14-0202-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
720	14-0202	11	14-0202-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	12	14-0202-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0202	13	14-0202-13	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
720	14-0203	1	14-0203-1	male	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	2	14-0203-2	male	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		yes
720	14-0203	3	14-0203-3	male	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	4	14-0203-4	male	1/2/2014	1/6/2014	1/23/2014	2/24/2014	yes	yes	
720	14-0203	5	14-0203-5	male	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	6	14-0203-6	male	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	7	14-0203-7	female	1/2/2014	1/6/2014	1/23/2014	2/13/2014	yes	yes	
720	14-0203	8	14-0203-8	female	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	9	14-0203-9	female	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	10	14-0203-10	female	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0203	11	14-0203-11	female	1/2/2014	1/6/2014	1/23/2014	1/24/2014	yes		
720	14-0204	1	14-0204-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	2	14-0204-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	3	14-0204-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	4	14-0204-4	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	5	14-0204-5	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
720	14-0204	6	14-0204-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	7	14-0204-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	8	14-0204-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	9	14-0204-9	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	10	14-0204-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
720	14-0204	11	14-0204-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	12	14-0204-12	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
720	14-0204	13	14-0204-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
720	14-0204	14	14-0204-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0126	1	14-0126-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	2	14-0126-2	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	3	14-0126-3	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
3600	14-0126	4	14-0126-4	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	5	14-0126-5	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
3600	14-0126	6	14-0126-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	7	14-0126-7	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	8	14-0126-8	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	9	14-0126-9	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
3600	14-0126	10	14-0126-10	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	11	14-0126-11	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
3600	14-0126	12	14-0126-12	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	13	14-0126-13	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	14	14-0126-14	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	15	14-0126-15	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0126	16	14-0126-16	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0127	1	14-0127-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes

3600	14-0127	2	14-0127-2	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
3600	14-0127	3	14-0127-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	4	14-0127-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	5	14-0127-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	6	14-0127-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	7	14-0127-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	8	14-0127-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	9	14-0127-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	10	14-0127-10	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
3600	14-0127	11	14-0127-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0127	12	14-0127-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0131	1	14-0131-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	2	14-0131-2	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
3600	14-0131	3	14-0131-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	4	14-0131-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0131	5	14-0131-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0131	6	14-0131-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	7	14-0131-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	8	14-0131-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	9	14-0131-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	10	14-0131-10	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	11	14-0131-11	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
3600	14-0131	12	14-0131-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	13	14-0131-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	14	14-0131-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0131	15	14-0131-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0135	1	14-0135-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	2	14-0135-2	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
3600	14-0135	3	14-0135-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	4	14-0135-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	5	14-0135-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
3600	14-0135	6	14-0135-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	7	14-0135-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	8	14-0135-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	9	14-0135-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	10	14-0135-10	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0135	11	14-0135-11	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
3600	14-0135	12	14-0135-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
3600	14-0135	13	14-0135-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0139	1	14-0139-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	2	14-0139-2	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
3600	14-0139	3	14-0139-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	4	14-0139-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	5	14-0139-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	6	14-0139-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	7	14-0139-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	8	14-0139-8	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	9	14-0139-9	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	10	14-0139-10	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
3600	14-0139	11	14-0139-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0139	12	14-0139-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
3600	14-0139	13	14-0139-13	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0140	1	14-0140-1	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	2	14-0140-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	3	14-0140-3	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
3600	14-0140	4	14-0140-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	5	14-0140-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	6	14-0140-6	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	7	14-0140-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	8	14-0140-8	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
3600	14-0140	9	14-0140-9	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	10	14-0140-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	11	14-0140-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	12	14-0140-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		

3600	14-0140	13	14-0140-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	14	14-0140-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	15	14-0140-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	16	14-0140-16	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0140	17	14-0140-17	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	1	14-0141-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	2	14-0141-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	3	14-0141-3	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
3600	14-0141	4	14-0141-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	5	14-0141-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	6	14-0141-6	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	7	14-0141-7	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	8	14-0141-8	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	9	14-0141-9	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	10	14-0141-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	11	14-0141-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	12	14-0141-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0141	13	14-0141-13	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
3600	14-0151	1	14-0151-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0151	2	14-0151-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	3	14-0151-3	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
3600	14-0151	4	14-0151-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	5	14-0151-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	6	14-0151-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	7	14-0151-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	8	14-0151-8	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	9	14-0151-9	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
3600	14-0151	10	14-0151-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	11	14-0151-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	12	14-0151-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	13	14-0151-13	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0151	14	14-0151-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0155	1	14-0155-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	2	14-0155-2	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
3600	14-0155	3	14-0155-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	4	14-0155-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	5	14-0155-5	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	6	14-0155-6	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	7	14-0155-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	8	14-0155-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
3600	14-0155	9	14-0155-9	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
3600	14-0155	10	14-0155-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	11	14-0155-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0155	12	14-0155-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0159	1	14-0159-1	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	2	14-0159-2	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	3	14-0159-3	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
3600	14-0159	4	14-0159-4	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	5	14-0159-5	male	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	6	14-0159-6	male	12/20/2013	12/24/2013	1/10/2014	2/11/2014	yes	yes	
3600	14-0159	7	14-0159-7	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	8	14-0159-8	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	9	14-0159-9	female	12/20/2013	12/24/2013	1/10/2014	1/31/2014	yes	yes	
3600	14-0159	10	14-0159-10	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		yes
3600	14-0159	11	14-0159-11	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	12	14-0159-12	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	13	14-0159-13	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	14	14-0159-14	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0159	15	14-0159-15	female	12/20/2013	12/24/2013	1/10/2014	1/11/2014	yes		
3600	14-0167	1	14-0167-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	2	14-0167-2	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	3	14-0167-3	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	4	14-0167-4	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
3600	14-0167	5	14-0167-5	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		

3600	14-0167	6	14-0167-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	7	14-0167-7	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		yes
3600	14-0167	8	14-0167-8	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	9	14-0167-9	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	10	14-0167-10	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	11	14-0167-11	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
3600	14-0167	12	14-0167-12	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0167	13	14-0167-13	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0168										
3600	14-0172	1	14-0172-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	2	14-0172-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	3	14-0172-3	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
3600	14-0172	4	14-0172-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	5	14-0172-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0172	6	14-0172-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	7	14-0172-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	8	14-0172-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	9	14-0172-9	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	10	14-0172-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	11	14-0172-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	12	14-0172-12	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
3600	14-0172	13	14-0172-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	14	14-0172-14	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0172	15	14-0172-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	1	14-0181-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	2	14-0181-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	3	14-0181-3	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
3600	14-0181	4	14-0181-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	5	14-0181-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	6	14-0181-6	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	7	14-0181-7	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0181	8	14-0181-8	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	9	14-0181-9	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
3600	14-0181	10	14-0181-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	11	14-0181-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0181	12	14-0181-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	13	14-0181-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	14	14-0181-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0181	15	14-0181-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0182	1	14-0182-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	2	14-0182-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	3	14-0182-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	4	14-0182-4	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	5	14-0182-5	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
3600	14-0182	6	14-0182-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	7	14-0182-7	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		yes
3600	14-0182	8	14-0182-8	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	9	14-0182-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	10	14-0182-10	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	11	14-0182-11	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
3600	14-0182	12	14-0182-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	13	14-0182-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	14	14-0182-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0182	15	14-0182-15	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0184										
3600	14-0187										
3600	14-0189	1	14-0189-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	2	14-0189-2	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	3	14-0189-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	4	14-0189-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	5	14-0189-5	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	6	14-0189-6	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	7	14-0189-7	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	8	14-0189-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		

3600	14-0189	9	14-0189-9	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	10	14-0189-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	11	14-0189-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	12	14-0189-12	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	13	14-0189-13	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	14	14-0189-14	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	15	14-0189-15	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0189	16	14-0189-16	NA	12/23/2013	12/27/2013	1/13/2014	1/14/2014	no		
3600	14-0194	1	14-0194-1	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
3600	14-0194	2	14-0194-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	3	14-0194-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	4	14-0194-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	5	14-0194-5	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	6	14-0194-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	7	14-0194-7	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	8	14-0194-8	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	9	14-0194-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	10	14-0194-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		yes
3600	14-0194	11	14-0194-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	12	14-0194-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	13	14-0194-13	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
3600	14-0194	14	14-0194-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0194	15	14-0194-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	1	14-0208-1	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	2	14-0208-2	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	3	14-0208-3	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	4	14-0208-4	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	5	14-0208-5	male	12/21/2013	12/25/2013	1/11/2014	2/12/2014	yes	yes	
3600	14-0208	6	14-0208-6	male	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	7	14-0208-7	female	12/21/2013	12/25/2013	1/11/2014	2/1/2014	yes	yes	
3600	14-0208	8	14-0208-8	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	9	14-0208-9	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	10	14-0208-10	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	11	14-0208-11	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	12	14-0208-12	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	13	14-0208-13	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	14	14-0208-14	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	15	14-0208-15	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	16	14-0208-16	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0208	17	14-0208-17	female	12/21/2013	12/25/2013	1/11/2014	1/12/2014	yes		
3600	14-0209	1	14-0209-1	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	2	14-0209-2	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	3	14-0209-3	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	4	14-0209-4	male	12/24/2013	12/28/2013	1/14/2014	2/15/2014	yes	yes	
3600	14-0209	5	14-0209-5	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	6	14-0209-6	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	7	14-0209-7	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	8	14-0209-8	male	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	9	14-0209-9	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	10	14-0209-10	female	12/24/2013	12/28/2013	1/14/2014	2/4/2014	yes	yes	
3600	14-0209	11	14-0209-11	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	12	14-0209-12	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	13	14-0209-13	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0209	14	14-0209-14	female	12/24/2013	12/28/2013	1/14/2014	1/15/2014	yes		
3600	14-0210	1	14-0210-1	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	2	14-0210-2	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	3	14-0210-3	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	4	14-0210-4	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	5	14-0210-5	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	6	14-0210-6	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	7	14-0210-7	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	8	14-0210-8	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	9	14-0210-9	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	10	14-0210-10	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		

3600	14-0210	11	14-0210-11	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	12	14-0210-12	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	13	14-0210-13	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	14	14-0210-14	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	15	14-0210-15	male	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	16	14-0210-16	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0210	17	14-0210-17	female	12/26/2013	12/30/2013	1/16/2014	1/17/2014	no		
3600	14-0213	1	14-0213-1	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	2	14-0213-2	male	12/22/2013	12/26/2013	1/12/2014	2/13/2014	yes	yes	
3600	14-0213	3	14-0213-3	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	4	14-0213-4	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	5	14-0213-5	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	6	14-0213-6	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	7	14-0213-7	male	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	8	14-0213-8	female	12/22/2013	12/26/2013	1/12/2014	2/2/2014	yes	yes	
3600	14-0213	9	14-0213-9	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	10	14-0213-10	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	11	14-0213-11	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	12	14-0213-12	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0213	13	14-0213-13	female	12/22/2013	12/26/2013	1/12/2014	1/13/2014	yes		
3600	14-0216	1	14-0216-1	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
3600	14-0216	2	14-0216-2	male	12/23/2013	12/27/2013	1/13/2014	2/14/2014	yes	yes	
3600	14-0216	3	14-0216-3	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	4	14-0216-4	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	5	14-0216-5	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		yes
3600	14-0216	6	14-0216-6	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	7	14-0216-7	male	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	8	14-0216-8	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	9	14-0216-9	female	12/23/2013	12/27/2013	1/13/2014	2/3/2014	yes	yes	
3600	14-0216	10	14-0216-10	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	11	14-0216-11	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0216	12	14-0216-12	female	12/23/2013	12/27/2013	1/13/2014	1/14/2014	yes		
3600	14-0219	1	14-0219-1	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	2	14-0219-2	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	3	14-0219-3	male	12/25/2013	12/29/2013	1/15/2014	2/16/2014	yes	yes	
3600	14-0219	4	14-0219-4	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	5	14-0219-5	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	6	14-0219-6	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	7	14-0219-7	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	8	14-0219-8	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	9	14-0219-9	male	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	10	14-0219-10	female	12/25/2013	12/29/2013	1/15/2014	2/5/2014	yes	yes	
3600	14-0219	11	14-0219-11	female	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	12	14-0219-12	female	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	13	14-0219-13	female	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	14	14-0219-14	female	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		
3600	14-0219	15	14-0219-15	female	12/25/2013	12/29/2013	1/15/2014	1/16/2014	yes		

Table G-4 cont.
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Observations

TX	Unique Pup#	PND1 STATUS	PND1 BW	PND1 BT	MILK	PND1 ACT	PND1 REACT	PND1 OBS
0	14-0121-1	a	7.1	w	y	n	3	NAO
0	14-0121-2	a	6.7	w	y	n	3	NAO
0	14-0121-3	a	6.9	w	y	n	3	NAO
0	14-0121-4	a	6.7	w	y	n	3	NAO
0	14-0121-5	a	6.6	w	y	n	3	NAO
0	14-0121-6	a	6.0	w	y	n	3	pale skin color
0	14-0121-7	a	6.6	w	y	n	3	NAO
0	14-0121-8	a	6.7	w	y	n	3	NAO

0	14-0121-9	a	6.9	w	y	n	3	NAO
0	14-0121-10	a	6.2	w	y	n	3	NAO
0	14-0121-11	a	6.0	w	y	n	3	NAO
0	14-0121-12	a	6.2	w	y	n	3	NAO
0	14-0122-1	a	6.5	w	y	n	3	NAO
0	14-0122-2	a	7.6	w	y	n	3	NAO
0	14-0122-3	a	6.8	w	y	n	3	NAO
0	14-0122-4	a	6.5	w	y	n	3	purple spot on back of head
0	14-0122-5	a	7.0	w	y	n	3	NAO
0	14-0122-6	a	6.8	w	y	n	3	NAO
0	14-0122-7	a	7.1	w	y	n	3	NAO
0	14-0122-8	a	6.9	w	y	n	3	NAO
0	14-0122-9	a	6.6	w	y	l	3	NAO
0	14-0122-10	a	5.6	w	y	l	3	NAO
0	14-0122-11	a	6.7	w	y	n	3	purple spot on left side of jaw
0	14-0122-12	a	7.1	w	y	n	3	NAO
0	14-0122-13	a	6.8	w	y	n	3	NAO
0	14-0130-1	a	6.9	w	y	n	3	NAO
0	14-0130-2	a	7.1	w	y	n	3	NAO
0	14-0130-3	a	6.7	w	y	n	3	NAO
0	14-0130-4	a	7.2	w	y	n	3	NAO
0	14-0130-5	a	6.7	w	y	n	3	NAO
0	14-0130-6	a	7.4	w	y	n	3	NAO
0	14-0130-7	a	6.6	w	y	n	3	NAO
0	14-0130-8	a	6.8	w	y	n	3	NAO
0	14-0130-9	a	6.6	w	y	n	3	NAO
0	14-0130-10	a	6.6	w	y	n	3	NAO
0	14-0130-11	a	6.4	w	y	n	3	NAO
0	14-0130-12	a	6.8	w	y	n	3	NAO
0	14-0133-1	a	6.2	w	y	n	3	NAO
0	14-0133-2	a	6.9	w	y	n	3	NAO
0	14-0133-3	a	7.2	w	y	n	3	NAO
0	14-0133-4	a	6.7	w	y	n	3	NAO
0	14-0133-5	a	6.5	w	y	n	3	NAO
0	14-0133-6	a	6.6	w	y	n	3	NAO
0	14-0133-7	a	6.6	w	y	n	3	NAO
0	14-0133-8	a	6.4	w	y	n	3	NAO
0	14-0133-9	a	7.2	w	y	n	3	NAO
0	14-0133-10	a	7.2	w	y	n	3	NAO
0	14-0133-11	a	6.9	w	y	n	3	NAO
0	14-0133-12	a	5.7	w	y	n	3	NAO
0	14-0133-13	a	5.5	w	y	n	3	NAO
0	14-0133-14	a	6.2	w	y	n	3	NAO
0	14-0133-15	a	6.0	w	y	n	3	NAO
0	14-0133-16	a	6.2	w	y	n	3	NAO
0	14-0133-17	a	6.0	w	y	n	3	NAO
0	14-0133-18	a	6.0	w	y	n	3	NAO
0	14-0133-19	a	5.6	w	y	n	3	NAO
0	14-0136-1	a	4.9	c	n	l	1	NAO
0	14-0136-2	a	5.2	c	n	l	1	NAO
0	14-0136-3	s	4.8	c	n			NAO
0	14-0136-4	s	6.2	c	n			NAO
0	14-0136-5	d						still in uterus; dam died in labor
0	14-0136-6	d						still in uterus; dam died in labor
0	14-0136-7	d						still in uterus; dam died in labor
0	14-0136-8	d						still in uterus; dam died in labor
0	14-0136-9	d						still in uterus; dam died in labor
0	14-0136-10	d						still in uterus; dam died in labor
0	14-0136-11	d						still in uterus; dam died in labor
0	14-0136-12	d						still in uterus; dam died in labor
0	14-0136-13	d						still in uterus; dam died in labor
0	14-0136-14	d						still in uterus; dam died in labor
0	14-0136-15	d						still in uterus; dam died in labor
0	14-0136-16	d						still in uterus; dam died in labor

0	14-0136-17	d						still in uterus; dam died in labor
0	14-0143-1	a	7.3	w	y	n	3	NAO
0	14-0143-2	a	4.8	c	n	l	3	bruising on head/neck; front right limb cut off/blood on stump
0	14-0143-3	a	6.7	w	y	n	3	NAO
0	14-0143-4	a	6.4	w	y	n	3	NAO
0	14-0143-5	a	7.0	w	y	n	3	NAO
0	14-0143-6	a	7.1	w	y	n	3	NAO
0	14-0143-7	a	6.6	w	y	n	3	NAO
0	14-0143-8	a	6.0	w	y	n	3	NAO
0	14-0143-9	a	5.4	c	n	l	3	umbilical cord still attached
0	14-0143-10	a	6.9	w	y	n	3	NAO
0	14-0148-1	a	6.9	c	n	l	3	NAO
0	14-0148-2	a	6.4	c	n	l	3	NAO
0	14-0148-3	a	6.7	c	n	l	3	NAO
0	14-0148-4	a	7.5	c	n	l	3	NAO
0	14-0148-5	a	7.0	c	n	l	3	NAO
0	14-0148-6	a	7.2	c	n	l	3	NAO
0	14-0148-7	a	7.2	c	n	l	3	NAO
0	14-0148-8	a	6.4	c	n	l	3	NAO
0	14-0148-9	a	6.3	c	n	l	3	NAO
0	14-0148-10	a	6.8	c	n	l	3	NAO
0	14-0148-11	a	6.7	c	n	l	3	NAO
0	14-0148-12	a	6.4	c	n	l	3	NAO
0	14-0148-13	a	6.5	c	n	l	3	NAO
0	14-0149-1	a	5.4	w	y	n	3	NAO
0	14-0149-2	a	5.4	w	y	n	3	NAO
0	14-0149-3	a	5.2	w	y	n	3	NAO
0	14-0149-4	a	5.5	w	y	n	3	NAO
0	14-0149-5	a	5.6	w	y	n	3	NAO
0	14-0149-6	a	5.0	w	y	n	3	small circular purple spot between shoulder blades
0	14-0149-7	a	5.4	w	y	n	3	NAO
0	14-0149-8	a	5.3	w	y	n	3	NAO
0	14-0149-9	a	5.1	w	y	n	3	NAO
0	14-0149-10	a	4.6	w	y	n	3	NAO
0	14-0149-11	a	5.1	w	y	n	3	NAO
0	14-0149-12	a	5.3	w	y	n	3	NAO
0	14-0149-13	a	5.6	w	y	n	3	NAO
0	14-0149-14	a	5.4	w	y	n	3	NAO
0	14-0149-15	a	5.5	w	y	n	3	NAO
0	14-0149-16	a	5.4	w	y	n	3	NAO
0	14-0149-17	a	5.4	w	y	n	3	NAO
0	14-0150-1	a	6.1	w	y	n	3	NAO
0	14-0150-2	a	6.5	w	y	n	3	NAO
0	14-0150-3	a	6.3	w	y	n	3	NAO
0	14-0150-4	a	6.7	w	y	n	3	NAO
0	14-0150-5	a	6.0	w	y	n	3	NAO
0	14-0150-6	a	6.8	w	y	n	3	NAO
0	14-0150-7	a	7.0	w	y	n	3	NAO
0	14-0150-8	a	6.5	w	y	n	3	NAO
0	14-0150-9	a	6.5	w	y	n	3	NAO
0	14-0150-10	a	6.3	w	y	n	3	NAO
0	14-0150-11	a	6.0	w	y	n	3	NAO
0	14-0150-12	a	6.4	w	y	n	3	NAO
0	14-0150-13	a	6.8	w	y	n	3	NAO
0	14-0150-14	a	5.9	w	y	n	3	NAO
0	14-0150-15	a	5.9	w	y	n	3	NAO
0	14-0150-16	a	6.7	w	y	n	3	NAO
0	14-0150-17	s	5.4					
0	14-0156-1	a	6.9	w	y	n	3	NAO
0	14-0156-2	a	6.7	w	y	n	3	NAO
0	14-0156-3	a	6.5	w	y	n	3	NAO
0	14-0156-4	a	6.7	w	y	n	3	NAO
0	14-0156-5	a	6.7	w	y	n	3	NAO
0	14-0156-6	a	6.0	w	y	n	3	NAO

0	14-0156-7	a	6.0	w	y	n	3	NAO
0	14-0156-8	a	7.1	w	y	n	3	small circular purple spot between shoulder blades
0	14-0156-9	a	6.7	w	y	n	3	NAO
0	14-0156-10	a	6.3	w	y	n	3	NAO
0	14-0156-11	a	5.8	w	y	n	3	purple spot left side of face
0	14-0156-12	a	6.4	w	y	n	3	NAO
0	14-0156-13	a	5.7	w	y	n	3	NAO
0	14-0156-14	a	6.0	w	y	n	3	NAO
0	14-0156-15	a	6.4	w	y	n	3	NAO
0	14-0157-1	a	6.5	w	y	n	3	NAO
0	14-0157-2	a	6.7	w	y	n	3	NAO
0	14-0157-3	a	6.6	w	y	n	3	NAO
0	14-0157-4	a	7.4	w	y	n	3	NAO
0	14-0157-5	a	6.6	w	y	n	3	NAO
0	14-0157-6	a	6.6	w	y	n	3	NAO
0	14-0157-7	a	6.1	w	y	n	3	NAO
0	14-0157-8	a	6.1	w	y	n	3	NAO
0	14-0157-9	a	6.3	w	y	n	3	purple spot covering lower jaw
0	14-0157-10	a	6.5	w	y	n	3	NAO
0	14-0157-11	a	6.2	w	y	n	3	NAO
0	14-0157-12	a	6.4	w	y	n	3	NAO
0	14-0157-13	a	6.6	w	y	n	3	NAO
0	14-0157-14	a	6.7	w	y	n	3	NAO
0	14-0157-15	a	6.2	w	y	n	3	NAO
0	14-0161-1	a	7.9	w	y	n	3	NAO
0	14-0161-2	a	7.7	w	y	n	3	NAO
0	14-0161-3	a	8.1	w	y	n	3	NAO
0	14-0161-4	a	7.9	w	y	n	3	NAO
0	14-0161-5	a	7.7	w	y	n	3	NAO
0	14-0161-6	a	7.7	w	y	n	3	NAO
0	14-0161-7	a	7.9	w	y	n	3	NAO
0	14-0161-8	a	7.9	w	y	n	3	NAO
0	14-0161-9	a	8.4	w	y	n	3	NAO
0	14-0161-10	a	7.9	w	y	n	3	NAO
0	14-0161-11	a	8.2	w	y	n	3	NAO
0	14-0161-12	a	7.6	w	y	n	3	NAO
0	14-0162-1	a	6.2	w	y	n	3	purple spot around nose
0	14-0162-2	a	5.6	w	y	n	3	NAO
0	14-0162-3	a	6.4	w	y	n	3	NAO
0	14-0162-4	a	6.7	w	y	n	3	NAO
0	14-0162-5	a	6.3	w	y	n	3	NAO
0	14-0162-6	a	5.9	w	y	n	3	NAO
0	14-0162-7	a	6.7	w	y	n	3	NAO
0	14-0162-8	a	6.1	w	y	n	3	NAO
0	14-0162-9	a	6.2	w	y	n	3	NAO
0	14-0162-10	a	6.2	w	y	n	3	NAO
0	14-0162-11	a	5.6	w	y	n	3	NAO
0	14-0162-12	a	6.2	w	y	n	3	NAO
0	14-0162-13	a	5.6	w	y	n	3	NAO
0	14-0162-14	a	6.2	w	y	n	3	NAO
0	14-0162-15	a	5.6	w	y	n	3	NAO
0	14-0162-16	a	5.8	w	y	n	3	NAO
0	14-0163-1	a	6.6	w	y	n	3	NAO
0	14-0163-2	a	6.5	w	y	n	3	NAO
0	14-0163-3	a	6.1	w	y	n	3	NAO
0	14-0163-4	a	6.7	w	y	n	3	NAO
0	14-0163-5	a	6.2	w	y	n	3	NAO
0	14-0163-6	a	6.5	w	y	n	3	NAO
0	14-0163-7	a	6.5	w	y	n	3	NAO
0	14-0163-8	a	6.4	w	y	n	3	NAO
0	14-0163-9	a	6.7	w	y	n	3	NAO
0	14-0163-10	a	5.9	w	y	n	3	NAO
0	14-0163-11	a	5.7	c	y	n	3	NAO
0	14-0163-12	a	5.8	w	y	n	3	piece of skin missing on scalp

0	14-0163-13	a	5.6	w	y	n	3	purple spot under umbilical cord, on nose and left side of face
0	14-0163-14	a	5.3	w	y	n	3	NAO
0	14-0163-15	a	5.6	w	y	n	3	purple spot by umbilical cord
0	14-0163-16	a	5.4	w	y	n	3	NAO
0	14-0173-1	a	6.6	w	y	n	3	NAO
0	14-0173-2	a	5.7	w	y	n	3	NAO
0	14-0173-3	a	5.9	w	y	n	3	NAO
0	14-0173-4	a	6.4	w	y	n	3	NAO
0	14-0173-5	a	6.5	w	y	n	3	NAO
0	14-0173-6	a	5.7	w	y	n	3	NAO
0	14-0173-7	a	5.7	w	y	n	3	NAO
0	14-0173-8	a	5.7	w	y	n	3	NAO
0	14-0173-9	a	6.1	w	y	n	3	NAO
0	14-0173-10	a	6.4	w	y	n	3	NAO
0	14-0173-11	a	5.8	w	y	n	3	NAO
0	14-0173-12	a	5.4	w	y	n	3	NAO
0	14-0173-13	a	5.7	w	y	n	3	NAO
0	14-0173-14	s	5.1					
0	14-0179-1	a	7.0	w	y	n	3	NAO
0	14-0179-2	a	8.6	w	y	n	3	NAO
0	14-0179-3	a	7.8	w	y	n	3	NAO
0	14-0179-4	a	7.6	w	y	n	3	NAO
0	14-0179-5	a	6.8	w	y	n	3	NAO
0	14-0179-6	a	6.7	w	y	n	3	NAO
0	14-0179-7	a	7.3	w	y	n	3	NAO
0	14-0179-8	a	6.6	w	y	n	3	NAO
0	14-0179-9	a	7.3	w	y	n	3	NAO
0	14-0179-10	a	7.1	w	y	n	3	NAO
0	14-0179-11	a	6.7	w	y	n	3	NAO
0	14-0179-12	a	7.1	w	y	n	3	NAO
0	14-0185-1	a	5.8	w	y	n	3	NAO
0	14-0185-2	a	5.8	w	y	n	3	NAO
0	14-0185-3	a	6.0	w	y	n	3	NAO
0	14-0185-4	a	5.9	w	y	n	3	NAO
0	14-0185-5	a	5.3	w	y	n	3	NAO
0	14-0185-6	a	5.9	w	y	n	3	NAO
0	14-0185-7	a	5.8	w	y	n	3	NAO
0	14-0185-8	a	4.9	w	y	n	3	NAO
0	14-0185-9	a	5.5	w	y	n	3	NAO
0	14-0185-10	a	5.3	w	y	n	3	NAO
0	14-0185-11	a	5.6	w	y	n	3	NAO
0	14-0185-12	a	4.8	w	y	n	3	tip of tail cut off/bloody tip; pale pink skin color
0	14-0185-13	a	5.4	w	y	n	3	NAO
0	14-0185-14	a	5.1	w	y	n	3	NAO
0	14-0185-15	a	5.5	w	y	n	3	NAO
0	14-0185-16	a	5.7	w	y	n	3	NAO
0	14-0186-1	a	5.8	w	y	n	3	NAO
0	14-0186-2	a	4.9	w	y	n	3	NAO
0	14-0186-3	a	5.9	w	y	n	3	NAO
0	14-0186-4	a	5.9	w	y	n	3	NAO
0	14-0186-5	a	6.0	w	y	n	3	NAO
0	14-0186-6	a	6.0	w	y	n	3	NAO
0	14-0186-7	a	6.0	w	y	n	3	NAO
0	14-0186-8	a	5.9	w	y	n	3	NAO
0	14-0186-9	a	5.4	w	y	n	3	NAO
0	14-0186-10	a	6.4	w	y	n	3	NAO
0	14-0186-11	a	5.7	w	y	n	3	NAO
0	14-0186-12	a	5.8	w	y	n	3	NAO
0	14-0186-13	a	5.5	w	y	n	3	NAO
0	14-0186-14	a	5.8	w	y	n	3	NAO
0	14-0191-1	a	7.1	w	y	n	3	NAO
0	14-0191-2	a	6.4	w	y	n	3	NAO
0	14-0191-3	a	6.8	w	y	n	3	NAO
0	14-0191-4	a	6.6	w	y	n	3	NAO

0	14-0191-5	a	5.4	w	y	n	3	NAO
0	14-0191-6	a	7.0	w	y	n	3	NAO
0	14-0191-7	a	6.5	w	y	n	3	NAO
0	14-0191-8	a	6.0	w	y	n	3	NAO
0	14-0191-9	a	6.4	w	y	n	3	NAO
0	14-0191-10	a	5.9	w	y	n	3	NAO
0	14-0191-11	a	5.6	w	y	n	3	NAO
0	14-0191-12	a	6.1	w	y	n	3	NAO
0	14-0191-13	a	5.5	w	y	n	3	NAO
0	14-0191-14	a	6.2	w	y	n	3	hematoma right side of nose
0	14-0196-1	a	6.9	w	y	n	3	NAO
0	14-0196-2	a	6.4	w	y	n	3	NAO
0	14-0196-3	a	5.8	w	y	n	3	purple spot on chin
0	14-0196-4	a	5.9	w	y	n	3	NAO
0	14-0196-5	a	6.5	w	y	n	3	NAO
0	14-0196-6	a	6.2	w	y	n	3	NAO
0	14-0196-7	a	6.2	w	y	n	3	NAO
0	14-0196-8	a	6.5	w	y	n	3	NAO
0	14-0196-9	a	6.3	w	y	n	3	abrasion on left side of back
0	14-0196-10	a	6.3	w	y	n	3	purple spot between shoulder blades
0	14-0196-11	a	5.5	w	y	n	3	purple spot on back of neck
0	14-0196-12	a	5.8	w	y	n	3	NAO
0	14-0196-13	a	5.8	w	y	n	3	NAO
0	14-0196-14	a	6.3	w	y	n	3	NAO
0	14-0196-15	a	5.0	w	y	n	3	purple spot on back of neck
0	14-0196-16	a	6.0	w	y	n	3	NAO
0	14-0196-17	a	5.6	w	y	n	3	NAO
0	14-0198-1	a	7.2	w	y	n	3	NAO
0	14-0198-2	a	6.2	w	y	n	3	NAO
0	14-0198-3	a	6.6	w	y	n	3	umbilical cord still attached
0	14-0198-4	a	6.3	w	y	n	3	NAO
0	14-0198-5	a	6.5	w	y	n	3	purple spot between shoulder blades
0	14-0198-6	a	5.5	w	y	n	3	purple spot between shoulder blades
0	14-0198-7	a	6.6	w	y	n	3	umbilical cord still attached
0	14-0198-8	a	6.2	w	y	n	3	NAO
0	14-0198-9	a	5.5	w	y	n	3	umbilical cord still attached
0	14-0198-10	a	6.5	w	y	n	3	umbilical cord still attached
0	14-0198-11	a	5.3	w	y	n	3	NAO
0	14-0198-12	a	5.6	w	y	n	3	NAO
0	14-0198-13	a	6.6	w	y	n	3	NAO
0	14-0198-14	a	5.8	w	y	n	3	NAO
0	14-0205-1	a	6.3	c	n	l	3	NAO
0	14-0205-2	a	6.6	c	n	l	3	NAO
0	14-0205-3	a	6.1	c	n	l	3	NAO
0	14-0205-4	a	6.0	c	n	l	3	NAO
0	14-0205-5	a	6.9	c	n	l	3	small part of umbilical cord still attached
0	14-0205-6	a	6.2	c	n	l	3	NAO
0	14-0205-7	a	6.3	c	n	l	3	umbilical cord still attached
0	14-0205-8	a	5.9	c	n	l	3	umbilical cord still attached
0	14-0205-9	a	6.5	c	n	l	3	umbilical cord still attached
0	14-0205-10	a	5.9	c	n	l	3	NAO
0	14-0205-11	s/z						head only
0	14-0205-12	s/z						head only
0								
0	14-0215-1	a	6.5	w	y	n	3	NAO
0	14-0215-2	a	6.9	w	y	n	3	NAO
0	14-0215-3	a	6.4	w	y	n	3	NAO
0	14-0215-4	a	6.3	w	y	n	3	NAO
0	14-0215-5	a	6.6	w	y	n	3	purple spot between shoulder blades
0	14-0215-6	a	6.2	w	y	n	3	NAO
0	14-0215-7	a	6.1	w	y	n	3	NAO
0	14-0215-8	a	6.3	w	y	n	3	NAO
0	14-0215-9	a	5.9	w	y	n	3	NAO
0	14-0215-10	a	5.5	w	y	n	3	purple spot between shoulder blades, scratch on L side belly

0	14-0215-11	a	6.1	w	y	n	3	NAO
0	14-0215-12	a	6.2	w	y	n	3	laceration on middle back
0	14-0215-13	a	6.2	w	y	n	3	NAO
0	14-0215-14	a	6.2	w	y	n	3	NAO
0	14-0217-1	a	7.5	w	y	n	3	NAO
0	14-0217-2	a	6.7	w	y	n	3	NAO
0	14-0217-3	a	7.6	w	y	n	3	NAO
0	14-0217-4	a	7.2	w	y	n	3	NAO
0	14-0217-5	a	7.4	w	y	n	3	NAO
0	14-0217-6	a	6.7	c	n	l	3	NAO
0	14-0217-7	a	6.3	w	y	n	3	small part of umbilical cord still attached
0	14-0217-8	a	6.1	w	y	n	3	NAO
0	14-0217-9	a	6.8	w	y	n	3	NAO
0	14-0217-10	a	7.0	w	y	n	3	NAO
0	14-0217-11	a	6.3	w	y	n	3	NAO
0	14-0217-12	a	7.2	w	y	n	3	NAO
0	14-0217-13	a	6.8	w	y	n	3	NAO
0	14-0217-14	a	7.1	w	y	n	3	NAO
0	14-0217-15	a	6.9	w	y	n	3	NAO
144	14-0123-1	a	7.5	w	y	n	3	NAO
144	14-0123-2	a	6.8	w	y	n	3	NAO
144	14-0123-3	a	7.5	w	y	n	3	NAO
144	14-0123-4	a	6.9	w	y	n	3	NAO
144	14-0123-5	a	7.1	w	y	n	3	NAO
144	14-0123-6	a	6.7	w	y	n	3	NAO
144	14-0123-7	a	6.5	w	y	n	3	NAO
144	14-0123-8	a	6.2	w	y	n	3	NAO
144	14-0123-9	a	6.4	w	y	n	3	NAO
144	14-0123-10	a	5.9	w	y	n	3	NAO
144	14-0123-11	a	6.4	w	y	n	3	NAO
144	14-0123-12	a	7.2	w	y	n	3	NAO
144	14-0123-13	s	6.7					
144	14-0123-14	s	6.2					
144	14-0123-15	s/z						head cannibalized
144								
144	14-0129-1	a	5.1	w	y	n	3	purple spot under umbilical cord
144	14-0129-2	a	6.8	w	y	n	3	NAO
144	14-0129-3	a	6.8	w	y	n	3	NAO
144	14-0129-4	a	5.9	w	y	n	3	NAO
144	14-0129-5	a	5.6	w	y	n	3	NAO
144	14-0129-6	a	6.3	w	y	n	3	NAO
144	14-0129-7	a	6.3	w	y	n	3	NAO
144	14-0129-8	a	6.0	w	y	n	3	purple spot between shoulder blades
144	14-0129-9	a	5.9	w	y	n	3	NAO
144	14-0129-10	a	6.5	w	y	n	3	NAO
144	14-0129-11	a	6.1	w	y	n	3	NAO
144	14-0129-12	a	6.6	w	y	n	3	NAO
144	14-0129-13	a	6.3	w	y	n	3	NAO
144	14-0129-14	a	6.2	w	y	n	3	NAO
144	14-0129-15	a	6.0	w	y	n	3	purple spot right front limb
144	14-0129-16	a	6.0	w	y	n	3	NAO
144	14-0134-1	a	7.5	w	y	n	3	NAO
144	14-0134-2	a	7.2	w	y	n	3	NAO
144	14-0134-3	a	7.0	w	y	n	3	NAO
144	14-0134-4	a	7.2	w	y	n	3	NAO
144	14-0134-5	a	6.4	w	y	n	3	NAO
144	14-0134-6	a	6.6	w	y	n	3	NAO
144	14-0134-7	a	6.7	w	y	n	3	NAO
144	14-0134-8	a	7.1	w	y	n	3	NAO
144	14-0134-9	a	5.9	w	y	n	3	NAO
144	14-0134-10	a	6.7	w	y	n	3	NAO
144	14-0134-11	a	6.9	w	y	n	3	NAO
144	14-0134-12	a	6.7	w	y	n	3	NAO
144	14-0134-13	a	6.3	w	y	n	3	NAO

144	14-0134-14	a	5.7	w	y	n	3	NAO
144	14-0137-1	a	7.3	w	y	n	3	NAO
144	14-0137-2	a	6.8	w	y	n	3	NAO
144	14-0137-3	a	7.2	w	y	n	3	NAO
144	14-0137-4	a	6.8	w	y	n	3	NAO
144	14-0137-5	a	7.7	w	y	n	3	NAO
144	14-0137-6	a	7.4	w	y	n	3	NAO
144	14-0137-7	a	7.1	w	y	n	3	NAO
144	14-0137-8	a	7.1	w	y	n	3	NAO
144	14-0137-9	a	7.3	w	y	n	3	NAO
144	14-0137-10	a	6.5	w	y	n	3	NAO
144	14-0137-11	a	6.9	w	y	n	3	NAO
144	14-0137-12	a	7.1	w	y	n	3	NAO
144	14-0137-13	a	7.3	w	y	n	3	NAO
144	14-0137-14	a	7.3	w	y	n	3	NAO
144	14-0154-1	a	9.0	w	y	n	3	NAO
144	14-0154-2	a	8.0	w	y	n	3	NAO
144	14-0154-3	a	8.5	w	y	n	3	NAO
144	14-0154-4	a	8.7	w	y	n	3	NAO
144	14-0154-5	a	8.5	w	y	n	3	NAO
144	14-0154-6	a	7.4	w	y	n	3	NAO
144	14-0154-7	a	7.0	w	y	n	3	NAO
144	14-0154-8	a	7.5	w	y	n	3	NAO
144	14-0164-1	a	7.8	c	n	l	3	umbilical cord still attached
144	14-0164-2	a	7.2	c	n	l	3	umbilical cord still attached
144	14-0164-3	a	7.2	c	n	l	3	umbilical cord still attached
144	14-0164-4	a	6.4	c	n	l	3	umbilical cord still attached
144	14-0164-5	a	7.0	c	n	l	3	umbilical cord still attached
144	14-0164-6	a	7.4	c	n	l	3	umbilical cord still attached, purple spot covering face
144	14-0164-7	a	6.0	c	n	l	3	umbilical cord still attached
144	14-0164-8	a	6.6	c	n	l	3	umbilical cord still attached
144	14-0164-9	a	6.8	c	n	l	3	umbilical cord still attached
144	14-0164-10	a	7.6	c	n	l	3	umbilical cord still attached
144	14-0164-11	a	6.9	c	n	l	3	umbilical cord still attached
144	14-0164-12	a	6.9	c	n	l	3	umbilical cord still attached
144	14-0164-13	a	6.8	c	n	l	3	umbilical cord still attached
144	14-0164-14	s	6.6					umbilical cord still attached
144	14-0164-15	s	6.6					umbilical cord still attached
144	14-0166-1	a	5.4	w	y	n	3	NAO
144	14-0166-2	a	6.2	w	y	n	3	umbilical cord still attached
144	14-0166-3	a	6.3	w	y	n	3	NAO
144	14-0166-4	a	6.2	w	y	n	3	NAO
144	14-0166-5	a	5.9	w	y	n	3	NAO
144	14-0166-6	a	5.7	w	y	n	3	NAO
144	14-0166-7	a	6.3	w	y	n	3	NAO
144	14-0166-8	a	6.6	w	y	n	3	NAO
144	14-0166-9	a	5.4	w	y	n	3	NAO
144	14-0166-10	a	5.9	w	y	n	3	umbilical cord still attached
144	14-0166-11	a	5.9	w	y	n	3	umbilical cord still attached
144	14-0166-12	a	5.5	w	y	n	3	NAO
144	14-0166-13	a	6.6	w	y	n	3	umbilical cord still attached
144	14-0166-14	a	5.8	w	y	n	3	NAO
144	14-0166-15	a	6.1	w	y	n	3	NAO
144	14-0166-16	a	5.5	w	y	n	3	NAO
144	14-0166-17	z						head only
144	14-0174-1	a	7.3	w	y	n	3	NAO
144	14-0174-2	a	6.6	w	y	n	3	NAO
144	14-0174-3	a	6.5	w	y	n	3	NAO
144	14-0174-4	a	7.0	w	y	n	3	NAO
144	14-0174-5	a	6.6	w	y	n	3	NAO
144	14-0174-6	a	6.7	w	y	n	3	NAO
144	14-0174-7	a	7.1	w	y	n	3	NAO
144	14-0174-8	a	7.0	w	y	n	3	NAO
144	14-0174-9	a	6.0	w	y	n	3	NAO

144	14-0174-10	a	6.6	w	y	n	3	NAO
144	14-0174-11	a	5.9	w	y	n	3	NAO
144	14-0174-12	a	7.0	w	y	n	3	NAO
144	14-0174-13	a	7.0	w	y	n	3	NAO
144	14-0174-14	a	6.8	w	y	n	3	NAO
144	14-0174-15	a	6.7	w	y	n	3	NAO
144	14-0174-16	a	6.3	w	y	n	3	NAO
144	14-0175-1	a	7.6	w	y	n	3	NAO
144	14-0175-2	a	7.6	w	y	n	3	NAO
144	14-0175-3	a	6.9	w	y	n	3	NAO
144	14-0175-4	a	7.2	w	y	n	3	NAO
144	14-0175-5	a	6.7	w	y	n	3	NAO
144	14-0175-6	a	6.2	w	y	n	3	NAO
144	14-0175-7	a	7.2	w	y	n	3	NAO
144	14-0175-8	a	7.1	w	y	n	3	umbilical cord still attached
144	14-0175-9	a	7.0	w	y	n	3	NAO
144	14-0175-10	a	6.8	w	y	n	3	NAO
144	14-0175-11	a	7.1	w	y	n	3	NAO
144	14-0175-12	s	6.4					
144	14-0176-1	a	5.4	w	y	n	3	NAO
144	14-0176-2	a	6.4	w	y	n	3	NAO
144	14-0176-3	a	6.5	w	y	n	3	NAO
144	14-0176-4	a	6.3	w	y	n	3	NAO
144	14-0176-5	a	4.9	w	y	n	3	NAO
144	14-0176-6	a	6.1	w	y	n	3	NAO
144	14-0176-7	a	6.5	w	y	n	3	NAO
144	14-0176-8	a	6.0	w	y	n	3	NAO
144	14-0176-9	a	6.2	w	y	n	3	NAO
144	14-0176-10	a	5.9	w	y	n	3	NAO
144	14-0176-11	a	6.2	w	y	n	3	NAO
144	14-0176-12	a	6.4	w	y	n	3	NAO
144	14-0176-13	a	6.4	w	y	n	3	NAO
144	14-0176-14	a	6.3	w	y	n	3	NAO
144	14-0176-15	a	4.9	w	y	n	3	NAO
144	14-0176-16	s	3.6					
144	14-0177-1	a	5.9	w	y	n	3	NAO
144	14-0177-2	a	5.5	w	y	n	3	NAO
144	14-0177-3	a	6.1	w	y	n	3	NAO
144	14-0177-4	a	5.8	w	y	n	3	NAO
144	14-0177-5	a	5.5	w	y	n	3	NAO
144	14-0177-6	a	6.2	w	y	n	3	NAO
144	14-0177-7	a	5.9	w	y	n	3	NAO
144	14-0177-8	a	5.4	w	y	n	3	NAO
144	14-0177-9	a	5.3	w	y	n	3	NAO
144	14-0177-10	a	5.7	w	y	n	3	NAO
144	14-0177-11	a	5.5	w	y	n	3	purple spot on left hind paw
144	14-0177-12	a	5.6	w	y	n	3	NAO
144	14-0177-13	a	5.1	w	y	n	3	NAO
144	14-0177-14	a	5.6	w	y	n	3	NAO
144	14-0177-15	a	4.2	w	y	n	3	purple spot right side of nose
144	14-0177-16	a	5.5	w	y	n	3	purple spot right side of nose
144	14-0177-17	a	5.6	w	y	n	3	NAO
144	14-0177-18	a	5.2	w	y	n	3	NAO
144	14-0178-1	a	6.2	w	y	n	3	NAO
144	14-0178-2	a	6.5	w	y	n	3	NAO
144	14-0178-3	a	5.9	w	y	n	3	NAO
144	14-0178-4	a	6.0	w	y	n	3	NAO
144	14-0178-5	a	6.6	w	y	n	3	NAO
144	14-0178-6	a	6.3	w	y	n	3	NAO
144	14-0178-7	a	6.2	w	y	n	3	NAO
144	14-0178-8	a	6.8	w	y	n	3	NAO
144	14-0178-9	a	6.4	w	y	n	3	NAO
144	14-0178-10	a	6.4	w	y	n	3	NAO
144	14-0178-11	a	5.6	w	y	n	3	hematoma both hind paws

144	14-0178-12	a	5.3	w	y	n	3	NAO
144	14-0178-13	a	5.6	w	y	n	3	NAO
144	14-0178-14	a	6.1	w	y	n	3	NAO
144	14-0178-15	a	5.9	w	y	n	3	NAO
144	14-0178-16	a	5.9	w	y	n	3	NAO
144	14-0178-17	s	5.5					
144	14-0180-1	a	6.6	w	y	n	3	NAO
144	14-0180-2	a	6.3	w	y	n	3	NAO
144	14-0180-3	a	7.1	w	y	n	3	NAO
144	14-0180-4	a	7.1	w	y	n	3	NAO
144	14-0180-5	a	7.4	w	y	n	3	NAO
144	14-0180-6	a	7.3	w	y	n	3	NAO
144	14-0180-7	a	7.5	w	y	n	3	NAO
144	14-0180-8	a	6.1	w	y	n	3	NAO
144	14-0180-9	a	6.9	w	y	n	3	NAO
144	14-0180-10	a	6.5	w	y	n	3	NAO
144	14-0180-11	a	6.7	w	y	n	3	NAO
144	14-0180-12	a	6.7	w	y	n	3	NAO
144	14-0183-1	a	5.7	w	y	n	3	NAO
144	14-0183-2	a	6.1	w	y	n	3	NAO
144	14-0183-3	a	5.7	w	y	n	3	NAO
144	14-0183-4	a	5.9	w	y	n	3	NAO
144	14-0183-5	a	6.0	w	y	n	3	NAO
144	14-0183-6	a	5.9	w	y	n	3	NAO
144	14-0183-7	a	6.2	w	y	n	3	NAO
144	14-0183-8	a	6.3	w	y	n	3	NAO
144	14-0183-9	a	5.1	w	y	n	3	NAO
144	14-0183-10	a	5.6	w	y	n	3	NAO
144	14-0183-11	a	5.5	w	y	n	3	NAO
144	14-0183-12	a	5.7	w	y	n	3	NAO
144	14-0183-13	a	5.4	w	y	n	3	NAO
144	14-0183-14	a	5.7	w	y	n	3	NAO
144	14-0183-15	a	5.7	w	y	n	3	NAO
144	14-0183-16	a	5.5	w	y	n	3	NAO
144	14-0183-17	d	5.3		y			NAO
144	14-0195-1	a	7.3	w	y	n	3	NAO
144	14-0195-2	a	6.7	w	y	n	3	NAO
144	14-0195-3	a	7.1	w	y	n	3	NAO
144	14-0195-4	a	7.4	w	y	n	3	NAO
144	14-0195-5	a	6.8	w	y	n	3	NAO
144	14-0195-5	a	6.3	w	y	n	3	NAO
144	14-0195-5	a	6.0	w	y	n	3	NAO
144	14-0195-5	a	7.6	w	y	n	3	NAO
144	14-0195-9	a	7.1	w	y	n	3	NAO
144	14-0195-10	a	6.0	w	y	n	3	NAO
144	14-0195-11	a	5.6	w	y	n	3	NAO
144	14-0195-12	a	6.4	w	y	n	3	NAO
144	14-0195-13	a	6.0	w	y	n	3	NAO
144	14-0195-14	a	6.1	w	y	n	3	NAO
144	14-0195-15	s	6.0					
144	14-0197-1	a	7.1	w	y	n	3	NAO
144	14-0197-2	a	7.1	w	y	n	3	NAO
144	14-0197-3	a	6.3	w	y	n	3	NAO
144	14-0197-4	a	6.3	w	y	n	3	NAO
144	14-0197-5	a	6.4	w	y	n	3	NAO
144	14-0197-6	a	6.7	w	y	n	3	NAO
144	14-0197-7	a	6.2	w	y	n	3	NAO
144	14-0197-8	a	6.5	w	y	n	3	NAO
144	14-0197-9	a	5.9	w	y	n	3	NAO
144	14-0197-10	a	6.2	w	y	n	3	NAO
144	14-0197-11	a	6.6	w	y	n	3	NAO
144	14-0197-12	a	6.4	w	y	n	3	NAO
144	14-0197-13	a	6.1	w	y	n	3	NAO
144	14-0199-1	a	5.8	w	y	n	3	NAO

144	14-0199-2	a	6.4	w	y	n	3	NAO
144	14-0199-3	a	6.2	w	y	n	3	NAO
144	14-0199-4	a	6.2	w	y	n	3	NAO
144	14-0199-5	a	6.3	w	y	n	3	NAO
144	14-0199-6	a	6.6	w	y	n	3	NAO
144	14-0199-7	a	5.4	w	y	n	3	NAO
144	14-0199-8	a	6.1	w	y	n	3	NAO
144	14-0199-9	a	6.1	w	y	n	3	NAO
144	14-0199-10	a	6.1	w	y	n	3	NAO
144	14-0199-11	a	5.4	w	y	n	3	NAO
144	14-0199-12	a	5.9	w	y	n	3	NAO
144	14-0199-13	a	5.7	w	y	n	3	NAO
144	14-0199-14	a	5.5	w	y	n	3	NAO
144	14-0200-1	a	6.4	w	y	n	3	NAO
144	14-0200-2	a	5.9	w	y	n	3	NAO
144	14-0200-3	a	6.0	w	y	n	3	NAO
144	14-0200-4	a	6.0	w	y	n	3	NAO
144	14-0200-5	a	5.5	w	y	n	3	NAO
144	14-0200-6	a	6.3	w	y	n	3	NAO
144	14-0200-7	a	5.9	w	y	n	3	small round purple spot between shoulder blades
144	14-0200-8	a	6.3	w	y	n	3	NAO
144	14-0200-9	a	6.2	w	y	n	3	NAO
144	14-0200-10	a	6.1	w	y	n	3	NAO
144	14-0200-11	a	5.5	w	y	n	3	NAO
144	14-0200-12	a	6.3	w	y	n	3	NAO
144	14-0200-13	a	6.3	w	y	n	3	NAO
144	14-0200-14	a	6.0	w	y	n	3	NAO
144	14-0200-15	a	5.8	w	y	n	3	NAO
144	14-0200-16	a	5.5	w	y	n	3	NAO
144	14-0206-1	a	7.0	w	y	n	3	NAO
144	14-0206-2	a	6.6	w	y	n	3	NAO
144	14-0206-3	a	7.3	w	y	n	3	NAO
144	14-0206-4	a	6.2	w	y	n	3	NAO
144	14-0206-5	a	7.5	w	y	n	3	NAO
144	14-0206-6	a	6.7	w	y	n	3	NAO
144	14-0206-7	a	6.5	w	y	n	3	NAO
144	14-0206-8	a	6.9	w	y	n	3	NAO
144	14-0206-9	a	6.3	w	y	n	3	NAO
144	14-0206-10	a	6.1	w	y	n	3	NAO
144	14-0206-11	a	6.6	w	y	n	3	NAO
144	14-0206-12	a	6.2	w	y	n	3	NAO
144	14-0206-13	a	6.2	w	y	n	3	NAO
144	14-0206-14	a	6.3	w	y	n	3	NAO
144	14-0206-15	a	6.5	w	y	n	3	NAO
144	14-0206-16	a	5.9	w	y	n	3	NAO
144	14-0211-1	a	6.6	w	y	n	3	NAO
144	14-0211-2	a	6.7	w	y	n	3	NAO
144	14-0211-3	a	7.1	w	y	n	3	NAO
144	14-0211-4	a	6.8	w	y	n	3	NAO
144	14-0211-5	a	6.6	w	y	n	3	NAO
144	14-0211-6	a	6.0	w	y	n	3	NAO
144	14-0211-7	a	6.2	w	y	n	3	NAO
144	14-0211-8	a	6.2	w	y	n	3	NAO
144	14-0211-9	a	6.8	w	y	n	3	NAO
144	14-0211-10	a	6.7	w	y	n	3	NAO
144	14-0211-11	a	6.7	w	y	n	3	purple spot right side of nose
144	14-0211-12	a	6.9	w	y	n	3	NAO
144	14-0211-13	a	7.1	w	y	n	3	NAO
144	14-0211-14	a	6.8	w	y	n	3	NAO
144	14-0211-15	s	7.1					
144	14-0212-1	a	5.5	w	y	n	3	NAO
144	14-0212-2	a	5.6	w	y	n	3	NAO
144	14-0212-3	a	5.7	w	y	n	3	purple spot right side of face
144	14-0212-4	a	5.5	w	y	n	3	NAO

144	14-0212-5	a	6.1	w	y	n	3	NAO
144	14-0212-6	a	6.5	w	y	n	3	NAO
144	14-0212-7	a	5.7	w	y	n	3	NAO
144	14-0212-8	a	5.6	w	y	n	3	NAO
144	14-0212-9	a	5.4	w	y	n	3	NAO
144	14-0212-10	a	5.3	w	y	n	3	NAO
144	14-0212-11	a	4.9	w	y	n	3	purple spot between shoulder blades
144	14-0212-12	a	5.3	w	y	n	3	bloody spot left ear and top of nose
144	14-0212-13	a	5.1	w	y	n	3	NAO
144	14-0212-14	a	5.3	w	y	n	3	NAO
144	14-0212-15	a	5.3	w	y	n	3	NAO
144	14-0212-16	s	5.7					autolytic
144	14-0214-1	a	6.1	w	y	n	3	purple spot on nose
144	14-0214-2	a	6.1	w	y	n	3	NAO
144	14-0214-3	a	5.9	w	y	n	3	NAO
144	14-0214-4	a	5.7	w	y	n	3	NAO
144	14-0214-5	a	6.5	w	y	n	3	NAO
144	14-0214-6	a	6.3	w	y	n	3	NAO
144	14-0214-7	a	6.1	w	y	n	3	NAO
144	14-0214-8	a	6.1	w	y	n	3	NAO
144	14-0214-9	a	6.1	w	y	n	3	NAO
144	14-0214-10	a	6.0	w	y	n	3	NAO
144	14-0214-11	a	5.9	w	y	n	3	NAO
144	14-0214-12	a	6.0	w	y	n	3	NAO
144	14-0214-13	a	6.0	w	y	n	3	NAO
144								
144	14-0220-1	a	5.2	w	y	n	3	NAO
144	14-0220-2	a	5.9	w	y	n	3	NAO
144	14-0220-3	a	6.2	w	y	n	3	NAO
144	14-0220-4	a	6.0	w	y	n	3	NAO
144	14-0220-5	a	6.2	w	y	n	3	NAO
144	14-0220-6	a	5.7	w	y	n	3	NAO
144	14-0220-7	a	6.7	w	y	n	3	NAO
144	14-0220-8	a	5.5	w	y	n	3	NAO
144	14-0220-9	a	5.4	w	y	n	3	NAO
144	14-0220-10	a	5.7	w	y	n	3	NAO
144	14-0220-11	a	5.4	w	y	n	3	NAO
144	14-0220-12	a	5.8	w	y	n	3	NAO
144	14-0220-13	a	5.1	w	y	n	3	NAO
144	14-0220-14	a	5.2	w	y	n	3	NAO
144	14-0220-15	a	4.7	w	y	n	3	NAO
144	14-0220-16	a	5.1	w	y	n	3	NAO
144	14-0220-17	a	5.7	w	y	n	3	NAO
144	14-0220-18	d	5.1		y			
720	14-0124-1	a	6.4	c	y	n	3	NAO
720	14-0124-2	a	6.5	w	y	n	3	NAO
720	14-0124-3	a	6.6	w	y	n	3	NAO
720	14-0124-4	a	6.5	w	y	n	3	NAO
720	14-0124-5	a	6.8	w	y	n	3	NAO
720	14-0124-6	a	5.8	w	y	n	3	NAO
720	14-0124-7	a	6.5	w	y	n	3	NAO
720	14-0124-8	a	6.3	w	y	n	3	NAO
720	14-0124-9	a	6.0	w	y	n	3	NAO
720	14-0124-10	a	4.8	w	y	n	3	NAO
720	14-0124-11	a	6.2	w	y	n	3	NAO
720	14-0124-12	a	6.0	w	y	n	3	NAO
720	14-0124-13	a	5.9	w	y	n	3	NAO
720	14-0124-14	a	6.4	w	y	n	3	NAO
720	14-0128-1	a	6.2	w	y	n	3	NAO
720	14-0128-2	a	6.2	w	y	n	3	NAO
720	14-0128-3	a	5.6	w	y	n	3	dark purple spot between shoulders
720	14-0128-4	a	4.5	w	y	n	3	NAO
720	14-0128-5	a	5.8	w	y	n	3	NAO
720	14-0128-6	a	6.3	w	y	n	3	NAO

720	14-0128-7	a	5.8	w	y	n	3	NAO
720	14-0128-8	a	6.5	w	y	n	3	NAO
720	14-0128-9	a	5.9	w	y	n	3	NAO
720	14-0128-10	a	6.1	w	y	n	3	NAO
720	14-0128-11	a	5.7	w	y	n	3	NAO
720	14-0128-12	a	4.4	w	y	n	3	dark purple around snout and between shoulders
720	14-0128-13	a	5.7	w	y	n	3	NAO
720	14-0128-14	a	5.7	w	y	n	3	NAO
720	14-0128-15	a	5.5	w	y	n	3	NAO
720	14-0128-16	a	5.9	w	y	n	3	NAO
720	14-0128-17	a	6.1	w	y	n	3	NAO
720	14-0132-1	a	6.5	w	y	n	3	NAO
720	14-0132-2	a	6.4	w	y	n	3	NAO
720	14-0132-3	a	6.2	w	y	n	3	NAO
720	14-0132-4	a	6.4	w	y	n	3	NAO
720	14-0132-5	a	6.5	w	y	n	3	NAO
720	14-0132-6	a	6.6	w	y	n	3	NAO
720	14-0132-7	a	6.3	w	y	n	3	NAO
720	14-0132-8	a	6.4	w	y	n	3	NAO
720	14-0132-9	a	6.0	w	y	n	3	NAO
720	14-0132-10	a	5.9	w	y	n	3	NAO
720	14-0132-11	a	6.1	w	y	n	3	NAO
720	14-0132-12	a	5.4	w	y	n	3	NAO
720	14-0132-13	a	5.9	w	y	n	3	NAO
720	14-0132-14	a	6.0	w	y	n	3	NAO
720	14-0132-15	a	5.3	w	y	n	3	NAO
720	14-0138-1	a	7.3	w	y	n	3	NAO
720	14-0138-2	a	8.0	w	y	n	3	NAO
720	14-0138-3	a	7.9	w	y	n	3	NAO
720	14-0138-4	a	7.9	w	y	n	3	NAO
720	14-0138-5	a	7.8	w	y	n	3	NAO
720	14-0138-6	a	7.9	w	y	n	3	NAO
720	14-0138-7	a	7.5	w	y	n	3	NAO
720	14-0138-8	a	7.9	w	y	n	3	NAO
720	14-0138-9	a	7.6	w	y	n	3	NAO
720	14-0138-10	a	7.8	w	y	n	3	NAO
720	14-0138-11	a	7.8	w	y	n	3	NAO
720	14-0138-12	a	8.0	w	y	n	3	NAO
720	14-0138-13	a	7.2	w	y	n	3	NAO
720	14-0142-1	a	7.4	w	y	n	3	NAO
720	14-0142-2	a	6.6	w	y	n	3	NAO
720	14-0142-3	a	7.4	w	y	n	3	NAO
720	14-0142-4	a	7.2	w	y	n	3	NAO
720	14-0142-5	a	7.3	w	y	n	3	cut/bite mark on neck
720	14-0142-6	a	7.1	w	y	n	3	small round purple spot between shoulder blades
720	14-0142-7	a	7.2	w	y	n	3	NAO
720	14-0142-8	a	6.2	w	y	n	3	NAO
720	14-0142-9	a	5.9	w	y	n	3	NAO
720	14-0142-10	a	6.5	w	y	n	3	NAO
720	14-0142-11	a	5.9	w	y	n	3	NAO
720	14-0142-12	a	7.0	w	y	n	3	NAO
720	14-0142-13	a	6.4	w	y	n	3	purple spot on right ear and right eye socket
720	14-0142-14	a	6.3	w	y	n	3	NAO
720	14-0142-15	a	7.0	w	y	n	3	small round purple spot between shoulder blades
720	14-0142-16	a	6.2	w	y	n	3	NAO
720	14-0144-1	a	6.8	w	y	n	3	NAO
720	14-0144-2	a	6.8	w	y	n	3	NAO
720	14-0144-3	a	6.8	w	y	n	3	NAO
720	14-0144-4	a	7.1	w	y	n	3	NAO
720	14-0144-5	a	7.0	w	y	n	3	NAO
720	14-0144-6	a	6.4	w	y	n	3	NAO
720	14-0144-7	a	7.0	w	y	n	3	NAO
720	14-0144-8	a	6.2	w	y	n	3	NAO
720	14-0144-9	a	6.6	w	y	n	3	NAO

720	14-0144-10	a	7.0	w	y	n	3	NAO
720	14-0144-11	a	6.3	w	y	n	3	NAO
720	14-0144-12	a	6.5	w	y	n	3	NAO
720	14-0144-13	a	6.8	w	y	n	3	NAO
720	14-0144-14	a	6.7	w	y	n	3	NAO
720	14-0144-15	a	5.7	w	y	n	3	NAO
720	14-0144-16	a	6.9	w	y	n	3	NAO
720	14-0144-17	s	6.4					
720	14-0145-1	a	8.3	w	y	n	3	NAO
720	14-0145-2	a	7.3	w	y	n	3	NAO
720	14-0145-3	a	6.8	w	y	n	3	NAO
720	14-0145-4	a	9.1	w	y	n	3	NAO
720	14-0145-5	a	8.9	w	y	n	3	NAO
720	14-0145-6	a	8.0	w	y	n	3	NAO
720	14-0145-7	a	6.4	w	y	n	3	NAO
720	14-0145-8	a	8.0	w	y	n	3	NAO
720	14-0145-9	a	8.1	w	y	n	3	NAO
720	14-0145-10	a	8.1	w	y	n	3	NAO
720	14-0145-11	a	8.2	w	y	n	3	NAO
720	14-0145-12	a	8.3	w	y	n	3	NAO
720	14-0145-13	a	6.1	w	y	n	3	NAO
720	14-0146-1	a	5.5	w	y	n	3	bruising on head shoulders and back
720	14-0146-2	a	6.1	w	y	n	3	NAO
720	14-0146-3	a	6.6	w	y	n	3	NAO
720	14-0146-4	a	6.6	w	y	n	3	NAO
720	14-0146-5	a	5.8	w	y	n	3	NAO
720	14-0146-6	a	6.0	w	y	n	3	NAO
720	14-0146-7	a	6.0	w	y	n	3	NAO
720	14-0146-8	a	3.6	w	y	n	3	NAO
720	14-0146-9	a	6.6	w	y	n	3	NAO
720	14-0146-10	a	6.3	w	y	n	3	NAO
720	14-0146-11	a	6.3	w	y	n	3	NAO
720	14-0146-12	a	5.6	w	y	n	3	NAO
720	14-0146-13	a	6.6	w	y	n	3	NAO
720	14-0146-14	a	6.3	w	y	n	3	NAO
720	14-0146-15	a	6.3	w	y	n	3	NAO
720	14-0146-16	a	6.1	w	y	n	3	NAO
720	14-0146-17	a	6.1	w	y	n	3	NAO
720	14-0146-18	a	5.8	w	y	n	3	NAO
720	14-0147-1	a	7.0	w	y	n	3	NAO
720	14-0147-2	a	7.3	w	y	n	3	NAO
720	14-0147-3	a	6.5	w	y	n	3	NAO
720	14-0147-4	a	7.3	w	y	n	3	NAO
720	14-0147-5	a	7.4	w	y	n	3	NAO
720	14-0147-6	a	7.1	w	y	n	3	NAO
720	14-0147-7	a	6.0	w	y	n	3	abrasion on top of head
720	14-0147-8	a	7.2	w	y	n	3	NAO
720	14-0147-9	a	7.6	w	y	n	3	NAO
720	14-0147-10	a	7.2	w	y	n	3	NAO
720	14-0147-11	a	7.3	w	y	n	3	NAO
720	14-0147-12	a	7.0	w	y	n	3	NAO
720	14-0147-13	a	7.2	w	y	n	3	NAO
720	14-0147-14	a	6.8	w	y	n	3	NAO
720	14-0152-1	a	5.4	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-2	a	6.0	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-3	a	6.3	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-4	a	5.7	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-5	a	6.1	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-6	a	6.0	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-7	a	5.5	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-8	a	5.3	c	n	l	3	litter not cleaned up by dam, umbilical cord still attached
720	14-0152-9	s	6.2					litter not cleaned up by dam, umbilical cord still attached
720	14-0152-10	s	6.4					litter not cleaned up by dam, umbilical cord still attached
720	14-0152-11	s	5.8					litter not cleaned up by dam, umbilical cord still attached

720	14-0152-12	s	6.3					litter not cleaned up by dam, umbilical cord still attached
720	14-0152-13	s	5.8					litter not cleaned up by dam, umbilical cord still attached
720	14-0152-14	s	6.3					litter not cleaned up by dam, umbilical cord still attached
720	14-0153-1	a	5.7	w	y	n	3	NAO
720	14-0153-2	a	6.2	w	y	n	3	NAO
720	14-0153-3	a	5.4	w	y	n	3	NAO
720	14-0153-4	a	5.8	w	y	n	3	NAO
720	14-0153-5	a	6.0	w	y	n	3	NAO
720	14-0153-6	a	4.9	w	y	n	3	NAO
720	14-0153-7	a	4.9	w	y	n	3	NAO
720	14-0153-8	a	6.0	w	y	n	3	NAO
720	14-0153-9	a	5.5	w	y	n	3	NAO
720	14-0153-10	a	5.7	w	y	n	3	NAO
720	14-0153-11	a	5.4	w	y	n	3	purple spot covering nose and mouth
720	14-0153-12	a	5.5	w	y	n	3	NAO
720	14-0153-13	a	4.7	w	y	n	3	NAO
720	14-0153-14	a	5.7	w	y	n	3	NAO
720	14-0153-15	a	5.2	w	y	n	3	NAO
720	14-0158-1	a	6.1	w	y	n	3	NAO
720	14-0158-2	a	6.1	w	y	n	3	NAO
720	14-0158-3	a	5.9	w	y	n	3	NAO
720	14-0158-4	a	6.1	w	y	n	3	NAO
720	14-0158-5	a	5.8	w	y	n	3	NAO
720	14-0158-6	a	5.5	w	y	n	3	NAO
720	14-0158-7	a	5.2	w	y	n	3	NAO
720	14-0158-8	a	5.5	w	y	n	3	NAO
720	14-0158-9	a	5.3	w	y	n	3	NAO
720	14-0158-10	a	5.8	w	y	n	3	NAO
720	14-0158-11	a	5.3	w	y	n	3	NAO
720	14-0158-12	a	6.0	w	y	n	3	NAO
720	14-0158-13	a	5.7	w	y	n	3	hematoma right side of jaw
720	14-0158-14	a	5.8	w	y	n	3	NAO
720	14-0158-15	a	5.3	w	y	n	3	NAO
720	14-0160-1	a	7.0	w	y	n	3	NAO
720	14-0160-2	a	7.7	w	y	n	3	NAO
720	14-0160-3	a	7.3	w	y	n	3	NAO
720	14-0160-4	a	7.5	w	y	n	3	NAO
720	14-0160-5	a	7.6	w	y	n	3	NAO
720	14-0160-6	a	6.9	w	y	n	3	NAO
720	14-0160-7	a	7.1	w	y	n	3	NAO
720	14-0160-8	a	6.7	w	y	n	3	NAO
720	14-0160-9	a	6.4	w	y	n	3	NAO
720	14-0160-10	a	7.1	w	y	n	3	purple spot between shoulder blades and left side of nose
720	14-0160-11	a	6.4	w	y	n	3	NAO
720	14-0160-12	a	6.6	w	y	n	3	NAO
720	14-0160-13	a	6.6	w	y	n	3	NAO
720	14-0160-14	a	6.6	w	y	n	3	NAO
720	14-0165-1	a	5.5	w	y	n	3	umbilical cord still attached
720	14-0165-2	a	5.6	w	y	n	3	NAO
720	14-0165-3	a	5.1	w	y	n	3	NAO
720	14-0165-4	a	5.3	w	y	n	3	NAO
720	14-0165-5	a	4.9	w	y	n	3	NAO
720	14-0165-6	a	5.1	w	y	n	3	NAO
720	14-0165-7	a	5.7	w	y	n	3	NAO
720	14-0165-8	a	5.2	w	y	n	3	NAO
720	14-0165-9	a	5.0	w	y	n	3	NAO
720	14-0165-10	a	5.3	w	y	n	3	NAO
720	14-0165-11	a	5.3	w	y	n	3	NAO
720	14-0165-12	a	5.0	w	y	n	3	NAO
720	14-0165-13	a	5.1	w	y	n	3	NAO
720	14-0165-14	a	5.2	w	y	n	3	NAO
720	14-0165-15	a	4.6	w	y	n	3	NAO
720	14-0165-16	s	5.0					
720	14-0169-1	a	6.3	w	y	n	3	NAO

720	14-0169-2	a	6.3	w	y	n	3	NAO
720	14-0169-3	a	6.6	w	y	n	3	NAO
720	14-0169-4	a	6.3	w	y	n	3	NAO
720	14-0169-5	a	6.3	w	y	n	3	NAO
720	14-0169-6	a	6.7	w	y	n	3	NAO
720	14-0169-7	a	6.4	w	y	n	3	NAO
720	14-0169-8	a	7.1	w	y	n	3	NAO
720	14-0169-9	a	6.4	w	y	n	3	NAO
720	14-0169-10	a	5.6	w	y	n	3	NAO
720	14-0169-11	a	6.6	w	y	n	3	NAO
720	14-0169-12	a	6.0	w	y	n	3	NAO
720	14-0169-13	a	6.1	w	y	n	3	NAO
720	14-0169-14	a	5.7	w	y	n	3	NAO
720	14-0170-1	a	6.3	w	y	n	3	NAO
720	14-0170-2	a	7.5	w	y	n	3	NAO
720	14-0170-3	a	6.4	w	y	n	3	NAO
720	14-0170-4	a	6.8	w	y	n	3	NAO
720	14-0170-5	a	6.6	w	y	n	3	NAO
720	14-0170-6	a	7.0	w	y	n	3	NAO
720	14-0170-7	a	6.8	w	y	n	3	NAO
720	14-0170-8	a	5.1	w	y	n	3	NAO
720	14-0170-9	a	6.0	w	y	n	3	abrasion on back
720	14-0170-10	a	6.5	w	y	n	3	NAO
720	14-0170-11	a	6.1	w	y	n	3	NAO
720	14-0170-12	a	6.2	w	y	n	3	abrasion on head
720	14-0170-13	a	6.8	w	y	n	3	NAO
720	14-0170-14	a	6.3	w	y	n	3	NAO
720	14-0170-15	a	6.7	w	y	n	3	NAO
720	14-0170-16	a	6.1	w	y	n	3	abrasion on head
720	14-0170-17	a	6.1	w	y	n	3	abrasion on forehead
720	14-0171-1	a	6.2	w	y	n	3	small round purple spot between shoulder blades
720	14-0171-2	a	6.1	w	y	n	3	NAO
720	14-0171-3	a	6.1	w	y	n	3	NAO
720	14-0171-4	a	6.2	w	y	n	3	NAO
720	14-0171-5	a	6.2	w	y	n	3	NAO
720	14-0171-6	a	6.4	w	y	n	3	NAO
720	14-0171-7	a	6.0	w	y	n	3	NAO
720	14-0171-8	a	6.0	w	y	n	3	NAO
720	14-0171-9	a	5.7	w	y	n	3	NAO
720	14-0171-10	a	5.9	w	y	n	3	NAO
720	14-0171-11	a	6.3	w	y	n	3	NAO
720	14-0171-12	a	5.3	w	y	n	3	NAO
720	14-0171-13	a	6.0	w	y	n	3	NAO
720	14-0171-14	a	5.7	w	y	n	3	NAO
720	14-0171-15	a	5.7	w	y	n	3	NAO
720	14-0171-16	a	5.8	w	y	n	3	NAO
720	14-0171-17	a	5.9	w	y	n	3	NAO
720	14-0188-1	a	6.5	w	y	n	3	NAO
720	14-0188-2	a	5.5	w	y	n	3	NAO
720	14-0188-3	a	6.9	w	y	n	3	NAO
720	14-0188-4	a	6.8	w	y	n	3	NAO
720	14-0188-5	a	6.8	w	y	n	3	NAO
720	14-0188-6	a	6.1	w	y	n	3	NAO
720	14-0188-7	a	6.1	w	y	n	3	NAO
720	14-0188-8	a	6.3	w	y	n	3	NAO
720	14-0188-9	a	6.4	w	y	n	3	NAO
720	14-0188-10	a	6.3	w	y	n	3	NAO
720	14-0188-11	a	6.0	w	y	n	3	NAO
720	14-0188-12	a	5.0	w	y	n	3	NAO
720	14-0188-13	a	5.9	w	y	n	3	NAO
720	14-0190-1	a	6.8	w	y	n	3	NAO
720	14-0190-2	a	7.1	w	y	n	3	NAO
720	14-0190-3	a	6.9	w	y	n	3	purple spot between shoulderblades
720	14-0190-4	a	8.0	w	y	n	3	NAO

720	14-0190-5	a	7.3	w	y	n	3	NAO
720	14-0190-6	a	7.1	w	y	n	3	NAO
720	14-0190-7	a	7.3	w	y	n	3	NAO
720	14-0190-8	a	6.7	w	y	n	3	NAO
720	14-0190-9	a	7.1	w	y	n	3	NAO
720	14-0190-10	a	6.4	w	y	n	3	NAO
720	14-0190-11	a	6.6	w	y	n	3	NAO
720	14-0190-12	a	6.8	w	y	n	3	NAO
720	14-0190-13	a	5.3	w	y	n	3	NAO
720	14-0190-14	a	7.1	w	y	n	3	NAO
720	14-0190-15	a	7.4	w	y	n	3	NAO
720	14-0192-1	a	6.9	w	y	n	3	NAO
720	14-0192-2	a	6.8	w	y	n	3	NAO
720	14-0192-3	a	6.8	w	y	n	3	NAO
720	14-0192-4	a	7.1	w	y	n	3	NAO
720	14-0192-5	a	7.5	w	y	n	3	NAO
720	14-0192-6	a	7.5	w	y	n	3	NAO
720	14-0192-7	a	7.4	w	y	n	3	NAO
720	14-0192-8	a	6.5	w	y	n	3	purple spot over right eye
720	14-0192-9	a	7.8	w	y	n	3	NAO
720	14-0192-10	a	7.3	w	y	n	3	NAO
720	14-0192-11	a	6.6	w	y	n	3	purple spot on forehead
720	14-0192-12	a	7.3	w	y	n	3	NAO
720	14-0192-13	a	6.9	w	y	n	3	NAO
720	14-0193-1	a	8.0	w	y	n	3	NAO
720	14-0193-2	a	7.4	w	y	n	3	NAO
720	14-0193-3	a	8.5	w	y	n	3	NAO
720	14-0193-4	a	7.0	w	y	n	3	NAO
720	14-0193-5	a	8.0	w	y	n	3	NAO
720	14-0193-6	a	7.8	w	y	n	3	NAO
720	14-0193-7	a	8.0	w	y	n	3	NAO
720	14-0193-8	a	7.5	w	y	n	3	NAO
720	14-0193-9	a	6.7	w	y	n	3	NAO
720	14-0193-10	a	6.1	w	y	n	3	NAO
720	14-0193-11	a	8.1	w	y	n	3	NAO
720	14-0193-12	a	7.9	w	y	n	3	NAO
720	14-0193-13	a	7.4	w	y	n	3	NAO
720	14-0201-1	a	6.5	w	y	n	3	NAO
720	14-0201-2	a	6.1	w	y	n	3	NAO
720	14-0201-3	a	5.3	w	y	n	3	NAO
720	14-0201-4	a	6.8	w	y	n	3	NAO
720	14-0201-5	a	6.8	w	y	n	3	NAO
720	14-0201-6	a	6.2	w	y	n	3	NAO
720	14-0201-7	a	6.1	w	y	n	3	NAO
720	14-0201-8	a	6.5	w	y	n	3	NAO
720	14-0201-9	a	7.0	w	y	n	3	NAO
720	14-0201-10	a	5.9	w	y	n	3	NAO
720	14-0201-11	a	6.2	w	y	n	3	NAO
720	14-0201-12	a	5.4	w	y	n	3	NAO
720	14-0201-13	a	6.0	w	y	n	3	NAO
720	14-0201-14	a	6.9	w	y	n	3	NAO
720	14-0201-15	a	6.9	w	y	n	3	NAO
720	14-0201-16	a	6.4	w	y	n	3	NAO
720	14-0201-17	a	6.4	w	y	n	3	NAO
720	14-0201-18	a	6.3	w	y	n	3	NAO
720	14-0202-1	a	6.2	w	y	n	3	NAO
720	14-0202-2	a	5.3	w	y	n	3	NAO
720	14-0202-3	a	6.6	w	y	n	3	NAO
720	14-0202-4	a	6.9	w	y	n	3	NAO
720	14-0202-5	a	6.7	w	y	n	3	NAO
720	14-0202-6	a	6.5	w	y	n	3	NAO
720	14-0202-7	a	6.4	w	y	n	3	NAO
720	14-0202-8	a	6.4	w	y	n	3	NAO
720	14-0202-9	a	6.1	w	y	n	3	NAO

720	14-0202-10	a	6.5	w	y	n	3	NAO
720	14-0202-11	a	4.2	w	y	n	3	NAO
720	14-0202-12	a	6.0	w	y	n	3	NAO
720	14-0202-13	a	6.4	w	y	n	3	NAO
720	14-0203-1	a	6.2	w	y	n	3	NAO
720	14-0203-2	a	6.2	w	y	n	3	NAO
720	14-0203-3	a	7.0	w	y	n	3	NAO
720	14-0203-4	a	5.9	w	y	n	3	NAO
720	14-0203-5	a	6.9	w	y	n	3	NAO
720	14-0203-6	a	5.7	w	y	n	3	NAO
720	14-0203-7	a	6.1	w	y	n	3	NAO
720	14-0203-8	a	6.1	w	y	n	3	umbilical cord still attached
720	14-0203-9	a	5.5	w	y	n	3	NAO
720	14-0203-10	a	6.2	w	y	n	3	NAO
720	14-0203-11	a	5.6	w	y	n	3	NAO
720	14-0204-1	a	6.7	w	y	n	3	NAO
720	14-0204-2	a	6.3	w	y	n	3	NAO
720	14-0204-3	a	7.0	w	y	n	3	NAO
720	14-0204-4	a	6.6	w	y	n	3	NAO
720	14-0204-5	a	7.4	w	y	n	3	NAO
720	14-0204-6	a	6.0	w	y	n	3	NAO
720	14-0204-7	a	6.7	w	y	n	3	NAO
720	14-0204-8	a	6.4	w	y	n	3	NAO
720	14-0204-9	a	5.6	w	y	n	3	NAO
720	14-0204-10	a	6.5	w	y	n	3	NAO
720	14-0204-11	a	5.7	w	y	n	3	NAO
720	14-0204-12	a	5.6	w	y	n	3	NAO
720	14-0204-13	a	5.9	w	y	n	3	NAO
720	14-0204-14	a	6.3	w	y	n	3	NAO
3600	14-0126-1	a	6.5	w	y	n	3	NAO
3600	14-0126-2	a	5.8	w	y	n	3	NAO
3600	14-0126-3	a	6.6	c	n	l	3	NAO
3600	14-0126-4	a	6.1	c	y	l	3	NAO
3600	14-0126-5	a	6.8	w	y	n	3	NAO
3600	14-0126-6	a	5.8	c	n	l	3	small part of umbilical cord still attached
3600	14-0126-7	a	6.3	w	y	n	3	NAO
3600	14-0126-8	a	5.3	c	n	l	3	umbilical cord still attached
3600	14-0126-9	a	5.7	w	y	n	3	NAO
3600	14-0126-10	a	5.9	c	n	l	3	umbilical cord still attached
3600	14-0126-11	a	5.9	c	n	l	3	umbilical cord still attached
3600	14-0126-12	a	5.8	c	n	l	3	purple spot on top of head
3600	14-0126-13	a	5.4	c	n	l	3	NAO
3600	14-0126-14	a	5.5	c	n	l	3	umbilical cord still attached
3600	14-0126-15	a	5.5	c	n	l	3	umbilical cord still attached
3600	14-0126-16	a	5.4	c	n	l	3	umbilical cord still attached
3600	14-0127-1	a	5.0	w	y	n	3	NAO
3600	14-0127-2	a	7.8	w	y	n	3	NAO
3600	14-0127-3	a	8.4	w	y	n	3	NAO
3600	14-0127-4	a	7.8	w	y	n	3	NAO
3600	14-0127-5	a	7.3	w	y	n	3	NAO
3600	14-0127-6	a	8.1	w	y	n	3	NAO
3600	14-0127-7	a	7.6	w	y	n	3	NAO
3600	14-0127-8	a	6.8	w	y	n	3	NAO
3600	14-0127-9	a	7.2	w	y	n	3	NAO
3600	14-0127-10	a	7.7	w	y	n	3	NAO
3600	14-0127-11	a	7.1	w	y	n	3	NAO
3600	14-0127-12	a	7.6	w	y	n	3	NAO
3600	14-0131-1	a	6.4	w	y	n	3	NAO
3600	14-0131-2	a	6.6	w	y	n	3	NAO
3600	14-0131-3	a	6.9	w	y	n	3	purple spot on forehead
3600	14-0131-4	a	6.5	w	y	n	3	NAO
3600	14-0131-5	a	6.0	w	y	n	3	NAO
3600	14-0131-6	a	6.4	w	y	n	3	NAO
3600	14-0131-7	a	6.2	w	y	n	3	purple spot on nose

3600	14-0131-8	a	6.3	w	y	n	3	NAO
3600	14-0131-9	a	6.0	w	y	n	3	NAO
3600	14-0131-10	a	6.1	w	y	n	3	purple spot on top of head
3600	14-0131-11	a	5.4	w	y	n	3	NAO
3600	14-0131-12	a	6.2	w	y	n	3	NAO
3600	14-0131-13	a	5.7	w	y	n	3	NAO
3600	14-0131-14	a	6.0	w	y	n	3	NAO
3600	14-0131-15	a	6.0	w	y	n	3	NAO
3600	14-0135-1	a	7.4	w	y	n	3	NAO
3600	14-0135-2	a	6.9	w	y	n	3	NAO
3600	14-0135-3	a	6.1	w	y	n	3	NAO
3600	14-0135-4	a	7.8	w	y	n	3	NAO
3600	14-0135-5	a	6.1	w	y	n	3	NAO
3600	14-0135-6	a	7.0	w	y	n	3	NAO
3600	14-0135-7	a	7.3	w	y	n	3	purple spot on nose and right side of face
3600	14-0135-8	a	6.2	w	y	n	3	NAO
3600	14-0135-9	a	6.7	w	y	n	3	NAO
3600	14-0135-10	a	7.2	w	y	n	3	NAO
3600	14-0135-11	a	6.2	w	y	n	3	NAO
3600	14-0135-12	a	6.6	w	y	n	3	NAO
3600	14-0135-13	a	6.8	w	y	n	3	NAO
3600	14-0139-1	a	7.4	w	y	n	3	NAO
3600	14-0139-2	a	7.2	w	y	n	3	NAO
3600	14-0139-3	a	7.8	w	y	n	3	NAO
3600	14-0139-4	a	7.8	w	y	n	3	NAO
3600	14-0139-5	a	7.6	w	y	n	3	NAO
3600	14-0139-6	a	6.6	w	y	n	3	NAO
3600	14-0139-7	a	7.3	w	y	n	3	NAO
3600	14-0139-8	a	7.0	w	y	n	3	NAO
3600	14-0139-9	a	7.8	w	y	n	3	NAO
3600	14-0139-10	a	6.5	w	y	n	3	NAO
3600	14-0139-11	a	7.1	w	y	n	3	NAO
3600	14-0139-12	a	7.3	w	y	n	3	NAO
3600	14-0139-13	a	6.5	w	y	n	3	NAO
3600	14-0140-1	a	5.3	w	y	n	3	NAO
3600	14-0140-2	a	6.4	w	y	n	3	NAO
3600	14-0140-3	a	6.3	w	y	n	3	NAO
3600	14-0140-4	a	6.5	w	y	n	3	NAO
3600	14-0140-5	a	5.9	w	y	n	3	NAO
3600	14-0140-6	a	5.7	w	y	n	3	NAO
3600	14-0140-7	a	5.6	w	y	n	3	NAO
3600	14-0140-8	a	6.1	w	y	n	3	NAO
3600	14-0140-9	a	6.1	w	y	n	3	NAO
3600	14-0140-10	a	5.6	w	y	n	3	NAO
3600	14-0140-11	a	5.2	w	y	n	3	NAO
3600	14-0140-12	a	5.6	w	y	n	3	NAO
3600	14-0140-13	a	5.7	w	y	n	3	NAO
3600	14-0140-14	a	6.0	w	y	n	3	NAO
3600	14-0140-15	a	5.7	w	y	n	3	NAO
3600	14-0140-16	a	5.5	w	y	n	3	NAO
3600	14-0140-17	a	4.2	w	y	n	3	NAO
3600	14-0141-1	a	6.2	w	y	n	3	NAO
3600	14-0141-2	a	6.6	w	y	n	3	NAO
3600	14-0141-3	a	6.5	w	y	n	3	NAO
3600	14-0141-4	a	6.5	w	y	n	3	NAO
3600	14-0141-5	a	6.2	w	y	n	3	NAO
3600	14-0141-6	a	7.0	w	y	n	3	NAO
3600	14-0141-7	a	6.8	w	y	n	3	hematoma right side of face
3600	14-0141-8	a	6.0	w	y	n	3	NAO
3600	14-0141-9	a	6.5	w	y	n	3	NAO
3600	14-0141-10	a	6.4	w	y	n	3	NAO
3600	14-0141-11	a	5.7	w	y	n	3	NAO
3600	14-0141-12	a	5.9	w	y	n	3	NAO
3600	14-0141-13	a	5.7	w	y	n	3	NAO

3600	14-0151-1	a	6.8	w	y	n	3	NAO
3600	14-0151-2	a	6.5	w	y	n	3	NAO
3600	14-0151-3	a	6.0	w	y	n	3	NAO
3600	14-0151-4	a	6.6	w	y	n	3	NAO
3600	14-0151-5	a	6.4	w	y	n	3	NAO
3600	14-0151-6	a	5.5	c	y	n	3	umbilical cord still attached
3600	14-0151-7	a	7.1	w	y	n	3	NAO
3600	14-0151-8	a	5.6	w	y	n	3	umbilical cord still attached, not cleaned
3600	14-0151-9	a	6.6	w	y	n	3	NAO
3600	14-0151-10	a	5.1	w	y	n	3	NAO
3600	14-0151-11	a	5.4	w	y	n	3	NAO
3600	14-0151-12	a	6.3	w	y	n	3	NAO
3600	14-0151-13	s	6.1					
3600	14-0151-14	s	6.2					
3600	14-0155-1	a	6.9	w	y	n	3	small part of umbilical cord still attached
3600	14-0155-2	a	7.6	w	y	n	3	NAO
3600	14-0155-3	a	7.3	w	y	n	3	NAO
3600	14-0155-4	a	7.5	w	y	n	3	NAO
3600	14-0155-5	a	6.8	w	y	n	3	NAO
3600	14-0155-6	a	6.3	w	y	n	3	NAO
3600	14-0155-7	a	7.6	w	y	n	3	NAO
3600	14-0155-8	a	7.0	w	y	n	3	abrasion under left eye
3600	14-0155-9	a	7.2	w	y	n	3	purple spot around nose
3600	14-0155-10	a	6.9	w	y	n	3	NAO
3600	14-0155-11	a	6.9	w	y	n	3	NAO
3600	14-0155-12	a	6.8	w	y	n	3	NAO
3600	14-0159-1	a	6.5	w	y	n	3	NAO
3600	14-0159-2	a	7.1	w	y	n	3	NAO
3600	14-0159-3	a	6.7	w	y	n	3	NAO
3600	14-0159-4	a	6.7	w	y	n	3	NAO
3600	14-0159-5	a	6.5	w	y	n	3	NAO
3600	14-0159-6	a	6.5	w	y	n	3	NAO
3600	14-0159-7	a	6.4	w	y	n	3	NAO
3600	14-0159-8	a	6.3	w	y	n	3	NAO
3600	14-0159-9	a	6.2	w	y	n	3	NAO
3600	14-0159-10	a	6.4	w	y	n	3	NAO
3600	14-0159-11	a	5.8	w	y	n	3	NAO
3600	14-0159-12	a	6.9	w	y	n	3	NAO
3600	14-0159-13	a	6.5	w	y	n	3	NAO
3600	14-0159-14	a	6.5	w	y	n	3	NAO
3600	14-0159-15	a	6.4	w	y	n	3	NAO
3600	14-0167-1	a	7.9	w	y	n	3	NAO
3600	14-0167-2	a	8.2	w	y	n	3	NAO
3600	14-0167-3	a	7.9	w	y	n	3	NAO
3600	14-0167-4	a	7.5	w	y	n	3	NAO
3600	14-0167-5	a	7.6	w	y	n	3	NAO
3600	14-0167-6	a	7.6	w	y	n	3	NAO
3600	14-0167-7	a	6.2	w	y	n	3	NAO
3600	14-0167-8	a	7.2	w	y	n	3	NAO
3600	14-0167-9	a	7.3	w	y	n	3	NAO
3600	14-0167-10	a	6.7	w	y	n	3	NAO
3600	14-0167-11	a	6.7	w	y	n	3	abrasion on top of head
3600	14-0167-12	a	6.6	w	y	n	3	purple spot between shoulderblades
3600	14-0167-13	s	5.9					
3600								
3600	14-0172-1	a	7.0	w	y	n	3	NAO
3600	14-0172-2	a	7.1	w	y	n	3	NAO
3600	14-0172-3	a	6.6	w	y	n	3	NAO
3600	14-0172-4	a	7.0	w	y	n	3	NAO
3600	14-0172-5	a	6.9	w	y	n	3	NAO
3600	14-0172-6	a	6.4	w	y	n	3	NAO
3600	14-0172-7	a	6.7	w	y	n	3	NAO
3600	14-0172-8	a	7.0	w	y	n	3	NAO
3600	14-0172-9	a	6.7	w	y	n	3	NAO

3600	14-0172-10	a	6.2	w	y	n	3	NAO
3600	14-0172-11	a	7.1	w	y	n	3	NAO
3600	14-0172-12	a	6.4	w	y	n	3	NAO
3600	14-0172-13	a	6.4	w	y	n	3	NAO
3600	14-0172-14	a	6.7	w	y	n	3	NAO
3600	14-0172-15	a	6.0	w	y	n	3	NAO
3600	14-0181-1	a	6.0	w	y	n	3	NAO
3600	14-0181-2	a	5.8	w	y	n	3	NAO
3600	14-0181-3	a	6.1	w	y	n	3	NAO
3600	14-0181-4	a	6.1	w	y	n	3	NAO
3600	14-0181-5	a	5.7	w	y	n	3	NAO
3600	14-0181-6	a	5.9	w	y	n	3	NAO
3600	14-0181-7	a	5.9	w	y	n	3	NAO
3600	14-0181-8	a	5.8	w	y	n	3	NAO
3600	14-0181-9	a	5.6	w	y	n	3	NAO
3600	14-0181-10	a	4.9	w	y	n	3	NAO
3600	14-0181-11	a	5.6	w	y	n	3	NAO
3600	14-0181-12	a	6.2	w	y	n	3	NAO
3600	14-0181-13	a	5.9	w	y	n	3	NAO
3600	14-0181-14	a	5.7	w	y	n	3	NAO
3600	14-0181-15	a	6.1	w	y	n	3	NAO
3600	14-0182-1	a	6.7	w	y	n	3	NAO
3600	14-0182-2	a	5.1	w	y	n	3	NAO
3600	14-0182-3	a	6.4	w	y	n	3	NAO
3600	14-0182-4	a	4.8	w	y	n	3	NAO
3600	14-0182-5	a	6.2	w	y	n	3	NAO
3600	14-0182-6	a	6.2	w	y	n	3	NAO
3600	14-0182-7	a	6.0	w	y	n	3	NAO
3600	14-0182-8	a	6.8	w	y	n	3	NAO
3600	14-0182-9	a	6.2	w	y	n	3	NAO
3600	14-0182-10	a	5.7	w	y	n	3	NAO
3600	14-0182-11	a	6.3	w	y	n	3	NAO
3600	14-0182-12	a	6.5	w	y	n	3	NAO
3600	14-0182-13	a	5.0	w	y	n	3	NAO
3600	14-0182-14	a	6.4	w	y	n	3	NAO
3600	14-0182-15	s	4.3					
3600								
3600								
3600	14-0189-1	a	5.2	c	n	l	3	umbilical cord still attached
3600	14-0189-2	a	6.2	c	n	l	3	NAO
3600	14-0189-3	a	6.1	c	n	l	3	NAO
3600	14-0189-4	a	5.7	c	n	l	3	NAO
3600	14-0189-5	a	5.5	c	n	l	3	NAO
3600	14-0189-6	a	5.3	c	n	l	3	umbilical cord still attached
3600	14-0189-7	a	5.8	c	n	l	3	NAO
3600	14-0189-8	a	5.4	c	n	l	3	umbilical cord still attached
3600	14-0189-9	a	5.2	c	n	l	3	NAO
3600	14-0189-10	a	5.8	c	n	l	3	NAO
3600	14-0189-11	a	5.2	c	n	l	3	NAO
3600	14-0189-12	s	5.0					front of face cannibalized
3600	14-0189-13	s	5.5					right side of face cannibalized
3600	14-0189-14	s	5.7					NAO
3600	14-0189-15	s	5.6					micrognathia, snout and side of face skin removed
3600	14-0189-16	s/z						just head remains
3600	14-0194-1	a	6.9	w	y	n	3	NAO
3600	14-0194-2	a	5.8	w	y	n	3	NAO
3600	14-0194-3	a	5.9	w	y	n	3	NAO
3600	14-0194-4	a	5.7	w	y	n	3	NAO
3600	14-0194-5	a	6.9	w	y	n	3	NAO
3600	14-0194-6	a	6.2	w	y	n	3	NAO
3600	14-0194-7	a	7.0	w	y	n	3	NAO
3600	14-0194-8	a	6.4	w	y	n	3	NAO
3600	14-0194-9	a	6.9	w	y	n	3	NAO
3600	14-0194-10	a	6.0	w	y	n	3	NAO

3600	14-0194-11	a	4.4	w	y	n	3	NAO
3600	14-0194-12	a	5.0	w	y	n	3	NAO
3600	14-0194-13	a	6.1	w	y	n	3	NAO
3600	14-0194-14	a	6.1	w	y	n	3	NAO
3600	14-0194-15	s	5.7					liquified internally
3600	14-0208-1	a	5.8	c	y	n	3	NAO
3600	14-0208-2	a	6.0	w	y	n	3	NAO
3600	14-0208-3	a	4.7	c	y	n	3	pale skin coloration
3600	14-0208-4	a	5.5	w	y	n	3	NAO
3600	14-0208-5	a	5.6	w	y	n	3	NAO
3600	14-0208-6	a	5.9	c	y	n	3	NAO
3600	14-0208-7	a	5.3	w	y	n	3	NAO
3600	14-0208-8	a	5.7	c	y	n	3	NAO
3600	14-0208-9	a	5.7	c	y	n	3	NAO
3600	14-0208-10	a	5.5	c	y	n	3	NAO
3600	14-0208-11	a	5.3	c	y	n	3	NAO
3600	14-0208-12	a	5.8	w	y	n	3	NAO
3600	14-0208-13	a	5.4	c	y	n	3	NAO
3600	14-0208-14	a	5.5	c	y	n	3	NAO
3600	14-0208-15	a	4.9	w	y	n	3	NAO
3600	14-0208-16	a	5.1	c	y	n	3	NAO
3600	14-0208-17	a	6.2	w	y	n	3	NAO
3600	14-0209-1	a	6.7	w	y	n	3	NAO
3600	14-0209-2	a	6.8	w	y	n	3	small part of umbilical cord still attached
3600	14-0209-3	a	6.1	w	y	n	3	NAO
3600	14-0209-4	a	6.6	w	y	n	3	NAO
3600	14-0209-5	a	6.4	w	y	n	3	NAO
3600	14-0209-6	a	6.2	w	y	n	3	NAO
3600	14-0209-7	a	5.8	w	y	n	3	NAO
3600	14-0209-8	a	6.0	w	y	n	3	NAO
3600	14-0209-9	a	5.6	w	y	n	3	NAO
3600	14-0209-10	a	5.1	w	y	n	3	NAO
3600	14-0209-11	a	6.8	w	y	n	3	NAO
3600	14-0209-12	a	5.6	w	y	n	3	NAO
3600	14-0209-13	a	6.8	w	y	n	3	NAO
3600	14-0209-14	a	5.7	w	y	n	3	NAO
3600	14-0210-1	a	7.5	w	y	n	3	umbilical cord still attached
3600	14-0210-2	a	7.6	w	y	n	3	NAO
3600	14-0210-3	a	8.6	w	y	n	3	NAO
3600	14-0210-4	a	7.0	w	y	n	3	NAO
3600	14-0210-5	a	7.1	w	y	n	3	NAO
3600	14-0210-6	a	7.1	w	y	n	3	NAO
3600	14-0210-7	a	6.4	w	y	n	3	NAO
3600	14-0210-8	a	7.4	w	y	n	3	NAO
3600	14-0210-9	a	7.7	w	y	n	3	NAO
3600	14-0210-10	a	6.7	w	y	n	3	NAO
3600	14-0210-11	a	6.9	w	y	n	3	umbilical cord still attached
3600	14-0210-12	a	8.0	w	y	n	3	NAO
3600	14-0210-13	s	6.8					
3600	14-0210-14	s	2.7					runt
3600	14-0210-15	s	7.0					
3600	14-0210-16	s	7.2					
3600	14-0210-17	s	6.9					
3600	14-0213-1	a	7.9	w	y	n	3	NAO
3600	14-0213-2	a	7.6	w	y	n	3	NAO
3600	14-0213-3	a	7.5	w	y	n	3	NAO
3600	14-0213-4	a	8.3	w	y	n	3	NAO
3600	14-0213-5	a	7.5	w	y	n	3	NAO
3600	14-0213-6	a	7.3	w	y	n	3	NAO
3600	14-0213-7	a	6.9	w	y	n	3	NAO
3600	14-0213-8	a	6.8	w	y	n	3	NAO
3600	14-0213-9	a	7.4	w	y	n	3	NAO
3600	14-0213-10	a	7.4	w	y	n	3	NAO
3600	14-0213-11	a	7.7	w	y	n	3	NAO

3600	14-0213-12	a	7.1	w	y	n	3		NAO
3600	14-0213-13	a	7.1	w	y	n	3		NAO
3600	14-0216-1	a	6.1	w	y	n	3		NAO
3600	14-0216-2	a	6.5	w	y	n	3		NAO
3600	14-0216-3	a	5.7	w	y	n	3		NAO
3600	14-0216-4	a	7.2	w	y	n	3		NAO
3600	14-0216-5	a	6.1	w	y	n	3		NAO
3600	14-0216-6	a	7.1	w	y	n	3		NAO
3600	14-0216-7	a	7.4	w	y	n	3		NAO
3600	14-0216-8	a	5.9	w	y	n	3		NAO
3600	14-0216-9	a	6.0	w	y	n	3		NAO
3600	14-0216-10	a	5.9	c	n	l	1		NAO
3600	14-0216-11	a	6.2	w	y	n	3		NAO
3600	14-0216-12	a	7.2	w	y	n	3		NAO
3600	14-0219-1	a	6.2	w	y	n	3		NAO
3600	14-0219-2	a	5.2	w	y	n	3		NAO
3600	14-0219-3	a	5.1	w	y	n	3		NAO
3600	14-0219-4	a	5.3	w	y	n	3		NAO
3600	14-0219-5	a	6.1	w	y	n	3		NAO
3600	14-0219-6	a	5.3	w	y	n	3		NAO
3600	14-0219-7	a	5.5	w	y	n	3		NAO
3600	14-0219-8	a	6.0	w	y	n	3		NAO
3600	14-0219-9	a	5.5	w	y	n	3		NAO
3600	14-0219-10	a	5.2	w	y	n	3		NAO
3600	14-0219-11	a	5.4	w	y	n	3		NAO
3600	14-0219-12	a	5.7	w	y	n	3		NAO
3600	14-0219-13	a	5.6	w	y	n	3		NAO
3600	14-0219-14	a	5.4	w	y	n	3		NAO
3600	14-0219-15	a	5.0	w	y	n	3		NAO

Table G-4 cont.
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Observations

TX	Unique Pup#	PND4 STATUS	PND4 BW	PND4 BT	MILK	PND4 ACT	PND4 REACT	AGD	PND4 OBS
0	14-0121-1	a	10.1	W	Y	N	3	3.08	NAO
0	14-0121-2	a	10.1	W	Y	N	3	3.76	NAO
0	14-0121-3	a	9.9	W	Y	N	3	2.95	NAO
0	14-0121-4	a	9.6	W	Y	N	3	4.16	NAO
0	14-0121-5	a	10.0	W	Y	N	3	2.93	NAO
0	14-0121-6	a	8.7	W	Y	N	3	1.67	pale hematoma on back of head
0	14-0121-7	a	9.9	W	Y	N	3	1.64	NAO
0	14-0121-8	a	9.7	W	Y	N	3	1.86	NAO
0	14-0121-9	a	10.2	W	Y	N	3	1.69	NAO
0	14-0121-10	a	9.7	W	Y	N	3	1.22	NAO
0	14-0121-11	c	9.2	W	Y	N	3	1.32	NAO
0	14-0121-12	c	9.8	W	Y	N	3	2.20	NAO
0	14-0122-1	a	9.2	W	Y	N	3	3.47	NAO
0	14-0122-2	a	10.4	W	Y	N	3	3.70	NAO
0	14-0122-3	a	9.8	W	Y	N	3	3.51	NAO
0	14-0122-4	a	9.4	W	Y	N	3	4.29	NAO
0	14-0122-5	a	10.2	W	Y	N	3	4.46	NAO
0	14-0122-6	c	9.7	W	Y	N	3	4.00	NAO
0	14-0122-7	c	9.6	W	Y	N	3	4.39	NAO
0	14-0122-8	a	9.2	C	Y	N	3	2.04	NAO
0	14-0122-9	a	9.3	W	Y	N	3	1.70	NAO
0	14-0122-10	a	8.2	W	Y	N	3	1.99	NAO
0	14-0122-11	a	9.6	W	Y	N	3	2.81	NAO
0	14-0122-12	a	10.0	W	Y	N	3	2.08	NAO
0	14-0122-13	c	9.5	C	Y	N	3	1.39	NAO
0	14-0130-1	a	11.2	W	Y	N	3	3.47	NAO

0	14-0130-2	a	11.4	W	Y	N	3	4.36	NAO
0	14-0130-3	a	11.1	W	Y	N	3	3.84	NAO
0	14-0130-4	a	11.4	W	Y	N	3	5.45	NAO
0	14-0130-5	a	10.3	W	Y	N	3	3.51	NAO
0	14-0130-6	c	12.4	W	Y	N	3	3.97	NAO
0	14-0130-7	a	10.7	W	Y	N	3	2.79	NAO
0	14-0130-8	a	11.7	W	Y	N	3	1.83	NAO
0	14-0130-9	a	11.8	W	Y	N	3	1.95	NAO
0	14-0130-10	a	11.0	W	Y	N	3	1.88	NAO
0	14-0130-11	a	10.1	W	Y	N	3	2.52	NAO
0	14-0130-12	c	10.8	W	Y	N	3	1.99	NAO
0	14-0133-1	a	8.1	W	Y	N	3	4.68	NAO
0	14-0133-2	a	10.0	W	Y	N	3	4.63	NAO
0	14-0133-3	a	10.7	W	Y	N	3	4.18	NAO
0	14-0133-4	a	9.4	W	Y	N	3	3.81	NAO
0	14-0133-5	a	8.9	W	Y	N	3	3.53	NAO
0	14-0133-6	c	9.5	W	Y	N	3	3.37	NAO
0	14-0133-7	c	8.9	W	Y	N	3	4.67	NAO
0	14-0133-8	c	8.7	W	Y	N	3	3.70	NAO
0	14-0133-9	c	9.8	W	Y	N	3	4.23	NAO
0	14-0133-10	c	8.9	W	Y	N	3	4.71	NAO
0	14-0133-11	c	8.4	W	Y	N	3	4.70	NAO
0	14-0133-12	a	8.5	W	Y	N	3	1.39	NAO
0	14-0133-13	d							found dead on 12/23/13
0	14-0133-14	a	7.9	W	Y	N	3	1.73	NAO
0	14-0133-15	a	8.2	W	Y	N	3	1.68	NAO
0	14-0133-16	a	8.3	W	Y	N	3	1.39	NAO
0	14-0133-17	a	8.9	W	Y	N	3	2.26	NAO
0	14-0133-18	c	7.3	W	Y	N	3	2.49	NAO
0	14-0133-19	c	8.2	W	Y	N	3	2.02	NAO
0	14-0136-1	e							euthanized on PND0 dam died in labor
0	14-0136-2	e							euthanized on PND0 dam died in labor
0	14-0136-3								
0	14-0136-4								
0	14-0136-5								
0	14-0136-6								
0	14-0136-7								
0	14-0136-8								
0	14-0136-9								
0	14-0136-10								
0	14-0136-11								
0	14-0136-12								
0	14-0136-13								
0	14-0136-14								
0	14-0136-15								
0	14-0136-16								
0	14-0136-17								
0	14-0143-1	a	11.9	W	Y	N	3	3.97	NAO
0	14-0143-2	d							found dead on 12/23/13
0	14-0143-3	a	10.9	W	Y	N	3	4.12	NAO
0	14-0143-4	a	9.9	W	Y	N	3	4.29	NAO
0	14-0143-5	a	11.4	W	Y	N	3	4.20	NAO
0	14-0143-6	a	11.3	W	Y	N	3	5.52	NAO
0	14-0143-7	a	10.2	W	Y	N	3	2.72	NAO
0	14-0143-8	a	9.6	W	Y	N	3	2.05	NAO
0	14-0143-9	a	8.1	W	Y	N	3	1.57	NAO
0	14-0143-10	a	10.4	W	Y	N	3	2.12	NAO
0	14-0148-1	a	11.6	W	Y	N	3	4.58	NAO
0	14-0148-2	a	10.4	W	Y	N	3	4.22	NAO
0	14-0148-3	a	10.1	W	Y	N	3	4.69	NAO
0	14-0148-4	a	11.7	W	Y	N	3	4.12	NAO
0	14-0148-5	a	11.1	W	Y	N	3	4.08	NAO
0	14-0148-6	c	12.1	W	Y	N	3	4.55	NAO
0	14-0148-7	c	10.8	W	Y	N	3	4.45	NAO

0	14-0148-8	a	9.9	W	Y	N	3	1.70	NAO
0	14-0148-9	a	9.8	W	Y	N	3	1.94	NAO
0	14-0148-10	a	10.5	W	Y	N	3	1.70	NAO
0	14-0148-11	a	11.0	W	Y	N	3	1.79	NAO
0	14-0148-12	a	9.9	W	Y	N	3	1.85	NAO
0	14-0148-13	c	10.5	W	Y	N	3	1.69	NAO
0	14-0149-1	a	7.2	W	Y	N	3	3.32	NAO
0	14-0149-2	a	7.4	W	Y	N	3	3.53	NAO
0	14-0149-3	a	6.8	W	Y	N	3	3.65	NAO
0	14-0149-4	a	7.5	W	Y	N	3	3.68	NAO
0	14-0149-5	a	7.6	W	Y	N	3	3.97	NAO
0	14-0149-6	c	6.4	W	Y	N	3	3.84	purple spot between shoulder blades
0	14-0149-7	c	7.3	W	Y	N	3	4.21	NAO
0	14-0149-8	c	7.5	W	Y	N	3	3.26	NAO
0	14-0149-9	a	6.6	W	Y	N	3	1.62	NAO
0	14-0149-10	a	6.6	W	Y	N	3	1.33	NAO
0	14-0149-11	a	6.7	W	Y	N	3	2.03	NAO
0	14-0149-12	a	7.3	W	Y	N	3	1.50	NAO
0	14-0149-13	a	7.4	W	Y	N	3	2.20	NAO
0	14-0149-14	c	6.9	W	Y	N	3	1.63	NAO
0	14-0149-15	c	7.1	W	Y	N	3	2.10	NAO
0	14-0149-16	c	7.4	W	Y	N	3	2.08	NAO
0	14-0149-17	c	7.4	W	Y	N	3	1.52	NAO
0	14-0150-1	a	8.2	W	Y	N	3	4.03	NAO
0	14-0150-2	a	10.3	W	Y	N	3	5.04	NAO
0	14-0150-3	a	9.8	W	Y	N	3	4.06	NAO
0	14-0150-4	a	8.3	W	Y	N	3	3.88	NAO
0	14-0150-5	a	8.8	W	Y	N	3	4.78	NAO
0	14-0150-6	a	9.6	W	Y	N	3	3.95	NAO
0	14-0150-7	c	9.2	W	Y	N	3	3.70	NAO
0	14-0150-8	c	9.1	W	Y	N	3	4.14	NAO
0	14-0150-9	c	8.4	W	Y	N	3	4.42	NAO
0	14-0150-10	c	9.2	W	Y	N	3	3.93	NAO
0	14-0150-11	c	8.0	W	Y	N	3	3.70	NAO
0	14-0150-12	c	9.4	W	Y	N	3	3.86	NAO
0	14-0150-13	a	10.2	W	Y	N	3	1.94	NAO
0	14-0150-14	a	8.7	W	Y	N	3	2.13	NAO
0	14-0150-15	a	8.3	W	Y	N	3	1.57	NAO
0	14-0150-16	a	10.0	W	Y	N	3	1.99	NAO
0	14-0150-17								
0	14-0156-1	a	9.5	W	Y	N	3	4.70	NAO
0	14-0156-2	a	9.5	W	Y	N	3	4.02	scratch left side nose
0	14-0156-3	a	9.9	W	Y	N	3	3.71	NAO
0	14-0156-4	a	9.5	W	Y	N	3	5.12	NAO
0	14-0156-5	a	10.0	W	Y	N	3	3.94	NAO
0	14-0156-6	c	9.2	W	Y	N	3	3.78	NAO
0	14-0156-7	c	9.4	W	Y	N	3	4.05	NAO
0	14-0156-8	c	9.9	W	Y	N	3	3.76	NAO
0	14-0156-9	c	9.5	W	Y	N	3	3.76	NAO
0	14-0156-10	a	8.9	W	Y	N	3	2.02	NAO
0	14-0156-11	a	9.0	W	Y	N	3	1.71	NAO
0	14-0156-12	a	9.3	W	Y	N	3	2.15	NAO
0	14-0156-13	a	7.7	W	Y	N	3	1.47	NAO
0	14-0156-14	a	9.4	W	Y	N	3	1.84	NAO
0	14-0156-15	c	8.2	W	Y	N	3	1.89	purple spot between shoulder blades
0	14-0157-1	a	8.8	W	Y	N	3	3.99	NAO
0	14-0157-2	a	9.3	W	Y	N	3	4.15	NAO
0	14-0157-3	a	9.2	W	Y	N	3	4.44	NAO
0	14-0157-4	a	9.7	W	Y	N	3	4.23	NAO
0	14-0157-5	a	8.9	W	Y	N	3	4.27	NAO
0	14-0157-6	c	9.5	W	Y	N	3	3.89	NAO
0	14-0157-7	c	8.0	W	Y	N	3	4.12	NAO
0	14-0157-8	c	8.8	W	Y	N	3	3.69	NAO
0	14-0157-9	a	8.4	W	Y	N	3	1.49	purple spot covering lower jaw

0	14-0157-10	a	8.8	W	Y	N	3	1.62	NAO
0	14-0157-11	a	8.4	W	Y	N	3	2.06	NAO
0	14-0157-12	a	8.6	W	Y	N	3	1.27	NAO
0	14-0157-13	a	8.5	W	Y	N	3	2.40	NAO
0	14-0157-14	c	9.0	W	Y	N	3	1.58	NAO
0	14-0157-15	c	8.0	W	Y	N	3	1.94	NAO
0	14-0161-1	a	10.6	W	Y	N	3	3.15	NAO
0	14-0161-2	a	10.7	W	Y	N	3	3.70	NAO
0	14-0161-3	a	11.1	W	Y	N	3	3.70	NAO
0	14-0161-4	a	10.6	W	Y	N	3	4.05	NAO
0	14-0161-5	a	10.4	W	Y	N	3	4.76	NAO
0	14-0161-6	a	10.4	W	Y	N	3	3.67	NAO
0	14-0161-7	a	10.4	W	Y	N	3	3.51	NAO
0	14-0161-8	a	10.8	W	Y	N	3	3.97	NAO
0	14-0161-9	c	10.9	W	Y	N	3	3.77	NAO
0	14-0161-10	c	10.8	W	Y	N	3	4.04	NAO
0	14-0161-11	a	10.7	W	Y	N	3	1.55	NAO
0	14-0161-12	a	10.5	W	Y	N	3	1.68	NAO
0	14-0162-1	a	7.9	W	Y	N	3	3.42	NAO
0	14-0162-2	a	8.2	W	Y	N	3	3.52	NAO
0	14-0162-3	a	9.1	W	Y	N	3	3.33	NAO
0	14-0162-4	a	9.9	W	Y	N	3	3.48	NAO
0	14-0162-5	a	9.4	W	Y	N	3	3.78	NAO
0	14-0162-6	c	9.0	W	Y	N	3	3.68	NAO
0	14-0162-7	c	9.4	W	Y	N	3	3.76	NAO
0	14-0162-8	c	8.1	W	Y	N	3	3.37	NAO
0	14-0162-9	c	9.0	W	Y	N	3	3.04	NAO
0	14-0162-10	c	9.5	W	Y	N	3	3.74	NAO
0	14-0162-11	a	7.9	W	Y	N	3	1.54	NAO
0	14-0162-12	a	8.9	W	Y	N	3	2.06	NAO
0	14-0162-13	a	7.9	W	Y	N	3	1.31	NAO
0	14-0162-14	a	9.2	W	Y	N	3	1.88	NAO
0	14-0162-15	a	8.0	W	Y	N	3	1.84	NAO
0	14-0162-16	c	8.8	W	Y	N	3	1.25	NAO
0	14-0163-1	a	10.2	W	Y	N	3	3.76	NAO
0	14-0163-2	a	10.3	W	Y	N	3	3.65	NAO
0	14-0163-3	a	9.7	W	Y	N	3	3.82	NAO
0	14-0163-4	a	10.9	W	Y	N	3	3.79	NAO
0	14-0163-5	a	9.7	W	Y	N	3	3.47	NAO
0	14-0163-6	c	10.3	W	Y	N	3	3.95	NAO
0	14-0163-7	c	10.4	W	Y	N	3	4.31	NAO
0	14-0163-8	c	10.0	W	Y	N	3	3.72	NAO
0	14-0163-9	c	10.4	W	Y	N	3	3.89	NAO
0	14-0163-10	a	9.9	W	Y	N	3	1.83	NAO
0	14-0163-11	a	9.3	W	Y	N	3	1.72	NAO
0	14-0163-12	a	9.4	W	Y	N	3	1.54	scab on head
0	14-0163-13	a	8.4	W	Y	N	3	1.97	NAO
0	14-0163-14	a	8.4	C	Y	N	3	1.70	NAO
0	14-0163-15	c	9.2	W	Y	N	3	1.77	NAO
0	14-0163-16	c	7.8	C	Y	N	3	1.74	NAO
0	14-0173-1	a	10.0	W	Y	N	3	3.20	NAO
0	14-0173-2	a	8.4	W	Y	N	3	3.49	NAO
0	14-0173-3	a	8.4	W	Y	N	3	2.94	NAO
0	14-0173-4	a	9.2	W	Y	N	3	3.96	NAO
0	14-0173-5	a	9.6	W	Y	N	3	3.54	NAO
0	14-0173-6	a	8.3	W	Y	N	3	1.51	NAO
0	14-0173-7	a	8.7	W	Y	N	3	1.37	NAO
0	14-0173-8	a	8.9	W	Y	N	3	1.79	NAO
0	14-0173-9	a	8.8	W	Y	N	3	1.64	NAO
0	14-0173-10	a	9.1	W	Y	N	3	1.96	NAO
0	14-0173-11	c	8.4	W	Y	N	3	1.46	NAO
0	14-0173-12	c	7.9	W	Y	N	3	1.56	NAO
0	14-0173-13	c	8.5	W	Y	N	3	1.81	NAO
0	14-0173-14								

0	14-0179-1	a	10.1	W	Y	N	3	3.54	NAO
0	14-0179-2	a	11.3	W	Y	N	3	3.94	NAO
0	14-0179-3	a	10.6	W	Y	N	3	4.10	NAO
0	14-0179-4	a	10.5	W	Y	N	3	3.66	NAO
0	14-0179-5	a	9.3	W	Y	N	3	1.85	NAO
0	14-0179-6	a	9.5	W	Y	N	3	1.71	NAO
0	14-0179-7	a	10.0	W	Y	N	3	1.79	NAO
0	14-0179-8	a	9.3	W	Y	N	3	1.91	NAO
0	14-0179-9	a	10.3	W	Y	N	3	2.10	NAO
0	14-0179-10	a	10.1	W	Y	N	3	1.92	NAO
0	14-0179-11	c	9.7	W	Y	N	3	1.66	NAO
0	14-0179-12	c	9.9	W	Y	N	3	1.64	NAO
0	14-0185-1	a	7.8	W	Y	N	3	3.89	NAO
0	14-0185-2	a	8.2	W	Y	N	3	3.78	NAO
0	14-0185-3	a	8.3	W	Y	N	3	4.06	NAO
0	14-0185-4	a	8.8	W	Y	N	3	4.13	NAO
0	14-0185-5	a	7.8	W	Y	N	3	3.57	NAO
0	14-0185-6	c	8.5	W	Y	N	3	3.68	NAO
0	14-0185-7	c	7.6	W	Y	N	3	3.41	NAO
0	14-0185-8	a	7.4	W	Y	N	3	3.33	NAO
0	14-0185-9	a	7.7	W	Y	N	3	1.74	NAO
0	14-0185-10	a	7.7	W	Y	N	3	1.73	NAO
0	14-0185-11	a	7.7	W	Y	N	3	1.95	NAO
0	14-0185-12	a	6.2	W	Y	L	3	1.71	purple spot between shoulder blades; tail short, healing
0	14-0185-13	c	8.2	W	Y	N	3	1.56	NAO
0	14-0185-14	c	7.2	W	Y	N	3	1.89	NAO
0	14-0185-15	c	7.8	W	Y	N	3	1.67	NAO
0	14-0185-16	c	8.4	W	Y	N	3	1.98	NAO
0	14-0186-1	a	9.5	C	Y	N	3	4.04	NAO
0	14-0186-2	a	8.1	C	Y	N	3	3.40	NAO
0	14-0186-3	a	9.0	C	Y	N	3	4.16	NAO
0	14-0186-4	a	9.3	C	Y	N	3	3.89	NAO
0	14-0186-5	a	9.3	C	Y	N	3	4.06	NAO
0	14-0186-6	c	9.0	C	Y	N	3	3.74	NAO
0	14-0186-7	c	10.1	C	Y	N	3	3.72	NAO
0	14-0186-8	c	8.3	C	Y	N	3	3.48	NAO
0	14-0186-9	a	8.6	C	Y	N	3	1.72	misidentified as male at birth
0	14-0186-10	c	9.4	C	Y	N	3	4.05	NAO
0	14-0186-11	a	8.7	C	Y	N	3	1.28	NAO
0	14-0186-12	a	9.4	C	Y	N	3	1.79	NAO
0	14-0186-13	a	8.8	C	Y	N	3	1.49	NAO
0	14-0186-14	a	9.5	C	Y	N	3	1.66	NAO
0	14-0191-1	a	9.6	W	Y	N	3	4.11	NAO
0	14-0191-2	a	8.8	W	Y	N	3	3.59	NAO
0	14-0191-3	a	8.9	W	Y	N	3	3.90	NAO
0	14-0191-4	a	9.2	W	Y	N	3	3.53	NAO
0	14-0191-5	a	7.4	W	Y	N	3	3.12	NAO
0	14-0191-6	c	9.4	W	Y	N	3	3.67	NAO
0	14-0191-7	c	8.7	W	Y	N	3	3.35	NAO
0	14-0191-8	a	8.4	W	Y	N	3	1.61	NAO
0	14-0191-9	a	8.8	W	Y	N	3	1.79	NAO
0	14-0191-10	a	8.5	W	Y	N	3	1.55	NAO
0	14-0191-11	a	7.7	W	Y	N	3	1.37	NAO
0	14-0191-12	a	8.9	W	Y	N	3	1.54	NAO
0	14-0191-13	c	7.9	W	Y	N	3	1.62	NAO
0	14-0191-14	c	8.7	W	Y	N	3	1.58	NAO
0	14-0196-1	a	9.4	W	Y	N	3	4.26	NAO
0	14-0196-2	a	9.4	W	Y	N	3	2.85	NAO
0	14-0196-3	a	8.1	W	Y	N	3	3.67	NAO
0	14-0196-4	a	9.3	W	Y	N	3	3.71	NAO
0	14-0196-5	a	10.7	W	Y	N	3	3.86	NAO
0	14-0196-6	c	9.4	W	Y	N	3	3.70	NAO
0	14-0196-7	c	9.4	W	Y	N	3	3.50	NAO
0	14-0196-8	c	10.2	W	Y	N	3	4.53	NAO

0	14-0196-9	a	9.5	W	Y	N	3	1.72	NAO
0	14-0196-10	a	9.1	W	Y	N	3	2.03	NAO
0	14-0196-11	a	7.5	W	Y	N	3	1.64	NAO
0	14-0196-12	a	9.3	W	Y	N	3	1.74	NAO
0	14-0196-13	a	8.7	W	Y	N	3	1.66	NAO
0	14-0196-14	c	9.7	W	Y	N	3	1.77	NAO
0	14-0196-15	c	6.7	W	Y	N	3	1.63	NAO
0	14-0196-16	c	9.9	W	Y	N	3	1.58	NAO
0	14-0196-17	c	8.3	W	Y	N	3	1.61	NAO
0	14-0198-1	a	10.9	W	Y	N	3	4.23	NAO
0	14-0198-2	a	9.7	W	Y	N	3	4.43	NAO
0	14-0198-3	a	10.8	W	Y	N	3	4.12	semi-attached umbilical cord
0	14-0198-4	a	9.7	W	Y	N	3	3.30	NAO
0	14-0198-5	a	9.6	W	Y	N	3	3.51	NAO
0	14-0198-6	c	8.9	W	Y	N	3	2.18	misidentified as male at birth
0	14-0198-7	a	10.0	W	Y	N	3	1.69	NAO
0	14-0198-8	a	9.8	W	Y	N	3	2.12	NAO
0	14-0198-9	a	8.7	W	Y	N	3	1.67	NAO
0	14-0198-10	a	9.7	W	Y	N	3	1.79	NAO
0	14-0198-11	d							found dead on 12/27
0	14-0198-12	a	9.0	W	Y	N	3	1.75	NAO
0	14-0198-13	c	10.6	W	Y	N	3	1.76	NAO
0	14-0198-14	c	9.2	W	Y	N	3	1.79	NAO
0	14-0205-1	d							found dead on 12/27/13
0	14-0205-2	d							found dead on 12/27/13
0	14-0205-3	m							
0	14-0205-4	d							found dead on 12/27/13
0	14-0205-5	d							found dead on 12/27/13
0	14-0205-6	d							found dead on 12/27/13
0	14-0205-7	d							found dead 12/27/13
0	14-0205-8	d							found dead 12/27/13
0	14-0205-9	d							found dead 12/27/13
0	14-0205-10	d							found dead 12/27/13
0	14-0205-11								
0	14-0205-12								
0									
0	14-0215-1	a	10.6	W	Y	N	3	3.82	NAO
0	14-0215-2	a	11.7	W	Y	N	3	4.56	NAO
0	14-0215-3	a	10.3	W	Y	N	3	4.11	NAO
0	14-0215-4	a	9.8	W	Y	N	3	3.90	NAO
0	14-0215-5	a	10.8	W	Y	N	3	3.82	NAO
0	14-0215-6	c	10.1	W	Y	N	3	4.56	NAO
0	14-0215-7	c	9.5	W	Y	N	3	4.36	NAO
0	14-0215-8	c	9.9	W	Y	N	3	4.01	NAO
0	14-0215-9	c	9.3	W	Y	N	3	4.33	NAO
0	14-0215-10	a	8.9	W	Y	N	3	1.85	NAO
0	14-0215-11	a	9.7	W	Y	N	3	1.74	NAO
0	14-0215-12	a	10.0	W	Y	N	3	2.10	NAO
0	14-0215-13	a	9.8	W	Y	N	3	1.74	NAO
0	14-0215-14	a	9.6	W	Y	N	3	2.05	NAO
0	14-0217-1	a	9.9	W	Y	N	3	4.59	NAO
0	14-0217-2	a	8.7	W	Y	N	3	4.37	NAO
0	14-0217-3	a	10.6	W	Y	N	3	3.83	NAO
0	14-0217-4	a	9.6	W	Y	N	3	3.68	NAO
0	14-0217-5	a	9.6	W	Y	N	3	4.33	purple spot between shoulder blades
0	14-0217-6	c	7.3	W	Y	N	3	3.81	NAO
0	14-0217-7	a	7.2	W	Y	N	3	2.45	NAO
0	14-0217-8	a	8.0	W	Y	N	3	2.07	NAO
0	14-0217-9	a	8.6	W	Y	N	3	2.26	NAO
0	14-0217-10	a	8.4	W	Y	N	3	1.74	NAO
0	14-0217-11	a	8.4	W	Y	N	3	1.82	purple spot between shoulder blades
0	14-0217-12	c	9.8	W	Y	N	3	1.73	NAO
0	14-0217-13	c	8.8	W	Y	N	3	2.23	NAO
0	14-0217-14	c	9.5	W	Y	N	3	2.09	purple spot between shoulder blades

0	14-0217-15	c	8.4	W	Y	N	3	1.82	NAO
144	14-0123-1	a	11.0	W	Y	N	3	4.31	NAO
144	14-0123-2	a	9.7	W	Y	N	3	4.31	NAO
144	14-0123-3	a	10.4	W	Y	N	3	4.39	NAO
144	14-0123-4	a	9.5	W	Y	N	3	4.48	NAO
144	14-0123-5	a	10.5	W	Y	N	3	4.17	NAO
144	14-0123-6	c	9.3	W	Y	N	3	4.74	NAO
144	14-0123-7	c	9.7	W	Y	N	3	4.07	NAO
144	14-0123-8	a	9.2	W	Y	N	3	1.96	NAO
144	14-0123-9	a	9.4	W	Y	N	3	1.84	NAO
144	14-0123-10	a	8.9	W	Y	N	3	1.98	NAO
144	14-0123-11	a	9.4	W	Y	N	3	2.03	NAO
144	14-0123-12	a	10.5	W	Y	N	3	1.97	NAO
144	14-0123-13								
144	14-0123-14								
144	14-0123-15								
144									
144	14-0129-1	a	6.9	W	Y	N	3	3.56	NAO
144	14-0129-2	a	8.4	W	Y	N	3	4.78	NAO
144	14-0129-3	a	8.6	W	Y	N	3	4.92	NAO
144	14-0129-4	a	8.4	W	Y	N	3	4.75	NAO
144	14-0129-5	a	7.4	W	Y	N	3	4.07	NAO
144	14-0129-6	c	8.1	W	Y	N	3	4.44	NAO
144	14-0129-7	c	8.6	W	Y	N	3	4.81	NAO
144	14-0129-8	c	7.2	W	Y	N	3	4.00	NAO
144	14-0129-9	a	8.1	W	Y	N	3	1.90	NAO
144	14-0129-10	a	8.7	W	Y	N	3	2.20	NAO
144	14-0129-11	a	8.0	W	Y	N	3	1.95	NAO
144	14-0129-12	a	8.3	W	Y	N	3	2.33	NAO
144	14-0129-13	a	7.4	W	Y	N	3	1.66	NAO
144	14-0129-14	c	7.9	W	Y	N	3	1.79	NAO
144	14-0129-15	c	8.1	W	Y	N	3	1.76	NAO
144	14-0129-16	c	8.0	W	Y	N	3	1.92	NAO
144	14-0134-1	a	10.0	W	Y	N	3	4.58	NAO
144	14-0134-2	a	9.4	W	Y	N	3	5.20	NAO
144	14-0134-3	a	9.8	W	Y	N	3	4.50	NAO
144	14-0134-4	a	9.4	W	Y	N	3	4.52	NAO
144	14-0134-5	a	8.9	W	Y	N	3	4.40	NAO
144	14-0134-6	c	9.0	W	Y	N	3	4.51	NAO
144	14-0134-7	a	8.6	W	Y	N	3	1.43	NAO
144	14-0134-8	a	9.8	W	Y	N	3	1.48	NAO
144	14-0134-9	a	8.5	W	Y	N	3	1.49	NAO
144	14-0134-10	a	9.7	W	Y	N	3	1.28	NAO
144	14-0134-11	a	9.5	W	Y	N	3	2.00	NAO
144	14-0134-12	c	8.8	W	Y	N	3	1.75	NAO
144	14-0134-13	c	8.7	W	Y	N	3	1.63	NAO
144	14-0134-14	c	8.2	W	Y	N	3	1.72	NAO
144	14-0137-1	a	10.7	W	Y	N	3	4.37	NAO
144	14-0137-2	a	9.8	W	Y	N	3	4.29	NAO
144	14-0137-3	a	10.3	W	Y	N	3	4.08	NAO
144	14-0137-4	a	9.8	W	Y	N	3	4.21	NAO
144	14-0137-5	a	9.6	W	Y	N	3	2.02	NAO
144	14-0137-6	a	10.8	W	Y	N	3	2.16	NAO
144	14-0137-7	a	9.3	W	Y	N	3	1.93	NAO
144	14-0137-8	a	8.8	W	Y	N	3	1.82	NAO
144	14-0137-9	a	9.5	W	Y	N	3	1.80	NAO
144	14-0137-10	a	8.7	W	Y	N	3	1.84	NAO
144	14-0137-11	c	9.5	W	Y	N	3	1.78	NAO
144	14-0137-12	c	10.2	W	Y	N	3	2.33	NAO
144	14-0137-13	c	10.1	W	Y	N	3	1.99	NAO
144	14-0137-14	c	10.1	W	Y	N	3	1.89	NAO
144	14-0154-1	a	14.5	W	Y	N	3	4.13	NAO
144	14-0154-2	a	12.9	W	Y	N	3	4.44	NAO
144	14-0154-3	a	13.2	W	Y	N	3	4.64	NAO

144	14-0154-4	a	13.0	W	Y	N	3	4.51	NAO
144	14-0154-5	a	13.6	W	Y	N	3	1.96	NAO
144	14-0154-6	a	11.8	W	Y	N	3	2.06	NAO
144	14-0154-7	a	10.9	W	Y	N	3	2.33	NAO
144	14-0154-8	a	11.6	W	Y	N	3	2.29	NAO
144	14-0164-1	a	11.2	W	Y	N	3	4.82	NAO
144	14-0164-2	d							found dead 12/21/13
144	14-0164-3	a	10.8	W	Y	N	3	4.26	NAO
144	14-0164-4	d							found dead 12/21/13
144	14-0164-5	a	9.6	W	Y	N	3	4.79	NAO
144	14-0164-6	a	10.4	W	Y	N	3	4.86	NAO
144	14-0164-7	a	8.6	W	Y	N	3	1.79	NAO
144	14-0164-8	a	10.2	W	Y	N	3	2.23	NAO
144	14-0164-9	a	9.9	W	Y	N	3	2.08	NAO
144	14-0164-10	a	11.0	W	Y	N	3	2.00	NAO
144	14-0164-11	a	9.8	W	Y	N	3	1.98	NAO
144	14-0164-12	a	10.2	W	Y	N	3	2.01	NAO
144	14-0164-13	c	9.4	W	Y	N	3	1.97	NAO
144	14-0164-14								
144	14-0164-15								
144	14-0166-1	a	7.1	W	Y	N	3	3.07	NAO
144	14-0166-2	a	8.1	W	Y	N	3	4.09	NAO
144	14-0166-3	a	8.0	W	Y	N	3	3.74	NAO
144	14-0166-4	a	8.4	W	Y	N	3	4.70	NAO
144	14-0166-5	a	7.8	W	Y	N	3	3.12	NAO
144	14-0166-6	c	7.4	W	Y	N	3	4.13	NAO
144	14-0166-7	c	7.9	W	Y	N	3	4.12	NAO
144	14-0166-8	a	8.2	W	Y	N	3	1.50	NAO
144	14-0166-9	a	6.9	W	Y	N	3	1.53	NAO
144	14-0166-10	a	7.5	W	Y	N	3	1.39	NAO
144	14-0166-11	a	8.3	W	Y	N	3	1.86	NAO
144	14-0166-12	a	6.1	W	Y	N	3	1.66	NAO
144	14-0166-13	c	8.0	W	Y	N	3	1.79	NAO
144	14-0166-14	c	7.0	W	Y	N	3	1.94	NAO
144	14-0166-15	c	7.7	W	Y	N	3	1.73	NAO
144	14-0166-16	c	6.6	W	Y	N	3	1.25	NAO
144	14-0166-17								
144	14-0174-1	a	9.3	W	Y	N	3	3.95	scratch on back
144	14-0174-2	a	8.7	W	Y	N	3	4.09	NAO
144	14-0174-3	a	8.2	W	Y	N	3	3.83	NAO
144	14-0174-4	a	9.2	W	Y	N	3	4.29	NAO
144	14-0174-5	a	8.4	W	Y	N	3	4.64	NAO
144	14-0174-6	c	8.7	W	Y	N	3	4.48	NAO
144	14-0174-7	c	9.0	W	Y	N	3	4.13	NAO
144	14-0174-8	a	8.9	W	Y	N	3	1.92	NAO
144	14-0174-9	a	8.1	W	Y	N	3	2.07	NAO
144	14-0174-10	a	8.3	W	Y	N	3	1.85	NAO
144	14-0174-11	a	7.6	W	Y	N	3	1.64	NAO
144	14-0174-12	a	9.2	W	Y	N	3	1.90	NAO
144	14-0174-13	c	9.1	W	Y	N	3	1.63	NAO
144	14-0174-14	c	8.8	W	Y	N	3	1.93	NAO
144	14-0174-15	c	8.2	W	Y	N	3	1.69	NAO
144	14-0174-16	c	8.3	W	Y	N	3	1.69	NAO
144	14-0175-1	a	11.2	W	Y	N	3	4.33	NAO
144	14-0175-2	a	11.1	W	Y	N	3	4.41	NAO
144	14-0175-3	a	11.3	W	Y	N	3	2.08	NAO
144	14-0175-4	a	10.3	W	Y	N	3	2.01	NAO
144	14-0175-5	a	10.6	W	Y	N	3	1.74	NAO
144	14-0175-6	a	10.2	W	Y	N	3	1.87	NAO
144	14-0175-7	a	10.3	W	Y	N	3	2.38	NAO
144	14-0175-8	a	11.4	W	Y	N	3	2.08	NAO
144	14-0175-9	a	11.4	W	Y	N	3	2.24	NAO
144	14-0175-10	a	10.7	W	Y	N	3	1.83	NAO
144	14-0175-11	c	11.0	W	Y	N	3	2.02	NAO

144	14-0175-12								
144	14-0176-1	a	7.3	W	Y	N	3	3.32	NAO
144	14-0176-2	a	8.7	W	Y	N	3	3.46	NAO
144	14-0176-3	a	8.4	W	Y	N	3	3.76	NAO
144	14-0176-4	a	8.7	W	Y	N	3	3.63	NAO
144	14-0176-5	d							found dead on 12/23/13
144	14-0176-6	a	7.4	W	Y	N	3	1.66	NAO
144	14-0176-7	a	8.6	W	Y	N	3	1.95	NAO
144	14-0176-8	a	8.2	W	Y	N	3	1.75	NAO
144	14-0176-9	a	8.4	W	Y	N	3	1.41	NAO
144	14-0176-10	a	8.0	W	Y	N	3	1.72	NAO
144	14-0176-11	a	8.2	W	Y	N	3	1.48	NAO
144	14-0176-12	c	8.4	W	Y	N	3	2.02	NAO
144	14-0176-13	c	7.9	W	Y	N	3	1.29	NAO
144	14-0176-14	c	8.4	W	Y	N	3	1.59	NAO
144	14-0176-15	c	6.5	W	Y	N	3	1.16	NAO
144	14-0176-16								
144	14-0177-1	a	8.2	W	Y	N	3	3.88	NAO
144	14-0177-2	a	7.4	W	Y	N	3	4.17	NAO
144	14-0177-3	a	9.0	W	Y	N	3	4.40	NAO
144	14-0177-4	a	8.3	W	Y	N	3	3.66	NAO
144	14-0177-5	a	7.8	W	Y	N	3	4.09	NAO
144	14-0177-6	c	8.9	W	Y	N	3	3.75	NAO
144	14-0177-7	c	8.0	W	Y	N	3	3.44	NAO
144	14-0177-8	a	7.4	W	Y	N	3	1.34	NAO
144	14-0177-9	a	7.0	W	Y	N	3	1.82	NAO
144	14-0177-10	a	8.3	W	Y	N	3	1.76	NAO
144	14-0177-11	a	8.0	W	Y	N	3	1.81	NAO
144	14-0177-12	a	7.9	W	Y	N	3	2.18	NAO
144	14-0177-13	c	6.9	W	Y	N	3	1.20	NAO
144	14-0177-14	c	7.8	W	Y	N	3	1.41	tip of tail is red
144	14-0177-15	m							
144	14-0177-16	c	7.9	W	Y	N	3	1.35	NAO
144	14-0177-17	c	8.3	W	Y	N	3	1.35	NAO
144	14-0177-18	c	6.3	W	Y	N	3	1.56	NAO
144	14-0178-1	a	9.8	W	Y	N	3	4.50	NAO
144	14-0178-2	a	10.7	W	Y	N	3	5.19	NAO
144	14-0178-3	a	9.6	W	Y	N	3	4.73	NAO
144	14-0178-4	a	9.3	W	Y	N	3	4.53	NAO
144	14-0178-5	a	10.3	W	Y	N	3	4.44	NAO
144	14-0178-6	c	10.0	W	Y	N	3	4.96	NAO
144	14-0178-7	c	9.8	W	Y	N	3	4.38	NAO
144	14-0178-8	c	11.2	W	Y	N	3	4.15	NAO
144	14-0178-9	c	10.3	W	Y	N	3	4.28	NAO
144	14-0178-10	c	9.0	W	Y	N	3	3.99	NAO
144	14-0178-11	a	8.7	W	Y	N	3	1.95	NAO
144	14-0178-12	a	7.4	W	Y	N	3	1.81	NAO
144	14-0178-13	a	8.4	W	Y	N	3	1.86	NAO
144	14-0178-14	a	9.7	W	Y	N	3	1.66	NAO
144	14-0178-15	a	9.9	W	Y	N	3	1.91	NAO
144	14-0178-16	c	9.4	W	Y	N	3	2.60	NAO
144	14-0178-17								
144	14-0180-1	a	9.3	W	Y	N	3	3.79	NAO
144	14-0180-2	a	8.8	W	Y	N	3	4.14	NAO
144	14-0180-3	a	8.9	W	Y	N	3	4.48	NAO
144	14-0180-4	a	9.9	W	Y	N	3	3.93	NAO
144	14-0180-5	a	10.2	W	Y	N	3	3.61	NAO
144	14-0180-6	c	9.8	W	Y	N	3	4.05	NAO
144	14-0180-7	c	9.9	W	Y	N	3	3.80	NAO
144	14-0180-8	a	8.1	W	Y	N	3	1.61	NAO
144	14-0180-9	a	8.9	W	Y	N	3	1.72	NAO
144	14-0180-10	a	9.3	W	Y	N	3	1.76	NAO
144	14-0180-11	a	9.4	W	Y	N	3	1.70	NAO
144	14-0180-12	a	9.2	W	Y	N	3	1.81	NAO

144	14-0183-1	a	7.9	W	Y	N	3	2.93	NAO
144	14-0183-2	a	8.3	W	Y	N	3	3.40	NAO
144	14-0183-3	a	7.4	W	Y	N	3	3.39	NAO
144	14-0183-4	a	8.1	W	Y	N	3	3.77	NAO
144	14-0183-5	a	8.1	W	Y	N	3	3.89	NAO
144	14-0183-6	c	7.9	W	Y	N	3	3.20	NAO
144	14-0183-7	c	8.8	W	Y	N	3	3.70	NAO
144	14-0183-8	c	8.3	W	Y	N	3	3.10	NAO
144	14-0183-9	a	7.0	W	Y	N	3	1.57	NAO
144	14-0183-10	a	7.3	W	Y	N	3	1.77	NAO
144	14-0183-11	a	7.5	W	Y	N	3	1.34	NAO
144	14-0183-12	a	7.1	W	Y	N	3	1.10	NAO
144	14-0183-13	a	7.4	W	Y	N	3	1.33	NAO
144	14-0183-14	c	7.4	W	Y	N	3	1.45	NAO
144	14-0183-15	c	7.4	W	Y	N	3	1.16	NAO
144	14-0183-16	c	7.4	W	Y	N	3	1.73	NAO
144	14-0183-17								
144	14-0195-1	a	10.5	W	Y	N	3	3.81	NAO
144	14-0195-2	a	9.4	W	Y	N	3	3.69	NAO
144	14-0195-3	a	10.4	W	Y	N	3	3.94	NAO
144	14-0195-4	a	11.1	W	Y	N	3	3.60	NAO
144	14-0195-5	a	9.5	W	Y	N	3	3.77	NAO
144	14-0195-5	c	8.7	W	Y	N	3	3.74	NAO
144	14-0195-5	c	8.8	W	Y	N	3	3.88	NAO
144	14-0195-5	c	11.1	W	Y	N	3	4.12	NAO
144	14-0195-9	a	9.6	W	Y	N	3	1.35	NAO
144	14-0195-10	a	8.6	W	Y	N	3	1.50	bruise on shoulder
144	14-0195-11	a	7.6	W	Y	N	3	1.41	NAO
144	14-0195-12	a	8.8	W	Y	N	3	1.46	NAO
144	14-0195-13	a	8.2	W	Y	N	3	1.36	NAO
144	14-0195-14	c	8.6	W	Y	N	3	1.57	NAO
144	14-0195-15								
144	14-0197-1	a	10.0	W	Y	N	3	4.01	NAO
144	14-0197-2	a	10.5	W	Y	N	3	4.16	NAO
144	14-0197-3	a	9.3	W	Y	N	3	4.03	NAO
144	14-0197-4	a	8.1	W	Y	N	3	3.48	NAO
144	14-0197-5	a	9.1	W	Y	N	3	4.22	NAO
144	14-0197-6	c	8.7	W	Y	N	3	3.41	NAO
144	14-0197-7	a	8.9	W	Y	N	3	1.82	NAO
144	14-0197-8	d							found dead on 12/25/13
144	14-0197-9	a	7.6	W	Y	N	3	1.43	NAO
144	14-0197-10	a	8.6	W	Y	N	3	1.61	NAO
144	14-0197-11	a	9.2	W	Y	N	3	1.39	NAO
144	14-0197-12	a	8.5	W	Y	N	3	1.66	NAO
144	14-0197-13	c	9.0	W	Y	N	3	1.59	NAO
144	14-0199-1	a	9.9	W	Y	N	3	3.65	NAO
144	14-0199-2	a	9.4	W	Y	N	3	4.36	NAO
144	14-0199-3	a	9.5	W	Y	N	3	4.35	NAO
144	14-0199-4	a	10.3	W	Y	N	3	4.24	NAO
144	14-0199-5	a	10.1	W	Y	N	3	4.80	NAO
144	14-0199-6	c	10.7	W	Y	N	3	4.60	NAO
144	14-0199-7	a	8.5	W	Y	N	3	2.05	NAO
144	14-0199-8	a	10.0	W	Y	N	3	1.96	NAO
144	14-0199-9	a	9.4	W	Y	N	3	2.06	NAO
144	14-0199-10	a	10.0	W	Y	N	3	2.30	NAO
144	14-0199-11	a	8.2	W	Y	N	3	2.05	NAO
144	14-0199-12	c	9.1	W	Y	N	3	2.38	NAO
144	14-0199-13	c	9.3	W	Y	N	3	2.70	NAO
144	14-0199-14	c	8.8	W	Y	N	3	2.08	NAO
144	14-0200-1	a	9.3	W	Y	N	3	4.32	NAO
144	14-0200-2	a	10.0	W	Y	N	3	3.53	NAO
144	14-0200-3	a	9.3	W	Y	N	3	3.20	NAO
144	14-0200-4	a	9.4	W	Y	N	3	3.97	NAO
144	14-0200-5	a	8.7	W	Y	N	3	3.09	NAO

144	14-0200-6	c	10.8	W	Y	N	3	3.33	NAO
144	14-0200-7	c	9.3	W	Y	N	3	3.81	NAO
144	14-0200-8	c	9.7	W	Y	N	3	3.17	NAO
144	14-0200-9	c	9.6	W	Y	N	3	3.23	NAO
144	14-0200-10	a	8.8	W	Y	N	3	1.72	NAO
144	14-0200-11	m							
144	14-0200-12	a	9.8	W	Y	N	3	1.91	NAO
144	14-0200-13	a	9.3	W	Y	N	3	2.08	NAO
144	14-0200-14	a	10.0	W	Y	N	3	2.03	NAO
144	14-0200-15	a	9.6	W	Y	N	3	1.67	NAO
144	14-0200-16	c	8.9	W	Y	N	3	1.61	NAO
144	14-0206-1	a	9.2	W	Y	N	3	3.99	NAO
144	14-0206-2	a	8.3	W	Y	N	3	3.83	NAO
144	14-0206-3	a	9.5	W	Y	N	3	4.28	NAO
144	14-0206-4	a	7.5	W	Y	N	3	3.64	NAO
144	14-0206-5	a	10.4	W	Y	N	3	4.16	NAO
144	14-0206-6	c	9.0	W	Y	N	3	4.08	NAO
144	14-0206-7	c	8.5	W	Y	N	3	3.50	NAO
144	14-0206-8	c	9.3	W	Y	N	3	4.36	NAO
144	14-0206-9	a	8.3	W	Y	N	3	2.20	NAO
144	14-0206-10	a	8.6	W	Y	N	3	1.93	NAO
144	14-0206-11	a	8.6	W	Y	N	3	2.05	NAO
144	14-0206-12	a	8.4	W	Y	N	3	1.73	NAO
144	14-0206-13	a	8.7	W	Y	N	3	1.59	NAO
144	14-0206-14	c	8.2	W	Y	N	3	1.94	NAO
144	14-0206-15	c	8.6	W	Y	N	3	1.72	laceration on chest
144	14-0206-16	c	8.7	W	Y	N	3	2.02	NAO
144	14-0211-1	a	10.2	W	Y	N	3	3.49	NAO
144	14-0211-2	a	9.8	W	Y	N	3	4.25	NAO
144	14-0211-3	a	10.2	W	Y	N	3	3.93	NAO
144	14-0211-4	a	10.5	W	Y	N	3	1.58	NAO
144	14-0211-5	a	9.8	W	Y	N	3	1.66	NAO
144	14-0211-6	a	8.7	W	Y	N	3	1.78	NAO
144	14-0211-7	a	8.5	W	Y	N	3	1.51	NAO
144	14-0211-8	a	9.1	W	Y	N	3	1.56	NAO
144	14-0211-9	a	10.4	W	Y	N	3	1.87	NAO
144	14-0211-10	a	9.7	W	Y	N	3	1.75	NAO
144	14-0211-11	c	9.8	W	Y	N	3	1.70	NAO
144	14-0211-12	c	10.3	W	Y	N	3	2.09	NAO
144	14-0211-13	c	10.0	W	Y	N	3	1.34	NAO
144	14-0211-14	c	10.3	W	Y	N	3	1.84	NAO
144	14-0211-15								
144	14-0212-1	a	8.0	W	Y	N	3	3.37	NAO
144	14-0212-2	a	9.0	W	Y	N	3	3.63	NAO
144	14-0212-3	a	8.3	W	Y	N	3	3.68	NAO
144	14-0212-4	c	7.1	W	Y	N	3	1.41	NAO
144	14-0212-5	a	8.7	W	Y	N	3	3.81	NAO
144	14-0212-6	a	9.8	C	Y	N	3	3.53	NAO
144	14-0212-7	a	8.2	C	Y	N	3	1.78	NAO
144	14-0212-8	a	7.9	C	Y	N	3	1.87	NAO
144	14-0212-9	a	8.0	W	Y	N	3	1.74	NAO
144	14-0212-10	a	9.0	W	Y	N	3	1.75	NAO
144	14-0212-11	a	7.5	W	Y	N	3	1.66	NAO
144	14-0212-12	c	8.3	W	Y	N	3	1.62	NAO
144	14-0212-13	c	8.3	W	Y	N	3	1.87	NAO
144	14-0212-14	c	7.9	W	Y	N	3	1.97	NAO
144	14-0212-15	c	8.5	C	Y	N	3	1.72	NAO
144	14-0212-16								
144	14-0214-1	a	7.8	W	Y	N	3	4.40	NAO
144	14-0214-2	a	9.1	W	Y	N	3	4.13	NAO
144	14-0214-3	a	8.1	W	Y	N	3	3.68	NAO
144	14-0214-4	a	7.9	W	Y	N	3	3.83	NAO
144	14-0214-5	a	9.3	W	Y	N	3	4.07	NAO
144	14-0214-6	c	8.9	W	Y	N	3	3.90	NAO

144	14-0214-7	c	8.6	W	Y	N	3	3.93	NAO
144	14-0214-8	a	8.1	W	Y	N	3	1.81	NAO
144	14-0214-9	a	8.3	W	Y	N	3	1.73	NAO
144	14-0214-10	a	8.4	W	Y	N	3	1.82	NAO
144	14-0214-11	a	8.5	W	Y	N	3	2.03	NAO
144	14-0214-12	a	8.6	W	Y	N	3	1.65	NAO
144	14-0214-13	c	8.6	W	Y	N	3	1.92	NAO
144									
144	14-0220-1	a	8.1	W	Y	N	3	3.64	NAO
144	14-0220-2	a	8.7	W	Y	N	3	3.93	NAO
144	14-0220-3	a	7.7	W	Y	N	3	3.77	NAO
144	14-0220-4	a	8.3	W	Y	N	3	3.86	NAO
144	14-0220-5	a	7.7	W	Y	N	3	3.37	NAO
144	14-0220-6	c	8.1	W	Y	N	3	3.60	NAO
144	14-0220-7	c	8.7	W	Y	N	3	3.68	NAO
144	14-0220-8	a	7.0	W	Y	N	3	1.42	NAO
144	14-0220-9	a	7.4	W	Y	N	3	1.37	NAO
144	14-0220-10	a	8.2	W	Y	N	3	1.62	NAO
144	14-0220-11	a	7.1	W	Y	N	3	1.24	NAO
144	14-0220-12	a	7.9	W	Y	N	3	1.32	NAO
144	14-0220-13	c	7.2	W	Y	N	3	1.48	NAO
144	14-0220-14	c	7.5	W	Y	N	3	1.28	NAO
144	14-0220-15	c	6.4	W	Y	N	3	1.67	NAO
144	14-0220-16	c	6.8	W	Y	N	3	1.76	NAO
144	14-0220-17	c	8.2	W	Y	N	3	1.51	NAO
144	14-0220-18								
720	14-0124-1	a	9.7	W	Y	N	3	3.84	NAO
720	14-0124-2	a	10.1	W	Y	N	3	4.27	NAO
720	14-0124-3	a	10.0	W	Y	N	3	4.15	NAO
720	14-0124-4	a	10.7	W	Y	N	3	4.14	NAO
720	14-0124-5	a	10.8	W	Y	N	3	4.36	NAO
720	14-0124-6	c	9.2	W	Y	N	3	3.97	NAO
720	14-0124-7	c	10.0	W	Y	N	3	3.69	NAO
720	14-0124-8	c	9.6	W	Y	N	3	4.12	NAO
720	14-0124-9	c	9.8	W	Y	N	3	3.73	NAO
720	14-0124-10	a	7.4	W	Y	N	3	1.89	NAO
720	14-0124-11	a	9.9	W	Y	N	3	2.19	NAO
720	14-0124-12	a	9.4	W	Y	N	3	1.92	NAO
720	14-0124-13	a	8.8	W	Y	N	3	1.55	NAO
720	14-0124-14	a	9.8	W	Y	N	3	2.33	NAO
720	14-0128-1	a	9.0	W	Y	N	3	3.99	NAO
720	14-0128-2	a	8.1	W	Y	N	3	3.51	NAO
720	14-0128-3	a	8.1	W	Y	N	3	1.51	NAO
720	14-0128-4	m							
720	14-0128-5	a	8.4	W	Y	N	3	2.41	NAO
720	14-0128-6	a	8.6	W	Y	N	3	4.26	NAO
720	14-0128-7	c	8.4	W	Y	N	3	4.06	NAO
720	14-0128-8	c	9.1	W	Y	N	3	4.12	NAO
720	14-0128-9	a	8.1	W	Y	N	3	1.54	NAO
720	14-0128-10	a	8.5	W	Y	N	3	2.45	NAO
720	14-0128-11	a	7.6	W	Y	N	3	2.16	NAO
720	14-0128-12	a	6.0	W	Y	N	3	2.04	NAO
720	14-0128-13	a	7.8	W	Y	N	3	1.93	NAO
720	14-0128-14	c	8.6	W	Y	N	3	1.83	NAO
720	14-0128-15	c	7.3	W	Y	N	3	2.09	NAO
720	14-0128-16	c	8.3	W	Y	N	3	1.46	NAO
720	14-0128-17	c	7.9	W	Y	N	3	1.81	NAO
720	14-0132-1	a	9.6	W	Y	N	3	5.12	NAO
720	14-0132-2	c	8.8	W	Y	N	3	2.09	NAO
720	14-0132-3	a	8.8	W	Y	N	3	4.25	NAO
720	14-0132-4	a	9.6	W	Y	N	3	5.11	NAO
720	14-0132-5	a	9.2	W	Y	N	3	3.74	NAO
720	14-0132-6	a	9.4	W	Y	N	3	4.58	NAO
720	14-0132-7	a	8.9	W	Y	N	3	2.20	NAO

720	14-0132-8	a	8.7	W	Y	N	3	2.25	NAO
720	14-0132-9	a	8.9	W	Y	N	3	2.08	NAO
720	14-0132-10	a	9.9	W	Y	N	3	2.20	NAO
720	14-0132-11	a	8.1	W	Y	N	3	2.53	NAO
720	14-0132-12	c	6.6	W	Y	N	3	1.78	NAO
720	14-0132-13	c	7.6	W	Y	N	3	2.20	NAO
720	14-0132-14	c	8.7	W	Y	N	3	1.53	NAO
720	14-0132-15	c	7.7	W	Y	N	3	2.17	NAO
720	14-0138-1	a	9.7	W	Y	N	3	4.67	NAO
720	14-0138-2	a	10.9	W	Y	N	3	5.19	NAO
720	14-0138-3	a	10.7	W	Y	N	3	4.22	NAO
720	14-0138-4	a	10.2	W	Y	N	3	4.14	NAO
720	14-0138-5	a	10.1	W	Y	N	3	4.40	NAO
720	14-0138-6	a	10.5	W	Y	N	3	4.26	NAO
720	14-0138-7	a	10.0	W	Y	N	3	3.76	NAO
720	14-0138-8	a	10.7	W	Y	N	3	4.86	NAO
720	14-0138-9	a	10.1	W	Y	N	3	4.35	NAO
720	14-0138-10	c	10.6	W	Y	N	3	4.46	NAO
720	14-0138-11	c	11.0	W	Y	N	3	4.93	NAO
720	14-0138-12	c	11.1	W	Y	N	3	4.80	NAO
720	14-0138-13	a	9.9	W	Y	N	3	1.62	NAO
720	14-0142-1	a	9.6	W	Y	N	3	4.72	NAO
720	14-0142-2	a	8.8	W	Y	N	3	4.22	NAO
720	14-0142-3	a	10.4	W	Y	N	3	3.88	NAO
720	14-0142-4	a	9.6	W	Y	N	3	4.56	NAO
720	14-0142-5	a	9.2	W	Y	N	3	5.12	NAO
720	14-0142-6	c	9.3	W	Y	N	3	4.56	NAO
720	14-0142-7	a	9.1	W	Y	N	3	1.38	NAO
720	14-0142-8	a	7.9	W	Y	N	3	1.76	NAO
720	14-0142-9	a	8.4	W	Y	N	3	1.87	NAO
720	14-0142-10	a	8.6	W	Y	N	3	1.91	NAO
720	14-0142-11	a	8.3	W	Y	N	3	1.94	NAO
720	14-0142-12	c	9.4	W	Y	N	3	1.86	cut on top of head
720	14-0142-13	c	8.8	W	Y	N	3	2.06	NAO
720	14-0142-14	c	8.1	W	Y	N	3	1.58	NAO
720	14-0142-15	c	8.9	W	Y	N	3	2.02	NAO
720	14-0142-16	c	8.8	W	Y	N	3	2.05	NAO
720	14-0144-1	a	10.4	W	Y	N	3	4.15	NAO
720	14-0144-2	a	10.4	W	Y	N	3	4.67	NAO
720	14-0144-3	a	10.6	W	Y	N	3	4.90	NAO
720	14-0144-4	a	10.1	W	Y	N	3	3.61	NAO
720	14-0144-5	a	10.5	W	Y	N	3	4.23	NAO
720	14-0144-6	c	10.3	W	Y	N	3	4.06	NAO
720	14-0144-7	c	9.9	W	Y	N	3	4.04	NAO
720	14-0144-8	a	9.3	W	Y	N	3	1.94	NAO
720	14-0144-9	a	9.6	W	Y	N	3	1.79	NAO
720	14-0144-10	a	10.3	W	Y	N	3	2.05	NAO
720	14-0144-11	a	9.6	W	Y	N	3	2.00	NAO
720	14-0144-12	a	9.7	W	Y	N	3	2.19	NAO
720	14-0144-13	c	10.2	W	Y	N	3	1.89	NAO
720	14-0144-14	c	9.9	W	Y	N	3	1.92	NAO
720	14-0144-15	c	8.2	W	Y	N	3	1.63	NAO
720	14-0144-16	c	10.8	W	Y	N	3	1.93	NAO
720	14-0144-17								
720	14-0145-1	a	12.2	W	Y	N	3	4.31	NAO
720	14-0145-2	a	10.6	W	Y	N	3	4.67	NAO
720	14-0145-3	a	9.6	W	Y	N	3	3.45	red tip of tail
720	14-0145-4	a	13.5	W	Y	N	3	4.27	NAO
720	14-0145-5	a	13.2	W	Y	N	3	4.80	NAO
720	14-0145-6	c	11.8	W	Y	N	3	4.42	NAO
720	14-0145-7	a	9.5	W	Y	N	3	2.43	NAO
720	14-0145-8	a	11.5	W	Y	N	3	1.85	NAO
720	14-0145-9	a	11.5	W	Y	N	3	2.06	NAO
720	14-0145-10	a	11.6	W	Y	N	3	2.06	NAO

720	14-0145-11	a	11.9	W	Y	N	3	2.03	NAO
720	14-0145-12	c	11.7	W	Y	N	3	1.85	NAO
720	14-0145-13	c	8.9	W	Y	N	3	1.46	NAO
720	14-0146-1	d							found dead on 12/23/13
720	14-0146-2	a	9.5	W	Y	N	3	3.43	NAO
720	14-0146-3	a	10.1	W	Y	N	3	3.24	NAO
720	14-0146-4	a	9.3	W	Y	N	3	3.37	NAO
720	14-0146-5	a	8.3	W	Y	N	3	3.53	NAO
720	14-0146-6	a	9.6	W	Y	N	3	3.59	NAO
720	14-0146-7	c	8.5	W	Y	N	3	3.51	NAO
720	14-0146-8	c	4.4	W	Y	N	3	2.60	NAO
720	14-0146-9	c	10.2	W	Y	N	3	4.33	NAO
720	14-0146-10	c	9.3	W	Y	N	3	3.59	NAO
720	14-0146-11	a	9.9	W	Y	N	3	1.86	NAO
720	14-0146-12	a	7.8	W	Y	N	3	1.63	NAO
720	14-0146-13	a	9.9	W	Y	N	3	1.43	NAO
720	14-0146-14	a	9.7	W	Y	N	3	1.97	NAO
720	14-0146-15	a	9.5	W	Y	N	3	2.00	NAO
720	14-0146-16	c	9.4	W	Y	N	3	1.62	NAO
720	14-0146-17	c	9.6	W	Y	N	3	1.87	NAO
720	14-0146-18	c	8.5	W	Y	N	3	1.78	NAO
720	14-0147-1	a	10.9	W	Y	N	3	4.69	NAO
720	14-0147-2	a	11.4	W	Y	N	3	4.29	NAO
720	14-0147-3	a	10.5	W	Y	N	3	4.64	NAO
720	14-0147-4	a	11.4	W	Y	N	3	4.66	NAO
720	14-0147-5	c	11.2	W	Y	N	3	1.93	misidentified as male at birth
720	14-0147-6	a	10.7	W	Y	N	3	4.15	NAO
720	14-0147-7	a	9.5	W	Y	N	3	2.11	NAO
720	14-0147-8	a	10.1	W	Y	N	3	2.26	NAO
720	14-0147-9	a	11.0	W	Y	N	3	2.10	NAO
720	14-0147-10	a	10.3	W	Y	N	3	1.91	NAO
720	14-0147-11	a	10.2	W	Y	N	3	2.22	NAO
720	14-0147-12	c	10.4	W	Y	N	3	2.00	NAO
720	14-0147-13	c	11.2	W	Y	N	3	2.16	NAO
720	14-0147-14	c	10.5	W	Y	N	3	1.98	NAO
720	14-0152-1	m							
720	14-0152-2	d							dead on 12/21/13
720	14-0152-3	d							dead on 12/21/13
720	14-0152-4	d							dead on 12/21/13
720	14-0152-5	m							
720	14-0152-6	d							found dead on 12/21/13
720	14-0152-7	d							found dead on 12/21/13
720	14-0152-8	d							found dead on 12/21/13
720	14-0152-9								
720	14-0152-10								
720	14-0152-11								
720	14-0152-12								
720	14-0152-13								
720	14-0152-14								
720	14-0153-1	a	8.3	W	Y	N	3	3.61	NAO
720	14-0153-2	a	8.9	W	Y	N	3	4.16	NAO
720	14-0153-3	a	8.3	W	Y	N	3	3.09	NAO
720	14-0153-4	a	8.5	W	Y	N	3	4.08	NAO
720	14-0153-5	a	9.0	W	Y	N	3	3.37	NAO
720	14-0153-6	c	6.2	W	Y	N	3	3.71	NAO
720	14-0153-7	a	7.1	W	Y	N	3	1.17	NAO
720	14-0153-8	a	8.8	W	Y	N	3	1.68	NAO
720	14-0153-9	a	9.4	W	Y	N	3	1.92	NAO
720	14-0153-10	a	8.3	W	Y	N	3	1.84	NAO
720	14-0153-11	a	7.7	W	Y	N	3	1.96	NAO
720	14-0153-12	c	7.1	W	Y	N	3	1.59	NAO
720	14-0153-13	c	7.3	W	Y	N	3	1.51	NAO
720	14-0153-14	c	8.1	W	Y	N	3	1.62	NAO
720	14-0153-15	d							found dead on 12/28

720	14-0158-1	a	9.1	W	Y	N	3	3.34	NAO
720	14-0158-2	a	9.0	W	Y	N	3	4.11	NAO
720	14-0158-3	a	8.5	W	Y	N	3	3.85	NAO
720	14-0158-4	a	9.7	W	Y	N	3	4.30	NAO
720	14-0158-5	a	9.3	W	Y	N	3	3.98	NAO
720	14-0158-6	c	7.8	W	Y	N	3	3.99	NAO
720	14-0158-7	a	8.5	W	Y	N	3	1.28	NAO
720	14-0158-8	a	8.3	W	Y	N	3	1.75	NAO
720	14-0158-9	a	8.4	W	Y	N	3	1.94	NAO
720	14-0158-10	a	9.2	W	Y	N	3	1.78	NAO
720	14-0158-11	a	8.0	W	Y	N	3	2.10	NAO
720	14-0158-12	c	8.7	W	Y	N	3	1.74	NAO
720	14-0158-13	c	8.8	W	Y	N	3	1.45	NAO
720	14-0158-14	c	8.6	W	Y	N	3	2.30	NAO
720	14-0158-15	c	7.7	W	Y	N	3	1.56	NAO
720	14-0160-1	a	9.0	W	Y	N	3	4.43	NAO
720	14-0160-2	a	9.9	W	Y	N	3	4.61	NAO
720	14-0160-3	a	9.3	W	Y	N	3	4.44	NAO
720	14-0160-4	a	9.4	W	Y	N	3	3.94	NAO
720	14-0160-5	a	9.7	W	Y	N	3	4.28	NAO
720	14-0160-6	a	9.0	W	Y	N	3	2.14	NAO
720	14-0160-7	a	9.6	W	Y	N	3	1.90	NAO
720	14-0160-8	a	8.9	W	Y	N	3	2.17	NAO
720	14-0160-9	a	8.4	W	Y	N	3	2.25	NAO
720	14-0160-10	a	9.1	W	Y	N	3	2.31	NAO
720	14-0160-11	c	8.8	W	Y	N	3	2.13	NAO
720	14-0160-12	c	9.2	W	Y	N	3	2.35	NAO
720	14-0160-13	c	8.6	W	Y	N	3	1.51	NAO
720	14-0160-14	c	9.2	W	Y	N	3	1.92	NAO
720	14-0165-1	a	8.3	W	Y	N	3	4.34	laceration on umbilical
720	14-0165-2	a	9.0	W	Y	N	3	3.40	NAO
720	14-0165-3	a	8.3	W	Y	N	3	4.30	NAO
720	14-0165-4	a	8.6	W	Y	N	3	3.87	NAO
720	14-0165-5	c	8.0	W	Y	N	3	1.85	NAO
720	14-0165-6	a	8.5	W	Y	N	3	3.57	NAO
720	14-0165-7	c	8.9	W	Y	N	3	3.56	NAO
720	14-0165-8	c	8.7	W	Y	N	3	3.22	NAO
720	14-0165-9	a	7.9	W	Y	N	3	1.30	NAO
720	14-0165-10	a	8.5	W	Y	N	3	1.88	NAO
720	14-0165-11	a	8.4	W	Y	N	3	1.95	NAO
720	14-0165-12	a	8.1	W	Y	N	3	1.67	NAO
720	14-0165-13	a	7.7	W	Y	N	3	1.24	NAO
720	14-0165-14	c	7.8	W	Y	N	3	1.85	NAO
720	14-0165-15	d							found dead on 12/21/13
720	14-0165-16								
720	14-0169-1	a	9.9	W	Y	N	3	4.35	NAO
720	14-0169-2	a	10.0	W	Y	N	3	3.96	NAO
720	14-0169-3	a	10.1	W	Y	N	3	3.39	NAO
720	14-0169-4	a	9.8	W	Y	N	3	3.61	NAO
720	14-0169-5	a	10.1	W	Y	N	3	3.88	NAO
720	14-0169-6	a	10.6	W	Y	N	3	4.07	NAO
720	14-0169-7	c	10.7	W	Y	N	3	4.08	NAO
720	14-0169-8	c	11.6	W	Y	N	3	4.54	NAO
720	14-0169-9	c	9.5	W	Y	N	3	4.05	NAO
720	14-0169-10	c	8.8	W	Y	N	3	3.28	NAO
720	14-0169-11	a	9.5	W	Y	N	3	1.61	NAO
720	14-0169-12	a	8.8	W	Y	N	3	1.77	NAO
720	14-0169-13	a	9.1	W	Y	N	3	2.26	NAO
720	14-0169-14	a	9.4	W	Y	N	3	2.04	NAO
720	14-0170-1	a	7.9	W	Y	N	3	4.13	NAO
720	14-0170-2	a	8.8	W	Y	N	3	4.14	NAO
720	14-0170-3	a	8.7	W	Y	N	3	3.78	NAO
720	14-0170-4	a	9.6	W	Y	N	3	4.25	NAO
720	14-0170-5	c	9.0	W	Y	N	3	1.53	misidentified as male at birth

720	14-0170-6	a	9.1	W	Y	N	3	4.44	NAO
720	14-0170-7	c	8.9	W	Y	N	3	4.46	NAO
720	14-0170-8	a	7.3	W	Y	N	3	1.52	NAO
720	14-0170-9	a	8.5	W	Y	N	3	1.74	NAO
720	14-0170-10	a	9.5	W	Y	N	3	1.95	NAO
720	14-0170-11	a	7.9	W	Y	N	3	1.95	NAO
720	14-0170-12	a	7.4	W	Y	N	3	2.01	NAO
720	14-0170-13	c	8.8	W	Y	N	3	2.10	NAO
720	14-0170-14	c	8.2	W	Y	N	3	1.64	NAO
720	14-0170-15	c	7.8	W	Y	N	3	1.91	NAO
720	14-0170-16	c	8.3	W	Y	N	3	2.06	NAO
720	14-0170-17	c	8.1	W	Y	N	3	1.58	NAO
720	14-0171-1	a	9.2	W	Y	N	3	4.16	NAO
720	14-0171-2	a	8.5	W	Y	N	3	3.87	NAO
720	14-0171-3	a	9.4	W	Y	N	3	4.04	NAO
720	14-0171-4	a	8.4	W	Y	N	3	3.80	NAO
720	14-0171-5	a	9.7	W	Y	N	3	3.85	NAO
720	14-0171-6	c	9.7	W	Y	N	3	3.90	NAO
720	14-0171-7	c	8.4	W	Y	N	3	3.17	NAO
720	14-0171-8	c	9.9	W	Y	N	3	4.76	NAO
720	14-0171-9	c	9.1	W	Y	N	3	4.44	NAO
720	14-0171-10	c	8.8	W	Y	N	3	4.40	NAO
720	14-0171-11	c	10.2	W	Y	N	3	4.24	NAO
720	14-0171-12	a	8.3	W	Y	N	3	2.02	NAO
720	14-0171-13	a	8.9	W	Y	N	3	1.66	NAO
720	14-0171-14	a	7.1	W	Y	N	3	2.19	NAO
720	14-0171-15	a	9.5	W	Y	N	3	1.86	NAO
720	14-0171-16	a	9.1	W	Y	N	3	1.68	NAO
720	14-0171-17	c	9.2	W	Y	N	3	2.16	NAO
720	14-0188-1	a	9.5	W	Y	N	3	3.83	NAO
720	14-0188-2	a	8.9	W	Y	N	3	3.68	NAO
720	14-0188-3	a	10.2	W	Y	N	3	3.97	NAO
720	14-0188-4	a	10.0	W	Y	N	3	3.76	NAO
720	14-0188-5	a	9.0	W	Y	N	3	4.08	NAO
720	14-0188-6	a	9.2	W	Y	N	3	1.80	NAO
720	14-0188-7	a	10.7	W	Y	N	3	1.90	NAO
720	14-0188-8	a	9.3	W	Y	N	3	2.04	NAO
720	14-0188-9	a	9.6	W	Y	N	3	2.43	NAO
720	14-0188-10	a	9.2	W	Y	N	3	2.01	NAO
720	14-0188-11	c	9.5	W	Y	N	3	1.69	NAO
720	14-0188-12	c	6.9	W	Y	N	3	2.02	NAO
720	14-0188-13	c	9.3	W	Y	N	3	2.39	NAO
720	14-0190-1	c	10.0	W	Y	N	3	2.26	misidentified as male at birth
720	14-0190-2	a	9.7	W	Y	N	3	4.57	NAO
720	14-0190-3	a	10.3	W	Y	N	3	4.22	NAO
720	14-0190-4	a	11.6	W	Y	N	3	4.65	NAO
720	14-0190-5	a	10.4	W	Y	N	3	3.72	NAO
720	14-0190-6	a	10.7	W	Y	N	3	4.05	NAO
720	14-0190-7	c	10.5	W	Y	N	3	4.87	NAO
720	14-0190-8	a	9.5	W	Y	N	3	1.72	NAO
720	14-0190-9	a	10.9	W	Y	N	3	1.81	NAO
720	14-0190-10	a	9.5	W	Y	N	3	1.69	NAO
720	14-0190-11	a	9.8	W	Y	N	3	1.75	NAO
720	14-0190-12	a	9.9	W	Y	N	3	1.78	NAO
720	14-0190-13	c	7.6	W	Y	N	3	1.58	NAO
720	14-0190-14	c	9.9	W	Y	N	3	2.03	NAO
720	14-0190-15	c	11.0	W	Y	N	3	2.19	NAO
720	14-0192-1	a	9.1	W	Y	N	3	3.64	NAO
720	14-0192-2	a	9.3	W	Y	N	3	4.05	NAO
720	14-0192-3	a	9.4	W	Y	N	3	4.24	NAO
720	14-0192-4	a	9.7	W	Y	N	3	4.71	NAO
720	14-0192-5	a	10.1	W	Y	N	3	4.62	NAO
720	14-0192-6	a	10.1	W	Y	N	3	4.21	NAO
720	14-0192-7	c	9.9	W	Y	N	3	3.83	NAO

720	14-0192-8	c	8.2	W	Y	N	3	3.68	NAO
720	14-0192-9	c	10.0	W	Y	N	3	4.59	NAO
720	14-0192-10	a	9.2	W	Y	N	3	1.75	NAO
720	14-0192-11	a	8.5	W	Y	N	3	1.77	NAO
720	14-0192-12	a	8.8	W	Y	N	3	1.91	NAO
720	14-0192-13	a	9.2	W	Y	N	3	1.96	NAO
720	14-0193-1	a	11.4	W	Y	N	3	4.91	NAO
720	14-0193-2	a	10.4	W	Y	N	3	3.79	NAO
720	14-0193-3	a	12.0	W	Y	N	3	4.23	NAO
720	14-0193-4	a	9.7	W	Y	N	3	3.91	NAO
720	14-0193-5	a	11.4	W	Y	N	3	4.60	NAO
720	14-0193-6	c	10.5	W	Y	N	3	3.90	NAO
720	14-0193-7	c	10.9	W	Y	N	3	3.81	NAO
720	14-0193-8	c	10.9	W	Y	N	3	4.14	NAO
720	14-0193-9	a	9.3	W	Y	N	3	1.50	NAO
720	14-0193-10	a	8.7	W	Y	N	3	1.38	NAO
720	14-0193-11	a	10.8	W	Y	N	3	1.71	NAO
720	14-0193-12	a	10.8	W	Y	N	3	1.91	NAO
720	14-0193-13	a	10.1	W	Y	N	3	1.71	NAO
720	14-0201-1	a	9.0	W	Y	N	3	3.37	NAO
720	14-0201-2	a	7.8	W	Y	N	3	3.60	NAO
720	14-0201-3	a	6.7	W	Y	N	3	3.19	NAO
720	14-0201-4	a	8.9	W	Y	N	3	4.02	NAO
720	14-0201-5	a	8.5	W	Y	N	3	3.70	NAO
720	14-0201-6	c	8.8	W	Y	N	3	3.88	NAO
720	14-0201-7	c	8.2	W	Y	N	3	3.68	NAO
720	14-0201-8	c	8.5	W	Y	N	3	3.71	NAO
720	14-0201-9	c	8.5	W	Y	N	3	3.84	NAO
720	14-0201-10	a	8.1	W	Y	N	3	1.73	NAO
720	14-0201-11	a	8.1	W	Y	N	3	1.55	NAO
720	14-0201-12	a	7.0	W	Y	N	3	1.33	NAO
720	14-0201-13	a	7.7	W	Y	N	3	2.03	NAO
720	14-0201-14	a	8.9	W	Y	N	3	1.58	NAO
720	14-0201-15	c	8.2	W	Y	N	3	1.65	NAO
720	14-0201-16	c	7.8	W	Y	N	3	1.95	NAO
720	14-0201-17	c	9.3	W	Y	N	3	1.43	NAO
720	14-0201-18	c	8.7	W	Y	N	3	1.95	NAO
720	14-0202-1	a	8.9	W	Y	N	3	3.62	NAO
720	14-0202-2	a	8.2	W	Y	N	3	3.04	NAO
720	14-0202-3	a	9.7	W	Y	N	3	3.15	NAO
720	14-0202-4	a	10.2	W	Y	N	3	3.71	NAO
720	14-0202-5	a	10.1	W	Y	N	3	3.62	NAO
720	14-0202-6	a	9.6	W	Y	N	3	3.78	NAO
720	14-0202-7	c	8.9	W	Y	N	3	3.91	NAO
720	14-0202-8	c	9.4	W	Y	N	3	3.84	NAO
720	14-0202-9	c	9.6	W	Y	N	3	3.28	NAO
720	14-0202-10	a	9.7	W	Y	N	3	2.05	NAO
720	14-0202-11	a	5.9	W	Y	N	3	1.31	NAO
720	14-0202-12	a	8.8	W	Y	N	3	1.68	NAO
720	14-0202-13	a	10.1	W	Y	N	3	1.74	NAO
720	14-0203-1	a	9.5	W	Y	N	3	3.07	NAO
720	14-0203-2	a	10.6	W	Y	N	3	3.52	NAO
720	14-0203-3	a	10.5	W	Y	N	3	4.55	NAO
720	14-0203-4	a	8.8	W	Y	N	3	3.05	NAO
720	14-0203-5	a	11.2	W	Y	N	3	3.80	NAO
720	14-0203-6	c	9.4	W	Y	N	3	3.62	NAO
720	14-0203-7	a	10.2	W	Y	N	3	1.39	NAO
720	14-0203-8	a	9.8	W	Y	N	3	1.65	NAO
720	14-0203-9	a	8.7	W	Y	N	3	1.61	NAO
720	14-0203-10	a	10.6	W	Y	N	3	1.67	NAO
720	14-0203-11	a	9.9	W	Y	N	3	1.32	NAO
720	14-0204-1	a	9.3	W	Y	N	3	3.46	NAO
720	14-0204-2	a	8.5	W	Y	N	3	3.57	NAO
720	14-0204-3	a	9.7	W	Y	N	3	3.11	NAO

720	14-0204-4	a	9.3	W	Y	N	3	3.17	NAO
720	14-0204-5	a	9.9	W	Y	N	3	4.30	NAO
720	14-0204-6	c	7.7	W	Y	N	3	2.89	NAO
720	14-0204-7	c	9.1	W	Y	N	3	3.42	NAO
720	14-0204-8	c	9.2	W	Y	N	3	3.68	NAO
720	14-0204-9	c	7.9	W	Y	N	3	3.28	NAO
720	14-0204-10	a	9.6	W	Y	N	3	2.13	NAO
720	14-0204-11	a	7.1	W	Y	N	3	1.41	bruise on shoulder
720	14-0204-12	a	7.3	W	Y	N	3	1.38	NAO
720	14-0204-13	a	8.0	W	Y	N	3	1.39	NAO
720	14-0204-14	a	8.3	W	Y	N	3	1.35	NAO
3600	14-0126-1	a	10.8	W	Y	N	3	3.90	NAO
3600	14-0126-2	a	9.9	W	Y	N	3	3.96	NAO
3600	14-0126-3	a	10.5	W	Y	N	3	4.33	NAO
3600	14-0126-4	a	10.2	W	Y	N	3	4.12	NAO
3600	14-0126-5	a	10.9	W	Y	N	3	4.50	NAO
3600	14-0126-6	d							dead on 12/23
3600	14-0126-7	a	10.6	W	Y	N	3	2.02	NAO
3600	14-0126-8	d							dead on 12/23
3600	14-0126-9	a	9.8	W	Y	N	3	2.10	NAO
3600	14-0126-10	d							dead on 12/23
3600	14-0126-11	a	10.0	W	Y	N	3	2.07	NAO
3600	14-0126-12	m							missing on 12/23
3600	14-0126-13	a	8.9	W	Y	N	3	2.14	NAO
3600	14-0126-14	a	8.7	W	Y	N	3	2.02	NAO
3600	14-0126-15	m							missing on 12/23
3600	14-0126-16	c	9.2	W	Y	N	3	1.92	NAO
3600	14-0127-1	a	7.4	W	Y	N	3	3.03	NAO
3600	14-0127-2	a	10.8	W	Y	N	3	3.60	NAO
3600	14-0127-3	a	11.5	W	Y	N	3	4.53	NAO
3600	14-0127-4	a	10.7	W	Y	N	3	4.03	NAO
3600	14-0127-5	a	9.8	W	Y	N	3	3.32	NAO
3600	14-0127-6	c	11.2	W	Y	N	3	4.11	NAO
3600	14-0127-7	c	10.7	W	Y	N	3	3.43	NAO
3600	14-0127-8	a	9.9	W	Y	N	3	1.88	NAO
3600	14-0127-9	a	9.6	W	Y	N	3	1.62	NAO
3600	14-0127-10	a	11.2	W	Y	N	3	1.80	NAO
3600	14-0127-11	a	9.8	W	Y	N	3	2.41	NAO
3600	14-0127-12	a	10.9	W	Y	N	3	1.86	NAO
3600	14-0131-1	a	9.9	W	Y	N	3	3.9	NAO
3600	14-0131-2	a	9.4	W	Y	N	3	4.1	NAO
3600	14-0131-3	a	10.1	W	Y	N	3	4.1	NAO
3600	14-0131-4	a	9.3	W	Y	N	3	3.8	NAO
3600	14-0131-5	a	9.3	W	Y	N	3	4.0	NAO
3600	14-0131-6	c	9.3	W	Y	N	3	4.0	NAO
3600	14-0131-7	c	9.4	W	Y	N	3	3.6	NAO
3600	14-0131-8	c	9.3	W	Y	N	3	3.7	NAO
3600	14-0131-9	c	9.0	W	Y	N	3	4.0	NAO
3600	14-0131-10	c	9.2	W	Y	N	3	3.7	NAO
3600	14-0131-11	a	8.0	W	Y	N	3	1.9	NAO
3600	14-0131-12	a	9.2	W	Y	N	3	2.1	NAO
3600	14-0131-13	a	8.7	W	Y	N	3	1.0	NAO
3600	14-0131-14	a	8.9	W	Y	N	3	2.0	NAO
3600	14-0131-15	a	9.3	W	Y	N	3	2.0	NAO
3600	14-0135-1	a	7.3	W	Y	N	3	4.10	NAO
3600	14-0135-2	a	7.3	W	Y	N	3	4.16	NAO
3600	14-0135-3	a	7.3	W	Y	N	3	3.53	NAO
3600	14-0135-4	a	7.8	W	Y	N	3	4.21	NAO
3600	14-0135-5	a	7.1	W	Y	N	3	3.68	NAO
3600	14-0135-6	a	8.8	W	Y	N	3	3.67	NAO
3600	14-0135-7	a	8.7	W	Y	N	3	4.31	NAO
3600	14-0135-8	a	8.2	W	Y	N	3	3.40	NAO
3600	14-0135-9	c	8.1	W	Y	N	3	3.43	purple spot between shoulder blades
3600	14-0135-10	c	7.7	W	Y	N	3	3.23	NAO

3600	14-0135-11	a	7.9	W	Y	N	3	1.77	NAO
3600	14-0135-12	a	7.9	W	Y	N	3	1.90	NAO
3600	14-0135-13	d							found dead on 12/24/13
3600	14-0139-1	a	10.5	W	Y	N	3	3.59	NAO
3600	14-0139-2	a	9.4	W	Y	N	3	3.44	NAO
3600	14-0139-3	a	11.0	W	Y	N	3	4.16	NAO
3600	14-0139-4	a	10.4	W	Y	N	3	3.77	NAO
3600	14-0139-5	a	10.1	W	Y	N	3	4.13	NAO
3600	14-0139-6	a	9.1	W	Y	N	3	3.69	NAO
3600	14-0139-7	c	10.0	W	Y	N	3	3.79	NAO
3600	14-0139-8	c	9.4	W	Y	N	3	3.53	NAO
3600	14-0139-9	c	10.3	W	Y	N	3	3.73	NAO
3600	14-0139-10	a	8.8	W	Y	N	3	1.60	NAO
3600	14-0139-11	a	9.4	W	Y	N	3	1.58	NAO
3600	14-0139-12	a	8.5	W	Y	N	3	1.73	NAO
3600	14-0139-13	a	8.6	W	Y	N	3	1.77	NAO
3600	14-0140-1	a	10.1	W	Y	N	3	1.91	misidentified as male at birth
3600	14-0140-2	a	9.9	W	Y	N	3	4.68	NAO
3600	14-0140-3	a	9.5	W	Y	N	3	4.02	NAO
3600	14-0140-4	a	10.8	W	Y	N	3	4.19	NAO
3600	14-0140-5	a	9.6	W	Y	N	3	4.38	NAO
3600	14-0140-6	a	9.4	W	Y	N	3	1.74	NAO
3600	14-0140-7	a	8.3	W	Y	N	3	1.47	NAO
3600	14-0140-8	a	10.1	W	Y	N	3	1.30	NAO
3600	14-0140-9	a	9.8	W	Y	N	3	2.12	NAO
3600	14-0140-10	a	9.1	W	Y	N	3	2.20	NAO
3600	14-0140-11	c	6.1	W	Y	N	3	1.93	NAO
3600	14-0140-12	c	9.1	W	Y	N	3	1.91	NAO
3600	14-0140-13	c	8.3	W	Y	N	3	1.92	NAO
3600	14-0140-14	c	10.4	W	Y	N	3	1.98	NAO
3600	14-0140-15	c	9.2	W	Y	N	3	1.77	NAO
3600	14-0140-16	c	8.7	W	Y	N	3	2.00	NAO
3600	14-0140-17	c	6.0	W	Y	N	3	2.02	NAO
3600	14-0141-1	a	9.1	W	Y	N	3	3.58	NAO
3600	14-0141-2	a	10.8	W	Y	N	3	4.21	NAO
3600	14-0141-3	a	9.8	W	Y	N	3	3.70	NAO
3600	14-0141-4	a	9.9	W	Y	N	3	3.40	NAO
3600	14-0141-5	a	8.8	W	Y	N	3	3.85	NAO
3600	14-0141-6	a	10.2	W	Y	N	3	3.39	NAO
3600	14-0141-7	c	10.6	W	Y	N	3	3.76	NAO
3600	14-0141-8	c	10.1	W	Y	N	3	3.72	NAO
3600	14-0141-9	c	9.7	W	Y	N	3	3.59	NAO
3600	14-0141-10	a	9.3	W	Y	N	3	1.30	NAO
3600	14-0141-11	a	8.5	W	Y	N	3	1.60	NAO
3600	14-0141-12	a	9.0	W	Y	N	3	1.91	NAO
3600	14-0141-13	a	9.0	W	Y	N	3	1.31	NAO
3600	14-0151-1	a	12.1	W	Y	N	3	3.97	NAO
3600	14-0151-2	a	11.9	W	Y	N	3	3.75	NAO
3600	14-0151-3	a	11.1	W	Y	N	3	3.94	NAO
3600	14-0151-4	a	12.3	W	Y	N	3	3.25	NAO
3600	14-0151-5	a	11.6	W	Y	N	3	4.48	NAO
3600	14-0151-6	a	9.2	W	Y	N	3	3.47	NAO
3600	14-0151-7	a	11.9	W	Y	N	3	3.47	NAO
3600	14-0151-8	d							dead on 12/22
3600	14-0151-9	a	12.4	W	Y	N	3	1.71	NAO
3600	14-0151-10	d							dead on 12/22
3600	14-0151-11	d							dead on 12/22
3600	14-0151-12	a	11.5	W	Y	N	3	1.99	NAO
3600	14-0151-13								
3600	14-0151-14								
3600	14-0155-1	a	10.7	W	Y	N	3	3.86	NAO
3600	14-0155-2	a	11.8	W	Y	N	3	4.01	NAO
3600	14-0155-3	a	11.4	W	Y	N	3	4.23	NAO
3600	14-0155-4	a	11.7	W	Y	N	3	4.96	NAO

3600	14-0155-5	a	10.9	W	Y	N	3	1.89	NAO
3600	14-0155-6	a	9.7	W	Y	N	3	1.96	NAO
3600	14-0155-7	a	11.5	W	Y	N	3	2.00	NAO
3600	14-0155-8	a	11.0	W	Y	N	3	1.13	NAO
3600	14-0155-9	a	11.1	W	Y	N	3	1.53	NAO
3600	14-0155-10	a	10.9	W	Y	N	3	2.14	NAO
3600	14-0155-11	c	10.7	W	Y	N	3	1.74	NAO
3600	14-0155-12	c	11.3	W	Y	N	3	1.88	NAO
3600	14-0159-1	a	9.1	W	Y	N	3	3.29	NAO
3600	14-0159-2	d							found dead on 12/23/13
3600	14-0159-3	a	9.4	W	Y	N	3	3.28	NAO
3600	14-0159-4	a	9.8	W	Y	N	3	3.63	NAO
3600	14-0159-5	a	9.6	W	Y	N	3	4.18	NAO
3600	14-0159-6	a	9.9	W	Y	N	3	3.45	NAO
3600	14-0159-7	a	9.2	W	Y	N	3	1.31	NAO
3600	14-0159-8	a	9.4	W	Y	N	3	2.26	NAO
3600	14-0159-9	a	9.1	W	Y	N	3	1.73	NAO
3600	14-0159-10	a	8.7	W	Y	N	3	1.69	NAO
3600	14-0159-11	a	7.9	W	Y	N	3	1.53	NAO
3600	14-0159-12	c	10.3	W	Y	N	3	2.33	NAO
3600	14-0159-13	c	9.4	W	Y	N	3	1.51	NAO
3600	14-0159-14	c	9.8	W	Y	N	3	1.66	NAO
3600	14-0159-15	c	9.8	W	Y	N	3	1.20	NAO
3600	14-0167-1	a	11.4	W	Y	N	3	4.29	NAO
3600	14-0167-2	a	10.7	W	Y	N	3	4.44	NAO
3600	14-0167-3	a	10.6	W	Y	N	3	4.59	NAO
3600	14-0167-4	a	10.3	W	Y	N	3	3.36	NAO
3600	14-0167-5	a	10.7	W	Y	N	3	4.11	NAO
3600	14-0167-6	c	9.7	W	Y	N	3	4.08	NAO
3600	14-0167-7	a	8.6	W	Y	N	3	2.06	NAO
3600	14-0167-8	a	9.9	W	Y	N	3	2.06	NAO
3600	14-0167-9	a	10.0	W	Y	N	3	1.75	NAO
3600	14-0167-10	a	9.7	W	Y	N	3	1.53	NAO
3600	14-0167-11	a	9.4	W	Y	N	3	2.12	NAO
3600	14-0167-12	c	8.9	W	Y	N	3	1.87	NAO
3600	14-0167-13								
3600									
3600	14-0172-1	a	10.0	W	Y	N	3	4.02	NAO
3600	14-0172-2	a	9.3	W	Y	N	3	4.36	NAO
3600	14-0172-3	a	9.2	W	Y	N	3	3.96	NAO
3600	14-0172-4	a	11.1	W	Y	N	3	4.03	NAO
3600	14-0172-5	a	9.9	W	Y	N	3	3.82	NAO
3600	14-0172-6	c	10.2	W	Y	N	3	3.96	NAO
3600	14-0172-7	c	9.5	W	Y	N	3	4.12	NAO
3600	14-0172-8	c	10.0	W	Y	N	3	3.99	NAO
3600	14-0172-9	c	9.8	W	Y	N	3	4.29	NAO
3600	14-0172-10	a	9.2	W	Y	N	3	1.81	NAO
3600	14-0172-11	a	10.5	W	Y	N	3	2.32	NAO
3600	14-0172-12	a	9.7	W	Y	N	3	1.86	NAO
3600	14-0172-13	a	9.3	W	Y	N	3	2.00	NAO
3600	14-0172-14	c	9.3	W	Y	N	3	3.82	NAO
3600	14-0172-15	a	9.0	W	Y	N	3	1.92	NAO
3600	14-0181-1	a	10.2	W	Y	N	3	4.08	NAO
3600	14-0181-2	m							missing on 12/22
3600	14-0181-3	a	10.0	W	Y	N	3	3.90	NAO
3600	14-0181-4	a	10.3	W	Y	N	3	3.71	NAO
3600	14-0181-5	a	9.4	W	Y	N	3	3.20	NAO
3600	14-0181-6	a	9.7	W	Y	N	3	1.54	NAO
3600	14-0181-7	a	9.9	W	Y	N	3	2.01	NAO
3600	14-0181-8	a	9.5	W	Y	N	3	1.94	NAO
3600	14-0181-9	a	9.6	W	Y	N	3	1.85	NAO
3600	14-0181-10	a	8.1	W	Y	N	3	1.50	NAO
3600	14-0181-11	a	8.9	W	Y	N	3	1.52	NAO
3600	14-0181-12	c	10.3	W	Y	N	3	2.46	NAO

3600	14-0181-13	c	9.7	W	Y	N	3	1.75	NAO
3600	14-0181-14	d							dead on 12/24
3600	14-0181-15	c	10.0	W	Y	N	3	1.65	NAO
3600	14-0182-1	a	9.9	W	Y	N	3	3.72	NAO
3600	14-0182-2	d							dead on 12/26/13
3600	14-0182-3	a	9.6	W	Y	N	3	4.19	NAO
3600	14-0182-4	a	7.3	W	Y	N	3	1.63	misidentified as male at birth
3600	14-0182-5	a	8.9	W	Y	N	3	3.50	NAO
3600	14-0182-6	a	9.6	W	Y	N	3	3.88	NAO
3600	14-0182-7	a	9.4	W	Y	N	3	1.73	NAO
3600	14-0182-8	a	10.2	W	Y	N	3	1.83	NAO
3600	14-0182-9	a	8.8	W	Y	N	3	1.72	NAO
3600	14-0182-10	a	9.0	W	Y	N	3	1.37	NAO
3600	14-0182-11	a	9.8	W	Y	N	3	1.82	NAO
3600	14-0182-12	c	9.4	W	Y	N	3	1.25	NAO
3600	14-0182-13	c	8.2	W	Y	N	3	1.72	NAO
3600	14-0182-14	c	9.9	W	Y	N	3	1.77	NAO
3600	14-0182-15								
3600									
3600									
3600	14-0189-1	d							dead on 12/27/13
3600	14-0189-2	d							dead on 12/27/13
3600	14-0189-3	d							dead on 12/27/13
3600	14-0189-4	d							dead on 12/27/13
3600	14-0189-5	d							dead on 12/27/13
3600	14-0189-6	d							dead on 12/27/13
3600	14-0189-7	d							dead on 12/27/13
3600	14-0189-8	d							dead on 12/27/13
3600	14-0189-9	d							dead on 12/27/13
3600	14-0189-10	d							dead on 12/27/13
3600	14-0189-11	d							dead on 12/27/13
3600	14-0189-12								
3600	14-0189-13								
3600	14-0189-14								
3600	14-0189-15								
3600	14-0189-16								
3600	14-0194-1	a	9.9	W	Y	N	3	4.49	NAO
3600	14-0194-2	a	8.8	W	Y	N	3	4.35	NAO
3600	14-0194-3	a	8.8	W	Y	N	3	3.26	NAO
3600	14-0194-4	d							found dead on 12/23/13
3600	14-0194-5	a	9.9	W	Y	N	3	4.46	NAO
3600	14-0194-6	a	9.1	W	Y	N	3	3.76	NAO
3600	14-0194-7	c	10.0	W	Y	N	3	4.10	NAO
3600	14-0194-8	c	9.0	W	Y	N	3	3.63	NAO
3600	14-0194-9	a	10.1	W	Y	N	3	1.76	NAO
3600	14-0194-10	a	8.8	W	Y	N	3	1.71	NAO
3600	14-0194-11	a	6.9	W	Y	N	3	1.75	NAO
3600	14-0194-12	a	7.9	W	Y	N	3	1.75	NAO
3600	14-0194-13	a	9.3	W	Y	N	3	1.79	NAO
3600	14-0194-14	c	8.9	W	Y	N	3	1.95	NAO
3600	14-0194-15								
3600	14-0208-1	a	8.6	W	Y	N	3	3.81	NAO
3600	14-0208-2	a	9.5	W	Y	N	3	4.30	NAO
3600	14-0208-3	a	7.3	W	Y	N	3	3.20	NAO
3600	14-0208-4	a	8.3	W	Y	N	3	4.73	NAO
3600	14-0208-5	a	8.2	W	Y	N	3	3.54	NAO
3600	14-0208-6	c	8.9	W	Y	N	3	4.05	NAO
3600	14-0208-7	a	7.0	W	Y	N	3	1.56	NAO
3600	14-0208-8	a	8.0	W	Y	N	3	1.89	NAO
3600	14-0208-9	a	9.1	W	Y	N	3	1.85	NAO
3600	14-0208-10	a	7.9	W	Y	N	3	1.49	NAO
3600	14-0208-11	a	7.4	W	Y	N	3	1.69	NAO
3600	14-0208-12	c	9.0	W	Y	N	3	1.54	NAO
3600	14-0208-13	c	7.7	W	Y	N	3	1.63	NAO

3600	14-0208-14	c	8.8	W	Y	N	3	1.89	NAO
3600	14-0208-15	c	7.9	W	Y	N	3	1.63	NAO
3600	14-0208-16	c	7.5	W	Y	N	3	1.36	NAO
3600	14-0208-17	c	9.8	W	Y	N	3	1.94	NAO
3600	14-0209-1	a	10.5	W	Y	N	3	4.09	NAO
3600	14-0209-2	a	11.5	W	Y	N	3	4.04	NAO
3600	14-0209-3	a	10.3	W	Y	N	3	4.01	NAO
3600	14-0209-4	a	10.3	W	Y	N	3	4.13	NAO
3600	14-0209-5	a	10.2	W	Y	N	3	3.74	NAO
3600	14-0209-6	c	10.1	W	Y	N	3	3.16	NAO
3600	14-0209-7	c	9.3	W	Y	N	3	3.91	NAO
3600	14-0209-8	c	9.5	W	Y	N	3	3.51	NAO
3600	14-0209-9	a	8.6	W	Y	N	3	1.66	NAO
3600	14-0209-10	a	7.5	W	Y	N	3	1.66	NAO
3600	14-0209-11	a	10.1	W	Y	N	3	2.30	NAO
3600	14-0209-12	a	9.0	W	Y	N	3	1.41	NAO
3600	14-0209-13	a	10.5	W	Y	N	3	1.93	NAO
3600	14-0209-14	c	8.6	W	Y	N	3	1.54	NAO
3600	14-0210-1	a	13.4	W	Y	N	3	4.00	NAO
3600	14-0210-2	a	11.9	W	Y	N	3	3.71	NAO
3600	14-0210-3	a	13.7	W	Y	N	3	5.06	NAO
3600	14-0210-4	a	11.6	W	Y	N	3	4.95	NAO
3600	14-0210-5	a	11.3	W	Y	N	3	4.23	NAO
3600	14-0210-6	c	11.0	W	Y	N	3	3.78	NAO
3600	14-0210-7	d							dead on 12/27/13
3600	14-0210-8	a	11.0	W	Y	N	3	2.24	NAO
3600	14-0210-9	a	12.8	W	Y	N	3	2.14	NAO
3600	14-0210-10	a	12.1	W	Y	N	3	2.22	NAO
3600	14-0210-11	a	11.4	W	Y	N	3	2.20	NAO
3600	14-0210-12	a	13.5	W	Y	N	3	2.26	NAO
3600	14-0210-13								
3600	14-0210-14								
3600	14-0210-15								
3600	14-0210-16								
3600	14-0210-17								
3600	14-0213-1	a	10.8	W	Y	N	3	4.31	NAO
3600	14-0213-2	a	10.7	W	Y	N	3	4.84	NAO
3600	14-0213-3	a	10.4	W	Y	N	3	4.50	NAO
3600	14-0213-4	a	11.3	W	Y	N	3	4.64	NAO
3600	14-0213-5	a	10.6	W	Y	N	3	4.20	NAO
3600	14-0213-6	c	9.7	W	Y	N	3	4.77	NAO
3600	14-0213-7	c	8.8	W	Y	N	3	3.96	NAO
3600	14-0213-8	a	9.6	W	Y	N	3	2.06	NAO
3600	14-0213-9	a	10.0	W	Y	N	3	1.94	NAO
3600	14-0213-10	a	10.2	W	Y	N	3	1.56	NAO
3600	14-0213-11	a	11.0	W	Y	N	3	1.51	NAO
3600	14-0213-12	a	10.0	W	Y	N	3	1.67	NAO
3600	14-0213-13	c	9.5	W	Y	N	3	2.02	NAO
3600	14-0216-1	a	8.3	W	Y	N	3	3.39	NAO
3600	14-0216-2	a	9.5	W	Y	N	3	3.79	NAO
3600	14-0216-3	a	8.7	W	Y	N	3	3.53	NAO
3600	14-0216-4	a	6.5	W	Y	N	3	3.29	NAO
3600	14-0216-5	a	9.2	W	Y	N	3	3.73	NAO
3600	14-0216-6	a	9.8	W	Y	N	3	3.62	NAO
3600	14-0216-7	c	10.3	W	Y	N	3	3.84	NAO
3600	14-0216-8	a	7.9	W	Y	N	3	1.29	NAO
3600	14-0216-9	a	7.7	W	Y	N	3	1.31	NAO
3600	14-0216-10	d							found dead on 12/25/13
3600	14-0216-11	a	8.4	W	Y	N	3	1.36	NAO
3600	14-0216-12	a	9.4	W	Y	N	3	1.79	NAO
3600	14-0219-1	a	9.7	W	Y	N	3	2.76	NAO
3600	14-0219-2	a	7.0	W	Y	N	3	2.84	NAO
3600	14-0219-3	a	9.5	W	Y	N	3	3.19	NAO
3600	14-0219-4	a	6.5	W	Y	N	3	3.10	NAO

3600	14-0219-5	a	8.4	W	Y	N	3	3.16	NAO
3600	14-0219-6	c	8.2	W	Y	N	3	2.77	NAO
3600	14-0219-7	c	7.8	W	Y	N	3	3.11	NAO
3600	14-0219-8	c	8.2	W	Y	N	3	3.04	NAO
3600	14-0219-9	c	8.0	W	Y	N	3	2.85	NAO
3600	14-0219-10	a	7.5	W	Y	N	3	1.38	NAO
3600	14-0219-11	a	8.3	W	Y	N	3	1.41	NAO
3600	14-0219-12	a	8.4	W	Y	N	3	1.72	NAO
3600	14-0219-13	a	7.2	W	Y	N	3	1.33	NAO
3600	14-0219-14	a	8.3	W	Y	N	3	1.41	NAO
3600	14-0219-15	c	6.7	W	Y	N	3	1.14	NAO

Table G-4 cont.
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Observations

TX	Unique Pup#	PND7 STATUS	PND7 BW	PND7 BT	MILK	PND7 ACT	PND7 REACT	PND7 OBS
0	14-0121-1	a	14.9	W	Y	N	3	NAO
0	14-0121-2	a	14.4	W	Y	N	3	NAO
0	14-0121-3	a	14.2	W	Y	N	3	NAO
0	14-0121-4	a	14.3	W	Y	N	3	NAO
0	14-0121-5	a	14.1	W	Y	N	3	NAO
0	14-0121-6	a	10.8	W	Y	N	3	NAO
0	14-0121-7	a	14.6	W	Y	N	3	NAO
0	14-0121-8	a	13.9	W	Y	N	3	NAO
0	14-0121-9	a	14.6	w	y	n	3	NAO
0	14-0121-10	a	14.2	W	Y	N	3	NAO
0	14-0121-11							
0	14-0121-12							
0	14-0122-1	a	14.7	W	Y	N	3	NAO
0	14-0122-2	a	16.6	W	Y	N	3	NAO
0	14-0122-3	a	15.1	W	Y	N	3	NAO
0	14-0122-4	a	13.7	W	Y	N	3	NAO
0	14-0122-5	a	15.5	W	Y	N	3	NAO
0	14-0122-6							
0	14-0122-7							
0	14-0122-8	a	15.2	W	Y	N	3	NAO
0	14-0122-9	a	14.8	W	Y	N	3	NAO
0	14-0122-10	a	13.4	W	Y	N	3	NAO
0	14-0122-11	a	14.3	w	y	n	3	NAO
0	14-0122-12	a	16.2	w	y	n	3	NAO
0	14-0122-13							
0	14-0130-1	a	17.1	w	y	n	3	NAO
0	14-0130-2	a	18.0	w	y	n	3	NAO
0	14-0130-3	a	17.2	w	y	n	3	NAO
0	14-0130-4	a	17.7	w	y	n	3	NAO
0	14-0130-5	a	16.7	w	y	n	3	NAO
0	14-0130-6							
0	14-0130-7	a	15.7	w	y	n	3	NAO
0	14-0130-8	a	18.3	w	y	n	3	NAO
0	14-0130-9	a	17.1	w	y	n	3	NAO
0	14-0130-10	a	16.7	w	y	n	3	NAO
0	14-0130-11	a	15.6	w	y	n	3	NAO
0	14-0130-12							
0	14-0133-1	a	13.6	w	y	n	3	entire litter has small scratches all over body

0	14-0133-2	a	16.4	w	y	n	3	entire litter has small scratches all over body
0	14-0133-3	a	16.4	w	y	n	3	entire litter has small scratches all over body
0	14-0133-4	a	15.5	w	y	n	3	entire litter has small scratches all over body
0	14-0133-5	a	13.9	w	y	n	3	entire litter has small scratches all over body
0	14-0133-6							
0	14-0133-7							
0	14-0133-8							
0	14-0133-9							
0	14-0133-10							
0	14-0133-11							
0	14-0133-12	a	13.3	w	y	n	3	entire litter has small scratches all over body
0	14-0133-13							
0	14-0133-14	a	12.6	w	y	n	3	entire litter has small scratches all over body
0	14-0133-15	a	12.8	w	y	n	3	entire litter has small scratches all over body
0	14-0133-16	a	13.6	w	y	n	3	entire litter has small scratches all over body
0	14-0133-17	a	14.2	w	y	n	3	entire litter has small scratches all over body
0	14-0133-18							
0	14-0133-19							
0	14-0136-1							
0	14-0136-2							
0	14-0136-3							
0	14-0136-4							
0	14-0136-5							
0	14-0136-6							
0	14-0136-7							
0	14-0136-8							
0	14-0136-9							
0	14-0136-10							
0	14-0136-11							
0	14-0136-12							
0	14-0136-13							
0	14-0136-14							
0	14-0136-15							
0	14-0136-16							
0	14-0136-17							
0	14-0143-1	a	17.6	w	y	n	3	NAO
0	14-0143-2							
0	14-0143-3	a	17.0	w	y	n	3	NAO
0	14-0143-4	a	15.2	w	y	n	3	NAO
0	14-0143-5	a	16.2	w	y	n	3	NAO
0	14-0143-6	a	16.2	w	y	n	3	NAO
0	14-0143-7	a	15.5	w	y	n	3	NAO
0	14-0143-8	a	14.8	w	y	n	3	NAO
0	14-0143-9	a	12.6	w	y	n	3	NAO
0	14-0143-10	a	15.4	w	y	n	3	NAO
0	14-0148-1	a	17.9	w	y	n	3	NAO
0	14-0148-2	a	15.5	w	y	n	3	NAO
0	14-0148-3	a	15.6	w	y	n	3	NAO
0	14-0148-4	a	16.8	w	y	n	3	NAO
0	14-0148-5	a	16.7	w	y	n	3	NAO
0	14-0148-6							
0	14-0148-7							
0	14-0148-8	a	15.4	w	y	n	3	NAO
0	14-0148-9	a	14.9	w	y	n	3	NAO
0	14-0148-10	a	15.7	w	y	n	3	NAO
0	14-0148-11	a	16.4	w	y	n	3	NAO

0	14-0148-12	a	14.7	w	y	n	3	NAO
0	14-0148-13							
0	14-0149-1	a	12.0	w	y	n	3	NAO
0	14-0149-2	a	12.0	w	y	n	3	NAO
0	14-0149-3	a	11.6	w	y	n	3	NAO
0	14-0149-4	a	12.8	w	y	n	3	NAO
0	14-0149-5	a	12.4	w	y	n	3	NAO
0	14-0149-6							
0	14-0149-7							
0	14-0149-8							
0	14-0149-9	a	11.3	w	y	n	3	NAO
0	14-0149-10	a	11.7	w	y	n	3	NAO
0	14-0149-11	a	10.8	w	y	n	3	NAO
0	14-0149-12	a	11.8	w	y	n	3	NAO
0	14-0149-13	a	11.8	w	y	n	3	NAO
0	14-0149-14							
0	14-0149-15							
0	14-0149-16							
0	14-0149-17							
0	14-0150-1	a	12.3	w	y	n	3	NAO
0	14-0150-2	a	14.7	w	y	n	3	NAO
0	14-0150-3	a	14.8	w	y	n	3	NAO
0	14-0150-4	a	12.8	w	y	n	3	NAO
0	14-0150-5	a	12.5	w	y	n	3	growth on left side of mouth
0	14-0150-6	a	13.7	w	y	n	3	NAO
0	14-0150-7							
0	14-0150-8							
0	14-0150-9							
0	14-0150-10							
0	14-0150-11							
0	14-0150-12							
0	14-0150-13	a	15.2	w	y	n	3	NAO
0	14-0150-14	a	13.2	w	y	n	3	NAO
0	14-0150-15	a	12.7	w	y	n	3	NAO
0	14-0150-16	a	15.1	w	y	n	3	NAO
0	14-0150-17							
0	14-0156-1	a	15.5	w	y	n	3	NAO
0	14-0156-2	a	15.0	w	y	n	3	NAO
0	14-0156-3	a	16.8	w	y	n	3	NAO
0	14-0156-4	a	16.2	w	y	n	3	NAO
0	14-0156-5	a	15.9	w	y	n	3	NAO
0	14-0156-6							
0	14-0156-7							
0	14-0156-8							
0	14-0156-9							
0	14-0156-10	a	15.2	w	y	n	3	NAO
0	14-0156-11	a	15.7	w	y	n	3	NAO
0	14-0156-12	a	14.9	w	y	n	3	NAO
0	14-0156-13	a	11.6	w	y	n	3	NAO
0	14-0156-14	a	14.6	w	y	n	3	NAO
0	14-0156-15							
0	14-0157-1	a	14.8	w	y	n	3	NAO
0	14-0157-2	a	15.0	w	y	n	3	NAO
0	14-0157-3	a	15.4	w	y	n	3	NAO
0	14-0157-4	a	16.1	w	y	n	3	NAO
0	14-0157-5	a	14.9	w	y	n	3	NAO

0	14-0157-6							
0	14-0157-7							
0	14-0157-8							
0	14-0157-9	a	14.5	w	y	n	3	NAO
0	14-0157-10	a	14.4	w	y	n	3	NAO
0	14-0157-11	a	14.7	w	y	n	3	NAO
0	14-0157-12	a	14.4	w	y	n	3	NAO
0	14-0157-13	a	14.1	w	y	n	3	NAO
0	14-0157-14							
0	14-0157-15							
0	14-0161-1	a	15.3	w	y	n	3	NAO
0	14-0161-2	a	16.0	w	y	n	3	NAO
0	14-0161-3	a	16.0	w	y	n	3	NAO
0	14-0161-4	a	15.2	w	y	n	3	NAO
0	14-0161-5	a	14.7	w	y	n	3	NAO
0	14-0161-6	a	15.3	w	y	n	3	NAO
0	14-0161-7	a	15.4	w	y	n	3	NAO
0	14-0161-8	a	16.2	w	y	n	3	NAO
0	14-0161-9							
0	14-0161-10							
0	14-0161-11	a	14.4	w	y	n	3	NAO
0	14-0161-12	a	15.1	w	y	n	3	NAO
0	14-0162-1	a	11.2	w	y	n	3	NAO
0	14-0162-2	a	12.8	w	y	n	3	NAO
0	14-0162-3	a	14.4	w	y	n	3	NAO
0	14-0162-4	a	15.1	w	y	n	3	NAO
0	14-0162-5	a	14.7	w	y	n	3	NAO
0	14-0162-6							
0	14-0162-7							
0	14-0162-8							
0	14-0162-9							
0	14-0162-10							
0	14-0162-11	a	12.7	w	y	n	3	NAO
0	14-0162-12	a	14.0	w	y	n	3	NAO
0	14-0162-13	a	12.6	w	y	n	3	NAO
0	14-0162-14	a	14.6	w	y	n	3	NAO
0	14-0162-15	a	12.9	w	y	n	3	NAO
0	14-0162-16							
0	14-0163-1	a	16.5	w	y	n	3	NAO
0	14-0163-2	a	17.1	w	y	n	3	NAO
0	14-0163-3	a	15.4	w	y	n	3	NAO
0	14-0163-4	a	16.7	w	y	n	3	NAO
0	14-0163-5	a	15.8	w	y	n	3	NAO
0	14-0163-6							
0	14-0163-7							
0	14-0163-8							
0	14-0163-9							
0	14-0163-10	a	15.9	w	y	n	3	NAO
0	14-0163-11	a	15.9	w	y	n	3	NAO
0	14-0163-12	a	14.9	w	y	n	3	scab on head
0	14-0163-13	a	13.3	w	y	n	3	NAO
0	14-0163-14	a	13.0	w	y	n	3	NAO
0	14-0163-15							
0	14-0163-16							
0	14-0173-1	a	15.2	w	y	n	3	NAO
0	14-0173-2	a	13.0	w	y	n	3	NAO

0	14-0173-3	a	13.5	w	y	n	3	NAO
0	14-0173-4	a	14.2	w	y	n	3	NAO
0	14-0173-5	a	15.1	w	y	n	3	NAO
0	14-0173-6	a	13.6	w	y	n	3	NAO
0	14-0173-7	a	13.7	w	y	n	3	NAO
0	14-0173-8	a	13.5	w	y	n	3	NAO
0	14-0173-9	a	13.7	w	y	n	3	NAO
0	14-0173-10	a	15.1	w	y	n	3	NAO
0	14-0173-11							
0	14-0173-12							
0	14-0173-13							
0	14-0173-14							
0	14-0179-1	a	15.6	w	y	n	3	NAO
0	14-0179-2	a	17.0	w	y	n	3	NAO
0	14-0179-3	a	16.1	w	y	n	3	NAO
0	14-0179-4	a	15.8	w	y	n	3	NAO
0	14-0179-5	a	13.4	w	y	n	3	NAO
0	14-0179-6	a	15.1	w	y	n	3	NAO
0	14-0179-7	a	15.3	w	y	n	3	NAO
0	14-0179-8	a	13.8	w	y	n	3	NAO
0	14-0179-9	a	15.7	w	y	n	3	NAO
0	14-0179-10	a	15.7	w	y	n	3	NAO
0	14-0179-11							
0	14-0179-12							
0	14-0185-1	a	13.2	w	y	n	3	NAO
0	14-0185-2	a	13.3	w	y	n	3	NAO
0	14-0185-3	a	13.8	w	y	n	3	NAO
0	14-0185-4	a	14.8	w	y	n	3	NAO
0	14-0185-5	a	13.5	w	y	n	3	NAO
0	14-0185-6							
0	14-0185-7							
0	14-0185-8	a	12.3	w	y	n	3	misidentified at birth as female
0	14-0185-9	a	12.5	w	y	n	3	NAO
0	14-0185-10	a	12.0	w	y	n	3	NAO
0	14-0185-11	a	13.5	w	y	n	3	NAO
0	14-0185-12	a	10.1	w	y	n	3	scab on tip of tail
0	14-0185-13							
0	14-0185-14							
0	14-0185-15							
0	14-0185-16							
0	14-0186-1	a	15.4	w	y	n	3	NAO
0	14-0186-2	a	12.9	w	y	n	3	NAO
0	14-0186-3	a	14.9	w	y	n	3	NAO
0	14-0186-4	a	14.2	w	y	n	3	NAO
0	14-0186-5	a	14.9	w	y	n	3	NAO
0	14-0186-6							
0	14-0186-7							
0	14-0186-8							
0	14-0186-9	a	14.0	w	y	n	3	NAO
0	14-0186-10							
0	14-0186-11	a	14.0	w	y	n	3	NAO
0	14-0186-12	a	14.6	w	y	n	3	NAO
0	14-0186-13	a	14.2	w	y	n	3	NAO
0	14-0186-14	a	15.9	w	y	n	3	NAO
0	14-0191-1	a	14.6	w	y	n	3	NAO
0	14-0191-2	a	13.3	w	y	n	3	NAO

0	14-0191-3	a	14.4	w	y	n	3	NAO
0	14-0191-4	a	13.8	w	y	n	3	NAO
0	14-0191-5	a	11.6	w	y	n	3	NAO
0	14-0191-6							
0	14-0191-7							
0	14-0191-8	a	13.3	w	y	n	3	NAO
0	14-0191-9	a	13.8	w	y	n	3	NAO
0	14-0191-10	a	13.0	w	y	n	3	NAO
0	14-0191-11	a	12.0	w	y	n	3	NAO
0	14-0191-12	a	13.5	w	y	n	3	NAO
0	14-0191-13							
0	14-0191-14							
0	14-0196-1	a	15.9	w	y	n	3	NAO
0	14-0196-2	a	16.2	w	y	n	3	NAO
0	14-0196-3	a	13.6	w	y	n	3	NAO
0	14-0196-4	a	16.3	w	y	n	3	NAO
0	14-0196-5	a	18.2	w	y	n	3	NAO
0	14-0196-6							
0	14-0196-7							
0	14-0196-8							
0	14-0196-9	a	17.8	w	y	n	3	NAO
0	14-0196-10	a	15.8	w	y	n	3	NAO
0	14-0196-11	a	13.4	w	y	n	3	NAO
0	14-0196-12	a	15.9	w	y	n	3	NAO
0	14-0196-13	a	14.5	w	y	n	3	NAO
0	14-0196-14							
0	14-0196-15							
0	14-0196-16							
0	14-0196-17							
0	14-0198-1	a	17.1	w	y	n	3	NAO
0	14-0198-2	a	15.5	w	y	n	3	NAO
0	14-0198-3	a	16.0	w	y	n	3	NAO
0	14-0198-4	a	15.6	w	y	n	3	NAO
0	14-0198-5	a	14.6	w	y	n	3	NAO
0	14-0198-6							
0	14-0198-7	a	15.1	w	y	n	3	NAO
0	14-0198-8	a	14.8	w	y	n	3	NAO
0	14-0198-9	a	13.5	w	y	n	3	NAO
0	14-0198-10	a	15.8	w	y	n	3	NAO
0	14-0198-11							
0	14-0198-12	a	13.5	w	y	n	3	NAO
0	14-0198-13							
0	14-0198-14							
0	14-0205-1							
0	14-0205-2							
0	14-0205-3							
0	14-0205-4							
0	14-0205-5							
0	14-0205-6							
0	14-0205-7							
0	14-0205-8							
0	14-0205-9							
0	14-0205-10							
0	14-0205-11							
0	14-0205-12							
0								

0	14-0215-1	a	17.1	w	y	n	3	NAO
0	14-0215-2	a	17.3	w	y	n	3	NAO
0	14-0215-3	a	16.5	w	y	n	3	NAO
0	14-0215-4	a	17.4	w	y	n	3	NAO
0	14-0215-5	a		w	y	n	3	NAO
0	14-0215-6							
0	14-0215-7							
0	14-0215-8							
0	14-0215-9							
0	14-0215-10	a	14.7	w	y	n	3	NAO
0	14-0215-11	a	15.2	w	y	n	3	NAO
0	14-0215-12	a	16.1	w	y	n	3	scab on back
0	14-0215-13	a	16.3	w	y	n	3	NAO
0	14-0215-14	a	15.9	w	y	n	3	NAO
0	14-0217-1	a	15.4	w	y	n	3	NAO
0	14-0217-2	a	13.4	w	y	n	3	NAO
0	14-0217-3	a	16.6	w	y	n	3	NAO
0	14-0217-4	a	15.2	w	y	n	3	NAO
0	14-0217-5	a	15.7	w	y	n	3	NAO
0	14-0217-6							
0	14-0217-7	a	12.0	w	y	n	3	NAO
0	14-0217-8	a	13.3	w	y	n	3	NAO
0	14-0217-9	a	14.1	w	y	n	3	NAO
0	14-0217-10	a	14.0	w	y	n	3	NAO
0	14-0217-11	a	13.9	w	y	n	3	NAO
0	14-0217-12							
0	14-0217-13							
0	14-0217-14							
0	14-0217-15							
144	14-0123-1	a	15.9	w	y	n	3	NAO
144	14-0123-2	a	14.3	w	y	n	3	NAO
144	14-0123-3	a	15.2	w	y	n	3	NAO
144	14-0123-4	a	14.2	w	y	n	3	NAO
144	14-0123-5	a	15.2	w	y	n	3	NAO
144	14-0123-6							
144	14-0123-7							
144	14-0123-8	a	13.6	w	y	n	3	NAO
144	14-0123-9	a	13.9	w	y	n	3	NAO
144	14-0123-10	a	13.3	w	y	n	3	NAO
144	14-0123-11	a	13.9	w	y	n	3	NAO
144	14-0123-12	a	15.1	w	y	n	3	NAO
144	14-0123-13							
144	14-0123-14							
144	14-0123-15							
144								
144	14-0129-1	a	12.3	w	y	n	3	NAO
144	14-0129-2	a	13.9	w	y	n	3	NAO
144	14-0129-3	a	14.5	w	y	n	3	NAO
144	14-0129-4	a	14.1	w	y	n	3	NAO
144	14-0129-5	a	13.1	w	y	n	3	NAO
144	14-0129-6							
144	14-0129-7							
144	14-0129-8							
144	14-0129-9	a	14.3	w	y	n	3	NAO
144	14-0129-10	a	15.1	w	y	n	3	NAO
144	14-0129-11	a	13.7	w	y	n	3	NAO

144	14-0129-12	a	14.0	w	y	n	3	NAO
144	14-0129-13	a	13.0	w	y	n	3	NAO
144	14-0129-14							
144	14-0129-15							
144	14-0129-16							
144	14-0134-1	a	15.5	w	y	n	3	NAO
144	14-0134-2	a	15.2	w	y	n	3	NAO
144	14-0134-3	a	16.2	w	y	n	3	NAO
144	14-0134-4	a	15.4	w	y	n	3	NAO
144	14-0134-5	a	14.7	w	y	n	3	NAO
144	14-0134-6							
144	14-0134-7	a	14.1	w	y	n	3	NAO
144	14-0134-8	a	15.9	w	y	n	3	NAO
144	14-0134-9	a	13.8	w	y	n	3	NAO
144	14-0134-10	a	15.7	w	y	n	3	NAO
144	14-0134-11	a	15.7	w	y	n	3	NAO
144	14-0134-12							
144	14-0134-13							
144	14-0134-14							
144	14-0137-1	a	15.6	w	y	n	3	NAO
144	14-0137-2	a	15.3	w	y	n	3	NAO
144	14-0137-3	a	15.4	w	y	n	3	NAO
144	14-0137-4	a	14.8	w	y	n	3	NAO
144	14-0137-5	a	14.5	w	y	n	3	NAO
144	14-0137-6	a	15.2	w	y	n	3	NAO
144	14-0137-7	a	14.8	w	y	n	3	NAO
144	14-0137-8	a	13.5	w	y	n	3	NAO
144	14-0137-9	a	13.7	w	y	n	3	NAO
144	14-0137-10	a	12.7	w	y	n	3	NAO
144	14-0137-11							
144	14-0137-12							
144	14-0137-13							
144	14-0137-14							
144	14-0154-1	a	19.7	w	y	n	3	NAO
144	14-0154-2	a	17.5	w	y	n	3	NAO
144	14-0154-3	a	18.5	w	y	n	3	NAO
144	14-0154-4	a	18.7	w	y	n	3	NAO
144	14-0154-5	a	18.9	w	y	n	3	NAO
144	14-0154-6	a	15.8	w	y	n	3	NAO
144	14-0154-7	a	14.8	w	y	n	3	NAO
144	14-0154-8	a	16.0	w	y	n	3	NAO
144	14-0164-1	a	16.5	w	y	n	3	NAO
144	14-0164-2							
144	14-0164-3	a	15.4	w	y	n	3	NAO
144	14-0164-4							
144	14-0164-5	a	14.3	w	y	n	3	NAO
144	14-0164-6	a	15.2	w	y	n	3	NAO
144	14-0164-7	a	13.1	w	y	n	3	NAO
144	14-0164-8	a	15.1	w	y	n	3	NAO
144	14-0164-9	a	14.8	w	y	n	3	NAO
144	14-0164-10	a	15.8	w	y	n	3	NAO
144	14-0164-11	a	14.8	w	y	n	3	NAO
144	14-0164-12	a	15.1	w	y	n	3	NAO
144	14-0164-13							
144	14-0164-14							
144	14-0164-15							

144	14-0166-1	a	12.6	w	y	n	3	NAO
144	14-0166-2	a	14.1	w	y	n	3	NAO
144	14-0166-3	a	13.9	w	y	n	3	NAO
144	14-0166-4	a	14.9	w	y	n	3	NAO
144	14-0166-5	a	13.4	w	y	n	3	NAO
144	14-0166-6							
144	14-0166-7							
144	14-0166-8	a	13.8	w	y	n	3	NAO
144	14-0166-9	a	11.4	w	y	n	3	NAO
144	14-0166-10	a	13.0	w	y	n	3	NAO
144	14-0166-11	a	14.4	w	y	n	3	NAO
144	14-0166-12	a	10.4	w	y	n	3	NAO
144	14-0166-13							
144	14-0166-14							
144	14-0166-15							
144	14-0166-16							
144	14-0166-17							
144	14-0174-1	a	15.0	w	y	n	3	NAO
144	14-0174-2	a	14.1	w	y	n	3	NAO
144	14-0174-3	a	13.4	w	y	n	3	NAO
144	14-0174-4	a	13.6	w	y	n	3	NAO
144	14-0174-5	a	13.0	w	y	n	3	NAO
144	14-0174-6							
144	14-0174-7							
144	14-0174-8	a	13.6	w	y	n	3	NAO
144	14-0174-9	a	13.4	w	y	n	3	NAO
144	14-0174-10	a	13.3	w	y	n	3	NAO
144	14-0174-11	a	12.1	w	y	n	3	NAO
144	14-0174-12	a	15.5	w	y	n	3	NAO
144	14-0174-13							
144	14-0174-14							
144	14-0174-15							
144	14-0174-16							
144	14-0175-1	a	17.0	w	y	n	3	NAO
144	14-0175-2	a	16.0	w	y	n	3	NAO
144	14-0175-3	a	16.2	w	y	n	3	NAO
144	14-0175-4	a	15.3	w	y	n	3	NAO
144	14-0175-5	a	16.2	w	y	n	3	NAO
144	14-0175-6	a	15.5	w	y	n	3	NAO
144	14-0175-7	a	15.8	w	y	n	3	NAO
144	14-0175-8	a	16.9	w	y	n	3	NAO
144	14-0175-9	a	16.8	w	y	n	3	NAO
144	14-0175-10	a	15.5	w	y	n	3	NAO
144	14-0175-11							
144	14-0175-12							
144	14-0176-1	a	13.3	w	y	n	3	NAO
144	14-0176-2	a	14.7	w	y	n	3	NAO
144	14-0176-3	a	14.4	w	y	n	3	NAO
144	14-0176-4	a	15.3	w	y	n	3	NAO
144	14-0176-5							
144	14-0176-6	a	13.4	w	y	n	3	NAO
144	14-0176-7	a	14.6	w	y	n	3	NAO
144	14-0176-8	a	13.6	w	y	n	3	NAO
144	14-0176-9	a	15.0	w	y	n	3	NAO
144	14-0176-10	a	13.7	w	y	n	3	NAO
144	14-0176-11	a	13.8	w	y	n	3	NAO

144	14-0176-12							
144	14-0176-13							
144	14-0176-14							
144	14-0176-15							
144	14-0176-16							
144	14-0177-1	a	14.4	w	y	n	3	NAO
144	14-0177-2	a	13.2	w	y	n	3	NAO
144	14-0177-3	a	14.7	w	y	n	3	NAO
144	14-0177-4	a	14.3	w	y	n	3	NAO
144	14-0177-5	a	15.6	w	y	n	3	NAO
144	14-0177-6							
144	14-0177-7							
144	14-0177-8	a	12.9	w	y	n	3	NAO
144	14-0177-9	a	12.6	w	y	n	3	NAO
144	14-0177-10	a	14.5	w	y	n	3	NAO
144	14-0177-11	a	13.3	w	y	n	3	NAO
144	14-0177-12	a	13.6	w	y	n	3	NAO
144	14-0177-13							
144	14-0177-14							
144	14-0177-15							
144	14-0177-16							
144	14-0177-17							
144	14-0177-18							
144	14-0178-1	a	16.0	w	y	n	3	NAO
144	14-0178-2	a	17.1	w	y	n	3	NAO
144	14-0178-3	a	15.8	w	y	n	3	NAO
144	14-0178-4	a	15.2	w	y	n	3	NAO
144	14-0178-5	a	16.9	w	y	n	3	NAO
144	14-0178-6							
144	14-0178-7							
144	14-0178-8							
144	14-0178-9							
144	14-0178-10							
144	14-0178-11	a	13.9	w	y	n	3	NAO
144	14-0178-12	a	12.5	w	y	n	3	NAO
144	14-0178-13	a	12.6	w	y	n	3	NAO
144	14-0178-14	a	16.3	w	y	n	3	NAO
144	14-0178-15	a	16.4	w	y	n	3	NAO
144	14-0178-16							
144	14-0178-17							
144	14-0180-1	a	15.1	w	y	n	3	NAO
144	14-0180-2	a	14.0	w	y	n	3	NAO
144	14-0180-3	a	14.8	w	y	n	3	NAO
144	14-0180-4	a	15.0	w	y	n	3	NAO
144	14-0180-5	a	16.2	w	y	n	3	NAO
144	14-0180-6							
144	14-0180-7							
144	14-0180-8	a	13.0	w	y	n	3	NAO
144	14-0180-9	a	14.5	w	y	n	3	NAO
144	14-0180-10	a	14.4	w	y	n	3	NAO
144	14-0180-11	a	13.8	w	y	n	3	NAO
144	14-0180-12	a	13.9	w	y	n	3	NAO
144	14-0183-1	a	14.0	w	y	n	3	NAO
144	14-0183-2	a	14.7	w	y	n	3	NAO
144	14-0183-3	a	13.0	w	y	n	3	NAO
144	14-0183-4	a	14.1	w	y	n	3	NAO

144	14-0183-5	a	14.6	w	y	n	3	NAO
144	14-0183-6							
144	14-0183-7							
144	14-0183-8							
144	14-0183-9	a	12.5	w	y	n	3	NAO
144	14-0183-10	a	13.4	w	y	n	3	NAO
144	14-0183-11	a	13.5	w	y	n	3	NAO
144	14-0183-12	a	14.0	w	y	n	3	NAO
144	14-0183-13	a	13.0	w	y	n	3	NAO
144	14-0183-14							
144	14-0183-15							
144	14-0183-16							
144	14-0183-17							
144	14-0195-1	a	17.6	w	y	n	3	NAO
144	14-0195-2	a	14.9	w	y	n	3	NAO
144	14-0195-3	a	17.6	w	y	n	3	NAO
144	14-0195-4	a	18.0	w	y	n	3	NAO
144	14-0195-5	a	16.1	w	y	n	3	NAO
144	14-0195-5							
144	14-0195-5							
144	14-0195-5							
144	14-0195-9	a	15.9	w	y	n	3	NAO
144	14-0195-10	a	14.2	w	y	n	3	NAO
144	14-0195-11	a	13.0	w	y	n	3	NAO
144	14-0195-12	a	14.1	w	y	n	3	NAO
144	14-0195-13	a	12.8	w	y	n	3	NAO
144	14-0195-14							
144	14-0195-15							
144	14-0197-1	a	15.4	w	y	n	3	NAO
144	14-0197-2	a	15.6	w	y	n	3	NAO
144	14-0197-3	a	13.8	w	y	n	3	NAO
144	14-0197-4	a	12.4	w	y	n	3	NAO
144	14-0197-5	a	13.3	w	y	n	3	NAO
144	14-0197-6							
144	14-0197-7	a	13.8	w	y	n	3	NAO
144	14-0197-8							
144	14-0197-9	a	12.5	w	y	n	3	NAO
144	14-0197-10	a	13.4	w	y	n	3	NAO
144	14-0197-11	a	14.7	w	y	n	3	NAO
144	14-0197-12	a	13.8	w	y	n	3	NAO
144	14-0197-13							
144	14-0199-1	a	16.4	w	y	n	3	NAO
144	14-0199-2	a	14.6	w	y	n	3	NAO
144	14-0199-3	a	15.1	w	y	n	3	NAO
144	14-0199-4	a	16.3	w	y	n	3	NAO
144	14-0199-5	a	16.3	w	y	n	3	NAO
144	14-0199-6							
144	14-0199-7	a	13.8	w	y	n	3	NAO
144	14-0199-8	a	15.6	w	y	n	3	NAO
144	14-0199-9	a	15.0	w	y	n	3	NAO
144	14-0199-10	a	16.0	w	y	n	3	NAO
144	14-0199-11	a	13.9	w	y	n	3	NAO
144	14-0199-12							
144	14-0199-13							
144	14-0199-14							
144	14-0200-1	a	15.8	w	y	n	3	NAO

144	14-0200-2	a	16.3	w	y	n	3	NAO
144	14-0200-3	a	15.0	w	y	n	3	NAO
144	14-0200-4	a	16.0	w	y	n	3	NAO
144	14-0200-5	a	15.2	w	y	n	3	NAO
144	14-0200-6							
144	14-0200-7							
144	14-0200-8							
144	14-0200-9							
144	14-0200-10	a	13.8	w	y	n	3	NAO
144	14-0200-11							
144	14-0200-12	a	17.0	w	y	n	3	NAO
144	14-0200-13	a	15.7	w	y	n	3	NAO
144	14-0200-14	a	16.1	w	y	n	3	NAO
144	14-0200-15	a	16.5	w	y	n	3	NAO
144	14-0200-16							
144	14-0206-1	a	14.3	w	y	n	3	NAO
144	14-0206-2	a	13.9	w	y	n	3	NAO
144	14-0206-3	a	14.8	w	y	n	3	NAO
144	14-0206-4	a	12.3	w	y	n	3	NAO
144	14-0206-5	a	16.4	w	y	n	3	NAO
144	14-0206-6							
144	14-0206-7							
144	14-0206-8							
144	14-0206-9	a	13.3	w	y	n	3	NAO
144	14-0206-10	a	13.5	w	y	n	3	NAO
144	14-0206-11	a	14.5	w	y	n	3	NAO
144	14-0206-12	a	14.6	w	y	n	3	NAO
144	14-0206-13	a	14.4	w	y	n	3	NAO
144	14-0206-14							
144	14-0206-15							
144	14-0206-16							
144	14-0211-1	a	16.5	w	y	n	3	NAO
144	14-0211-2	a	18.9	w	y	n	3	NAO
144	14-0211-3	a	16.0	w	y	n	3	NAO
144	14-0211-4	a	15.7	w	y	n	3	NAO
144	14-0211-5	a	14.3	w	y	n	3	NAO
144	14-0211-6	a	14.2	w	y	n	3	NAO
144	14-0211-7	a	12.8	w	y	n	3	NAO
144	14-0211-8	a	14.6	w	y	n	3	NAO
144	14-0211-9	a	16.4	w	y	n	3	NAO
144	14-0211-10	a	16.3	w	y	n	3	NAO
144	14-0211-11							
144	14-0211-12							
144	14-0211-13							
144	14-0211-14							
144	14-0211-15							
144	14-0212-1	a	12.9	w	y	n	3	NAO
144	14-0212-2	a	14.3	w	y	n	3	NAO
144	14-0212-3	a	13.3	w	y	n	3	NAO
144	14-0212-4							
144	14-0212-5	a	13.8	w	y	n	3	NAO
144	14-0212-6	a	15.0	w	y	n	3	NAO
144	14-0212-7	a	13.3	w	y	n	3	NAO
144	14-0212-8	a	12.8	w	y	n	3	NAO
144	14-0212-9	a	12.1	w	y	n	3	NAO
144	14-0212-10	a	13.8	w	y	n	3	NAO

144	14-0212-11	a	12.7	w	y	n	3	NAO
144	14-0212-12							
144	14-0212-13							
144	14-0212-14							
144	14-0212-15							
144	14-0212-16							
144	14-0214-1	a	12.0	w	y	n	3	NAO
144	14-0214-2	a	14.5	w	y	n	3	NAO
144	14-0214-3	m						missing on 12/29/13
144	14-0214-4	a	12.4	w	y	n	3	NAO
144	14-0214-5	a	14.9	w	y	n	3	NAO
144	14-0214-6							
144	14-0214-7							
144	14-0214-8	a	13.7	w	y	n	3	NAO
144	14-0214-9	a	12.7	w	y	n	3	NAO
144	14-0214-10	a	13.1	w	y	n	3	NAO
144	14-0214-11	a	13.3	w	y	n	3	NAO
144	14-0214-12	a	13.0	w	y	n	3	NAO
144	14-0214-13							
144								
144	14-0220-1	a	12.5	w	y	n	3	NAO
144	14-0220-2	a	14.2	w	y	n	3	NAO
144	14-0220-3	a	13.1	w	y	n	3	NAO
144	14-0220-4	a	13.5	w	y	n	3	NAO
144	14-0220-5	a	12.7	w	y	n	3	NAO
144	14-0220-6							
144	14-0220-7							
144	14-0220-8	a	12.1	w	y	n	3	NAO
144	14-0220-9	a	12.8	w	y	n	3	NAO
144	14-0220-10	a	13.7	w	y	n	3	NAO
144	14-0220-11	a	12.5	w	y	n	3	NAO
144	14-0220-12	a	13.0	w	y	n	3	NAO
144	14-0220-13							
144	14-0220-14							
144	14-0220-15							
144	14-0220-16							
144	14-0220-17							
144	14-0220-18							
720	14-0124-1	a	15.8	w	y	n	3	NAO
720	14-0124-2	a	16.0	w	y	n	3	NAO
720	14-0124-3	a	16.1	w	y	n	3	NAO
720	14-0124-4	a	16.8	w	y	n	3	NAO
720	14-0124-5	a	17.4	w	y	n	3	NAO
720	14-0124-6							
720	14-0124-7							
720	14-0124-8							
720	14-0124-9							
720	14-0124-10	a	12.0	w	y	n	3	NAO
720	14-0124-11	a	16.9	w	y	n	3	NAO
720	14-0124-12	a	16.4	w	y	n	3	NAO
720	14-0124-13	a	14.8	w	y	n	3	NAO
720	14-0124-14	a	16.0	w	y	n	3	NAO
720	14-0128-1	a	13.7	W	Y	N	3	NAO
720	14-0128-2	a	12.7	W	Y	N	3	NAO
720	14-0128-3	a	14.0	W	Y	N	3	NAO
720	14-0128-4							

720	14-0128-5	a	14.1	W	Y	N	3	NAO
720	14-0128-6	a	13.3	W	Y	N	3	NAO
720	14-0128-7							
720	14-0128-8							
720	14-0128-9	a	13.7	W	Y	N	3	NAO
720	14-0128-10	a	14.4	W	Y	N	3	NAO
720	14-0128-11	a	13.2	W	Y	N	3	NAO
720	14-0128-12	a	9.6	W	Y	N	3	NAO
720	14-0128-13	a	13.7	w	y	n	3	NAO
720	14-0128-14							
720	14-0128-15							
720	14-0128-16							
720	14-0128-17							
720	14-0132-1	a	15.3	w	y	n	3	NAO
720	14-0132-2							
720	14-0132-3	a	14.0	w	y	n	3	NAO
720	14-0132-4	a	14.9	w	y	n	3	NAO
720	14-0132-5	a	14.3	w	y	n	3	NAO
720	14-0132-6	a	14.4	w	y	n	3	NAO
720	14-0132-7	a	13.6	w	y	n	3	NAO
720	14-0132-8	a	13.8	w	y	n	3	NAO
720	14-0132-9	a	14.0	w	y	n	3	NAO
720	14-0132-10	a	14.9	w	y	n	3	NAO
720	14-0132-11	a	13.1	w	y	n	3	NAO
720	14-0132-12							
720	14-0132-13							
720	14-0132-14							
720	14-0132-15							
720	14-0138-1	a	14.5	w	y	n	3	NAO
720	14-0138-2	a	16.2	w	y	n	3	NAO
720	14-0138-3	a	15.7	w	y	n	3	NAO
720	14-0138-4	a	14.6	w	y	n	3	NAO
720	14-0138-5	a	14.3	w	y	n	3	NAO
720	14-0138-6	a	15.8	w	y	n	3	NAO
720	14-0138-7	a	15.4	w	y	n	3	NAO
720	14-0138-8	a	14.7	w	y	n	3	NAO
720	14-0138-9	a	15.1	w	y	n	3	NAO
720	14-0138-10							
720	14-0138-11							
720	14-0138-12							
720	14-0138-13	a	14.5	w	y	n	3	NAO
720	14-0142-1	a	15.1	w	y	n	3	NAO
720	14-0142-2	a	13.8	w	y	n	3	NAO
720	14-0142-3	a	15.8	w	y	n	3	NAO
720	14-0142-4	a	15.2	w	y	n	3	NAO
720	14-0142-5	a	12.7	w	y	n	3	NAO
720	14-0142-6							
720	14-0142-7	a	14.4	w	y	n	3	NAO
720	14-0142-8	a	12.6	w	y	n	3	NAO
720	14-0142-9	a	13.7	w	y	n	3	NAO
720	14-0142-10	a	13.6	w	y	n	3	NAO
720	14-0142-11	a	12.5	w	y	n	3	NAO
720	14-0142-12							
720	14-0142-13							
720	14-0142-14							
720	14-0142-15							

720	14-0142-16							
720	14-0144-1	a	16.9	w	y	n	3	NAO
720	14-0144-2	a	16.8	w	y	n	3	NAO
720	14-0144-3	a	16.5	w	y	n	3	NAO
720	14-0144-4	a	15.4	w	y	n	3	NAO
720	14-0144-5	a	15.8	w	y	n	3	NAO
720	14-0144-6							
720	14-0144-7							
720	14-0144-8	a	14.2	w	y	n	3	NAO
720	14-0144-9	a	15.4	w	y	n	3	NAO
720	14-0144-10	a	15.5	w	y	n	3	NAO
720	14-0144-11	a	15.2	w	y	n	3	NAO
720	14-0144-12	a	15.2	w	y	n	3	NAO
720	14-0144-13							
720	14-0144-14							
720	14-0144-15							
720	14-0144-16							
720	14-0144-17							
720	14-0145-1	a	19.4	w	y	n	3	NAO
720	14-0145-2	a	16.2	w	y	n	3	NAO
720	14-0145-3	a	13.5	w	y	n	3	NAO
720	14-0145-4	a	21.1	w	y	n	3	NAO
720	14-0145-5	a	19.6	w	y	n	3	NAO
720	14-0145-6							
720	14-0145-7	a	14.8	w	y	n	3	NAO
720	14-0145-8	a	17.4	w	y	n	3	NAO
720	14-0145-9	a	18.1	w	y	n	3	NAO
720	14-0145-10	a	17.3	w	y	n	3	NAO
720	14-0145-11	a	17.6	w	y	n	3	NAO
720	14-0145-12							
720	14-0145-13							
720	14-0146-1							
720	14-0146-2	a	16.3	w	y	n	3	NAO
720	14-0146-3	a	16.8	w	y	n	3	NAO
720	14-0146-4	a	15.5	w	y	n	3	NAO
720	14-0146-5	a	14.8	w	y	n	3	NAO
720	14-0146-6	a	16.8	w	y	n	3	NAO
720	14-0146-7							
720	14-0146-8							
720	14-0146-9							
720	14-0146-10							
720	14-0146-11	a	16.7	w	y	n	3	NAO
720	14-0146-12	a	13.3	w	y	n	3	NAO
720	14-0146-13	a	17.9	w	y	n	3	NAO
720	14-0146-14	a	16.8	w	y	n	3	NAO
720	14-0146-15	a	16.3	w	y	n	3	NAO
720	14-0146-16							
720	14-0146-17							
720	14-0146-18							
720	14-0147-1	a	17.5	w	y	n	3	NAO
720	14-0147-2	a	18.0	w	y	n	3	NAO
720	14-0147-3	a	16.9	w	y	n	3	NAO
720	14-0147-4	a	17.6	w	y	n	3	NAO
720	14-0147-5							
720	14-0147-6	a	17.5	w	y	n	3	NAO
720	14-0147-7	a	14.9	w	y	n	3	NAO

720	14-0147-8	a	16.1	w	y	n	3	NAO
720	14-0147-9	a	18.2	w	y	n	3	NAO
720	14-0147-10	a	16.2	w	y	n	3	NAO
720	14-0147-11	a	15.5	w	y	n	3	NAO
720	14-0147-12							
720	14-0147-13							
720	14-0147-14							
720	14-0152-1							
720	14-0152-2							
720	14-0152-3							
720	14-0152-4							
720	14-0152-5							
720	14-0152-6							
720	14-0152-7							
720	14-0152-8							
720	14-0152-9							
720	14-0152-10							
720	14-0152-11							
720	14-0152-12							
720	14-0152-13							
720	14-0152-14							
720	14-0153-1	a	12.3	w	y	n	3	NAO
720	14-0153-2	a	14.1	w	y	n	3	NAO
720	14-0153-3	a	14.5	w	y	n	3	NAO
720	14-0153-4	a	14.3	w	y	n	3	NAO
720	14-0153-5	a	13.4	w	y	n	3	NAO
720	14-0153-6							
720	14-0153-7	a	12.3	w	y	n	3	NAO
720	14-0153-8	a	14.8	w	y	n	3	NAO
720	14-0153-9	a	13.3	w	y	n	3	NAO
720	14-0153-10	a	12.2	w	y	n	3	NAO
720	14-0153-11	a	13.3	w	y	n	3	NAO
720	14-0153-12							
720	14-0153-13							
720	14-0153-14							
720	14-0153-15							
720	14-0158-1	a	14.3	w	y	n	3	NAO
720	14-0158-2	a	14.5	w	y	n	3	NAO
720	14-0158-3	a	14.2	w	y	n	3	NAO
720	14-0158-4	a	16.5	w	y	n	3	NAO
720	14-0158-5	a	14.8	w	y	n	3	NAO
720	14-0158-6							
720	14-0158-7	a	14.6	w	y	n	3	NAO
720	14-0158-8	a	14.0	w	y	n	3	NAO
720	14-0158-9	a	13.2	w	y	n	3	NAO
720	14-0158-10	a	15.0	w	y	n	3	NAO
720	14-0158-11	a	11.8	w	y	n	3	NAO
720	14-0158-12							
720	14-0158-13							
720	14-0158-14							
720	14-0158-15							
720	14-0160-1	a	13.7	w	y	n	3	tip of tail red
720	14-0160-2	a	15.0	w	y	n	3	NAO
720	14-0160-3	a	13.9	w	y	n	3	NAO
720	14-0160-4	a	14.1	w	y	n	3	NAO
720	14-0160-5	a	14.1	w	y	n	3	NAO

720	14-0160-6	a	13.7	w	y	n	3	NAO
720	14-0160-7	a	14.8	w	y	n	3	NAO
720	14-0160-8	a	13.8	w	y	n	3	tip of tail red
720	14-0160-9	a	12.9	w	y	n	3	NAO
720	14-0160-10	a	13.6	w	y	n	3	tip of tail re
720	14-0160-11							
720	14-0160-12							
720	14-0160-13							
720	14-0160-14							
720	14-0165-1	a	15.4	w	y	n	3	NAO
720	14-0165-2	a	14.2	w	y	n	3	NAO
720	14-0165-3	a	12.3	w	y	n	3	NAO
720	14-0165-4	a	14.0	w	y	n	3	NAO
720	14-0165-5							
720	14-0165-6	a	13.2	w	y	n	3	NAO
720	14-0165-7							
720	14-0165-8							
720	14-0165-9	a	12.3	w	y	n	3	NAO
720	14-0165-10	a	13.2	w	y	n	3	NAO
720	14-0165-11	a	13.1	w	y	n	3	NAO
720	14-0165-12	a	13.2	w	y	n	3	NAO
720	14-0165-13	a	12.5	w	y	n	3	NAO
720	14-0165-14							
720	14-0165-15							
720	14-0165-16							
720	14-0169-1	a	16.4	w	y	n	3	NAO
720	14-0169-2	a	16.7	w	y	n	3	NAO
720	14-0169-3	a	16.3	w	y	n	3	NAO
720	14-0169-4	a	15.9	w	y	n	3	NAO
720	14-0169-5	a	16.0	w	y	n	3	NAO
720	14-0169-6	a	16.4	w	y	n	3	NAO
720	14-0169-7							
720	14-0169-8							
720	14-0169-9							
720	14-0169-10							
720	14-0169-11	a	15.7	w	y	n	3	NAO
720	14-0169-12	a	14.6	w	y	n	3	NAO
720	14-0169-13	a	14.4	w	y	n	3	NAO
720	14-0169-14	a	15.2	w	y	n	3	NAO
720	14-0170-1	a	12.2	w	y	n	3	NAO
720	14-0170-2	a	13.3	w	y	n	3	NAO
720	14-0170-3	a	13.7	w	y	n	3	NAO
720	14-0170-4	a	14.2	w	y	n	3	NAO
720	14-0170-5							
720	14-0170-6	a	13.9	w	y	n	3	NAO
720	14-0170-7							
720	14-0170-8	a	11.4	w	y	n	3	NAO
720	14-0170-9	a	12.0	w	y	n	3	NAO
720	14-0170-10	a	15.3	w	y	n	3	NAO
720	14-0170-11	a	12.5	w	y	n	3	NAO
720	14-0170-12	a	11.5	w	y	n	3	NAO
720	14-0170-13							
720	14-0170-14							
720	14-0170-15							
720	14-0170-16							
720	14-0170-17							

720	14-0171-1	a	16.5	w	y	n	3	NAO
720	14-0171-2	a	15.0	w	y	n	3	NAO
720	14-0171-3	a	15.4	w	y	n	3	NAO
720	14-0171-4	a	15.2	w	y	n	3	NAO
720	14-0171-5	a	16.0	w	y	n	3	NAO
720	14-0171-6							
720	14-0171-7							
720	14-0171-8							
720	14-0171-9							
720	14-0171-10							
720	14-0171-11							
720	14-0171-12	a	14.3	w	y	n	3	NAO
720	14-0171-13	a	15.4	w	y	n	3	NAO
720	14-0171-14	a	11.6	w	y	n	3	NAO
720	14-0171-15	a	15.7	w	y	n	3	NAO
720	14-0171-16	a	15.6	w	y	n	3	NAO
720	14-0171-17							
720	14-0188-1	a	14.3	w	y	n	3	NAO
720	14-0188-2	a	13.5	w	y	n	3	NAO
720	14-0188-3	a	15.9	w	y	n	3	NAO
720	14-0188-4	a	15.7	w	y	n	3	NAO
720	14-0188-5	a	16.4	w	y	n	3	NAO
720	14-0188-6	a	14.7	w	y	n	3	NAO
720	14-0188-7	a	14.6	w	y	n	3	NAO
720	14-0188-8	a	15.3	w	y	n	3	NAO
720	14-0188-9	a	15.1	w	y	n	3	NAO
720	14-0188-10	a	14.6	w	y	n	3	NAO
720	14-0188-11							
720	14-0188-12							
720	14-0188-13							
720	14-0190-1							
720	14-0190-2	a	15.7	w	y	n	3	NAO
720	14-0190-3	a	17.0	w	y	n	3	NAO
720	14-0190-4	a	17.0	w	y	n	3	NAO
720	14-0190-5	a	15.4	w	y	n	3	NAO
720	14-0190-6	a	16.9	w	y	n	3	NAO
720	14-0190-7							
720	14-0190-8	a	15.0	w	y	n	3	NAO
720	14-0190-9	a	17.0	w	y	n	3	NAO
720	14-0190-10	a	15.7	w	y	n	3	NAO
720	14-0190-11	a	15.4	w	y	n	3	NAO
720	14-0190-12	a	15.5	w	y	n	3	NAO
720	14-0190-13							
720	14-0190-14							
720	14-0190-15							
720	14-0192-1	a	14.0	w	y	n	3	NAO
720	14-0192-2	a	14.9	w	y	n	3	NAO
720	14-0192-3	a	15.2	w	y	n	3	NAO
720	14-0192-4	a	14.7	w	y	n	3	NAO
720	14-0192-5	a	16.2	w	y	n	3	NAO
720	14-0192-6	a	15.6	w	y	n	3	NAO
720	14-0192-7							
720	14-0192-8							
720	14-0192-9							
720	14-0192-10	a	14.5	w	y	n	3	NAO
720	14-0192-11	a	13.0	w	y	n	3	NAO

720	14-0192-12	a	13.5	w	y	n	3	NAO
720	14-0192-13	a	14.5	w	y	n	3	NAO
720	14-0193-1	a	16.4	w	y	n	3	NAO
720	14-0193-2	a	16.2	w	y	n	3	NAO
720	14-0193-3	a	17.0	w	y	n	3	NAO
720	14-0193-4	a	14.0	w	y	n	3	NAO
720	14-0193-5	a	16.4	w	y	n	3	NAO
720	14-0193-6							
720	14-0193-7							
720	14-0193-8							
720	14-0193-9	a	13.7	w	y	n	3	NAO
720	14-0193-10	a	12.6	w	y	n	3	NAO
720	14-0193-11	a	15.2	w	y	n	3	NAO
720	14-0193-12	a	15.3	w	y	n	3	NAO
720	14-0193-13	a	14.9	w	y	n	3	NAO
720	14-0201-1	a	14.7	w	y	n	3	NAO
720	14-0201-2	a	12.5	w	y	n	3	NAO
720	14-0201-3	a	10.8	w	y	n	3	NAO
720	14-0201-4	a	14.5	w	y	n	3	NAO
720	14-0201-5	a	13.8	w	y	n	3	NAO
720	14-0201-6							
720	14-0201-7							
720	14-0201-8							
720	14-0201-9							
720	14-0201-10	a	12.2	w	y	n	3	NAO
720	14-0201-11	a	13.9	w	y	n	3	NAO
720	14-0201-12	a	12.2	w	y	n	3	NAO
720	14-0201-13	a	11.7	w	y	n	3	NAO
720	14-0201-14	a	14.5	w	y	n	3	NAO
720	14-0201-15							
720	14-0201-16							
720	14-0201-17							
720	14-0201-18							
720	14-0202-1	a	13.0	w	y	n	3	NAO
720	14-0202-2	a	11.9	w	y	n	3	NAO
720	14-0202-3	a	14.2	w	y	n	3	NAO
720	14-0202-4	a	14.7	w	y	n	3	NAO
720	14-0202-5	a	15.3	w	y	n	3	NAO
720	14-0202-6	a	13.9	w	y	n	3	NAO
720	14-0202-7							
720	14-0202-8							
720	14-0202-9							
720	14-0202-10	a	14.2	w	y	n	3	NAO
720	14-0202-11	a	8.8	w	y	n	3	NAO
720	14-0202-12	a	13.8	w	y	n	3	NAO
720	14-0202-13	a	14.6	w	y	n	3	NAO
720	14-0203-1	a	13.3	w	y	n	3	NAO
720	14-0203-2	a	14.7	w	y	n	3	NAO
720	14-0203-3	a	15.2	w	y	n	3	NAO
720	14-0203-4	a	12.3	w	y	n	3	NAO
720	14-0203-5	a	15.3	w	y	n	3	NAO
720	14-0203-6							
720	14-0203-7	a	15.2	w	y	n	3	NAO
720	14-0203-8	a	14.2	w	y	n	3	NAO
720	14-0203-9	a	11.6	w	y	n	3	NAO
720	14-0203-10	a	15.3	w	y	n	3	NAO

720	14-0203-11	a	13.9	w	y	n	3	NAO
720	14-0204-1	a	15.4	w	y	n	3	NAO
720	14-0204-2	a	13.1	w	y	n	3	NAO
720	14-0204-3	a	15.3	w	y	n	3	NAO
720	14-0204-4	a	14.7	w	y	n	3	NAO
720	14-0204-5	a	14.8	w	y	n	3	NAO
720	14-0204-6							
720	14-0204-7							
720	14-0204-8							
720	14-0204-9							
720	14-0204-10	a	14.4	w	y	n	3	NAO
720	14-0204-11	a	11.2	w	y	n	3	NAO
720	14-0204-12	a	11.0	w	y	n	3	NAO
720	14-0204-13	a	12.6	w	y	n	3	NAO
720	14-0204-14	a	13.6	w	y	n	3	NAO
3600	14-0126-1	a	15.3	w	y	n	3	NAO
3600	14-0126-2	a	14.6	w	y	n	3	NAO
3600	14-0126-3	a	15.4	w	y	n	3	NAO
3600	14-0126-4	a	14.7	w	y	n	3	NAO
3600	14-0126-5	a	15.6	w	y	n	3	NAO
3600	14-0126-6							
3600	14-0126-7	a	14.9	w	y	n	3	NAO
3600	14-0126-8							
3600	14-0126-9	a	14.3	w	y	n	3	NAO
3600	14-0126-10							
3600	14-0126-11	a	14.3	w	y	n	3	NAO
3600	14-0126-12							
3600	14-0126-13	a	13.5	w	y	n	3	NAO
3600	14-0126-14	a	13.0	w	y	n	3	NAO
3600	14-0126-15							
3600	14-0126-16							
3600	14-0127-1	a	10.2	w	y	n	3	NAO
3600	14-0127-2	a	15.2	w	y	n	3	NAO
3600	14-0127-3	a	16.4	w	y	n	3	NAO
3600	14-0127-4	a	15.1	w	y	n	3	NAO
3600	14-0127-5	a	14.3	w	y	n	3	NAO
3600	14-0127-6							
3600	14-0127-7							
3600	14-0127-8	a	13.7	w	y	n	3	NAO
3600	14-0127-9	a	13.2	w	y	n	3	NAO
3600	14-0127-10	a	15.8	w	y	n	3	NAO
3600	14-0127-11	a	14.1	w	y	n	3	NAO
3600	14-0127-12	a	15.5	w	y	n	3	NAO
3600	14-0131-1	a	16.2	w	y	n	3	NAO
3600	14-0131-2	a	16.1	w	y	n	3	NAO
3600	14-0131-3	a	16.6	w	y	n	3	NAO
3600	14-0131-4	a	16.4	w	y	n	3	NAO
3600	14-0131-5	a	15.1	w	y	n	3	NAO
3600	14-0131-6							
3600	14-0131-7							
3600	14-0131-8							
3600	14-0131-9							
3600	14-0131-10							
3600	14-0131-11	a	13.9	w	y	n	3	NAO
3600	14-0131-12	a	14.4	w	y	n	3	NAO
3600	14-0131-13	a	14.8	w	y	n	3	NAO

3600	14-0131-14	a	13.8	w	y	n	3	NAO
3600	14-0131-15	a	15.0	w	y	n	3	NAO
3600	14-0135-1	a	9.7	w	y	n	3	NAO
3600	14-0135-2	a	10.7	w	y	n	3	NAO
3600	14-0135-3	a	10.3	w	y	n	3	NAO
3600	14-0135-4	d						found dead on 12/25/13
3600	14-0135-5	a	9.6	w	y	n	3	NAO
3600	14-0135-6	a	11.9	w	y	n	3	NAO
3600	14-0135-7	a	11.3	w	y	n	3	NAO
3600	14-0135-8	a	10.4	w	y	n	3	NAO
3600	14-0135-9							
3600	14-0135-10							
3600	14-0135-11	a	10.9	w	y	n	3	NAO
3600	14-0135-12	a	12.0	w	y	n	3	NAO
3600	14-0135-13							
3600	14-0139-1	a	15.8	w	y	n	3	NAO
3600	14-0139-2	a	14.4	w	y	n	3	NAO
3600	14-0139-3	a	16.1	w	y	n	3	NAO
3600	14-0139-4	a	15.6	w	y	n	3	NAO
3600	14-0139-5	a	14.9	w	y	n	3	NAO
3600	14-0139-6	a	14.3	w	y	n	3	NAO
3600	14-0139-7							
3600	14-0139-8							
3600	14-0139-9							
3600	14-0139-10	a	13.2	w	y	n	3	NAO
3600	14-0139-11	a	13.8	w	y	n	3	NAO
3600	14-0139-12	a	13.1	w	y	n	3	NAO
3600	14-0139-13	a	13.0	w	y	n	3	NAO
3600	14-0140-1	a	15.4	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-2	a	16.1	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-3	a	15.2	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-4	a	17.6	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-5	a	15.2	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-6	a	13.5	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-7	a	12.2	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-8	a	15.5	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-9	a	15.9	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-10	a	14.5	w	y	n	3	all pups have yellow crust on skin
3600	14-0140-11							
3600	14-0140-12							
3600	14-0140-13							
3600	14-0140-14							
3600	14-0140-15							
3600	14-0140-16							
3600	14-0140-17							
3600	14-0141-1	a	13.5	w	y	n	3	NAO
3600	14-0141-2	a	15.7	w	y	n	3	NAO
3600	14-0141-3	a	14.6	w	y	n	3	NAO
3600	14-0141-4	a	15.1	w	y	n	3	NAO
3600	14-0141-5	a	12.6	w	y	n	3	NAO
3600	14-0141-6	a	14.1	w	y	n	3	NAO
3600	14-0141-7							
3600	14-0141-8							
3600	14-0141-9							
3600	14-0141-10	a	13.5	w	y	n	3	NAO
3600	14-0141-11	a	12.0	w	y	n	3	NAO

3600	14-0141-12	a	12.9	w	y	n	3	NAO
3600	14-0141-13	a	13.5	w	y	n	3	NAO
3600	14-0151-1	a	16.8	w	y	n	3	skin scaly and flakey
3600	14-0151-2	a	17.6	w	y	n	3	skin scaly and flakey
3600	14-0151-3	a	16.6	w	y	n	3	skin scaly and flakey
3600	14-0151-4	a	18.3	w	y	n	3	skin scaly and flakey
3600	14-0151-5	a	17.1	w	y	n	3	skin scaly and flakey
3600	14-0151-6	a	12.4	w	y	n	3	skin scaly and flakey
3600	14-0151-7	a	17.0	w	y	n	3	skin scaly and flakey
3600	14-0151-8							
3600	14-0151-9	a	18.6	w	y	n	3	skin scaly and flakey
3600	14-0151-10							
3600	14-0151-11							
3600	14-0151-12	a	16.3	w	y	n	3	skin scaly and flakey
3600	14-0151-13							
3600	14-0151-14							
3600	14-0155-1	a	16.8	w	y	n	3	NAO
3600	14-0155-2	a	16.9	w	y	n	3	NAO
3600	14-0155-3	a	17.2	w	y	n	3	NAO
3600	14-0155-4	a	17.7	w	y	n	3	NAO
3600	14-0155-5	a	15.9	w	y	n	3	NAO
3600	14-0155-6	a	14.0	w	y	n	3	NAO
3600	14-0155-7	a	16.7	w	y	n	3	NAO
3600	14-0155-8	a	15.8	w	y	n	3	NAO
3600	14-0155-9	a	16.3	w	y	n	3	NAO
3600	14-0155-10	a	15.8	w	y	n	3	NAO
3600	14-0155-11							
3600	14-0155-12							
3600	14-0159-1	a	14.1	w	y	n	3	NAO
3600	14-0159-2							
3600	14-0159-3	a	15.3	w	y	n	3	NAO
3600	14-0159-4	a	15.4	w	y	n	3	NAO
3600	14-0159-5	a	15.2	w	y	n	3	NAO
3600	14-0159-6	a	15.2	w	y	n	3	NAO
3600	14-0159-7	a	14.8	w	y	n	3	NAO
3600	14-0159-8	a	14.5	w	y	n	3	NAO
3600	14-0159-9	a	14.7	w	y	n	3	NAO
3600	14-0159-10	a	13.6	w	y	n	3	left front toes fused together from tattooing
3600	14-0159-11	a	12.1	w	y	n	3	NAO
3600	14-0159-12							
3600	14-0159-13							
3600	14-0159-14							
3600	14-0159-15							
3600	14-0167-1	a	15.8	w	y	n	3	NAO
3600	14-0167-2	a	15.3	w	y	n	3	NAO
3600	14-0167-3	a	14.9	w	y	n	3	NAO
3600	14-0167-4	a	14.7	w	y	n	3	NAO
3600	14-0167-5	a	15.6	w	y	n	3	NAO
3600	14-0167-6							
3600	14-0167-7	a	12.4	w	y	n	3	NAO
3600	14-0167-8	a	13.9	w	y	n	3	NAO
3600	14-0167-9	a	14.2	w	y	n	3	NAO
3600	14-0167-10	a	14.0	w	y	n	3	NAO
3600	14-0167-11	a	12.7	w	y	n	3	NAO
3600	14-0167-12							
3600	14-0167-13							

3600								
3600	14-0172-1	a	17.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-2	a	16.6	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-3	a	15.7	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-4	a	18.8	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-5	a	16.4	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-6							
3600	14-0172-7							
3600	14-0172-8							
3600	14-0172-9							
3600	14-0172-10	a	15.7	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-11	a	19.1	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-12	a	16.3	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-13	a	16.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0172-14							
3600	14-0172-15	a	14.4	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-1	a	17.1	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-2							
3600	14-0181-3	a	16.4	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-4	a	16.8	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-5	a	15.7	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-6	a	15.7	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-7	a	15.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-8	a	16.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-9	a	15.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-10	a	12.8	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-11	a	14.4	w	y	n	3	litter has dried yellow crust on skin
3600	14-0181-12							
3600	14-0181-13							
3600	14-0181-14							
3600	14-0181-15							
3600	14-0182-1	a	15.8	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-2							
3600	14-0182-3	a	16.6	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-4	a	12.1	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-5	a	13.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-6	a	16.3	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-7	a	13.9	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-8	a	15.4	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-9	a	14.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-10	a	14.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-11	a	15.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0182-12							
3600	14-0182-13							
3600	14-0182-14							
3600	14-0182-15							
3600								
3600								
3600	14-0189-1							
3600	14-0189-2							
3600	14-0189-3							
3600	14-0189-4							
3600	14-0189-5							
3600	14-0189-6							
3600	14-0189-7							
3600	14-0189-8							

3600	14-0189-9							
3600	14-0189-10							
3600	14-0189-11							
3600	14-0189-12							
3600	14-0189-13							
3600	14-0189-14							
3600	14-0189-15							
3600	14-0189-16							
3600	14-0194-1	a	15.3	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-2	a	13.8	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-3	a	14.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-4							
3600	14-0194-5	a	15.7	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-6	a	14.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-7							
3600	14-0194-8							
3600	14-0194-9	a	15.8	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-10	a	14.0	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-11	a	11.1	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-12	a	13.3	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-13	a	15.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0194-14							
3600	14-0194-15							
3600	14-0208-1	a	15.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-2	a	16.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-3	a	12.9	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-4	a	14.0	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-5	a	14.9	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-6							
3600	14-0208-7	a	13.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-8	a	14.6	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-9	a	15.5	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-10	a	14.2	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-11	a	13.4	w	y	n	3	litter has dried yellow crust on skin
3600	14-0208-12							
3600	14-0208-13							
3600	14-0208-14							
3600	14-0208-15							
3600	14-0208-16							
3600	14-0208-17							
3600	14-0209-1	a	17.5	w	y	n	3	NAO
3600	14-0209-2	a	17.6	w	y	n	3	NAO
3600	14-0209-3	a	17.2	w	y	n	3	NAO
3600	14-0209-4	a	16.1	w	y	n	3	NAO
3600	14-0209-5	a	16.7	w	y	n	3	NAO
3600	14-0209-6							
3600	14-0209-7							
3600	14-0209-8							
3600	14-0209-9	a	13.0	w	y	n	3	NAO
3600	14-0209-10	a	12.1	w	y	n	3	NAO
3600	14-0209-11	a	16.7	w	y	n	3	NAO
3600	14-0209-12	a	14.1	w	y	n	3	NAO
3600	14-0209-13	a	16.3	w	y	n	3	NAO
3600	14-0209-14							
3600	14-0210-1	a	21.5	w	y	n	3	NAO
3600	14-0210-2	a	18.3	w	y	n	3	NAO

3600	14-0210-3	a	20.9	w	y	n	3	NAO
3600	14-0210-4	a	16.9	w	y	n	3	NAO
3600	14-0210-5	a	13.8	c	y	n	3	NAO
3600	14-0210-6							
3600	14-0210-7							
3600	14-0210-8	a	17.2	w	y	n	3	NAO
3600	14-0210-9	a	20.0	w	y	n	3	NAO
3600	14-0210-10	a	18.6	w	y	n	3	NAO
3600	14-0210-11	a	17.9	w	y	n	3	NAO
3600	14-0210-12	a	20.0	w	y	n	3	NAO
3600	14-0210-13							
3600	14-0210-14							
3600	14-0210-15							
3600	14-0210-16							
3600	14-0210-17							
3600	14-0213-1	a	15.6	w	y	n	3	NAO
3600	14-0213-2	a	16.2	w	y	n	3	NAO
3600	14-0213-3	a	16.9	w	y	n	3	NAO
3600	14-0213-4	a	17.2	w	y	n	3	NAO
3600	14-0213-5	a	16.4	w	y	n	3	NAO
3600	14-0213-6							
3600	14-0213-7							
3600	14-0213-8	a	14.9	w	y	n	3	NAO
3600	14-0213-9	a	15.3	w	y	n	3	NAO
3600	14-0213-10	a	15.9	w	y	n	3	NAO
3600	14-0213-11	a	17.1	w	y	n	3	NAO
3600	14-0213-12	a	14.9	w	y	n	3	NAO
3600	14-0213-13							
3600	14-0216-1	a	12.3	w	y	n	3	NAO
3600	14-0216-2	a	13.5	w	y	n	3	NAO
3600	14-0216-3	a	12.8	w	y	n	3	NAO
3600	14-0216-4	a	9.6	w	y	n	3	NAO
3600	14-0216-5	a	14.8	w	y	n	3	NAO
3600	14-0216-6	a	15.0	w	y	n	3	NAO
3600	14-0216-7							
3600	14-0216-8	a	11.8	w	y	n	3	NAO
3600	14-0216-9	a	12.4	w	y	n	3	NAO
3600	14-0216-10							
3600	14-0216-11	a	12.5	w	y	n	3	NAO
3600	14-0216-12	a	13.7	w	y	n	3	NAO
3600	14-0219-1	a	16.1	w	y	n	3	NAO
3600	14-0219-2	a	11.0	w	y	n	3	NAO
3600	14-0219-3	a	15.4	w	y	n	3	NAO
3600	14-0219-4	a	11.2	w	y	n	3	NAO
3600	14-0219-5	a	15.0	w	y	n	3	NAO
3600	14-0219-6							
3600	14-0219-7							
3600	14-0219-8							
3600	14-0219-9							
3600	14-0219-10	a	12.2	w	y	n	3	NAO
3600	14-0219-11	a	13.7	w	y	n	3	NAO
3600	14-0219-12	a	13.2	w	y	n	3	NAO
3600	14-0219-13	a	10.7	w	y	n	3	NAO
3600	14-0219-14	a	14.1	w	y	n	3	NAO
3600	14-0219-15							

Table G-4 cont.
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Observations

TX	Unique Pup#	NIPPLE RET	PND14 STATUS	PND14 BW	PND14 BT	PND14 ACT	PND14 REACT	PND14 OBS
0	14-0121-1	0	a	29.4	w	n	3	NAO
0	14-0121-2	0	a	30.3	w	n	3	NAO
0	14-0121-3	0	a	29.6	w	n	3	NAO
0	14-0121-4	0	a	29.4	w	n	3	NAO
0	14-0121-5	0	a	29.4	w	n	3	NAO
0	14-0121-6		a	24.9	w	n	3	NAO
0	14-0121-7		a	29.6	w	n	3	NAO
0	14-0121-8		a	28.5	w	n	3	NAO
0	14-0121-9		a	29.7	w	n	3	NAO
0	14-0121-10		a	28.8	w	n	3	NAO
0	14-0121-11							
0	14-0121-12							
0	14-0122-1	0	a	29.7	w	n	3	NAO
0	14-0122-2	0	a	32.5	w	n	3	NAO
0	14-0122-3	0	a	30.9	w	n	3	NAO
0	14-0122-4	0	a	28.9	w	n	3	NAO
0	14-0122-5	0	a	30.8	w	n	3	NAO
0	14-0122-6							
0	14-0122-7							
0	14-0122-8		a	29.6	w	n	3	NAO
0	14-0122-9		a	30.3	w	n	3	NAO
0	14-0122-10		a	28.8	w	n	3	NAO
0	14-0122-11		a	30.0	w	n	3	NAO
0	14-0122-12		a	31.5	w	n	3	NAO
0	14-0122-13							
0	14-0130-1	0	a	33.5	w	n	3	NAO
0	14-0130-2	0	a	34.1	w	n	3	NAO
0	14-0130-3	0	a	33.6	w	n	3	NAO
0	14-0130-4	0	a	34.7	w	n	3	NAO
0	14-0130-5	0	a	33.6	w	n	3	NAO
0	14-0130-6							
0	14-0130-7		a	31.8	w	n	3	NAO
0	14-0130-8		a	35.9	w	n	3	NAO
0	14-0130-9		a	32.4	w	n	3	NAO
0	14-0130-10		a	33.1	w	n	3	NAO
0	14-0130-11		a	31.4	w	n	3	NAO
0	14-0130-12							
0	14-0133-1	1	a	30.9	w	n	3	NAO
0	14-0133-2	1	a	34.6	w	n	3	NAO
0	14-0133-3	0	a	31.1	w	n	3	NAO
0	14-0133-4	0	a	32.5	w	n	3	NAO
0	14-0133-5	1	a	31.8	w	n	3	NAO
0	14-0133-6							
0	14-0133-7							
0	14-0133-8							
0	14-0133-9							
0	14-0133-10							
0	14-0133-11							
0	14-0133-12		a	30.2	w	n	3	NAO
0	14-0133-13							
0	14-0133-14		a	28.5	w	n	3	NAO
0	14-0133-15		a	27.2	w	n	3	NAO
0	14-0133-16		a	30.3	w	n	3	NAO
0	14-0133-17		a	30.1	w	n	3	NAO
0	14-0133-18							
0	14-0133-19							
0	14-0136-1							

0	14-0136-2							
0	14-0136-3							
0	14-0136-4							
0	14-0136-5							
0	14-0136-6							
0	14-0136-7							
0	14-0136-8							
0	14-0136-9							
0	14-0136-10							
0	14-0136-11							
0	14-0136-12							
0	14-0136-13							
0	14-0136-14							
0	14-0136-15							
0	14-0136-16							
0	14-0136-17							
0	14-0143-1	0	a	34.0	w	n	3	NAO
0	14-0143-2							
0	14-0143-3	0	a	33.9	w	n	3	NAO
0	14-0143-4	0	a	32.0	w	n	3	NAO
0	14-0143-5	0	a	32.5	w	n	3	NAO
0	14-0143-6	0	a	32.1	w	n	3	NAO
0	14-0143-7		a	31.9	w	n	3	NAO
0	14-0143-8		a	31.1	w	n	3	NAO
0	14-0143-9		a	28.4	w	n	3	NAO
0	14-0143-10		a	32.2	w	n	3	NAO
0	14-0148-1	1	a	34.7	w	n	3	NAO
0	14-0148-2	1	a	31.0	w	n	3	NAO
0	14-0148-3	0	a	33.4	w	n	3	NAO
0	14-0148-4	0	a	33.6	w	n	3	NAO
0	14-0148-5	0	a	32.1	w	n	3	NAO
0	14-0148-6							
0	14-0148-7							
0	14-0148-8		a	31.8	w	n	3	NAO
0	14-0148-9		a	32.1	w	n	3	NAO
0	14-0148-10		a	32.0	w	n	3	NAO
0	14-0148-11		a	33.3	w	n	3	NAO
0	14-0148-12		a	30.2	w	n	3	NAO
0	14-0148-13							
0	14-0149-1	0	a	24.7	w	n	3	NAO
0	14-0149-2	0	a	24.4	w	n	3	NAO
0	14-0149-3	0	a	24.9	w	n	3	NAO
0	14-0149-4	0	a	26.3	w	n	3	NAO
0	14-0149-5	2	a	24.6	w	n	3	NAO
0	14-0149-6							
0	14-0149-7							
0	14-0149-8							
0	14-0149-9		a	23.2	w	n	3	NAO
0	14-0149-10		a	23.8	w	n	3	NAO
0	14-0149-11		a	23.2	w	n	3	NAO
0	14-0149-12		a	24.8	w	n	3	NAO
0	14-0149-13		a	24.2	w	n	3	NAO
0	14-0149-14							
0	14-0149-15							
0	14-0149-16							
0	14-0149-17							
0	14-0150-1	0	a	26.1	w	n	3	NAO
0	14-0150-2	1	a	27.1	w	n	3	NAO
0	14-0150-3	0	a	28.3	w	n	3	NAO
0	14-0150-4	0	a	25.2	w	n	3	NAO
0	14-0150-5	0	a	18.4	w	n	3	NAO
0	14-0150-6	0	a	27.1	w	n	3	NAO
0	14-0150-7							
0	14-0150-8							

0	14-0150-9							
0	14-0150-10							
0	14-0150-11							
0	14-0150-12							
0	14-0150-13		a	29.0	w	n	3	NAO
0	14-0150-14		a	27.6	w	n	3	NAO
0	14-0150-15		a	27.2	w	n	3	NAO
0	14-0150-16		a	26.3	w	n	3	NAO
0	14-0150-17							
0	14-0156-1	1	a	31.0	w	n	3	NAO
0	14-0156-2	1	a	31.2	w	n	3	NAO
0	14-0156-3	1	a	33.4	w	n	3	NAO
0	14-0156-4	0	a	31.7	w	n	3	NAO
0	14-0156-5	0	a	30.8	w	n	3	NAO
0	14-0156-6							
0	14-0156-7							
0	14-0156-8							
0	14-0156-9							
0	14-0156-10		a	31.7	w	n	3	NAO
0	14-0156-11		a	31.7	w	n	3	NAO
0	14-0156-12		a	30.4	w	n	3	NAO
0	14-0156-13		a	25.7	w	n	3	NAO
0	14-0156-14		a	30.5	w	n	3	NAO
0	14-0156-15							
0	14-0157-1	0	a	32.6	w	n	3	NAO
0	14-0157-2	1	a	30.2	w	n	3	NAO
0	14-0157-3	0	a	31.4	w	n	3	NAO
0	14-0157-4	0	a	32.9	w	n	3	NAO
0	14-0157-5	0	a	30.8	w	n	3	NAO
0	14-0157-6							
0	14-0157-7							
0	14-0157-8							
0	14-0157-9		a	31.0	w	n	3	NAO
0	14-0157-10		a	30.0	w	n	3	NAO
0	14-0157-11		a	31.1	w	n	3	NAO
0	14-0157-12		a	30.4	w	n	3	NAO
0	14-0157-13		a	29.6	w	n	3	NAO
0	14-0157-14							
0	14-0157-15							
0	14-0161-1	1	a	29.9	w	n	3	NAO
0	14-0161-2	2	a	30.0	w	n	3	NAO
0	14-0161-3	0	a	30.3	w	n	3	NAO
0	14-0161-4	0	a	31.0	w	n	3	NAO
0	14-0161-5	1	a	27.9	w	n	3	NAO
0	14-0161-6	0	a	29.1	w	n	3	NAO
0	14-0161-7	0	a	31.2	w	n	3	NAO
0	14-0161-8	2	a	31.4	w	n	3	NAO
0	14-0161-9							
0	14-0161-10							
0	14-0161-11		a	28.5	w	n	3	NAO
0	14-0161-12		a	29.8	w	n	3	NAO
0	14-0162-1	0	a	21.5	w	n	3	NAO
0	14-0162-2	0	a	26.6	w	n	3	NAO
0	14-0162-3	0	a	31.0	w	n	3	NAO
0	14-0162-4	0	a	31.0	w	n	3	NAO
0	14-0162-5	1	a	30.2	w	n	3	NAO
0	14-0162-6							
0	14-0162-7							
0	14-0162-8							
0	14-0162-9							
0	14-0162-10							
0	14-0162-11		a	27.1	w	n	3	NAO
0	14-0162-12		a	29.5	w	n	3	NAO
0	14-0162-13		a	26.4	w	n	3	NAO

0	14-0162-14		a	30.5	w	n	3	NAO
0	14-0162-15		a	27.1	w	n	3	NAO
0	14-0162-16							
0	14-0163-1	0	a	30.8	w	n	3	NAO
0	14-0163-2	0	a	31.8	w	n	3	NAO
0	14-0163-3	0	a	30.4	w	n	3	NAO
0	14-0163-4	0	a	30.8	w	n	3	NAO
0	14-0163-5	0	a	30.2	w	n	3	NAO
0	14-0163-6							
0	14-0163-7							
0	14-0163-8							
0	14-0163-9							
0	14-0163-10		a	29.7	w	n	3	NAO
0	14-0163-11		a	30.7	w	n	3	NAO
0	14-0163-12		a	29.3	w	n	3	NAO
0	14-0163-13		a	26.2	w	n	3	NAO
0	14-0163-14		a	26.7	w	n	3	NAO
0	14-0163-15							
0	14-0163-16							
0	14-0173-1	4	a	29.6	w	n	3	NAO
0	14-0173-2	0	a	28.2	w	n	3	NAO
0	14-0173-3	2	a	28.8	w	n	3	NAO
0	14-0173-4	0	a	29.6	w	n	3	NAO
0	14-0173-5	1	a	30.8	w	n	3	NAO
0	14-0173-6		a	26.7	w	n	3	NAO
0	14-0173-7		a	27.8	w	n	3	NAO
0	14-0173-8		a	26.8	w	n	3	NAO
0	14-0173-9		a	29.6	w	n	3	NAO
0	14-0173-10		a	30.7	w	n	3	NAO
0	14-0173-11							
0	14-0173-12							
0	14-0173-13							
0	14-0173-14							
0	14-0179-1	0	a	31.3	w	n	3	NAO
0	14-0179-2	0	a	34.4	w	n	3	NAO
0	14-0179-3	0	a	30.4	w	n	3	NAO
0	14-0179-4	0	a	30.0	w	n	3	NAO
0	14-0179-5		a	28.0	w	n	3	NAO
0	14-0179-6		a	31.2	w	n	3	NAO
0	14-0179-7		a	30.2	w	n	3	NAO
0	14-0179-8		a	28.6	w	n	3	NAO
0	14-0179-9		a	32.2	w	n	3	NAO
0	14-0179-10		a	32.0	w	n	3	NAO
0	14-0179-11							
0	14-0179-12							
0	14-0185-1	0	a	26.9	w	n	3	NAO
0	14-0185-2	0	a	26.4	w	n	3	NAO
0	14-0185-3	0	a	28.3	w	n	3	NAO
0	14-0185-4	0	a	28.2	w	n	3	NAO
0	14-0185-5	1	a	27.1	w	n	3	NAO
0	14-0185-6							
0	14-0185-7							
0	14-0185-8		a	26.0	w	n	3	NAO
0	14-0185-9		a	26.3	w	n	3	NAO
0	14-0185-10		a	25.1	w	n	3	NAO
0	14-0185-11		a	27.0	w	n	3	NAO
0	14-0185-12		a	22.5	w	n	3	NAO
0	14-0185-13							
0	14-0185-14							
0	14-0185-15							
0	14-0185-16							
0	14-0186-1	1	a	30.3	w	n	3	NAO
0	14-0186-2	1	a	26.2	w	n	3	NAO
0	14-0186-3	0	a	29.3	w	n	3	NAO

0	14-0186-4	0	a	29.2	w	n	3	NAO
0	14-0186-5	1	a	30.2	w	n	3	NAO
0	14-0186-6							
0	14-0186-7							
0	14-0186-8							
0	14-0186-9		a	27.6	w	n	3	NAO
0	14-0186-10							
0	14-0186-11		a	27.5	w	n	3	NAO
0	14-0186-12		a	28.3	w	n	3	NAO
0	14-0186-13		a	27.9	w	n	3	NAO
0	14-0186-14		a	30.8	w	n	3	NAO
0	14-0191-1	0	a	30.2	w	n	3	litter being barbered by dam
0	14-0191-2	0	a	27.5	w	n	3	litter being barbered by dam
0	14-0191-3	0	a	28.5	w	n	3	litter being barbered by dam
0	14-0191-4	1	a	29.3	w	n	3	litter being barbered by dam
0	14-0191-5	0	a	27.8	w	n	3	litter being barbered by dam
0	14-0191-6							
0	14-0191-7							
0	14-0191-8		a	28.1	w	n	3	litter being barbered by dam
0	14-0191-9		a	28.5	w	n	3	litter being barbered by dam
0	14-0191-10		a	27.3	w	n	3	litter being barbered by dam
0	14-0191-11		a	25.9	w	n	3	litter being barbered by dam
0	14-0191-12		a	27.3	w	n	3	litter being barbered by dam
0	14-0191-13							
0	14-0191-14							
0	14-0196-1	0	a	31.3	w	n	3	NAO
0	14-0196-2	1	a	32.7	w	n	3	NAO
0	14-0196-3	0	a	26.5	w	n	3	NAO
0	14-0196-4	0	a	31.3	w	n	3	NAO
0	14-0196-5	0	a	34.2	w	n	3	NAO
0	14-0196-6							
0	14-0196-7							
0	14-0196-8							
0	14-0196-9		a	34.2	w	n	3	NAO
0	14-0196-10		a	31.3	w	n	3	NAO
0	14-0196-11		a	28.2	w	n	3	NAO
0	14-0196-12		a	31.0	w	n	3	NAO
0	14-0196-13		a	30.0	w	n	3	NAO
0	14-0196-14							
0	14-0196-15							
0	14-0196-16							
0	14-0196-17							
0	14-0198-1	1	a	31.4	w	n	3	NAO
0	14-0198-2	2	a	29.2	w	n	3	NAO
0	14-0198-3	3	a	29.8	w	n	3	NAO
0	14-0198-4	2	a	30.0	w	n	3	NAO
0	14-0198-5	3	a	27.3	w	n	3	NAO
0	14-0198-6							
0	14-0198-7		a	28.0	w	n	3	NAO
0	14-0198-8		a	28.9	w	n	3	NAO
0	14-0198-9		a	26.3	w	n	3	NAO
0	14-0198-10		a	29.4	w	n	3	NAO
0	14-0198-11							
0	14-0198-12		a	25.0	w	n	3	NAO
0	14-0198-13							
0	14-0198-14							
0	14-0205-1							
0	14-0205-2							
0	14-0205-3							
0	14-0205-4							
0	14-0205-5							
0	14-0205-6							
0	14-0205-7							
0	14-0205-8							

0	14-0205-9							
0	14-0205-10							
0	14-0205-11							
0	14-0205-12							
0								
0	14-0215-1	0	a	32.8	w	n	3	pup barbered by dam
0	14-0215-2	0	a	31.4	w	n	3	pup barbered by dam
0	14-0215-3	0	a	31.7	w	n	3	pup barbered by dam
0	14-0215-4	0	a	32.0	w	n	3	pup barbered by dam
0	14-0215-5	0	a	34.3	w	n	3	pup barbered by dam
0	14-0215-6							
0	14-0215-7							
0	14-0215-8							
0	14-0215-9							
0	14-0215-10		a	28.4	w	n	3	pup barbered by dam
0	14-0215-11		a	31.4	w	n	3	pup barbered by dam
0	14-0215-12		a	31.1	w	n	3	pup barbered by dam
0	14-0215-13		a	29.9	w	n	3	pup barbered by dam
0	14-0215-14		a	31.0	w	n	3	pup barbered by dam
0	14-0217-1	1	a	30.8	w	n	3	NAO
0	14-0217-2	1	a	29.4	w	n	3	NAO
0	14-0217-3	0	a	32.3	w	n	3	NAO
0	14-0217-4	0	a	30.4	w	n	3	NAO
0	14-0217-5	2	a	31.1	w	n	3	NAO
0	14-0217-6							
0	14-0217-7		a	27.0	w	n	3	NAO
0	14-0217-8		a	28.1	w	n	3	NAO
0	14-0217-9		a	29.6	w	n	3	NAO
0	14-0217-10		a	29.4	w	n	3	NAO
0	14-0217-11		a	29.0	w	n	3	NAO
0	14-0217-12							
0	14-0217-13							
0	14-0217-14							
0	14-0217-15							
144	14-0123-1	1	a	31.3	w	n	3	NAO
144	14-0123-2	0	a	29.4	w	n	3	NAO
144	14-0123-3	0	a	30.9	w	n	3	NAO
144	14-0123-4	0	a	29.2	w	n	3	NAO
144	14-0123-5	4	a	29.1	w	n	3	NAO
144	14-0123-6							
144	14-0123-7							
144	14-0123-8		a	28.3	w	n	3	NAO
144	14-0123-9		a	28.9	w	n	3	NAO
144	14-0123-10		a	27.9	w	n	3	NAO
144	14-0123-11		a	27.9	w	n	3	NAO
144	14-0123-12		a	29.4	w	n	3	NAO
144	14-0123-13							
144	14-0123-14							
144	14-0123-15							
144								
144	14-0129-1	0	a	29.8	w	n	3	NAO
144	14-0129-2	0	a	32.2	w	n	3	NAO
144	14-0129-3	0	a	32.1	w	n	3	NAO
144	14-0129-4	1	a	32.4	w	n	3	NAO
144	14-0129-5	0	a	29.1	w	n	3	NAO
144	14-0129-6							
144	14-0129-7							
144	14-0129-8							
144	14-0129-9		a	32.3	w	n	3	NAO
144	14-0129-10		a	33.4	w	n	3	NAO
144	14-0129-11		a	32.4	w	n	3	NAO
144	14-0129-12		a	30.6	w	n	3	NAO
144	14-0129-13		a	31.1	w	n	3	NAO
144	14-0129-14							

144	14-0129-15							
144	14-0129-16							
144	14-0134-1	0	a	31.4	w	n	3	pups being barbered by dam
144	14-0134-2	0	a	31.9	w	n	3	pups being barbered by dam
144	14-0134-3	0	a	33.4	w	n	3	pups being barbered by dam
144	14-0134-4	0	a	31.3	w	n	3	pups being barbered by dam
144	14-0134-5	2	a	32.2	w	n	3	pups being barbered by dam
144	14-0134-6							
144	14-0134-7		a	29.8	w	n	3	pups being barbered by dam
144	14-0134-8		a	32.6	w	n	3	pups being barbered by dam
144	14-0134-9		a	31.4	w	n	3	pups being barbered by dam
144	14-0134-10		a	31.9	w	n	3	pups being barbered by dam
144	14-0134-11		a	32.1	w	n	3	pups being barbered by dam
144	14-0134-12							
144	14-0134-13							
144	14-0134-14							
144	14-0137-1	1	a	30.7	w	n	3	NAO
144	14-0137-2	0	a	28.2	w	n	3	NAO
144	14-0137-3	0	a	31.0	w	n	3	NAO
144	14-0137-4	1	a	29.7	w	n	3	NAO
144	14-0137-5		a	28.8	w	n	3	NAO
144	14-0137-6		a	28.3	w	n	3	NAO
144	14-0137-7		a	28.9	w	n	3	NAO
144	14-0137-8		a	28.3	w	n	3	NAO
144	14-0137-9		a	28.8	w	n	3	NAO
144	14-0137-10		a	26.2	w	n	3	NAO
144	14-0137-11							
144	14-0137-12							
144	14-0137-13							
144	14-0137-14							
144	14-0154-1	0	a	36.9	w	n	3	NAO
144	14-0154-2	0	a	34.9	w	n	3	NAO
144	14-0154-3	0	a	35.9	w	n	3	NAO
144	14-0154-4	1	a	34.8	w	n	3	NAO
144	14-0154-5		a	35.8	w	n	3	NAO
144	14-0154-6		a	29.8	w	n	3	NAO
144	14-0154-7		a	31.3	w	n	3	NAO
144	14-0154-8		a	31.3	w	n	3	NAO
144	14-0164-1	0	a	35.1	w	n	3	NAO
144	14-0164-2							
144	14-0164-3	0	a	32.2	w	n	3	NAO
144	14-0164-4							
144	14-0164-5	1	a	30.8	w	n	3	NAO
144	14-0164-6	0	a	31.7	w	n	3	NAO
144	14-0164-7		a	28.3	w	n	3	NAO
144	14-0164-8		a	31.1	w	n	3	NAO
144	14-0164-9		a	31.9	w	n	3	NAO
144	14-0164-10		a	32.4	w	n	3	NAO
144	14-0164-11		a	31.2	w	n	3	NAO
144	14-0164-12		a	31.2	w	n	3	NAO
144	14-0164-13							
144	14-0164-14							
144	14-0164-15							
144	14-0166-1	0	a	28.2	w	n	3	NAO
144	14-0166-2	1	a	31.3	w	n	3	NAO
144	14-0166-3	0	a	30.6	w	n	3	NAO
144	14-0166-4	0	a	33.1	w	n	3	NAO
144	14-0166-5	0	a	28.4	w	n	3	NAO
144	14-0166-6							
144	14-0166-7							
144	14-0166-8		a	29.1	w	n	3	NAO
144	14-0166-9		a	26.6	w	n	3	NAO
144	14-0166-10		a	30.6	w	n	3	NAO
144	14-0166-11		a	31.4	w	n	3	NAO

144	14-0166-12		a	25.0	w	n	3	NAO
144	14-0166-13							
144	14-0166-14							
144	14-0166-15							
144	14-0166-16							
144	14-0166-17							
144	14-0174-1	3	a	31.2	w	n	3	NAO
144	14-0174-2	1	a	29.8	w	n	3	NAO
144	14-0174-3	2	a	28.6	w	n	3	NAO
144	14-0174-4	1	a	29.1	w	n	3	NAO
144	14-0174-5	0	a	28.4	w	n	3	NAO
144	14-0174-6							
144	14-0174-7							
144	14-0174-8		a	31.1	w	n	3	NAO
144	14-0174-9		a	29.7	w	n	3	NAO
144	14-0174-10		a	30.7	w	n	3	NAO
144	14-0174-11		a	26.1	w	n	3	NAO
144	14-0174-12		a	32.8	w	n	3	NAO
144	14-0174-13							
144	14-0174-14							
144	14-0174-15							
144	14-0174-16							
144	14-0175-1	2	a	33.9	w	n	3	NAO
144	14-0175-2	3	a	33.2	w	n	3	NAO
144	14-0175-3		a	32.0	w	n	3	NAO
144	14-0175-4		a	31.1	w	n	3	NAO
144	14-0175-5		a	31.4	w	n	3	NAO
144	14-0175-6		a	31.2	w	n	3	NAO
144	14-0175-7		a	31.6	w	n	3	NAO
144	14-0175-8		a	32.2	w	n	3	NAO
144	14-0175-9		a	33.2	w	n	3	NAO
144	14-0175-10		a	30.0	w	n	3	NAO
144	14-0175-11							
144	14-0175-12							
144	14-0176-1	0	a	28.5	w	n	3	NAO
144	14-0176-2	0	a	30.7	w	n	3	NAO
144	14-0176-3	0	a	28.8	w	n	3	NAO
144	14-0176-4	0	a	30.7	w	n	3	NAO
144	14-0176-5							
144	14-0176-6		a	27.7	w	n	3	NAO
144	14-0176-7		a	29.3	w	n	3	NAO
144	14-0176-8		a	28.9	w	n	3	NAO
144	14-0176-9		a	30.0	w	n	3	NAO
144	14-0176-10		a	28.8	w	n	3	NAO
144	14-0176-11		a	28.4	w	n	3	NAO
144	14-0176-12							
144	14-0176-13							
144	14-0176-14							
144	14-0176-15							
144	14-0176-16							
144	14-0177-1	1	a	28.9	w	n	3	NAO
144	14-0177-2	0	a	28.6	w	n	3	NAO
144	14-0177-3	0	a	28.5	w	n	3	NAO
144	14-0177-4	1	a	31.6	w	n	3	NAO
144	14-0177-5	1	a	28.0	w	n	3	NAO
144	14-0177-6							
144	14-0177-7							
144	14-0177-8		a	27.6	w	n	3	NAO
144	14-0177-9		a	27.1	w	n	3	NAO
144	14-0177-10		a	29.3	w	n	3	NAO
144	14-0177-11		a	29.4	w	n	3	NAO
144	14-0177-12		a	28.2	w	n	3	NAO
144	14-0177-13							
144	14-0177-14							

144	14-0177-15							
144	14-0177-16							
144	14-0177-17							
144	14-0177-18							
144	14-0178-1	0	a	34.8	w	n	3	NAO
144	14-0178-2	0	a	36.4	w	n	3	NAO
144	14-0178-3	0	a	34.8	w	n	3	NAO
144	14-0178-4	0	a	34.0	w	n	3	NAO
144	14-0178-5	0	a	37.4	w	n	3	NAO
144	14-0178-6							
144	14-0178-7							
144	14-0178-8							
144	14-0178-9							
144	14-0178-10							
144	14-0178-11		a	32.2	w	n	3	NAO
144	14-0178-12		a	29.3	w	n	3	NAO
144	14-0178-13		a	30.7	w	n	3	NAO
144	14-0178-14		a	33.9	w	n	3	NAO
144	14-0178-15		a	34.1	w	n	3	NAO
144	14-0178-16							
144	14-0178-17							
144	14-0180-1	2	a	30.0	w	n	3	NAO
144	14-0180-2	2	a	27.4	w	n	3	NAO
144	14-0180-3	0	a	28.4	w	n	3	NAO
144	14-0180-4	2	a	30.8	w	n	3	NAO
144	14-0180-5	2	a	29.9	w	n	3	NAO
144	14-0180-6							
144	14-0180-7							
144	14-0180-8		a	27.6	w	n	3	NAO
144	14-0180-9		a	29.2	w	n	3	NAO
144	14-0180-10		a	28.9	w	n	3	NAO
144	14-0180-11		a	29.2	w	n	3	NAO
144	14-0180-12		a	28.5	w	n	3	NAO
144	14-0183-1	2	a	32.0	w	n	3	NAO
144	14-0183-2	1	a	32.8	w	n	3	NAO
144	14-0183-3	0	a	33.3	w	n	3	NAO
144	14-0183-4	1	a	32.5	w	n	3	NAO
144	14-0183-5	2	a	33.8	w	n	3	NAO
144	14-0183-6							
144	14-0183-7							
144	14-0183-8							
144	14-0183-9		a	31.4	w	n	3	NAO
144	14-0183-10		a	32.6	w	n	3	NAO
144	14-0183-11		a	32.6	w	n	3	NAO
144	14-0183-12		a	32.8	w	n	3	NAO
144	14-0183-13		a	32.9	w	n	3	NAO
144	14-0183-14							
144	14-0183-15							
144	14-0183-16							
144	14-0183-17							
144	14-0195-1	4	a	37.3	w	n	3	NAO
144	14-0195-2	2	a	32.0	w	n	3	NAO
144	14-0195-3	2	a	35.8	w	n	3	NAO
144	14-0195-4	4	a	37.0	w	n	3	NAO
144	14-0195-5	5	a	35.0	w	n	3	NAO
144	14-0195-5							
144	14-0195-5							
144	14-0195-5							
144	14-0195-9		a	34.6	w	n	3	NAO
144	14-0195-10		a	31.8	w	n	3	NAO
144	14-0195-11		a	29.2	w	n	3	NAO
144	14-0195-12		a	30.9	w	n	3	NAO
144	14-0195-13		a	27.7	w	n	3	NAO
144	14-0195-14							

144	14-0195-15							
144	14-0197-1	3	a	30.7	w	n	3	NAO
144	14-0197-2	2	a	31.7	w	n	3	NAO
144	14-0197-3	4	a	29.1	w	n	3	NAO
144	14-0197-4	2	a	25.0	w	n	3	NAO
144	14-0197-5	1	a	26.9	w	n	3	NAO
144	14-0197-6							
144	14-0197-7		a	28.4	w	n	3	NAO
144	14-0197-8							
144	14-0197-9		a	26.8	w	n	3	NAO
144	14-0197-10		a	27.0	w	n	3	NAO
144	14-0197-11		a	29.1	w	n	3	NAO
144	14-0197-12		a	27.3	w	n	3	NAO
144	14-0197-13							
144	14-0199-1	2	a	32.3	w	n	3	NAO
144	14-0199-2	1	a	32.7	w	n	3	NAO
144	14-0199-3	1	a	31.0	w	n	3	NAO
144	14-0199-4	2	a	32.8	w	n	3	NAO
144	14-0199-5	3	a	32.8	w	n	3	NAO
144	14-0199-6							
144	14-0199-7		a	29.6	w	n	3	NAO
144	14-0199-8		a	31.4	w	n	3	NAO
144	14-0199-9		a	30.9	w	n	3	NAO
144	14-0199-10		a	31.3	w	n	3	NAO
144	14-0199-11		a	29.1	w	n	3	NAO
144	14-0199-12							
144	14-0199-13							
144	14-0199-14							
144	14-0200-1	2	a	33.8	w	n	3	NAO
144	14-0200-2	3	a	33.4	w	n	3	NAO
144	14-0200-3	2	a	20.5	c	l	2	labored breathing; euthanized
144	14-0200-4	3	a	33.6	w	n	3	NAO
144	14-0200-5	4	a	31.3	w	n	3	NAO
144	14-0200-6							
144	14-0200-7							
144	14-0200-8							
144	14-0200-9							
144	14-0200-10		a	28.8	w	n	3	NAO
144	14-0200-11							
144	14-0200-12		a	33.8	w	n	3	NAO
144	14-0200-13		a	33.0	w	n	3	NAO
144	14-0200-14		a	34.5	w	n	3	NAO
144	14-0200-15		a	34.0	w	n	3	NAO
144	14-0200-16							
144	14-0206-1	1	a	30.9	w	n	3	NAO
144	14-0206-2	0	a	29.2	w	n	3	NAO
144	14-0206-3	0	a	32.2	w	n	3	NAO
144	14-0206-4	0	a	27.3	w	n	3	NAO
144	14-0206-5	0	a	32.6	w	n	3	NAO
144	14-0206-6							
144	14-0206-7							
144	14-0206-8							
144	14-0206-9		a	26.9	w	n	3	NAO
144	14-0206-10		a	28.2	w	n	3	NAO
144	14-0206-11		a	30.0	w	n	3	NAO
144	14-0206-12		a	29.1	w	n	3	NAO
144	14-0206-13		a	30.1	w	n	3	NAO
144	14-0206-14							
144	14-0206-15							
144	14-0206-16							
144	14-0211-1	0	a	34.2	w	n	3	NAO
144	14-0211-2	0	a	32.3	w	n	3	NAO
144	14-0211-3	0	a	33.3	w	n	3	NAO
144	14-0211-4		a	32.7	w	n	3	NAO

144	14-0211-5		a	31.5	w	n	3	NAO
144	14-0211-6		a	30.0	w	n	3	NAO
144	14-0211-7		a	29.0	w	n	3	NAO
144	14-0211-8		a	31.1	w	n	3	NAO
144	14-0211-9		a	34.2	w	n	3	NAO
144	14-0211-10		a	31.3	w	n	3	NAO
144	14-0211-11							
144	14-0211-12							
144	14-0211-13							
144	14-0211-14							
144	14-0211-15							
144	14-0212-1	0	a	26.6	w	n	3	NAO
144	14-0212-2	2	a	28.5	w	n	3	NAO
144	14-0212-3	2	a	26.9	w	n	3	NAO
144	14-0212-4							
144	14-0212-5	2	a	27.8	w	n	3	NAO
144	14-0212-6	2	a	30.4	w	n	3	NAO
144	14-0212-7		a	28.2	w	n	3	NAO
144	14-0212-8		a	27.6	w	n	3	NAO
144	14-0212-9		a	26.6	w	n	3	NAO
144	14-0212-10		a	27.0	w	n	3	NAO
144	14-0212-11		a	25.4	w	n	3	NAO
144	14-0212-12							
144	14-0212-13							
144	14-0212-14							
144	14-0212-15							
144	14-0212-16							
144	14-0214-1	0	a	27.4	w	n	3	NAO
144	14-0214-2	2	a	29.5	w	n	3	NAO
144	14-0214-3							
144	14-0214-4	1	a	28.7	w	n	3	NAO
144	14-0214-5	1	a	30.6	w	n	3	NAO
144	14-0214-6							
144	14-0214-7							
144	14-0214-8		a	27.6	w	n	3	NAO
144	14-0214-9		a	27.8	w	n	3	NAO
144	14-0214-10		a	26.1	w	n	3	NAO
144	14-0214-11		a	26.3	w	n	3	NAO
144	14-0214-12		a	26.1	w	n	3	NAO
144	14-0214-13							
144								
144	14-0220-1	1	a	27.6	w	n	3	NAO
144	14-0220-2	2	a	30.6	w	n	3	NAO
144	14-0220-3	2	a	29.7	w	n	3	NAO
144	14-0220-4	1	a	30.7	w	n	3	NAO
144	14-0220-5	2	a	29.2	w	n	3	NAO
144	14-0220-6							
144	14-0220-7							
144	14-0220-8		a	26.7	w	n	3	NAO
144	14-0220-9		a	28.3	w	n	3	NAO
144	14-0220-10		a	29.4	w	n	3	NAO
144	14-0220-11		a	28.2	w	n	3	NAO
144	14-0220-12		a	28.3	w	n	3	NAO
144	14-0220-13							
144	14-0220-14							
144	14-0220-15							
144	14-0220-16							
144	14-0220-17							
144	14-0220-18							
720	14-0124-1	1	a	31.6	w	n	3	NAO
720	14-0124-2	0	a	32.3	w	n	3	NAO
720	14-0124-3	0	a	31.0	w	n	3	NAO
720	14-0124-4	0	a	32.5	w	n	3	NAO
720	14-0124-5	0	a	32.1	w	n	3	NAO

720	14-0124-6							
720	14-0124-7							
720	14-0124-8							
720	14-0124-9							
720	14-0124-10		a	24.9	w	n	3	NAO
720	14-0124-11		a	30.5	w	n	3	NAO
720	14-0124-12		a	29.5	w	n	3	NAO
720	14-0124-13		a	29.4	w	n	3	NAO
720	14-0124-14		a	30.5	w	n	3	NAO
720	14-0128-1	0	a	32.7	w	n	3	NAO
720	14-0128-2	0	a	28.3	w	n	3	NAO
720	14-0128-3		a	31.8	w	n	3	misidentified at birth as male
720	14-0128-4							
720	14-0128-5		a	33.1	w	n	3	misidentified at birth as male
720	14-0128-6	0	a	32.4	w	n	3	NAO
720	14-0128-7							
720	14-0128-8							
720	14-0128-9		a	32.0	w	n	3	NAO
720	14-0128-10		a	32.0	w	n	3	NAO
720	14-0128-11		a	29.5	w	n	3	NAO
720	14-0128-12		a	24.7	w	n	3	NAO
720	14-0128-13		a	32.1	w	n	3	NAO
720	14-0128-14							
720	14-0128-15							
720	14-0128-16							
720	14-0128-17							
720	14-0132-1	0	a	30.0	w	n	3	NAO
720	14-0132-2							
720	14-0132-3	1	a	28.4	w	n	3	NAO
720	14-0132-4	0	a	28.0	w	n	3	NAO
720	14-0132-5	0	a	29.3	w	n	3	NAO
720	14-0132-6	1	a	29.1	w	n	3	NAO
720	14-0132-7		a	27.3	w	n	3	NAO
720	14-0132-8		a	29.0	w	n	3	NAO
720	14-0132-9		a	29.0	w	n	3	NAO
720	14-0132-10		a	28.0	w	n	3	NAO
720	14-0132-11		a	25.6	w	n	3	NAO
720	14-0132-12							
720	14-0132-13							
720	14-0132-14							
720	14-0132-15							
720	14-0138-1	0	a	29.4	w	n	3	NAO
720	14-0138-2	0	a	31.4	w	n	3	NAO
720	14-0138-3	2	a	29.7	w	n	3	NAO
720	14-0138-4	0	a	29.5	w	n	3	NAO
720	14-0138-5	1	a	28.4	w	n	3	NAO
720	14-0138-6	1	a	30.4	w	n	3	NAO
720	14-0138-7	0	a	29.2	w	n	3	NAO
720	14-0138-8	1	a	30.3	w	n	3	NAO
720	14-0138-9	0	a	29.6	w	n	3	NAO
720	14-0138-10							
720	14-0138-11							
720	14-0138-12							
720	14-0138-13		a	30.3	w	n	3	NAO
720	14-0142-1	0	a	32.2	w	n	3	NAO
720	14-0142-2	0	a	29.4	w	n	3	NAO
720	14-0142-3	1	a	30.9	w	n	3	NAO
720	14-0142-4	2	a	32.0	w	n	3	NAO
720	14-0142-5	0	a	29.5	w	n	3	NAO
720	14-0142-6							
720	14-0142-7		a	30.8	w	n	3	NAO
720	14-0142-8		a	28.1	w	n	3	NAO
720	14-0142-9		a	28.5	w	n	3	NAO
720	14-0142-10		a	27.8	w	n	3	NAO

720	14-0142-11		a	26.4	w	n	3	NAO
720	14-0142-12							
720	14-0142-13							
720	14-0142-14							
720	14-0142-15							
720	14-0142-16							
720	14-0144-1	1	a	34.6	w	n	3	NAO
720	14-0144-2	0	a	34.9	w	n	3	NAO
720	14-0144-3	1	a	34.3	w	n	3	NAO
720	14-0144-4	1	a	32.6	w	n	3	NAO
720	14-0144-5	0	a	33.5	w	n	3	NAO
720	14-0144-6							
720	14-0144-7							
720	14-0144-8		a	31.6	w	n	3	NAO
720	14-0144-9		a	32.8	w	n	3	NAO
720	14-0144-10		a	33.0	w	n	3	NAO
720	14-0144-11		a	31.6	w	n	3	NAO
720	14-0144-12		a	33.6	w	n	3	NAO
720	14-0144-13							
720	14-0144-14							
720	14-0144-15							
720	14-0144-16							
720	14-0144-17							
720	14-0145-1	1	a	35.6	w	n	3	NAO
720	14-0145-2	0	a	31.4	w	n	3	NAO
720	14-0145-3	0	a	35.1	w	n	3	NAO
720	14-0145-4	1	a	39.3	w	n	3	NAO
720	14-0145-5	2	a	35.4	w	n	3	NAO
720	14-0145-6							
720	14-0145-7		a	28.5	w	n	3	NAO
720	14-0145-8		a	33.6	w	n	3	NAO
720	14-0145-9		a	34.0	w	n	3	NAO
720	14-0145-10		a	32.2	w	n	3	NAO
720	14-0145-11		a	33.6	w	n	3	NAO
720	14-0145-12							
720	14-0145-13							
720	14-0146-1							
720	14-0146-2	0	a	34.7	w	n	3	NAO
720	14-0146-3	0	a	33.6	w	n	3	NAO
720	14-0146-4	1	a	32.0	w	n	3	NAO
720	14-0146-5	0	a	28.9	w	n	3	NAO
720	14-0146-6	0	a	33.5	w	n	3	NAO
720	14-0146-7							
720	14-0146-8							
720	14-0146-9							
720	14-0146-10							
720	14-0146-11		a	32.3	w	n	3	NAO
720	14-0146-12		a	28.7	w	n	3	NAO
720	14-0146-13		a	34.3	w	n	3	NAO
720	14-0146-14		a	33.5	w	n	3	NAO
720	14-0146-15		a	31.9	w	n	3	NAO
720	14-0146-16							
720	14-0146-17							
720	14-0146-18							
720	14-0147-1	0	a	33.0	w	n	3	NAO
720	14-0147-2	1	a	33.7	w	n	3	NAO
720	14-0147-3	0	a	30.9	w	n	3	NAO
720	14-0147-4	0	a	33.9	w	n	3	NAO
720	14-0147-5							
720	14-0147-6	0	a	33.0	w	n	3	NAO
720	14-0147-7		a	29.7	w	n	3	NAO
720	14-0147-8		a	32.0	w	n	3	NAO
720	14-0147-9		a	33.6	w	n	3	NAO
720	14-0147-10		a	31.4	w	n	3	NAO

720	14-0147-11		a	29.4	w	n	3	NAO
720	14-0147-12							
720	14-0147-13							
720	14-0147-14							
720	14-0152-1							
720	14-0152-2							
720	14-0152-3							
720	14-0152-4							
720	14-0152-5							
720	14-0152-6							
720	14-0152-7							
720	14-0152-8							
720	14-0152-9							
720	14-0152-10							
720	14-0152-11							
720	14-0152-12							
720	14-0152-13							
720	14-0152-14							
720	14-0153-1	2	a	28.6	w	n	3	NAO
720	14-0153-2	0	a	31.3	w	n	3	NAO
720	14-0153-3	1	a	30.9	w	n	3	NAO
720	14-0153-4	0	a	29.4	w	n	3	NAO
720	14-0153-5	1	a	31.9	w	n	3	NAO
720	14-0153-6							
720	14-0153-7		a	26.7	w	n	3	NAO
720	14-0153-8		a	31.4	w	n	3	NAO
720	14-0153-9		a	29.0	w	n	3	NAO
720	14-0153-10		d					found dead on 1/6/14
720	14-0153-11		a	30.0	w	n	3	NAO
720	14-0153-12							
720	14-0153-13							
720	14-0153-14							
720	14-0153-15							
720	14-0158-1	0	a	31.9	w	n	3	NAO
720	14-0158-2	0	a	31.1	w	n	3	NAO
720	14-0158-3	1	a	31.2	w	n	3	NAO
720	14-0158-4	1	a	33.8	w	n	3	NAO
720	14-0158-5	2	a	31.7	w	n	3	NAO
720	14-0158-6							
720	14-0158-7		a	30.1	w	n	3	NAO
720	14-0158-8		a	29.7	w	n	3	NAO
720	14-0158-9		a	30.5	w	n	3	NAO
720	14-0158-10		a	32.0	w	n	3	NAO
720	14-0158-11		a	26.7	w	n	3	NAO
720	14-0158-12							
720	14-0158-13							
720	14-0158-14							
720	14-0158-15							
720	14-0160-1	1	a	26.6	w	n	3	NAO
720	14-0160-2	3	a	27.9	w	n	3	NAO
720	14-0160-3	1	a	27.0	w	n	3	NAO
720	14-0160-4	0	a	28.2	w	n	3	NAO
720	14-0160-5	1	a	26.4	w	n	3	NAO
720	14-0160-6		a	27.0	w	n	3	NAO
720	14-0160-7		a	28.7	w	n	3	NAO
720	14-0160-8		a	28.2	w	n	3	NAO
720	14-0160-9		a	25.4	w	n	3	NAO
720	14-0160-10		a	26.4	w	n	3	NAO
720	14-0160-11							
720	14-0160-12							
720	14-0160-13							
720	14-0160-14							
720	14-0165-1	4	a	28.4	w	n	3	NAO
720	14-0165-2	1	a	30.1	w	n	3	NAO

720	14-0165-3	0	a	28.4	w	n	3	NAO
720	14-0165-4	0	a	28.9	w	n	3	NAO
720	14-0165-5							
720	14-0165-6	2	a	30.7	w	n	3	NAO
720	14-0165-7							
720	14-0165-8							
720	14-0165-9		a	28.1	w	n	3	NAO
720	14-0165-10		a	30.1	w	n	3	NAO
720	14-0165-11		a	29.2	w	n	3	NAO
720	14-0165-12		a	29.7	w	n	3	NAO
720	14-0165-13		a	29.1	w	n	3	NAO
720	14-0165-14							
720	14-0165-15							
720	14-0165-16							
720	14-0169-1	2	a	29.9	w	n	3	NAO
720	14-0169-2	0	a	30.4	w	n	3	NAO
720	14-0169-3	0	a	29.0	w	n	3	NAO
720	14-0169-4	2	a	29.2	w	n	3	NAO
720	14-0169-5	3	a	31.8	w	n	3	NAO
720	14-0169-6	0	a	29.7	w	n	3	NAO
720	14-0169-7							
720	14-0169-8							
720	14-0169-9							
720	14-0169-10							
720	14-0169-11		a	29.4	w	n	3	NAO
720	14-0169-12		a	27.2	w	n	3	NAO
720	14-0169-13		a	25.9	w	n	3	NAO
720	14-0169-14		a	27.7	w	n	3	NAO
720	14-0170-1	0	a	26.0	w	n	3	NAO
720	14-0170-2	2	a	27.4	w	n	3	NAO
720	14-0170-3	1	a	27.1	w	n	3	NAO
720	14-0170-4	0	a	29.2	w	n	3	NAO
720	14-0170-5							
720	14-0170-6	1	a	28.3	w	n	3	NAO
720	14-0170-7							
720	14-0170-8		a	24.0	w	n	3	NAO
720	14-0170-9		a	25.7	w	n	3	NAO
720	14-0170-10		a	29.0	w	n	3	NAO
720	14-0170-11		a	25.5	w	n	3	NAO
720	14-0170-12		a	23.6	w	n	3	NAO
720	14-0170-13							
720	14-0170-14							
720	14-0170-15							
720	14-0170-16							
720	14-0170-17							
720	14-0171-1	3	a	33.7	w	n	3	NAO
720	14-0171-2	0	a	31.2	w	n	3	NAO
720	14-0171-3	1	a	31.7	w	n	3	NAO
720	14-0171-4	0	a	31.3	w	n	3	NAO
720	14-0171-5	0	a	32.3	w	n	3	NAO
720	14-0171-6							
720	14-0171-7							
720	14-0171-8							
720	14-0171-9							
720	14-0171-10							
720	14-0171-11							
720	14-0171-12		a	32.0	w	n	3	NAO
720	14-0171-13		a	30.9	w	n	3	NAO
720	14-0171-14		a	26.4	w	n	3	NAO
720	14-0171-15		a	30.5	w	n	3	NAO
720	14-0171-16		a	31.2	w	n	3	NAO
720	14-0171-17							
720	14-0188-1	3	a	29.4	w	n	3	NAO
720	14-0188-2	1	a	28.5	w	n	3	NAO

720	14-0188-3	4	a	32.3	w	n	3	NAO
720	14-0188-4	1	a	31.9	w	n	3	NAO
720	14-0188-5	2	a	31.9	w	n	3	NAO
720	14-0188-6		a	30.3	w	n	3	NAO
720	14-0188-7		a	29.5	w	n	3	NAO
720	14-0188-8		a	31.0	w	n	3	NAO
720	14-0188-9		a	31.6	w	n	3	NAO
720	14-0188-10		a	31.0	w	n	3	NAO
720	14-0188-11							
720	14-0188-12							
720	14-0188-13							
720	14-0190-1							
720	14-0190-2	2	a	31.6	w	n	3	NAO
720	14-0190-3	4	a	32.8	w	n	3	NAO
720	14-0190-4	4	a	34.0	w	n	3	NAO
720	14-0190-5	4	a	32.4	w	n	3	NAO
720	14-0190-6	4	a	33.1	w	n	3	NAO
720	14-0190-7							
720	14-0190-8		a	31.0	w	n	3	NAO
720	14-0190-9		a	32.9	w	n	3	NAO
720	14-0190-10		a	32.3	w	n	3	NAO
720	14-0190-11		a	31.4	w	n	3	NAO
720	14-0190-12		a	31.0	w	n	3	NAO
720	14-0190-13							
720	14-0190-14							
720	14-0190-15							
720	14-0192-1	0	a	29.6	w	n	3	NAO
720	14-0192-2	0	a	30.4	w	n	3	NAO
720	14-0192-3	0	a	31.4	w	n	3	NAO
720	14-0192-4	1	a	29.9	w	n	3	NAO
720	14-0192-5	0	a	31.7	w	n	3	NAO
720	14-0192-6	1	a	31.1	w	n	3	NAO
720	14-0192-7							
720	14-0192-8							
720	14-0192-9							
720	14-0192-10		a	29.1	w	n	3	NAO
720	14-0192-11		a	27.5	w	n	3	NAO
720	14-0192-12		a	27.7	w	n	3	NAO
720	14-0192-13		a	29.5	w	n	3	NAO
720	14-0193-1	0	a	31.5	w	n	3	NAO
720	14-0193-2	0	a	29.8	w	n	3	NAO
720	14-0193-3	1	a	31.7	w	n	3	NAO
720	14-0193-4	1	a	27.4	w	n	3	NAO
720	14-0193-5	0	a	31.6	w	n	3	NAO
720	14-0193-6							
720	14-0193-7							
720	14-0193-8							
720	14-0193-9		a	27.5	w	n	3	NAO
720	14-0193-10		a	26.0	w	n	3	NAO
720	14-0193-11		a	29.4	w	n	3	NAO
720	14-0193-12		a	29.1	w	n	3	NAO
720	14-0193-13		a	28.8	w	n	3	NAO
720	14-0201-1	2	a	31.6	w	n	3	NAO
720	14-0201-2	0	a	27.8	w	n	3	NAO
720	14-0201-3	0	a	26.4	w	n	3	NAO
720	14-0201-4	4	a	32.6	w	n	3	NAO
720	14-0201-5	0	a	30.0	w	n	3	NAO
720	14-0201-6							
720	14-0201-7							
720	14-0201-8							
720	14-0201-9							
720	14-0201-10		a	28.2	w	n	3	NAO
720	14-0201-11		a	29.3	w	n	3	NAO
720	14-0201-12		a	26.8	w	n	3	NAO

720	14-0201-13		a	28.7	w	n	3	NAO
720	14-0201-14		a	31.5	w	n	3	NAO
720	14-0201-15							
720	14-0201-16							
720	14-0201-17							
720	14-0201-18							
720	14-0202-1	0	a	25.4	w	n	3	NAO
720	14-0202-2	0	a	24.8	w	n	3	NAO
720	14-0202-3	2	a	27.1	w	n	3	NAO
720	14-0202-4	2	a	25.4	w	n	3	NAO
720	14-0202-5	0	a	29.3	w	n	3	NAO
720	14-0202-6	0	a	25.8	w	n	3	NAO
720	14-0202-7							
720	14-0202-8							
720	14-0202-9							
720	14-0202-10		a	28.4	w	n	3	NAO
720	14-0202-11		a	18.3	w	n	3	NAO
720	14-0202-12		a	26.1	w	n	3	NAO
720	14-0202-13		a	28.1	w	n	3	NAO
720	14-0203-1	1	a	27.2	w	n	3	NAO
720	14-0203-2	0	a	28.4	w	n	3	NAO
720	14-0203-3	0	a	29.8	w	n	3	NAO
720	14-0203-4	2	a	25.4	w	n	3	NAO
720	14-0203-5	2	a	28.3	w	n	3	NAO
720	14-0203-6							
720	14-0203-7		a	29.0	w	n	3	NAO
720	14-0203-8		a	27.7	w	n	3	NAO
720	14-0203-9		a	24.9	w	n	3	NAO
720	14-0203-10		a	28.4	w	n	3	NAO
720	14-0203-11		a	27.4	w	n	3	NAO
720	14-0204-1	0	a	27.6	w	n	3	NAO
720	14-0204-2	2	a	28.1	w	n	3	NAO
720	14-0204-3	3	a	28.4	w	n	3	NAO
720	14-0204-4	2	a	26.9	w	n	3	NAO
720	14-0204-5	0	a	25.5	w	n	3	NAO
720	14-0204-6							
720	14-0204-7							
720	14-0204-8							
720	14-0204-9							
720	14-0204-10		a	27.3	w	n	3	NAO
720	14-0204-11		a	22.9	w	n	3	NAO
720	14-0204-12		a	23.1	w	n	3	NAO
720	14-0204-13		a	24.9	w	n	3	NAO
720	14-0204-14		a	25.9	w	n	3	NAO
3600	14-0126-1	3	a	27.1	w	n	3	NAO
3600	14-0126-2	0	a	27.6	w	n	3	NAO
3600	14-0126-3	2	a	29.4	w	n	3	NAO
3600	14-0126-4	0	a	26.7	w	n	3	NAO
3600	14-0126-5	1	a	27.9	w	n	3	NAO
3600	14-0126-6							
3600	14-0126-7		a	27.8	w	n	3	NAO
3600	14-0126-8							
3600	14-0126-9		a	27.6	w	n	3	NAO
3600	14-0126-10							
3600	14-0126-11		a	26.2	w	n	3	NAO
3600	14-0126-12							
3600	14-0126-13		a	26.0	w	n	3	NAO
3600	14-0126-14		a	25.1	w	n	3	NAO
3600	14-0126-15							
3600	14-0126-16							
3600	14-0127-1	0	a	20.7	w	n	3	NAO
3600	14-0127-2	0	a	27.7	w	n	3	NAO
3600	14-0127-3	0	a	29.1	w	n	3	NAO
3600	14-0127-4	0	a	28.2	w	n	3	NAO

3600	14-0127-5	0	a	27.0	w	n	3	NAO
3600	14-0127-6							
3600	14-0127-7							
3600	14-0127-8		a	25.9	w	n	3	NAO
3600	14-0127-9		a	25.5	w	n	3	NAO
3600	14-0127-10		a	28.2	w	n	3	NAO
3600	14-0127-11		a	26.2	w	n	3	NAO
3600	14-0127-12		a	27.4	w	n	3	NAO
3600	14-0131-1	0	a	30.4	w	n	3	NAO
3600	14-0131-2	1	a	29.4	w	n	3	NAO
3600	14-0131-3	1	a	31.6	w	n	3	NAO
3600	14-0131-4	0	a	29.7	w	n	3	NAO
3600	14-0131-5	0	a	30.0	w	n	3	NAO
3600	14-0131-6							
3600	14-0131-7							
3600	14-0131-8							
3600	14-0131-9							
3600	14-0131-10							
3600	14-0131-11		a	28.3	w	n	3	NAO
3600	14-0131-12		a	26.6	w	n	3	NAO
3600	14-0131-13		a	27.5	w	n	3	NAO
3600	14-0131-14		a	28.5	w	n	3	NAO
3600	14-0131-15		a	29.1	w	n	3	NAO
3600	14-0135-1	0	a	20.6	w	n	3	NAO
3600	14-0135-2	0	a	21.8	w	n	3	NAO
3600	14-0135-3	1	a	20.4	w	n	3	NAO
3600	14-0135-4							
3600	14-0135-5	1	a	20.2	w	n	3	NAO
3600	14-0135-6	0	a	22.7	w	n	3	NAO
3600	14-0135-7	3	a	21.6	w	n	3	NAO
3600	14-0135-8	0	a	20.9	w	n	3	NAO
3600	14-0135-9							
3600	14-0135-10							
3600	14-0135-11		a	22.1	w	n	3	NAO
3600	14-0135-12		a	21.8	w	n	3	NAO
3600	14-0135-13							
3600	14-0139-1	0	a	28.5	w	n	3	NAO
3600	14-0139-2	3	a	28.5	w	n	3	NAO
3600	14-0139-3	0	a	30.5	w	n	3	NAO
3600	14-0139-4	0	a	29.8	w	n	3	NAO
3600	14-0139-5	2	a	28.6	w	n	3	NAO
3600	14-0139-6	1	a	27.0	w	n	3	NAO
3600	14-0139-7							
3600	14-0139-8							
3600	14-0139-9							
3600	14-0139-10		a	27.0	w	n	3	NAO
3600	14-0139-11		a	27.7	w	n	3	NAO
3600	14-0139-12		a	25.8	w	n	3	NAO
3600	14-0139-13		a	25.9	w	n	3	NAO
3600	14-0140-1		a	30.0	w	n	3	NAO
3600	14-0140-2	0	a	31.7	w	n	3	NAO
3600	14-0140-3	0	a	29.6	w	n	3	NAO
3600	14-0140-4	0	a	34.9	w	n	3	NAO
3600	14-0140-5	0	a	29.2	w	n	3	NAO
3600	14-0140-6		a	28.5	w	n	3	NAO
3600	14-0140-7		a	25.8	w	n	3	NAO
3600	14-0140-8		a	29.9	w	n	3	NAO
3600	14-0140-9		a	30.7	w	n	3	NAO
3600	14-0140-10		a	27.4	w	n	3	NAO
3600	14-0140-11							
3600	14-0140-12							
3600	14-0140-13							
3600	14-0140-14							
3600	14-0140-15							

3600	14-0140-16							
3600	14-0140-17							
3600	14-0141-1	3	a	25.9	w	n	3	NAO
3600	14-0141-2	1	a	28.6	w	n	3	NAO
3600	14-0141-3	2	a	27.7	w	n	3	NAO
3600	14-0141-4	0	a	28.8	w	n	3	NAO
3600	14-0141-5	3	a	25.0	w	n	3	NAO
3600	14-0141-6	1	a	27.0	w	n	3	NAO
3600	14-0141-7							
3600	14-0141-8							
3600	14-0141-9							
3600	14-0141-10		a	25.6	w	n	3	NAO
3600	14-0141-11		a	23.7	w	n	3	NAO
3600	14-0141-12		a	24.6	w	n	3	NAO
3600	14-0141-13		a	25.5	w	n	3	NAO
3600	14-0151-1	0	a	30.2	w	n	3	underside of tail scaly
3600	14-0151-2	1	a	33.2	w	n	3	underside of tail scaly
3600	14-0151-3	0	a	30.8	w	n	3	tail scaly
3600	14-0151-4	0	a	32.7	w	n	3	underside of tail scaly
3600	14-0151-5	1	a	31.9	w	n	3	underside of tail slightly scaly
3600	14-0151-6	0	a	25.1	w	n	3	tail scaly and slightly red
3600	14-0151-7	0	a	30.7	w	n	3	tail scaly, tip of tail dark red and necrotic
3600	14-0151-8							
3600	14-0151-9		a	33.4	w	n	3	underside of tail slightly scaly
3600	14-0151-10							
3600	14-0151-11							
3600	14-0151-12		a		w	n	3	underside of tail slightly scaly
3600	14-0151-13							
3600	14-0151-14							
3600	14-0155-1	0	a	31.5	w	n	3	NAO
3600	14-0155-2	0	a	28.7	w	n	3	NAO
3600	14-0155-3	0	a	32.5	w	n	3	NAO
3600	14-0155-4	0	a	31.4	w	n	3	NAO
3600	14-0155-5		a	30.2	w	n	3	NAO
3600	14-0155-6		a	26.5	w	n	3	NAO
3600	14-0155-7		a	29.5	w	n	3	NAO
3600	14-0155-8		a	29.0	w	n	3	NAO
3600	14-0155-9		a	32.8	w	n	3	NAO
3600	14-0155-10		a	29.8	w	n	3	NAO
3600	14-0155-11							
3600	14-0155-12							
3600	14-0159-1	2	a	30.2	w	n	3	NAO
3600	14-0159-2							
3600	14-0159-3	4	a	32.7	w	n	3	NAO
3600	14-0159-4	4	a	30.9	w	n	3	NAO
3600	14-0159-5	2	a	31.4	w	n	3	NAO
3600	14-0159-6	4	a	31.0	w	n	3	NAO
3600	14-0159-7		a	29.4	w	n	3	NAO
3600	14-0159-8		a	31.9	w	n	3	NAO
3600	14-0159-9		a	30.7	w	n	3	NAO
3600	14-0159-10		a	28.6	w	n	3	NAO
3600	14-0159-11		a	26.8	w	n	3	NAO
3600	14-0159-12							
3600	14-0159-13							
3600	14-0159-14							
3600	14-0159-15							
3600	14-0167-1	1	a	27.6	w	n	3	NAO
3600	14-0167-2	1	a	26.7	w	n	3	NAO
3600	14-0167-3	3	a	26.7	w	n	3	NAO
3600	14-0167-4	0	a	25.8	w	n	3	NAO
3600	14-0167-5	3	a	27.4	w	n	3	NAO
3600	14-0167-6							
3600	14-0167-7		a	23.4	w	n	3	NAO
3600	14-0167-8		a	23.6	w	n	3	NAO

3600	14-0167-9		a	25.9	w	n	3	NAO
3600	14-0167-10		a	24.5	w	n	3	NAO
3600	14-0167-11		a	22.8	w	n	3	NAO
3600	14-0167-12							
3600	14-0167-13							
3600								
3600	14-0172-1	2	a	33.8	w	n	3	NAO
3600	14-0172-2	1	a	33.5	w	n	3	NAO
3600	14-0172-3	1	a	32.7	w	n	3	NAO
3600	14-0172-4	2	a	39.1	w	n	3	NAO
3600	14-0172-5	0	a	33.5	w	n	3	NAO
3600	14-0172-6							
3600	14-0172-7							
3600	14-0172-8							
3600	14-0172-9							
3600	14-0172-10		a	31.0	w	n	3	NAO
3600	14-0172-11		a	38.7	w	n	3	NAO
3600	14-0172-12		a	33.6	w	n	3	NAO
3600	14-0172-13		a	32.6	w	n	3	NAO
3600	14-0172-14							
3600	14-0172-15		a	31.2	w	n	3	NAO
3600	14-0181-1	0	a	32.0	w	n	3	NAO
3600	14-0181-2							
3600	14-0181-3	0	a	30.7	w	n	3	NAO
3600	14-0181-4	0	a	31.9	w	n	3	NAO
3600	14-0181-5	0	a	30.1	w	n	3	NAO
3600	14-0181-6		a	28.7	w	n	3	NAO
3600	14-0181-7		a	29.5	w	n	3	NAO
3600	14-0181-8		a	31.4	w	n	3	NAO
3600	14-0181-9		a	28.4	w	n	3	NAO
3600	14-0181-10		a	25.7	w	n	3	NAO
3600	14-0181-11		a	28.3	w	n	3	NAO
3600	14-0181-12							
3600	14-0181-13							
3600	14-0181-14							
3600	14-0181-15							
3600	14-0182-1	4	a	30.1	w	n	3	NAO
3600	14-0182-2							
3600	14-0182-3	4	a	31.3	w	n	3	NAO
3600	14-0182-4		a	26.5	w	n	3	NAO
3600	14-0182-5	0	a	27.2	w	n	3	NAO
3600	14-0182-6	4	a	29.9	w	n	3	NAO
3600	14-0182-7		a	28.7	w	n	3	NAO
3600	14-0182-8		a	29.8	w	n	3	NAO
3600	14-0182-9		a	28.5	w	n	3	NAO
3600	14-0182-10		a	29.5	w	n	3	NAO
3600	14-0182-11		a	31.1	w	n	3	NAO
3600	14-0182-12							
3600	14-0182-13							
3600	14-0182-14							
3600	14-0182-15							
3600								
3600								
3600	14-0189-1							
3600	14-0189-2							
3600	14-0189-3							
3600	14-0189-4							
3600	14-0189-5							
3600	14-0189-6							
3600	14-0189-7							
3600	14-0189-8							
3600	14-0189-9							
3600	14-0189-10							
3600	14-0189-11							

3600	14-0189-12							
3600	14-0189-13							
3600	14-0189-14							
3600	14-0189-15							
3600	14-0189-16							
3600	14-0194-1	1	a	29.2	w	n	3	NAO
3600	14-0194-2	0	a	26.0	w	n	3	NAO
3600	14-0194-3	3	a	29.6	w	n	3	NAO
3600	14-0194-4							
3600	14-0194-5	0	a	29.7	w	n	3	NAO
3600	14-0194-6	2	a	29.6	w	n	3	NAO
3600	14-0194-7							
3600	14-0194-8							
3600	14-0194-9		a	30.2	w	n	3	NAO
3600	14-0194-10		a	28.3	w	n	3	NAO
3600	14-0194-11		a	24.5	w	n	3	NAO
3600	14-0194-12		a	27.0	w	n	3	NAO
3600	14-0194-13		a	29.3	w	n	3	NAO
3600	14-0194-14							
3600	14-0194-15							
3600	14-0208-1	0	a	32.8	w	n	3	NAO
3600	14-0208-2	1	a	32.5	w	n	3	NAO
3600	14-0208-3	0	a	28.6	w	n	3	NAO
3600	14-0208-4	2	a	31.2	w	n	3	NAO
3600	14-0208-5	2	a	30.2	w	n	3	NAO
3600	14-0208-6							
3600	14-0208-7		a	28.5	w	n	3	NAO
3600	14-0208-8		a	31.7	w	n	3	NAO
3600	14-0208-9		a	33.2	w	n	3	NAO
3600	14-0208-10		a	32.4	w	n	3	NAO
3600	14-0208-11		a	29.1	w	n	3	NAO
3600	14-0208-12							
3600	14-0208-13							
3600	14-0208-14							
3600	14-0208-15							
3600	14-0208-16							
3600	14-0208-17							
3600	14-0209-1	0	a	34.1	w	n	3	NAO
3600	14-0209-2	1	a	33.8	w	n	3	NAO
3600	14-0209-3	0	a	32.1	w	n	3	NAO
3600	14-0209-4	2	a	32.7	w	n	3	NAO
3600	14-0209-5	0	a	32.1	w	n	3	NAO
3600	14-0209-6							
3600	14-0209-7							
3600	14-0209-8							
3600	14-0209-9		a	27.4	w	n	3	NAO
3600	14-0209-10		a	26.2	w	n	3	NAO
3600	14-0209-11		a	32.1	w	n	3	NAO
3600	14-0209-12		a	30.0	w	n	3	NAO
3600	14-0209-13		a	33.2	w	n	3	NAO
3600	14-0209-14							
3600	14-0210-1	0	a	34.3	w	n	3	NAO
3600	14-0210-2	0	a	30.0	w	n	3	NAO
3600	14-0210-3	0	a	35.6	w	n	3	NAO
3600	14-0210-4	1	a	29.8	w	n	3	NAO
3600	14-0210-5		d					dead on 1/4/14
3600	14-0210-6							
3600	14-0210-7							
3600	14-0210-8		a	30.0	w	n	3	NAO
3600	14-0210-9		a	33.6	w	n	3	NAO
3600	14-0210-10		a	32.4	w	n	3	NAO
3600	14-0210-11		a	31.4	w	n	3	NAO
3600	14-0210-12		a	33.1	w	n	3	NAO
3600	14-0210-13							

3600	14-0210-14							
3600	14-0210-15							
3600	14-0210-16							
3600	14-0210-17							
3600	14-0213-1	2	a	29.5	w	n	3	NAO
3600	14-0213-2	2	a	30.7	w	n	3	NAO
3600	14-0213-3	1	a	31.4	w	n	3	NAO
3600	14-0213-4	0	a	31.3	w	n	3	NAO
3600	14-0213-5	2	a	29.9	w	n	3	NAO
3600	14-0213-6							
3600	14-0213-7							
3600	14-0213-8		a	29.4	w	n	3	NAO
3600	14-0213-9		a	29.3	w	n	3	NAO
3600	14-0213-10		a	29.3	w	n	3	NAO
3600	14-0213-11		a	32.2	w	n	3	NAO
3600	14-0213-12		a	27.6	w	n	3	NAO
3600	14-0213-13							
3600	14-0216-1	1	a	24.4	w	n	3	NAO
3600	14-0216-2	3	a	26.1	w	n	3	NAO
3600	14-0216-3	2	a	26.7	w	n	3	NAO
3600	14-0216-4	0	a	22.0	w	n	3	NAO
3600	14-0216-5	1	a	27.1	w	n	3	NAO
3600	14-0216-6	2	a	28.5	w	n	3	NAO
3600	14-0216-7							
3600	14-0216-8		a	23.8	w	n	3	NAO
3600	14-0216-9		a	24.7	w	n	3	NAO
3600	14-0216-10							
3600	14-0216-11		a	22.7	w	n	3	NAO
3600	14-0216-12		a	25.7	w	n	3	NAO
3600	14-0219-1	0	a	30.7	w	n	3	NAO
3600	14-0219-2	0	a	25.6	w	n	3	NAO
3600	14-0219-3	2	a	30.6	w	n	3	NAO
3600	14-0219-4	1	a	24.9	w	n	3	NAO
3600	14-0219-5	5	a	30.0	w	n	3	NAO
3600	14-0219-6							
3600	14-0219-7							
3600	14-0219-8							
3600	14-0219-9							
3600	14-0219-10		a	26.8	w	n	3	NAO
3600	14-0219-11		a	28.7	w	n	3	NAO
3600	14-0219-12		a	28.7	w	n	3	NAO
3600	14-0219-13		a	23.9	w	n	3	NAO
3600	14-0219-14		a	29.3	w	n	3	NAO
3600	14-0219-15							

Table G-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup Observations

TX	Unique Pup#	PND21 STATUS	PND21 BW	PND21 BT	PND21 ACT	PND21 REACT	PND21 OBS	PND22 STATUS	PND22 BW
0	14-0121-1	a	48.8	w	n	3	NAO	c	
0	14-0121-2	a	50.5	w	n	3	NAO	c	
0	14-0121-3	a	48.3	w	n	3	NAO	a	
0	14-0121-4	a	50.1	w	n	3	NAO	c	
0	14-0121-5	a	51.1	w	n	3	NAO	c	
0	14-0121-6	a	39.7	w	n	3	NAO	c	
0	14-0121-7	a	56.4	w	n	3	NAO	c	
0	14-0121-8	a	48.6	w	n	3	NAO	c	
0	14-0121-9	a	50.3	w	n	3	NAO	a	
0	14-0121-10	a	49.7	w	n	3	NAO	c	
0	14-0121-11								

0	14-0121-12								
0	14-0122-1	a	47.2	w	n	3	NAO	a	
0	14-0122-2	a	52.5	w	n	3	NAO	c	
0	14-0122-3	a	48.8	w	n	3	NAO	c	
0	14-0122-4	a	46.1	w	n	3	NAO	c	
0	14-0122-5	a	49.7	w	n	3	NAO	c	
0	14-0122-6								
0	14-0122-7								
0	14-0122-8	a	45.9	w	n	3	NAO	c	
0	14-0122-9	a	48.7	w	n	3	NAO	c	
0	14-0122-10	a	43.8	w	n	3	NAO	c	
0	14-0122-11	a	47.6	w	n	3	NAO	k	46.0
0	14-0122-12	a	51.6	w	n	3	NAO	a	
0	14-0122-13								
0	14-0130-1	a	55.2	w	n	3	NAO	a	
0	14-0130-2	a	52.7	w	n	3	NAO	t	
0	14-0130-3	a	54.4	w	n	3	NAO	t	
0	14-0130-4	a	56.9	w	n	3	NAO	t	
0	14-0130-5	a	53.9	w	n	3	NAO	t	
0	14-0130-6								
0	14-0130-7	a	51.6	w	n	3	NAO	k	49.0
0	14-0130-8	a	60.0	w	n	3	NAO	t	
0	14-0130-9	a	53.8	w	n	3	NAO	a	
0	14-0130-10	a	53.6	w	n	3	NAO	t	
0	14-0130-11	a	50.2	w	n	3	NAO	t	
0	14-0130-12								
0	14-0133-1	a	51.3	w	n	3	NAO	t	
0	14-0133-2	a	55.9	w	n	3	NAO	t	
0	14-0133-3	a	51.3	w	n	3	NAO	t	
0	14-0133-4	a	55.8	w	n	3	NAO	a	
0	14-0133-5	a	51.6	w	n	3	NAO	t	
0	14-0133-6								
0	14-0133-7								
0	14-0133-8								
0	14-0133-9								
0	14-0133-10								
0	14-0133-11								
0	14-0133-12	a	50.6	w	n	3	NAO	t	
0	14-0133-13								
0	14-0133-14	a	46.7	w	n	3	NAO	k	46.9
0	14-0133-15	a	46.9	w	n	3	NAO	a	
0	14-0133-16	a	50.7	w	n	3	NAO	t	
0	14-0133-17	a	50.3	w	n	3	NAO	t	
0	14-0133-18								
0	14-0133-19								
0	14-0136-1								
0	14-0136-2								
0	14-0136-3								
0	14-0136-4								
0	14-0136-5								
0	14-0136-6								
0	14-0136-7								
0	14-0136-8								
0	14-0136-9								
0	14-0136-10								
0	14-0136-11								
0	14-0136-12								
0	14-0136-13								
0	14-0136-14								
0	14-0136-15								
0	14-0136-16								
0	14-0136-17								
0	14-0143-1	a	58.0	w	n	3	NAO	t	
0	14-0143-2								

0	14-0143-3	a	57.8	w	n	3	NAO	t	
0	14-0143-4	a	52.3	w	n	3	NAO	t	
0	14-0143-5	a	54.6	w	n	3	NAO	a	
0	14-0143-6	a	54.0	w	n	3	NAO	t	
0	14-0143-7	a	52.6	w	n	3	NAO	a	
0	14-0143-8	a	53.9	w	n	3	NAO	t	
0	14-0143-9	a	46.9	w	n	3	NAO	t	
0	14-0143-10	a	57.6	w	n	3	NAO	t	
0	14-0148-1	a	58.8	w	n	3	NAO	t	
0	14-0148-2	a	50.6	w	n	3	NAO	t	
0	14-0148-3	a	54.3	w	n	3	NAO	a	
0	14-0148-4	a	54.7	w	n	3	NAO	t	
0	14-0148-5	a	54.7	w	n	3	NAO	t	
0	14-0148-6								
0	14-0148-7								
0	14-0148-8	a	53.2	w	n	3	NAO	k	53.4
0	14-0148-9	a	51.9	w	n	3	NAO	t	
0	14-0148-10	a	55.4	w	n	3	NAO	t	
0	14-0148-11	a	54.2	w	n	3	NAO	a	
0	14-0148-12	a	50.3	w	n	3	NAO	t	
0	14-0148-13								
0	14-0149-1	a	41.7	w	n	3	NAO	t	
0	14-0149-2	a	41.8	w	n	3	NAO	t	
0	14-0149-3	a	40.1	w	n	3	NAO	t	
0	14-0149-4	a	42.0	w	n	3	NAO	a	
0	14-0149-5	a	42.3	w	n	3	NAO	t	
0	14-0149-6								
0	14-0149-7								
0	14-0149-8								
0	14-0149-9	a	38.2	w	n	3	NAO	t	
0	14-0149-10	a	39.2	w	n	3	NAO	t	
0	14-0149-11	a	39.8	w	n	3	NAO	a	
0	14-0149-12	a	40.7	w	n	3	NAO	t	
0	14-0149-13	a	41.0	w	n	3	NAO	t	
0	14-0149-14								
0	14-0149-15								
0	14-0149-16								
0	14-0149-17								
0	14-0150-1	a	43.4	w	n	3	NAO	t	
0	14-0150-2	a	45.2	w	n	3	NAO	a	
0	14-0150-3	a	46.9	w	n	3	NAO	t	
0	14-0150-4	a	43.2	w	n	3	NAO	t	
0	14-0150-5	d					found dead on 1/7/14		
0	14-0150-6	a	46.1	w	n	3	NAO	t	
0	14-0150-7								
0	14-0150-8								
0	14-0150-9								
0	14-0150-10								
0	14-0150-11								
0	14-0150-12								
0	14-0150-13	a	47.1	w	n	3	NAO	t	
0	14-0150-14	a	45.8	w	n	3	NAO	t	
0	14-0150-15	a	44.4	w	n	3	NAO	a	
0	14-0150-16	a	44.8	w	n	3	NAO	k	42.9
0	14-0150-17								
0	14-0156-1	a	51.5	w	n	3	NAO	t	
0	14-0156-2	a	52.9	w	n	3	NAO	t	
0	14-0156-3	a	58.5	w	n	3	NAO	t	
0	14-0156-4	a	50.0	w	n	3	NAO	a	
0	14-0156-5	a	49.2	w	n	3	NAO	t	
0	14-0156-6								
0	14-0156-7								
0	14-0156-8								
0	14-0156-9								

0	14-0156-10	a	50.5	w	n	3	not bearing weight on R front	k	50.9
0	14-0156-11	a	53.6	w	n	3	NAO	t	
0	14-0156-12	a	51.4	w	n	3	NAO	t	
0	14-0156-13	a	45.0	w	n	3	NAO	t	
0	14-0156-14	a	51.2	w	n	3	NAO	a	
0	14-0156-15								
0	14-0157-1	a	50.7	w	n	3	NAO	k	50.2
0	14-0157-2	a	47.9	w	n	3	NAO	c	
0	14-0157-3	a	48.9	w	n	3	NAO	c	
0	14-0157-4	a	51.0	w	n	3	NAO	a	
0	14-0157-5	a	49.7	w	n	3	NAO	c	
0	14-0157-6								
0	14-0157-7								
0	14-0157-8								
0	14-0157-9	a	50.0	w	n	3	NAO	c	
0	14-0157-10	a	48.3	w	n	3	NAO	a	
0	14-0157-11	a	49.4	w	n	3	NAO	c	
0	14-0157-12	a	48.6	w	n	3	NAO	c	
0	14-0157-13	a	47.5	w	n	3	NAO	c	
0	14-0157-14								
0	14-0157-15								
0	14-0161-1	a	48.1	w	n	3	NAO	t	
0	14-0161-2	a	47.5	w	n	3	NAO	t	
0	14-0161-3	a	52.2	w	n	3	NAO	a	
0	14-0161-4	a	49.2	w	n	3	NAO	t	
0	14-0161-5	a	46.8	w	n	3	NAO	t	
0	14-0161-6	a	46.4	w	n	3	NAO	t	
0	14-0161-7	a	49.8	w	n	3	NAO	t	
0	14-0161-8	a	50.8	w	n	3	NAO	t	
0	14-0161-9								
0	14-0161-10								
0	14-0161-11	a	48.1	w	n	3	NAO	t	
0	14-0161-12	a	48.3	w	n	3	NAO	a	
0	14-0162-1	a	36.2	w	n	3	NAO	t	
0	14-0162-2	a	44.0	w	n	3	NAO	a	
0	14-0162-3	a	50.0	w	n	3	NAO	k	49.7
0	14-0162-4	a	51.1	w	n	3	NAO	t	
0	14-0162-5	a	50.4	w	n	3	NAO	t	
0	14-0162-6								
0	14-0162-7								
0	14-0162-8								
0	14-0162-9								
0	14-0162-10								
0	14-0162-11	a	45.4	w	n	3	NAO	t	
0	14-0162-12	a	48.9	w	n	3	NAO	t	
0	14-0162-13	a	45.0	w	n	3	NAO	a	
0	14-0162-14	a	50.7	w	n	3	NAO	t	
0	14-0162-15	a	44.6	w	n	3	NAO	t	
0	14-0162-16								
0	14-0163-1	a	52.4	w	n	3	NAO	a	
0	14-0163-2	a	55.3	w	n	3	NAO	t	
0	14-0163-3	a	50.1	w	n	3	NAO	k	49.9
0	14-0163-4	a	51.3	w	n	3	NAO	t	
0	14-0163-5	a	50.6	w	n	3	NAO	t	
0	14-0163-6								
0	14-0163-7								
0	14-0163-8								
0	14-0163-9								
0	14-0163-10	a	50.4	w	n	3	NAO	t	
0	14-0163-11	a	51.5	w	n	3	NAO	t	
0	14-0163-12	a	47.6	w	n	3	NAO	t	
0	14-0163-13	a	48.0	w	n	3	NAO	a	
0	14-0163-14	a	42.8	w	n	3	NAO	t	
0	14-0163-15								

0	14-0163-16								
0	14-0173-1	a	48.2	w	n	3	NAO	a	
0	14-0173-2	a	44.7	w	n	3	NAO	t	
0	14-0173-3	a	44.8	w	n	3	NAO	t	
0	14-0173-4	a	47.7	w	n	3	NAO	t	
0	14-0173-5	a	48.1	w	n	3	NAO	t	
0	14-0173-6	a	44.7	w	n	3	NAO	t	
0	14-0173-7	a	45.6	w	n	3	NAO	a	
0	14-0173-8	a	44.7	w	n	3	NAO	t	
0	14-0173-9	a	49.1	w	n	3	NAO	t	
0	14-0173-10	a	49.8	w	n	3	NAO	k	48.5
0	14-0173-11								
0	14-0173-12								
0	14-0173-13								
0	14-0173-14								
0	14-0179-1	a	43.7	w	n	3	NAO	t	
0	14-0179-2	a	56.1	w	n	3	NAO	t	
0	14-0179-3	a	51.3	w	n	3	NAO	a	
0	14-0179-4	a	51.4	w	n	3	NAO	t	
0	14-0179-5	a	46.8	w	n	3	NAO	t	
0	14-0179-6	a	52.4	w	n	3	NAO	a	
0	14-0179-7	a	49.3	w	n	3	NAO	t	
0	14-0179-8	a	47.4	w	n	3	NAO	t	
0	14-0179-9	a	54.6	w	n	3	NAO	t	
0	14-0179-10	a	55.5	w	n	3	NAO	t	
0	14-0179-11								
0	14-0179-12								
0	14-0185-1	a	46.8	w	n	3	NAO	t	
0	14-0185-2	a	44.0	w	n	3	NAO	a	
0	14-0185-3	a	46.1	w	n	3	NAO	k	45.2
0	14-0185-4	a	48.3	w	n	3	NAO	k	46.4
0	14-0185-5	a	45.2	w	n	3	NAO	t	
0	14-0185-6								
0	14-0185-7								
0	14-0185-8	a	43.0	w	n	3	NAO	t	
0	14-0185-9	a	42.5	w	n	3	NAO	t	
0	14-0185-10	a	42.4	w	n	3	NAO	t	
0	14-0185-11	a	43.9	w	n	3	NAO	a	
0	14-0185-12	a	39.8	w	n	3	NAO	k	39.6
0	14-0185-13								
0	14-0185-14								
0	14-0185-15								
0	14-0185-16								
0	14-0186-1	a	51.5	w	n	3	NAO	t	
0	14-0186-2	a	46.1	w	n	3	NAO	t	
0	14-0186-3	a	49.8	w	n	3	NAO	t	
0	14-0186-4	a	51.1	w	n	3	NAO	k	50.6
0	14-0186-5	a	51.3	w	n	3	NAO	t	
0	14-0186-6								
0	14-0186-7								
0	14-0186-8								
0	14-0186-9	a	46.2	w	n	3	NAO	k	45.6
0	14-0186-10								
0	14-0186-11	a	46.7	w	n	3	NAO	t	
0	14-0186-12	a	49.2	w	n	3	NAO	t	
0	14-0186-13	a	47.6	w	n	3	NAO	t	
0	14-0186-14	a	52.3	w	n	3	NAO	t	
0	14-0191-1	a	49.5	w	n	3	NAO	k	49.3
0	14-0191-2	a	45.5	w	n	3	NAO	t	
0	14-0191-3	a	47.2	w	n	3	NAO	a	
0	14-0191-4	a	47.9	w	n	3	NAO	t	
0	14-0191-5	a	44.0	w	n	3	NAO	t	
0	14-0191-6								
0	14-0191-7								

0	14-0191-8	a	46.8	w	n	3	NAO	t	
0	14-0191-9	a	47.7	w	n	3	NAO	t	
0	14-0191-10	a	45.2	w	n	3	NAO	t	
0	14-0191-11	a	42.1	w	n	3	NAO	t	
0	14-0191-12	a	45.1	w	n	3	NAO	a	
0	14-0191-13								
0	14-0191-14								
0	14-0196-1	a	53.8	w	n	3	NAO	t	
0	14-0196-2	a	56.0	w	n	3	NAO	t	
0	14-0196-3	a	44.7	w	n	3	NAO	t	
0	14-0196-4	a	55.7	w	n	3	NAO	t	
0	14-0196-5	a	58.0	w	n	3	NAO	k	56.0
0	14-0196-6								
0	14-0196-7								
0	14-0196-8								
0	14-0196-9	a	57.3	w	n	3	NAO	t	
0	14-0196-10	a	54.7	w	n	3	NAO	t	
0	14-0196-11	a	49.1	w	n	3	NAO	t	
0	14-0196-12	a	54.8	w	n	3	NAO	t	
0	14-0196-13	a	52.2	w	n	3	NAO	t	
0	14-0196-14								
0	14-0196-15								
0	14-0196-16								
0	14-0196-17								
0	14-0198-1	a	51.9	w	n	3	NAO	a	
0	14-0198-2	a	48.1	w	n	3	NAO	t	
0	14-0198-3	a	50.7	w	n	3	NAO	k	51.0
0	14-0198-4	a	50.1	w	n	3	NAO	t	
0	14-0198-5	a	46.5	w	n	3	NAO	k	47.2
0	14-0198-6								
0	14-0198-7	a	48.5	w	n	3	NAO	t	
0	14-0198-8	a	46.0	w	n	3	NAO	t	
0	14-0198-9	a	43.0	w	n	3	NAO	a	
0	14-0198-10	a	50.4	w	n	3	NAO	t	
0	14-0198-11								
0	14-0198-12	a	43.5	w	n	3	NAO	t	
0	14-0198-13								
0	14-0198-14								
0	14-0205-1								
0	14-0205-2								
0	14-0205-3								
0	14-0205-4								
0	14-0205-5								
0	14-0205-6								
0	14-0205-7								
0	14-0205-8								
0	14-0205-9								
0	14-0205-10								
0	14-0205-11								
0	14-0205-12								
0									
0	14-0215-1	a	56.3	w	n	3	NAO	t	
0	14-0215-2	a	52.9	w	n	3	NAO	t	
0	14-0215-3	a	55.5	w	n	3	NAO	a	
0	14-0215-4	a	53.6	w	n	3	NAO	t	
0	14-0215-5	a	55.3	w	n	3	NAO	t	
0	14-0215-6								
0	14-0215-7								
0	14-0215-8								
0	14-0215-9								
0	14-0215-10	a	47.8	w	n	3	NAO	t	
0	14-0215-11	a	54.3	w	n	3	NAO	a	
0	14-0215-12	a	51.0	w	n	3	NAO	t	
0	14-0215-13	a	52.4	w	n	3	NAO	t	

0	14-0215-14	a	49.8	w	n	3	NAO	t	
0	14-0217-1	a	52.0	w	n	3	NAO	t	
0	14-0217-2	a	49.7	w	n	3	NAO	a	
0	14-0217-3	a	53.8	w	n	3	NAO	t	
0	14-0217-4	a	55.0	w	n	3	NAO	t	
0	14-0217-5	a	52.8	w	n	3	NAO	t	
0	14-0217-6								
0	14-0217-7	a	45.7	w	n	3	NAO	t	
0	14-0217-8	a	46.7	w	n	3	NAO	k	44.7
0	14-0217-9	a	50.3	w	n	3	NAO	t	
0	14-0217-10	a	48.8	w	n	3	NAO	a	
0	14-0217-11	a	49.7	w	n	3	NAO	t	
0	14-0217-12								
0	14-0217-13								
0	14-0217-14								
0	14-0217-15								
144	14-0123-1	a	53.2	w	n	3	NAO	k	51.4
144	14-0123-2	a	52.0	w	n	3	NAO	t	
144	14-0123-3	a	55.5	w	n	3	NAO	t	
144	14-0123-4	a	50.9	w	n	3	NAO	a	
144	14-0123-5	a	55.1	w	n	3	NAO	t	
144	14-0123-6								
144	14-0123-7								
144	14-0123-8	a	50.4	w	n	3	NAO	a	
144	14-0123-9	a	51.8	w	n	3	NAO	t	
144	14-0123-10	a	50.4	w	n	3	NAO	t	
144	14-0123-11	a	52.1	w	n	3	NAO	k	49.8
144	14-0123-12	a	52.9	w	n	3	NAO	k	52.1
144	14-0123-13								
144	14-0123-14								
144	14-0123-15								
144									
144	14-0129-1	a	48.1	w	n	3	NAO	t	
144	14-0129-2	a	52.8	w	n	3	NAO	k	52.8
144	14-0129-3	a	50.3	w	n	3	NAO	a	
144	14-0129-4	a	54.0	w	n	3	NAO	t	
144	14-0129-5	a	47.3	w	n	3	NAO	t	
144	14-0129-6								
144	14-0129-7								
144	14-0129-8								
144	14-0129-9	a	51.4	w	n	3	NAO	t	
144	14-0129-10	a	55.3	w	n	3	NAO	t	
144	14-0129-11	a	51.0	w	n	3	NAO	t	
144	14-0129-12	a	47.0	w	n	3	NAO	a	
144	14-0129-13	a	48.2	w	n	3	NAO	t	
144	14-0129-14								
144	14-0129-15								
144	14-0129-16								
144	14-0134-1	a	55.9	w	n	3	NAO	a	
144	14-0134-2	a	52.2	w	n	3	NAO	c	
144	14-0134-3	a	57.2	w	n	3	NAO	c	
144	14-0134-4	a	53.3	w	n	3	NAO	c	
144	14-0134-5	a	52.3	w	n	3	NAO	c	
144	14-0134-6								
144	14-0134-7	a	49.5	w	n	3	NAO	c	
144	14-0134-8	a	52.5	w	n	3	NAO	c	
144	14-0134-9	a	52.1	w	n	3	NAO	a	
144	14-0134-10	a	52.7	w	n	3	NAO	c	
144	14-0134-11	a	51.9	w	n	3	NAO	c	
144	14-0134-12								
144	14-0134-13								
144	14-0134-14								
144	14-0137-1	a	50.9	w	n	3	NAO	c	
144	14-0137-2	a	51.5	w	n	3	NAO	a	

144	14-0137-3	a	50.8	w	n	3	NAO	k	50.8
144	14-0137-4	a	48.9	w	n	3	NAO	c	
144	14-0137-5	a	50.7	w	n	3	NAO	c	
144	14-0137-6	a	50.6	w	n	3	NAO	c	
144	14-0137-7	a	51.7	w	n	3	NAO	a	
144	14-0137-8	a	47.7	w	n	3	NAO	c	
144	14-0137-9	a	51.7	w	n	3	NAO	c	
144	14-0137-10	a	45.7	w	n	3	NAO	c	
144	14-0137-11								
144	14-0137-12								
144	14-0137-13								
144	14-0137-14								
144	14-0154-1	a	62.0	w	n	3	NAO	c	
144	14-0154-2	a	60.0	w	n	3	NAO	c	
144	14-0154-3	a	63.8	w	n	3	NAO	c	
144	14-0154-4	a	61.5	w	n	3	NAO	c	
144	14-0154-5	a	62.7	w	n	3	NAO	c	
144	14-0154-6	a	51.8	w	n	3	NAO	c	
144	14-0154-7	a	53.8	w	n	3	NAO	c	
144	14-0154-8	a	55.8	w	n	3	NAO	c	
144	14-0164-1	a	60.3	w	n	3	NAO	c	
144	14-0164-2								
144	14-0164-3	a	55.0	w	n	3	NAO	a	
144	14-0164-4								
144	14-0164-5	a	53.2	w	n	3	NAO	c	
144	14-0164-6	a	54.1	w	n	3	NAO	c	
144	14-0164-7	a	50.3	w	n	3	NAO	c	
144	14-0164-8	a	53.8	w	n	3	NAO	c	
144	14-0164-9	a	54.7	w	n	3	NAO	c	
144	14-0164-10	a	57.5	w	n	3	NAO	c	
144	14-0164-11	a	53.7	w	n	3	NAO	c	
144	14-0164-12	a	54.3	w	n	3	NAO	a	
144	14-0164-13								
144	14-0164-14								
144	14-0164-15								
144	14-0166-1	a	48.4	w	n	3	NAO	c	
144	14-0166-2	a	51.3	w	n	3	NAO	c	
144	14-0166-3	a	52.9	w	n	3	NAO	c	
144	14-0166-4	a	54.2	w	n	3	NAO	a	
144	14-0166-5	a	46.4	w	n	3	NAO	c	
144	14-0166-6								
144	14-0166-7								
144	14-0166-8	a	47.4	w	n	3	NAO	a	
144	14-0166-9	a	43.1	w	n	3	NAO	k	43.9
144	14-0166-10	a	50.7	w	n	3	NAO	c	
144	14-0166-11	a	50.8	w	n	3	NAO	c	
144	14-0166-12	a	39.4	w	n	3	NAO	c	
144	14-0166-13								
144	14-0166-14								
144	14-0166-15								
144	14-0166-16								
144	14-0166-17								
144	14-0174-1	a	51.6	w	n	3	NAO	c	
144	14-0174-2	a	49.1	w	n	3	NAO	c	
144	14-0174-3	a	49.9	w	n	3	NAO	k	48.7
144	14-0174-4	a	49.6	w	n	3	NAO	c	
144	14-0174-5	a	47.5	w	n	3	NAO	c	
144	14-0174-6								
144	14-0174-7								
144	14-0174-8	a	51.9	w	n	3	NAO	c	
144	14-0174-9	a	49.1	w	n	3	NAO	c	
144	14-0174-10	a	49.8	w	n	3	NAO	c	
144	14-0174-11	a	42.9	w	n	3	NAO	c	
144	14-0174-12	a	53.4	w	n	3	NAO	c	

144	14-0174-13								
144	14-0174-14								
144	14-0174-15								
144	14-0174-16								
144	14-0175-1	a	52.7	w	n	3	NAO	c	
144	14-0175-2	a	51.9	w	n	3	NAO	a	
144	14-0175-3	a	47.5	w	n	3	NAO	c	
144	14-0175-4	a	50.7	w	n	3	NAO	c	
144	14-0175-5	a	49.9	w	n	3	NAO	c	
144	14-0175-6	a	46.7	w	n	3	NAO	c	
144	14-0175-7	a	50.0	w	n	3	NAO	c	
144	14-0175-8	a	52.1	w	n	3	NAO	a	
144	14-0175-9	a	52.5	w	n	3	NAO	c	
144	14-0175-10	a	51.0	w	n	3	NAO	c	
144	14-0175-11								
144	14-0175-12								
144	14-0176-1	a	46.7	w	n	3	NAO	c	
144	14-0176-2	a	50.6	w	n	3	NAO	c	
144	14-0176-3	a	47.2	w	n	3	NAO	c	
144	14-0176-4	a	49.1	w	n	3	NAO	a	
144	14-0176-5								
144	14-0176-6	a	43.9	w	n	3	NAO	a	
144	14-0176-7	a	45.1	w	n	3	NAO	c	
144	14-0176-8	a	46.4	w	n	3	NAO	c	
144	14-0176-9	a	47.2	w	n	3	NAO	c	
144	14-0176-10	a	47.0	w	n	3	NAO	c	
144	14-0176-11	a	46.0	w	n	3	NAO	c	
144	14-0176-12								
144	14-0176-13								
144	14-0176-14								
144	14-0176-15								
144	14-0176-16								
144	14-0177-1	a	47.1	w	n	3	NAO	k	46.5
144	14-0177-2	a	47.7	w	n	3	NAO	c	
144	14-0177-3	a	45.5	w	n	3	NAO	c	
144	14-0177-4	a	48.8	w	n	3	NAO	c	
144	14-0177-5	a	45.1	w	n	3	NAO	a	
144	14-0177-6								
144	14-0177-7								
144	14-0177-8	a	46.3	w	n	3	NAO	k	44.7
144	14-0177-9	a	45.2	w	n	3	NAO	c	
144	14-0177-10	a	47.6	w	n	3	NAO	c	
144	14-0177-11	a	47.8	w	n	3	NAO	c	
144	14-0177-12	a	45.8	w	n	3	NAO	a	
144	14-0177-13								
144	14-0177-14								
144	14-0177-15								
144	14-0177-16								
144	14-0177-17								
144	14-0177-18								
144	14-0178-1	a	56.1	w	n	3	NAO	c	
144	14-0178-2	a	62.0	w	n	3	NAO	c	
144	14-0178-3	a	59.4	w	n	3	NAO	a	
144	14-0178-4	a	56.3	w	n	3	NAO	c	
144	14-0178-5	a	59.9	w	n	3	NAO	c	
144	14-0178-6								
144	14-0178-7								
144	14-0178-8								
144	14-0178-9								
144	14-0178-10								
144	14-0178-11	a	52.1	w	n	3	NAO	c	
144	14-0178-12	a	48.5	w	n	3	NAO	c	
144	14-0178-13	a	51.0	w	n	3	NAO	c	
144	14-0178-14	a	57.2	w	n	3	NAO	c	

144	14-0178-15	a	56.6	w	n	3	NAO	a	
144	14-0178-16								
144	14-0178-17								
144	14-0180-1	a	48.5	w	n	3	NAO	c	
144	14-0180-2	a	46.2	w	n	3	NAO	a	
144	14-0180-3	a	46.1	w	n	3	NAO	c	
144	14-0180-4	a	48.8	w	n	3	NAO	c	
144	14-0180-5	a	48.6	w	n	3	NAO	c	
144	14-0180-6								
144	14-0180-7								
144	14-0180-8	a	45.8	w	n	3	NAO	c	
144	14-0180-9	a	47.6	w	n	3	NAO	a	
144	14-0180-10	a	47.2	w	n	3	NAO	c	
144	14-0180-11	a	46.7	w	n	3	NAO	k	46.9
144	14-0180-12	a	45.2	w	n	3	NAO	c	
144	14-0183-1	a	53.6	w	n	3	NAO	k	52.7
144	14-0183-2	a	54.3	w	n	3	NAO	k	53.6
144	14-0183-3	a	52.4	w	n	3	NAO	c	
144	14-0183-4	a	54.6	w	n	3	NAO	a	
144	14-0183-5	a	52.4	w	n	3	NAO	c	
144	14-0183-6								
144	14-0183-7								
144	14-0183-8								
144	14-0183-9	a	52.7	w	n	3	NAO	a	
144	14-0183-10	a	53.1	w	n	3	NAO	c	
144	14-0183-11	a	53.7	w	n	3	NAO	c	
144	14-0183-12	a	53.3	w	n	3	NAO	c	
144	14-0183-13	a	50.7	w	n	3	NAO	c	
144	14-0183-14								
144	14-0183-15								
144	14-0183-16								
144	14-0183-17								
144	14-0195-1	a	61.9	w	n	3	NAO	a	
144	14-0195-2	a	55.3	w	n	3	NAO	c	
144	14-0195-3	a	62.5	w	n	3	NAO	c	
144	14-0195-4	a	59.5	w	n	3	NAO	c	
144	14-0195-5	a	60.7	w	n	3	NAO	c	
144	14-0195-5								
144	14-0195-5								
144	14-0195-5								
144	14-0195-9	a	57.1	w	n	3	NAO	a	
144	14-0195-10	a	52.3	w	n	3	NAO	c	
144	14-0195-11	a	48.5	w	n	3	NAO	c	
144	14-0195-12	a	53.4	w	n	3	NAO	c	
144	14-0195-13	a	46.0	w	n	3	NAO	k	45.9
144	14-0195-14								
144	14-0195-15								
144	14-0197-1	a	48.8	w	n	3	NAO	a	
144	14-0197-2	a	49.9	w	n	3	NAO	c	
144	14-0197-3	a	46.7	w	n	3	NAO	c	
144	14-0197-4	a	41.0	w	n	3	NAO	k	40.7
144	14-0197-5	a	41.4	w	n	3	NAO	c	
144	14-0197-6								
144	14-0197-7	a	45.2	w	n	3	NAO	c	
144	14-0197-8								
144	14-0197-9	a	44.0	w	n	3	NAO	a	
144	14-0197-10	a	44.5	w	n	3	NAO	c	
144	14-0197-11	a	47.7	w	n	3	NAO	c	
144	14-0197-12	a	44.2	w	n	3	NAO	c	
144	14-0197-13								
144	14-0199-1	a	54.5	w	n	3	NAO	k	51.9
144	14-0199-2	a	51.0	w	n	3	NAO	t	
144	14-0199-3	a	52.1	w	n	3	NAO	t	
144	14-0199-4	a	54.1	w	n	3	NAO	a	

144	14-0199-5	a	55.5	w	n	3	NAO	t	
144	14-0199-6								
144	14-0199-7	a	47.4	w	n	3	NAO	t	
144	14-0199-8	a	53.8	w	n	3	NAO	t	
144	14-0199-9	a	51.8	w	n	3	NAO	t	
144	14-0199-10	a	55.9	w	n	3	NAO	a	
144	14-0199-11	a	47.8	w	n	3	NAO	t	
144	14-0199-12								
144	14-0199-13								
144	14-0199-14								
144	14-0200-1	a	58.1	w	n	3	NAO	k	56.1
144	14-0200-2	a	55.3	w	n	3	NAO	c	
144	14-0200-3	e							
144	14-0200-4	a	57.7	w	n	3	NAO	a	
144	14-0200-5	a	50.7	w	n	3	NAO	c	
144	14-0200-6								
144	14-0200-7								
144	14-0200-8								
144	14-0200-9								
144	14-0200-10	a	49.6	w	n	3	NAO	c	
144	14-0200-11								
144	14-0200-12	a	53.8	w	n	3	NAO	c	
144	14-0200-13	a	58.6	w	n	3	NAO	c	
144	14-0200-14	a	57.9	w	n	3	NAO	a	
144	14-0200-15	a	56.8	w	n	3	NAO	k	55.7
144	14-0200-16								
144	14-0206-1	a	51.1	w	n	3	NAO	c	
144	14-0206-2	a	51.6	w	n	3	NAO	c	
144	14-0206-3	a	54.0	w	n	3	NAO	c	
144	14-0206-4	a	45.6	w	n	3	NAO	c	
144	14-0206-5	a	54.2	w	n	3	NAO	c	
144	14-0206-6								
144	14-0206-7								
144	14-0206-8								
144	14-0206-9	a	47.0	w	n	3	NAO	c	
144	14-0206-10	a	49.1	w	n	3	NAO	c	
144	14-0206-11	a	49.4	w	n	3	NAO	c	
144	14-0206-12	a	49.9	w	n	3	NAO	c	
144	14-0206-13	a	50.3	w	n	3	NAO	c	
144	14-0206-14								
144	14-0206-15								
144	14-0206-16								
144	14-0211-1	a	54.8	w	n	3	NAO	c	
144	14-0211-2	a	53.0	w	n	3	NAO	c	
144	14-0211-3	a	49.8	w	n	3	NAO	a	
144	14-0211-4	a	53.9	w	n	3	NAO	c	
144	14-0211-5	a	52.4	w	n	3	NAO	c	
144	14-0211-6	a	47.3	w	n	3	NAO	a	
144	14-0211-7	a	46.4	w	n	3	NAO	c	
144	14-0211-8	a	48.8	w	n	3	NAO	k	48.1
144	14-0211-9	a	56.1	w	n	3	NAO	c	
144	14-0211-10	a	51.2	w	n	3	NAO	c	
144	14-0211-11								
144	14-0211-12								
144	14-0211-13								
144	14-0211-14								
144	14-0211-15								
144	14-0212-1	a	48.3	w	n	3	NAO	c	
144	14-0212-2	a	49.0	w	n	3	NAO	c	
144	14-0212-3	a	47.0	w	n	3	NAO	c	
144	14-0212-4								
144	14-0212-5	a	47.7	w	n	3	NAO	a	
144	14-0212-6	a	52.8	w	n	3	NAO	c	
144	14-0212-7	a	50.2	w	n	3	NAO	c	

144	14-0212-8	a	46.7	w	n	3	NAO	c	
144	14-0212-9	a	45.0	w	n	3	NAO	c	
144	14-0212-10	a	47.2	w	n	3	NAO	c	
144	14-0212-11	a	44.6	w	n	3	NAO	a	
144	14-0212-12								
144	14-0212-13								
144	14-0212-14								
144	14-0212-15								
144	14-0212-16								
144	14-0214-1	a	43.2	w	n	3	NAO	c	
144	14-0214-2	a	45.2	w	n	3	NAO	c	
144	14-0214-3								
144	14-0214-4	a	43.9	w	n	3	NAO	c	
144	14-0214-5	a	47.2	w	n	3	NAO	a	
144	14-0214-6								
144	14-0214-7								
144	14-0214-8	a	44.6	w	n	3	NAO	k	43.4
144	14-0214-9	a	44.2	w	n	3	NAO	c	
144	14-0214-10	a	42.7	w	n	3	NAO	c	
144	14-0214-11	a	38.9	w	n	3	NAO	c	
144	14-0214-12	a	41.5	w	n	3	NAO	a	
144	14-0214-13								
144									
144	14-0220-1	a	43.9	w	n	3	NAO	c	
144	14-0220-2	a	49.3	w	n	3	NAO	c	
144	14-0220-3	a	47.7	w	n	3	NAO	a	
144	14-0220-4	a	48.8	w	n	3	NAO	c	
144	14-0220-5	a	48.6	w	n	3	NAO	c	
144	14-0220-6								
144	14-0220-7								
144	14-0220-8	a	42.7	w	n	3	NAO	c	
144	14-0220-9	a	45.8	w	n	3	NAO	c	
144	14-0220-10	a	48.5	w	n	3	NAO	k	47.0
144	14-0220-11	a	46.2	w	n	3	NAO	a	
144	14-0220-12	a	46.2	w	n	3	NAO	c	
144	14-0220-13								
144	14-0220-14								
144	14-0220-15								
144	14-0220-16								
144	14-0220-17								
144	14-0220-18								
720	14-0124-1	a	52.3	w	n	3	NAO	c	
720	14-0124-2	a	53.0	w	n	3	NAO	a	
720	14-0124-3	a	52.3	w	n	3	NAO	c	
720	14-0124-4	a	53.4	w	n	3	NAO	c	
720	14-0124-5	a	53.2	w	n	3	NAO	c	
720	14-0124-6								
720	14-0124-7								
720	14-0124-8								
720	14-0124-9								
720	14-0124-10	a	40.6	w	n	3	NAO	c	
720	14-0124-11	a	49.4	w	n	3	NAO	c	
720	14-0124-12	a	50.2	w	n	3	NAO	c	
720	14-0124-13	a	47.9	w	n	3	NAO	c	
720	14-0124-14	a	51.5	w	n	3	NAO	a	
720	14-0128-1	a	51.1	w	n	3	NAO	t	
720	14-0128-2	a	43.8	w	n	3	NAO	k	42.5
720	14-0128-3	a	51.7	w	n	3	NAO	t	
720	14-0128-4								
720	14-0128-5	a	51.4	w	n	3	NAO	t	
720	14-0128-6	a	52.5	w	n	3	NAO	a	
720	14-0128-7								
720	14-0128-8								
720	14-0128-9	a	50.7	w	n	3	NAO	t	

720	14-0128-10	a	49.6	w	n	3	NAO	t	
720	14-0128-11	a	47.8	w	n	3	NAO	t	
720	14-0128-12	a	39.6	w	n	3	NAO	t	
720	14-0128-13	a	51.1	w	n	3	NAO	a	
720	14-0128-14								
720	14-0128-15								
720	14-0128-16								
720	14-0128-17								
720	14-0132-1	a	52.2	w	n	3	NAO	a	
720	14-0132-2								
720	14-0132-3	a	48.6	w	n	3	NAO	c	
720	14-0132-4	a	50.5	w	n	3	NAO	c	
720	14-0132-5	a	50.5	w	n	3	NAO	c	
720	14-0132-6	a	49.2	w	n	3	NAO	k	49.0
720	14-0132-7	a	46.6	w	n	3	NAO	c	
720	14-0132-8	a	51.2	w	n	3	NAO	c	
720	14-0132-9	a	51.4	w	n	3	NAO	k	51.3
720	14-0132-10	a	50.2	w	n	3	NAO	a	
720	14-0132-11	a	46.6	w	n	3	NAO	c	
720	14-0132-12								
720	14-0132-13								
720	14-0132-14								
720	14-0132-15								
720	14-0138-1	a	49.6	w	n	3	NAO	c	
720	14-0138-2	a	53.0	w	n	3	NAO	c	
720	14-0138-3	a	49.0	w	n	3	NAO	c	
720	14-0138-4	a	50.7	w	n	3	NAO	a	
720	14-0138-5	a	47.9	w	n	3	NAO	c	
720	14-0138-6	a	51.6	w	n	3	NAO	c	
720	14-0138-7	a	49.0	w	n	3	NAO	c	
720	14-0138-8	a	49.8	w	n	3	NAO	c	
720	14-0138-9	a	48.2	w	n	3	NAO	c	
720	14-0138-10								
720	14-0138-11								
720	14-0138-12								
720	14-0138-13	a	54.2	w	n	3	NAO	a	
720	14-0142-1	a	56.3	w	n	3	NAO	c	
720	14-0142-2	a	51.6	w	n	3	NAO	c	
720	14-0142-3	a	57.6	w	n	3	NAO	c	
720	14-0142-4	a	55.6	w	n	3	NAO	c	
720	14-0142-5	a	51.9	w	n	3	NAO	a	
720	14-0142-6								
720	14-0142-7	a	55.3	w	n	3	NAO	c	
720	14-0142-8	a	49.4	w	n	3	NAO	a	
720	14-0142-9	a	52.2	w	n	3	NAO	c	
720	14-0142-10	a	52.2	w	n	3	NAO	c	
720	14-0142-11	a	48.9	w	n	3	NAO	c	
720	14-0142-12								
720	14-0142-13								
720	14-0142-14								
720	14-0142-15								
720	14-0142-16								
720	14-0144-1	a	53.9	w	n	3	NAO	c	
720	14-0144-2	a	57.7	w	n	3	NAO	c	
720	14-0144-3	a	54.9	w	n	3	NAO	a	
720	14-0144-4	a	54.5	w	n	3	NAO	c	
720	14-0144-5	a	52.7	w	n	3	NAO	c	
720	14-0144-6								
720	14-0144-7								
720	14-0144-8	a	49.5	w	n	3	NAO	c	
720	14-0144-9	a	55.0	w	n	3	NAO	k	52.5
720	14-0144-10	a	51.3	w	n	3	NAO	a	
720	14-0144-11	a	49.9	w	n	3	NAO	c	
720	14-0144-12	a	53.6	w	n	3	NAO	c	

720	14-0144-13								
720	14-0144-14								
720	14-0144-15								
720	14-0144-16								
720	14-0144-17								
720	14-0145-1	a	58.0	w	n	3	NAO	c	
720	14-0145-2	a	49.1	w	n	3	NAO	c	
720	14-0145-3	a	39.3	w	n	3	NAO	c	
720	14-0145-4	a	62.7	w	n	3	NAO	c	
720	14-0145-5	a	55.7	w	n	3	NAO	c	
720	14-0145-6								
720	14-0145-7	a	47.3	w	n	3	NAO	c	
720	14-0145-8	a	52.7	w	n	3	NAO	c	
720	14-0145-9	a	52.6	w	n	3	NAO	c	
720	14-0145-10	a	51.3	w	n	3	NAO	c	
720	14-0145-11	a	54.3	w	n	3	NAO	c	
720	14-0145-12								
720	14-0145-13								
720	14-0146-1								
720	14-0146-2	a	54.1	w	n	3	NAO	c	
720	14-0146-3	a	59.3	w	n	3	NAO	c	
720	14-0146-4	a	52.3	w	n	3	NAO	c	
720	14-0146-5	a	47.5	w	n	3	NAO	c	
720	14-0146-6	a	52.9	w	n	3	NAO	a	
720	14-0146-7								
720	14-0146-8								
720	14-0146-9								
720	14-0146-10								
720	14-0146-11	a	50.4	w	n	3	NAO	c	
720	14-0146-12	a	45.8	w	n	3	NAO	c	
720	14-0146-13	a	55.3	w	n	3	NAO	c	
720	14-0146-14	a	56.6	w	n	3	NAO	a	
720	14-0146-15	a	49.5	w	n	3	NAO	c	
720	14-0146-16								
720	14-0146-17								
720	14-0146-18								
720	14-0147-1	a	60.2	w	n	3	NAO	c	
720	14-0147-2	a	60.4	w	n	3	NAO	c	
720	14-0147-3	a	57.0	w	n	3	NAO	a	
720	14-0147-4	a	60.8	w	n	3	NAO	c	
720	14-0147-5								
720	14-0147-6	a	58.5	w	n	3	NAO	c	
720	14-0147-7	a	55.4	w	n	3	NAO	c	
720	14-0147-8	a	56.6	w	n	3	NAO	c	
720	14-0147-9	a	61.8	w	n	3	NAO	a	
720	14-0147-10	a	57.0	w	n	3	NAO	k	56.9
720	14-0147-11	a	54.4	w	n	3	NAO	c	
720	14-0147-12								
720	14-0147-13								
720	14-0147-14								
720	14-0152-1								
720	14-0152-2								
720	14-0152-3								
720	14-0152-4								
720	14-0152-5								
720	14-0152-6								
720	14-0152-7								
720	14-0152-8								
720	14-0152-9								
720	14-0152-10								
720	14-0152-11								
720	14-0152-12								
720	14-0152-13								
720	14-0152-14								

720	14-0153-1	a	48.0	w	n	3	NAO	c	
720	14-0153-2	a	52.9	w	n	3	NAO	c	
720	14-0153-3	a	55.9	w	n	3	NAO	c	
720	14-0153-4	a	51.9	w	n	3	NAO	a	
720	14-0153-5	a	52.3	w	n	3	NAO	c	
720	14-0153-6								
720	14-0153-7	a	49.4	w	n	3	NAO	a	
720	14-0153-8	a	54.9	w	n	3	NAO	c	
720	14-0153-9	a	53.1	w	n	3	NAO	c	
720	14-0153-10								
720	14-0153-11	a	49.1	w	n	3	NAO	c	
720	14-0153-12								
720	14-0153-13								
720	14-0153-14								
720	14-0153-15								
720	14-0158-1	a	53.0	w	n	3	NAO	c	
720	14-0158-2	a	53.6	w	n	3	NAO	a	
720	14-0158-3	a	52.2	w	n	3	NAO	c	
720	14-0158-4	a	58.2	w	n	3	NAO	c	
720	14-0158-5	a	52.8	w	n	3	NAO	c	
720	14-0158-6								
720	14-0158-7	a	52.1	w	n	3	NAO	c	
720	14-0158-8	a	51.8	w	n	3	NAO	c	
720	14-0158-9	a	52.2	w	n	3	NAO	c	
720	14-0158-10	a	54.0	w	n	3	NAO	a	
720	14-0158-11	a	45.4	w	n	3	NAO	c	
720	14-0158-12								
720	14-0158-13								
720	14-0158-14								
720	14-0158-15								
720	14-0160-1	a	45.3	w	n	3	NAO	c	
720	14-0160-2	a	46.0	w	n	3	NAO	c	
720	14-0160-3	a	45.0	w	n	3	NAO	c	
720	14-0160-4	a	48.7	w	n	3	NAO	a	
720	14-0160-5	a	44.2	w	n	3	NAO	c	
720	14-0160-6	a	47.1	w	n	3	NAO	a	
720	14-0160-7	a	49.2	w	n	3	NAO	c	
720	14-0160-8	a	49.1	w	n	3	NAO	c	
720	14-0160-9	a	42.3	w	n	3	NAO	c	
720	14-0160-10	a	46.7	w	n	3	NAO	c	
720	14-0160-11								
720	14-0160-12								
720	14-0160-13								
720	14-0160-14								
720	14-0165-1	a	47.8	w	n	3	NAO	c	
720	14-0165-2	a	52.2	w	n	3	NAO	c	
720	14-0165-3	a	48.1	w	n	3	NAO	c	
720	14-0165-4	a	49.5	w	n	3	NAO	a	
720	14-0165-5								
720	14-0165-6	a	50.7	w	n	3	NAO	k	48.4
720	14-0165-7								
720	14-0165-8								
720	14-0165-9	a	49.1	w	n	3	NAO	a	
720	14-0165-10	a	49.4	w	n	3	NAO	k	47.2
720	14-0165-11	a	48.4	w	n	3	NAO	c	
720	14-0165-12	a	49.9	w	n	3	NAO	c	
720	14-0165-13	a	49.1	w	n	3	NAO	c	
720	14-0165-14								
720	14-0165-15								
720	14-0165-16								
720	14-0169-1	a	45.9	w	n	3	NAO	c	
720	14-0169-2	a	53.3	w	n	3	NAO	c	
720	14-0169-3	a	49.6	w	n	3	NAO	k	49.4
720	14-0169-4	a	50.2	w	n	3	NAO	c	

720	14-0169-5	a	53.9	w	n	3	NAO	c	
720	14-0169-6	a	52.8	w	n	3	NAO	c	
720	14-0169-7								
720	14-0169-8								
720	14-0169-9								
720	14-0169-10								
720	14-0169-11	a	49.5	w	n	3	NAO	k	47.7
720	14-0169-12	a	44.4	w	n	3	NAO	c	
720	14-0169-13	a	42.3	w	n	3	NAO	c	
720	14-0169-14	a	48.7	w	n	3	NAO	c	
720	14-0170-1	a	43.0	w	n	3	NAO	c	
720	14-0170-2	a	43.9	w	n	3	NAO	a	
720	14-0170-3	a	42.4	w	n	3	NAO	c	
720	14-0170-4	a	46.6	w	n	3	NAO	c	
720	14-0170-5								
720	14-0170-6	a	43.2	w	n	3	NAO	c	
720	14-0170-7								
720	14-0170-8	a	39.1	w	n	3	NAO	c	
720	14-0170-9	a	41.0	w	n	3	NAO	c	
720	14-0170-10	a	50.8	w	n	3	NAO	a	
720	14-0170-11	a	41.4	w	n	3	NAO	c	
720	14-0170-12	a	38.5	w	n	3	NAO	k	37.8
720	14-0170-13								
720	14-0170-14								
720	14-0170-15								
720	14-0170-16								
720	14-0170-17								
720	14-0171-1	a	52.1	w	n	3	NAO	a	
720	14-0171-2	a	51.9	w	n	3	NAO	c	
720	14-0171-3	a	51.4	w	n	3	NAO	c	
720	14-0171-4	a	51.2	w	n	3	NAO	k	51.1
720	14-0171-5	a	53.4	w	n	3	NAO	c	
720	14-0171-6								
720	14-0171-7								
720	14-0171-8								
720	14-0171-9								
720	14-0171-10								
720	14-0171-11								
720	14-0171-12	a	51.9	w	n	3	NAO	k	51.5
720	14-0171-13	a	50.3	w	n	3	NAO	c	
720	14-0171-14	a	44.1	w	n	3	NAO	a	
720	14-0171-15	a	49.5	w	n	3	NAO	c	
720	14-0171-16	a	53.1	w	n	3	NAO	c	
720	14-0171-17								
720	14-0188-1	a	45.9	w	n	3	NAO	c	
720	14-0188-2	a	42.8	w	n	3	NAO	a	
720	14-0188-3	a	50.0	w	n	3	NAO	k	49.1
720	14-0188-4	a	49.0	w	n	3	NAO	c	
720	14-0188-5	a	48.2	w	n	3	NAO	k	47.8
720	14-0188-6	a	46.4	w	n	3	NAO	c	
720	14-0188-7	a	45.3	w	n	3	NAO	c	
720	14-0188-8	a	46.6	w	n	3	NAO	c	
720	14-0188-9	a	48.0	w	n	3	had loose diarrhea on 1/12/14	c	
720	14-0188-10	a	47.7	w	n	3	NAO	a	
720	14-0188-11								
720	14-0188-12								
720	14-0188-13								
720	14-0190-1								
720	14-0190-2	a	51.6	w	n	3	NAO	c	
720	14-0190-3	a	51.9	w	n	3	NAO	c	
720	14-0190-4	a	56.5	w	n	3	NAO	c	
720	14-0190-5	a	52.6	w	n	3	NAO	k	51.0
720	14-0190-6	a	55.9	w	n	3	NAO	c	
720	14-0190-7								

720	14-0190-8	a	48.0	w	n	3	NAO	c	
720	14-0190-9	a	52.1	w	n	3	NAO	c	
720	14-0190-10	a	50.9	w	n	3	NAO	c	
720	14-0190-11	a	50.6	w	n	3	NAO	c	
720	14-0190-12	a	49.2	w	n	3	NAO	c	
720	14-0190-13								
720	14-0190-14								
720	14-0190-15								
720	14-0192-1	a	48.7	w	n	3	NAO	c	
720	14-0192-2	a	51.6	w	n	3	NAO	c	
720	14-0192-3	a	52.7	w	n	3	NAO	c	
720	14-0192-4	a	51.7	w	n	3	NAO	c	
720	14-0192-5	a	54.7	w	n	3	NAO	a	
720	14-0192-6	a	54.5	w	n	3	NAO	c	
720	14-0192-7								
720	14-0192-8								
720	14-0192-9								
720	14-0192-10	a	48.9	w	n	3	NAO	c	
720	14-0192-11	a	44.6	w	n	3	NAO	c	
720	14-0192-12	a	48.0	w	n	3	NAO	c	
720	14-0192-13	a	51.2	w	n	3	NAO	a	
720	14-0193-1	a	55.4	w	n	3	NAO	c	
720	14-0193-2	a	50.3	w	n	3	NAO	k	48.7
720	14-0193-3	a	51.7	w	n	3	NAO	a	
720	14-0193-4	a	46.1	w	n	3	NAO	c	
720	14-0193-5	a	52.3	w	n	3	NAO	c	
720	14-0193-6								
720	14-0193-7								
720	14-0193-8								
720	14-0193-9	a	49.4	w	n	3	NAO	k	46.8
720	14-0193-10	a	48.1	w	n	3	NAO	c	
720	14-0193-11	a	52.6	w	n	3	NAO	c	
720	14-0193-12	a	51.0	w	n	3	NAO	c	
720	14-0193-13	a	50.4	w	n	3	NAO	a	
720	14-0201-1	a	52.8	w	n	3	NAO	c	
720	14-0201-2	a	46.1	w	n	3	NAO	c	
720	14-0201-3	a	43.7	w	n	3	NAO	c	
720	14-0201-4	a	53.3	w	n	3	NAO	c	
720	14-0201-5	a	50.1	w	n	3	NAO	c	
720	14-0201-6								
720	14-0201-7								
720	14-0201-8								
720	14-0201-9								
720	14-0201-10	a	48.4	w	n	3	NAO	c	
720	14-0201-11	a	47.0	w	n	3	NAO	c	
720	14-0201-12	a	44.0	w	n	3	NAO	c	
720	14-0201-13	a	46.7	w	n	3	NAO	c	
720	14-0201-14	a	53.0	w	n	3	NAO	c	
720	14-0201-15								
720	14-0201-16								
720	14-0201-17								
720	14-0201-18								
720	14-0202-1	a	42.2	w	n	3	NAO	c	
720	14-0202-2	a	42.1	w	n	3	NAO	c	
720	14-0202-3	a	46.8	w	n	3	NAO	c	
720	14-0202-4	a	44.4	w	n	3	NAO	a	
720	14-0202-5	a	48.0	w	n	3	NAO	c	
720	14-0202-6	a	44.3	w	n	3	NAO	c	
720	14-0202-7								
720	14-0202-8								
720	14-0202-9								
720	14-0202-10	a	47.3	w	n	3	NAO	k	45.7
720	14-0202-11	a	31.1	w	n	3	NAO	c	
720	14-0202-12	a	44.0	w	n	3	NAO	c	

720	14-0202-13	a	46.1	w	n	3	NAO	a	
720	14-0203-1	a	47.2	w	n	3	NAO	c	
720	14-0203-2	a	50.6	w	n	3	NAO	k	48.0
720	14-0203-3	a	50.0	w	n	3	NAO	c	
720	14-0203-4	a	46.6	w	n	3	NAO	a	
720	14-0203-5	a	49.1	w	n	3	NAO	c	
720	14-0203-6								
720	14-0203-7	a	51.2	w	n	3	NAO	a	
720	14-0203-8	a	50.3	w	n	3	NAO	c	
720	14-0203-9	a	45.3	w	n	3	NAO	c	
720	14-0203-10	a	51.3	w	n	3	NAO	c	
720	14-0203-11	a	47.6	w	n	3	NAO	c	
720	14-0204-1	a	44.0	w	n	3	NAO	c	
720	14-0204-2	a	39.7	w	n	3	NAO	c	
720	14-0204-3	a	46.0	w	n	3	NAO	c	
720	14-0204-4	a	41.7	w	n	3	NAO	c	
720	14-0204-5	a	45.7	w	n	3	NAO	a	
720	14-0204-6								
720	14-0204-7								
720	14-0204-8								
720	14-0204-9								
720	14-0204-10	a	44.7	w	n	3	NAO	k	43.9
720	14-0204-11	a	35.5	w	n	3	NAO	c	
720	14-0204-12	a	35.6	w	n	3	NAO	a	
720	14-0204-13	a	36.6	w	n	3	NAO	c	
720	14-0204-14	a	40.7	w	n	3	NAO	c	
3600	14-0126-1	a	44.7	w	n	3	NAO	c	
3600	14-0126-2	a	43.4	w	n	3	NAO	c	
3600	14-0126-3	a	47.7	w	n	3	NAO	a	
3600	14-0126-4	a	44.5	w	n	3	NAO	c	
3600	14-0126-5	a	46.5	w	n	3	NAO	k	46.6
3600	14-0126-6								
3600	14-0126-7	a	48.3	w	n	3	NAO	c	
3600	14-0126-8								
3600	14-0126-9	a	45.1	w	n	3	NAO	a	
3600	14-0126-10								
3600	14-0126-11	a	42.2	w	n	3	NAO	k	42.8
3600	14-0126-12								
3600	14-0126-13	a	41.1	w	n	3	NAO	c	
3600	14-0126-14	a	40.7	w	n	3	NAO	c	
3600	14-0126-15								
3600	14-0126-16								
3600	14-0127-1	a	34.5	w	n	3	NAO	k	34.1
3600	14-0127-2	a	45.7	w	n	3	NAO	a	
3600	14-0127-3	a	47.4	w	n	3	NAO	c	
3600	14-0127-4	a	45.8	w	n	3	NAO	c	
3600	14-0127-5	a	45.5	w	n	3	NAO	c	
3600	14-0127-6								
3600	14-0127-7								
3600	14-0127-8	a	44.0	w	n	3	NAO	c	
3600	14-0127-9	a	42.6	w	n	3	NAO	c	
3600	14-0127-10	a	46.9	w	n	3	NAO	a	
3600	14-0127-11	a	42.8	w	n	3	NAO	c	
3600	14-0127-12	a	48.6	w	n	3	NAO	c	
3600	14-0131-1	a	46.7	w	n	3	NAO	c	
3600	14-0131-2	a	45.2	w	n	3	NAO	a	
3600	14-0131-3	a	46.3	w	n	3	NAO	c	
3600	14-0131-4	a	44.3	w	n	3	NAO	k	44.2
3600	14-0131-5	a	43.9	w	n	3	NAO	k	44.1
3600	14-0131-6								
3600	14-0131-7								
3600	14-0131-8								
3600	14-0131-9								
3600	14-0131-10								

3600	14-0131-11	a	42.6	w	n	3	NAO	a	
3600	14-0131-12	a	41.1	w	n	3	NAO	c	
3600	14-0131-13	a	42.8	w	n	3	NAO	c	
3600	14-0131-14	a	42.6	w	n	3	NAO	c	
3600	14-0131-15	a	43.4	w	n	3	NAO	c	
3600	14-0135-1	a	34.7	w	n	3	NAO	c	
3600	14-0135-2	a	37.8	w	n	3	NAO	a	
3600	14-0135-3	a	35.1	w	n	3	NAO	c	
3600	14-0135-4								
3600	14-0135-5	a	35.8	w	n	3	NAO	k	35.6
3600	14-0135-6	a	37.2	w	n	3	NAO	c	
3600	14-0135-7	a	37.5	w	n	3	NAO	c	
3600	14-0135-8	a	34.8	w	n	3	NAO	c	
3600	14-0135-9								
3600	14-0135-10								
3600	14-0135-11	a	37.0	w	n	3	NAO	a	
3600	14-0135-12	a	36.9	w	n	3	NAO	k	36.6
3600	14-0135-13								
3600	14-0139-1	a	47.8	w	n	3	NAO	c	
3600	14-0139-2	a	44.2	w	n	3	yellow head	a	
3600	14-0139-3	a	49.8	w	n	3	NAO	c	
3600	14-0139-4	a	47.1	w	n	3	NAO	c	
3600	14-0139-5	a	46.1	w	n	3	NAO	c	
3600	14-0139-6	a	43.0	w	n	3	yellow head	c	
3600	14-0139-7								
3600	14-0139-8								
3600	14-0139-9								
3600	14-0139-10	a	43.9	w	n	3	yellow head	a	
3600	14-0139-11	a	45.9	w	n	3	NAO	c	
3600	14-0139-12	a	41.8	w	n	3	NAO	k	40.9
3600	14-0139-13	a	42.2	w	n	3	NAO	c	
3600	14-0140-1	a	49.6	w	n	3	NAO	c	
3600	14-0140-2	a	51.0	w	n	3	NAO	c	
3600	14-0140-3	a	48.7	w	n	3	NAO	a	
3600	14-0140-4	a	57.1	w	n	3	NAO	c	
3600	14-0140-5	a	47.3	w	n	3	NAO	c	
3600	14-0140-6	a	46.9	w	n	3	NAO	c	
3600	14-0140-7	a	43.6	w	n	3	NAO	c	
3600	14-0140-8	a	48.8	w	n	3	NAO	a	
3600	14-0140-9	a	49.0	w	n	3	NAO	c	
3600	14-0140-10	a	46.7	w	n	3	NAO	c	
3600	14-0140-11								
3600	14-0140-12								
3600	14-0140-13								
3600	14-0140-14								
3600	14-0140-15								
3600	14-0140-16								
3600	14-0140-17								
3600	14-0141-1	a	39.8	w	n	3	NAO	c	
3600	14-0141-2	a	42.9	w	n	3	NAO	c	
3600	14-0141-3	a	42.1	w	n	3	NAO	a	
3600	14-0141-4	a	43.7	w	n	3	NAO	c	
3600	14-0141-5	a	38.9	w	n	3	NAO	c	
3600	14-0141-6	a	41.5	w	n	3	NAO	c	
3600	14-0141-7								
3600	14-0141-8								
3600	14-0141-9								
3600	14-0141-10	a	39.6	w	n	3	NAO	c	
3600	14-0141-11	a	39.5	w	n	3	NAO	c	
3600	14-0141-12	a	38.1	w	n	3	NAO	c	
3600	14-0141-13	a	40.7	w	n	3	NAO	a	
3600	14-0151-1	a	53.9	w	n	3	NAO	k	52.6
3600	14-0151-2	a	57.9	w	n	3	end of tail scaly	c	
3600	14-0151-3	a	54.5	w	n	3	end of tail dry, scaly, red	a	

3600	14-0151-4	a	58.6	w	n	3	NAO	c	
3600	14-0151-5	a	54.5	w	n	3	NAO	c	
3600	14-0151-6	a	45.1	w	n	3	end of tail scaly	c	
3600	14-0151-7	a	52.9	w	n	3	end of tail dry, scaly, red, necrotic	c	
3600	14-0151-8								
3600	14-0151-9	a	57.8	w	n	3	NAO	a	
3600	14-0151-10								
3600	14-0151-11								
3600	14-0151-12	a	47.8	w	n	3	NAO	c	
3600	14-0151-13								
3600	14-0151-14								
3600	14-0155-1	a	55.9	w	n	3	NAO	c	
3600	14-0155-2	a	47.7	w	n	3	NAO	a	
3600	14-0155-3	a	54.6	w	n	3	NAO	c	
3600	14-0155-4	a	52.6	w	n	3	NAO	c	
3600	14-0155-5	a	50.6	w	n	3	NAO	c	
3600	14-0155-6	a	44.1	w	n	3	NAO	c	
3600	14-0155-7	a	48.7	w	n	3	NAO	c	
3600	14-0155-8	a	47.7	w	n	3	NAO	k	45.8
3600	14-0155-9	a	54.6	w	n	3	NAO	a	
3600	14-0155-10	a	49.5	w	n	3	NAO	c	
3600	14-0155-11								
3600	14-0155-12								
3600	14-0159-1	a	50.7	w	n	3	NAO	c	
3600	14-0159-2								
3600	14-0159-3	a	51.6	w	n	3	NAO	k	51.8
3600	14-0159-4	a	47.8	w	n	3	NAO	c	
3600	14-0159-5	a	51.8	w	n	3	NAO	c	
3600	14-0159-6	a	46.8	w	n	3	NAO	a	
3600	14-0159-7	a	49.8	w	n	3	NAO	c	
3600	14-0159-8	a	51.1	w	n	3	NAO	c	
3600	14-0159-9	a	50.3	w	n	3	NAO	a	
3600	14-0159-10	a	49.0	w	n	3	NAO	k	48.1
3600	14-0159-11	a	41.4	w	n	3	NAO	c	
3600	14-0159-12								
3600	14-0159-13								
3600	14-0159-14								
3600	14-0159-15								
3600	14-0167-1	a	44.6	w	n	3	NAO	c	
3600	14-0167-2	a	45.8	w	n	3	NAO	c	
3600	14-0167-3	a	44.3	w	n	3	NAO	c	
3600	14-0167-4	a	40.4	w	n	3	NAO	a	
3600	14-0167-5	a	43.6	w	n	3	NAO	c	
3600	14-0167-6								
3600	14-0167-7	a	38.8	w	n	3	NAO	k	37.3
3600	14-0167-8	a	40.8	w	n	3	NAO	c	
3600	14-0167-9	a	42.5	w	n	3	NAO	c	
3600	14-0167-10	a	39.5	w	n	3	NAO	c	
3600	14-0167-11	a	37.5	w	n	3	NAO	a	
3600	14-0167-12								
3600	14-0167-13								
3600									
3600	14-0172-1	a	58.2	w	n	3	NAO	c	
3600	14-0172-2	a	54.7	w	n	3	NAO	c	
3600	14-0172-3	a	52.7	w	n	3	NAO	a	
3600	14-0172-4	a	60.6	w	n	3	NAO	c	
3600	14-0172-5	a	54.1	w	n	3	NAO	k	53.3
3600	14-0172-6								
3600	14-0172-7								
3600	14-0172-8								
3600	14-0172-9								
3600	14-0172-10	a	50.2	w	n	3	NAO	c	
3600	14-0172-11	a	60.7	w	n	3	NAO	c	
3600	14-0172-12	a	53.5	w	n	3	NAO	a	

3600	14-0172-13	a	51.0	w	n	3	NAO	c	
3600	14-0172-14								
3600	14-0172-15	a	50.1	w	n	3	NAO	c	
3600	14-0181-1	a	53.3	w	n	3	NAO	c	
3600	14-0181-2								
3600	14-0181-3	a	51.7	w	n	3	NAO	a	
3600	14-0181-4	a	51.6	w	n	3	NAO	c	
3600	14-0181-5	a	50.0	w	n	3	NAO	c	
3600	14-0181-6	a	48.7	w	n	3	NAO	c	
3600	14-0181-7	a	49.1	w	n	3	NAO	k	47.4
3600	14-0181-8	a	50.4	w	n	3	NAO	c	
3600	14-0181-9	a	46.2	w	n	3	NAO	a	
3600	14-0181-10	a	42.1	w	n	3	NAO	c	
3600	14-0181-11	a	47.1	w	n	3	NAO	k	45.6
3600	14-0181-12								
3600	14-0181-13								
3600	14-0181-14								
3600	14-0181-15								
3600	14-0182-1	a	47.4	w	n	3	NAO	c	
3600	14-0182-2								
3600	14-0182-3	a	47.9	w	n	3	NAO	c	
3600	14-0182-4	a	41.8	w	n	3	NAO	c	
3600	14-0182-5	a	46.8	w	n	3	NAO	a	
3600	14-0182-6	a	47.9	w	n	3	NAO	c	
3600	14-0182-7	a	48.0	w	n	3	NAO	k	48.5
3600	14-0182-8	a	48.2	w	n	3	NAO	c	
3600	14-0182-9	a	45.6	w	n	3	NAO	c	
3600	14-0182-10	a	50.5	w	n	3	NAO	c	
3600	14-0182-11	a	50.6	w	n	3	NAO	a	
3600	14-0182-12								
3600	14-0182-13								
3600	14-0182-14								
3600	14-0182-15								
3600									
3600									
3600	14-0189-1								
3600	14-0189-2								
3600	14-0189-3								
3600	14-0189-4								
3600	14-0189-5								
3600	14-0189-6								
3600	14-0189-7								
3600	14-0189-8								
3600	14-0189-9								
3600	14-0189-10								
3600	14-0189-11								
3600	14-0189-12								
3600	14-0189-13								
3600	14-0189-14								
3600	14-0189-15								
3600	14-0189-16								
3600	14-0194-1	a	48.0	w	n	3	NAO	a	
3600	14-0194-2	a	42.1	w	n	3	NAO	c	
3600	14-0194-3	a	48.4	w	n	3	NAO	c	
3600	14-0194-4								
3600	14-0194-5	a	47.7	w	n	3	NAO	c	
3600	14-0194-6	a	45.3	w	n	3	NAO	c	
3600	14-0194-7								
3600	14-0194-8								
3600	14-0194-9	a	50.3	w	n	3	NAO	c	
3600	14-0194-10	a	45.3	w	n	3	NAO	k	43.7
3600	14-0194-11	a	38.1	w	n	3	NAO	c	
3600	14-0194-12	a	43.2	w	n	3	NAO	c	
3600	14-0194-13	a	47.1	w	n	3	NAO	a	

3600	14-0194-14								
3600	14-0194-15								
3600	14-0208-1	a	53.6	w	n	3	NAO	c	
3600	14-0208-2	a	52.9	w	n	3	NAO	c	
3600	14-0208-3	a	44.9	w	n	3	NAO	c	
3600	14-0208-4	a	49.3	w	n	3	NAO	c	
3600	14-0208-5	a	48.5	w	n	3	NAO	a	
3600	14-0208-6								
3600	14-0208-7	a	44.9	w	n	3	NAO	a	
3600	14-0208-8	a	52.3	w	n	3	NAO	c	
3600	14-0208-9	a	51.3	w	n	3	NAO	c	
3600	14-0208-10	a	52.7	w	n	3	NAO	c	
3600	14-0208-11	a	47.7	w	n	3	NAO	c	
3600	14-0208-12								
3600	14-0208-13								
3600	14-0208-14								
3600	14-0208-15								
3600	14-0208-16								
3600	14-0208-17								
3600	14-0209-1	a	52.5	w	n	3	NAO	c	
3600	14-0209-2	a	53.8	w	n	3	NAO	c	
3600	14-0209-3	a	51.3	w	n	3	NAO	c	
3600	14-0209-4	a	52.5	w	n	3	NAO	a	
3600	14-0209-5	a	50.6	w	n	3	NAO	c	
3600	14-0209-6								
3600	14-0209-7								
3600	14-0209-8								
3600	14-0209-9	a	44.8	w	n	3	NAO	c	
3600	14-0209-10	a	41.4	w	n	3	NAO	a	
3600	14-0209-11	a	51.2	w	n	3	NAO	c	
3600	14-0209-12	a	46.3	w	n	3	NAO	c	
3600	14-0209-13	a	51.4	w	n	3	NAO	c	
3600	14-0209-14								
3600	14-0210-1	e					dam found dead, litter euthanized		
3600	14-0210-2	e					dam found dead, litter euthanized		
3600	14-0210-3	e					dam found dead, litter euthanized		
3600	14-0210-4	e					dam found dead, litter euthanized		
3600	14-0210-5								
3600	14-0210-6								
3600	14-0210-7								
3600	14-0210-8	e					dam found dead, litter euthanized		
3600	14-0210-9	e					dam found dead, litter euthanized		
3600	14-0210-10	e					dam found dead, litter euthanized		
3600	14-0210-11	e					dam found dead, litter euthanized		
3600	14-0210-12	e					dam found dead, litter euthanized		
3600	14-0210-13								
3600	14-0210-14								
3600	14-0210-15								
3600	14-0210-16								
3600	14-0210-17								
3600	14-0213-1	a	48.8	w	n	3	NAO	c	
3600	14-0213-2	a	49.6	w	n	3	NAO	a	
3600	14-0213-3	a	49.9	w	n	3	NAO	c	
3600	14-0213-4	a	45.6	w	n	3	NAO	c	
3600	14-0213-5	a	48.4	w	n	3	NAO	c	
3600	14-0213-6								
3600	14-0213-7								
3600	14-0213-8	a	47.9	w	n	3	NAO	a	
3600	14-0213-9	a	51.5	w	n	3	NAO	c	
3600	14-0213-10	a	47.2	w	n	3	NAO	c	
3600	14-0213-11	a	50.4	w	n	3	NAO	c	
3600	14-0213-12	a	42.3	w	n	3	NAO	c	
3600	14-0213-13								
3600	14-0216-1	a	41.4	w	n	3	NAO	k	41.4

3600	14-0216-2	a	45.0	w	n	3	NAO	a	
3600	14-0216-3	a	41.6	w	n	3	NAO	c	
3600	14-0216-4	a	35.7	w	n	3	NAO	c	
3600	14-0216-5	a	44.0	w	n	3	NAO	k	42.8
3600	14-0216-6	a	45.8	w	n	3	NAO	c	
3600	14-0216-7								
3600	14-0216-8	a	39.9	w	n	3	NAO	c	
3600	14-0216-9	a	37.9	w	n	3	NAO	a	
3600	14-0216-10								
3600	14-0216-11	a	35.4	w	n	3	NAO	c	
3600	14-0216-12	a	40.9	w	n	3	NAO	c	
3600	14-0219-1	a	49.5	w	n	3	NAO	c	
3600	14-0219-2	a	39.8	w	n	3	NAO	c	
3600	14-0219-3	a	47.7	w	n	3	NAO	a	
3600	14-0219-4	a	38.0	w	n	3	NAO	c	
3600	14-0219-5	a	48.7	w	n	3	NAO	c	
3600	14-0219-6								
3600	14-0219-7								
3600	14-0219-8								
3600	14-0219-9								
3600	14-0219-10	a	43.9	w	n	3	NAO	a	
3600	14-0219-11	a	45.6	w	n	3	NAO	c	
3600	14-0219-12	a	45.9	w	n	3	NAO	c	
3600	14-0219-13	a	40.0	w	n	3	NAO	c	
3600	14-0219-14	a	48.1	w	n	3	NAO	c	
3600	14-0219-15								

Appendix H

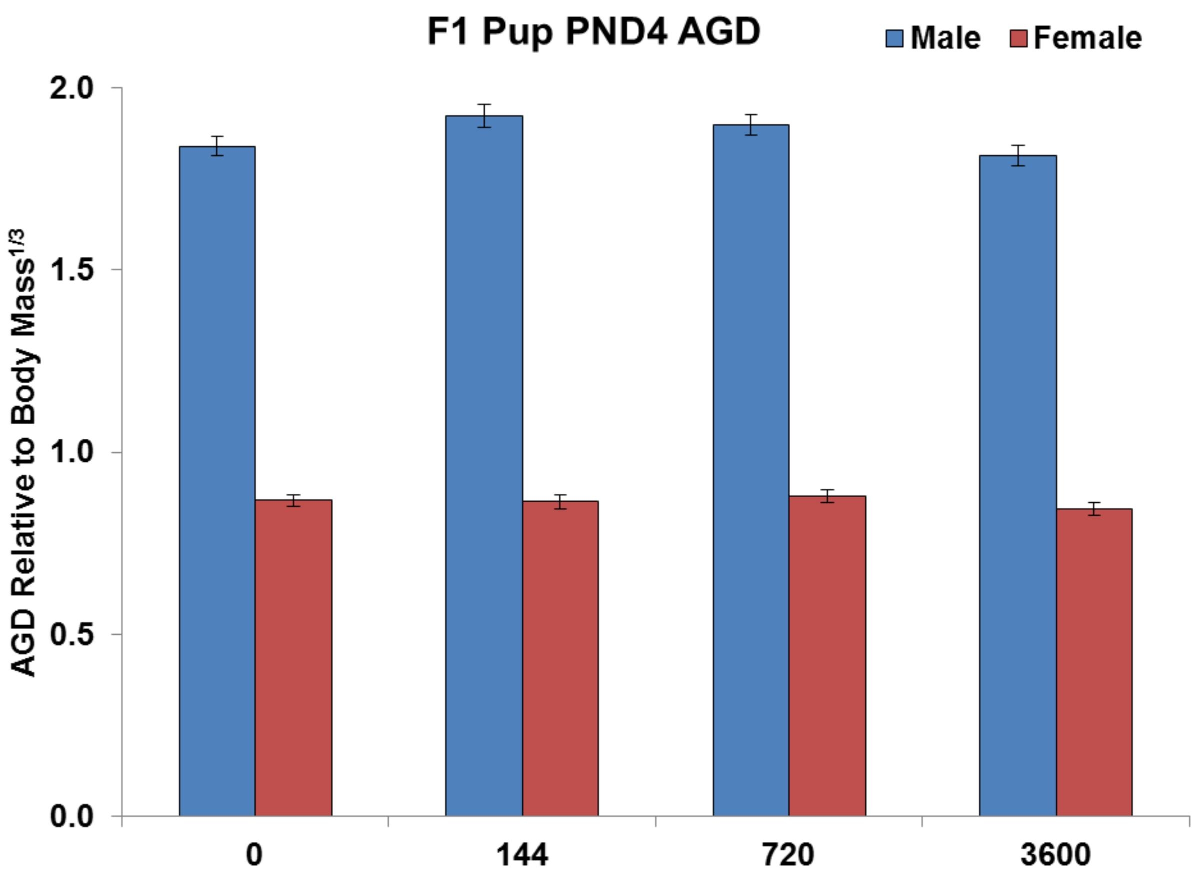
Anogenital Distance

Table H-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Pup AGD Litter Means

TX	Dam ID	Mean AGD female (mm)	Mean AGD male (mm)	Mean AGD/BW$^{1/3}$ female	Mean AGD/BW$^{1/3}$ male
0	14-0121	1.6571	3.3760	0.7796	1.5711
0	14-0122	2.0017	3.9743	0.9521	1.8602
0	14-0130	2.1600	4.1000	0.9734	1.8266
0	14-0133	1.8514	4.2009	0.9207	2.0082
0	14-0136				
0	14-0143	2.1150	4.4200	0.9929	1.9842
0	14-0148	1.7783	4.3843	0.8188	1.9665
0	14-0149	1.7789	3.6825	0.9275	1.9076
0	14-0150	1.9075	4.1242	0.9073	1.9817
0	14-0156	1.8467	4.0933	0.8955	1.9267
0	14-0157	1.7657	4.0975	0.8652	1.9691
0	14-0161	1.6150	3.8320	0.7353	1.7410
0	14-0162	1.6467	3.5120	0.8079	1.6926
0	14-0163	1.7529	3.8178	0.8468	1.7597
0	14-0173	1.6375	3.4260	0.7997	1.6408
0	14-0179	1.8225	3.8100	0.8527	1.7328
0	14-0185	1.7788	3.7313	0.9055	1.8610
0	14-0186	1.5880	3.8378	0.7631	1.8375
0	14-0191	1.5800	3.6100	0.7767	1.7440
0	14-0196	1.7089	3.7600	0.8314	1.7766
0	14-0198	1.8438	3.9180	0.8719	1.8096
0	14-0205				
0	14-0207				
0	14-0215	1.8960	4.1633	0.8922	1.9202
0	14-0217	2.0233	4.1017	0.9921	1.9565
	Mean	**1.8071**	**3.9079**	**0.8686**	**1.8397**
	SD	**0.1629**	**0.2870**	**0.0747**	**0.1216**
	SEM	**0.0347**	**0.0612**	**0.0159**	**0.0259**
144	14-0123	1.9560	4.3529	0.9248	2.0217
144	14-0125				
144	14-0129	1.9388	4.4163	0.9661	2.2098
144	14-0134	1.5975	4.6183	0.7697	2.1876
144	14-0137	1.9560	4.2375	0.9181	1.9576
144	14-0154	2.1600	4.4300	0.9471	1.8671
144	14-0164	2.0086	4.6825	0.9365	2.1405
144	14-0166	1.6278	3.8529	0.8374	1.9396
144	14-0174	1.8133	4.2014	0.8889	2.0371
144	14-0175	2.0278	4.3700	0.9175	1.9561
144	14-0176	1.6030	3.5425	0.8004	1.7521
144	14-0177	1.5780	3.9129	0.8038	1.9398
144	14-0178	1.9650	4.5150	0.9486	2.0968
144	14-0180	1.7200	3.9714	0.8276	1.8752
144	14-0183	1.4313	3.4225	0.7375	1.7043
144	14-0195	1.4417	3.8188	0.7054	1.7790
144	14-0197	1.5833	3.8850	0.7721	1.8482
144	14-0199	2.1975	4.3333	1.0507	2.0128
144	14-0200	1.8367	3.5167	0.8699	1.6580
144	14-0206	1.8975	3.9800	0.9296	1.9165
144	14-0211	1.6982	3.8900	0.7954	1.8025

144	14-0212	1.7390	3.6040	0.8670	1.7499
144	14-0214	1.8267	3.9914	0.8980	1.9554
144	14-0218				
144	14-0220	1.4670	3.6929	0.7554	1.8325
	Mean	**1.7857**	**4.0538**	**0.8638**	**1.9235**
	SD	**0.2222**	**0.3687**	**0.0866**	**0.1502**
	SEM	**0.0463**	**0.0769**	**0.0181**	**0.0313**
720	14-0124	1.9760	4.0300	0.9478	1.8714
720	14-0128	1.9300	3.9880	0.9727	1.9432
720	14-0132	2.1030	4.5600	1.0367	2.1654
720	14-0138	1.6200	4.5033	0.7545	2.0581
720	14-0142	1.8430	4.5100	0.8989	2.1333
720	14-0144	1.9267	4.2371	0.9024	1.9458
720	14-0145	1.9629	4.3200	0.8855	1.8979
720	14-0146	1.7700	3.4656	0.8427	1.6849
720	14-0147	2.0744	4.4860	0.9484	2.0188
720	14-0152				
720	14-0153	1.6613	3.6700	0.8307	1.8259
720	14-0158	1.7667	3.9283	0.8674	1.8972
720	14-0160	2.0756	4.3400	0.9989	2.0524
720	14-0165	1.6771	3.7514	0.8358	1.8319
720	14-0169	1.9200	3.9210	0.9167	1.8125
720	14-0170	1.8173	4.2000	0.9001	2.0326
720	14-0171	1.9283	4.0573	0.9420	1.9353
720	14-0188	2.0350	3.8640	0.9737	1.8243
720	14-0190	1.8678	4.3467	0.8729	1.9838
720	14-0192	1.8475	4.1744	0.8907	1.9679
720	14-0193	1.6420	4.1613	0.7626	1.8762
720	14-0201	1.6889	3.6656	0.8387	1.8093
720	14-0202	1.6950	3.5500	0.8262	1.6828
720	14-0203	1.5280	3.6017	0.7140	1.6701
720	14-0204	1.5320	3.4311	0.7618	1.6520
	Mean	**1.8287**	**4.0318**	**0.8801**	**1.8989**
	SD	**0.1709**	**0.3500**	**0.0817**	**0.1418**
	SEM	**0.0349**	**0.0714**	**0.0167**	**0.0289**
3600	14-0126	2.0450	4.1620	0.9655	1.9031
3600	14-0127	1.9140	3.7214	0.8815	1.7092
3600	14-0131	1.7920	3.9030	0.8672	1.8482
3600	14-0135	1.8350	3.7720	0.9214	1.9018
3600	14-0139	1.6700	3.7589	0.8088	1.7435
3600	14-0140	1.8669	4.3175	0.9104	2.0085
3600	14-0141	1.5300	3.6889	0.7375	1.7195
3600	14-0151	1.8500	3.7614	0.8102	1.6716
3600	14-0155	1.7838	4.2650	0.8055	1.8943
3600	14-0159	1.6911	3.5660	0.8042	1.6800
3600	14-0167	1.8983	4.1450	0.9002	1.8888
3600	14-0168				
3600	14-0172	1.9820	4.0370	0.9339	1.8859
3600	14-0181	1.8022	3.7225	0.8491	1.7282
3600	14-0182	1.6489	3.8225	0.7906	1.8046
3600	14-0184				
3600	14-0187				
3600	14-0189				
3600	14-0194	1.7850	4.0071	0.8721	1.9005
3600	14-0208	1.6791	3.9383	0.8330	1.9309

3600	14-0209	1.7500	3.8238	0.8389	1.7627
3600	14-0210	2.2120	4.2883	0.9631	1.8659
3600	14-0213	1.7933	4.4600	0.8328	2.0489
3600	14-0216	1.4375	3.5986	0.7071	1.7400
3600	14-0219	1.3983	2.9800	0.7062	1.4861
	Mean	**1.7793**	**3.8923**	**0.8447**	**1.8153**
	SD	**0.1897**	**0.3283**	**0.0745**	**0.1298**
	SEM	**0.0414**	**0.0716**	**0.0163**	**0.0283**



Appendix I

Nipple Retention

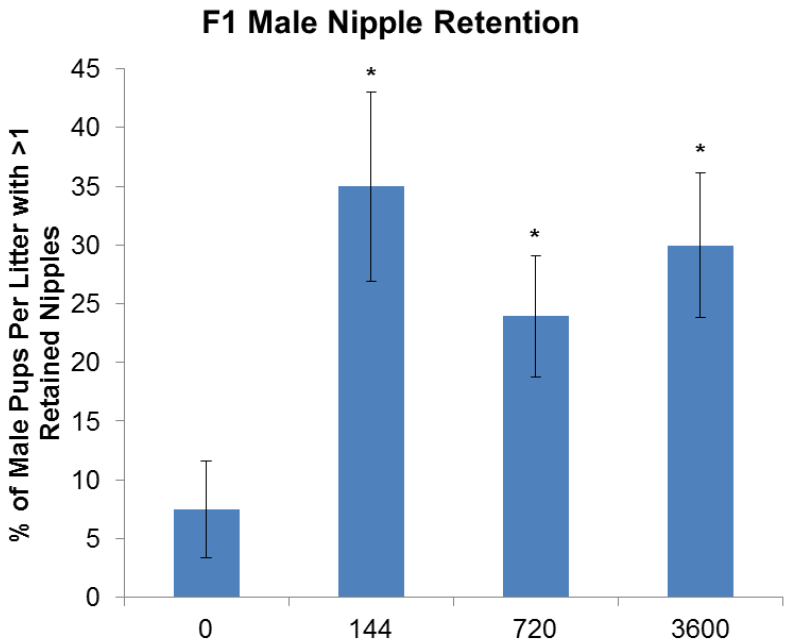
Table I-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
F1 Male Pup Nipple Retention

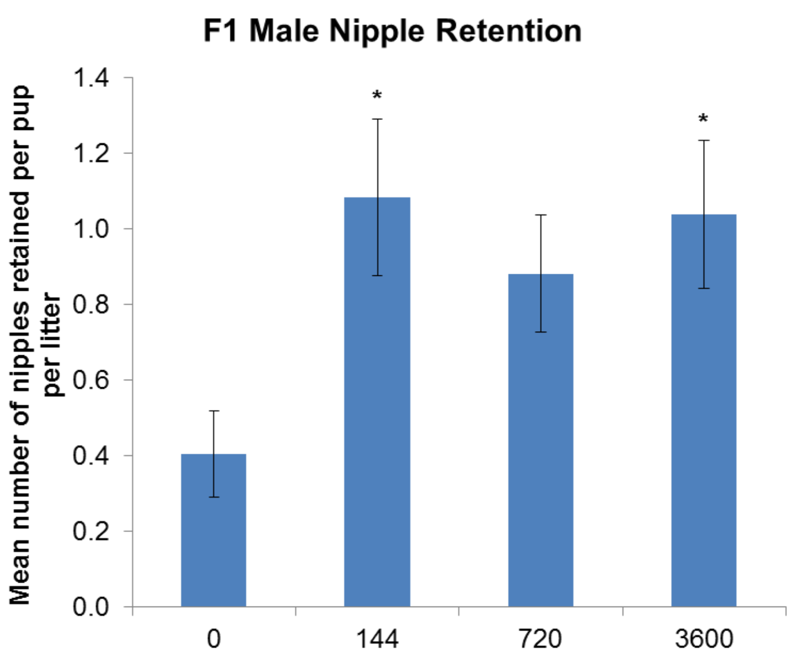
				Number of Pups										
Group	Dam ID	N Male pups	% Male	0 nipples	1 nipple	2 nipples	3 nipples	4 nipples	5 nipples	>0 nipples	>1 nipples	% pups with nipples	% pups with >1 nipple	mean # nipples per pup
0	14-0121	5	41.67	5	0	0	0	0	0	0	0	0	0	0.0
0	14-0122	5	53.85	5	0	0	0	0	0	0	0	0	0	0.0
0	14-0130	5	50.00	5	0	0	0	0	0	0	0	0	0	0.0
0	14-0133	5	57.89	2	3	0	0	0	0	3	0	60	0	0.6
0	14-0136													
0	14-0143	5	60.00	5	0	0	0	0	0	0	0	0	0	0.0
0	14-0148	5	53.85	3	2	0	0	0	0	2	0	40	0	0.4
0	14-0149	5	47.06	4	1	0	0	0	0	1	0	20	0	0.4
0	14-0150	6	70.59	5	1	0	0	0	0	1	0	17	0	0.2
0	14-0156	5	60.00	2	3	0	0	0	0	3	0	60	0	0.6
0	14-0157	5	53.33	4	1	0	0	0	0	1	0	20	0	0.2
0	14-0161	8	83.33	4	2	2	0	0	0	4	2	50	25	0.8
0	14-0162	5	62.50	4	1	0	0	0	0	1	0	20	0	0.2
0	14-0163	5	56.25	5	0	0	0	0	0	0	0	0	0	0.0
0	14-0173	5	42.86	2	1	1	0	1	0	3	2	60	40	1.4
0	14-0179	4	33.33	4	0	0	0	0	0	0	0	0	0	0.0
0	14-0185	5	50.00	4	1	0	0	0	0	1	0	20	0	0.2
0	14-0186	5	64.29	2	3	0	0	0	0	3	0	60	0	0.6
0	14-0191	5	50.00	4	1	0	0	0	0	1	0	20	0	0.2
0	14-0196	5	47.06	4	1	0	0	0	0	1	0	20	0	0.2
0	14-0198	5	35.71	0	1	2	2	0	0	5	4	100	80	2.2
0	14-0205		60.00											
0	14-0207													
0	14-0215	5	64.29	5	0	0	0	0	0	0	0	0	0	0.0
0	14-0217	5	40.00	2	2	1	0	0	0	3	1	60	20	0.8
	Mean	**5.14**	**53.82**	**3.64**	**1.09**	**0.27**	**0.09**	**0.05**	**0.00**	**1.50**	**0.41**	**28**	**8**	**0.4**
	SD	**0.71**	**11.53**	**1.40**	**1.02**	**0.63**	**0.43**	**0.21**	**0.00**	**1.50**	**1.01**	**28.4**	**19.3**	**0.5**
	SEM	**0.15**	**2.40**	**0.30**	**0.22**	**0.13**	**0.09**	**0.05**	**0.00**	**0.32**	**0.21**	**6.1**	**4.1**	**0.1**
144	14-0123	5	66.67	3	1	0	0	1	0	2	1	40	20	1.0
144	14-0125													
144	14-0129	5	50.00	4	1	0	0	0	0	1	0	20	0	0.2

144	14-0134	5	42.86	4	0	1	0	0	0	1	1	20	20	0.4
144	14-0137	4	28.57	2	2	0	0	0	0	2	0	50	0	0.5
144	14-0154	4	50.00	3	1	0	0	0	0	1	0	25	0	0.3
144	14-0164	4	40.00	3	1	0	0	0	0	1	0	25	0	0.3
144	14-0166	5	43.75	4	1	0	0	0	0	1	0	20	0	0.2
144	14-0174	5	43.75	1	2	1	1	0	0	4	2	80	40	1.4
144	14-0175	2	25.00	0	0	1	1	0	0	2	2	100	100	2.5
144	14-0176	4	31.25	4	0	0	0	0	0	0	0	0	0	0.0
144	14-0177	5	38.89	2	3	0	0	0	0	3	0	60	0	0.6
144	14-0178	5	64.71	5	0	0	0	0	0	0	0	0	0	0.0
144	14-0180	5	58.33	1	0	4	0	0	0	4	4	80	80	1.6
144	14-0183	5	47.06	1	2	2	0	0	0	4	2	80	40	1.2
144	14-0195	5	60.00	0	0	2	0	2	1	5	5	100	100	3.4
144	14-0197	5	46.15	0	1	2	1	1	0	5	4	100	80	2.4
144	14-0199	5	42.86	0	2	2	1	0	0	5	3	100	60	1.8
144	14-0200	5	56.25	0	0	2	2	1	0	5	5	100	100	2.8
144	14-0206	5	50.00	4	1	0	0	0	0	1	0	20	0	0.2
144	14-0211	3	26.67	3	0	0	0	0	0	0	0	0	0	0.0
144	14-0212	5	37.50	1	0	4	0	0	0	4	4	80	80	1.6
144	14-0214	4	53.85	1	2	1	0	0	0	3	1	75	25	1.0
144	14-0218		40.00											
144	14-0220	5	38.89	0	2	3	0	0	0	5	3	100	60	1.6
	Mean	**4.57**	**45.12**	**2.00**	**0.96**	**1.09**	**0.26**	**0.22**	**0.04**	**2.57**	**1.61**	**55**	**35***	**1.1***
	SD	**0.79**	**11.29**	**1.68**	**0.93**	**1.31**	**0.54**	**0.52**	**0.21**	**1.83**	**1.80**	**37.6**	**38.6**	**1.0**
	SEM	**0.16**	**2.31**	**0.35**	**0.19**	**0.27**	**0.11**	**0.11**	**0.04**	**0.38**	**0.38**	**7.8**	**8.1**	**0.2**
720	14-0124	5	64.29	4	1	0	0	0	0	1	0	20	0	0.2
720	14-0128	3	29.41	3	0	0	0	0	0	0	0	0	0	0.0
720	14-0132	5	33.33	3	2	0	0	0	0	2	0	40	0	0.4
720	14-0138	9	92.31	5	3	1	0	0	0	4	1	44	11	0.6
720	14-0142	5	37.50	3	1	1	0	0	0	2	1	40	20	0.6
720	14-0144	5	47.06	2	3	0	0	0	0	3	0	60	0	0.6
720	14-0145	5	46.15	2	2	1	0	0	0	3	1	60	20	0.8
720	14-0146	5	55.56	4	1	0	0	0	0	1	0	20	0	0.2
720	14-0147	5	35.71	4	1	0	0	0	0	1	0	20	0	0.2
720	14-0152													
720	14-0153	5	40.00	2	2	1	0	0	0	3	1	60	20	0.8
720	14-0158	5	40.00	2	2	1	0	0	0	3	1	60	20	0.8
720	14-0160	5	35.71	1	3	0	1	0	0	4	1	80	20	1.2
720	14-0165	5	50.00	2	1	1	0	1	0	3	2	60	40	1.4
720	14-0169	6	71.43	3	0	2	1	0	0	3	3	50	50	1.2
720	14-0170	5	35.29	2	2	1	0	0	0	3	1	60	20	0.8
720	14-0171	5	64.71	3	1	0	1	0	0	2	1	40	20	0.8
720	14-0188	5	38.46	0	2	1	1	1	0	5	3	100	60	2.2

720	14-0190	5	40.00	0	0	1	0	4	0	5	5	100	100	3.6
720	14-0192	6	69.23	4	2	0	0	0	0	2	0	33	0	0.3
720	14-0193	5	61.54	3	2	0	0	0	0	2	0	40	0	0.4
720	14-0201	5	50.00	3	0	1	0	1	0	2	2	40	40	1.2
720	14-0202	6	69.23	4	0	2	0	0	0	2	2	33	33	0.7
720	14-0203	5	54.55	2	1	2	0	0	0	3	2	60	40	0.8
720	14-0204	5	64.29	2	0	2	1	0	0	3	3	60	60	1.4
	Mean	**5.21**	**51.07**	**2.63**	**1.33**	**0.75**	**0.21**	**0.29**	**0.00**	**2.58**	**1.25**	**49**	**24***	**0.9**
	SD	**0.98**	**15.76**	**1.24**	**1.01**	**0.74**	**0.41**	**0.86**	**0.00**	**1.21**	**1.29**	**23.7**	**25.4**	**0.8**
	SEM	**0.20**	**3.22**	**0.25**	**0.21**	**0.15**	**0.08**	**0.18**	**0.00**	**0.25**	**0.26**	**4.8**	**5.2**	**0.2**
3600	14-0126	5	37.50	2	1	1	1	0	0	3	2	60	40	1.2
3600	14-0127	5	58.33	5	0	0	0	0	0	0	0	0	0	0.0
3600	14-0131	5	66.67	3	2	0	0	0	0	2	0	40	0	0.4
3600	14-0135	7	76.92	4	2	0	1	0	0	3	1	43	14	0.7
3600	14-0139	5	69.23	3	1	1	0	0	0	3	1	60	20	1.0
3600	14-0140	4	23.53	4	0	0	0	0	0	0	0	0	0	0.0
3600	14-0141	6	69.23	1	2	1	2	0	0	5	3	83	50	1.7
3600	14-0151	7	57.14	5	2	0	0	0	0	2	0	29	0	0.3
3600	14-0155	4	33.33	4	0	0	0	0	0	0	0	0	0	0.0
3600	14-0159	5	40.00	0	0	2	0	3	0	5	5	100	100	3.2
3600	14-0167	5	46.15	1	2	0	2	0	0	4	2	80	40	1.6
3600	14-0168													
3600	14-0172	5	66.67	1	2	2	0	0	0	4	2	80	40	1.2
3600	14-0181	4	33.33	4	0	0	0	0	0	0	0	0	0	0.0
3600	14-0182	4	33.33	1	0	0	0	3	0	3	3	75	75	3.0
3600	14-0184													
3600	14-0187													
3600	14-0189		46.67											
3600	14-0194	5	53.33	2	1	1	1	0	0	3	2	60	40	1.2
3600	14-0208	5	35.29	2	1	2	0	0	0	3	2	60	40	1.0
3600	14-0209	5	57.14	3	1	1	0	0	0	2	1	40	20	0.6
3600	14-0210	4	58.82	3	1	0	0	0	0	1	0	25	0	0.3
3600	14-0213	5	53.85	1	1	3	0	0	0	4	3	80	60	1.4
3600	14-0216	6	58.33	1	2	2	1	0	0	5	3	83	50	1.5
3600	14-0219	5	60.00	2	1	1	0	0	1	3	2	60	40	1.6
	Mean	**5.05**	**51.58**	**2.48**	**1.05**	**0.81**	**0.38**	**0.29**	**0.05**	**2.62**	**1.52**	**50**	**30***	**1.0***
	SD	**0.86**	**14.54**	**1.47**	**0.80**	**0.93**	**0.67**	**0.90**	**0.22**	**1.66**	**1.40**	**31.5**	**28.3**	**0.9**
	SEM	**0.19**	**3.10**	**0.32**	**0.18**	**0.20**	**0.15**	**0.20**	**0.05**	**0.36**	**0.31**	**6.9**	**6.2**	**0.2**

*Significantly different from control.


F1 Male Nipple Retention
% of Male Pups Per Litter with >1 Retained Nipples
45
40
35
30
25
20
15
10
5
0
*
*
*
0
144
720
3600


F1 Male Nipple Retention
Mean number of nipples retained per pup per litter
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
*
*
0
144
720
3600

Appendix J

Vaginal Opening and Preputial Separation

Table J-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Vaginal Opening
F1 Female Rats

Group	Cage	Animal ID	VO Body mass (g)	VO date	Delivery date	VO PPD
	1	14-0301	112.6	1/18/2014	12/16/2013	33
	1	14-0302	136.0	1/22/2014	12/18/2013	35
Control	2	14-0332	143.4	1/25/2014	12/18/2013	38
	2	14-0346	114.3	1/22/2014	12/19/2013	34
	3	14-0351	114.3	1/20/2014	12/19/2013	32
	3	14-0357	124.0	1/24/2014	12/19/2013	36
	4	14-0309	118.2	1/20/2014	12/20/2013	31
	4	14-0312	105.9	1/22/2014	12/20/2013	33
	5	14-0326	99.4	1/23/2014	12/20/2013	34
	5	14-0327	93.8	1/21/2014	12/20/2013	32
	6	14-0336	138.1	1/25/2014	12/20/2013	36
	6	14-0337	99.3	1/20/2014	12/20/2013	31
	7	14-0321	119.5	1/23/2014	12/21/2013	33
	7	14-0331	123.2	1/23/2014	12/21/2013	33
	8	14-0355	111.6	1/26/2014	12/21/2013	36
	8	14-0378	100.2	1/23/2014	12/21/2013	33
	9	14-0325	120.1	1/25/2014	12/23/2013	33
	9	14-0338	100.4	1/24/2014	12/23/2013	32
	10	14-0363	110.1	1/26/2014	12/24/2013	33
	10	14-0376	115.3	1/25/2014	12/24/2013	32
		Mean	115.0			33.5
		SD	13.54			1.85
	1	14-0315	127.4	1/22/2014	12/19/2013	34
	1	14-0348	93.7	1/20/2014	12/19/2013	32
144 mg/l	2	14-0313	129.5	1/23/2014	12/20/2013	34
	2	14-0339	139.7	1/23/2014	12/20/2013	34
	3	14-0341	105.0	1/20/2014	12/20/2013	31
	3	14-0349	125.1	1/24/2014	12/20/2013	35
	4	14-0350	118.1	1/22/2014	12/20/2013	33
	4	14-0347	112.9	1/22/2014	12/21/2013	32
	5	14-0365	120.7	1/23/2014	12/21/2013	33
	5	14-0303	106.6	1/23/2014	12/22/2013	32
	6	14-0308	108.8	1/25/2014	12/22/2013	34
	6	14-0364	119.9	1/23/2014	12/22/2013	32
	7	14-0354	116.0	1/27/2014	12/23/2013	35
	7	14-0362	126.9	1/27/2014	12/23/2013	35
	8	14-0373	107.9	1/25/2014	12/23/2013	33
	8	14-0375	107.3	1/27/2014	12/23/2013	35
	9	14-0352	118.5	1/27/2014	12/24/2013	34
	9	14-0361	136.0	1/26/2014	12/24/2013	33
	10	14-0372	112.7	1/29/2014	12/24/2013	36
	10	14-0380	101.7	1/26/2014	12/24/2013	33
		Mean	116.7			33.5
		SD	11.78			1.32
	1	14-0307	107.8	1/18/2014	12/17/2013	32
	1	14-0304	113.1	1/21/2014	12/20/2013	32
720 mg/l	2	14-0311	130.7	1/25/2014	12/20/2013	36
	2	14-0316	130.1	1/22/2014	12/20/2013	33
	3	14-0320	109.5	1/22/2014	12/20/2013	33
	3	14-0322	112.0	1/21/2014	12/20/2013	32
	4	14-0323	134.9	1/23/2014	12/20/2013	34
	4	14-0333	116.6	1/22/2014	12/20/2013	33
	5	14-0340	92.3	1/22/2014	12/20/2013	33
	5	14-0344	106.0	1/23/2014	12/21/2013	33

	6	**14-0358**	123.3	1/24/2014	12/22/2013	33
	6	**14-0324**	133.9	1/24/2014	12/23/2013	32
	7	**14-0335**	111.4	1/27/2014	12/23/2013	35
	7	**14-0343**	104.6	1/23/2014	12/23/2013	31
	8	**14-0356**	120.8	1/27/2014	12/23/2013	35
	8	**14-0329**	103.2	1/24/2014	12/24/2013	31
	9	**14-0359**	127.6	1/26/2014	12/24/2013	33
	9	**14-0366**	109.8	1/26/2014	12/24/2013	33
	10	**14-0368**	99.6	1/27/2014	12/24/2013	34
	10	**14-0367**	115.0	2/3/2014	1/2/2014	32
		Mean	**115.5**			**33.0**
		SD	**12.13**			**1.30**
	1	**14-0306**	126.6	1/26/2014	12/20/2013	37
	1	**14-0314**	121.3	1/26/2014	12/20/2013	37
3600 mg/l	2	**14-0318**	129.6	1/26/2014	12/20/2013	37
	2	**14-0319**	140.1	1/27/2014	12/20/2013	38
	3	**14-0334**	136.7	1/25/2014	12/20/2013	36
	3	**14-0310**	107.0	1/24/2014	12/21/2013	34
	4	**14-0328**	106.7	1/21/2014	12/21/2013	31
	4	**14-0345**	133.9	1/28/2014	12/21/2013	38
	5	**14-0360**	123.3	1/26/2014	12/21/2013	36
	5	**14-0369**	119.7	1/25/2014	12/21/2013	35
	6	**14-0371**	102.2	1/23/2014	12/21/2013	33
	6	**14-0305**	115.8	1/24/2014	12/22/2013	33
	7	**14-0342**	111.5	1/26/2014	12/22/2013	35
	7	**14-0374**	115.9	1/24/2014	12/22/2013	33
	8	**14-0317**	123.5	1/28/2014	12/23/2013	36
	8	**14-0330**	109.9	1/23/2014	12/23/2013	31
	9	**14-0377**	101.0	1/26/2014	12/23/2013	34
	9	**14-0353**	125.1	1/26/2014	12/24/2013	33
	10	**14-0370**	108.2	1/27/2014	12/24/2013	34
	10	**14-0379**	111.0	1/28/2014	12/25/2013	34
		Mean	**118.5**			**34.8**
		SD	**11.40**			**2.10**

Table J-2
Protocol No.56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Preputial Separation
F1 Male Rats

Group	Cage	Animal ID	PPS body mass (g)	PPS Date	Delivery Date	PPS PND
	1	14-0221	224.1	1/28/2014	12/16/2013	43
	1	14-0222	223.6	1/31/2014	12/18/2013	44
Control	2	14-0252	204.2	1/29/2014	12/18/2013	42
	2	14-0266	218.7	1/31/2014	12/19/2013	43
	3	14-0271	211.7	1/30/2014	12/19/2013	42
	3	14-0277	224.9	2/3/2014	12/19/2013	46
	4	14-0229	229.6	2/2/2014	12/20/2013	44
	4	14-0232	199.7	1/30/2014	12/20/2013	41
	5	14-0246	168.4	1/31/2014	12/20/2013	42
	5	14-0247	221.1	2/3/2014	12/20/2013	45
	6	14-0256	244.8	2/2/2014	12/20/2013	44
	6	14-0257	183.9	1/30/2014	12/20/2013	41
	7	14-0241	265.7	2/4/2014	12/21/2013	45
	7	14-0251	227.3	2/3/2014	12/21/2013	44
	8	14-0275	176.8	2/3/2014	12/21/2013	44
	8	14-0298	204.8	2/1/2014	12/21/2013	42
	9	14-0245	193.9	2/3/2014	12/23/2013	42
	9	14-0258	215.4	2/1/2014	12/23/2013	40
	10	14-0283	244.1	2/3/2014	12/24/2013	41
	10	14-0296	196.3	2/5/2014	12/24/2013	43
		Mean	**213.95**			**42.9**
		SD	**23.85**			**1.59**
	1	14-0235	235.9	1/30/2014	12/19/2013	42
	1	14-0268	196.5	1/30/2014	12/19/2013	42
144 mg/l	2	14-0233	233.9	2/2/2014	12/20/2013	44
	2	14-0259	261.1	2/1/2014	12/20/2013	43
	3	14-0261	238.1	2/2/2014	12/20/2013	44
	3	14-0269	210.5	1/31/2014	12/20/2013	42
	4	14-0270	239.5	2/2/2014	12/20/2013	44
	4	14-0267	212.2	2/3/2014	12/21/2013	44
	5	14-0285	223.6	2/2/2014	12/21/2013	43
	5	14-0223	233.9	2/4/2014	12/22/2013	44
	6	14-0228	201.8	2/3/2014	12/22/2013	43
	6	14-0284	215.0	2/2/2014	12/22/2013	42
	7	14-0274			12/23/2013	
	7	14-0282	227.3	2/6/2014	12/23/2013	45
	8	14-0293	211.3	2/4/2014	12/23/2013	43
	8	14-0295	187.1	2/4/2014	12/23/2013	43
	9	14-0272	176.9	2/4/2014	12/24/2013	42
	9	14-0281	223.5	2/2/2014	12/24/2013	40
	10	14-0292	223.5	2/6/2014	12/24/2013	44
	10	14-0300	194.5	2/5/2014	12/24/2013	43
		Mean	**218.22**			**43.0**
		SD	**20.81**			**1.15**
	1	14-0227	253.2	2/1/2014	12/17/2013	46
	1	14-0224	207.2	1/30/2014	12/20/2013	41
720 mg/l	2	14-0231	205.2	2/2/2014	12/20/2013	44
	2	14-0236	204.6	1/31/2014	12/20/2013	42
	3	14-0240	205.9	2/1/2014	12/20/2013	43
	3	14-0242	210.1	1/30/2014	12/20/2013	41
	4	14-0243	227.6	2/4/2014	12/20/2013	46
	4	14-0253	255.6	2/3/2014	12/20/2013	45
	5	14-0260	216.9	2/3/2014	12/20/2013	45
	5	14-0264	160.2	1/31/2014	12/21/2013	41

	6	14-0278	222.2	2/5/2014	12/22/2013	45
	6	14-0244	236.1	2/3/2014	12/23/2013	42
	7	14-0255	212.0	2/4/2014	12/23/2013	43
	7	14-0263	200.5	2/2/2014	12/23/2013	41
	8	14-0276	227.9	2/6/2014	12/23/2013	45
	8	14-0249	238.8	2/4/2014	12/24/2013	42
	9	14-0279	233.1	2/6/2014	12/24/2013	44
	9	14-0286	192.6	2/3/2014	12/24/2013	41
	10	14-0288	193.0	2/4/2014	12/24/2013	42
	10	14-0287	222.1	2/16/2014	1/2/2014	45
		Mean	**216.24**			**43.2**
		SD	**22.27**			**1.82**
	1	14-0226	189.9	2/2/2014	12/20/2013	44
	1	14-0234	243.0	2/8/2014	12/20/2013	50
3600 mg/l	2	14-0238	189.2	2/3/2014	12/20/2013	45
	2	14-0239	235.9	2/5/2014	12/20/2013	47
	3	14-0254	239.3	2/5/2014	12/20/2013	47
	3	14-0230	211.0	2/3/2014	12/21/2013	44
	4	14-0248	195.5	2/1/2014	12/21/2013	42
	4	14-0265	234.8	2/7/2014	12/21/2013	48
	5	14-0280	212.8	2/4/2014	12/21/2013	45
	5	14-0289	220.6	2/2/2014	12/21/2013	43
	6	14-0291	230.2	2/4/2014	12/21/2013	45
	6	14-0225	198.8	2/3/2014	12/22/2013	43
	7	14-0262	210.5	2/7/2014	12/22/2013	47
	7	14-0294	219.7	2/6/2014	12/22/2013	46
	8	14-0237	232.6	2/8/2014	12/23/2013	47
	8	14-0250	188.6	2/6/2014	12/23/2013	45
	9	14-0297	232.9	2/10/2014	12/23/2013	49
	9	14-0273	234.2	2/8/2014	12/24/2013	46
	10	14-0290	237.9	2/7/2014	12/24/2013	45
	10	14-0299	208.2	2/6/2014	12/25/2013	43
		Mean	**218.28**			**45.6**
		SD	**18.52**			**2.11**

Appendix K

Organ Mass

Table K-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Organ Mass (grams)
P Generation Female Rats

Phase	Group (mg/l)	Animal ID	Adrenals	Pituitary	Thyroid	Ovaries	Uterus	Brain	Heart	Kidneys	Liver	Spleen	Thymus
Pregnant	**0**	**14-0121**	0.058	0.017	0.01706	0.118	0.422	1.902	1.188	1.942	12.558	0.710	0.179
Pregnant	**0**	**14-0122**	0.045(1)	0.013	0.01407	0.139	0.351	1.960	1.234	1.934	13.763	0.502	0.155
Pregnant	**0**	**14-0130**	0.064	0.016	0.01944	0.134	0.417	1.899	1.142	2.108	10.706	0.560	0.163
Pregnant	**0**	**14-0133**	0.080	0.009	0.01466	0.151	0.993	1.953	1.229	2.392	13.151	0.589	0.207
Pregnant	**0**	**14-0136**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pregnant	**0**	**14-0143**	0.051	0.01266	0.01329	0.137	0.371	1.934	1.093	1.915	10.296	0.596	0.229
Pregnant	**0**	**14-0148**	0.081	0.01713	0.01430	0.173	1.026	1.928	1.301	2.486	14.533	0.585	0.244
Pregnant	**0**	**14-0149**	0.062	0.01594	0.00885	0.155	0.282	1.825	1.070	2.121	12.770	0.466	0.184
Pregnant	**0**	**14-0150**	0.052	0.01514	0.01668	0.115	0.557	2.000	1.205	2.273	13.366	0.568	0.331
Pregnant	**0**	**14-0156**	0.055	0.01513	0.01246	0.159	0.648	1.900	0.970	2.134	13.861	0.497	0.140
Pregnant	**0**	**14-0157**	0.087	0.013	0.00946	0.192	0.370	1.885	1.018	2.131	10.952	0.490	0.163
Pregnant	**0**	**14-0161**	0.066	0.01469	0.01516	0.121	0.572	1.962	1.205	2.106	11.733	0.776	0.139
Pregnant	**0**	**14-0162**	0.077	0.01211	0.01463	0.138	0.499	1.997	1.338	2.154	13.643	0.510	0.220
Pregnant	**0**	**14-0163**	0.057	0.01669	0.01840	0.131	0.427	1.844	1.241	2.244	14.210	0.699	0.200
Pregnant	**0**	**14-0173**	0.065	0.007	0.01792	0.159	0.549	1.926	1.338	2.166	13.631	0.701	0.256
Pregnant	**0**	**14-0179**	0.077	0.013	0.02428	0.126	0.491	1.874	1.182	2.089	14.450	0.580	0.111
Pregnant	**0**	**14-0185**	0.079	0.01377	0.01627	0.118	0.342	1.993	1.284	2.052	9.724	0.493	0.280
Pregnant	**0**	**14-0186**	0.078	0.01454	0.02611	0.116	0.315	2.026	1.137	2.211	13.253	0.509	0.126
Pregnant	**0**	**14-0191**	0.055	0.015	0.02062	0.114	0.786	1.918	1.306	1.969	12.202	0.504	0.114
Pregnant	**0**	**14-0196**	0.060	0.01331	0.02302	0.104	0.323	1.882	1.031	2.108	10.548	0.534	0.168
Pregnant	**0**	**14-0198**	0.068	0.01250	0.01220	0.134	0.304	1.861	1.163	2.000	10.943	0.584	0.099
Pregnant	**0**	**14-0205**	0.054	0.01555	0.01906	0.129	0.610	1.960	1.217	1.874	9.957	0.648	0.362
Pregnant	**0**	**14-0215**	0.054	0.01010	0.01182	0.113	0.364	1.994	1.245	2.004	11.469	0.538	0.107
Pregnant	**0**	**14-0217**	0.067	0.01485	0.01577	0.152	0.522	1.889	1.190	2.051	13.302	0.456	0.117
		Mean	**0.066**	**0.01379**	**0.01633**	**0.136**	**0.502**	**1.927***	**1.188**	**2.107**	**12.392**	**0.569**	**0.187**
		SD	**0.011**	**0.00253**	**0.00441**	**0.022**	**0.204**	**0.054**	**0.100**	**0.148**	**1.533**	**0.086**	**0.071**
		N	**22**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Pregnant	**144**	**14-0123**	0.053	0.01199	0.02226	0.132	0.601	2.021	1.183	2.242	14.166	0.476	0.115
Pregnant	**144**	**14-0129**	0.061	0.01402	0.01398	0.166	0.527	1.892	1.124	2.113	14.638	0.461	0.250
Pregnant	**144**	**14-0134**	0.072	0.015	0.02152	0.111	0.519	1.936	1.186	1.979	12.190	0.524	0.182
Pregnant	**144**	**14-0137**	0.076	0.011	0.01600	0.127	0.534	2.004	1.096	1.928	11.419	0.502	0.249
Pregnant	**144**	**14-0154**	0.066	0.02054	0.02323	0.122	0.336	1.962	1.132	2.097	13.700	0.695	0.210
Pregnant	**144**	**14-0164**	0.078	0.01547	0.01674	0.120	0.705	1.939	1.244	2.416	12.527	0.741	0.206
Pregnant	**144**	**14-0166**	0.086	0.01389	0.01538	0.165	0.409	2.021	1.382	2.277	14.249	0.650	0.254
Pregnant	**144**	**14-0174**	0.088	0.01800	0.01577	0.178	0.553	2.046	1.341	2.253	15.053	0.513	0.199
Pregnant	**144**	**14-0175**	0.071	0.01446	0.01166	0.188	0.767	1.928	1.186	2.128	12.786	0.506	0.269

Pregnant	**144**	**14-0176**	0.067	0.015	0.02030	0.142	0.373	1.989	1.294	2.256	10.951	0.551	0.213
Pregnant	**144**	**14-0177**	0.075	0.01382	0.02236	0.143	0.384	1.926	1.302	2.136	14.233	0.752	0.206
Pregnant	**144**	**14-0178**	0.094	0.01564	0.01521	0.135	0.437	2.001	1.324	2.080	11.894	0.623	0.161
Pregnant	**144**	**14-0180**	0.075	0.01486	0.01299	0.134	0.571	2.007	1.124	2.474	13.647	0.429	0.156
Pregnant	**144**	**14-0183**	0.082	0.01167	0.01371	0.150	0.418	2.040	1.146	2.339	14.810	0.675	1.299
Pregnant	**144**	**14-0195**	0.074	0.01432	0.01347	0.150	0.370	1.987	1.386	2.300	12.468	0.672	0.205
Pregnant	**144**	**14-0197**	0.056	0.00797	0.01391	0.115	0.346	2.138	1.236	2.056	10.507	0.564	0.128
Pregnant	**144**	**14-0199**	0.063	0.01162	0.01530	0.150	0.341	1.939	1.114	1.934	11.424	0.614	0.243
Pregnant	**144**	**14-0200**	0.086	0.01826	0.01291	0.147	0.441	1.976	1.211	2.102	13.908	0.543	0.219
Pregnant	**144**	**14-0206**	0.094	0.01706	0.01620	0.138	0.400	2.086	1.278	2.293	14.173	0.571	0.192
Pregnant	**144**	**14-0211**	0.068	0.01454	0.02002	0.161	0.389	2.120	1.260	2.047	12.293	0.654	0.176
Pregnant	**144**	**14-0212**	0.068	0.01048	0.01430	0.133	0.375	1.989	1.193	2.178	10.950	0.667	0.263
Pregnant	**144**	**14-0214**	0.058	0.00865	0.01180	0.108	0.423	1.905	1.118	2.081	15.198	0.495	0.275
Pregnant	**144**	**14-0220**	0.060	0.02081	0.01337	0.115	0.521	1.987	1.199	2.205	15.464	0.507	0.175
		Mean	**0.073**	**0.01431**	**0.01619**	**0.140**	**0.467**	**1.993***	**1.220**	**2.170**	**13.159**	**0.582**	**0.254**
		SD	**0.012**	**0.00330**	**0.00359**	**0.021**	**0.116**	**0.064**	**0.088**	**0.144**	**1.516**	**0.093**	**0.232**
		N	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Pregnant	**720**	**14-0124**	0.074	0.014	0.01761	0.193	1.200	1.946	1.269	1.972	12.940	0.590	0.214
Pregnant	**720**	**14-0128**	0.073	0.005	0.02311	0.112	0.461	1.825	1.393	2.103	12.529	0.765	0.163
Pregnant	**720**	**14-0132**	0.074	0.013	0.01624	0.150	0.347	1.996	1.209	1.899	14.635	0.688	0.151
Pregnant	**720**	**14-0138**	0.081	0.01564	0.01837	0.140	0.624	1.915	1.180	1.987	14.254	0.640	0.195
Pregnant	**720**	**14-0142**	ND	0.01471	0.01683	0.119	0.635	1.987	1.373	2.309	14.153	0.683	0.179
Pregnant	**720**	**14-0144**	0.070	0.01601	0.02927	0.128	0.327	1.918	1.329	2.341	16.036	0.698	0.279
Pregnant	**720**	**14-0145**	0.078	0.01690	0.01537	0.143	0.837	2.051	1.295	2.275	16.115	0.737	0.248
Pregnant	**720**	**14-0146**	0.074	0.01227	0.01653	0.159	0.582	1.964	1.180	2.092	10.920	0.701	0.167
Pregnant	**720**	**14-0147**	0.069	0.01337	0.01907	0.137	0.376	1.934	1.116	1.908	13.671	0.606	0.243
Pregnant	**720**	**14-0152**	0.077	0.01742	0.01498	0.182	0.522	1.944	1.183	1.845	11.435	0.523	0.237
Pregnant	**720**	**14-0153**	0.073	0.01335	0.01409	0.174	0.457	2.067	1.225	2.173	14.476	0.557	0.260
Pregnant	**720**	**14-0158**	0.073	0.01493	0.01491	0.150	0.370	1.900	1.324	2.169	11.795	0.482	0.165
Pregnant	**720**	**14-0160**	0.071	0.01120	0.02294	0.109	0.402	1.880	1.170	1.802	10.576	0.470	0.127
Pregnant	**720**	**14-0165**	0.070	0.01586	0.02104	0.134	0.378	1.927	1.043	2.218	11.085	0.483	0.141
Pregnant	**720**	**14-0169**	0.060	0.01781	0.01888	0.132	0.557	2.120	1.124	2.132	14.464	0.677	0.147
Pregnant	**720**	**14-0170**	0.068	0.01364	0.01562	0.171	0.572	1.874	1.316	2.098	10.925	0.663	0.159
Pregnant	**720**	**14-0171**	0.066	0.01551	0.01935	0.157	0.294	2.067	1.321	2.319	13.850	0.577	0.183
Pregnant	**720**	**14-0188**	0.076	0.01162	0.01890	0.131	0.489	1.842	1.138	2.092	11.348	0.677	0.286
Pregnant	**720**	**14-0190**	0.074	0.01671	0.01246	0.174	0.505	1.927	1.227	1.980	11.178	0.586	0.242
Pregnant	**720**	**14-0192**	0.085	0.01322	0.01799	0.117	0.575	2.022	1.234	2.429	16.418	0.655	0.165
Pregnant	**720**	**14-0193**	0.050	0.01317	0.01795	0.144	0.842	2.095	1.125	2.279	15.360	0.648	0.214
Pregnant	**720**	**14-0201**	0.084	ND	0.02136	0.134	0.815	1.964	1.186	2.067	12.178	0.552	0.076
Pregnant	**720**	**14-0202**	0.058	0.00787	0.01790	0.109	0.324	1.899	1.150	1.795	9.915	0.486	0.138
Pregnant	**720**	**14-0203**	0.075	0.01343	0.01627	0.132	0.688	1.850	1.246	2.396	15.560	0.499	0.106
Pregnant	**720**	**14-0204**	0.086	0.01833	0.01627	0.154	0.528	1.861	1.153	2.055	12.621	0.752	0.126
		Mean	**0.072**	**0.01396**	**0.01813**	**0.143**	**0.548**	**1.951**	**1.220**	**2.109**	**13.137**	**0.616**	**0.184**

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		SD	**0.008**	**0.00304**	**0.00349**	**0.023**	**0.208**	**0.082**	**0.089**	**0.183**	**1.958**	**0.091**	**0.055**
		N	**24**	**24**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Pregnant	**3600**	**14-0126**	0.073	0.01155	0.01775	0.101	0.735	1.907	1.125	1.990	10.192	0.569	0.231
Pregnant	**3600**	**14-0127**	0.055	0.016	0.01171	0.111	0.424	1.960	1.126	2.047	12.282	0.601	0.160
Pregnant	**3600**	**14-0131**	0.058	0.01388	0.01241	0.116	0.408	1.894	1.175	1.928	11.777	0.531	0.144
Pregnant	**3600**	**14-0135**	0.074	0.015	0.01233	0.148	0.493	1.843	1.260	2.164	10.766	0.522	0.231
Pregnant	**3600**	**14-0139**	0.055	0.01311	0.01274	0.138	0.507	1.852	0.998	2.000	12.444	0.546	0.120
Pregnant	**3600**	**14-0140**	0.104	0.01731	0.00842	0.124	0.359	1.976	1.198	2.536	15.610	0.661	0.178
Pregnant	**3600**	**14-0141**	0.060	0.01261	0.01987	0.098	0.334	1.920	1.041	1.887	9.799	0.566	0.129
Pregnant	**3600**	**14-0151**	0.081	0.01522	0.01171	0.112	0.798	1.880	1.016	2.056	10.967	0.619	0.141
Pregnant	**3600**	**14-0155**	0.068	0.01156	0.01511	0.143	0.437	1.854	1.005	1.977	11.412	0.534	0.177
Pregnant	**3600**	**14-0159**	0.084	0.01550	0.01633	0.176	0.491	2.053	1.257	2.587	12.176	0.775	0.243
Pregnant	**3600**	**14-0167**	0.087	0.01284	0.02096	0.141	0.347	1.924	1.050	2.193	14.137	0.495	0.190
Pregnant	**3600**	**14-0172**	0.084	0.01134	0.01650	0.115	0.510	1.886	1.293	2.760	16.651	0.674	0.338
Pregnant	**3600**	**14-0181**	0.043	0.00982	0.01449	0.129	0.755	1.942	1.219	2.170	14.056	0.420	0.235
Pregnant	**3600**	**14-0182**	0.032(1)	0.01725	0.02127	0.148	0.540	1.848	1.094	2.037	13.609	0.654	0.191
Pregnant	**3600**	**14-0189**	0.084	0.01021	0.02092		0.616	2.043	1.180	2.227	12.353	0.597	0.324
Pregnant	**3600**	**14-0194**	0.068	0.01287	0.01647	0.141	0.332	2.033	1.073	2.207	12.930	0.455	0.193
Pregnant	**3600**	**14-0208**	0.069	0.00733	0.02317	0.134	0.383	1.902	1.292	2.476	15.024	0.722	0.154
Pregnant	**3600**	**14-0209**	0.070	0.00455	0.01431	0.156	0.628	1.858	1.029	2.022	10.180	0.686	0.253
Pregnant	**3600**	**14-0210**	0.137	0.018	0.02018	0.133	0.370	2.009	1.857	3.593	26.598	1.670	0.262
Pregnant	**3600**	**14-0213**	0.064	ND	0.02388	0.152	0.379	1.961	1.178	2.141	13.500	0.630	0.190
Pregnant	**3600**	**14-0216**	0.063	0.01312	0.01550	0.108	0.373	1.960	1.150	1.938	9.636	0.499	0.251
Pregnant	**3600**	**14-0219**	0.057	ND	0.01566	0.096	0.249	1.729	0.919	2.120	10.005	0.544	0.142
		Mean	**0.073**	**0.01295**	**0.01644**	**0.130**	**0.476**	**1.920***	**1.161**	**2.230**	**13.005**	**0.635**	**0.204**
		SD	**0.020**	**0.00337**	**0.00414**	**0.021**	**0.150**	**0.078**	**0.187**	**0.382**	**3.610**	**0.247**	**0.060**
		N	**21**	**20**	**22**	**21**	**22**	**22**	**22**	**22**	**22**	**22**	**22**
Non-pregnant	**0**	**14-0207**	0.057	0.012	0.01409	0.123	0.407	2.018	1.010	1.757	10.854	0.512	0.188
		N	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Non-pregnant	**144**	**14-0125**	0.068	0.019	0.01355		0.162	1.951	1.143	2.149	14.652	0.758	0.895
Non-pregnant	**144**	**14-0218**	0.084	0.026	0.01864	0.151	0.726	1.867	1.284	2.078	17.460	0.665	0.596
		Mean	**0.076**	**0.02250**	**0.01610**	**0.151**	**0.444**	**1.909**	**1.214**	**2.114**	**16.056**	**0.712**	**0.746**
		SD	**0.011**	**0.00495**	**0.00360**		**0.399**	**0.059**	**0.100**	**0.050**	**1.986**	**0.066**	**0.211**
		N	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Non-pregnant	**3600**	**14-0168**	0.070	0.022	0.00933	0.159	0.566	1.891	1.122	2.079	14.707	0.651	0.251
Non-pregnant	**3600**	**14-0184**	0.061	0.024	0.01326	0.068(1)	0.727	1.869	1.167	1.992	10.905	0.364	0.282
Non-pregnant	**3600**	**14-0187**	0.059	0.021	0.01827	0.141	0.522	1.931	0.990	1.933	8.974	0.545	0.337
		Mean	**0.063**	**0.02233**	**0.01362**	**0.150**	**0.605**	**1.897**	**1.093**	**2.001**	**11.529**	**0.520**	**0.290**
		SD	**0.006**	**0.00153**	**0.00448**	**0.013**	**0.108**	**0.031**	**0.092**	**0.073**	**2.917**	**0.145**	**0.044**
*Significantly different from control		**N**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

Table K-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Organ Mass (grams)
P Generation Male Rats

Phase	Group (mg/l)	Animal ID	Adrenals	Brain	Heart	Kidneys	Epidid. L	Epidid. R	Liver	Spleen	Pituitary	Testis Left	Testis Right	Thymus	Prostate	SVCG with fluid	SVCG no fluid	thyroid
Main	**0**	**14-0001**	0.051	2.184	1.741	2.972	0.790	0.921	21.832	0.888	0.013	1.819	1.891	0.540	0.522	1.873	1.118	0.02601
Main	**0**	**14-0002**	0.051	2.346	1.561	3.216	0.711	0.799	19.728	1.045	0.009	1.960	2.017	0.342	0.768	1.661	0.981	0.02260
Main	**0**	**14-0005**	0.043	2.273	1.577	3.892	0.691	0.773	20.020	1.097	0.014	2.222	2.109	0.324	1.000	1.650	0.862	0.02731
Main	**0**	**14-0009**	0.059	2.328	1.665	3.278	0.653	0.739	15.274	1.008	0.013	1.759	1.772	0.328	1.101	2.779	1.069	0.02468
Main	**0**	**14-0010**	0.066	2.335	1.707	3.285	0.766	0.823	21.590	1.275	0.019	1.985	1.954	0.353	1.029	2.300	1.210	0.02784
Main	**0**	**14-0013**	0.059	2.173	1.591	3.211	0.626	0.673	19.234	0.772	0.006	1.557	1.564	0.497	0.523	2.095	0.952	0.02487
Main	**0**	**14-0014**	0.056	2.501	2.141	4.144	0.730	0.882	18.479	0.883	0.016	2.062	1.962	0.409	1.009	2.817	1.350	0.02706
Main	**0**	**14-0023**	0.041	2.314	1.598	3.259	0.690	0.807	18.439	0.949	0.013	1.869	1.919	0.195	0.871	1.831	0.901	0.02331
Main	**0**	**14-0024**	0.039	2.052	1.259	2.450	0.628	0.709	11.754	0.865	0.016	1.839	1.721	0.237	0.924	1.525	0.712	0.03106
Main	**0**	**14-0025**	0.045	2.102	1.793	3.539	0.703	0.707	17.304	0.951	0.016	1.969	1.866	0.271	0.884	1.431	0.918	0.03069
Main	**0**	**14-0026**	0.068	2.093	1.667	3.643	0.718	0.920	16.577	0.910	0.018	1.907	1.894	0.265	0.856	2.447	0.996	0.02565
Main	**0**	**14-0043**	0.035	1.894	1.354	2.509	0.585	0.699	13.447	0.591	0.012	1.656	1.670	0.163	0.943	1.801	0.681	0.01733
Main	**0**	**14-0044**	0.073	2.230	1.586	3.626	0.705	0.726	20.484	0.813	0.016	2.305	2.244	0.280	1.027	1.931	0.889	0.04159
Main	**0**	**14-0049**	0.060	2.108	1.455	3.072	0.670	0.779	20.960	0.941	0.013	1.887	1.805	0.373	0.847	1.828	0.991	0.02942
Main	**0**	**14-0050**	0.035	2.035	1.618	3.646	0.672	0.713	21.886	0.936	0.012	1.851	1.678	0.317	1.181	2.171	1.051	0.02841
Main	**0**	**14-0063**	0.073	2.227	1.904	3.807	0.690	0.794	23.436	1.002	0.018	1.953	1.980	0.380	0.951	1.978	0.945	0.02496
Main	**0**	**14-0064**	0.069	2.201	1.435	3.063	0.649	0.779	16.905	0.669	0.010	1.837	1.891	0.370	0.910	1.076	0.715	0.02344
Main	**0**	**14-0065**	0.054	2.286	1.614	3.342	0.681	0.792	21.294	1.092	0.017	1.864	1.814	0.409	1.195	2.165	0.768	0.02286
Main	**0**	**14-0066**	0.030	1.881	1.488	2.471	0.502	0.556	14.881	0.912	0.009	1.437	1.375	0.501	0.751	1.598	0.863	0.02350
Main	**0**	**14-0069**	0.064	2.242	2.136	3.816	0.720	0.801	23.372	1.064	0.008	2.056	2.048	0.368	1.082	2.598	1.082	0.02050
Main	**0**	**14-0070**	0.052	2.174	1.837	3.473	0.710	0.725	18.755	1.042	0.015	2.146	2.103	0.313	1.382	1.679	0.826	0.02945
Main	**0**	**14-0094**	0.058	2.159	1.683	3.049	0.662	0.793	15.200	0.901	0.010	1.949	1.874	0.313	0.912	1.827	0.819	0.03113
Main	**0**	**14-0095**	0.051	2.035	1.709	3.241	0.715	0.731	16.295	0.957	0.010	2.015	1.811	0.378	0.878	1.726	0.876	0.02461
Main	**0**	**14-0096**	0.062	2.084	1.753	3.672	0.688	0.734	22.482	1.014	0.015	1.878	1.753	0.592	0.863	1.440	0.909	0.03393
Main	**0**	**14-0101**	0.063	2.277	1.584	2.899	0.618	0.551	17.995	0.891	0.012	1.365	1.296	0.459	1.117	2.256	1.254	0.02963
		Mean	**0.054**	**2.181**	**1.658**	**3.303**	**0.679***	**0.757**	**18.705**	**0.939**	**0.013**	**1.886**	**1.840**	**0.359**	**0.941**	**1.939**	**0.950**	**0.02687**
		SD	**0.012**	**0.143**	**0.205**	**0.440**	**0.058**	**0.089**	**3.132**	**0.140**	**0.003**	**0.217**	**0.216**	**0.103**	**0.190**	**0.428**	**0.168**	**0.00484**
		N	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Main	**144**	**14-0007**	0.060	2.359	1.955	3.351	0.705	0.808	23.019	1.156	0.014	2.099	2.165	0.377	0.898	2.097	1.151	0.02108
Main	**144**	**14-0008**	0.056	2.163	1.812	3.786	0.639	0.711	17.553	0.843	0.015	1.744	1.746	0.433	0.804	1.897	1.005	0.02708
Main	**144**	**14-0015**	0.056	2.196	1.817	4.023	0.608	0.709	18.490	0.897	0.019	1.759	1.787	0.387	1.501	1.845	0.985	0.02845
Main	**144**	**14-0016**	0.048	2.163	1.307	2.634	0.615	0.704	13.444	0.794	0.011	1.625	1.656	0.175	ND	2.264	1.194	0.02748
Main	**144**	**14-0035**	0.059	2.192	1.883	4.089	0.702	0.788	20.780	0.861	0.013	2.003	1.924	0.488	0.988	2.035	1.022	0.03137
Main	**144**	**14-0036**	0.058	2.059	1.868	3.697	0.789	0.877	21.969	1.002	0.014	2.241	2.252	0.327	0.854	1.700	0.911	0.03639
Main	**144**	**14-0045**	0.060	2.161	1.911	3.935	0.772	0.891	16.550	0.943	0.014	1.847	1.806	0.478	1.004	1.713	0.878	0.02718

Main	**144**	**14-0046**	0.083	2.247	1.977	3.677	0.689	0.729	20.525	1.074	0.012	1.925	1.873	0.393	0.843	2.273	1.018	0.03046
Main	**144**	**14-0047**	0.070	2.249	2.029	3.707	0.764	0.775	16.388	0.961	0.014	1.903	1.931	0.332	0.852	2.187	0.999	0.02846
Main	**144**	**14-0048**	0.036	2.286	1.297	2.434	0.697	0.869	14.040	0.691	0.011	1.803	1.740	0.203	0.714	1.743	0.898	0.01930
Main	**144**	**14-0051**	0.038	2.245	1.719	3.193	0.657	0.770	16.717	0.930	0.014	2.059	1.950	0.482	0.854	1.695	0.695	0.03324
Main	**144**	**14-0052**	0.047	2.329	2.000	3.839	0.779	0.837	20.318	1.093	0.011	2.436	2.293	0.397	1.103	2.085	0.855	0.04140
Main	**144**	**14-0053**	0.064	2.212	1.722	3.257	0.723	0.839	21.996	1.005	0.013	1.992	1.881	0.442	1.136	1.991	0.796	0.02408
Main	**144**	**14-0054**	0.048	1.712	1.827	3.990	0.698	0.717	18.842	0.930	0.014	2.259	2.146	0.424	0.993	1.805	0.890	0.03384
Main	**144**	**14-0067**	0.047	2.177	1.811	3.527	0.648	0.740	14.572	0.975	0.014	1.923	1.737	0.360	0.766	1.795	0.846	0.02362
Main	**144**	**14-0068**	0.066	2.412	1.752	3.958	0.727	0.697	21.162	0.907	0.014	1.917	1.873	0.347	1.371	2.169	1.018	0.03016
Main	**144**	**14-0071**	0.078	2.170	1.484	3.879	0.644	0.737	18.620	0.816	0.006	1.891	1.634	0.247	1.109	2.058	1.362	0.02460
Main	**144**	**14-0072**	0.061	2.123	1.708	3.675	0.730	0.797	21.241	0.765	0.004	2.251	2.244	0.409	1.045	1.893	0.850	0.02800
Main	**144**	**14-0075**	0.055	2.154	1.676	3.487	0.777	0.894	15.444	0.981	0.006	2.177	2.278	0.459	0.953	2.238	0.897	0.02590
Main	**144**	**14-0076**	0.071	2.325	1.874	4.018	0.659	0.689	20.377	1.196	0.016	1.852	2.002	0.367	0.855	1.663	0.795	0.02707
Main	**144**	**14-0078**	0.056	2.333	1.510	3.439	0.727	0.728	16.454	0.875	0.013	1.900	1.876	0.519	1.573	2.655	1.266	0.02076
Main	**144**	**14-0081**	0.064	2.141	1.670	3.475	0.734	0.803	15.866	0.824	0.009	2.032	2.034	0.429	1.246	2.783	1.159	0.02329
Main	**144**	**14-0082**	0.055	2.078	1.749	3.337	0.695	0.680	16.636	0.730	0.020	1.921	1.931	0.410	1.272	2.247	0.904	0.01930
Main	**144**	**14-0089**	0.076	2.269	1.945	4.830	0.783	0.872	23.899	1.347	0.013	2.155	2.125	0.236	1.200	2.293	1.241	0.02491
Main	**144**	**14-0090**	0.043	1.674	1.280	2.900	0.492	0.553	13.863	0.833	0.012	1.465	1.407	0.280	0.710	1.206	0.607	0.02391
		Mean	**0.058**	**2.177**	**1.743**	**3.605**	**0.698***	**0.769***	**18.351**	**0.937**	**0.013**	**1.967**	**1.932**	**0.376**	**1.027**	**2.013**	**0.970**	**0.02725**
		SD	**0.012**	**0.170**	**0.217**	**0.498**	**0.068**	**0.082**	**3.047**	**0.152**	**0.004**	**0.215**	**0.224**	**0.091**	**0.238**	**0.334**	**0.181**	**0.00530**
		N	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**	**25**	**25**	**25**
Main	**720**	**14-0003**	0.059	2.122	1.548	3.547	0.646	0.727	19.832	0.983	0.014	1.683	1.736	0.313	1.196	2.615	1.327	0.02063
Main	**720**	**14-0004**	0.043	2.083	1.716	3.897	0.878	0.853	18.319	0.938	0.018	2.019	1.920	0.333	0.523	2.412	1.347	0.02412
Main	**720**	**14-0017**	0.045	2.165	1.320	3.027	0.649	0.747	14.794	0.920	0.012	1.725	1.746	0.277	1.205	1.738	0.848	0.02537
Main	**720**	**14-0018**	0.048	2.052	1.797	3.811	0.680	0.722	22.370	1.140	0.012	2.029	1.892	0.386	1.262	ND	0.925	0.01875
Main	**720**	**14-0029**	0.067	2.038	1.568	2.989	0.353	0.656	16.517	0.715	0.011	1.155	2.055	0.379	1.024	1.760	1.356	0.02012
Main	**720**	**14-0030**	0.042	2.107	1.295	3.123	0.518	0.648	16.726	0.762	0.009	1.882	1.786	0.264	0.879	1.808	0.866	0.02533
Main	**720**	**14-0031**	0.056	2.033	1.525	3.274	0.611	0.720	17.532	0.906	0.014	1.754	1.660	0.309	0.610	2.223	1.183	0.01900
Main	**720**	**14-0032**	0.054	2.233	1.706	3.583	0.668	0.673	16.662	0.987	0.016	1.726	1.924	0.339	0.912	1.758	0.912	0.02703
Main	**720**	**14-0033**	0.060	2.241	1.839	3.560	0.662	0.743	19.265	1.399	0.09*	2.006	2.020	0.526	0.820	1.712	0.866	0.02441
Main	**720**	**14-0034**	0.050	2.346	1.721	3.751	0.721	0.832	21.092	1.069	0.003	1.966	1.986	0.464	0.781	1.736	0.835	0.03372
Main	**720**	**14-0037**	0.080	2.152	1.818	3.321	0.696	0.861	19.811	1.170	0.014	2.015	2.211	0.393	0.831	1.797	0.864	0.03160
Main	**720**	**14-0038**	0.057	2.277	1.745	3.577	0.760	0.804	22.729	1.314	0.014	2.100	2.106	0.374	1.035	1.790	0.804	0.02878
Main	**720**	**14-0055**	0.057	2.226	1.786	4.116	0.718	0.800	17.852	0.907	0.012	2.068	2.131	0.351	1.196	2.095	1.013	0.03260
Main	**720**	**14-0056**	0.052	2.224	1.729	3.320	0.591	0.690	22.988	1.290	0.012	1.851	1.837	0.513	0.860	1.854	0.873	0.03038
Main	**720**	**14-0057**	0.083	2.231	1.975	4.619	0.771	0.931	21.988	1.090	0.003	2.318	2.162	0.435	0.953	2.324	1.416	0.03367
Main	**720**	**14-0058**	0.064	2.141	1.904	4.321	0.572	0.637	18.771	ND	0.017	1.653	1.658	0.312	0.945	2.105	0.988	0.03213
Main	**720**	**14-0061**	0.068	2.421	1.714	3.534	0.741	0.818	16.726	0.863	0.016	2.072	1.927	0.141	1.364	2.394	1.004	0.02401
Main	**720**	**14-0062**	0.065	2.055	2.033	3.834	0.691	0.828	17.376	0.843	0.013	1.903	1.745	0.447	0.904	1.731	0.904	0.02589
Main	**720**	**14-0073**	0.068	2.324	1.790	3.843	0.681	0.727	20.306	1.050	0.014	1.839	1.920	0.273	1.221	2.053	0.992	0.02985
Main	**720**	**14-0074**	0.057	2.178	1.537	3.116	0.657	0.718	15.168	0.895	0.019	1.738	1.695	0.252	0.939	1.916	0.872	0.02152
Main	**720**	**14-0083**	0.050	2.079	1.587	2.958	0.613	0.643	13.864	0.790	0.011	1.971	1.864	0.385	0.966	1.593	0.703	0.02439
Main	**720**	**14-0084**	0.054	2.010	1.779	3.230	0.692	0.745	20.030	0.902	0.011	1.872	1.875	0.522	0.952	1.590	0.870	0.02211

Main	**720**	**14-0093**	0.075	2.200	1.786	3.770	0.670	0.714	20.626	0.916	0.019	2.034	1.878	0.625	0.685	1.452	0.780	0.02237
Main	**720**	**14-0097**	0.036	2.185	1.704	3.297	0.649	0.727	18.277	1.001	0.014	1.865	1.829	0.289	0.917	1.517	0.846	0.02280
Main	**720**	**14-0098**	0.063	2.228	1.690	3.562	0.664	0.801	22.308	1.116	0.013	1.827	1.762	0.372	1.324	2.259	1.182	0.02516
		Mean	**0.058**	**2.174**	**1.704**	**3.559**	**0.662**	**0.751**	**18.877**	**0.999**	**0.013**	**1.883**	**1.893**	**0.371**	**0.972**	**1.926**	**0.983**	**0.02583**
		SD	**0.012**	**0.105**	**0.173**	**0.416**	**0.096**	**0.076**	**2.580**	**0.175**	**0.004**	**0.217**	**0.156**	**0.106**	**0.215**	**0.312**	**0.200**	**0.00461**
		N	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**	**24**	**25**	**25**	**25**	**25**	**24**	**25**	**25**
Main	**3600**	**14-0011**	0.053	2.144	1.457	3.123	0.498	0.631	16.648	0.776	0.014	1.503	1.506	0.217	1.058	1.939	1.048	0.01999
Main	**3600**	**14-0012**	0.055	2.228	1.534	3.312	0.641	0.702	18.717	0.866	0.014	1.752	1.810	0.316	1.359	1.675	0.843	0.02181
Main	**3600**	**14-0019**	0.068	2.237	1.622	3.080	0.659	0.707	15.878	0.838	0.008	2.165	2.059	0.325	1.595	2.156	1.020	0.02094
Main	**3600**	**14-0020**	0.052	2.149	1.667	3.351	0.620	0.646	17.790	0.807	0.015	1.733	1.742	0.285	2.851	1.828	0.985	0.02220
Main	**3600**	**14-0021**	0.074	2.048	1.609	3.600	0.645	0.719	20.878	1.023	0.007	1.802	1.764	0.475	0.574	1.570	0.845	0.02107
Main	**3600**	**14-0022**	0.041	2.226	1.598	3.035	0.587	0.677	14.873	0.788	0.013	1.759	1.530	0.390	0.878	1.458	0.710	0.03031
Main	**3600**	**14-0027**	0.053	2.102	1.510	2.967	0.632	0.734	16.113	0.880	0.017	1.898	1.927	0.280	0.671	2.103	0.792	0.01922
Main	**3600**	**14-0028**	0.065	2.146	1.621	3.502	0.611	0.690	17.714	0.766	0.017	1.884	1.898	0.324	0.891	1.559	0.864	0.02253
Main	**3600**	**14-0039**	0.052	2.157	2.260	3.951	0.637	0.723	18.846	1.016	0.010	2.086	1.881	0.461	1.015	1.975	1.110	0.02651
Main	**3600**	**14-0040**	0.075	2.326	1.842	4.129	0.653	0.715	17.172	0.953	0.016	1.839	1.822	0.349	1.028	1.847	1.107	0.02025
Main	**3600**	**14-0041**	0.069	2.280	1.880	4.117	0.718	0.707	17.152	0.970	0.008	1.951	2.183	0.363	0.892	2.547	1.034	0.03272
Main	**3600**	**14-0042**	0.049	2.169	1.534	2.892	0.460	0.476	17.916	0.987	0.011	1.503	1.523	0.216	0.606	1.670	0.808	0.02932
Main	**3600**	**14-0059**	0.066	2.149	1.790	3.151	0.615	0.635	12.952	0.861	0.013	1.918	1.876	0.375	0.952	1.516	0.863	0.02251
Main	**3600**	**14-0060**	0.051	2.182	1.644	3.603	0.633	0.671	21.772	0.826	0.013	1.988	1.834	0.492	0.797	1.517	0.917	0.02468
Main	**3600**	**14-0077**	0.051	2.093	1.626	3.548	0.663	0.680	15.107	0.978	0.015	1.879	1.847	0.328	1.036	2.111	1.009	0.02859
Main	**3600**	**14-0079**	0.053	2.225	1.759	3.040	0.644	0.766	16.770	0.854	0.014	1.957	1.935	0.265	1.226	1.231	0.747	0.02389
Main	**3600**	**14-0080**	0.061	2.159	1.477	3.313	0.596	0.656	14.760	0.836	0.011	1.730	1.762	0.351	1.346	1.986	1.017	0.02589
Main	**3600**	**14-0085**	0.058	2.242	1.601	3.290	0.700	0.843	17.680	0.924	0.017	1.925	1.968	0.365	1.188	1.978	0.946	0.02245
Main	**3600**	**14-0086**	0.060	1.909	1.589	2.777	0.474	0.574	16.144	0.778	0.012	0.949	0.927	0.431	0.864	1.533	0.777	0.02139
Main	**3600**	**14-0087**	0.064	2.201	1.531	3.558	0.674	0.729	19.174	0.893	0.011	1.767	1.868	0.336	0.960	1.412	1.056	0.02004
Main	**3600**	**14-0088**	0.056	2.343	1.886	3.681	0.590	0.752	19.091	1.111	0.012	1.836	1.910	0.320	0.909	1.693	0.876	0.03382
Main	**3600**	**14-0091**	0.069	1.916	1.634	3.131	0.604	0.693	15.580	0.794	0.010	1.731	1.634	0.340	1.049	1.855	0.877	0.01820
Main	**3600**	**14-0092**	0.065	2.281	1.839	3.746	0.733	0.471	18.072	1.084	0.010	2.284	0.742	0.324	0.882	2.173	0.938	0.01979
Main	**3600**	**14-0099**	0.053	2.161	1.900	3.850	0.673	0.778	22.914	1.136	0.014	1.954	1.885	0.385	0.883	2.204	1.044	0.01850
Main	**3600**	**14-0100**	0.050	2.190	1.946	4.185	0.724	0.545	19.125	1.061	0.014	1.628	2.075	0.399	0.891	2.073	0.961	0.03546
		Mean	**0.059**	**2.171**	**1.694**	**3.437**	**0.627***	**0.677***	**17.554**	**0.912**	**0.013**	**1.817**	**1.756**	**0.348**	**1.056**	**1.824**	**0.928**	**0.02408**
		SD	**0.009**	**0.104**	**0.186**	**0.404**	**0.069**	**0.087**	**2.266**	**0.113**	**0.003**	**0.254**	**0.323**	**0.070**	**0.440**	**0.312**	**0.114**	**0.00497**
		N	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Recovery	**0**	**14-0006**	0.058	2.319	1.730	3.123	0.760	0.787	20.076	1.212	0.01387	1.945	2.047	0.278	1.418	2.205	1.050	0.01873
Recovery	**0**	**14-0102**	0.063	2.167	1.678	4.133	1.022	0.837	27.276	0.999	0.01469	1.907	1.886	0.194	1.133	2.171	1.096	0.02397
Recovery	**0**	**14-0105**	0.046	2.257	1.794	3.847	0.728	0.709	22.623	0.833	0.01230	1.789	1.836	0.245	1.041	2.080	0.921	0.02138
Recovery	**0**	**14-0106**	0.055	2.213	1.892	3.968	0.747	0.720	23.169	1.259	0.01526	2.219	2.035	0.235	0.912	1.930	1.051	0.0278
Recovery	**0**	**14-0109**	0.056	2.383	2.080	4.648	0.778	0.750	25.649	1.073	0.01638	1.801	1.881	0.293	1.131	2.064	0.922	0.02820
Recovery	**0**	**14-0110**	0.047	2.178	1.794	3.498	0.654	0.743	19.888	0.767	0.01214	1.878	1.815	0.237	0.785	1.997	0.850	0.02235
Recovery	**0**	**14-0113**	0.057	2.223	2.071	3.424	0.864	0.889	23.735	0.891	0.01499	1.945	1.852	0.179	1.096	2.316	0.926	0.02950
Recovery	**0**	**14-0114**	0.063	2.351	2.009	3.932	0.832	0.887	25.464	1.151	0.01738	2.068	2.002	0.248	1.071	2.063	0.794	0.02037

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Recovery	**0**	**14-0119**	0.067	2.226	1.689	3.135	0.715	0.784	22.510	0.933	0.01507	1.849	1.844	0.183	1.099	2.186	0.803	0.02100
Recovery	**0**	**14-0120**	(1) 0.030	2.104	2.129	3.644	0.855	0.786	23.805	1.146	0.01225	1.782	1.863	0.124	1.166	2.318	0.826	0.02628
		Mean	**0.057**	**2.242**	**1.887**	**3.735**	**0.796**	**0.789***	**23.420**	**1.026**	**0.014**	**1.918**	**1.906**	**0.222**	**1.085**	**2.133***	**0.924**	**0.02395**
		SD	**0.007**	**0.087**	**0.173**	**0.471**	**0.103**	**0.064**	**2.344**	**0.168**	**0.002**	**0.137**	**0.087**	**0.051**	**0.165**	**0.129**	**0.110**	**0.00375**
		N	**9**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
Recovery	**3600**	**14-0103**	0.063	2.197	1.647	3.389	0.671	0.614	20.806	1.087	0.01374	1.766	1.785	0.329	1.259	2.029	0.893	0.01465
Recovery	**3600**	**14-0104**	0.057	2.327	1.658	3.598	0.804	0.695	21.324	1.090	0.01681	1.937	1.889	0.249	0.989	1.651	0.678	0.02196
Recovery	**3600**	**14-0107**	0.061	2.218	1.808	3.956	0.646	0.738	22.064	0.874	0.01552	1.693	1.741	0.175	0.811	1.605	0.778	0.02280
Recovery	**3600**	**14-0108**	0.056	2.427	1.882	3.978	0.666	0.617	22.139	1.049	0.01786	1.678	1.689	0.200	1.315	1.984	0.854	0.02175
Recovery	**3600**	**14-0111**	0.057	2.186	1.631	3.177	0.593	0.586	17.894	0.916	0.01215	1.548	1.579	0.189	0.904	1.455	0.749	0.02034
Recovery	**3600**	**14-0112**	0.057	2.375	2.268	4.522	0.721	0.757	23.968	1.156	0.01400	2.004	1.884	0.179	0.848	1.664	0.938	0.02237
Recovery	**3600**	**14-0115**	0.059	2.245	2.186	4.287	0.690	0.715	25.288	0.935	0.01863	2.118	2.125	0.159	1.218	1.995	0.865	0.02139
Recovery	**3600**	**14-0116**	0.054	2.251	1.793	3.932	0.742	0.730	21.731	1.061	0.01289	1.781	1.771	0.320	1.300	2.153	1.014	0.02713
Recovery	**3600**	**14-0117**	0.075	2.278	1.820	3.872	0.831	0.799	19.300	0.923	0.01236	2.075	1.999	0.226	1.188	2.144	1.181	0.02509
Recovery	**3600**	**14-0118**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		Mean	**0.060**	**2.278**	**1.855**	**3.857**	**0.707**	**0.695***	**21.613**	**1.010**	**0.015**	**1.844**	**1.829**	**0.225**	**1.092**	**1.853***	**0.883**	**0.02194**
		SD	**0.006**	**0.083**	**0.229**	**0.419**	**0.076**	**0.073**	**2.221**	**0.099**	**0.002**	**0.197**	**0.165**	**0.063**	**0.203**	**0.260**	**0.151**	**0.00342**
		N	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**

*Significantly different from control.

Table K-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Organ Mass (grams)
F-1 Generation Weanling Female Rats

Phase	Group (mg/l)	Pup ID	Adrenals	Brain	Heart	Kidneys	Liver	Ovaries	Spleen	Pituitary	Thymus	Uterus	Thyroid
F1 Weanling	**0**	**14-0122-11**	0.016	1.432	0.305	0.496	1.511	ND	0.141	0.002	0.230	0.062	0.00511
F1 Weanling	**0**	**14-0130-7**	0.017	1.521	0.296	0.592	1.685	0.037	0.258	0.001	0.240	0.053	0.00538
F1 Weanling	**0**	**14-0133-14**	0.025	1.477	0.287	0.628	1.584	0.028	0.243	ND	0.246	0.033	0.00479
F1 Weanling	**0**	**14-0148-8**	0.019	1.464	0.332	0.655	1.943	0.031	0.258	0.00240	0.289	0.032	0.00646
F1 Weanling	**0**	**14-0150-16**	0.014	1.517	0.280	0.492	1.392	0.028	0.228	0.00218	0.276	0.040	0.00614
F1 Weanling	**0**	**14-0156-10**	0.017	1.477	0.308	0.630	1.809	0.026	0.245	0.00255	0.242	0.042	0.00415
F1 Weanling	**0**	**14-0173-10**	0.019	1.459	0.304	0.629	1.808	0.023	0.196	ND	0.217	0.031	0.00337
F1 Weanling	**0**	**14-0185-12**	0.014	1.374	0.226	0.470	1.303	0.020	0.195	ND	0.226	0.026	0.00374
F1 Weanling	**0**	**14-0186-9**	0.015	1.506	0.255	0.504	1.427	0.022	0.171	ND	0.217	0.029	0.00421
F1 Weanling	**0**	**14-0217-8**	0.025	1.387	0.268	0.558	1.584	0.012	0.217	0.00235	0.153	0.032	0.00278
		Mean	**0.018**	**1.461**	**0.286**	**0.565**	**1.605**	**0.025**	**0.215**	**0.00208**	**0.234**	**0.038**	**0.00461**
		SD	**0.004**	**0.051**	**0.030**	**0.070**	**0.206**	**0.007**	**0.039**	**0.00056**	**0.037**	**0.012**	**0.00119**
		N	**10**	**10**	**10**	**10**	**10**	**9**	**10**	**6**	**10**	**10**	**10**
F1 Weanling	**144**	**14-0123-11**	0.015	1.460	0.297	0.615	1.737	0.026	0.206	0.00219	0.246	0.037	0.00406
F1 Weanling	**144**	**14-0123-12**	0.018	1.533	0.323	0.635	1.732	0.022	0.202	0.00184	0.231	0.054	0.00535
F1 Weanling	**144**	**14-0166-9**	0.018	1.466	0.208	0.497	1.343	0.019	0.181	0.00238	0.202	0.048	0.00534
F1 Weanling	**144**	**14-0177-8**	0.018	1.446	0.269	0.495	1.439	0.026	0.251	0.00183	0.243	0.065	0.00467
F1 Weanling	**144**	**14-0180-11**	0.016	1.480	0.269	0.673	1.700	0.024	0.235	0.00204	0.213	0.025	0.00379
F1 Weanling	**144**	**14-0195-13**	0.009	1.481	0.336	0.543	1.550	0.029	0.271	0.00155	0.308	0.029	0.00530
F1 Weanling	**144**	**14-0200-15**	0.017	1.490	0.310	0.658	1.957	0.029	0.361	0.00235	0.245	0.068	0.00457
F1 Weanling	**144**	**14-0211-8**	0.018	1.518	0.270	0.524	1.588	0.019	0.200	0.00117	0.260	0.033	0.00580
F1 Weanling	**144**	**14-0214-8**	0.018	1.472	0.238	0.555	1.476	0.013	0.158	0.00197	0.305	0.040	0.00383
F1 Weanling	**144**	**14-0220-10**	0.014	1.438	0.290	0.595	1.568	0.035	0.178	0.00271	0.195	0.029	0.00316
		Mean	**0.016**	**1.478**	**0.281**	**0.579**	**1.609**	**0.024**	**0.224**	**0.00200**	**0.245**	**0.043**	**0.00459**
		SD	**0.003**	**0.030**	**0.039**	**0.065**	**0.178**	**0.006**	**0.059**	**0.00044**	**0.039**	**0.015**	**0.00086**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
F1 Weanling	**720**	**14-0132-9**	0.013	1.328	0.300	0.542	1.713	0.022	0.208	ND	0.253	0.063	0.00408
F1 Weanling	**720**	**14-0144-9**	0.021	1.404	0.278	0.644	1.939	0.026	0.303	0.00114	0.281	0.035	0.00382
F1 Weanling	**720**	**14-0147-10**	0.014	1.444	0.357	0.663	2.214	0.023	0.292	0.00280	0.290	0.035	0.00528
F1 Weanling	**720**	**14-0165-10**	0.024	1.390	0.266	0.603	1.447	0.024	0.199	0.00268	0.240	0.029	0.00246
F1 Weanling	**720**	**14-0169-11**	0.015	1.521	0.285	0.548	1.641	0.023	0.216	0.00121	0.181	0.053	0.00387
F1 Weanling	**720**	**14-0170-12**	0.016	1.362	0.228	0.495	1.291	0.034	0.191	0.00168	0.200	0.036	0.00359
F1 Weanling	**720**	**14-0171-12**	0.014	1.494	0.293	0.580	1.593	0.025	0.241	0.00129	0.291	0.051	0.00464
F1 Weanling	**720**	**14-0193-9**	0.015	1.490	0.253	0.557	1.637	0.026	0.224	0.00124	0.255	0.030	0.00472
F1 Weanling	**720**	**14-0202-10**	0.016	1.449	0.264	0.490	1.449	0.023	0.187	0.00120	0.229	0.021	0.00498
F1 Weanling	**720**	**14-0204-10**	0.011	1.419	0.268	0.563	1.509	0.029	0.186	0.00115	0.204	0.034	0.00567

		Mean	**0.016**	**1.430**	**0.279**	**0.569**	**1.643**	**0.026**	**0.225**	**0.00160**	**0.242**	**0.039**	**0.00431**
		SD	**0.004**	**0.061**	**0.034**	**0.057**	**0.266**	**0.004**	**0.042**	**0.00067**	**0.039**	**0.013**	**0.00094**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**9**	**10**	**10**	**10**
F1 Weanling	**3600**	**14-0126-11**	0.024	1.352	0.236	0.481	1.457	0.027	0.201	0.00014	0.172	0.019	0.00466
F1 Weanling	**3600**	**14-0135-12**	0.012	1.378	0.212	0.535	1.211	0.020	0.123	0.00137	0.205	0.043	0.00260
F1 Weanling	**3600**	**14-0139-12**	0.019	1.361	0.274	0.516	1.290	0.031	0.181	0.00159	0.234	0.028	0.00593
F1 Weanling	**3600**	**14-0155-8**	0.015	1.496	0.242	0.580	1.539	0.023	0.171	0.00154	0.225	0.021	0.00563
F1 Weanling	**3600**	**14-0159-10**	0.016	1.452	0.256	0.540	1.561	0.023	0.247	0.00255	0.211	0.037	0.00539
F1 Weanling	**3600**	**14-0167-7**	0.014	1.366	0.218	0.470	1.221	0.029	0.144	0.00123	0.196	0.042	0.00261
F1 Weanling	**3600**	**14-0181-11**	0.015	1.458	0.326	0.553	1.535	0.021	0.153	0.00151	0.270	0.040	0.00502
F1 Weanling	**3600**	**14-0181-7**	0.019	1.436	0.275	0.503	1.687	0.015	0.181	0.00215	0.198	0.051	0.00450
F1 Weanling	**3600**	**14-0182-7**	0.015	1.402	0.317	0.581	1.648	0.031	0.254	ND	0.273	0.026	0.00451
F1 Weanling	**3600**	**14-0194-10**	0.020	1.486	0.241	0.502	1.306	0.020	0.192	0.00181	0.194	0.019	0.00356
		Mean	**0.017**	**1.419**	**0.260**	**0.526**	**1.446**	**0.024**	**0.185**	**0.00154**	**0.218**	**0.033**	**0.00444**
		SD	**0.004**	**0.054**	**0.039**	**0.038**	**0.176**	**0.005**	**0.042**	**0.00067**	**0.033**	**0.011**	**0.00118**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**9**	**10**	**10**	**10**

Table K-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Organ Mass (grams)
F-1 Generation Weanling Male Rats

Phase	Group (mg/l)	Pup ID	Adrenals	Brain	Heart	Kidneys	Epididymides	Liver	Spleen	Pituitary	Testis Left	Testis Right	Thymus	Thyroid
F1 Weanling	0	14-0157-1	0.019	1.442	0.292	0.601	0.056	1.772	0.237	0.003	0.102	0.116	0.200	0.00332
F1 Weanling	0	14-0162-3	0.020	1.565	0.257	0.590	0.049	1.643	0.200	0.00222	0.132	0.122	0.164	0.00373
F1 Weanling	0	14-0163-3	0.014	1.461	0.266	0.562	0.050	1.647	0.207	0.00163	0.127	0.130	ND	0.00330
F1 Weanling	0	14-0185-3	0.022	1.487	0.241	0.539	0.056	1.416	0.182	ND	0.129	0.125	0.244	0.00497
F1 Weanling	0	14-0185-4	0.014	1.499	0.259	0.529	0.053	1.538	0.177	0.00083	0.110	0.110	0.216	0.00441
F1 Weanling	0	14-0186-4	0.016	1.569	0.264	0.555	0.044	1.690	0.200	0.00199	0.136	0.133	0.213	0.00454
F1 Weanling	0	14-0191-1	0.018	1.573	0.271	0.562	0.029	1.612	0.215	ND	0.128	0.125	0.186	0.00731
F1 Weanling	0	14-0196-5	0.020	1.593	0.320	0.627	0.050	1.677	0.294	0.00137	0.128	0.130	0.272	0.00866
F1 Weanling	0	14-0198-3	0.018	1.565	0.346	0.576	0.054	1.661	0.324	0.00178	0.150	0.138	0.208	0.00525
F1 Weanling	0	14-0198-5	0.016	1.508	0.351	0.511	0.030	1.538	0.226	ND	0.107	0.117	0.145	0.00262
		Mean	**0.018**	**1.526**	**0.287**	**0.565**	**0.047**	**1.619**	**0.226**	**0.00183**	**0.125**	**0.125**	**0.205**	**0.00481**
		SD	**0.003**	**0.053**	**0.039**	**0.035**	**0.010**	**0.100**	**0.048**	**0.00068**	**0.015**	**0.009**	**0.039**	**0.00189**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**7**	**10**	**10**	**9**	**10**
F1 Weanling	144	14-0123-1	0.012	1.535	0.304	0.622	0.052	1.723	0.205	0.00206	0.152	0.157	0.302	0.00553
F1 Weanling	144	14-0129-2	0.017	1.464	0.274	0.552	0.050	1.736	0.227	0.00089	0.136	0.130	0.300	0.00553
F1 Weanling	144	14-0137-3	0.019	1.554	0.341	0.599	0.042	1.682	0.192	0.002	0.134	0.134	0.219	0.00570
F1 Weanling	144	14-0174-3	0.009	1.576	0.252	0.561	0.069	1.539	0.256	0.00141	0.124	0.115	0.241	0.00413
F1 Weanling	144	14-0177-1	0.017	1.487	0.254	0.464	0.042	1.508	0.247	0.00319	0.108	0.108	0.208	0.00415
F1 Weanling	144	14-0183-1	0.025	1.604	0.295	0.613	0.044	1.637	0.253	0.00155	0.120	0.126	0.334	0.00292
F1 Weanling	144	14-0183-2	0.021	1.618	0.274	0.619	0.057	1.791	0.265	0.00177	0.124	0.129	0.288	0.00399
F1 Weanling	144	14-0197-4	0.017	1.457	0.217	0.480	0.037	1.314	0.136	0.00163	0.103	0.103	0.166	0.00483
F1 Weanling	144	14-0199-1	0.022	1.575	0.281	0.549	0.057	1.704	0.189	ND	0.143	0.138	0.249	0.00504
F1 Weanling	144	14-0200-1	0.021	1.520	0.321	0.635	0.078	1.856	0.300	0.00228	0.148	0.155	0.252	0.00560
		Mean	**0.018**	**1.539***	**0.281**	**0.569**	**0.053**	**1.649**	**0.227**	**0.00186**	**0.129***	**0.130***	**0.256***	**0.00474**
		SD	**0.005**	**0.057**	**0.036**	**0.060**	**0.013**	**0.158**	**0.047**	**0.00064**	**0.016**	**0.018**	**0.051**	**0.00092**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**9**	**10**	**10**	**10**	**10**
F1 Weanling	720	14-0128-2	0.017	1.458	0.306	0.550	0.055	1.044	0.168	0.003	0.101	0.094	0.167	0.00442
F1 Weanling	720	14-0132-6	0.018	1.503	0.371	0.546	0.059	1.795	0.218	0.009	0.148	0.136	0.205	0.00324
F1 Weanling	720	14-0165-6	0.018	1.515	0.286	0.571	0.050	1.624	0.219	0.00253	0.132	0.133	0.210	0.00416
F1 Weanling	720	14-0169-3	0.016	1.661	0.281	0.555	0.050	1.683	0.229	0.00156	0.119	0.113	0.209	0.00499
F1 Weanling	720	14-0171-4	0.014	1.562	0.281	0.582	0.041	1.937	0.254	0.00132	0.126	0.124	0.211	0.00554
F1 Weanling	720	14-0188-3	0.023	1.466	0.312	0.552	0.052	1.623	0.214	0.00062	0.133	0.140	0.244	0.00392
F1 Weanling	720	14-0188-5	0.023	1.455	0.789	0.538	0.065	1.438	0.440	0.00191	0.123	0.115	0.274	0.00223
F1 Weanling	720	14-0190-5	0.014	1.524	0.284	0.562	0.045	1.606	0.206	0.00074	0.136	0.131	0.201	0.00463
F1 Weanling	720	14-0193-2	0.017	1.505	0.253	0.546	0.041	1.552	0.185	0.00116	0.148	0.131	0.222	0.00414

F1 Weanling	**720**	**14-0203-2**	0.018	1.485	0.305	0.593	0.046	1.535	0.237	0.00156	0.124	0.133	0.288	0.00399
		Mean	**0.018**	**1.513**	**0.347**	**0.560**	**0.050**	**1.584**	**0.237**	**0.00234**	**0.129***	**0.125**	**0.223**	**0.00413**
		SD	**0.003**	**0.061**	**0.158**	**0.018**	**0.008**	**0.235**	**0.075**	**0.00245**	**0.014**	**0.014**	**0.036**	**0.00091**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
F1 Weanling	**3600**	**14-0126-5**	0.023	1.404	0.234	0.517	0.047	1.542	0.204	0.00037	0.113	0.113	0.196	0.00646
F1 Weanling	**3600**	**14-0127-1**	0.015	1.397	0.211	0.379	0.045	1.036	0.121	ND	0.072	0.076	0.144	0.00368
F1 Weanling	**3600**	**14-0131-4**	0.013	1.488	0.277	0.533	0.054	1.458	0.152	0.00222	0.098	0.107	0.150	0.00436
F1 Weanling	**3600**	**14-0131-5**	0.019	1.509	0.257	0.509	0.055	1.381	0.151	0.00190	0.105	0.103	0.152	0.00336
F1 Weanling	**3600**	**14-0135-5**	0.014	1.358	0.186	0.399	0.058	1.157	0.114	ND	0.085	0.092	0.167	0.00378
F1 Weanling	**3600**	**14-0151-1**	0.012	1.542	0.318	0.612	0.058	2.022	0.195	0.00237	0.136	0.136	0.196	0.00397
F1 Weanling	**3600**	**14-0159-3**	0.022	1.624	0.302	0.591	0.039	1.738	0.296	0.00220	0.107	0.103	0.222	0.00304
F1 Weanling	**3600**	**14-0172-5**	0.019	1.472	0.297	0.614	0.060	1.724	0.329	0.00130	0.127	0.126	0.234	0.00468
F1 Weanling	**3600**	**14-0216-1**	0.012	1.334	0.237	0.461	0.027	1.335	0.210	0.00090	0.105	ND	0.236	0.00389
F1 Weanling	**3600**	**14-0216-5**	0.012	1.287	0.256	0.477	0.038	1.405	0.198	0.00109	0.110	0.118	0.259	0.00422
		Mean	**0.016**	**1.442***	**0.258**	**0.509**	**0.048**	**1.480**	**0.197**	**0.00154**	**0.106***	**0.108***	**0.196***	**0.00414**
		SD	**0.004**	**0.104**	**0.042**	**0.083**	**0.011**	**0.291**	**0.070**	**0.00073**	**0.018**	**0.018**	**0.041**	**0.00094**
		N	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**8**	**10**	**9**	**10**	**10**

*Significantly different from control

Table K-5
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Organ Mass (grams)
F-1 Generation Female Rats

Phase	Group (mg/l)	Pup ID	Animal ID	Adrenals	Brain	Heart	Kidneys	Liver	Ovaries	Spleen	Pituitary	Thymus	Uterus	Thyroid
F1 Pubertal	**0**	**14-0121-9**	**14-0301**	0.030	1.854	0.718	1.407	7.586	0.065	0.442	0.00849	0.583	0.351	0.00847
F1 Pubertal	**0**	**14-0122-12**	**14-0302**	0.049	1.845	0.838	1.360	5.650	0.053	0.359	0.006	0.585	0.229	0.01253
F1 Pubertal	**0**	**14-0130-9**	**14-0309**	0.052	1.873	0.849	1.339	5.866	0.073	0.587	0.01178	0.681	0.494	0.00952
F1 Pubertal	**0**	**14-0133-15**	**14-0312**	0.033	1.714	0.712	1.287	7.013	0.062	0.461	0.00800	0.619	0.299	0.00686
F1 Pubertal	**0**	**14-0143-7**	**14-0321**	0.036	1.843	0.684	1.392	5.707	0.076	0.473	0.00854	0.412	0.218	0.01194
F1 Pubertal	**0**	**14-0148-11**	**14-0325**	0.043	1.759	0.688	1.511	7.684	0.081	0.463	0.00810	0.532	0.248	0.01403
F1 Pubertal	**0**	**14-0149-11**	**14-0326**	0.027	1.666	0.617	1.330	6.732	0.058	0.344	0.00641	0.488	0.400	0.00918
F1 Pubertal	**0**	**14-0150-15**	**14-0327**	0.039	1.722	0.674	1.147	4.984	0.840	0.332	0.00823	0.553	0.328	0.00878
F1 Pubertal	**0**	**14-0156-14**	**14-0331**	0.038	1.841	0.871	1.490	8.090	0.084	0.463	0.00916	0.544	0.856	0.01132
F1 Pubertal	**0**	**14-0157-10**	**14-0332**	0.035	1.766	0.668	1.299	5.158	0.073	0.353	0.002	0.442	0.205	0.01046
F1 Pubertal	**0**	**14-0161-12**	**14-0336**	0.039	1.691	0.705	1.558	7.271	0.069	0.509	0.00765	0.535	0.218	0.00976
F1 Pubertal	**0**	**14-0162-13**	**14-0337**	0.038	1.838	0.827	1.411	7.637	0.075	0.407	0.00899	0.565	0.567	0.01045
F1 Pubertal	**0**	**14-0163-13**	**14-0338**	0.028	1.599	0.732	1.202	5.217	0.077	0.427	0.00897	0.597	0.216	0.01002
F1 Pubertal	**0**	**14-0173-7**	**14-0346**	0.037	1.679	0.679	1.358	5.074	0.086	0.419	0.00485	0.502	0.201	0.01271
F1 Pubertal	**0**	**14-0179-6**	**14-0351**	0.035	1.737	0.691	1.332	7.542	0.027(1)	0.509	0.00811	0.537	0.269	0.00880
F1 Pubertal	**0**	**14-0185-11**	**14-0355**	0.030	1.724	0.608	1.087	3.899	0.057	0.329	0.00673	0.457	0.234	0.00952
F1 Pubertal	**0**	**14-0191-12**	**14-0357**	0.020	1.791	0.636	1.305	5.020	0.071	0.386	0.00761	0.552	0.219	0.01121
F1 Pubertal	**0**	**14-0198-9**	**14-0363**	0.034	1.790	0.796	1.284	5.350	0.099	0.435	0.00718	0.442	0.221	0.00724
F1 Pubertal	**0**	**14-0215-11**	**14-0376**	0.033	1.760	0.782	1.760	7.593	0.093	0.419	0.00909	0.546	0.246	0.00944
F1 Pubertal	**0**	**14-0217-10**	**14-0378**	0.044	1.763	0.731	1.295	6.415	0.080	0.380	0.00544	0.378	0.206	0.00850
			Mean	**0.036**	**1.763**	**0.725**	**1.358**	**6.274**	**0.114**	**0.425**	**0.00757**	**0.528**	**0.311**	**0.01004**
			SD	**0.007**	**0.073**	**0.078**	**0.148**	**1.222**	**0.176**	**0.067**	**0.00202**	**0.074**	**0.163**	**0.00183**
			N	**20**	**20**	**20**	**20**	**20**	**19**	**20**	**20**	**20**	**20**	**20**
F1 Pubertal	**144**	**14-0123-8**	**14-0303**	0.026	1.771	0.762	1.447	7.349	0.066	0.375	0.00918	0.423	0.242	0.00993
F1 Pubertal	**144**	**14-0129-12**	**14-0308**	0.034	1.667	0.710	1.354	7.218	0.074	0.431	0.00686	0.621	0.306	0.01040
F1 Pubertal	**144**	**14-0134-9**	**14-0313**	0.040	1.777	0.775	1.391	7.766	0.079	0.537	0.00866	0.464	0.548	0.00744
F1 Pubertal	**144**	**14-0137-7**	**14-0315**	0.023	1.813	0.782	1.496	7.704	0.072	0.392	0.00950	0.656	0.789	0.00772
F1 Pubertal	**144**	**14-0164-12**	**14-0339**	0.045	1.725	0.834	1.538	6.627	0.078	0.522	0.00898	0.591	0.282	0.01175
F1 Pubertal	**144**	**14-0166-8**	**14-0341**	0.043	1.756	0.715	1.509	8.042	0.084	0.510	0.00836	0.572	0.260	0.01195
F1 Pubertal	**144**	**14-0175-8**	**14-0347**	0.032	1.741	0.765	1.359	5.505	0.071	0.407	0.01046	0.553	0.622	0.01342
F1 Pubertal	**144**	**14-0176-6**	**14-0348**	0.037	1.718	0.585	1.267	6.771	0.072	0.259	0.00816	0.060	0.308	0.01028
F1 Pubertal	**144**	**14-0177-12**	**14-0349**	0.037	1.651	0.755	1.232	4.999	0.066	0.433	0.00531	0.500	0.182	0.00981
F1 Pubertal	**144**	**14-0178-15**	**14-0350**	0.046	1.698	0.681	1.360	5.868	0.091	0.406	0.00819	0.544	0.211	0.01089
F1 Pubertal	**144**	**14-0180-9**	**14-0352**	0.038	1.792	0.714	1.401	5.165	0.083	0.379	0.00669	0.532	0.418	0.00881
F1 Pubertal	**144**	**14-0183-9**	**14-0354**	0.037	1.752	0.629	1.288	6.955	0.087	0.389	0.00865	0.559	0.343	0.01305
F1 Pubertal	**144**	**14-0195-9**	**14-0361**	0.044	1.846	1.014	1.568	9.113	0.107	0.548	0.00875	0.721	0.405	0.01045
F1 Pubertal	**144**	**14-0197-9**	**14-0362**	0.042	1.854	0.707	1.418	6.160	0.093	0.498	0.00882	0.680	0.345	0.00934

F1 Pubertal	144	14-0199-10	14-0364	0.049	1.868	0.775	1.667	8.509	0.078	0.464	0.01000	0.692	0.360	0.01514
F1 Pubertal	144	14-0200-14	14-0365	0.037	1.821	0.773	1.244	5.596	0.082	0.467	0.00952	0.688	0.305	0.01388
F1 Pubertal	144	14-0211-6	14-0372	0.026	1.607	0.582	1.047	4.299	0.071	0.311	0.00747	0.443	0.191	0.00705
F1 Pubertal	144	14-0212-11	14-0373	0.040	1.714	0.631	1.271	5.694	0.098	0.527	0.00832	0.587	0.316	0.00834
F1 Pubertal	144	14-0214-12	14-0375	0.033	1.722	0.627	1.186	4.506	0.088	0.396	0.00787	0.656	0.335	0.01042
F1 Pubertal	144	14-0220-11	14-0380	0.035	1.673	0.674	1.268	6.291	0.089	0.369	0.00713	0.396	0.216	0.00860
			Mean	**0.037**	**1.748**	**0.725**	**1.366**	**6.507**	**0.081**	**0.431**	**0.00834**	**0.547**	**0.349**	**0.01043**
			SD	**0.007**	**0.071**	**0.098**	**0.147**	**1.332**	**0.011**	**0.078**	**0.00122**	**0.148**	**0.151**	**0.00222**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
F1 Pubertal	720	14-0124-14	14-0304	0.040	1.665	0.691	1.447	6.483	0.085	0.423	0.00864	0.610	0.266	0.01066
F1 Pubertal	720	14-0128-13	14-0307	0.026	1.627	0.767	1.432	8.236	0.071	0.534	0.00940	0.748	0.386	0.01095
F1 Pubertal	720	14-0132-10	14-0311	0.036	1.734	0.690	1.259	5.279	0.072	0.399	0.00586	0.531	0.196	0.00598
F1 Pubertal	720	14-0138-13	14-0316	0.040	1.805	0.741	1.351	5.571	0.078	0.400	0.00861	0.609	0.239	0.00568
F1 Pubertal	720	14-0142-8	14-0320	0.041	1.702	0.741	1.421	7.616	0.083	0.640	0.00959	0.523	0.381	0.00906
F1 Pubertal	720	14-0144-10	14-0322	0.042	1.824	0.782	1.596	8.411	0.084	0.618	0.00838	0.758	0.307	0.01275
F1 Pubertal	720	14-0146-14	14-0323	0.042	1.760	0.826	1.720	8.466	0.074	0.549	0.00926	0.576	0.464	0.01239
F1 Pubertal	720	14-0147-9	14-0324	0.051	1.831	0.809	1.382	7.068	0.079	0.541	0.01122	0.574	0.235	0.01040
F1 Pubertal	720	14-0153-7	14-0329	0.036	1.730	0.688	1.372	6.960	0.079	0.382	0.00807	0.509	0.231	0.01219
F1 Pubertal	720	14-0158-10	14-0333	0.037	1.670	0.734	1.293	6.978	0.060	0.387	0.00641	0.560	0.381	0.00875
F1 Pubertal	720	14-0160-6	14-0335	0.027	1.661	0.626	1.200	4.732	0.076	0.329	0.00765	0.532	0.209	0.01239
F1 Pubertal	720	14-0165-9	14-0340	0.033	1.584	0.571	1.047	4.420	0.062	0.249	0.00507	0.336	0.251	0.00857
F1 Pubertal	720	14-0170-10	14-0343	0.038	1.675	0.736	1.492	7.107	0.097	0.413	0.01065	0.534	0.278	0.00949
F1 Pubertal	720	14-0171-14	14-0344	0.040	1.776	0.762	1.161	5.330	0.066	0.333	0.00979	0.481	0.342	0.01022
F1 Pubertal	720	14-0188-10	14-0356	0.040	1.638	0.820	1.513	5.679	0.084	0.444	0.00880	0.575	0.468	0.01530
F1 Pubertal	720	14-0192-13	14-0358	0.044	1.820	0.723	1.607	8.980	0.085	0.521	0.01098	0.480	0.378	0.01180
F1 Pubertal	720	14-0193-13	14-0359	0.036	1.785	0.783	1.561	7.805	0.089	0.465	0.00973	0.739	0.383	0.00847
F1 Pubertal	720	14-0202-13	14-0366	0.033	1.762	0.675	1.169	5.145	0.097	0.409	0.00992	0.549	0.377	0.01046
F1 Pubertal	720	14-0203-7	14-0367	0.041	1.790	0.763	1.693	6.428	0.089	0.432	0.00941	0.621	0.334	0.01176
F1 Pubertal	720	14-0204-12	14-0368	0.032	1.540	0.702	1.206	5.426	0.074	0.340	0.00650	0.418	0.243	0.00866
			Mean	**0.038**	**1.719**	**0.732**	**1.396**	**6.606**	**0.079**	**0.440**	**0.00870**	**0.563**	**0.317**	**0.01030**
			SD	**0.006**	**0.084**	**0.064**	**0.187**	**1.365**	**0.010**	**0.100**	**0.00169**	**0.104**	**0.083**	**0.00232**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
F1 Pubertal	3600	14-0126-9	14-0305	0.045	1.721	0.848	1.559	8.039	0.077	0.520	0.00906	0.705	0.340	0.01340
F1 Pubertal	3600	14-0127-10	14-0306	0.036	1.786	0.715	1.172	5.158	0.074	0.369	0.00841	0.487	0.303	0.00798
F1 Pubertal	3600	14-0131-11	14-0310	0.028	1.772	0.691	1.244	5.650	0.061	0.429	0.00591	0.531	0.394	0.01139
F1 Pubertal	3600	14-0135-11	14-0314	0.037	1.577	0.665	1.363	4.969	0.063	0.363	0.00790	0.629	0.200	0.00876
F1 Pubertal	3600	14-0139-10	14-0317	0.032	1.621	0.667	1.341	5.629	0.070	0.456	0.00682	0.495	0.316	0.00769
F1 Pubertal	3600	14-0140-8	14-0318	0.040	1.677	0.682	1.362	6.237	0.072	0.392	0.00677	0.467	0.218	0.01065
F1 Pubertal	3600	14-0141-13	14-0319	0.035	1.731	0.701	1.296	7.431	0.050	0.449	0.00685	0.634	0.411	0.00930
F1 Pubertal	3600	14-0151-9	14-0328	0.039	1.740	0.696	1.493	6.652	0.080	0.448	0.00821	0.469	0.271	0.01153
F1 Pubertal	3600	14-0155-9	14-0330	0.036	1.725	0.686	1.573	8.071	0.081	0.420	0.00828	0.676	0.282	0.01136
F1 Pubertal	3600	14-0159-9	14-0334	0.046	1.834	0.760	1.600	8.005	0.066	0.472	0.00858	0.477	0.239	0.01064

F1 Pubertal	3600	14-0167-11	14-0342	0.033	1.809	0.767	1.463	7.396	0.072	0.378	0.00749	0.648	0.401	0.01285
F1 Pubertal	3600	14-0172-12	14-0345	0.036	1.714	0.774	1.331	5.324	0.076	0.373	0.00779	0.351	0.381	0.00989
F1 Pubertal	3600	14-0182-11	14-0353	0.040	1.744	0.763	1.397	5.703	0.094	0.493	0.00831	0.718	0.230	0.01011
F1 Pubertal	3600	14-0194-13	14-0360	0.034	1.781	0.695	1.246	4.784	0.067	0.310	0.00726	0.465	0.205	0.01084
F1 Pubertal	3600	14-0208-7	14-0369	0.040	1.755	0.774	1.325	5.639	0.081	0.421	0.00406	0.426	0.317	0.01062
F1 Pubertal	3600	14-0209-10	14-0370	0.055	1.645	0.724	1.287	5.433	0.130	0.485	0.00578	0.426	0.317	0.00986
F1 Pubertal	3600	14-0181-9	14-0371	0.041	1.732	0.721	1.436	7.153	0.073	0.274	0.00785	0.380	0.335	0.00899
F1 Pubertal	3600	14-0213-8	14-0374	0.037	1.832	0.732	1.622	8.965	0.088	0.556	0.01024	0.532	0.388	0.01353
F1 Pubertal	3600	14-0216-9	14-0377	0.037	1.538	0.619	1.183	4.758	0.074	0.338	0.00533	0.559	0.554	0.00625
F1 Pubertal	3600	14-0219-10	14-0379	0.038	1.675	0.665	1.343	6.385	0.064	0.391	0.00643	0.591	0.231	0.00625
			Mean	**0.038**	**1.720**	**0.717**	**1.382**	**6.369**	**0.076**	**0.417**	**0.00737**	**0.533**	**0.317**	**0.01009**
			SD	**0.006**	**0.079**	**0.052**	**0.134**	**1.268**	**0.016**	**0.071**	**0.00142**	**0.108**	**0.088**	**0.00206**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**

Table K-6
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Organ Mass (grams)
F-1 Generation Male Rats

Phase	Group (mg/l)	Pup ID	Animal ID	Adrenals	Brain	Heart	Kidneys	Epidid. L	Epidid. R	Liver	Spleen	Pituitary	Testis L	Testis R	Thymus	Prostate	SVCG with fluid	SVCG no fluid	Thyroid
Pubertal	**0**	**14-0121-3**	**14-0221**	0.045	2.007	1.407	2.298	0.180	0.200	13.481	0.935	0.01183	1.606	1.600	0.653	0.259	0.796	0.557	0.01340
Pubertal	**0**	**14-0122-1**	**14-0222**	0.051	1.982	1.213	2.347	0.196	0.222	14.330	0.910	0.01052	1.401	1.456	0.627	0.427	0.788	0.545	0.01146
Pubertal	**0**	**14-0130-1**	**14-0229**	0.047	1.922	1.192	2.261	0.181	0.222	13.720	0.714	0.00858	1.379	1.390	0.540	0.355	0.447	0.276	0.01063
Pubertal	**0**	**14-0133-4**	**14-0232**	0.043	1.919	1.192	2.344	0.218	0.234	13.176	0.551	0.00930	1.400	1.326	0.709	0.412	0.373	0.252	0.00900
Pubertal	**0**	**14-0143-5**	**14-0241**	0.045	1.984	1.245	2.545	0.224	0.193	15.474	0.952	0.00813	1.348	1.385	0.545	0.513	0.772	0.596	0.01062
Pubertal	**0**	**14-0148-3**	**14-0245**	0.043	2.074	1.027	2.294	0.210	0.224	10.748	0.768	0.00958	1.524	1.537	0.609	0.456	0.649	0.452	0.01383
Pubertal	**0**	**14-0149-4**	**14-0246**	0.038	1.772	1.010	1.995	0.197	0.179	8.424	0.575	0.00871	1.357	1.286	0.648	0.345	0.398	0.286	0.01025
Pubertal	**0**	**14-0150-2**	**14-0247**	0.040	2.114	1.177	2.135	0.195	0.190	12.758	0.788	0.00916	1.191	1.138	0.805	0.420	0.367	0.200	0.01189
Pubertal	**0**	**14-0156-4**	**14-0251**	0.047	2.053	1.286	2.196	0.225	0.234	11.585	0.672	0.00950	1.589	1.576	0.648	0.670	0.733	0.479	0.01109
Pubertal	**0**	**14-0157-4**	**14-0252**	0.038	2.033	1.294	2.347	0.182	0.194	12.760	0.507	0.00885	1.399	1.431	0.525	0.406	0.782	0.550	0.01208
Pubertal	**0**	**14-0161-3**	**14-0256**	0.055	1.888	1.312	2.748	0.224	0.214	15.101	1.007	0.00586	1.639	1.635	0.701	0.482	0.518	0.347	0.01639
Pubertal	**0**	**14-0162-2**	**14-0257**	0.047	1.938	1.069	1.985	0.201	0.187	9.298	0.722	0.00692	1.441	1.444	0.675	0.288	0.427	0.296	0.01173
Pubertal	**0**	**14-0163-1**	**14-0258**	0.048	1.918	1.164	2.452	0.214	0.232	13.112	1.051	0.01152	1.450	1.462	0.926	0.616	0.657	0.360	0.01642
Pubertal	**0**	**14-0173-1**	**14-0266**	0.053	1.928	1.163	2.365	0.197	0.216	10.329	0.803	0.00997	1.435	1.467	0.686	0.278	0.624	0.565	0.01345
Pubertal	**0**	**14-0179-3**	**14-0271**	0.057	1.887	1.083	2.243	0.198	0.196	11.244	1.021	0.01098	1.292	1.317	0.722	0.395	0.651	0.451	0.01011
Pubertal	**0**	**14-0185-2**	**14-0275**	0.044	1.821	0.892	2.088	0.188	0.195	7.866	0.525	0.00750	1.233	1.239	0.664	0.472	0.498	0.347	0.00977
Pubertal	**0**	**14-0191-3**	**14-0277**	0.038	2.075	0.946	2.083	0.172	0.188	8.516	0.563	0.01007	1.420	1.480	0.709	0.279	0.516	0.379	0.01428
Pubertal	**0**	**14-0198-1**	**14-0283**	0.052	2.059	1.351	2.705	0.210	0.202	15.350	0.870	0.01000	1.517	1.594	0.704	0.510	0.748	0.439	0.01527

Pubertal	**0**	**14-0215-3**	**14-0296**	0.039	2.003	1.018	2.284	0.196	0.225	11.604	0.748	0.01074	1.357	1.328	0.578	0.396	0.524	0.320	0.01355
Pubertal	**0**	**14-0217-2**	**14-0298**	0.044	1.873	1.136	2.221	0.189	0.175	10.140	0.670	0.00762	1.503	1.488	0.633	0.458	0.518	0.324	0.01264
			Mean	**0.046**	**1.963***	**1.159**	**2.297**	**0.200***	**0.206***	**11.951**	**0.768**	**0.00927**	**1.424***	**1.429***	**0.665**	**0.422**	**0.589***	**0.401***	**0.01239**
			SD	**0.006**	**0.091**	**0.138**	**0.204**	**0.016**	**0.019**	**2.354**	**0.174**	**0.00155**	**0.117**	**0.130**	**0.092**	**0.108**	**0.149**	**0.119**	**0.00215**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Pubertal	**144**	**14-0123-4**	**14-0223**	0.040	1.952	1.215	2.491	0.196	0.208	13.462	0.679	0.01156	1.409	1.466	0.715	0.538	0.481	0.327	0.01883
Pubertal	**144**	**14-0129-3**	**14-0228**	0.035	1.885	0.984	1.970	0.195	0.192	9.044	0.706	0.00808	1.450	1.415	0.774	0.463	0.465	0.257	0.01276
Pubertal	**144**	**14-0134-1**	**14-0233**	0.046	2.105	1.093	2.311	0.207	0.186	14.880	0.865	0.00895	1.009	1.440	0.738	0.526	0.523	0.362	0.00786
Pubertal	**144**	**14-0137-2**	**14-0235**	0.050	1.973	1.325	2.711	0.212	0.204	15.306	0.715	0.01223	1.398	1.406	0.702	0.472	0.916	0.733	0.01320
Pubertal	**144**	**14-0164-3**	**14-0259**	0.052	2.051	1.307	2.903	0.262	0.266	12.366	0.991	0.00999	1.646	1.646	0.823	0.616	0.713	0.331	0.01758
Pubertal	**144**	**14-0166-4**	**14-0261**	0.049	1.932	1.161	2.791	0.225	0.231	16.118	0.942	0.00939	1.573	1.591	0.685	0.549	0.427	0.273	0.01358
Pubertal	**144**	**14-0175-2**	**14-0267**	0.037	1.896	1.004	2.317	0.232	0.229	9.572	0.760	0.01064	1.600	1.548	0.642	0.514	0.686	0.431	0.01208
Pubertal	**144**	**14-0176-4**	**14-0268**	0.056	1.965	1.105	2.144	0.220	0.188	10.660	0.644	0.01117	1.431	1.391	0.655	0.298	0.596	0.336	0.01040
Pubertal	**144**	**14-0177-5**	**14-0269**	0.051	1.894	1.281	2.059	0.169	0.181	10.450	0.954	0.01010	1.340	1.363	0.768	0.288	0.356	0.270	0.01145
Pubertal	**144**	**14-0178-3**	**14-0270**	0.053	1.914	1.271	2.216	0.228	0.226	13.265	0.865	0.01033	1.475	1.508	0.724	0.374	0.450	0.275	0.01369
Pubertal	**144**	**14-0180-2**	**14-0272**	0.042	1.975	1.018	2.118	0.182	0.195	10.606	0.575	0.00818	1.510	1.583	0.464	0.508	0.489	0.299	0.00835
Pubertal	**144**	**14-0183-4**	**14-0274**	0.042	2.047	1.157	2.461	0.195	0.197	10.837	0.734	0.00874	1.479	1.568	0.657	0.520	0.555	0.290	0.00911
Pubertal	**144**	**14-0195-1**	**14-0281**	0.054	1.984	1.412	2.697	0.220	0.323	17.371	0.963	0.01163	1.466	1.473	0.724	0.619	0.617	0.339	0.01354
Pubertal	**144**	**14-0197-1**	**14-0282**	0.047	1.938	1.200	2.383	0.201	0.205	11.178	0.914	0.00933	1.427	1.478	0.616	0.451	0.396	0.245	0.00804
Pubertal	**144**	**14-0199-4**	**14-0284**	0.057	2.067	1.105	2.171	0.212	0.209	9.318	0.848	0.01055	1.326	1.280	0.938	0.404	0.416	0.294	0.01085
Pubertal	**144**	**14-0200-4**	**14-0285**	0.041	1.913	1.054	2.019	0.202	0.194	10.956	0.708	0.00680	1.529	1.607	0.621	0.522	0.675	0.395	0.01456
Pubertal	**144**	**14-0211-3**	**14-0292**	0.064	1.987	1.182	2.211	0.147	0.230	12.753	0.897	0.01136	0.373	1.765	0.522	0.416	0.733	0.394	0.01367
Pubertal	**144**	**14-0212-5**	**14-0293**	0.040	1.991	1.121	2.394	0.211	0.220	14.666	1.022	0.00935	1.385	1.377	0.674	0.550	0.507	0.295	0.01638

Pubertal	**144**	**14-0214-5**	**14-0295**	0.032	1.923	1.046	2.279	0.183	0.177	8.224	0.655	0.00631	1.402	1.430	0.802	0.453	0.486	0.284	0.01084
Pubertal	**144**	**14-0220-3**	**14-0300**	0.045	1.924	1.124	2.130	0.179	0.183	13.055	0.765	0.01095	1.421	1.416	0.587	0.308	0.448	0.306	0.01172
			Mean	**0.047**	**1.966***	**1.158**	**2.339**	**0.204***	**0.212***	**12.204**	**0.810**	**0.00978**	**1.382***	**1.488***	**0.692**	**0.469***	**0.547***	**0.337**	**0.01242**
			SD	**0.008**	**0.062**	**0.116**	**0.266**	**0.025**	**0.034**	**2.536**	**0.132**	**0.00160**	**0.271**	**0.115**	**0.106**	**0.097**	**0.140**	**0.105**	**0.00301**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Pubertal	**720**	**14-0124-2**	**14-0224**	0.046	1.955	1.166	2.047	0.205	0.188	10.245	0.652	0.00945	1.416	1.523	0.807	0.434	0.611	0.290	0.01097
Pubertal	**720**	**14-0128-6**	**14-0227**	0.048	1.934	1.185	2.354	0.156	0.193	13.621	0.859	0.01150	2.843	1.809	0.605	0.496	0.494	0.397	0.01654
Pubertal	**720**	**14-0132-1**	**14-0231**	0.047	1.824	0.976	2.115	0.191	0.205	9.421	0.699	0.00842	1.301	1.332	0.613	0.345	0.487	0.353	0.01128
Pubertal	**720**	**14-0138-4**	**14-0236**	0.046	1.837	1.045	2.144	0.231	0.234	9.889	0.694	0.00913	1.350	1.421	0.663	0.526	0.617	0.355	0.00840
Pubertal	**720**	**14-0142-5**	**14-0240**	0.058	1.986	0.973	1.954	0.198	0.185	9.381	0.829	0.01078	1.480	1.475	0.879	0.450	0.305	0.225	0.00980
Pubertal	**720**	**14-0144-3**	**14-0242**	0.053	1.906	1.380	2.850	0.192	0.192	15.827	0.763	0.00961	1.318	1.346	0.930	0.468	0.462	0.311	0.01311
Pubertal	**720**	**14-0146-6**	**14-0243**	0.048	1.931	1.001	2.014	0.166	0.163	9.649	0.728	0.00943	1.330	1.350	0.764	0.417	0.293	0.218	0.01047
Pubertal	**720**	**14-0147-3**	**14-0244**	0.055	2.094	1.232	2.604	0.218	0.237	12.401	0.797	0.01171	1.393	1.455	0.736	0.598	0.709	0.379	0.01698
Pubertal	**720**	**14-0153-4**	**14-0249**	0.052	2.058	1.433	2.731	0.199	0.203	15.428	1.126	0.01088	1.461	1.534	0.772	0.571	0.489	0.283	0.01359
Pubertal	**720**	**14-0158-2**	**14-0253**	0.044	2.041	1.376	2.743	0.195	0.198	16.567	0.888	0.00946	1.643	1.558	0.841	0.509	0.509	0.304	0.00853
Pubertal	**720**	**14-0160-4**	**14-0255**	0.049	1.891	1.109	2.270	0.177	0.180	12.998	0.560	0.01072	1.305	1.354	0.758	0.422	0.485	0.269	0.01349
Pubertal	**720**	**14-0165-4**	**14-0260**	0.039	1.974	1.092	1.894	0.201	0.191	8.361	0.573	0.00919	1.374	1.310	0.591	0.512	0.522	0.236	0.01316
Pubertal	**720**	**14-0170-2**	**14-0263**	0.051	1.909	1.212	2.602	0.225	0.241	13.935	0.662	0.01275	1.548	1.529	0.642	0.428	0.557	0.336	0.01549
Pubertal	**720**	**14-0171-1**	**14-0264**	0.032	1.978	1.025	1.789	0.190	0.194	7.956	0.545	0.00856	1.501	1.503	0.479	0.459	0.582	0.348	0.00554
Pubertal	**720**	**14-0188-2**	**14-0276**	0.045	1.798	1.177	2.579	0.173	0.174	10.172	0.853	0.00818	1.430	1.423	0.578	0.311	0.574	0.362	0.01068
Pubertal	**720**	**14-0192-5**	**14-0278**	0.057	1.946	1.051	2.255	0.201	0.184	8.436	0.757	0.00642	1.242	1.208	0.537	0.402	0.465	0.302	0.01210
Pubertal	**720**	**14-0193-3**	**14-0279**	0.048	2.095	1.166	2.389	0.213	0.212	13.427	0.730	0.01101	1.554	1.546	0.914	0.520	0.465	0.323	0.01434
Pubertal	**720**	**14-0202-4**	**14-0286**	0.050	1.994	1.178	2.042	0.192	0.192	12.813	0.699	0.01050	1.401	1.475	0.589	0.337	0.523	0.332	0.01158

Pubertal	**720**	**14-0203-4**	**14-0287**	0.049	2.021	1.120	2.459	0.213	0.220	11.737	0.637	0.00820	1.372	1.391	0.895	0.423	0.454	0.245	0.01313
Pubertal	**720**	**14-0204-5**	**14-0288**	0.044	1.921	1.103	2.077	0.189	0.208	10.653	0.714	0.00937	1.311	1.254	0.513	0.441	0.661	0.383	0.01072
			Mean	**0.048**	**1.955**	**1.150**	**2.296**	**0.196***	**0.200***	**11.646**	**0.738**	**0.00976**	**1.479***	**1.440***	**0.705**	**0.453***	**0.513***	**0.313***	**0.01200**
			SD	**0.006**	**0.083**	**0.131**	**0.312**	**0.019**	**0.021**	**2.606**	**0.134**	**0.00148**	**0.337**	**0.133**	**0.142**	**0.075**	**0.102**	**0.054**	**0.00282**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Pubertal	**3600**	**14-0126-3**	**14-0225**	0.052	1.871	1.033	2.134	0.154	0.139	9.033	0.798	0.00796	0.956	1.336	0.856	0.426	0.303	0.262	0.01323
Pubertal	**3600**	**14-0127-2**	**14-0226**	0.050	1.911	1.064	2.088	0.140	0.139	12.029	0.615	0.00915	0.661	0.717	0.602	0.403	0.350	0.242	0.01154
Pubertal	**3600**	**14-0131-2**	**14-0230**	0.025	1.159	1.965	2.170	0.170	0.173	10.950	0.659	0.00614	0.835	0.851	0.882	0.299	0.693	0.512	0.01520
Pubertal	**3600**	**14-0135-2**	**14-0234**	0.038	1.825	1.119	2.180	0.150	0.147	10.530	0.649	0.00902	1.097	1.047	0.734	0.370	0.226	0.162	0.01057
Pubertal	**3600**	**14-0139-2**	**14-0237**	0.055	1.793	1.025	2.081	0.146	0.144	9.867	0.765	0.00898	0.968	1.006	0.690	0.363	0.411	0.289	0.00984
Pubertal	**3600**	**14-0140-3**	**14-0238**	0.051	1.783	1.056	2.056	0.154	0.142	8.809	0.702	0.00819	0.978	0.885	0.709	0.318	0.473	0.284	0.00688
Pubertal	**3600**	**14-0141-3**	**14-0239**	0.045	1.843	1.136	2.180	0.130	0.129	10.138	0.760	0.00749	0.815	0.818	0.770	0.290	0.225	0.191	0.01204
Pubertal	**3600**	**14-0151-3**	**14-0248**	0.041	2.017	1.046	2.374	0.197	0.212	13.728	0.745	0.00867	1.126	1.143	0.540	0.462	0.525	0.393	0.00879
Pubertal	**3600**	**14-0155-2**	**14-0250**	0.038	1.896	0.894	2.173	0.142	0.136	9.681	0.570	0.00918	0.862	0.864	0.775	0.328	0.386	0.248	0.01291
Pubertal	**3600**	**14-0159-6**	**14-0254**	0.055	1.991	1.006	2.404	0.149	0.161	13.378	0.728	0.00859	0.969	0.908	0.746	0.301	0.333	0.271	0.01072
Pubertal	**3600**	**14-0167-4**	**14-0262**	0.044	1.898	1.056	2.556	0.157	0.145	12.074	0.573	0.00979	0.972	0.950	0.843	0.294	0.379	0.303	0.01374
Pubertal	**3600**	**14-0172-3**	**14-0265**	0.036	1.878	1.166	2.235	0.143	0.142	12.405	0.723	0.00833	0.764	0.707	0.630	0.406	0.319	0.270	0.00888
Pubertal	**3600**	**14-0182-5**	**14-0273**	0.049	1.855	1.137	2.272	0.152	0.141	14.050	0.837	0.01071	1.282	1.444	0.854	0.426	0.354	0.267	0.01250
Pubertal	**3600**	**14-0194-1**	**14-0280**	0.046	2.048	1.003	2.162	0.143	0.143	8.990	0.601	0.00931	0.963	0.751	0.689	0.374	0.529	0.386	0.01478
Pubertal	**3600**	**14-0208-5**	**14-0289**	0.059	1.899	1.284	2.114	0.137	0.147	11.987	1.300	0.00988	0.998	1.036	0.667	0.506	0.557	0.465	0.01334
Pubertal	**3600**	**14-0209-4**	**14-0290**	0.051	2.044	1.178	2.553	0.130	0.140	13.646	0.996	0.00886	1.337	1.437	0.634	0.340	0.349	0.222	0.01433
Pubertal	**3600**	**14-0181-3**	**14-0291**	0.045	1.863	1.228	2.400	0.185	0.181	12.825	0.521	0.01062	0.820	0.811	0.776	0.467	0.538	0.419	0.00998
Pubertal	**3600**	**14-0213-2**	**14-0294**	0.043	2.064	1.005	2.260	0.153	0.147	8.784	0.758	0.01071	0.966	1.136	0.640	0.258	0.433	0.329	0.01375

Toxicity Report No. S.0027395, February 13–March 2014

Pubertal	**3600**	**14-0216-2**	**14-0297**	0.044	1.758	1.071	1.968	0.143	0.137	8.393	0.593	0.00900	1.154	0.993	0.639	0.299	0.260	0.222	0.01021
Pubertal	**3600**	**14-0219-3**	**14-0299**	0.050	1.817	1.203	2.468	0.173	0.159	13.304	0.702	0.00972	1.019	1.037	0.658	0.473	0.428	0.289	0.01064
			Mean	**0.046**	**1.861***	**1.134**	**2.241**	**0.152***	**0.150***	**11.230**	**0.730**	**0.00902**	**0.977***	**0.994***	**0.717**	**0.370***	**0.404***	**0.301***	**0.01169**
			SD	**0.008**	**0.189**	**0.216**	**0.167**	**0.017**	**0.019**	**1.927**	**0.173**	**0.00111**	**0.166**	**0.218**	**0.095**	**0.073**	**0.121**	**0.091**	**0.00225**
			N	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**

*Significantly different from control

Appendix L

Pathology

Study Title

Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

Protocol No. 56-13-02-01

Report of Histopathology

Prepared by:

Erica E. Carroll, DVM, PhD, Diplomate ACVP

30 September 2015

GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

This pathology investigation was conducted in a manner consistent with the principles of the United States Environmental Protection Agency (USEPA) Good Laboratory Practice regulations of the Toxic Substances Control Act (TSCA), as detailed in 40 CFR Part 792, plus amendments.

E-Signed by CARROLL.ERICA.E.1027432413
VERIFY authenticity with e-Sign
CARROLL.ERICA.E.1027432413

______________________________________ 1 October 2015_________

Erica E. Carroll, DVM, PhD, Diplomate ACVP Date

LTC, VC

Study Pathologist
Toxicology Portfolio

Army Public Health Center

QUALITY ASSURANCE STATEMENT

The following critical phases were audited by the Quality Systems and Regulatory Compliance Office (QSARC), Quality Assurance Unit (QAU):

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Microscopic Histopathology Exam	09/17/2015	10/02/2015
Quality Assurance Audit of Excel Entered Data	09/17/2015	10/02/2015
Quality Assurance audit of Statistician's report	09/23/2015	10/02/2015
Interim Contributing Scientist Pathology Study Report and Raw Data Good Laboratory Practice Review	09/29/2015	10/02/2015
Final Contributing Scientist Pathology Study Report Good Laboratory Practice Standards Review	09/30/20 15	10/02/2015
Final Study Raw Data Good Laboratory Practice Standards Review	09/30/2015	10/02/2015

Note 1All findings were made known to the Study Director and the Program Manager at the time of the audit/inspection. If there were no findings dwing the inspection, the inspection was reported to Management and the Study Director on the date shown in the table.

Note 2 In addition to the study specific critical phase inspections listed here, general facility and process based inspection not specifically related to this study are done monthly or annually in accordance with QA Standard Operating Procedure.

Note 3 This report has been audited by the Quality Assurance Unit (QSARC), and is considered to be an accurate account of the data generated and of the procedures followed

Michael P. Kefauver

07 OCT 2015

Michael P. Kefauver

Quality Assurance Specialist, QSARC

Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO) Protocol No. 56-13-02-01

1. INTRODUCTION

An extended one generation toxicity study was conducted using rats administered oral (in drinking water) 3-nitro-1,2,4-triazol-5-one (NTO), an energetic explosive, and histopathological evaluation was performed on tissues from adult and first filial (F1) offspring Sprague-Dawley rats. NTO was administered for 4 weeks to the males pre-mating and for 2 weeks to the females pre-mating, to males and females for 2 weeks during the mating period, and continued for 10 weeks in Parental Generation (PGEN) females during pregnancy and lactation until termination after weaning litters. First filial (F1) generation rats were dosed from weaning through puberty and were sacrificed on post-natal day (PND) 42 [+/- 1] days for females and 53 [+/- 1] days for males, respectively. Parental Generation rats were sacrificed at 19 weeks (males) and 21 weeks (females) of age and were compared to untreated controls in groups of 25 animals each. Tissues were collected in fiscal year (FY)13 and processed for evaluation in FY15. Gross observations, clinical pathology and organ weights were not available for integration with the histologic findings. Refer to Appendix A for a list of references.

2. METHODS

Testing from 4,440 tissues (roughly 12 tissues from each animal) from untreated control rats and treated rats at three-dose levels (n=ranged from 10 – 25 animals/group) were fixed in formalin at the time of necropsy, with the exception of the testes, epididymis, and accessory sex glands, which were fixed in modified Davidson's solution. Tissues were processed, embedded in paraffin, sectioned via microtome to 4 micrometers (um) thickness and stained with hematoxylin and eosin, except for male reproductive tissues which were stained with periodic acid-Schiff/hematoxylin (PAS-H). The following tissues were examined: Brain, anterior (generally about Bregma 3.0 mm); corpus callosum, hippocampus, pituitary, cerebellum/brainstem, pineal gland (when present); lung; thymus (with adjacent lymph node when collected); thyroid gland, parathyroid glands; heart; kidneys; adrenal glands; liver; spleen; female reproductive tissues (ovaries, uterus, cervix, vagina); male reproductive tissues (testis, epididymis, seminal vesicles; coagulating gland (anterior prostate), dorsal, lateral and ventral lobes of prostate).

The following criteria for histologic evaluation on a Nikon Eclipse Ci microscope were used:

Male somatic (i.e., non-reproductive) tissues were evaluated on a five-point scale: 0 - 4
0 = Normal: No abnormalities or known background lesions
1 = Minimal: affecting up to and including 5% of the tissue
2 = Mild: affecting 6-20% of the tissue
3 = Moderate: affecting 21-50% of the tissue
4 = Marked: affecting > 50% of the tissue

Male Reproductive tissues were evaluated on a six-point scale for added resolution: 0-5
1 = Minimum: >5% of tubules affected (i.e., 1 of 20 counted tubules)
2 = Mild: 6-20% of tubules affected (2-4 of 20 counted tubules)
3 = Moderate: 21-50% of tubules affected (5-10 of 20 counted tubules)
4 = Marked: 51-75% of tubules affected (11-15 of 20 counted tubules)
5 = Severe: >75% of tubules affected (>15 of 20 counted tubules)

Female tissues were all evaluated on a five-point scale: 0-4
0 = Normal: No abnormalities or known background lesions
1 = Minimal: affecting up to and including 5% of the tissue
2 = Mild: affecting 6-20% of the tissue
3 = Moderate: affecting 21 to 50% of the tissue
4 = Marked: affecting > 50% of the tissue

Analysis Methods

Animals from Control and NTO-exposed groups which were observed to have histologic changes (referred to as 'metrics' for statistical purposes) were classified per 'metric' on 0-4 or 0-5 classification scale (the latter for male reproductive tissue only) shown above.

Due to overall small sample sizes, Fisher's Exact Test was used to compare the distribution of animals classified on the scales for each compared group (Control versus NTO-exposed group). A p-value < 0.05 indicates a statistically significant result, meaning the distribution was different between the Control and Exposed group. SAS® 9.4 was used to analyze the data; therefore, it was not necessary to collapse data into 2 x 2 contingency tables.

Initially only high-exposure animals were compared to control (vehicle only) animals. Only tissue with lesions was examined in lower-exposure groups. For example, since the only likely test article-related lesions observed in PGEN male rats were in the primary reproductive tissues, only reproductive tissues of 720 milligrams per kilogram (mg/kg)- and 144 mg/kg- treated PGEN and F1 males were evaluated. Using similar logic, at lower exposures, only female kidneys were evaluated and statistically assessed.

3. RESULTS

Appendix B includes figures of Photomicrographs. Appendix C lists the Individual animal scores. Appendix D shows the results of statistical analysis of all lesions, including p-values and incidence tables of all lesions.

3.1 Parental Generation Males

The most potentially impactful test article-related histologic changes were observed in the male reproductive tissues. These lesions included Sertoli cell vacuoles, apoptotic germ cells, gaps where germ cells were missing, and a few retained spermatid fragments in seminiferous tubules (see Figures 1 and 2). The only histologic findings in somatic tissues of high dose rats that are considered statistically significant are alveolar septal congestion in the lung; mast cell infiltrate in lymph node; changes in the parietal epithelium of the glomerular capsule of the kidney; thickened tubule basement membrane; and minimally more extramedullary hematopoiesis and pigment in spleens. Although more often seen in high dose rats, the vast majority of non-zero scores were 'minimal' or, rarely, 'mild.' The somatic tissue changes are commonly reported background lesions, are judged to be unrelated to the effect of the test article, and are considered to have insignificant toxicological relevance given rate of incidence and lack of dose response. Statistical evaluation was performed both with and without one control rat (14-0101) because it had severe testicular lesions that would have skewed the average scores for that group.

Since the only potentially test-article-related lesions were observed in reproductive tissues, only reproductive tissues of 720 mg/kg-treated PGEN males were evaluated. Control animals had more testicular interstitial proteinaceous fluid (p= 0.0211) and more intraluminal round cells in the seminal vesicles than did treated animals (P=0.004), if control animal 14-0101) is included in the analysis. That animal had reproductive tissue lesions. If 14-0101 is eliminated from analysis, the difference between controls and high-dose NTO is still statistically significant at P= 0.0115 for intertubular protein and 0.0039 for seminal vesicle intraluminal round cells.

3.2 First Filial (F1) Generation Males

The most important findings in high-dose F1 males were testicular (and secondary epididymal) lesions (see Figures 3 and 4 in Appendix B, and Appendix D). There were significant incidences of seminiferous tubule hypoplasia or degeneration/atrophy as evidenced by increased numbers of seminiferous tubules that were virtually empty with the exception of Sertoli cells (i.e., Sertoli-only tubules), Sertoli cell vacuoles, intraluminal multinucleate cells, sloughed germ cells, apoptotic germ cells, dilation of tubules and lack of elongating spermatids. Corresponding epididymal changes include reduction in sperm numbers, abnormal cell types in lumen and cribriform change in the epithelium of the cauda. Since the only observed test-article-related lesions were in reproductive tissues, only reproductive tissues of 720 mg/kg- and 144 mg/kg- treated F1 males were evaluated. Both lower-dose treatment groups exhibited reduced testicular diameter. Oddly, more control animals had ectatic (i.e., dilated) lymphatics containing protein (P=0.0171) than 720 mg/kg NTO-exposed F1 rats. The only differences between high-dose F1 males and control rats in somatic (i.e., non-reproductive) tissues included a slight increase in pulmonary alveolar hemorrhage (p=0.0187) and minimal hepatic congestion (p=0.0033). Inner stripe pyknosis is an early autolytic change in the renal outer medulla that was slightly more pronounced in F1 high-dose rats than in controls (p=0.0012). Both 720 mg/kg-dosed and 144 mg/kg-dosed F1 male rats had reduced diameter of the testis. 720 mg/kg-dosed F1 males also exhibited fewer sperm in the epididymal lumen.

3.3 Weanling Males

Only reproductive tissues of weanling males were evaluated. Three of ten high-dose weanling males exhibited more apoptotic germ cells in the testis in contrast to 0/10 control male weanlings. Those cells were either condensed, pyknotic and shrunken or appeared to have ‘ropy’ heterochromatin as if entering mitosis except the cytoplasm is pink (on PAS-H stain), separate from neighboring cells and usually bordering on luminal (see Figures 5 and 6). These findings were, however, not statistically significant.

3.4 Recovery Males

Only reproductive tissues of recovery males were evaluated. There were no significant differences between treated recovery males and control ‘recovery’ males.

3.5 Parental Generation Females

The only histologic findings in high-dose PGEN females that were statistically different from those observed in untreated controls were slightly more erythrophagocytosis in a lymph node adjacent to the thymus, slightly more fluid in renal tubules, slight adrenocortical vacuolation, and less splenic extramedullary hematopoiesis (p=0.0226) than in controls (Appendix D). The kidneys of 720 mg/dl-treated female PGEN rats exhibited no differences in lesions compared to vehicle-administered control rats (P=> 0.05).

After initial statistical analysis of PGEN female lesions, one high-exposure parental generation female rat (14-0210) was eliminated from group comparison as histologic examination revealed evidence of septicemia characterized by subacute, severe neutrophilic inflammation in multiple organs (lungs, heart, kidneys, with marked thymic involution) that was almost assuredly unrelated to test article administration.

Fifteen pituitaries were present in 24 control rats and 13 pituitaries were available for evaluation for 24 high-dose PGEN females. There were no significant lesions in this structure.

3.6 First Filial (F1) Generation Females

The only statistically significant findings in high-exposure F1 females were minimal increase in pale eosinophilic proteinaceous fluid in renal tubules (p=0.0225) and more hepatic congestion than in controls (p=0.047). This slight renal change was not present in kidneys of 720 mg/kg-dose F1 females. Control rats had more pulmonary alveolar hemorrhage, a few more cardiac mast cells, and a few more hepatic portal lymphocytic infiltrates than did high-dose F1 females.

Forty-two day-old female rat organs are smaller and more friable than adults. Parathyroid and pituitary glands were inconsistently identified for trim in and were often absent. Pituitary was present in 7 of 20 control rats and 10 of 20 high-dose F1 female rats. Cerebellum-with-brainstem was occasionally not sectioned and a more anterior section inadvertently prepared instead. Numerous background changes were present to varying extent in both groups (e.g., small mast cell aggregates in the myocardium) which are commonly found in untreated laboratory rats.

3.7 Weanling Females

Ovaries, uterus (including cervix, vagina) were examined in 22-day old female rats of the F1 generation. With the exception of neutrophilic infiltrates in the draining regional lymph node of the ovary of one control rat, no histological differences were found between rats from high-dose-treated parents versus vehicle-treated control rats.

4. DISCUSSION AND CONCLUSIONS

The purpose of this study was to investigate and/or confirm effects of NTO on the adult male and female rats and identify specific target organs in the offspring. This report began as a comparison of histologic findings of high-dose animals of parental generation (PGEN) of both sexes and their offspring (F1) and was then expanded to evaluate tissues from lower-dose animals when lesions were found at the high dose.

The lack of histologic lesions observed in central or peripheral nerves suggests that NTO has no or minimal neurotoxic potential from oral exposures in rats. At least four levels of brain from each rat were evaluated including: anterior (often near Bregma 3.0), 1-2 levels of hippocampus, 1-2 levels of corpus callosum, cerebellum with brainstem. Although pituitary gland was reportedly collected per the protocol, it was not always present for sectioning, due to sampling error, such as lack of placement of the pituitary in sponge-containing, labelled cassettes or ‘crumbling’ of the tissue during processing. Pituitary tissue can resemble other small pieces of brain and occasionally is not recognized as missing until microscopic evaluation.

In PGEN males, the reproductive tissue changes are obvious and pronounced, and most likely an effect of exposure to the test article. Depending on the specific histologic change (referred to as the ‘metric’ for statistical purposes), between 28 and 88 % of PGEN males exhibited features consistent with seminiferous tubule degeneration or atrophy (see Figures 1 and 2). Tubule degeneration is a consequence of germ cell degeneration and depletion, which may be mediated through Sertoli cell injury, primary cytotoxicity, hypoxia, inflammation, among other causes. In this study, Sertoli cells were vacuolated in 68% (17 of 25) of PGEN high-dose males but inflammation was not evident. Hypoxia has been reported to produce tubular degeneration; ischemia can kill Leydig cells and result in reduction in sperm production (Creasy et al, 2012; Nolte T et al, 1995). Given that the number and appearance of Leydig cells resembled those of control rats, hypoxia/ischemia is not likely the proximate cause of tubule degeneration.

Both of the lower-dose treatment groups exhibited reduced testicular diameter without other findings. This is admittedly subjective, based on this pathologist’s observation that the diameter of the normal testis very closely approximates the size of the 2X objective field as seen through the microscope, but observations within groups and between groups were consistent. It is unclear why control F1 males have more fluid in the epididymal lymphatics, or why control PGEN males had more proteinaceous fluid in the testicular interstitium than treated animals. A difference in collection technique between the treatment and controls is one possible explanation. In the absence of clinical pathology data, an assessment of hydration status was not possible.

A few statistically significant differences were found in somatic tissues between high dose PGEN male rats and untreated control group; however, the histologic changes are minimal, are known background lesions (e.g., Bowman's capsule metaplasia, hepatic inflammatory infiltrates, splenic extramedulary hematopoiesis with hemosiderin) and are not generally associated with toxicity. The pulmonary congestion is also minimal, a non-specific change and unlikely to be treatment article-related.

The primary histologic findings in the F1 male rats occurred in the testes and epididymides. Between 30-100% of high-exposure rats exhibited degenerative changes in the seminiferous tubules, from apoptotic germ cells to complete loss of germ cells, leaving tubules containing only Sertoli cells. Most significantly, 100% of F1 rats (in contrast to 0% of controls) failed to produce elongating (step IX) spermatids. Spermatid growth until that step appeared normal. Vacuolation of Sertoli cell cytoplasm "is usually an early morphological indicator of disturbance to the Sertoli cell (Creasy 2001), which may contribute to the inability to promote spermatid maturation. It has also been reported that additional testosterone is necessary to support the maturation of spermatids through the elongation/maturation steps (IX-XIX); (Chapin and Creasy, 2012; Figures 3-4).

F1 high-exposure males had higher incidence of pulmonary hemorrhage, hepatic congestion and renal inner stripe pyknosis than control rats. However, these findings were minimal, non-specific and, unlikely to be treatment article-related. Pulmonary hemorrhage is almost inevitable in rats euthanized by means of carbon dioxide. However, the amount of hemorrhage may differ in animals with altered blood coagulation profiles, stressed animals (that may be hypertensive) or altered blood pressure or vascular integrity, any of which may relate to the article under test. As hemorrhage was minimal, generally peracute, and not seen in other tissues, it is likely to be euthanasia-related. Hepatic congestion is almost always passive, related to cardiovascular disturbance and generally results in a centrilobular pattern of hepatocyte degeneration or lipid droplets in the cytoplasm of portal hepatocytes. The scores ('minimal'), in the absence of other histologic changes, suggest a perimortem change. Differences in handling during antemortem phlebotomy or other technical reasons may explain why these few treated rats developed hepatic congestion compared to untreated controls.

The toxicological relevance of one renal finding in F1 males, nuclear pyknosis of tubules in the inner stripe of the outer medulla, is uncertain; no toxicological explanation of this observation was found in the literature. The observation, however, resembles apoptosis (Figure 7). It has been reported (Frazier et al, 2012) that the S3 segment of the proximal tubule, which is in the pars recta (outer stripe), is acutely sensitive to hypoxia and therefore begins autolysis immediately upon euthanasia. This suggests a similar mechanism accounts for this change in the renal inner stripe (not observed in the outer stripe in this study), which was present to varying extent in both treated and control animals.

Female PGEN rats in the high-exposure group more often had adrenal cortical vacuolation than controls ($p=0.0045$, including 14-0210, $p=0.0027$ without 14-0210). The vacuoles were in the zona fasciculata, whose cells normally contain abundant smooth endoplasmic reticulum and small lipid droplets for making the sex steroids (androgens, progestins and estrogens). In most cases the vacuolation was diffuse in distribution but minimal in severity, which is generally associated with physiologic causes or, occasionally, in response to the test article. Organ weights, gross necropsy observations and clinical chemistry and hematology data were not available for this report but it has been reported that morphology of the adrenal cortex is often altered in response to subacute to chronic stress (Everds et al, 2013). Correlation of clinical findings with histological findings may be helpful. Degenerative changes due to treatment, however, may also result in vacuolation due to disruption of steroidogenesis. Additional data is therefore necessary in order to corroborate or refute the possibility of a treatment article effect on the adrenal glands.

Interestingly, female PGEN rats in the high exposure group had a lower incidence of splenic extramedullary hematopoiesis (EMH), than controls, in contrast to males. The presence of minimal splenic EMH is a normal background finding. The scores were all 0 or ‘1’ (minimal), are by nature subjective and are most likely not exposure-related. P GEN high-dose females also differed from untreated control rats in having a few more phagocytosed erythrocytes in the thymus-associated lymph node.

The only lesion in the PGEN female reproductive tract consisted of variably abundant histiocytic aggregates in the superficial myometrium and vasculature with abundant golden pigment, most likely hemosiderin. This is a background lesion, accumulates with age and was present in varying degrees in virtually every PGEN rat.

The only difference between F1 females in the high exposure group and controls were minimally more pale eosinophilic proteinaceous fluid in renal tubules (also seen in PGEN females from the high exposure group) and more hepatic congestion than was observed in controls. The cortical and outer stripe (outer medullary) tubules more often contained a slight increase pale eosinophilic fluid (therefore interpreted as proteinaceous) in comparison to control animals. This finding may represent an adaptation and not necessarily tubule injury (Guo et al, 2012). Causes could include increased glomerular filtration rate, leakage of protein through the glomerulus, or secretion of products by the proximal tubules. Many drugs are eliminated by tubular secretion by the proximal tubules. The fluid is not brightly eosinophilic so is not ‘hyaline’ and no casts were observed, arguing against tubule injury. Female F1 rats exposed to 720 mg/kg of NTO did not exhibit this or any renal change, suggesting a threshold was exceeded in the high-dose animals.

Increases in tubule protein, when coupled with lymphoplasmacytic infiltrates in the renal interstitium, tubule basophilia and thickened tubule basement membranes suggest the age-related lesion commonly seen in Sprague-Dawley rats, chronic progressive nephropathy (CPN). The young age of these rats, 42 days, their gender, and the paucity of basophilic tubules or interstitial infiltrates in highly exposed rats argues against the early development of CPN. Similar to the F1 females (42 days old at necropsy), the PGEN females (147 days old at necropsy) did not exhibit histologic changes associated with chronic progressive nephropathy. PGEN males, however, at 19 weeks of age, had begun developing renal lesions. Some test articles have been reported to exacerbate the onset of chronic progressive nephropathy in rats.

Observations of and differences in minimal hepatic congestion in both high-exposure F1 females and males was unexpected. Animals of other exposure levels were not evaluated for hepatic congestion. No individual score exceeded ‘minimal,’ however, and there were no corroborative hepatic changes to suggest that this minimal finding is treatment-related. Lacking this finding in PGEN animals, this finding is of uncertain biological significance in F1 animals. Pharmacokinetic data (e.g., absorption, distribution, metabolism, excretion) may help identify any NTO effects on the cardiovascular system as it relates to hepatic perfusion in subsequent generations at high exposure levels.

There were a few observations in which control rats exhibited a change more often than treated animals. Examples are lymphocytic portal hepatic infiltrates in more animals, more mast cells in the heart, and more alveolar hemorrhage than the high-dose animals. If the ‘severity’ were greater than ‘minimal,’ more attention to these results may be warranted. In these animals, however, the lesions were judged to be too minor to be other than background lesions.

In conclusion, NTO appears to target the male reproductive tissues of adults and offspring, affecting sperm maturation and overall numbers. Sertoli cell injury may be a cause of disrupted spermatid elongation (maturation). Significant lesions in weanlings of either gender or recovering male reproductive tissues were not observed.

5. STORAGE OF STUDY MATERIALS AND RECORDS RETENTION

The study records and pathology final report will be archived and maintained at or under the direction of the Army Public Health Center (Provisional) (APHC (Prov)) Toxicology Portfolio (TOX), according to TOX standing operating procedures (SOPs) and U.S. Environmental Protection Agency (EPA) requirements. The Pathology specimens will also be archived and maintained at or under the direction of the APHC (Prov) Toxicology Portfolio, according to TOX SOP and EPA requirements.

APPENDIX A

REFERENCES

Chapin R.E. and D.M. Creasy. 2012. Assessment of Circulating Hormones in Regulatory Toxicity Studies II. Male Reproductive Hormones. Toxicol Pathol, 40(8):1063-1078.

Creasy D, A. Bube , E. de Rijk, H. Kandori, M. Kuwahara, R. Masson, T. Nolte, et al. 2012. Proliferative and nonproliferative lesions of the rat and mouse male reproductive system. Toxicol Pathol, 40(6 Suppl):40S-121S.

Creasy D.M. 2001. Pathogenesis of male reproductive toxicity. Toxicol Pathol, 29(1):64-76.

Creasy D.M. 1997. Evaluation of testicular toxicity in safety evaluation studies: The appropriate use of spermatogenic staging. Toxicol Pathol, 25(2):119-131.

Everds N.E., P.W. Snyder, K.L. Bailey, B. Bolon, D.M. Creasy, G.L. Foley, T.J. Rosol, and T. Sellers. 2013. Interpreting stress responses during routine toxicity studies: A review of the biology, impact and assessment. Toxicol Pathol, 41(4):560-614.

Frazier K.S., J.C. Seely, G.C. Hard, G. Betton, R. Burnett, S. Nkatsuji, A. Nishikawa, B. Durchfeld-Meyer, and A. Bube. 2012. Proliferative and Nonproliferative Lesions of the Rat and Mouse Urinary System. Toxicol Pathol, 40(4 Suppl):14S-86S.

Guo J.K., A. Larlier, H. Shi, A. Shan, T.A. Ardito, Z.P. Du, M. Kashgarian, D.S. Krause, D. Biemesderfer, and L.G. Cantley. 2012. Increased tubular proliferation as an adaptive response to glomerular albuminuria. J Am Soc Nephrol 23(3):429-437.

Nolte T., J.H. Harleman, W. Jahn. 1995. Histopathology of chemically induced testicular atrophy in rats. Exp Toxicol Pathol, 47(4):267-286.

Table of medication secreted by Kidney.
https://en.wikipedia.org/wiki/Table_of_medication_secreted_in_kidney

APPENDIX B

FIGURES/PHOTOMICROGRAPHS

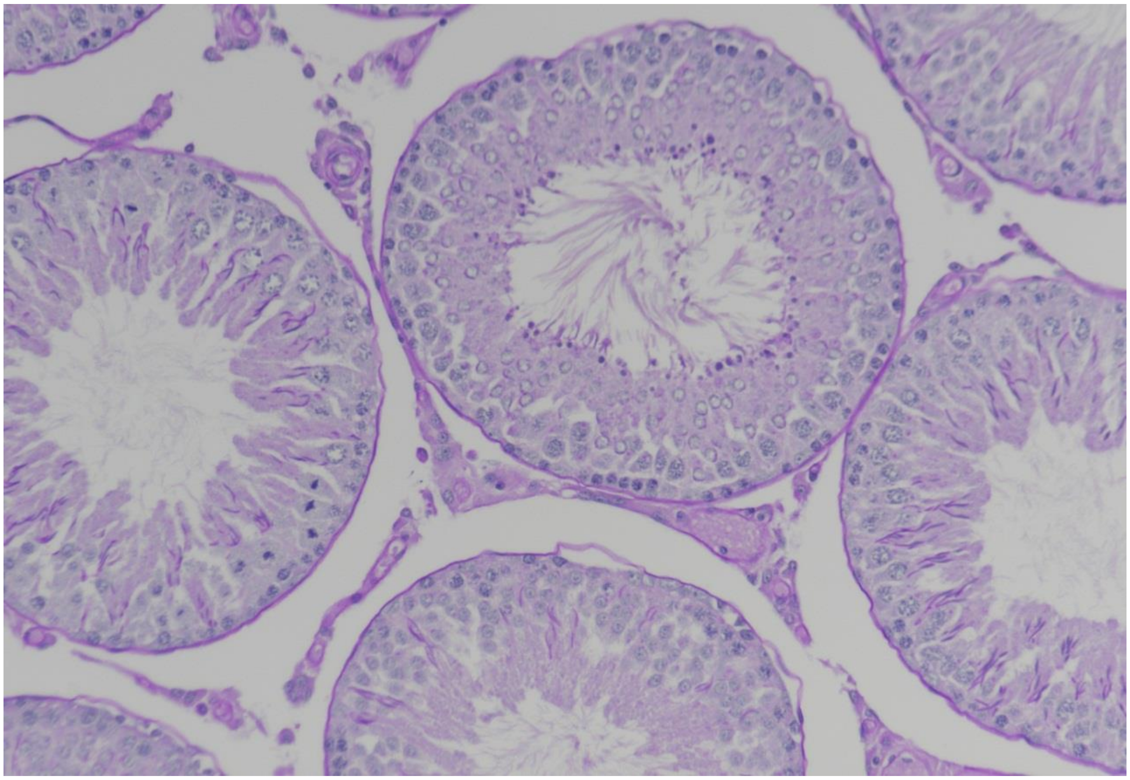

Figure 1. Normal PGEN male rat (14-0002) testis. 20X. PAS-H

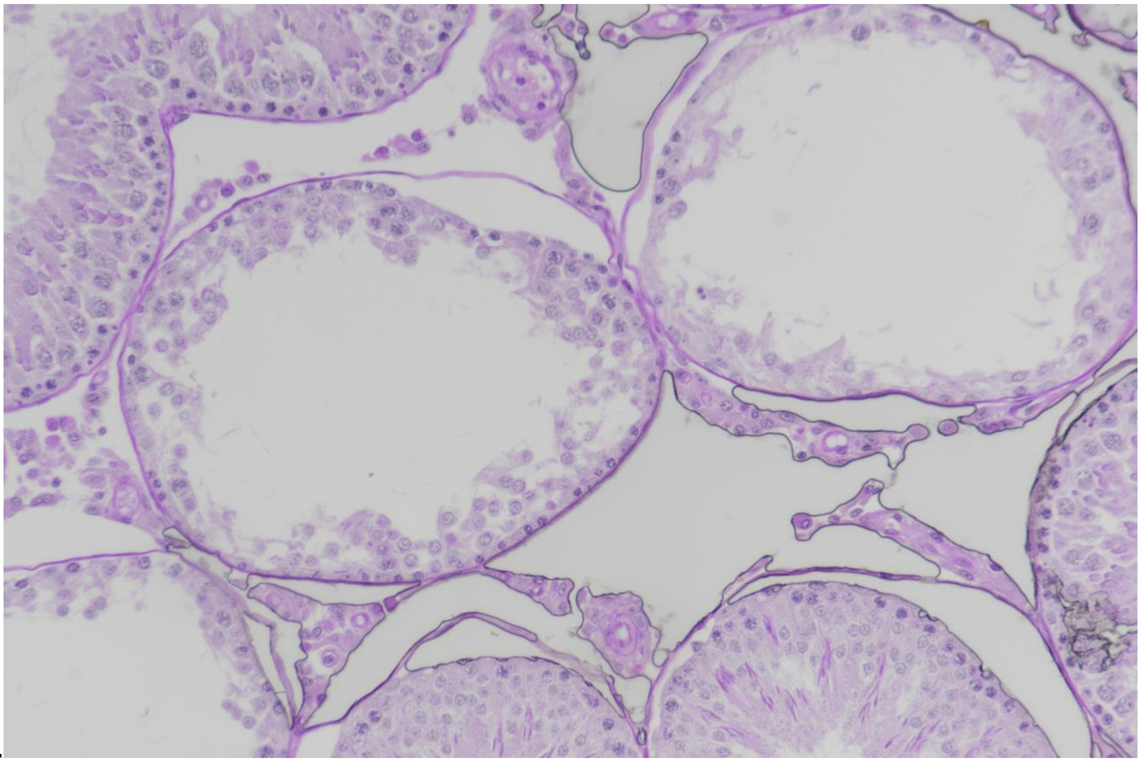

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Figure 2. High-dose PGEN male rat (14-0021).Testis seminiferous tubule degeneration/atrophy. 20X PAS-H

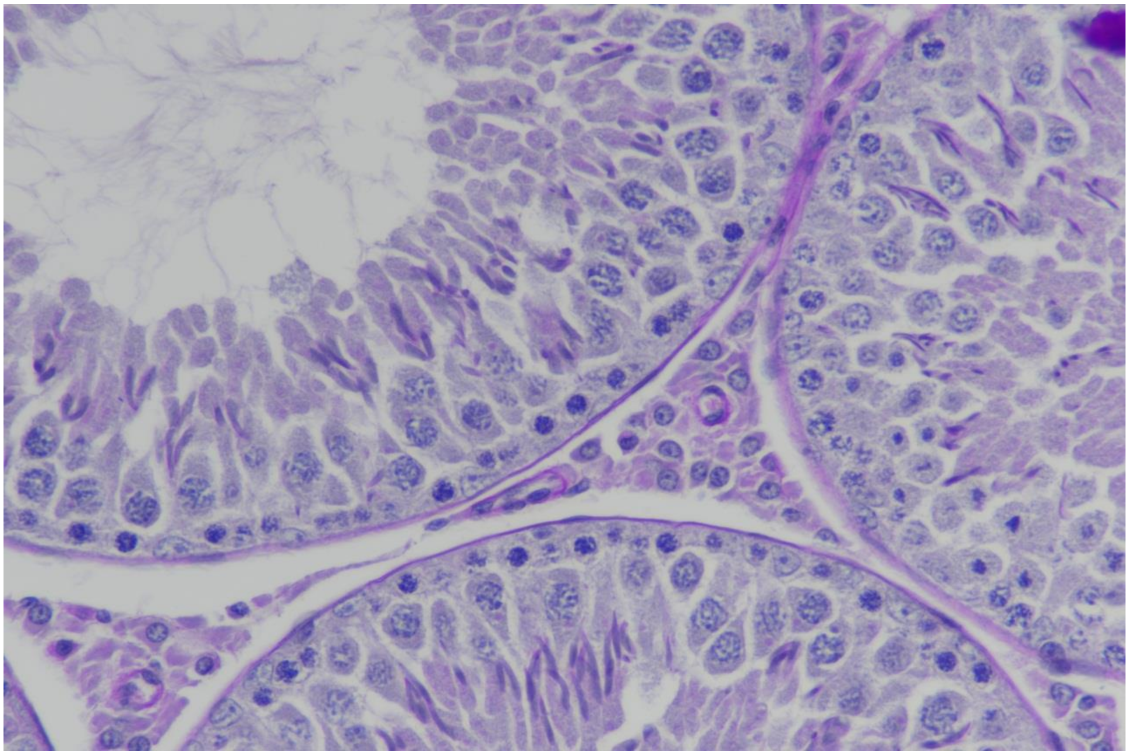

Figure 3. Control F1 male rat (14-0241).Testis. Abundant elongating spermatids in three tubules: two stage XI tubules (upper left and lower center) and a stage XIV (right). 40X PAS-H

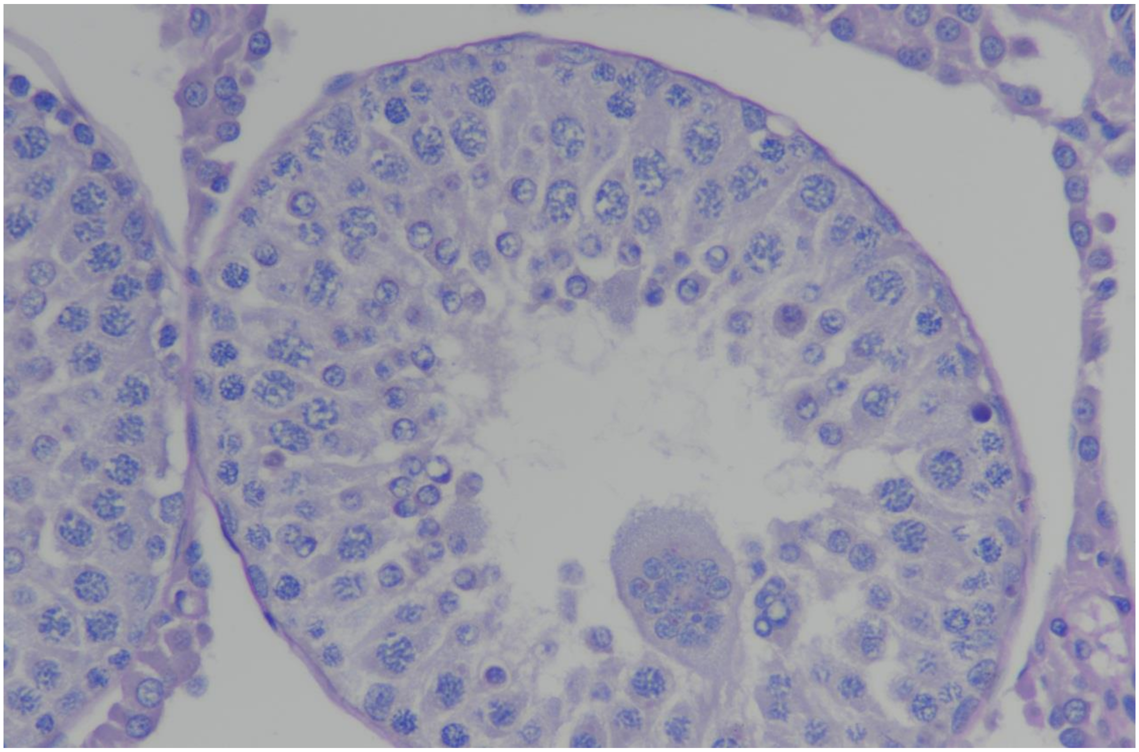

Figure 4. High-dose F1 male (14-0239) rat. Testis. Lack of elongating spermatids, a multinucleate cell and apoptotic germ cells. 40X. PAS-H

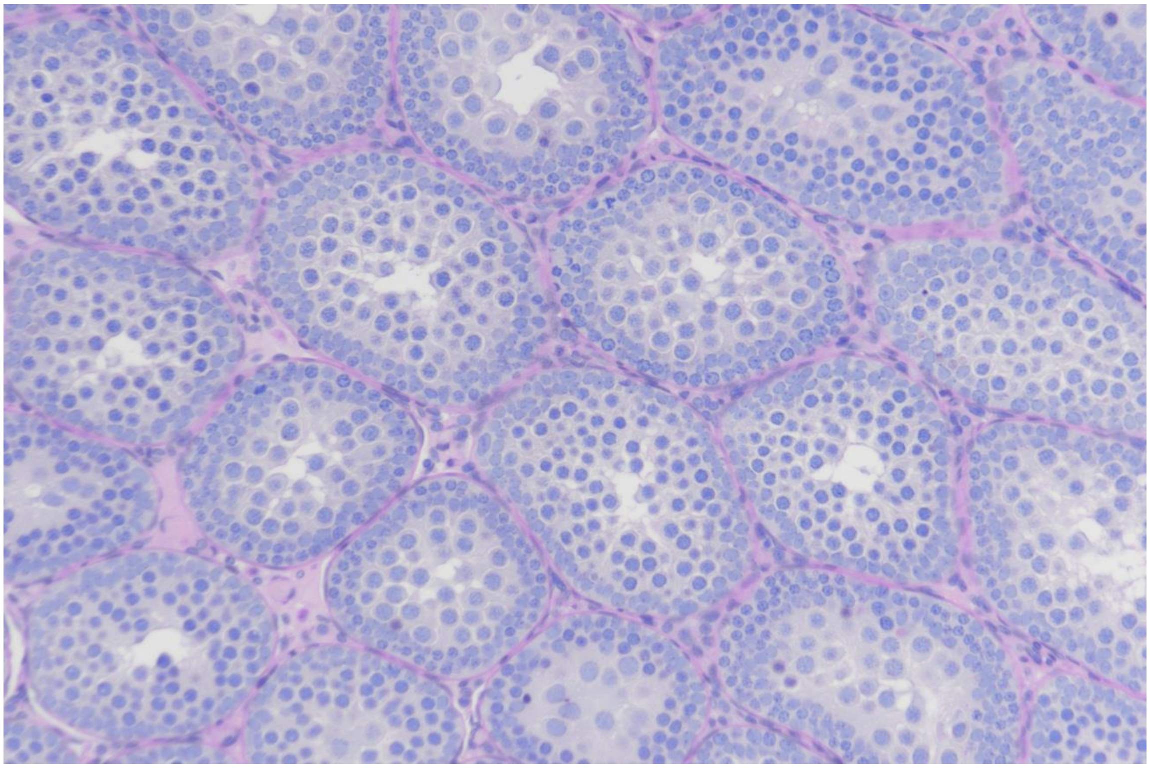

Figure 5. Control Male Weanling (Post Natal Day 22) Testis. 20X, PAS-H

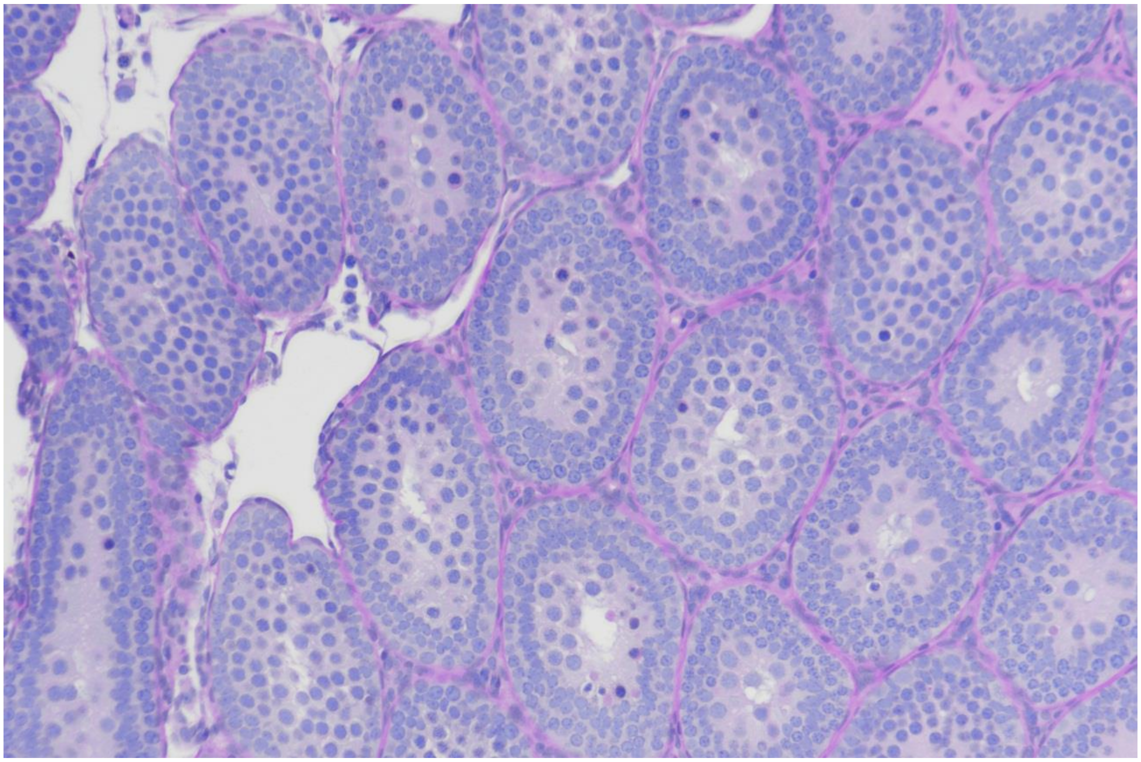

Figure 6. High-dose male weanling (PND 22) Testis. Perceived increased numbers of apoptotic germ cells. PAS-H. 20X

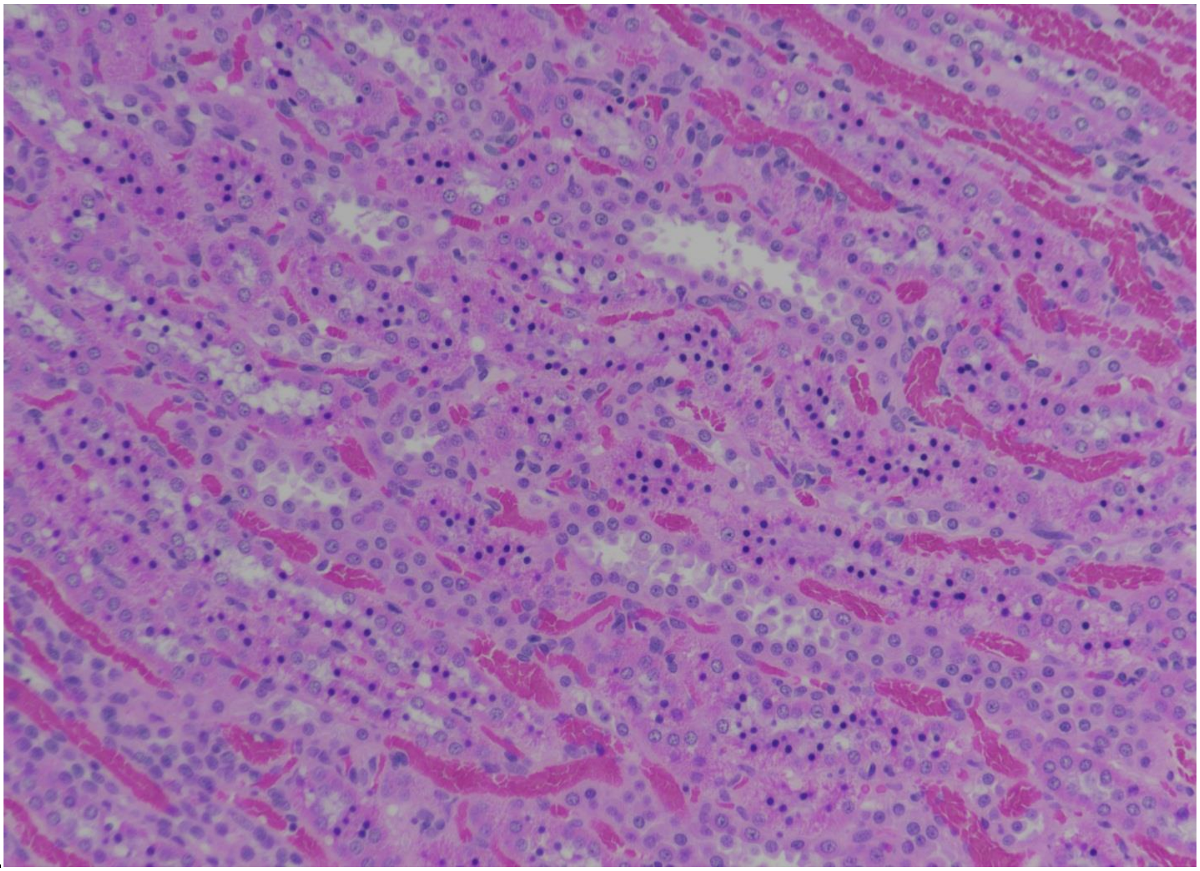

Figure 7. Kidney. Inner stripe pyknosis. Seen in all treatment groups. This particular example is in a PGEN Male Control Rat (14-0010). HE. 20X. This portion of the kidney is acutely sensitive to hypoxia and, therefore, enters autolysis within minutes of loss of perfusion at euthanasia.

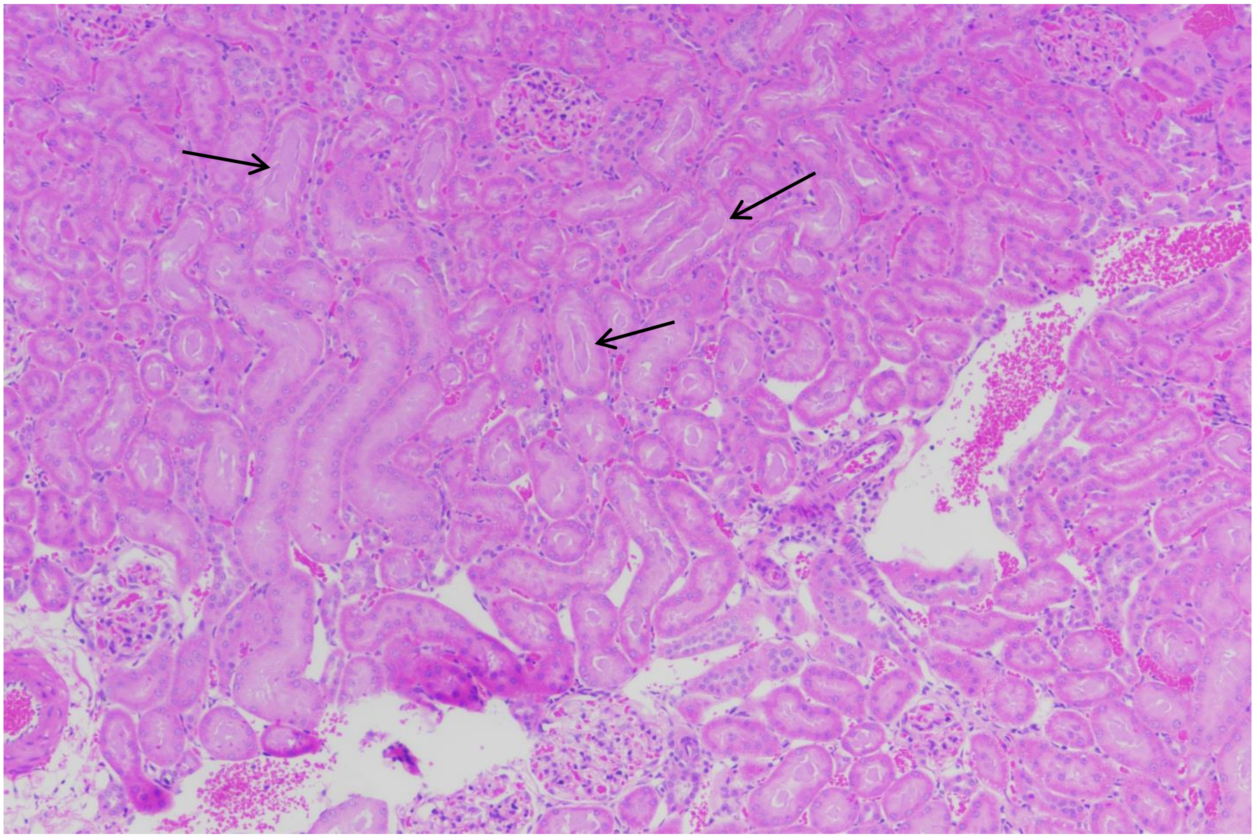

Figure 8. PGEN high-dose female (0168). Kidney. Tubule proteinaceous fluid (arrows). This was 'mild.' It was present to a 'minimal' degree in more PGEN and F1 high-dose females than in controls. HE. 20X.

APPENDIX C

INDIVIDUAL ANIMAL HISTOLOGIC OBSERVATIONS

MALE RATS

PARENTAL MALE GENERATION (PGEN) SOMATIC TISSUES CONTROLS

Approx. 19 weeks at necropsy	14-0001	14-0002	14-0005	14-0009	14-0010	14-0013	14-0014	14-0023	14-0024	14-0025	14-0026	14-0043	14-0044	14-0049	14-0050	14-0063	14-0064	14-0065	14-0066	14-0069	14-0070	14-0094	14-0095	14-0096	14-0101
THESE ARE P1 (PARENTAL) GENERATION MALES	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
1 Anterior brain (meant to be **Olfactory Lobe,**	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Congestion, meningeal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Infiltrate, meningeal, mononuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
2 Corpus callosum (+/- hippocampus)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Infiltrate, mononuclear, ependymal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Hippocampus,	NP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	NP
4 Pituitary	NP	P	P	P	NP	P	NP	P	P	NP	P	NP	NP	NP	P	P	NP	P	NP	P	NP	NP	P	NP	P
Cyst (Rathke's pouch remnant)		0	1	0		0		0	0		0				0	0		0		0			0		0
4 Cerebellum with brainstem	P	NP	P	P	P	P	NP	P	NP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5 Lung																									
Congestion, alveolar septal	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Edema, perivascular proteinaceous	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Edema, alveolar, focal, with foamy macrophages	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Infiltrate, alveolar, histiocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, subpleural	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	0	0
Infiltrate, peribronchiolar, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, neutrophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Fibrin thrombi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Ectopic bone formation, intra-alveolar	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hemorrhage, intraalveolar	0	1	0	0	1	0	1	0	1	0	0	1	1	1	2	0	0	0	1	1	1	1	0	1	0
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Eosinophils	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6 Thymus								NP																	
Remnant, epithelial	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Extramedullary hematopoiesis	0	0	0	0	0	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cortical Lymphocytolysis	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hemorrhage	0	0	0	0	1	0	1		0	0	0	1	1	1	1	2	1	1	2	1	0	0	1	2	1
6 Thyroid gland																									
Distention, follicular	0	0	0	0	0	0	0	NP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, intrafollicular	0	0	0	0	0	0	0		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyst, follicular	0	0	0	0	0	0	0		0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
Debris, cellular, intrafollicular	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Infiltrate, lymphohistiocytic, perifollicular	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mast cells, parafollicular	0	0	0	0	0	0	0		1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Crystalline material, eosinophilic,	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Parathyroid glands	P	P	P	P	P	P	P	NP	P	P	P	NP	NP	P	P	NP	P	P	P	NP	NP	0	P	NP	P
6 Lymph node	P	P	P	P	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Sinus histiocytosis	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells	0	0	0	0	0	0	0		0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7 Heart																									
Hemorrhage, subendocardial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Necrosis, myocardial, single cell (peracute?)or	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Edema, perivascular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Infiltrate, lymphocytic, perivascular	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Infiltrate, mast cells? Perivasc, focal	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Infiltrate, adipocyte	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
Fibrosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fibrosis, perivascular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Myocardial necrosis, lymphohistiocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8 Kidneys																									
Pyknosis, inner stripe	0	0	0	1	2	0	0	1	0	0	0	0	0	1	0	1	0	2	0	0	0	1	0	0	0
Infiltrate, lymphocytic, periglomerular	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Protein in tubules, pale eosinophilic	1	1	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Glomerular Bowman's capsule thickened	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0
Glomerular Bowman's capsule metaplasia OR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	0	1	1	1	1	0	0	0
Infiltrate, lymphocytic, interstitial or	0	1	1	1	1	2	1	0	1	1	1	0	0	1	1	0	1	1	1	1	0	1	1	1	0
Cyst, epithelial lined	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, thickened basement membrane (as	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	0	0	0
Infarct (with tubule regen, l-p infiltrate,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as	0	0	1	0	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	0	0	0
Congestion +/- perivasc edema	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Adrenal glands																									
Hemangiectasis	0	0	1	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0	1	0	0	1
Cytoplasmic vacuoles, tiny, z. fascicularis	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	1	0	1	0	1
Z. glomerulosa hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Extramedullary adrenal medulla cells	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0
Z. fasciculata-Rare microcluster of vacuolated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

9 Liver																									
Eosinophils, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, histiocytic, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0
Focus of cellular differential staining	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Infiltrate, peri-bile ductule, lymphocytic	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0
Infiltrate, lymphohistiocytic, random	0	0	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	0	0	0	1	0	0
Infiltrate, lymphocytic, centrilobular	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
Hyperplasia, biliary, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Necrosis, hepatocellular, single cell	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Necrosis, hepatocellular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lympho- (+/- plasmacytic), portal	1	0	1	0	1	0	1	0	1	0	1	0	1	1	0	0	1	1	1	1	1	0	1	0	1
Congestion	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
9 Spleen																									
Extramedullary hematopoesis	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	1	0	1	0
Pigment,golden-green, red pulp	0	0	0	0	0	0	0	0	0	2	0	2	1	1	0	1	0	0	0	1	1	1	0	1	0
P = present; NP = Not Present																									

PARENTAL MALE GENERATION (PGEN) SOMATIC TISSUES HIGH DOSE

Approx. 19 weeks at necropsy	14-0011	14-0012	14-0019	14-0020	14-0021	14-0022	14-0027	14-0028	14-0039	14-0040	14-0041	14-0042	14-0059	14-0060	14-0077	14-0079	14-0080	14-0085	14-0086	14-0087	14-0088	14-0091	14-0092	14-0099	14-0100
THESE ARE P1 (PARENTAL) GENERATION MALES	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**	**hi-dos**
1 Anterior brain (meant to be **Olfactory Lobe,**	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Congestion, meningeal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Infiltrate, meningeal, mononuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Corpus callosum (+/- hippocampus)	P	P	P	NP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Infiltrate, mononuclear, ependymal	0	0	0		0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hippocampus,	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	p	P	P	P	P	NP	P	NP	P
4 Pituitary	NP	NP	NP	NP	NP	P	P	P	NP	NP	NP	P	NP	P	NP	NP	P	NP	P	P	P	P	NP	P	P
Cyst (Rathke's pouch remnant)						0	0	0				0		0			0		1	0	0	0		0	0
4 Cerebellum with brainstem	P	P	P	P	P	P	P	P	P	P	NP	P	P	P	P	P	P	P	P	P	P	P	NP	NP	P
5 Lung																									
Congestion, alveolar septal	0	1	1	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Edema, perivascular proteinaceous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Edema, alveolar, focal, with foamy macrophages	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Infiltrate, alveolar, histiocytic	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Infiltrate, lymphohistiocytic, subpleural	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, peribronchiolar, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, neutrophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Infiltrate, mast cells	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Fibrin thrombi	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ectopic bone formation, intra-alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Hemorrhage, intraalveolar	0	1	1	0	1	1	1	1	1	1	1	2	0	1	0	2	1	1	1	1	1	0	1	0	0
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eosinophils	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6 Thymus				NP								NP				NP									
Remnant, epithelial	0	0	0		0	0	0	0	1	0	0		0	0	0		0	0	0	0	0	1	0	1	1
Extramedullary hematopoiesis	0	0	0		0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0
Cortical Lymphocytolysis	0	0	0		0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0
Hemorrhage	0	0	1		0	0	0	1	0	0	0		1	1	0		0	1	1	2	0	1	1	1	1
6 Thyroid gland								NP				NP				P			NP						
Distention, follicular	0	0	0	0	0	0	0		0	0	0		1	0	0	0	0	0		0	0	0	0	0	0
Macrophages, intrafollicular	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
Cyst, follicular	0	0	0	0	0	1	0		0	0	0		0	0	0	0	0	0		1	0	0	0	1	0
Debris, cellular, intrafollicular	0	0	0	0	0	0	0		0	0	0		0	1	1	0	2	0		1	0	0	0	0	0
Infiltrate, lymphohistiocytic, perifollicular	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
Mast cells, parafollicular	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
Crystalline material, eosinophilic,	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
6 Parathyroid glands	NP	P	P	P	NP	P	P	NP	P	P	NP	NP	P	P	P	NP	NP	NP	NP	P	P	P	P	P	P
6 Lymph node	P	P	P	P	P	P	P	P	P	P	P	NP	P	P	P	NP	P	P	NP	NP	NP	NP	NP	NP	NP
Sinus histiocytosis	0	0	0	0	0	0	0	1	0	0	0		1	1	0		0	0							
Infiltrate, mast cells	0	0	0	0	0	0	0	1	0	0	1		1	1	0		1	1							
7 Heart																									
Hemorrhage, subendocardial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0
Necrosis, myocardial, single cell (peracute?)or	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Infiltrate, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1
Edema, perivascular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, perivascular	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells? Perivasc, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, adipocyte	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Fibrosis	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Fibrosis, perivascular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Myocardial necrosis, lymphohistiocytic	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	1	0	0	0	0	0
8 Kidneys																									
Pyknosis, inner stripe	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	1	1	0	0	0	0
Infiltrate, lymphocytic, periglomerular	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protein in tubules, pale eosinophilic	1	1	0	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0	0	0
Glomerular Bowman's capsule thickened	1	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
Glomerular Bowman's capsule metaplasia OR	1	1	0	1	0	1	1	0	1	0	1	1	0	1	1	2	1	0	1	0	0	1	1	1	1
Infiltrate, lymphocytic, interstitial or	1	0	1	1	0	1	1	0	0	0	0	0	1	1	0	1	1	0	1	1	1	1	0	0	0
Cyst, epithelial lined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Tubules, thickened basement membrane (as	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infarct (with tubule regen, l-p infiltrate,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Congestion +/- perivasc edema	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Adrenal glands																									
Hemangiectasis	2	0	0	1	0	0	0	0	0	1	1	2	1	1	1	0	1	0	0	0	0	0	0	0	1
Cytoplasmic vacuoles, tiny, z. fascicularis	1	1	2	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	0	1
Z. glomerulosa hyperplasia	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Extramedullary adrenal medulla cells	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0
Z. fasciculata-Rare microcluster of vacuolated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Liver																									
Eosinophils, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, histiocytic, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Focus of cellular differential staining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, peri-bile ductule, lymphocytic	0	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	1	0	1	0
Infiltrate, lymphohistiocytic, random	1	0	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	0	0	0	1	0	0	0	0
Infiltrate, lymphocytic, centrilobular	0	1	0	0	0	0	1	0	1	0	0	1	1	1	1	1	1	0	0	1	1	1	0	0	1
Hyperplasia, biliary, portal	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0
Necrosis, hepatocellular, single cell	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	0
Necrosis, hepatocellular	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Infiltrate, lympho- (+/- plasmacytic), portal	1	1	1	0	0	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	0	1	0	1	1
Congestion	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9 Spleen																									
Extramedullary hematopoesis	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pigment,golden-green, red pulp	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1

Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Liver																									
Eosinophils, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, histiocytic, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Focus of cellular differential staining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, peri-bile ductule, lymphocytic	0	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	1	0	1	0
Infiltrate, lymphohistiocytic, random	1	0	1	1	0	1	0	0	1	1	1	0	1	0	0	1	1	0	0	0	1	0	0	0	0
Infiltrate, lymphocytic, centrilobular	0	1	0	0	0	0	1	0	1	0	0	1	1	1	1	1	1	0	0	1	1	1	0	0	1
Hyperplasia, biliary, portal	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0
Necrosis, hepatocellular, single cell	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	0
Necrosis, hepatocellular	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Infiltrate, lympho- (+/- plasmacytic), portal	1	1	1	0	0	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	0	1	0	1	1
Congestion	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9 Spleen																									
Extramedullary hematopoesis	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pigment,golden-green, red pulp	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1

P = present; NP = Not Present

PGEN MALE REPRODUCTIVE TISSUES IN DECREASING DOSES OF NTO

Parental Generation Male Reproductive Tissue	14-0001	14-0002	14-0005	14-0009	14-0010	14-0013	14-0014	14-0023	14-0024	14-0025	14-0026	14-0043	14-0044	14-0049	14-0050	14-0063	14-0064	14-0065	14-0066	14-0069	14-0070	14-0094	14-0095	14-0096	14-0101
TISSUE/Lesion (19 weeks old) Animal ID:	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
TESTIS																									
Reduced diameter of Testis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Protein between tubules, extra-vascular	0	0	1	1	0	0	2	0	0	0	1	1	2	1	1	1	1	0	1	1	2	1	0	0	0
Sertoli-only tubules	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Leydig cell Δ's (big, little, apoptotic,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained spermatids (visible in Stage IX-X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Multinucleate giant cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sloughed germ cells into lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Dilation (or shrinkage) of seminiferous tubules	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sertoli cell Δ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Vacuoles within Sertoli cell cytoplasm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Apoptotic cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Germ cell-free gaps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lack of elongating spermatids	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
EPIDIDYMIS																									
Leukocyte infiltration	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Δ in constitutive cells (e.g., clear cells) in epith	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduction in sperm count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inapprop cell types in lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ectatic lymphatics w/protein fluid (edema)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cribriform change in Cauda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilatation ('expanded' initial segment)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROSTATE																									
Acinar atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seminal Vesicle																									
Intraluminal round cells (other than artifactual	0	0	0	0	0	2	0	1	0	0	3	1	0	0	1	1	0	2	0	0	3	0	0	0	0
Dilated lumen	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Acinar atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Parental Generation Male Reproductive Tissue	14-0011	14-0012	14-0019	14-0020	14-0021	14-0022	14-0027	14-0028	14-0039	14-0040	14-0041	14-0042	14-0059	14-0060	14-0077	14-0079	14-0080	14-0085	14-0086	14-0087	14-0088	14-0091	14-0092	14-0099	14-0100
TISSUE/Lesion (19 weeks old) Animal ID:	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos	Hi dos
TESTIS																									
Reduced diameter of Testis	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Protein between tubules, extra-vascular	0	1	0	1	0	1	0	0	1	0	0	1	1	3	1	1	0	0	2	1	0	1	1	1	1
Sertoli-only tubules	1	0	0	0	2	0	0	0	0	2	0	2	0	0	0	0	0	0	4	0	0	3	0	0	5
Leydig cell Δ's (big, little, apoptotic,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Retained spermatids (visible in Stage IX-X)	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	3	0	0	0	1	1	1
Multinucleate giant cells	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1
Sloughed germ cells into lumen	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1
Dilation (or shrinkage) of seminiferous tubules	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1
Sertoli cell Δ	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Vacuoles within Sertoli cell cytoplasm	3	0	2	2	1	0	0	0	0	0	1	3	2	1	1	1	1	0	5	0	2	2	1	3	4
Apoptotic cells	2	0	0	0	1	0	0	0	0	0	1	2	1	0	0	0	0	0	3	0	1	2	0	0	3
Germ cell-free gaps	3	4	4	0	3	3	2	0	1	4	4	3	3	3	3	1	3	0	5	2	2	2	2	3	5
Lack of elongating spermatids	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5
EPIDIDYMIS																									
Leukocyte infiltration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	1	0	2	2	0	1
Δ in constitutive cells (e.g., clear cells) in epith	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0
Reduction in sperm count	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	2
Inapprop cell types in lumen	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	1	0	0	1
Ectatic lymphatics w/protein fluid (edema)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cribriform change in Cauda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1
Dilatation ('expanded' initial segment)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROSTATE																									
Acinar atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Seminal Vesicle																									
Intraluminal round cells (other than artifactual	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
Acinar atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Parental Generation Male Reproductive Tissue 720 mg/kg dose	14-0003	14-0004	14-0017	14-0018	14-0029	14-0030	14-0031	14-0032	14-0033	14-0034	14-0037	14-0038	14-0055	14-0056	14-0057	14-0058	14-0061	14-0062	14-0073	14-0074	14-0083	14-0084	14-0093	14-0097	14-0098
TISSUE/Lesion (19 weeks old) Animal ID:	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
TESTIS													NP												
Reduced diameter of Testis	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	0	0	0	1	0	0	0	0	1
Protein between tubules, extra-vascular	0	0	1	0	1	0	1	0	0	0	0	0		0	0	0	0	0	1	0	0	0	1	0	0
Sertoli-only tubules	0	3	1	0	0	0	0	0	1	0	0	0		0	0	0	0	0	0	1	0	0	0	0	0
Leydig cell Δ's (big, little, apoptotic,	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	0	0	0
Retained spermatids (visible in Stage IX-X)	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Multinucleate giant cells	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Sloughed germ cells into lumen	0	1	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	1	0	0
Dilation (or shrinkage) of seminiferous tubules	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	1	0	0
Sertoli cell Δ	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Vacuoles within Sertoli cell cytoplasm	0	3	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Apoptotic cells	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Germ cell-free gaps	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Lack of elongating spermatids	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
EPIDIDYMIS													NP												
Leukocyte infiltration	0	0	0	1	1	0	0	1	0	1	0	0		0	0	1	1	0	0	0	0	1	1	0	1
Δ in constitutive cells (e.g., clear cells) in epith	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Reduction in sperm count	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Inapprop cell types in lumen	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Ectatic lymphatics w/protein fluid (edema)	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Cribriform change in Cauda	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Dilatation ('expanded' initial segment)	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
PROSTATE																									
Acinar atrophy	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Seminal Vesicle								NP																	
Intraluminal round cells (other than artifactual	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilated lumen	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acinar atrophy	0	0	0	0	0	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

Parental Generation Male Reproductive Tissue 144 mg/kg dose	14-0007	14-0008	14-0015	14-0016	14-0035	14-0036	14-0045	14-0046	14-0047	14-0048	14-0051	14-0052	14-0053	14-0054	14-0067	14-0068	14-0071	14-0072	14-0075	14-0076	14-0078	14-0081	14-0082	14-0089	14-0090
TISSUE/Lesion (19 weeks old) Animal ID:	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
TESTIS																									
Reduced diameter of Testis	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protein between tubules, extra-vascular	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0	1	0	1	1	1
Sertoli-only tubules	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Leydig cell Δ's (big, little, apoptotic,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Retained spermatids (visible in Stage IX-X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Multinucleate giant cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sloughed germ cells into lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dilation (or shrinkage) of seminiferous tubules	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoli cell Δ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vacuoles within Sertoli cell cytoplasm	0	0	0	1	0	0	0	1	0	0	0	1	1	2	2	2	3	0	1	2	0	0	0	0	2
Apoptotic cells	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	0	0	1	0	0	0	0	0	1
Germ cell-free gaps	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	1	0	0	0	0	0	0
Lack of elongating spermatids	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EPIDIDYMIS																									
Leukocyte infiltration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Δ in constitutive cells (e.g., clear cells) in epith	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
Reduction in sperm count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inapprop cell types in lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ectatic lymphatics w/protein fluid (edema)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cribriform change in Cauda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilatation ('expanded' initial segment)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROSTATE																									
Acinar atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	0	0	0	2	0	0	1	2
Dilated lumen	0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Seminal Vesicle																									
Intraluminal round cells (other than artifactual	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acinar atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PGEN RECOVERY REPRODUCTIVE TISSUES

PGEN RECOVERY MALE RATS	14-0006	14-0102	14-0105	14-0106	14-0109	14-0110	14-0113	14-0114	14-0119	14-0120	14-0103	14-0104	14-0107	14-0108	14-0111	14-0112	14-0115	14-0116	14-0117	14-0118
	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	High	High	High	High	High	High	High	High	High	High
TESTIS																				NP
Reduction in Testicular diameter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Protein between tubules, extra-	0	0	1	1	0	0	0	0	1	0	1	0	0	1	0	0	1	0	2	
Sertoli-only tubules	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	
Vacuoles within Sertoli cell	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	
Germ cell-free gaps	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
EPIDIDYMIS																				
Δ in constitutive cells (e.g., clear	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Vacuoles in caudal epith.	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
Leukocyte infiltration	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NP=Tissues were not taken from this animal.																				

FIRST FILIAL GENERATION (F1) MALE SOMATIC TISSUES

F1 Males: **53d** of age at necropsy	14-0221	14-0222	14-0229	14-0232	14-0241	14-0245	14-0246	14-0247	14-0251	14-0252	14-0256	14-0257	14-0258	14-0266	14-0271	14-0275	14-0277	14-0283	14-0296	14-0298
THESE ARE F1 (FILIAL) GENERATION MALES	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
SLIDE NUMBER: (left-side, below)	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male
1 Anterior brain (meant to be **Olfactory Lobe,**	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2 Corpus callosum (sometimes inadvertant	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3 Hippocampus,	P	P	P	P	P	P	NP	P	P	P	P	P	NP	P	P	P	P	P	P	NP
4 Pituitary	P	P	NP	NP	NP	P	NP	NP	NP	P	P	P	P	P	P	P	P	P	P	P
4 Cerebellum with brainstem	P	P	P	P	NP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Pineal gland (lymphocyte aggregates in	NP	NP	NP	NP	NP	NP	P	P	NP	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP
5 Lung																				
Edema, perivascular proteinaceous	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, subpleural	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Infiltrate, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Eosinophils, perivascular	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Fibrin thrombi	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neutrophils,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, with engulfed RBC's	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Hemorrhage, intraalveolar	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6 Thymus																				
Cortical Lymphocytolysis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Hemorrhage	0	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0
6 Parathyroid glands					NP															
6 Thyroid gland																				
Distention, follicular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, intrafollicular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cyst , lined with squamous epith	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
Debris, cellular, intrafollicular	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, perifollicular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Lymph node -mast cell infiltrate	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Heart																				
Infiltrate, mast cells? Perivasc, focal	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fibrosis, perivascular	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

F1 Males: **53d** of age at necropsy	14-0221	14-0222	14-0229	14-0232	14-0241	14-0245	14-0246	14-0247	14-0251	14-0252	14-0256	14-0257	14-0258	14-0266	14-0271	14-0275	14-0277	14-0283	14-0296	14-0298
THESE ARE F1 (FILIAL) GENERATION MALES	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
8 Kidneys																				
Pyknosis, inner stripe	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, periglomerular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protein in tubules, pale eosinophilic (some	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0
Infiltrate, lymphocytic, interstitial,	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0
Gomeruli, expansion of mesangial matrix,	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Tubules, thickened basement membrane (as	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as	1	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
8 Adrenal glands																				
Cytoplasmic vacuoles, tiny, z. fascicularis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Z. glomerulosa or fascicularis pale cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Liver																				
Eosinophils, portal	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Infiltrate, histiocytic (+/- lympho-), focal	1	0	0	0	1	1	0	0	0	0	2	0	1	0	0	0	1	0	0	1
Infiltrate, peri-bile ductule, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hematopoiesis, extramedullary	0	1	0	1	1	0	1	0	1	0	1	1	0	0	0	0	0	0	1	1
Infiltrate, lymphocytic, **centrilobular**	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Hyperplasia, biliary, portal	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Necrosis, hepatocellular, single cell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic (+/- plasmacytic)	1	1	0	1	1	0	1	1	1	0	1	1	2	1	1	1	1	1	0	1
Congestion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Precipate, mineral	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, neutrophilic, portal	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
9 Spleen																				
Extramedullary hematopoesis (at final tally all	2	1	1	1	2	0	1	1	2	2	0	2	1	2	1	1	1	0	2	1
Presence of Germinal Centers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

F1 Males: **53d** of age at necropsy	14-0226	14-0230	14-0234	14-0237	14-0238	14-0239	14-0248	14-0250	14-0254	14-0262	14-0265	14-0273	14-0280	14-0289	14-0290	14-0291	14-0294	14-0297	14-0299
THESE ARE F1 (FILIAL) GENERATION MALES	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos
SLIDE NUMBER: (left-side, below)	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male
1 Anterior brain (meant to be **Olfactory Lobe,**	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2 Corpus callosum (sometimes inadvertant	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3 Hippocampus,	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4 Pituitary	P	NP	P	P	P	P	NP	P	P	P	P	P	NP	P	P	P	P	P	P
4 Cerebellum with brainstem	P	P	P	P	P	P	P	P	P	P	P	P	P	NP	P	P	P	P	P
Pineal gland (lymphocyte aggregates in	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5 Lung																			
Edema, perivascular proteinaceous	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Infiltrate, lymphohistiocytic, subpleural	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
Infiltrate, lymphocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Eosinophils, perivascular	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Fibrin thrombi	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Neutrophils,	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Hemorrhage, intraalveolar	0	2	0	1	1	0	1	0	0	0	1	1	1	0	1	0	1	1	1
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Thymus																			
Cortical Lymphocytolysis	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Hemorrhage	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0
6 Parathyroid glands	No Lesions																		

F1 Males: **53d** of age at necropsy	14-0226	14-0230	14-0234	14-0237	14-0238	14-0239	14-0248	14-0250	14-0254	14-0262	14-0265	14-0273	14-0280	14-0289	14-0290	14-0291	14-0294	14-0297	14-0299
THESE ARE F1 (FILIAL) GENERATION MALES	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos	High Dos
SLIDE NUMBER: (left-side, below)	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male	F1 Male
6 Thyroid gland								NP											
Distention, follicular	0	0	0	0	0	0	0		0	0	2	0	1	0	0	0	0	0	0
Macrophages, intrafollicular	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Cyst , lined with squamous epith	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Debris, cellular, intrafollicular	0	0	0	0	0	1	0		1	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, perifollicular	0	0	0	0	0	0	0		1	0	0	0	0	0	0	0	0	0	0
6 Lymph node -mast cell infiltrate	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0
7 Heart																			
Infiltrate, mast cells? Perivasc, focal	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0
Fibrosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Fibrosis, perivascular	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
8 Kidneys																			
Pyknosis, inner stripe	0	0	**1**	0	0	1	0	1	0	0	0	2	1	1	1	1	1	1	1
Infiltrate, lymphocytic, periglomerular	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Protein in tubules, pale eosinophilic (some	1	0	1	0	1	1	1	0	1	1	0	1	3	1	1	1	0	1	1
Infiltrate, lymphocytic, interstitial,	1	1	1	0	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0
Gomeruli, expansion of mesangial matrix,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, thickened basement membrane (as	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as	0	1	0	0	0	1	1	1	0	0	1	0	1	0	0	0	1	1	0
8 Adrenal glands																			
Cytoplasmic vacuoles, tiny, z. fascicularis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Z. glomerulosa or fascicularis pale cells	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Liver																			
Eosinophils, portal	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Infiltrate, histiocytic (+/- lympho-), focal	0	1	1	1	0	1	0	1	1	0	0	0	1	0	0	0	1	1	0
Infiltrate, peri-bile ductule, lymphocytic	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Hematopoiesis, extramedullary	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	0	1	0	1
Infiltrate, lymphocytic, **centrilobular**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Hyperplasia, biliary, portal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
Necrosis, hepatocellular, single cell	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Infiltrate, lymphocytic (+/- plasmacytic)	1	1	1	1	1	0	1	1	1	1	1	1	0	2	1	0	0	0	0
Congestion	0	0	0	0	0	0	1	1	1	1	0	1	0	0	1	1	0	0	1
Precipate, mineral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells, portal	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Infiltrate, neutrophilic, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9 Spleen																			
Extramedullary hematopoesis (at final tally all	1	1	1	0	0	0	1	0	2	0	0	1	1	2	1	1	2	1	0
Presence of Germinal Centers	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1

F1 MALE REPRODUCTIVE TISSUES

F1 MALES (53 days old)	14-0221	14-0222	14-0229	14-0232	14-0241	14-0245	14-0246	14-0247	14-0251	14-0252	14-0256	14-0257	14-0258	14-0266	14-0271	14-0275	14-0277	14-0283	14-0296	14-0298
	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
TESTIS (NA = tissue not available)				NP								NP								
Reduced diameter of Testis	0	0	0		0	0	1	1	0	1	0		0	0	1	1	0	0	0	0
Leydig cell Δ's (big, little,	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Sertoli-only tubules	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Sertoli cell Δ	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Inappropriate Mitotic figures	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Multinucleate giant cells	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Sloughed germ cells into	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Dilation (or shrinkage) of	0	0	0		1	0	0	0	0	0	0		0	1	0	0	0	0	0	0
Retained spermatids (visible	0	0	0		0	1	0	0	0	0	0		0	0	0	0	0	0	0	0
Vacuoles within Sertoli cell	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Apoptotic cells	0	0	0		0	1	0	0	0	0	0		0	0	0	0	0	0	0	0
Germ cell-free gaps	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Lack of elongating spermatids!	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Epididymis				NP								NP								
Leukocyte infiltration	0	0	1		1	1	1	0	1	1	0		0	0	0	1	0	0	0	1
Spermatic granuloma	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Δ in constitutive cells (e.g.,	0	0	1		0	0	0	0	0	0	0		0	0	0	0	0	1	0	0
Hypospermia	0	0	0		3	0	0	0	0	0	0		0	0	0	0	0	0	0	1
Inapprop cell types in lumen	0	0	1		0	0	0	0	0	1	0		0	1	0	0	0	0	0	0
Ectatic lymphatics w/protein	0	1	0		0	0	0	0	1	1	0		1	0	0	0	0	0	1	0
Cribriform change in Cauda	1	0	0		0	0	0	0	0	0	0		0	0	0	0	0	1	0	0
Dilatation	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	1	0
Prostate				NP								NP								
Prostate (dorsal, lateral, ventral) Round cells in lumen	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Acini contain sloughed round	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0	0

F1 MALES (53 days old)	14-0225	14-0226	14-0230	14-0234	14-0237	14-0238	14-0239	14-0248	14-0250	14-0254	14-0262	14-0265	14-0273	14-0280	14-0289	14-0290	14-0291	14-0294	14-0297	14-0299
	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
TESTIS (NA = tissue not available)																				
Reduced diameter of Testis	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	1	3	2	1	2
Leydig cell Δ's (big, little,	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoli-only tubules	0	2	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	1
Sertoli cell Δ	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Inappropriate Mitotic figures	1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Multinucleate giant cells	1	2	1	1	0	1	2	1	1	2	2	4	1	2	2	2	1	1	1	2
Sloughed germ cells into	2	2	3	4	2	1	2	1	2	3	2	4	4	4	4	3	2	2	2	2
Dilation (or shrinkage) of	2	2	2	0	0	0	0	0	1	0	0	2	2	4	0	2	0	2	2	2
Retained spermatids (visible	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Vacuoles within Sertoli cell	0	4	4	2	0	0	1	2	4	4	1	5	5	2	1	2	2	2	2	2
Apoptotic cells	2	2	3	3	2	1	4	3	4	4	3	5	5	3	3	2	2	2	2	2
Germ cell-free gaps	1	4	3	2	1	1	3	2	3	3	2	5	3	1	0	2	1	1	1	1
Lack of elongating spermatids!	5	5	5	5	5	5	5	3	5	5	5	5	5	5	5	5	4	5	5	5
Epididymis																				
Leukocyte infiltration	0	1	0	0	1	0	1	0	0	1	0	0	1	1	1	0	1	1	0	0
Spermatic granuloma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Δ in constitutive cells (e.g.,	0	0	0	0	3	0	2	0	0	0	0	1	0	0	5	0	0	3	1	0
Hypospermia	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	3	3	3
Inapprop cell types in lumen	3	3	2	1	1	1	1	3	2	1	2	1	2	0	1	1	3	1	1	0
Ectatic lymphatics w/protein	1	1	1	0	0	0	1	1	0	2	2	1	1	0	0	0	0	0	1	0
Cribriform change in Cauda	1	1	1	1	2	0	1	2	1	1	1	1	3	3	2	1	1	1	0	0
Dilatation	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0
Prostate										NP										
Prostate (dorsal, lateral, ventral) Round cells in lumen	0	0	0	0	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0
Acini contain sloughed round	0	0	0	0	0	0	0	2	0		0	0	0	3	0	0	3	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0

F1 MALES (53 days old)	14-0224	14-0227	14-0231	14-0236	14-0240	14-0242	14-0243	14-0244	14-0249	14-0253	14-0255	14-0260	14-0263	14-0264	14-0276	14-0278	14-0279	14-0286	14-0287	14-0288
	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
TESTIS (NA = tissue not available)																				
Reduced diameter of Testis	1	1	1	1	1	0	1	0	1	0	1	0	0	0	1	1	1	1	0	1
Leydig cell Δ's (big, little,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoli-only tubules	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoli cell Δ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inappropriate Mitotic figures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Multinucleate giant cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sloughed germ cells into	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilation (or shrinkage) of	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained spermatids (visible	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vacuoles within Sertoli cell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apoptotic cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Germ cell-free gaps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lack of elongating spermatids!	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epididymis																				
Leukocyte infiltration	1	1	0	0	0	0	0	1	1	1	1	0	0	1	0	1	1	0	0	0
Spermatic granuloma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Δ in constitutive cells (e.g.,	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Hypospermia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	2	1
Inapprop cell types in lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ectatic lymphatics w/protein	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cribriform change in Cauda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilatation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prostate																				
Acini contain sloughed round	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0
Seminal Vesicle																				
Intraluminal round cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

F1 MALES (53 days old)	14-0223	14-0228	14-0233	14-0235	14-0259	14-0261	14-0267	14-0268	14-0269	14-0270	14-0272	14-0274	14-0281	14-0282	14-0284	14-0285	14-0292	14-0293	14-0295	14-0300
	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
TESTIS (NA = tissue not available)																				
Reduced diameter of Testis	1	2	1	2	0	0	0	1	2	3	0	0	1	1	2	0	0	1	1	0
Leydig cell Δ's (big, little,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoli-only tubules	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoli cell Δ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inappropriate Mitotic figures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Multinucleate giant cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sloughed germ cells into	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilation (or shrinkage) of	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained spermatids (visible	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vacuoles within Sertoli cell	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apoptotic cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Germ cell-free gaps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lack of elongating spermatids!	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epididymis																				
Leukocyte infiltration	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Spermatic granuloma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Δ in constitutive cells (e.g.,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hypospermia	0	0	0	0	0	0	0	0	0	3	0	2	0	1	3	5	3	1	0	2
Inapprop cell types in lumen	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0
Ectatic lymphatics w/protein	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cribriform change in Cauda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
Dilatation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prostate																				
Acini contain sloughed round	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphoplasmacytic	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0
Seminal Vesicle																				
Intraluminal round cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilated lumen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

F1 WEANLING REPRODUCTIVE TISSUES

	14-0157-1	14-0162-3	14-0163-3	14-0185-3	14-0185-4	14-0186-4	14-0191-1	14-0196-5	14-0198-3	14-0198-5	14-0126-5	14-0127-1	14-0131-4	14-0131-5	14-0135-5	14-0151-1	14-0159-3	14-0172-5	14-0216-1	14-0216-5
WEANLING pups at PND 22 +/- 1 day	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
TESTIS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Apoptotic cells	0	0	0	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0
EPIDIDYMIS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

FEMALE RATS

PGEN FEMALE SOMATIC AND REPRODUCTIVE TISSUES

P Generation Females: approx. **21 weeks**	14-0121	14-0122	14-0130	14-0133	14-0143	14-0148	14-0149	14-0150	14-0156	14-0157	14-0161	14-0162	14-0163	14-0173	14-0179	14-0185	14-0186	14-0191	14-0196	14-0198	14-0205	14-0207	14-0215	14-0217
These are Parental Generation Females	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
SLIDE NUMBER: Tissue or Lesion																								
BRAIN, anterior, approx Br 3.0mm(Forceps minor cc)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Congestion, meningeal or perivasc extravasation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CORPUS CALLOSSUM	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
HIPPOCAMPUS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
PITUITARY	P	NP	NP	P	P	P	NP	P	P	NP	P	NP	P	P	NP	P	P	P	NP	P	P	NP	NP	P
Cyst (Rathke's pouch remnant)	1			0	0	0		0	0		0		0	0		0	0	0		0	0			0
CEREBELLUM /BRAINSTEM	P	P	P	P	P	P	P	P	P	P	P	P	NP	P	P	P	P	P	P	NP	P	P	NP	P
PINEAL GLAND	P	NP	P	NP	P	NP	NP	P	NP	NP	NP	NP	NP	NP	NP	P	NP	NP	NP	NP	P	P	P	NP
LUNG																								
Type II pneumocyte hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Congestion, alveolar septal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Edema, perivascular proteinaceous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Edema, alveolar	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, subpleural	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Infiltrate, alveolar, histiocytic	0	1	1	1	1	1	1	1	1	1	0	2	0	0	1	1	1	2	1	1	0	0	1	0
Infiltrate, eosinophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lymphocytes, perivascular	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fibrosis, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fibrin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Infiltrate, mast cells	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neutrophils,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Hemorrhage, intraalveolar	0	1	0	0	0	0	1	1	0	0	0	1	0	0	1	0	1	1	0	0	1	1	0	0
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

THYMUS					NP																			
Epithel remnants (Str Squm or Cilia-lined)	0	0	0	0		1	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	1	0	0
Cortical Lymphocytolysis	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Germinal centers"focal med. B cell hyperplasia"(4X)	1	0	0	0		0	0	0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0
Hemorrhage	0	1	1	1		1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
LYMPH NODE (not required)	P	P	NP	NP	NP	NP	NP	P	NP	P	P	P	NP	NP	NP	P	NP	P	NP	P	NP	NP	P	P
Erythrophagocytosis	0	0						0		0	0	0				0		0		0			0	0
Medullary sinus erythrocytes	1	0						1		0	0	0				1		0		0			0	0
Infiltrate, mast cells	1	0						1		1	1	1				0		1		1			1	0
PARATHYROID GLAND	NP	P	P	P	NP	NP	NP	P	NP	P	NP	NP	NP	P	NP	NP	NP	NP	NP	NP	P	NP	NP	NP
Ectopic thymus		0	0	0				0		0				0							0			
THYROID GLAND					NP																			
Follicular cell hypertrophy (+/- vacuoles)	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Cystic Follicles	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Macrophages, intrafollicular	0	0	0	0		0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0
Cyst, ultimobranchial (lined by squamous epith)	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Debris, cellular, intrafollicular	1	0	0	0		0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	3	0	0
HEART																								
Fibrosis	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Infiltrate, lymphohistiocytic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adipose tissue, inflammatory infiltrates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KIDNEYS																								
Congestion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Dilatation, tubular or vascular (congestion?)	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	4	0	0	0	1
Pyknosis, inner stripe	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Protein in tubules, pale eosinophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Infiltrate, lymphocytic, interstitial,	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
Glomerular Bowman's capsule cuboidal or	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Tubules, thickened basement membrane (as in	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as regenerating)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Mineral	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

ADRENAL GLANDS																								
Necrosis, focal, with mineral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zona glomerulosa hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extracapsular cortical cells/nodules	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Hemangiectasis	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	1	0	1
Cortical vacuolation, diffuse (10X)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
Medullary cells, ectopic	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
LIVER																								
Infiltrate, histiocytic (virtually all include lymphocytes)	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0
Hepatocellular vacuoles (compare at 10X)*=pattern	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0
Infiltrate, lympho- (histio)cytic, centrilobular	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Necrosis, hepatocellular, single cell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Infiltrate, lymphocytic, portal	0	0	0	0	1	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0
Congestion	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Infiltrate, neutrophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SPLEEN																								
Extramedullary hematopoesis ('1's may be 'wnl')	1	1	0	1	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0
OVARIES																								
Sertoliform tubules	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proestrus	x			x			x	X	x	x	x	x	x		x			x				x		x
Estrus														x							x			
Metestrus		X				x													x					
Diestrus			x		x											X	X			x			x	
UTERUS																								
Fibrosis, periglandular	0	1	0	0	0	1	0	0	1	0	0	0	1	0	1	2	2	2	1	2	2	1	2	2
Infiltrate, histiocytic w/pigment (subserosal, vascular layer)	2	3	3	3	1	3	3	3	3	2	0	3	3	3	3	2	3	3	2	3	3	2	4	3
Infiltrate, lymphohistiocytic, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proestrus (Luminal dilation)	x			x			x	x	x	x		x	x					x				x		
Estrus											x			x	x						x			x
Neutrophils in gland lumina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Metestrus		X														x			x					
Diestrus			x		x					x							x			x			x	
VAGINA/CERVIX																						NP		
Proestrus	x		x	x			x	x	x	x		x	x		x			x						
Stratum germinativum hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estrus											x			x							x			x
Metestrus		X				x										x				x				
Diestrus					x												x*						x	

P Generation Females: approx. 21 weeks	14-0126	14-0127	14-0131	14-0135	14-0139	14-0140	14-0141	14-0151	14-0155	14-0159	14-0167	14-0168	14-0172	14-0181	14-0182	14-0184	14-0187	14-0189	14-0194	14-0208	14-0209	14-0210	14-0213	14-0216	14-0219
These are Parental Generation Females	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	Hi Dose	Hi Dose	Hi Dose	Hi Dose
SLIDE NUMBER: Tissue or Lesion																									
BRAIN, anterior, approx Br 3.0mm(Forceps minor cc)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	NP	P
Congestion, meningeal or perivasc extravasation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
CORPUS CALLOSSUM	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	P
HIPPOCAMPUS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	NE	P	P	P	P	P	P
PITUITARY	NP	P	P	P	P	P	NP	P	NP	P	P	P	P	NP	P	NP	NP	P	P	NP	NP	NP	NP	NP	NP
Cyst (Rathke's pouch remnant)		0	0	0	0	0		0		1	0	0	0		0			0	0			0			
CEREBELLUM /BRAINSTEM	P	NP	P	NP	P	P	P	P	P	P	P	P	P	P	P	P	NP	P	P	P	P	NP	NP	NP	NP
PINEAL GLAND	NP	P	NP	NP	P	NP	P	NP	NP	NP	P	P	NP	P	P	NP	P	NP	NP	NP	NP	P	NP	NP	NP
LUNG																									
Type II pneumocyte hyperplasia	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Congestion, alveolar septal	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Edema, perivascular proteinaceous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Edema, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Infiltrate, lymphohistiocytic, subpleural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Infiltrate, alveolar, histiocytic	2	2	1	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	0	1	0	0
Infiltrate, eosinophilic	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lymphocytes, perivascular	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Fibrosis, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Fibrin	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Infiltrate, mast cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neutrophils,	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Hemorrhage, intraalveolar	0	0	0	1	1	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	1	4	0	1	1
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THYMUS																									
Epithel remnants (Str Squm or Cilia-lined)	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1
Cortical Lymphocytolysis	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	2
Germinal centers"focal med. B cell hyperplasia"(4X)	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Hemorrhage	1	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0
LYMPH NODE (not required)	NP			NP			NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	P	NP	NP	NP
Erythrophagocytosis		1	0		1	1												0	0	0		1			
Medullary sinus erythrocytes		0	0		1	1												1	0	0		1			
Infiltrate, mast cells		1	1		0	0												0	1	0		0			
PARATHYROID GLAND	P		P	P	P	NP	NP	NP	NP	P	P	NP	P	NP	P	P	P	NP	NP	P	P	NP	NP	P	P
Ectopic thymus	0		0	0	0					0	0				0	0	0			0	0			0	0

THYROID GLAND											NP														
Follicular cell hypertrophy (+/- vacuoles)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
Cystic Follicles	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	3	0	0	0
Macrophages, intrafollicular	0	1	1	0	0	0	0	1	0	0	0		0	0	0	0	0	0	1	0	0	4	0	0	0
Cyst, ultimobranchial (lined by squamous epith)	0	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	1	0	0	4	0	0	0
Debris, cellular, intrafollicular	0	0	1	0	0	0	1	0	0	0	0		0	0	0	1	0	0	1	0	0	4	0	1	2
HEART																									
Fibrosis	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Adipose tissue, inflammatory infiltrates	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KIDNEYS																									
Congestion	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Dilatation, tubular or vascular (congestion?)	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0	4	0	2	2
Pyknosis, inner stripe	0	2	0	1	0*	1	2	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Protein in tubules, pale eosinophilic	1	1	0	0	1	1	1	0	0	1	1	2	1	1	1	2	0	1	1	1	1	4	1	1	0
Infiltrate, lymphocytic, interstitial,	0	0	1	2	1	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Glomerular Bowman's capsule cuboidal or	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, thickened basement membrane (as in	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as regenerating)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mineral	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
ADRENAL GLANDS																									
Necrosis, focal, with mineral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Zona glomerulosa hyperplasia	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Extracapsular cortical cells/nodules	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hemangiectasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Cortical vacuolation, diffuse (10X)	2	1	1	1	1	0	1	0	1	1	1	0	1	0	1	1	0	1	0	1	0	0	0	0	1
Medullary cells, ectopic	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
LIVER																									
Infiltrate, histiocytic (virtually all include lymphocytes)	1	0	0	1	0	0	0	1	1	1	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0
Hepatocellular vacuoles (compare at 10X)*=pattern	0	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	0	1	0	0	0	1	0	0
Infiltrate, lympho- (histio)cytic, centrilobular	1	1	1	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Necrosis, hepatocellular	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0
Infiltrate, lymphocytic, portal	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0
Congestion	0	0	0	0	1	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	4	0	0	0
Infiltrate, neutrophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
SPLEEN								NP																	
Extramedullary hematopoesis ('1's may be 'wnl')	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OVARIES																									
Sertoliform tubules	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proestrus	x		x					x				x		X	X										
Estrus					x				x				X			X	X								
Metestrus		x				x												X	X	X				X	

UTERUS																									
Fibrosis, periglandular	0	1	0	1	0	1	2	0	1	2	2	0	0	0	1	1	0	0	1	1	1	3	2	0	2
Infiltrate, histiocytic w/pigment (subserosal, vascular layer)	2	3	4	0	3	3	2	1	3	3	3	0	2	2	2	0	0	2	0	1	3	4	3	2	2
Infiltrate, lymphohistiocytic, focal	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proestrus (Luminal dilation)	X		X					X				X		X	X						X				X
Estrus					X				X	X			X			X	X								
Neutrophils in gland lumina	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metestrus		X				X	X											X	X	X				X	
Diestrus				X							X											x	X		
VAGINA/CERVIX												NP				NP	NP								
Proestrus	X		X					X						X	X						X				X
Stratum germinativum hyperplasia	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estrus					X					X			X												
Metestrus		X				X	X												X	X				X	
Diestrus				X							X							X				X	X		

PARENTAL GENERATION Females	14-0121	14-0122	14-0130	14-0133	14-0143	14-0148	14-0149	14-0150	14-0156	14-0157	14-0161	14-0162	14-0163	14-0173	14-0179	14-0185	14-0186	14-0191	14-0196	14-0198	14-0205	14-0207	14-0215	14-0217
	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
KIDNEYS																								
Congestion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Dilatation, tubular	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	2	1	0	1	0	0	0	1
Pyknosis, inner stripe	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Protein in tubules, pale eosinophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Infiltrate, lymphocytic, interstitial,	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
Glomerular Bowman's capsule: cuboidal	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Tubules, thickened basement membrane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Mineral	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Glomerular Bowman's capsule thickened	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infarct (w/tubule regen, l-p infiltrate,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PGEN FEMALE KIDNEYS AT 720 MG/KG NTO

PARENTAL GENERATION Females dosed with 720mg/kg NTO	14-0124	14-0128	14-0132	14-0138	14-0142	14-0144	14-0145	14-0146	14-0147	14-0152	14-0153	14-0158	14-0160	14-0165	14-0169	14-0170	14-0171	14-0188	14-0190	14-0192	14-0193	14-0201	14-0202	14-0203	14-0204
	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
KIDNEYS																									
Congestion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Dilatation, tubular	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0
Pyknosis, inner stripe	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0
Protein in tubules, pale eosinophilic	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, interstitial,	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glomerular Bowman's capsule: cuboidal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Tubules, thickened basement membrane	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mineral	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0
Glomerular Bowman's capsule thickened	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infarct (w/tubule regen, l-p infiltrate,	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

F1 FEMALE SOMATIC AND REPRODUCTIVE TISSUES

F1 Females: 42d at necropsy	14-0301	14-0302	14-0309	14-0312	14-0321	14-0325	14-0326	14-0327	14-0331	14-0332	14-0336	14-0337	14-0338	14-0346	14-0351	14-0355	14-0357	14-0363	14-0376	14-0378
These are F1 FEMALES	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
SLIDE NUMBER: Tissue or Lesion																				
1 Brain, ant (Ideally **Olf Lobe),** gen'ly Br 3.0mm(Forceps minor corp callos)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Congestion, meningeal or perivasc extravasation	0	0	0	0	0	0	0	0	0	o	0	0	0	0	0	0	0	0	1	0
2 Corpus callosum (often with hippocampus)	P	P	P	NP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3 Hippocampus	NP	NP	NP	P	P	NP	P	NP	P	P	P	P	P	NP	P	P	P	P	P	P
4 Pituitary	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	P	P	P	NP	P	NP
4 Cerebellum with brainstem	NP	NP	P	P	P	P	P	P	P	P	P	P	NP	P	P	P	P	P	NP	P
4 Pineal gland	P	NP	NP	NP	NP	P	P	P	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	P	P
5 Lung																				
Tunica media hypertrophy (needs 3 affected vessels)	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Type II pneumocyte hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Congestion, alveolar septal	0	0	0	0	0	0	0	2	0	2	1	1	0	1	0	0	0	0	0	0
Osseous metaplasia, focal	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Edema, perivascular proteinaceous	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0
Edema, alveolar	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, subpleural	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Infiltrate, eosinophilic	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	0	0
Fibrin thrombi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neutrophils,	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Hemorrhage, intraalveolar	1	1	1	1	0	1	0	2	1	1	2	1	1	1	0	0	0	1	1	1
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
6 Thymus																				
Cortical Lymphocytolysis (compare at 10X)	0	1	1	1	1	0	0	1	0	1	1	1	1	1	0	1	1	1	1	1
Hemorrhage	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
6 Parathyroid glands	NP	NP	NP	P	P	P	NP	NP	P	NP	P	NP	P	NP	P	NP	P	P	P	P
Ectopic thymus				0	0	0			1		0		0		0		0	0	0	0
6 Thyroid gland																				
Hyperplasia, C cell	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Macrophages, intrafollicular	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Cyst , lined with squamous epith	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1	1
Debris, cellular, intrafollicular	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Infiltrate, lymphohistiocytic, perifollicular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Lymph node	NP	NP	P	NP	NP	NP	P	NP	NP	P	NP	NP	P	NP	P	NP	NP	NP	NP	P
Medullary sinus erythrocytes			1				0			0			1		0					1
Infiltrate, mast cells			1				0			0			1		1					1
7 Heart																				
Proliferation, subendocardial, mesenchymal	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Necrosis, myocardial, single cell	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells	0	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	1	0
Fibrosis, perivascular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Adipocyte infiltration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
8 Kidneys																				
Congestion	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Dilatation, tubular or vascular	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Hemorrhage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Pyknosis, inner stripe	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, periglomerular	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Protein in tubules, pale eosinophilic	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0
Infiltrate, lymphocytic, interstitial,	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
Glomerular Bowman's capsule cuboidal or metaplasia	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0
Tubules, thickened basement membrane (as in CPN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Tubules, basophilic (not defined as regenerating)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0

F1 Females: 42d at necropsy	14-0301	14-0302	14-0309	14-0312	14-0321	14-0325	14-0326	14-0327	14-0331	14-0332	14-0336	14-0337	14-0338	14-0346	14-0351	14-0355	14-0357	14-0363	14-0376	14-0378
These are F1 FEMALES	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
8 Adrenal glands																				
Extracapsular adrenocortical tissue	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hemangiectasis	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Medullary cells, ectopic	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
9 Liver																				
Eosinophils, portal	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Infiltrate, histiocytic	1	0	1	0	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Focus of cellular differential staining	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Hepatocellular vacuoles (compare at 10X)*=pattern	1	0	1*	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	1	1
Infiltrate, peri-bile ductule, lymphocytic	1	1	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0	0	1	1
Hyperplasia, biliary, portal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Necrosis, hepatocellular, single cell	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, portal	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	0	1	1	1
Hepatocellular mitotic figures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Congestion, *=portal pattern	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Infiltrate, mast cells, portal	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
Infiltrate, neutrophilic	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Spleen																				
Extramedullary hematopoesis (at final tally all '1's will be wnl and dropped from 'findings')	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1
10 Ovaries																				
Mesothelial reactive hypertrophy	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Sertoliform tubules	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Proestrus	x		x	x			x	x	x	x		x			x	x	x	x		
Estrus		x			x	x					x									
Metestrus													x						x	x
Diestrus														x						
11 Uterus		P	P	P			P									NP				
Proestrus (Luminal dilation)							x		x			x								
Estrus						x		x												
Neutrophils in gland lumina																				
Metestrus		x	x		x						x		x	x	x					x
Diestrus	x			x						x							x	x	x	
11 Vagina/Cervix	NP	NP	P	NP	P		NP	NP		NP										
Proestrus												x								
Estrus			x						x											
Metestrus											x		x							x
Diestrus					x									X	x		x	x	x	

F1 Females: 42d at necropsy	14-0305	14-0306	14-0310	14-0314	14-0317	14-0318	14-0319	14-0328	14-0330	14-0334	14-0342	14-0345	14-0353	14-0360	14-0369	14-0370	14-0371	14-0374	14-0377	14-0379
These are F1 FEMALES	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
SLIDE NUMBER: Tissue or Lesion																				
1 Brain, ant (Ideally **Olf Lobe),** gen'ly Br 3.0mm(Forceps minor corp callos)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Congestion, meningeal or perivasc extravasation	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2 Corpus callosum (often with hippocampus)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3 Hippocampus	P	P	P	P	P	P	P	P	P	NP	P	NP	P	P	P	P	P	P	P	P
4 Pituitary	P	NP	NP	P	NP	NP	NP	P*	NP	P	P	P	NP	P	NP	P	P	P	NP	NP
4 Cerebellum with brainstem	NP	NP	NP	NP	P	P	P	NP	P	P	P	NP	P	NP	NP	NP	NP	P	P	NP
4 Pineal gland	P	NP	NP	P	NP	NP	P	NP	NP	NP	NP	P	NP	NP	NP	P	P	NP	P	P
5 Lung																				
Tunica media hypertrophy (needs 3 affected vessels)	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type II pneumocyte hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Congestion, alveolar septal	0	0	0	0	0	1	0	4	0	0	0	1	0	0	1	0	0	3	0	0
Osseous metaplasia, focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Edema, perivascular proteinaceous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Edema, alveolar	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphohistiocytic, subpleural	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Infiltrate, eosinophilic	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Fibrin thrombi	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Neutrophils,	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, with engulfed RBC's	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Hemorrhage, intraalveolar	1	0	1	0	1	1	0	3	0	1	1	1	0	0	0	0	0	0	0	1
Crystals, eosinophilic, alveolar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Thymus																				
Cortical Lymphocytolysis (compare at 10X)	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hemorrhage	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0
6 Parathyroid glands	NP	NP	NP	NP	NP	P	NP	NP	NP	P	P	P	NP	P	P	NP	P	P	NP	NP
Ectopic thymus						0				0	0	0		0	0		0	0		
6 Thyroid gland																				
Hyperplasia, C cell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrophages, intrafollicular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyst , lined with squamous epith	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
Debris, cellular, intrafollicular	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Infiltrate, lymphohistiocytic, perifollicular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
6 Lymph node	NP	NP	NP	NP	P	NP	NP	P	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	P
Medullary sinus erythrocytes					1			1												1
Infiltrate, mast cells					1			1												1
7 Heart																				
Proliferation, subendocardial, mesenchymal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Necrosis, myocardial, single cell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, mast cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0
Fibrosis, perivascular	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Adipocyte infiltration	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Infiltrate, lymphohistiocytic	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8 Kidneys																				
Congestion	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Dilatation, tubular or vascular	1	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	1	1
Hemorrhage	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Pyknosis, inner stripe	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, periglomerular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protein in tubules, pale eosinophilic	1	0	0	1	0	0	0	1	1	1	1	1	1	0	1	1	0	1	1	0

F1 Females: 42d at necropsy	14-0305	14-0306	14-0310	14-0314	14-0317	14-0318	14-0319	14-0328	14-0330	14-0334	14-0342	14-0345	14-0353	14-0360	14-0369	14-0370	14-0371	14-0374	14-0377	14-0379
These are F1 FEMALES	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Infiltrate, lymphocytic, interstitial,	1	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
Glomerular Bowman's capsule cuboidal or metaplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tubules, thickened basement membrane (as in CPN)	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as regenerating)	1	0	1	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	1	0
8 Adrenal glands																				
Extracapsular adrenocortical tissue	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
Hemangiectasis	1	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	1	0	0
Medullary cells, ectopic	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Liver																				
Eosinophils, portal	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Infiltrate, histiocytic	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0
Focus of cellular differential staining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hepatocellular vacuoles	1	0	1	0	1	0	1	1	0	1	2	0	0	0	0	1	1	2	0	2
Infiltrate, peri-bile ductule, lymphocytic	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	0	0	1	0	1
Hyperplasia, biliary, portal	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Necrosis, hepatocellular, single cell	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0
Infiltrate, lymphocytic, portal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Hepatocellular mitotic figures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Congestion, *=portal pattern	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1*	1	0	1
Infiltrate, mast cells, portal	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, neutrophilic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Spleen																				
Extramedullary hematopoesis (all '1's are wnl)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10 Ovaries																				
Mesothelial reactive hypertrophy	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sertoliform tubules	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proestrus	x		x		x		x	x	x		x	x							x	
Estrus		x													x	x	x	x		
Metestrus				x									x							
Diestrus						x				x				x						x
11 Uterus																				
Proestrus (Luminal dilation)	x		x		x		x	x	x		x	x							x	
Estrus		x										x			x	x	x	x		
Neutrophils in gland lumina																		2		
Metestrus				x		x							x							
Diestrus										x				x						x
11 Vagina/Cervix																				
Proestrus	x		x		x		x	x	x		x								x	
Estrus		x										x			x	x	x	x		
Metestrus						x							x							
Diestrus										x				x						x

F1 FEMALE KIDNEYS CONTROL VERSUS 720 MG/KG NTO

First Filial (F1) GENERATION Females	14-0301	14-0302	14-0309	14-0312	14-0321	14-0325	14-0326	14-0327	14-0331	14-0332	14-0336	14-0337	14-0338	14-0346	14-0351	14-0355	14-0357	14-0363	14-0376	14-0378
	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Ctrl
KIDNEY																				
Congestion	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Protein in tubules, pale eosinophilic	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
Dilatation, tubular or vascular	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Hemorrhage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Pyknosis, inner stripe	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, periglomerular	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Infiltrate, lymphocytic, interstitial,	1	0	0	1	0	0	1	0	0	0	1	0	0	0	1	1	0	0	0	1
Glomerular Bowman's capsule, cuboidal or metaplasia	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0
Tubules, thickened basement membrane (CPN)	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0	0
Tubules, basophilic (not defined as regenerating)	1	0	0	1	1	1	0	0	0	1	1	1	0	1	1	1	0	1	0	0
Infarct	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

First Filial (F1) GENERATION Females	14-0304	14-0307	14-3011	14-0316	14-0320	14-0322	14-0323	14-0324	14-0329	14-0333	14-0335	14-0340	14-0343	14-0344	14-0356	14-0358	14-0359	14-0366	14-0367	14-0368
	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
KIDNEY																				
Congestion	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0
Protein in tubules, pale eosinophilic	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0
Dilatation, tubular or vascular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hemorrhage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pyknosis, inner stripe	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Infiltrate, lymphocytic, periglomerular	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltrate, lymphocytic, interstitial,	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Glomerular Bowman's capsule, cuboidal or metaplasia	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, thickened basement membrane (CPN)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubules, basophilic (not defined as regenerating)	0	0	0	0	1	1	1	0	1	0	0	1	1	1	0	0	1	0	0	1
Infarct	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

APPENDIX D

STATISTICAL ANALYSIS OF HISTOLOGIC FINDINGS OF NTO-EXPOSED RATS

Analysis Methods

Animals from the Control and NTO-exposed groups were observed for any histologic changes (referred to as metrics for statistical purposes). Each animal was classified (per 'metric') on 0-4 or 0-5 (the latter for male reproductive tissue only) classification scale (shown in Table 1).

Due to overall small sample sizes, a Fisher's Exact Test was used to compare the distribution of animals classified on the 0-5 scale for the two respective Control and High Dose groups. A p-value < 0.05 indicates a statistically significant result, meaning the distribution was different between the Control and High Dose groups. SAS® 9.4 was used to analyze the data; therefore, it was not necessary to collapse data into 2 x 2 contingency tables.

MALE AND FEMALE SOMATIC TISSUE SCORING SCALE

Rating	Description
0	Normal: No abnormalities or known background lesions
1	Minimal: affecting up to and including 5% of the tissue
2	Mild: affecting 6-20% of the tissue
3	Moderate: affecting 21-50% of the tissue
4	Marked: affecting > 50% of the tissue

MALE REPRODUCTIVE TISSUE SCORING SCALE

Rating	Description
0	No Effect
1	Minimum Effect (<5% of tissue affected)
2	Mild Effect (6-20% of tissue affected)
3	Moderate Effect (21-50% of tissue affected)
4	Marked Effect (51-75% of tissue affected)
5	Severe Effect (>75% of tissue affected)

RESULTS

The following tables describe (a) the p-values derived from analysis of each histologic score with a statement of whether the control or NTO-exposed group had the higher score and (b) the incidence of scores in each group of animals that were compared. Analysis is provided for the following exposure groups:

MALE RATS

PGEN MALES SOMATIC TISSUE (CONTROL, HIGH) EXCLUDING AND INCLUDING 14-0101

Fisher's Exact Test Results for High Dose NTO-Treated P1 (Parental) Generation Males: approx. 19 weeks at necropsy			
	Analyses EXCLUDE Control: 14-0101		
Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
1 Anterior brain (+/- Olfactory Lobe)	Congestion, meningeal	1.0000	No sig. difference between Control and High Dose
	Infiltrate, meningeal, mononuclear	0.4898	No sig. difference between Control and High Dose
2 Corpus callosum (+/- hippocampus)	Infiltrate, mononuclear, ependymal	1.0000	No sig. difference between Control and High Dose
4 Pituitary	Cyst (Rathke's pouch remnant)	1.0000	No sig. difference between Control and High Dose
5 Lung	Congestion, alveolar septal	0.0232	High Dose Group had sig. higher proportion with this effect
	Edema, perivascular proteinaceous	0.1696	No sig. difference between Control and High Dose
	Edema, alveolar, focal, with foamy macrophages	1.0000	No sig. difference between Control and High Dose
	Infiltrate, alveolar, histiocytic	0.6092	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, subpleural	0.1383	No sig. difference between Control and High Dose
	Infiltrate, peribronchiolar, lymphocytic	0.4898	No sig. difference between Control and High Dose
	Infiltrate, neutrophilic	0.5102	No sig. difference between Control and High Dose
	Infiltrate, mast cells	0.7019	No sig. difference between Control and High Dose
	Fibrin thrombi	1.0000	No sig. difference between Control and High Dose
	Macrophages, with engulfed RBC's	1.0000	No sig. difference between Control and High Dose
	Ectopic bone formation, intra-alveolar	1.0000	No sig. difference between Control and High Dose
	Hemorrhage, intraalveolar	0.4624	No sig. difference between Control and High Dose
	Crystals, eosinophilic, alveolar	1.0000	No sig. difference between Control and High Dose
	Eosinophils	1.0000	No sig. difference between Control and High Dose
6 Thymus	Remnant, epithelial	0.1868	No sig. difference between Control and High Dose
	Extramedullary hematopoiesis	1.0000	No sig. difference between Control and High Dose
	Cortical Lymphocytolysis	1.0000	No sig. difference between Control and High Dose
	Hemorrhage	0.7467	No sig. difference between Control and High Dose
6 Thyroid gland	Distention, follicular	0.4889	No sig. difference between Control and High Dose
	Macrophages, intrafollicular	0.4889	No sig. difference between Control and High Dose
	Cyst, follicular	1.0000	No sig. difference between Control and High Dose
	Debris, cellular, intrafollicular	0.4977	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, perifollicular	1.0000	No sig. difference between Control and High Dose
	Mast cells, parafollicular	0.4889	No sig. difference between Control and High Dose
	Crystalline material, eosinophilic, intrafollicular	1.0000	No sig. difference between Control and High Dose

6 Lymph node	Sinus histiocytosis	0.0613	No sig. difference between Control and High Dose
	Infiltrate, mast cells	0.0025	High Dose Group had sig. higher proportion with this effect
7 Heart	Hemorrhage, subendocardial	1.0000	No sig. difference between Control and High Dose
	myocytes, single cell nec (peracute) or differential staining	0.2347	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic	0.1099	No sig. difference between Control and High Dose
	Edema, perivascular	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, perivascular	0.2467	No sig. difference between Control and High Dose
	Infiltrate, mast cells? Perivasc, focal	0.2347	No sig. difference between Control and High Dose
	Infiltrate, adipocyte	0.6092	No sig. difference between Control and High Dose
	Fibrosis	0.4898	No sig. difference between Control and High Dose
	Fibrosis, perivascular	1.0000	No sig. difference between Control and High Dose
	Myocardial necrosis, lymphohistiocytic infiltrate	1.0000	No sig. difference between Control and High Dose
8 Kidneys	Pyknosis, inner stripe	0.3549	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, periglomerular	0.7019	No sig. difference between Control and High Dose
	Protein in tubules, pale eosinophilic	0.7733	No sig. difference between Control and High Dose
	Glomerular Bowman's capsule thickened	0.4635	No sig. difference between Control and High Dose
	Bowman's capsule metaplasia OR cuboidal epith	0.0022	High Dose Group had sig. higher proportion with this effect
	Infiltrate, lymphocytic	0.1398	No sig. difference between Control and High Dose
	Cyst, epithelial lined	1.0000	No sig. difference between Control and High Dose
	Tubules, thickened basement membrane (as	0.0488	CONTROL Group had sig. higher proportion with this effect
	Infarct (tubule regen, l-p infiltrate, depressed cortex)	1.0000	No sig. difference between Control and High Dose
	Tubules, basophilic	0.3451	No sig. difference between Control and High Dose
	Congestion +/- perivasc edema	1.0000	No sig. difference between Control and High Dose
8 Adrenal glands	Hemangiectasis	0.3157	No sig. difference between Control and High Dose
	Cytoplasmic vacuoles, tiny, z. fascicularis (granular appearance)	0.2753	No sig. difference between Control and High Dose
	Z. glomerulosa hyperplasia	1.0000	No sig. difference between Control and High Dose
	Extramedullary adrenal medulla cells (background lesion)	1.0000	No sig. difference between Control and High Dose
	Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)	1.0000	No sig. difference between Control and High Dose
9 Liver	Eosinophils, portal	1.0000	No sig. difference between Control and High Dose
	9 Infiltrate, histiocytic, focal	0.2467	No sig. difference between Control and High Dose
	Focus of cellular differential staining	0.2347	No sig. difference between Control and High Dose
	Infiltrate, peri-bile ductule, lymphocytic	0.0792	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, random	0.5607	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, centrilobular	0.7775	No sig. difference between Control and High Dose
	Hyperplasia, biliary, portal	0.1895	No sig. difference between Control and High Dose
	Necrosis, hepatocellular, single cell	0.4635	No sig. difference between Control and High Dose
	Necrosis, hepatocellular	0.3595	No sig. difference between Control and High Dose
	Infiltrate, lympho- (+/- plasmacytic), portal	0.5607	No sig. difference between Control and High Dose
	Congestion	1.0000	No sig. difference between Control and High Dose
9 Spleen	Extramedullary hematopoesis	<0.0001	High Dose Group had sig. higher proportion with this effect
	Pigment,golden-green, red pulp (hemosiderin?)	<0.0001	High Dose Group had sig. higher proportion with this effect

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

PGEN Male Somatic tissue incidence table EXCLUDES 14-0101 from analysis:

Tissue								
Anterior brain (meant to be Olfactory Lobe,	Congestion, meningeal							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49
	Infiltrate, meningeal, mononuclear							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49
Corpus callosum (+/- hippocampus)	Infiltrate, mononuclear, ependymal							
		0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	46	2	.	.	.	.	48
	Frequency Missing = 1							
Pituitary	Cyst (Rathke's pouch remnant)							
	Group	0	1	2	3	4	5	Total
	Ctrl	11	1	.	.	.	.	12
	High	11	1	.	.	.	.	12
	Total	22	2	.	.	.	.	24
	Frequency Missing = 25							
Lung	Congestion, alveolar septal							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	17	8	.	.	.	.	25
	Total	40	9	.	.	.	.	49
Lung	Edema, perivascular proteinaceous							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	0	.	.	.	24
	High	24	0	1	.	.	.	25
	Total	45	3	1	.	.	.	49
Lung	Edema, alveolar, focal, with foamy macrophages							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	45	4	.	.	.	.	49

Lung	Infiltrate, alveolar, histiocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	45	4	.	.	.	.	49

Lung	Infiltrate, lymphohistiocytic, subpleural							
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	41	8	.	.	.	.	49

Lung	Infiltrate, neutrophilic							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49

Lung	Group Infiltrate, mast cells							
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	42	7	.	.	.	.	49

Lung	Fibrin thrombi							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49

Lung	Macrophages, with engulfed RBC's							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49

Lung	Ectopic bone formation, intra-alveolar							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	46	3	.	.	.	.	49

Lung	Infiltrate, peribronchiolar, lymphocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49

Lung	Hemorrhage, intraalveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	11	12	1	.	.	.	24
	High	7	16	2	.	.	.	25
	Total	18	28	3	.	.	.	49

Lung	Crystals, eosinophilic, alveolar							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49

Thymus	Remnant, epithelial							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	.	.	.	.	23
	High	18	4	.	.	.	.	22
	Total	40	5	.	.	.	.	45
	Frequency Missing = 4							

Thymus	Extramedullary hematopoiesis							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	.	.	.	.	23
	High	22	0	.	.	.	.	22
	Total	44	1	.	.	.	.	45
	Frequency Missing = 4							

Thymus	Cortical Lymphocytolysis							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	.	.	.	.	.	23
	High	22	.	.	.	.	.	22
	Total	45	.	.	.	.	.	45
	Frequency Missing = 4							

Lung	Eosinophils							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49

Thymus	Hemorrhage						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	10	3	.	.	.	23
	High	11	10	1	.	.	.	22
	Total	21	20	4	.	.	.	45
	Frequency Missing = 4							
Thyroid	Distention, follicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	0					23
	High	21	1					22
	Total	44	1					45
	Frequency Missing = 4							
Thyroid	Macrophages, intrafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	2					23
	High	22	0					22
	Total	43	2					45
	Frequency Missing = 4							
Thyroid	Cyst, follicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	19	4					23
	High	19	3					22
	Total	38	7					45
	Frequency Missing = 4							

Thyroid	Debris, cellular, intrafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	2	0				23
	High	18	3	1				22
	Total	39	5	1				45
	Frequency Missing = 4							
Thyroid	Infiltrate, lymphohistiocytic, perifollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	23						23
	High	22						22
	Total	45						45
	Frequency Missing = 4							
Thyroid	Mast cells, parafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	2					23
	High	22	0					22
	Total	43	2					45
	Frequency Missing = 4							
Thyroid	Crystalline material, eosinophilic, intrafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	23						23
	High	22						22
	Total	45						45
	Frequency Missing = 4							
Lymph node	Sinus histiocytosis							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	0	.	.	.	.	23
	High	13	3	.	.	.	.	16
	Total	36	3	.	.	.	.	39
	Frequency Missing = 10							
	Infiltrate, mast cells							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	0	1	.	.	.	23
	High	10	6	0	.	.	.	16
	Total	32	6	1	.	.	.	39
	Frequency Missing = 10							

Heart	Hemorrhage, subendocardial						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	0	.	.	.	24
	High	23	1	1	.	.	.	25
	Total	46	2	1	.	.	.	49
Heart	Myocyte single cell nec (peracute)or differential staining							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	46	3	.	.	.	.	49
Heart	Infiltrate, lymphocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	21	4	.	.	.	.	25
	Total	45	4	.	.	.	.	49
Heart	Edema, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	45	4	.	.	.	.	49
Heart	Infiltrate, lymphocytic, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	19	5	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	42	7	.	.	.	.	49
Heart	Infiltrate, mast cells? Perivasc, focal							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	47	2	.	.	.	.	49
Heart	Infiltrate, adipocyte							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	46	3	.	.	.	.	49

Heart	Fibrosis						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	47	2	.	.	.	.	49

Heart	Fibrosis, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	46	3	.	.	.	.	49

Heart	Myocardial necrosis, lymphohistiocytic infiltrate							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	0	.	.	.	24
	High	21	3	1	.	.	.	25
	Total	43	5	1	.	.	.	49

Kidneys	Pyknosis, inner stripe							
	Group	0	1	2	3	4	5	Total
	Ctrl	17	5	2	.	.	.	24
	High	17	8	0	.	.	.	25
	Total	34	13	2	.	.	.	49

Kidneys	Infiltrate, lymphocytic, periglomerular							
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	42	7	.	.	.	.	49

Kidneys	Protein in tubules, pale eosinophilic							
	Group	0	1	2	3	4	5	Total
	Ctrl	14	10	.	.	.	.	24
	High	16	9	.	.	.	.	25
	Total	30	19	.	.	.	.	49

Kidneys	Glomerular Bowman's capsule thickened membrane							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	.	.	.	.	24
	High	19	6	.	.	.	.	25
	Total	40	9	.	.	.	.	49

Kidneys	Glomerular Bowman's capsule metaplasia OR cuboidal parietal epith						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	5	0	.	.	.	24
	High	8	16	1	.	.	.	25
	Total	27	21	1	.	.	.	49
Kidneys	Infiltrate, lymphocytic, interstitial or perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	6	17	1	.	.	.	24
	High	12	13	0	.	.	.	25
	Total	18	30	1	.	.	.	49
Kidneys	Cyst, epithelial lined							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1		.	.	.	24
	High	23	2		.	.	.	25
	Total	46	3		.	.	.	49
Kidneys	Tubules, thickened basement membrane (as seen in CPN)							
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	42	7	.	.	.	.	49
Kidneys	Infarct (with tubule regen, l-p infiltrate, depressed cortex.)							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
Kidneys	Tubules, basophilic (not defined as regenerating)							
	Group	0	1	2	3	4	5	Total
	Ctrl	16	8	.	.	.	.	24
	High	20	5	.	.	.	.	25
	Total	36	13	.	.	.	.	49
Kidneys	Congestion +/- perivasc edema							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49
Adrenal glands	Hemangiectasis							
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	0	.	.	.	24
	High	15	8	2	.	.	.	25
	Total	33	14	2	.	.	.	49

Adrenal glands	Cytoplasmic vacuoles, tiny, z. fascicularis (granular appearance)						
	Group	0	1	2	3	4	5	Total
	Ctrl	9	15	0	.	.	.	24
	High	5	19	1	.	.	.	25
	Total	14	34	1	.	.	.	49

Adrenal glands	Z. glomerulosa hyperplasia							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	46	3	.	.	.	.	49

Adrenal glands	Extramedullary adrenal medulla cells (background lesion)							
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	20	5	.	.	.	.	25
	Total	40	9	.	.	.	.	49

Adrenal glands	Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49

Liver	Eosinophils, portal							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49

Liver	9 Infiltrate, histiocytic, focal							
	Group	0	1	2	3	4	5	Total
	Ctrl	19	5	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	42	7	.	.	.	.	49

Liver	Focus of cellular differential staining						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	47	2	.	.	.	.	49

Liver	Infiltrate, peri-bile ductule, lymphocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	.	.	.	.	24
	High	12	13	.	.	.	.	25
	Total	30	19	.	.	.	.	49

Liver	Infiltrate, lymphohistiocytic, random							
	Group	0	1	2	3	4	5	Total
	Ctrl	16	8	.	.	.	.	24
	High	14	11	.	.	.	.	25
	Total	30	19	.	.	.	.	49

Liver	Infiltrate, lymphocytic, centrilobular							
	Group	0	1	2	3	4	5	Total
	Ctrl	13	11	.	.	.	.	24
	High	12	13	.	.	.	.	25
	Total	25	24	.	.	.	.	49

Liver	Hyperplasia, biliary, portal							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	20	5	.	.	.	.	25
	Total	43	6	.	.	.	.	49

Liver	Necrosis, hepatocellular, single cell							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	.	.	.	.	24
	High	19	6	.	.	.	.	25
	Total	40	9	.	.	.	.	49

Liver	Necrosis, hepatocellular							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	.	.	.	24
	High	22	2	1	.	.	.	25
	Total	46	2	1	.	.	.	49

Liver	Infiltrate, lympho- (+/- plasmacytic), portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	14	.	.	.	.	24
	High	8	17	.	.	.	.	25
	Total	18	31	.	.	.	.	49

Liver	Congestion							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	44	5	.	.	.	.	49

9 Spleen	Extramedullary hematopoesis							
	Group	0	1	2	3	4	5	Total
	Ctrl	15	9	.	.	.	.	24
	High	2	23	.	.	.	.	25
	Total	17	32	.	.	.	.	49
	Pigment,golden-green, red pulp (hemosiderin?)							
	Group	0	1	2	3	4	5	Total
	Ctrl	15	7	2	.	.	.	24
	High	3	22	0	.	.	.	25
	Total	18	29	2	.	.	.	49

PGEN MALE SOMATIC TISSUE INCLUDING 14-0101 IN CONTROL GROUP:

Fisher's Exact Test Results for High Dose NTO-Treated Parental Generation Males Analyses Include Control: 14-0101			
Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
Anterior brain (meant to be Olfactory Lobe,	Congestion, meningeal	1.0000	No sig. difference between Control and High Dose
	Infiltrate, meningeal, mononuclear	1.0000	No sig. difference between Control and High Dose
Corpus callosum (+/- hippocampus)	Infiltrate, mononuclear, ependymal	1.0000	No sig. difference between Control and High Dose
Pituitary	Cyst (Rathke's pouch remnant)	1.0000	No sig. difference between Control and High Dose
Lung	Congestion, alveolar septal	0.0232	High Dose Group had sig. higher proportion with this effect
	Edema, perivascular proteinaceous	0.2347	No sig. difference between Control and High Dose
	Edema, alveolar, focal, with foamy macrophages	1.0000	No sig. difference between Control and High Dose
	Infiltrate, alveolar, histiocytic	0.6092	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, subpleural	0.2467	No sig. difference between Control and High Dose
	Infiltrate, peribronchiolar, lymphocytic	1.0000	No sig. difference between Control and High Dose
	Infiltrate, neutrophilic	1.0000	No sig. difference between Control and High Dose
	Infiltrate, mast cells	1.0000	No sig. difference between Control and High Dose
	Fibrin thrombi	1.0000	No sig. difference between Control and High Dose
	Macrophages, with engulfed RBC's	1.0000	No sig. difference between Control and High Dose
	Ectopic bone formation, intra-alveolar	1.0000	No sig. difference between Control and High Dose
	Hemorrhage, intraalveolar	0.4165	No sig. difference between Control and High Dose
	Crystals, eosinophilic, alveolar	1.0000	No sig. difference between Control and High Dose
	Eosinophils	1.0000	No sig. difference between Control and High Dose
Thymus	Remnant, epithelial	0.1783	No sig. difference between Control and High Dose
	Extramedullary hematopoiesis	1.0000	No sig. difference between Control and High Dose
	Cortical Lymphocytolysis	1.0000	No sig. difference between Control and High Dose
	Hemorrhage	0.7477	No sig. difference between Control and High Dose
Thyroid gland	Distention, follicular	0.4783	No sig. difference between Control and High Dose
	Macrophages, intrafollicular	0.4899	No sig. difference between Control and High Dose
	Cyst, follicular	1.0000	No sig. difference between Control and High Dose
	Debris, cellular, intrafollicular	0.4925	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, perifollicular	1.0000	No sig. difference between Control and High Dose
	Mast cells, parafollicular	0.4899	No sig. difference between Control and High Dose
	Crystalline material, eosinophilic, intrafollicular	1.0000	No sig. difference between Control and High Dose
Lymph node	Sinus histiocytosis	0.0567	No sig. difference between Control and High Dose
	Infiltrate, mast cells	0.0021	High Dose Group had sig. higher proportion with this effect
Heart	Hemorrhage, subendocardial	1.0000	No sig. difference between Control and High Dose
	Necrosis, myocardial, single cell (peracute?)or is it just differential staining.RE-DO to differentiate ssnec fm differential staining.	0.2347	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic	0.1099	No sig. difference between Control and High Dose
	Edema, perivascular	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, perivascular	0.4174	No sig. difference between Control and High Dose
	Infiltrate, mast cells? Perivasc, focal	0.4898	No sig. difference between Control and High Dose
	Infiltrate, adipocyte	1.0000	No sig. difference between Control and High Dose
	Fibrosis	0.4898	No sig. difference between Control and High Dose
	Fibrosis, perivascular	1.0000	No sig. difference between Control and High Dose
	Myocardial necrosis, lymphohistiocytic infiltrate	0.6671	No sig. difference between Control and High Dose
Kidneys	Pyknosis, inner stripe	0.3549	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, periglomerular	1.0000	No sig. difference between Control and High Dose
	Protein in tubules, pale eosinophilic	1.0000	No sig. difference between Control and High Dose
	Glomerular Bowman's capsule thickened membrane	0.4635	No sig. difference between Control and High Dose
	Glomerular Bowman's capsule metaplasia OR cuboidal parietal epith	0.0014	High Dose Group had sig. higher proportion with this effect
	Infiltrate, lymphocytic, interstitial or perivascular	0.2436	No sig. difference between Control and High Dose
	Cyst, epithelial lined	1.0000	No sig. difference between Control and High Dose
	Tubules, thickened basement membrane (as seen in CPN)	0.0983	No sig. difference between Control and High Dose
	Infarct (with tubule regen, l-p infiltrate, depressed cortex.)	1.0000	No sig. difference between Control and High Dose
	Tubules, basophilic (not defined as regenerating)	0.5202	No sig. difference between Control and High Dose
	Congestion +/- perivasc edema	1.0000	No sig. difference between Control and High Dose

Adrenal glands	Hemangiectasis	0.4794	No sig. difference between Control and High Dose
	Cytoplasmic vacuoles, tiny, z. fascicularis (granular appearance)	0.3451	No sig. difference between Control and High Dose
	Z. glomerulosa hyperplasia	1.0000	No sig. difference between Control and High Dose
	Extramedullary adrenal medulla cells (background lesion)	1.0000	No sig. difference between Control and High Dose
	Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)	1.0000	No sig. difference between Control and High Dose
Liver	Eosinophils, portal	1.0000	No sig. difference between Control and High Dose
	9 Infiltrate, histiocytic, focal	0.4174	No sig. difference between Control and High Dose
	Focus of cellular differential staining	0.4898	No sig. difference between Control and High Dose
	Infiltrate, peri-bile ductule, lymphocytic	0.0792	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, random	0.5607	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, centrilobular	0.7775	No sig. difference between Control and High Dose
	Hyperplasia, biliary, portal	0.1895	No sig. difference between Control and High Dose
	Necrosis, hepatocellular, single cell	0.4635	No sig. difference between Control and High Dose
	Necrosis, hepatocellular	0.2347	No sig. difference between Control and High Dose
	Infiltrate, lympho- (+/- plasmacytic), portal	0.7688	No sig. difference between Control and High Dose
	Congestion	1.0000	No sig. difference between Control and High Dose
9 Spleen	Extramedullary hematopoesis	<0.0001	High Dose Group had sig. higher proportion with this effect
	Pigment,golden-green, red pulp (hemosiderin?)	<0.0001	High Dose Group had sig. higher proportion with this effect
[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant			

Incidence Table: High Dose NTO-Treated PGEN Males SOMATIC TISSUE

Analyses Include Control: 14-0101

Anterior brain	Congestion, meningeal							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	48	2	.	.	.	.	50
	Infiltrate, meningeal, mononuclear							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	25	0	.	.	.	.	25
	Total	49	1	.	.	.	.	50
Corpus callosum (+/- hippocampus)	Infiltrate, mononuclear, ependymal							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	23	1	.	.	.	.	24
	Total	47	2	.	.	.	.	49
	Frequency Missing = 1							
Pituitary	Cyst (Rathke's pouch remnant)							
	Group	0	1	2	3	4	5	Total
	Ctrl	12	1	.	.	.	.	13
	High	11	1	.	.	.	.	12
	Total	23	2	.	.	.	.	25
	Frequency Missing = 25							

Lung	Congestion, alveolar septal						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	17	8	.	.	.	.	25
	Total	41	9	.	.	.	.	50

Lung	Edema, perivascular proteinaceous							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	3	0	.	.	.	25
	High	24	0	1	.	.	.	25
	Total	46	3	1	.	.	.	50

Lung	Edema, alveolar, focal, with foamy macrophages							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	2	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	46	4	.	.	.	.	50

Lung	Infiltrate, alveolar, histiocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	22	3	.	.	.	.	25
	Total	46	4	.	.	.	.	50

Lung	Infiltrate, lymphohistiocytic, subpleural							
	Group	0	1	2	3	4	5	Total
	Ctrl	19	6	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	42	8	.	.	.	.	50

Lung	Infiltrate, peribronchiolar, lymphocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	25	0	.	.	.	.	25
	Total	49	1	.	.	.	.	50

Lung	Infiltrate, neutrophilic							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50

Lung	Group	Infiltrate, mast cells					
	Group	0	1	2	3	4	5	Total
	Ctrl	21	4	.	.	.	.	25
	High	22	3	.	.	.	.	25
	Total	43	7	.	.	.	.	50
Lung		Fibrin thrombi						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50
Lung		Macrophages, with engulfed RBC's						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	48	2	.	.	.	.	50
Lung		Ectopic bone formation, intra-alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	47	3	.	.	.	.	50
Lung		Hemorrhage, intraalveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	12	12	1	.	.	.	25
	High	7	16	2	.	.	.	25
	Total	19	28	3	.	.	.	50
Lung		Crystals, eosinophilic, alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	48	2	.	.	.	.	50
Lung		Eosinophils						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	48	2	.	.	.	.	50
Thymus		Remnant, epithelial						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	18	4	.	.	.	.	22
	Total	41	5	.	.	.	.	46

Thymus	Cortical Lymphocytolysis						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	22	.	.	.	.	.	22
	Total	46	.	.	.	.	.	46
	Frequency Missing = 4							

Thymus	Hemorrhage							
	Group	0	1	2	3	4	5	Total
	Ctrl	10	11	3	.	.	.	24
	High	11	10	1	.	.	.	22
	Total	21	21	4	.	.	.	46
	Frequency Missing = 4							

Thyroid	Macrophages, intrafollicular							
		0	1	2	3	4	5	Total
	Ctrl	22	2					24
	high	22	0					22
	Total	44	2					46
	Frequency Missing = 4							

Thyroid gland	Distention, follicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0					24
	High	21	1					22
	Total	45	1					46
	Frequency Missing = 4							

Thyroid gland	Mast cells, parafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2					24
	High	22	0					22
	Total	44	2					46
	Frequency Missing = 4							
Thyroid gland	Crystalline material, eosinophilic, intrafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	24						24
	High	22						22
	Total	46						46
	Frequency Missing = 4							
Thyroid gland	Cyst, follicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4					24
	High	19	3					22
	Total	39	7					46
	Frequency Missing = 4							
Thyroid gland	Debris, cellular, intrafollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	0				24
	High	18	3	1				22
	Total	40	5	1				46
	Frequency Missing = 4							
Thyroid gland	Infiltrate, lymphohistiocytic, perifollicular							
	Group	0	1	2	3	4	5	Total
	Ctrl	24						24
	High	22						22
	Total	46						46
	Frequency Missing = 4							

6 Lymph node	Sinus histiocytosis						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	13	3	.	.	.	.	16
	Total	37	3	.	.	.	.	40
	Frequency Missing = 10							
	Infiltrate, mast cells							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	0	1	.	.	.	24
	High	10	6	0	.	.	.	16
	Total	33	6	1	.	.	.	40
	Frequency Missing = 10							

Heart	Hemorrhage, subendocardial							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	0	.	.	.	25
	High	23	1	1	.	.	.	25
	Total	47	2	1	.	.	.	50

Heart	Necrosis, myocardial, single cell (peracute)or differential staining.							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	22	3	.	.	.	.	25
	Total	47	3	.	.	.	.	50

Heart	Infiltrate, lymphocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	21	4	.	.	.	.	25
	Total	46	4	.	.	.	.	50

Heart	Fibrosis, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	47	3	.	.	.	.	50

Heart	Myocardial necrosis, lymphohistiocytic infiltrate							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	2	0	.	.	.	25
	High	21	3	1	.	.	.	25
	Total	44	5	1	.	.	.	50

Kidneys	Pyknosis, inner stripe						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	5	2	.	.	.	25
	High	17	8	0	.	.	.	25
	Total	35	13	2	.	.	.	50
Heart	Edema, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	2	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	46	4	.	.	.	.	50
Heart	Infiltrate, lymphocytic, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	20	5	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	43	7	.	.	.	.	50
Heart	Infiltrate, mast cells, perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	2	.	.	.	.	25
	High	25	0	.	.	.	.	25
	Total	48	2	.	.	.	.	50
Heart	Infiltrate, adipocyte							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	2	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	47	3	.	.	.	.	50
Heart	Fibrosis							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	48	2	.	.	.	.	50

Kidneys	Infiltrate, lymphocytic, periglomerular						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	4	.	.	.	.	25
	High	22	3	.	.	.	.	25
	Total	43	7	.	.	.	.	50

Kidneys	Proteineous fluid in tubules (pale eosinophilic)							
	Group	0	1	2	3	4	5	Total
	Ctrl	15	10	.	.	.	.	25
	High	16	9	.	.	.	.	25
	Total	31	19	.	.	.	.	50

Kidneys	Glomerular capsule thickened membrane							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	3	.	.	.	.	25
	High	19	6	.	.	.	.	25
	Total	41	9	.	.	.	.	50

Kidneys	Glomerular capsule metaplasia OR cuboidal parietal epithelium							
	Group	0	1	2	3	4	5	Total
	Ctrl	20	5	0	.	.	.	25
	High	8	16	1	.	.	.	25
	Total	28	21	1	.	.	.	50

Kidneys	Infiltrate, lymphocytic, interstitial or perivascular							
	Group	0	1	2	3	4	5	Total
	Ctrl	7	17	1	.	.	.	25
	High	12	13	0	.	.	.	25
	Total	19	30	1	.	.	.	50

Kidneys	Cyst (epithelium-lined)							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	47	3	.	.	.	.	50

Kidneys	Tubules, thickened basement membrane (as seen in CPN)							
	Group	0	1	2	3	4	5	Total
	Ctrl	19	6	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	43	7	.	.	.	.	50

Kidneys	Infarct (with tubule regen, l-p infiltrate, depressed cortex)							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	.	.	.	25
	High	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50

Kidneys	Tubules, basophilic (not defined as regenerating)						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	8	.	.	.	.	25
	High	20	5	.	.	.	.	25
	Total	37	13	.	.	.	.	50
Kidneys	Congestion +/- perivasc edema							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50
Adrenal gland	Hemangiectasis							
	Group	0	1	2	3	4	5	Total
	Ctrl	18	7	0	.	.	.	25
	High	15	8	2	.	.	.	25
	Total	33	15	2	.	.	.	50
Adrenal gland	Cytoplasmic vacuoles, tiny, z. fascicularis (granular appearance)							
	Group	0	1	2	3	4	5	Total
	Ctrl	9	16	0	.	.	.	25
	High	5	19	1	.	.	.	25
	Total	14	35	1	.	.	.	50
Adrenal gland	Z. glomerulosa hyperplasia							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	47	3	.	.	.	.	50
Adrenal gland	Extramedullary adrenal medulla cells (background lesion)							
	Group	0	1	2	3	4	5	Total
	Ctrl	21	4	.	.	.	.	25
	High	20	5	.	.	.	.	25
	Total	41	9	.	.	.	.	50
Adrenal gland	Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	.	.	.	25
	High	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
Liver	Eosinophils, portal							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	.	.	.	25
	High	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50

Liver	Infiltrate, histiocytic, focal						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	5	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	43	7	.	.	.	.	50

Liver	Focus of cellular differential staining							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	2	.	.	.	.	25
	High	25	0	.	.	.	.	25
	Total	48	2	.	.	.	.	50

Liver	Infiltrate, peri-bile ductule, lymphocytic							
	Group	0	1	2	3	4	5	Total
	Ctrl	19	6	.	.	.	.	25
	High	12	13	.	.	.	.	25
	Total	31	19	.	.	.	.	50

Liver	Infiltrate, lymphohistiocytic, random							
	Group	0	1	2	3	4	5	Total
	Ctrl	17	8	.	.	.	.	25
	High	14	11	.	.	.	.	25
	Total	31	19	.	.	.	.	50

Liver	Infiltrate, lymphocytic, centrilobular							
	Group	0	1	2	3	4	5	Total
	Ctrl	14	11	.	.	.	.	25
	High	12	13	.	.	.	.	25
	Total	26	24	.	.	.	.	50

Liver	Hyperplasia, biliary, portal							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	20	5	.	.	.	.	25
	Total	44	6	.	.	.	.	50

Liver	Necrosis, hepatocellular, single cell							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	3	.	.	.	.	25
	High	19	6	.	.	.	.	25
	Total	41	9	.	.	.	.	50

Liver	Necrosis, hepatocellular							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	0	.	.	.	25
	High	22	2	1	.	.	.	25
	Total	47	2	1	.	.	.	50

Liver	Infiltrate, lympho- (+/- plasmacytic), portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	15	.	.	.	.	25
	High	8	17	.	.	.	.	25
	Total	18	32	.	.	.	.	50

Liver	Congestion							
	Group	0	1	2	3	4	5	Total
	Ctrl	22	3	.	.	.	.	25
	High	22	3	.	.	.	.	25
	Total	44	6	.	.	.	.	50

Spleen		Extramedullary hematopoesis						
	Group	0	1	2	3	4	5	Total
	Ctrl	16	9	.	.	.	.	25
	High	2	23	.	.	.	.	25
	Total	18	32	.	.	.	.	50
	Pigment,golden-green, red pulp (hemosiderin?)							
	Group	0	1	2	3	4	5	Total
	Ctrl	16	7	2	.	.	.	25
	High	3	22	0	.	.	.	25
	Total	19	29	2	.	.	.	50

PGEN MALES REPRODUCTIVE TISSUE (CONTROL, HIGH, 720, 144) WITH AND WITHOUT 14-0101

P GEN REPRODUCTIVE TISSUES Exposed to NTO doses: High, 720 and 144 [WITHOUT 14-0101]:

Fisher's Exact Test Results for HIGH DOSE NTO-EXPOSED PGEN MALE REPRODUCTIVE TISSUES

WITHOUT CTRL 14-0101

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
TESTIS	Reduced diameter of Testis	1.0000	No sig. difference between Control and High Dose
	Protein between tubules, extra-vascular	0.6933	No sig. difference between Control and High Dose
	Sertoli-only tubules	0.1457	No sig. difference between Control and High Dose
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	0.4898	No sig. difference between Control and High Dose
	Retained spermatids (visible in Stage IX-X)	0.0152	High Dose Group had sig. higher proportion with this effect
	Multinucleate giant cells	0.3595	No sig. difference between Control and High Dose
	Sloughed germ cells into lumen	0.1696	No sig. difference between Control and High Dose
	Dilation (or shrinkage) of seminiferous tubules	0.3595	No sig. difference between Control and High Dose
	Sertoli cell Δ	0.2347	No sig. difference between Control and High Dose
	Vacuoles within Sertoli cell cytoplasm	<0.0001	High Dose Group had sig. higher proportion with this effect
	Apoptotic cells	0.0016	High Dose Group had sig. higher proportion with this effect
	Germ cell-free gaps	<0.0001	High Dose Group had sig. higher proportion with this effect
	Lack of elongating spermatids	1.0000	No sig. difference between Control and High Dose
EPIDIDYMIS	Leukocyte infiltration	0.2709	No sig. difference between Control and High Dose
	Δ in constitutive cells (e.g., clear cells) in epith	1.0000	No sig. difference between Control and High Dose
	Reduction in sperm count	0.1137	No sig. difference between Control and High Dose
	Inapprop cell types in lumen	0.0502	No sig. difference between Control and High Dose
	Ectatic lymphatics w/protein fluid (edema)	1.0000	No sig. difference between Control and High Dose
	Cribriform change in Cauda	1.0000	No sig. difference between Control and High Dose
	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is wnl in peripubertal rats.)	1.0000	No sig. difference between Control and High Dose
PROSTATE	Acinar atrophy	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and High Dose
	Dilated lumen	1.0000	No sig. difference between Control and High Dose
Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)	0.6168	No sig. difference between Control and High Dose
	Dilated lumen	0.4898	No sig. difference between Control and High Dose
	Acinar atrophy	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and High Dose

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

	High Dose NTO-Exposed Parental Generation Male Rats							
		WITHOUT CTRL 14-0101						
TESTIS		Reduced diameter of Testis						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	0	.	.	.	24
	High	22	2	1	.	.	.	25
	Total	45	3	1	.	.	.	49
TESTIS		Protein between tubules, extra-vascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	11	3	0	.	.	24
	High	10	13	1	1	.	.	25
	Total	20	24	4	1	.	.	49
TESTIS		Sertoli-only tubules						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	0	0	0	0	24
	High	18	1	3	1	1	1	25
	Total	41	2	3	1	1	1	49
TESTIS		Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	47	2	.	.	.	.	49
TESTIS		Retained spermatids (visible in Stage IX-X)						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	0	.	.	24
	High	18	6	.	1	.	.	25
	Total	42	6	.	1	.	.	49
TESTIS		Multinucleate giant cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	.	.	.	24
	High	22	2	1	.	.	.	25
	Total	46	2	1	.	.	.	49

TESTIS		Sloughed germ cells into lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	.	.	.	24
	High	21	3	1	.	.	.	25
	Total	45	3	1	.	.	.	49

TESTIS		Dilation (or shrinkage) of seminiferous tubules						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	0	.	.	24
	High	22	2	.	1	.	.	25
	Total	46	2	.	1	.	.	49

TESTIS		Sertoli cell Δ						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	46	3	.	.	.	.	49

TESTIS		Vacuoles within Sertoli cell cytoplasm						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	0	0	0	24
	High	8	7	5	3	1	1	25
	Total	32	7	5	3	1	1	49

TESTIS		Apoptotic cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	0	.	.	24
	High	16	4	3	2	.	.	25
	Total	40	4	3	2	.	.	49

TESTIS		Germ cell-free gaps						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	0	0	0	24
	High	3	2	5	9	4	2	25
	Total	27	2	5	9	4	2	49

	Lack of elongating spermatids							
	Group	0	1	2	3	4	5	Total
TESTIS	Ctrl	24	.	.	0	.	0	24
	High	23	.	.	1	.	1	25
	Total	47	.	.	1	.	1	49

EPIDIDYMIS		Leukocyte infiltration						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	0	.	.	.	24
	High	18	4	3	.	.	.	25
	Total	39	7	3	.	.	.	49

EPIDIDYMIS		Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	0	0	.	.	24
	High	23	.	1	1	.	.	25
	Total	47	.	1	1	.	.	49

EPIDIDYMIS		Reduction in sperm count						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	0	0	.	24
	High	20	1	2	1	1	.	25
	Total	44	1	2	1	1	.	49

EPIDIDYMIS		Inapprop cell types in lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	0	.	.	.	24
	High	20	3	2	.	.	.	25
	Total	44	3	2	.	.	.	49

EPIDIDYMIS		Ectatic lymphatics w/protein fluid (edema)						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49

EPIDIDYMIS		Cribriform change in Cauda						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	0	.	.	24
	High	23	1	.	1	.	.	25
	Total	47	1	.	1	.	.	49

EPIDIDYMIS	Dilatation ('expanded' caput & caudal segment is wnl in peripubertal rats.)							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
PROSTATE		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	0	.	.	.	24
	High	24	.	1	.	.	.	25
	Total	48	.	1	.	.	.	49
		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	1	.	.	.	24
	High	23	1	1	.	.	.	25
	Total	45	2	2	.	.	.	49
		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	0	.	.	24
	High	24	.	.	1	.	.	25
	Total	48	.	.	1	.	.	49
Seminal Vesicle		Intraluminal round cells (other than artifactual sloughing)						
	Group	0	1	2	3	4	5	Total
	Ctrl	16	4	2	2	.	.	24
	High	20	4	0	1	.	.	25
	Total	36	8	2	3	.	.	49
		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	0	.	.	.	24
	High	23	0	2	.	.	.	25
	Total	46	1	2	.	.	.	49
		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	0	.	.	.	24
	High	24	.	1	.	.	.	25
	Total	48	.	1	.	.	.	49
		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49

PGEN REPRODUCTIVE TISSUES 720 [EXCLUDING 14-0101]:

Fisher's Exact Test Results for REPRODUCTIVE TISSUES FROM 720 mg/kg NTO-EXPOSED PGEN MALE RATS WITHOUT CONTROL 14-0101			
Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
TESTIS	Reduced diameter of Testis	0.6085	No sig. difference between Control and Group 720
	Protein between tubules, extra-vascular	0.0115	CONTROL had sig. higher proportion with this effect
	Sertoli-only tubules	0.3475	No sig. difference between Control and Group 720
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	No sig. difference between Control and Group 720
	Retained spermatids (visible in Stage IX-X)	1.0000	No sig. difference between Control and Group 720
	Multinucleate giant cells	1.0000	No sig. difference between Control and Group 720
	Sloughed germ cells into lumen	0.4894	No sig. difference between Control and Group 720
	Dilation (or shrinkage) of seminiferous tubules	1.0000	No sig. difference between Control and Group 720
	Sertoli cell Δ	1.0000	No sig. difference between Control and Group 720
	Vacuoles within Sertoli cell cytoplasm	1.0000	No sig. difference between Control and Group 720
	Apoptotic cells	1.0000	No sig. difference between Control and Group 720
	Germ cell-free gaps	1.0000	No sig. difference between Control and Group 720
	Lack of elongating spermatids	1.0000	No sig. difference between Control and Group 720
EPIDIDYMIS	Leukocyte infiltration	0.0933	No sig. difference between Control and Group 720
	Δ in constitutive cells (e.g., clear cells) in epith	1.0000	No sig. difference between Control and Group 720
	Reduction in sperm count	1.0000	No sig. difference between Control and Group 720
	Inapprop cell types in lumen	1.0000	No sig. difference between Control and Group 720
	Ectatic lymphatics w/protein fluid (edema)	1.0000	No sig. difference between Control and Group 720
	Cribriform change in Cauda	1.0000	No sig. difference between Control and Group 720
	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is wnl in peripubertal rats.)	1.0000	No sig. difference between Control and Group 720
PROSTATE	Acinar atrophy	1.0000	No sig. difference between Control and Group 720
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and Group 720
	Dilated lumen	1.0000	No sig. difference between Control and Group 720
Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)	0.0039	CONTROL had sig. higher proportion with this effect
	Dilated lumen	1.0000	No sig. difference between Control and Group 720
	Acinar atrophy	1.0000	No sig. difference between Control and Group 720
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and Group 720

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table: REPRODUCTIVE TISSUES from 720mg/kg NTO-EXPOSED MALE PGEN RAT

WITHOUT CONTROL 14-0101

TESTIS	Reduced diameter of Testis							
	Group	Group	0	1	2	4	5	Total
	Ctrl	720	21	3	.	.	.	24
	High	Ctrl	23	1	.	.	.	24
	Total	Total	44	4	.	.	.	48
	Frequency Missing = 1							
TESTIS	Protein between tubules, extra-vascular							
	Group	0	1	2	3	4	5	Total
	720	19	5	0	.	.	.	24
	Ctrl	10	11	3	.	.	.	24
	Total	29	16	3	.	.	.	48
	Frequency Missing = 1							
TESTIS	Sertoli-only tubules							
	Group	0	1	2	3	4	5	Total
	720	20	3	.	1	.	.	24
	Ctrl	23	1	.	0	.	.	24
	Total	43	4	.	1	.	.	48
	Frequency Missing = 1							
TESTIS	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)							
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48
	Frequency Missing = 1							
TESTIS	Retained spermatids (visible in Stage IX-X)							
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							
TESTIS	Multinucleate giant cells							
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							

TESTIS		Sloughed germ cells into lumen						
	Group	0	1	2	3	4	5	Total
	720	22	2	.	.	.	.	24
	Ctrl	24	0	.	.	.	.	24
	Total	46	2	.	.	.	.	48
	Frequency Missing = 1							
TESTIS		Dilation (or shrinkage) of seminiferous tubules						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48
	Frequency Missing = 1							
TESTIS		Sertoli cell Δ						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							
TESTIS		Vacuoles within Sertoli cell cytoplasm						
	Group	0	1	2	3	4	5	Total
	720	23	.	.	1	.	.	24
	Ctrl	24	.	.	0	.	.	24
	Total	47	.	.	1	.	.	48
	Frequency Missing = 1							

TESTIS		Apoptotic cells					
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							

TESTIS		Germ cell-free gaps						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	0	24
	Ctrl	24	.	.	.	.	2	24
	Total	48	.	.	.	.	2	48
	Frequency Missing = 1							

TESTIS		Lack of elongating spermatids						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							

EPIDIDYMIS		Leukocyte infiltration						
	Group	0	1	2	3	4	5	Total
	720	15	9	.	.	.	.	24
	Ctrl	21	3	.	.	.	.	24
	Total	36	12	.	.	.	.	48
	Frequency Missing = 1							

EPIDIDYMIS		Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							

EPIDIDYMIS		Reduction in sperm count						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							

EPIDIDYMIS		Inapprop cell types in lumen						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							
EPIDIDYMIS		Ectatic lymphatics w/protein fluid (edema)						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							
EPIDIDYMIS		Cribriform change in Cauda						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							
EPIDIDYMIS	Dilatation ('expanded' caput and final caudal segment is wnl in peripubertal							
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							

PROSTATE		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	720	24	.	1	.	.	.	25
	Ctrl	24	.	0	.	.	.	24
	Total	48	.	1	.	.	.	49
PROSTATE		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	720	22	2	0	.	1	.	25
	Ctrl	22	1	1	.	0	.	24
	Total	44	3	1	.	1	.	49
PROSTATE		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49
Seminal	Intraluminal round cells (other than artifactual sloughing)							
	Group	0	1	2	3	4	5	Total
	720	24	0	0	0	.	.	24
	Ctrl	16	4	2	2	.	.	24
	Total	40	4	2	2	.	.	48
	Frequency Missing = 1							

Seminal Vesicle		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	720	24	0	.	.	.	.	24
	Ctrl	23	1	.	.	.	.	24
	Total	47	1	.	.	.	.	48
	Frequency Missing = 1							
Seminal Vesicle		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48
	Frequency Missing = 1							
Seminal Vesicle		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48
	Frequency Missing = 1							

PGEN REPRODUCTIVE TISSUE 144mg/kg NTO [EXCLUDING 14-0101]:

Fisher's Exact Test Results for REPRODUCTIVE TISSUES from 144mg/kg NTO-Exposed PGEN Male Rats

Without CONTROL 14-0101

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
TESTIS	Reduced diameter of Testis	1.0000	No sig. difference between Control and Group 144
	Protein between tubules, extra-vascular	0.0612	No sig. difference between Control and Group 144
	Sertoli-only tubules	1.0000	No sig. difference between Control and Group 144
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	No sig. difference between Control and Group 144
	Retained spermatids (visible in Stage IX-X)	1.0000	No sig. difference between Control and Group 144
	Multinucleate giant cells	1.0000	No sig. difference between Control and Group 144
	Sloughed germ cells into lumen	1.0000	No sig. difference between Control and Group 144
	Dilation (or shrinkage) of seminiferous tubules	1.0000	No sig. difference between Control and Group 144
	Sertoli cell Δ	1.0000	No sig. difference between Control and Group 144
	Vacuoles within Sertoli cell cytoplasm	0.0004	Group 144 had sig. higher proportion with this effect
	Apoptotic cells	0.0780	No sig. difference between Control and Group 144
	Germ cell-free gaps	0.0223	Group 144 had sig. higher proportion with this effect
	Lack of elongating spermatids	1.0000	No sig. difference between Control and Group 144
EPIDIDYMIS	Leukocyte infiltration	0.1099	No sig. difference between Control and Group 144
	Δ in constitutive cells (e.g., clear cells) in epith	0.2347	No sig. difference between Control and Group 144
	Reduction in sperm count	1.0000	No sig. difference between Control and Group 144
	Inapprop cell types in lumen	1.0000	No sig. difference between Control and Group 144
	Ectatic lymphatics w/protein fluid (edema)	1.0000	No sig. difference between Control and Group 144
	Cribriform change in Cauda	1.0000	No sig. difference between Control and Group 144
	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is wnl in peripubertal rats.)	1.0000	No sig. difference between Control and Group 144
PROSTATE	Acinar atrophy	1.0000	No sig. difference between Control and Group 144
	Infiltrate, lymphoplasmacytic	0.4960	No sig. difference between Control and Group 144
	Dilated lumen	0.1099	No sig. difference between Control and Group 144
Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)	0.0016	**CONTROL** had sig. higher proportion with this effect
	Dilated lumen	0.4898	No sig. difference between Control and Group 144
	Acinar atrophy	1.0000	No sig. difference between Control and Group 144
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and Group 144

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table: REPRODUCTIVE TISSUES from 144mg/kg NTO-Exposed PGEN Male RATS								
			Without CONTROL 14-0101					
TESTIS	Reduced diameter of Testis							
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	23	1	.	.	.	.	24
	Total	47	2	.	.	.	.	49
TESTIS		Protein between tubules, extra-vascular						
	Group	0	1	2	3	4	5	Total
	144	17	8	0	.	.	.	25
	Ctrl	10	11	3	.	.	.	24
	Total	27	19	3	.	.	.	49
TESTIS		Sertoli-only tubules						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	23	1	.	.	.	.	24
	Total	47	2	.	.	.	.	49
TESTIS		Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49
TESTIS		Retained spermatids (visible in Stage IX-X)						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
TESTIS		Multinucleate giant cells						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49
TESTIS		Sloughed germ cells into lumen						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49

TESTIS	Dilation (or shrinkage) of seminiferous tubules						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49

TESTIS	Sertoli cell Δ							
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49

TESTIS	Vacuoles within Sertoli cell cytoplasm							
	Group	0	1	2	3	4	5	Total
	144	14	5	5	1	.	.	25
	Ctrl	24	0	0	0	.	.	24
	Total	38	5	5	1	.	.	49

TESTIS	Apoptotic cells							
	Group	0	1	2	3	4	5	Total
	144	20	4	1	.	.	.	25
	Ctrl	24	0	0	.	.	.	24
	Total	44	4	1	.	.	.	49

TESTIS	Germ cell-free gaps							
	Group	0	1	2	3	4	5	Total
	144	19	6	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	43	6	.	.	.	.	49

TESTIS	Lack of elongating spermatids							
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49

EPIDIDYMIS	Leukocyte infiltration							
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	21	3	.	.	.	.	24
	Total	46	3	.	.	.	.	49

EPIDIDYMIS		Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	144	22	3	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	46	3	.	.	.	.	49
EPIDIDYMIS		Reduction in sperm count						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
EPIDIDYMIS		Inapprop cell types in lumen						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
EPIDIDYMIS		Ectatic lymphatics w/protein fluid (edema)						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
EPIDIDYMIS		Cribriform change in Cauda						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
EPIDIDYMIS	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is							
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
PROSTATE		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	144	0	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	24
	Total	24	.	.	.	.	.	49

PROSTATE		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	144	19	3	2	1	.	.	25
	Ctrl	22	1	1	0	.	.	24
	Total	41	4	3	1	.	.	49
PROSTATE		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	144	21	2	2	.	.	.	25
	Ctrl	24	0	0	.	.	.	24
	Total	45	2	2	.	.	.	49
Seminal Vesicle		Intraluminal round cells (other than artifactual sloughing)						
	Group	0	1	2	3	4	5	Total
	144	25	0	0	0	.	.	25
	Ctrl	16	4	2	2	.	.	24
	Total	41	4	2	2	.	.	49
		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	23	1	.	.	.	.	24
	Total	48	1	.	.	.	.	49
		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	24	.	.	.	.	.	24
	Total	49	.	.	.	.	.	49
		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
	Fisher's Exact Test Results for REPRODUCTIVE TISSUES from HIGH DOSE MALE RATS WITH CTRL 14-0101		
TESTIS	Reduced diameter of Testis	1.0000	No sig. difference between Control and High Dose
	Protein between tubules, extra-vascular	0.6959	No sig. difference between Control and High Dose
	Sertoli-only tubules	0.3702	No sig. difference between Control and High Dose
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	0.4898	No sig. difference between Control and High Dose
	Retained spermatids (visible in Stage IX-X)	0.0488	High Dose Group had sig. higher proportion with this effect
	Multinucleate giant cells	0.2347	No sig. difference between Control and High Dose
	Sloughed germ cells into lumen	0.2347	No sig. difference between Control and High Dose
	Dilation (or shrinkage) of seminiferous tubules	0.6092	No sig. difference between Control and High Dose
	Sertoli cell Δ	0.6092	No sig. difference between Control and High Dose
	Vacuoles within Sertoli cell cytoplasm	<0.0001	High Dose Group had sig. higher proportion with this effect
	Apoptotic cells	0.0161	High Dose Group had sig. higher proportion with this effect
	Germ cell-free gaps	<0.0001	High Dose Group had sig. higher proportion with this effect
	Lack of elongating spermatids	1.0000	No sig. difference between Control and High Dose
EPIDIDYMIS	Leukocyte infiltration	0.2363	No sig. difference between Control and High Dose
	Δ in constitutive cells (e.g., clear cells) in epith	0.4898	No sig. difference between Control and High Dose
	Reduction in sperm count	0.0502	No sig. difference between Control and High Dose
	Inapprop cell types in lumen	0.2213	No sig. difference between Control and High Dose
	Ectatic lymphatics w/protein fluid (edema)	1.0000	No sig. difference between Control and High Dose
	Cribriform change in Cauda	0.4898	No sig. difference between Control and High Dose
	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is wnl in peripubertal rats.)	1.0000	No sig. difference between Control and High Dose
PROSTATE	Acinar atrophy	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and High Dose
	Dilated lumen	1.0000	No sig. difference between Control and High Dose
Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)	0.6453	No sig. difference between Control and High Dose
	Dilated lumen	1.0000	No sig. difference between Control and High Dose
	Acinar atrophy	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and High Dose

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table: REPRODUCTIVE TISSUES from HIGH DOSE NTO MALE PGEN RATS								
WITH CTRL 14-0101								
TESTIS	Reduced diameter of Testis							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	1	.	.	.	25
	High	22	2	1	.	.	.	25
	Total	45	3	2	.	.	.	50
TESTIS		Protein between tubules, extra-vascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	11	11	3	0	.	.	25
	High	10	13	1	1	.	.	25
	Total	21	24	4	1	.	.	50
TESTIS		Sertoli-only tubules						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	0	0	1	0	25
	High	18	1	3	1	1	1	25
	Total	41	2	3	1	2	1	50
TESTIS		Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	.	.	.	25
	High	23	2	.	.	.	.	25
	Total	48	2	.	.	.	.	50
TESTIS		Retained spermatids (visible in Stage IX-X)						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	0	.	.	25
	High	18	6	.	1	.	.	25
	Total	42	7	.	1	.	.	50
TESTIS		Multinucleate giant cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	0	.	.	.	25
	High	22	2	1	.	.	.	25
	Total	47	2	1	.	.	.	50
TESTIS		Sloughed germ cells into lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	1	.	.	.	25
	High	21	3	1	.	.	.	25
	Total	45	3	2	.	.	.	50

TESTIS		Dilation (or shrinkage) of seminiferous tubules					
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	0	.	.	25
	High	22	2	.	1	.	.	25
	Total	46	3	.	1	.	.	50

TESTIS		Sertoli cell Δ						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	.	.	.	.	25
	High	22	3	.	.	.	.	25
	Total	46	4	.	.	.	.	50

TESTIS		Vacuoles within Sertoli cell cytoplasm						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	1	0	0	0	25
	High	8	7	5	3	1	1	25
	Total	32	7	6	3	1	1	50

TESTIS		Apoptotic cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	1	0	.	.	25
	High	16	4	3	2	.	.	25
	Total	40	4	4	2	.	.	50

TESTIS		Germ cell-free gaps						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	1	0	0	0	25
	High	3	2	5	9	4	2	25
	Total	27	2	6	9	4	2	50

TESTIS		Lack of elongating spermatids						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	1	0	.	0	25
	High	23	.	0	1	.	1	25
	Total	47	.	1	1	.	1	50

EPIDIDYMIS		Leukocyte infiltration						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	3	0	.	.	.	25
	High	18	4	3	.	.	.	25
	Total	40	7	3	.	.	.	50
EPIDIDYMIS		Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	0	0	.	.	25
	High	23	.	1	1	.	.	25
	Total	48	.	1	1	.	.	50
EPIDIDYMIS		Reduction in sperm count						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	0	0	0	.	25
	High	20	1	2	1	1	.	25
	Total	45	1	2	1	1	.	50
EPIDIDYMIS		Inapprop cell types in lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	1	0	.	.	.	25
	High	20	3	2	.	.	.	25
	Total	44	4	2	.	.	.	50
EPIDIDYMIS		Ectatic lymphatics w/protein fluid (edema)						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	.	.	.	25
	High	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
EPIDIDYMIS		Cribriform change in Cauda						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	0	.	0	.	.	25
	High	23	1	.	1	.	.	25
	Total	48	1	.	1	.	.	50
EPIDIDYMIS	Dilatation ('expanded' caput and cauda is wnl in peripubertal rats.)							
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	.	.	.	25
	High	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
PROSTATE		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	0	.	.	.	25
	High	24	.	1	.	.	.	25
	Total	49	.	1	.	.	.	50

PROSTATE		Infiltrate, lymphoplasmacytic					
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	1	.	.	.	25
	High	23	1	1	.	.	.	25
	Total	46	2	2	.	.	.	50
PROSTATE		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	0	.	.	25
	High	24	.	.	1	.	.	25
	Total	49	.	.	1	.	.	50
Seminal Vesicle		Intraluminal round cells (other than artifactual sloughing)						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	4	2	2	.	.	25
	High	20	4	0	1	.	.	25
	Total	37	8	2	3	.	.	50
Seminal Vesicle		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	1	.	.	.	25
	High	23	0	2	.	.	.	25
	Total	46	1	3	.	.	.	50
Seminal Vesicle		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	0	.	.	.	25
	High	24	.	1	.	.	.	25
	Total	49	.	1	.	.	.	50
Seminal Vesicle		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	25	.	.	.	.	.	25
	High	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50

Fisher's Exact Test Results for REPRODUCTIVE TISSUE of 720 mg/kg NTO-EXPOSED PGEN Male RATS			
	WITH CONTROL 14-0101		
Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
TESTIS	Reduced diameter of Testis	0.4760	No sig. difference between Control and Group 720
	Protein between tubules, extra-vascular	0.0211	CONTROL had sig. higher proportion with this effect
	Sertoli-only tubules	0.3429	No sig. difference between Control and Group 720
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	No sig. difference between Control and Group 720
	Retained spermatids (visible in Stage IX-X)	1.0000	No sig. difference between Control and Group 720
	Multinucleate giant cells	1.0000	No sig. difference between Control and Group 720
	Sloughed germ cells into lumen	0.3595	No sig. difference between Control and Group 720
	Dilation (or shrinkage) of seminiferous tubules	1.0000	No sig. difference between Control and Group 720
	Sertoli cell Δ	1.0000	No sig. difference between Control and Group 720
	Vacuoles within Sertoli cell cytoplasm	1.0000	No sig. difference between Control and Group 720
	Apoptotic cells	1.0000	No sig. difference between Control and Group 720
	Germ cell-free gaps	1.0000	No sig. difference between Control and Group 720
	Lack of elongating spermatids	1.0000	No sig. difference between Control and Group 720
EPIDIDYMIS	Leukocyte infiltration	0.0507	No sig. difference between Control and Group 720
	Δ in constitutive cells (e.g., clear cells) in epith	1.0000	No sig. difference between Control and Group 720
	Reduction in sperm count	1.0000	No sig. difference between Control and Group 720
	Inapprop cell types in lumen	1.0000	No sig. difference between Control and Group 720
	Ectatic lymphatics w/protein fluid (edema)	1.0000	No sig. difference between Control and Group 720
	Cribriform change in Cauda	1.0000	No sig. difference between Control and Group 720
	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is wnl in peripubertal rats.)	1.0000	No sig. difference between Control and Group 720
PROSTATE	Acinar atrophy	1.0000	No sig. difference between Control and Group 720
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and Group 720
	Dilated lumen	1.0000	No sig. difference between Control and Group 720
Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)	0.0040	CONTROL had sig. higher proportion with this effect
	Dilated lumen	1.0000	No sig. difference between Control and Group 720
	Acinar atrophy	0.4898	No sig. difference between Control and Group 720
	Infiltrate, lymphoplasmacytic	0.4898	No sig. difference between Control and Group 720

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table of PGEN Male Rats Exposed to 720mg/kg NTO							
		WITH CONTROL 14-0101					
TESTIS	Reduced diameter of Testis						
	Group	Group	0	1	2	4	5	Total
	Ctrl	720	21	3	0	.	.	24
	High	Ctrl	23	1	1	.	.	25
	Total	Total	44	4	1	.	.	49
		Frequency Missing = 1					
TESTIS	Protein between tubules, extra-vascular						
	Group	0	1	2	3	4	5	Total
	720	19	5	0	.	.	.	24
	Ctrl	11	11	3	.	.	.	25
	Total	30	16	3	.	.	.	49
	Frequency Missing = 1						

TESTIS		Sertoli-only tubules						
	Group	0	1	2	3	4	5	Total
	720	20	3	.	1	0	.	24
	Ctrl	23	1	.	0	1	.	25
	Total	43	4	.	1	1	.	49
	Frequency Missing = 1							
TESTIS		Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49
	Frequency Missing = 1							
TESTIS		Retained spermatids (visible in Stage IX-X)						
	Group	0	1	2	3	4	5	Total
	720	24	0	.	.	.	.	24
	Ctrl	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49
	Frequency Missing = 1							
TESTIS		Multinucleate giant cells						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
	Frequency Missing = 1							

TESTIS	Vacuoles within Sertoli cell cytoplasm						
	Group	0	1	2	3	4	5	Total
	720	23	.	0	1	.	.	24
	Ctrl	24	.	1	0	.	.	25
	Total	47	.	1	1	.	.	49
	Frequency Missing = 1							

TESTIS	Apoptotic cells							
	Group	0	1	2	3	4	5	Total
	720	24	.	0	.	.	.	24
	Ctrl	24	.	1	.	.	.	25
	Total	48	.	1	.	.	.	49
	Frequency Missing = 1							

TESTIS	Germ cell-free gaps							
	Group	0	1	2	3	4	5	Total
	720	24	.	0	.	.	0	24
	Ctrl	24	.	1	.	.	2	25
	Total	48	.	1	.	.	2	49
	Frequency Missing = 1							

TESTIS	Lack of elongating spermatids							
	Group	0	1	2	3	4	5	Total
	720	24	.	0	.	.	.	24
	Ctrl	24	.	1	.	.	.	25
	Total	48	.	1	.	.	.	49
	Frequency Missing = 1							

TESTIS		Sloughed germ cells into lumen						
	Group	0	1	2	3	4	5	Total
	720	22	2	0	.	.	.	24
	Ctrl	24	0	1	.	.	.	25
	Total	46	2	1	.	.	.	49
	Frequency Missing = 1							
TESTIS		Dilation (or shrinkage) of seminiferous tubules						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49
	Frequency Missing = 1							
TESTIS		Sertoli cell Δ						
	Group	0	1	2	3	4	5	Total
	720	24	0	.	.	.	.	24
	Ctrl	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49
	Frequency Missing = 1							
EPIDIDYMIS		Leukocyte infiltration						
	Group	0	1	2	3	4	5	Total
	720	15	9	.	.	.	.	24
	Ctrl	22	3	.	.	.	.	25
	Total	37	12	.	.	.	.	49
	Frequency Missing = 1							
EPIDIDYMIS		Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
	Frequency Missing = 1							
EPIDIDYMIS		Reduction in sperm count						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
	Frequency Missing = 1							

EPIDIDYMIS		Inapprop cell types in lumen						
	Group	0	1	2	3	4	5	Total
	720	24	0	.	.	.	.	24
	Ctrl	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49
	Frequency Missing = 1							
EPIDIDYMIS		Ectatic lymphatics w/protein fluid (edema)						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
	Frequency Missing = 1							
EPIDIDYMIS		Cribriform change in Cauda						
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
	Frequency Missing = 1							
EPIDIDYMIS	Dilatation ('expanded' caput n caudal segment is wnl in peripubertal rats.)							
	Group	0	1	2	3	4	5	Total
	720	24	.	.	.	.	.	24
	Ctrl	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
	Frequency Missing = 1							

Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)							
	Group	0	1	2	3	4	5	Total
	720	24	0	0	0	.	.	24
	Ctrl	17	4	2	2	.	.	25
	Total	41	4	2	2	.	.	49
	Frequency Missing = 1							
		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	720	24	0	0	.	.	.	24
	Ctrl	23	1	1	.	.	.	25
	Total	47	1	1	.	.	.	49
	Frequency Missing = 1							
		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49
	Frequency Missing = 1							
		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	720	23	1	.	.	.	.	24
	Ctrl	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49
	Frequency Missing = 1							
PROSTATE		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	720	24	.	1	.	.	.	25
	Ctrl	25	.	0	.	.	.	25
	Total	49	.	1	.	.	.	50
PROSTATE		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	720	22	2	0	.	1	.	25
	Ctrl	23	1	1	.	0	.	25
	Total	45	3	1	.	1	.	50
PROSTATE		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	Ctrl	25	0	.	.	.	.	25
	Total	49	1	.	.	.	.	50

Fisher's Exact Test Results for REPRODUCTIVE TISSUE of 144mg/kg NTO -EXPOSED PGEN RATS With CONTROL 14-0101			
Tissue	**Histologic Change 'Metric'**	**Fisher's Exact Test p-value**	**Conclusion[1,2]**
TESTIS	Reduced diameter of Testis	1.0000	No sig. difference between Control and Group 144
	Protein between tubules, extra-vascular	0.0877	No sig. difference between Control and Group 144
	Sertoli-only tubules	1.0000	No sig. difference between Control and Group 144
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	No sig. difference between Control and Group 144
	Retained spermatids (visible in Stage IX-X)	1.0000	No sig. difference between Control and Group 144
	Multinucleate giant cells	1.0000	No sig. difference between Control and Group 144
	Sloughed germ cells into lumen	1.0000	No sig. difference between Control and Group 144
	Dilation (or shrinkage) of seminiferous tubules	1.0000	No sig. difference between Control and Group 144
	Sertoli cell Δ	1.0000	No sig. difference between Control and Group 144
	Vacuoles within Sertoli cell cytoplasm	0.0030	Group 144 had sig. higher proportion with this effect
	Apoptotic cells	0.1099	No sig. difference between Control and Group 144
	Germ cell-free gaps	0.0223	Group 144 had sig. higher proportion with this effect
	Lack of elongating spermatids	1.0000	No sig. difference between Control and Group 144
EPIDIDYMIS	Leukocyte infiltration	0.2347	No sig. difference between Control and Group 144
	Δ in constitutive cells (e.g., clear cells) in epith	0.2347	No sig. difference between Control and Group 144
	Reduction in sperm count	1.0000	No sig. difference between Control and Group 144
	Inapprop cell types in lumen	1.0000	No sig. difference between Control and Group 144
	Ectatic lymphatics w/protein fluid (edema)	1.0000	No sig. difference between Control and Group 144
	Cribriform change in Cauda	1.0000	No sig. difference between Control and Group 144
	Dilatation ('expanded' caput (NOT initial segment) and final caudal segment is wnl in peripubertal rats.)	1.0000	No sig. difference between Control and Group 144
PROSTATE	Acinar atrophy	1.0000	No sig. difference between Control and Group 144
	Infiltrate, lymphoplasmacytic	0.4031	No sig. difference between Control and Group 144
	Dilated lumen	0.1099	No sig. difference between Control and Group 144
Seminal Vesicle	Intraluminal round cells (other than artifactual sloughing)	0.0040	**CONTROL** had sig. higher proportion with this effect
	Dilated lumen	0.4898	No sig. difference between Control and Group 144
	Acinar atrophy	1.0000	No sig. difference between Control and Group 144
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and Group 144

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table: 144mg/kg NTO-EXPOSED PGEN REPRODUCTIVE TISSUES								
			With CONTROL 14-0101					
TESTIS	Reduced diameter of Testis							
	Group	0	1	2	3	4	5	Total
	144	24	1	0	.	.	.	25
	Ctrl	23	1	1	.	.	.	25
	Total	47	2	1	.	.	.	50
TESTIS		Protein between tubules, extra-vascular						
	Group	0	1	2	3	4	5	Total
	144	17	8	0	.	.	.	25
	Ctrl	11	11	3	.	.	.	25
	Total	28	19	3	.	.	.	50
TESTIS		Sertoli-only tubules						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	0	.	25
	Ctrl	23	1	.	.	1	.	25
	Total	47	2	.	.	1	.	50
TESTIS		Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	25	0	.	.	.	.	25
	Total	49	1	.	.	.	.	50
TESTIS		Retained spermatids (visible in Stage IX-X)						
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50
TESTIS		Multinucleate giant cells						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	25	0	.	.	.	.	25
	Total	49	1	.	.	.	.	50
TESTIS		Sloughed germ cells into lumen						
	Group	0	1	2	3	4	5	Total
	144	24	1	0	.	.	.	25
	Ctrl	24	0	1	.	.	.	25
	Total	48	1	1	.	.	.	50

TESTIS	Dilation (or shrinkage) of seminiferous tubules							
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50
TESTIS	Sertoli cell Δ							
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50
TESTIS	Vacuoles within Sertoli cell cytoplasm							
	Group	0	1	2	3	4	5	Total
	144	14	5	5	1	.	.	25
	Ctrl	24	0	1	0	.	.	25
	Total	38	5	6	1	.	.	50
TESTIS	Apoptotic cells							
	Group	0	1	2	3	4	5	Total
	144	20	4	1	.	.	.	25
	Ctrl	24	0	1	.	.	.	25
	Total	44	4	2	.	.	.	50
TESTIS	Germ cell-free gaps							
	Group	0	1	2	3	4	5	Total
	144	19	6	0	.	.	.	25
	Ctrl	24	0	1	.	.	.	25
	Total	43	6	1	.	.	.	50
TESTIS	Lack of elongating spermatids							
	Group	0	1	2	3	4	5	Total
	144	24	1	0	.	.	.	25
	Ctrl	24	0	1	.	.	.	25
	Total	48	1	1	.	.	.	50
EPIDIDYMIS	Leukocyte infiltration							
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	22	3	.	.	.	.	25
	Total	47	3	.	.	.	.	50
EPIDIDYMIS	Δ in constitutive cells (e.g., clear cells) in epith							
	Group	0	1	2	3	4	5	Total
	144	22	3	.	.	.	.	25
	Ctrl	25	0	.	.	.	.	25
	Total	47	3	.	.	.	.	50

EPIDIDYMIS		Reduction in sperm count						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
EPIDIDYMIS		Inapprop cell types in lumen						
	Group	0	1	2	3	4	5	Total
	144	25	0	.	.	.	.	25
	Ctrl	24	1	.	.	.	.	25
	Total	49	1	.	.	.	.	50
EPIDIDYMIS		Ectatic lymphatics w/protein fluid (edema)						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
EPIDIDYMIS		Cribriform change in Cauda						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
EPIDIDYMIS	Dilatation ('expanded' caput and cauda is wnl in peripubertal rats.)							
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
PROSTATE		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
PROSTATE		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	144	19	3	2	1	.	.	25
	Ctrl	23	1	1	0	.	.	25
	Total	42	4	3	1	.	.	50
PROSTATE		Dilated lumen						
	Group	0	1	2	3	4	5	Total
	144	21	2	2	.	.	.	25
	Ctrl	25	0	0	.	.	.	25
	Total	46	2	2	.	.	.	50

PGEN MALE RAT REPRODUCTIVE TISSUE 144mg/kg [INCLUDES 14-0101]:

Seminal Vesicle		Acinar atrophy						
	Group	0	1	2	3	4	5	Total
	144	25	.	.	.	.	.	25
	Ctrl	25	.	.	.	.	.	25
	Total	50	.	.	.	.	.	50
Seminal Vesicle		Infiltrate, lymphoplasmacytic						
	Group	0	1	2	3	4	5	Total
	144	24	1	.	.	.	.	25
	Ctrl	25	0	.	.	.	.	25
	Total	49	1	.	.	.	.	50

Fisher's Exact Test Results for REPRODUCTIVE TISSUES of Parental Generation Recovery Males

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
TESTIS	Reduction in Testicular diameter	1.0000	No sig. difference between Control and High Group
	Protein between tubules, extra-vascular	0.8000	No sig. difference between Control and High Group
	Sertoli-only tubules	0.7214	No sig. difference between Control and High Group
	Vacuoles within Sertoli cell cytoplasm	0.2105	No sig. difference between Control and High Group
	Germ cell-free gaps	0.4737	No sig. difference between Control and High Group
EPIDIDYMIS	Δ in constitutive cells (e.g., clear cells) in epith	1.0000	No sig. difference between Control and High Group
	Vacuoles in caudal epith.	1.0000	No sig. difference between Control and High Group
	Leukocyte infiltration	1.0000	No sig. difference between Control and High Group

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

PGEN MALE RECOVERY REPRODUCTIVE TISSUE

Incidence Table for High Dose Parental Generation Recovery Males								
TESTIS		Reduction in Testicular diameter						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	.	.	.	.	.	10
	High	9	.	.	.	.	.	9
	Total	19	.	.	.	.	.	19
	Frequency Missing = 1							
TESTIS		Protein between tubules, extra-vascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	7	3	0	.	.	.	10
	High	5	3	1	.	.	.	9
	Total	12	6	1	.	.	.	19
	Frequency Missing = 1							
TESTIS		Sertoli-only tubules						
	Group	0	1	2	3	4	5	Total
	Ctrl	9	1	0	.	.	.	10
	High	7	1	1	.	.	.	9
	Total	16	2	1	.	.	.	19
	Frequency Missing = 1							
TESTIS		Vacuoles within Sertoli cell cytoplasm						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	0	0	.	.	.	10
	High	7	1	1	.	.	.	9
	Total	17	1	1	.	.	.	19
	Frequency Missing = 1							
TESTIS		Germ cell-free gaps						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	.	0	.	.	.	10
	High	8	.	1	.	.	.	9
	Total	18	.	1	.	.	.	19
	Frequency Missing = 1							
EPIDIDYMIS		Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	Ctrl	9	1	.	.	.	.	10
	High	9	0	.	.	.	.	9
	Total	18	1	.	.	.	.	19
	Frequency Missing = 1							

EPIDIDYMIS		Vacuoles in caudal epith.						
	Group	0	1	2	3	4	5	Total
	Ctrl	9	1	.	.	.	.	10
	High	8	1	.	.	.	.	9
	Total	17	2	.	.	.	.	19
	Frequency Missing = 1							
EPIDIDYMIS		Leukocyte infiltration						
	Group	0	1	2	3	4	5	Total
	Ctrl	9	1	.	.	.	.	10
	High	9	0	.	.	.	.	9
	Total	18	1					19
	Frequency Missing = 1							

F1 MALES SOMATIC TISSUE (CONTROL, HIGH)

Fisher's Exact Test Results for SOMATIC TISSUES from HIGH DOSE NTO-Treated F1 GENERATION MALES

Tissue	Histologic Change ('Metric')	Fisher's Exact Test p-value	Conclusion[1,2]
Lung	Edema, perivascular proteinaceous	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, subpleural	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic	1.0000	No sig. difference between Control and High Dose
	Eosinophils, perivascular	1.0000	No sig. difference between Control and High Dose
	Fibrin thrombi	0.6050	No sig. difference between Control and High Dose
	Neutrophils,	1.0000	No sig. difference between Control and High Dose
	Macrophages, with engulfed RBC's	1.0000	No sig. difference between Control and High Dose
	Hemorrhage, intraalveolar	0.0187	High Dose Group had sig. higher proportion with this effect
	Crystals, eosinophilic, alveolar	1.0000	No sig. difference between Control and High Dose
Thymus	Cortical Lymphocytolysis	1.0000	No sig. difference between Control and High Dose
	Hemorrhage	1.0000	No sig. difference between Control and High Dose
Thyroid gland	Distention, follicular	0.2176	No sig. difference between Control and High Dose
	Macrophages, intrafollicular	0.4879	No sig. difference between Control and High Dose
	Cyst , lined with squamous epith	0.1071	No sig. difference between Control and High Dose
	Debris, cellular, intrafollicular	0.5946	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, perifollicular	0.4737	No sig. difference between Control and High Dose
	Lymph node -mast cell infiltrate	1.0000	No sig. difference between Control and High Dose
Heart	Infiltrate, perivasc, mast cells, focal	0.3416	No sig. difference between Control and High Dose
	Fibrosis, myocardial	1.0000	No sig. difference between Control and High Dose
	Fibrosis, perivascular	1.0000	No sig. difference between Control and High Dose

Kidneys	Pyknosis, inner stripe	0.0012	High Dose Group had sig. higher proportion with this effect
	Infiltrate, lymphocytic, periglomerular	0.4872	No sig. difference between Control and High Dose
	Proteinaceous fluid in tubules, pale eosinophilic	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, interstitial,	0.5006	No sig. difference between Control and High Dose
	Gomeruli, expansion of mesangial matrix, unilateral	1.0000	No sig. difference between Control and High Dose
	Tubules, thickened basement membrane (as seen in CPN)	1.0000	No sig. difference between Control and High Dose
	Tubules, basophilic	0.5006	No sig. difference between Control and High Dose
Adrenal glands	Cytoplasmic vacuoles, tiny, z. fascicularis	1.0000	No sig. difference between Control and High Dose
	Z. glomerulosa or fascicularis pale cells	1.0000	No sig. difference between Control and High Dose
Liver	Eosinophils, portal	1.0000	No sig. difference between Control and High Dose
	Infiltrate, histiocytic (+/- lympho-), focal	0.5145	No sig. difference between Control and High Dose
	Infiltrate, peri-bile ductule, lymphocytic	1.0000	No sig. difference between Control and High Dose
	Hematopoiesis, extramedullary	0.3203	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, centrilobular	0.6050	No sig. difference between Control and High Dose
	Hyperplasia, biliary, portal	1.0000	No sig. difference between Control and High Dose
	Necrosis, hepatocellular, single cell	0.2308	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic (+/- plasmacytic) **porta**l	0.8533	No sig. difference between Control and High Dose
	Congestion	0.0033	High Dose Group had sig. higher proportion with this effect
	Precipate, mineral	1.0000	No sig. difference between Control and High Dose
	Infiltrate, mast cells, portal	0.4872	No sig. difference between Control and High Dose
	Infiltrate, neutrophilic, portal	1.0000	No sig. difference between Control and High Dose
Spleen	Extramedullary hematopoesis ('1's are wnl)	0.2248	No sig. difference between Control and High Dose
	Germinal Centers	0.1060	No sig. difference between Control and High Dose
[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant			

Incidence Table: SOMATIC TISSUE of HIGH DOSE F1 GEN RATS

Lung		Edema, perivascular proteinaceous						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	34	6	.	.	.	.	40
Lung		Infiltrate, lymphohistiocytic, subpleural						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	37	3	.	.	.	.	40

Lung		Infiltrate, lymphocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Lung		Eosinophils, perivascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	2	0	.	.	.	20
	High	18	1	1	.	.	.	20
	Total	36	3	1	.	.	.	40
Lung		Fibrin thrombi						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	36	4	.	.	.	.	40
Lung		Neutrophils,						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Lung		Macrophages, with engulfed RBC's						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	35	5	.	.	.	.	40
Lung	Group	Hemorrhage, intraalveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	16	3	1	.	.	.	20
	High	8	11	1	.	.	.	20
	Total	24	14	2	.	.	.	40
Lung		Crystals, eosinophilic, alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Thymus		Cortical Lymphocytolysis						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	37	3	.	.	.	.	40

Thymus		Hemorrhage						
	Group	0	1	2	3	4	5	Total
	Ctrl	15	5	.	.	.	.	20
	High	16	4	.	.	.	.	20
	Total	31	9	.	.	.	.	40
Thyroid gland		Distention, follicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	0	.	.	.	20
	High	16	1	1	.	.	.	18
	Total	36	1	1	.	.	.	38
	Frequency Missing = 2							
Thyroid gland		Macrophages, intrafollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	18	0	.	.	.	.	18
	Total	36	2	.	.	.	.	38
	Frequency Missing = 2							
Thyroid gland		Cyst , lined with squamous epith						
	Group	0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	18	0	.	.	.	.	18
	Total	34	4	.	.	.	.	38
	Frequency Missing = 2							
Thyroid gland		Debris, cellular, intrafollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	16	2	.	.	.	.	18
	Total	35	3	.	.	.	.	38
	Frequency Missing = 2							
Thyroid gland		Infiltrate, lymphohistiocytic, perifollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							
Thyroid gland		Lymph node -mast cell infiltrate						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	17	1	.	.	.	.	18
	Total	36	2	.	.	.	.	38
	Frequency Missing = 2							

Heart		Infiltrate, perivasc, mast cells, focal					
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	16	4	.	.	.	.	20
	Total	35	5	.	.	.	.	40
		Fibrosis, myocardial						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	38	2	.	.	.	.	40
		Fibrosis, perivascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Kidneys		Pyknosis, inner stripe						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	0	.	.	.	20
	High	9	10	1	.	.	.	20
	Total	28	11	1	.	.	.	40
Kidneys		Infiltrate, lymphocytic, periglomerular						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Kidneys		Protein						
	Group	0	1	2	3	4	5	Total
	Ctrl	5	15	.	0	.	.	20
	High	5	14	.	1	.	.	20
	Total	10	29	.	1	.	.	40
Kidneys		Infiltrate, lymphocytic, interstitial,						
	Group	0	1	2	3	4	5	Total
	Ctrl	15	5	.	.	.	.	20
	High	12	8	.	.	.	.	20
	Total	27	13	.	.	.	.	40
Kidneys		Gomeruli, expansion of mesangial matrix, unilateral						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Kidneys		Tubules, thickened basement membrane (as seen in CPN)						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Kidneys		Tubules, basophilic (not defined as regenerating)						
	Group	0	1	2	3	4	5	Total
	Ctrl	15	5	.	.	.	.	20
	High	12	8	.	.	.	.	20
	Total	27	13	.	.	.	.	40
Adrenal glands		Cytoplasmic vacuoles, tiny, z. fascicularis (granular appearance)						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	.	.	.	.	.	20
	High	20	.	.	.	.	.	20
	Total	40	.	.	.	.	.	40
		Z. glomerulosa or fascicularis pale cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Liver		Infiltrate, peri-bile ductule, lymphocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Liver		Eosinophils, portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Liver		Infiltrate, histiocytic (+/- lympho-), focal						
	Group	0	1	2	3	4	5	Total
	Ctrl	13	6	1	.	.	.	20
	High	11	9	0	.	.	.	20
	Total	24	15	1	.	.	.	40

Liver		Hematopoiesis, extramedullary						
	Group	0	1	2	3	4	5	Total
	Ctrl	11	9	0	.	.	.	20
	High	14	5	1	.	.	.	20
	Total	25	14	1	.	.	.	40
Liver		Infiltrate, lymphocytic, **centrilobula**r						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	36	4	.	.	.	.	40
Liver		Hyperplasia, biliary, portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	36	4	.	.	.	.	40
Liver		Necrosis, hepatocellular, single cell						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Liver		Infiltrate, lymphocytic (+/- plasmacytic) **porta**l						
	Group	0	1	2	3	4	5	Total
	Ctrl	4	15	1	.	.	.	20
	High	6	13	1	.	.	.	20
	Total	10	28	2	.	.	.	40
Liver		Congestion						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	12	8	.	.	.	.	20
	Total	32	8	.	.	.	.	40

Liver		Precipitate, mineral						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Liver		Infiltrate, mast cells, portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Liver		Infiltrate, neutrophilic, portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Spleen		Extramedullary hematopoesis ('1's are wnl)						
	Group	0	1	2	3	4	5	Total
	Ctrl	3	10	7	.	.	.	20
	High	7	10	3	.	.	.	20
	Total	10	20	10	.	.	.	40
		Presence of Germinal Centers						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	16	4	.	.	.	.	20
	Total	36	4	.	.	.	.	40

F1 MALES REPRODUCTIVE TISSUE (CONTROL, HIGH, 720, 144)

Fisher's Exact Test Results for Reproductive Tissues of F1 (53-days old at necropsy) Male Rats Exposed to High Dose NTO

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
Testis	Reduced diameter of Testis	<0.0001	High Dose group had sig. higher proportion with this effect
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	No sig. difference between Control and High Dose
	Sertoli-only tubules	0.0311	High Dose group had sig. higher proportion with this effect
	Sertoli cell Δ	0.4879	No sig. difference between Control and High Dose
	Inappropriate Mitotic figures (incr,decr,aberrant)	0.4879	No sig. difference between Control and High Dose
	Multinucleate giant cells	<0.0001	High Dose group had sig. higher proportion with this effect
	Sloughed germ cells into lumen	<0.0001	High Dose group had sig. higher proportion with this effect
	Dilation (or shrinkage) of seminiferous tubules	0.0012	High Dose group had sig. higher proportion with this effect
	Retained spermatids (visible in Stage IX-X)	1.0000	No sig. difference between Control and High Dose
	Vacuoles within Sertoli cell cytoplasm	<0.0001	High Dose group had sig. higher proportion with this effect
	Apoptotic cells	<0.0001	High Dose group had sig. higher proportion with this effect
	Germ cell-free gaps	<0.0001	High Dose group had sig. higher proportion with this effect
	Lack of elongating spermatids!	<0.0001	High Dose group had sig. higher proportion with this effect
Epididymis	Leukocyte infiltration	1.0000	No sig. difference between Control and High Dose
	Spermatic granuloma	1.0000	No sig. difference between Control and High Dose
	Δ in constitutive cells (e.g., clear cells) in epith	0.5075	No sig. difference between Control and High Dose
	Hypospermia	<0.0001	High Dose group had sig. higher proportion with this effect
	Inapprop cell types in lumen	<0.0001	High Dose group had sig. higher proportion with this effect
	Ectatic lymphatics w/protein fluid (edema)	0.2814	No sig. difference between Control and High Dose
	Cribriform change in Cauda (Other than physiologic d/t immaturity)	<0.0001	High Dose group had sig. higher proportion with this effect
	Dilatation	0.6062	No sig. difference between Control and High Dose
Prostate	Acini contain sloughed round cells (not including dorsal, in wh is normal)	0.3544	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	1.0000	No sig. difference between Control and High Dose
Seminal Vesicle	Intraluminal round cells	0.8610	No sig. difference between Control and High Dose
	Dilated lumen	0.4879	No sig. difference between Control and High Dose

[1] Fisher's Exact Test p-value < .05 was considered statistically significant.
[2] Sig. = statistically significant

F1 Male Reproductive tissue High v Control:

Incidence Table of High Dose NTO-Treated Repro: F1 MALES (53 days old)

Testis	Group	Reduced diameter of Testis						
		0	1	2	3	4	5	Total
	Ctrl	13	5	0	0	.	.	18
	High	0	2	16	2	.	.	20
	Total	13	7	16	2	.	.	38
	Frequency Missing = 2							

Testis	Group	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
		0	1	2	3	4	5	Total
	Ctrl	18	0	.	.	.	.	18
	High	19	1	.	.	.	.	20
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Sertoli-only tubules						
		0	1	2	3	4	5	Total
	Ctrl	18	0	0	.	.	.	18
	High	14	1	5	.	.	.	20
	Total	32	1	5	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Sertoli cell Δ						
		0	1	2	3	4	5	Total
	Ctrl	18	0	.	.	.	.	18
	High	18	2	.	.	.	.	20
	Total	36	2	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Inappropriate Mitotic figures (incr,decr,aberrant)						
		0	1	2	3	4	5	Total
	Ctrl	18	0	0	.	.	.	18
	High	17	2	1	.	.	.	20
	Total	35	2	1	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Multinucleate giant cells						
		0	1	2	3	4	5	Total
	Ctrl	18	0	0	.	0	.	18
	High	1	10	8	.	1	.	20
	Total	19	10	8	.	1	.	38
	Frequency Missing = 2							

Testis	Group	Sloughed germ cells into lumen						
		0	1	2	3	4	5	Total
	Ctrl	18	0	0	0	0	.	18
	High	0	2	10	3	5	.	20
	Total	18	2	10	3	5	.	38
	Frequency Missing = 2							

Testis	Group	Dilation (or shrinkage) of seminiferous tubules						
		0	1	2	3	4	5	Total
	Ctrl	16	2	0	.	0	.	18
	High	9	1	9	.	1	.	20
	Total	25	3	9	.	1	.	38
	Frequency Missing = 2							
Testis	Group	**Retained spermatids (visible in Stage IX-X)**						
		0	1	2	3	4	5	Total
	Ctrl	17	1	.	.	.	.	18
	High	19	1	.	.	.	.	20
	Total	36	2	.	.	.	.	38
	Frequency Missing = 2							
Testis	Group	**Vacuoles within Sertoli cell cytoplasm**						
		0	1	2	3	4	5	Total
	Ctrl	18	0	0	.	0	0	18
	High	3	3	8	.	4	2	20
	Total	21	3	8	.	4	2	38
	Frequency Missing = 2							
Testis	Group	**Apoptotic cells**						
		0	1	2	3	4	5	Total
	Ctrl	17	1	0	0	0	0	18
	High	0	1	8	6	3	2	20
	Total	17	2	8	6	3	2	38
	Frequency Missing = 2							
Testis	Group	**Germ cell-free gaps**						
		0	1	2	3	4	5	Total
	Ctrl	18	0	0	0	0	0	18
	High	1	8	4	5	1	1	20
	Total	19	8	4	5	1	1	38
	Frequency Missing = 2							
Testis	Group	**Lack of elongating spermatids!**						
		0	1	2	3	4	5	Total
	Ctrl	18	.	.	0	0	0	18
	High	0	.	.	1	1	18	20
	Total	18	.	.	1	1	18	38
	Frequency Missing = 2							

Epididymis	Group	Leukocyte infiltration						
		0	1	2	3	4	5	Total
	Ctrl	10	8	.	.	.	.	18
	High	11	9	.	.	.	.	20
	Total	21	17	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Spermatic granuloma						
		0	1	2	3	4	5	Total
	Ctrl	18	.	.	.	.	.	18
	High	20	.	.	.	.	.	20
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Δ in constitutive cells (e.g., clear cells) in epith						
		0	1	2	3	4	5	Total
	Ctrl	16	2	0	0	.	0	18
	High	14	2	1	2	.	1	20
	Total	30	4	1	2	.	1	38
	Frequency Missing = 2							

Epididymis	Group	Hypospermia						
		0	1	2	3	4	5	Total
	Ctrl	16	1	.	1	0	0	18
	High	0	0	.	3	1	16	20
	Total	16	1	.	4	1	16	38
	Frequency Missing = 2							

Epididymis	Group	Inapprop cell types in lumen						
		0	1	2	3	4	5	Total
	Ctrl	15	3	0	0	.	.	18
	High	2	10	4	4	.	.	20
	Total	17	13	4	4	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Ectatic lymphatics w/protein fluid (edema)						
		0	1	2	3	4	5	Total
	Ctrl	13	5	0	.	.	.	18
	High	10	8	2	.	.	.	20
	Total	23	13	2	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Cribriform change in Cauda (Other than physiologic d/t immaturity)						
		0	1	2	3	4	5	Total
	Ctrl	16	2	0	0	.	.	18
	High	3	12	3	2	.	.	20
	Total	19	14	3	2	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Dilatation						
		0	1	2	3	4	5	Total
	Ctrl	17	1	0	.	.	.	18
	High	16	3	1	.	.	.	20
	Total	33	4	1	.	.	.	38
	Frequency Missing = 2							

Prostate	Group	Acini contain sloughed round cells (not including dorsal, in wh is normal)						
		0	1	2	3	4	5	Total
	Ctrl	18	.	0	0	.	.	18
	High	16	.	1	2	.	.	19
	Total	34	.	1	2	.	.	37
	Frequency Missing = 3							
	Group	Infiltrate, lymphoplasmacytic						
		0	1	2	3	4	5	Total
	Ctrl	18	.	.	.	.	.	18
	High	19	.	.	.	.	.	19
	Total	37	.	.	.	.	.	37
	Frequency Missing = 3							

Seminal Vesicle	Group	Intraluminal round cells						
		0	1	2	3	4	5	Total
	Ctrl	15	1	1	.	1	.	18
	High	18	1	1	.	0	.	20
	Total	33	2	2	.	1	.	38
	Frequency Missing = 2							
	Group	Dilated lumen						
		0	1	2	3	4	5	Total
	Ctrl	17	0	0	1	.	.	18
	High	17	2	1	0	.	.	20
	Total	34	2	1	1	.	.	38
	Frequency Missing = 2							

F1 MALE RAT REPRODUCTIVE TISSUE from 720mg/kg NTO-EXPOSED group:

Fisher's Exact Test Results for F1 Male Rat Reproductive Tissues Exposed to 720mg/kg NTO

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
Testis	Reduced diameter of Testis	0.0281	Group 720 had sig. higher proportion with this effect
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	No sig. difference between Control and High Dose
	Sertoli-only tubules	1.0000	No sig. difference between Control and High Dose
	Sertoli cell Δ	1.0000	No sig. difference between Control and High Dose
	Inappropriate Mitotic figures (incr,decr,aberrant)	1.0000	No sig. difference between Control and High Dose
	Multinucleate giant cells	1.0000	No sig. difference between Control and High Dose
	Sloughed germ cells into lumen	1.0000	No sig. difference between Control and High Dose
	Dilation (or shrinkage) of seminiferous tubules	0.5946	No sig. difference between Control and High Dose
	Retained spermatids (visible in Stage IX-X)	0.4737	No sig. difference between Control and High Dose
	Vacuoles within Sertoli cell cytoplasm	1.0000	No sig. difference between Control and High Dose
	Apoptotic cells	0.4737	No sig. difference between Control and High Dose
	Germ cell-free gaps	1.0000	No sig. difference between Control and High Dose
	Lack of elongating spermatids!	1.0000	No sig. difference between Control and High Dose
Epididymis	Leukocyte infiltration	1.0000	No sig. difference between Control and High Dose
	Spermatic granuloma	1.0000	No sig. difference between Control and High Dose
	Δ in constitutive cells (e.g., clear cells) in epith	0.5946	No sig. difference between Control and High Dose
	Hypospermia	<0.0001	Group 720 had sig. higher proportion with this effect
	Inapprop cell types in lumen	0.0967	No sig. difference between Control and High Dose
	Ectatic lymphatics w/protein fluid (edema)	0.0171	**CONTROL** group had sig. higher proportion with this effect
	Cribriform change in Cauda (Excluding physiologic immaturity)	0.2176	No sig. difference between Control and High Dose
	Dilatation	0.4737	No sig. difference between Control and High Dose
Prostate	Acini- sloughed round cells (Excluding dorsal, in wh is normal)	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	0.0656	No sig. difference between Control and High Dose
Seminal Vesicle	Intraluminal round cells	0.0967	No sig. difference between Control and High Dose
	Dilated lumen	0.4737	No sig. difference between Control and High Dose

[1] Fisher's Exact Test p-value < .05 was considered statistically significant.
[2] Sig. = statistically significant

Incidence Table of 720mg/kg NTO-Treated F1 Male Rat Reproductive tissues

Testis	Reduced diameter of Testis						
	Group	0	1	2	3	4	5	Total
	720	7	13	.	.	.	.	20
	Ctrl	13	5	.	.	.	.	18
	Total	20	18	.	.	.	.	38
	Frequency Missing = 2							

Testis	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Sertoli-only tubules							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Sertoli cell Δ						
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Inappropriate Mitotic figures (incr,decr,aberrant)							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Multinucleate giant cells							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Sloughed germ cells into lumen							
	Group	0	1	2	3	4	5	Total
	720	19	1	.	.	.	.	20
	Ctrl	18	0	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Dilation (or shrinkage) of seminiferous tubules							
	Group	0	1	2	3	4	5	Total
	720	19	1	.	.	.	.	20
	Ctrl	16	2	.	.	.	.	18
	Total	35	3	.	.	.	.	38
	Frequency Missing = 2							

Testis	Retained spermatids (visible in Stage IX-X)							
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	Ctrl	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Vacuoles within Sertoli cell cytoplasm						
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Apoptotic cells							
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	Ctrl	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Germ cell-free gaps							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Lack of elongating spermatids!							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Leukocyte infiltration							
	Group	0	1	2	3	4	5	Total
	720	11	9	.	.	.	.	20
	Ctrl	10	8	.	.	.	.	18
	Total	21	17	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Spermatic granuloma							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Δ in constitutive cells (e.g., clear cells) in epith						
	Group	0	1	2	3	4	5	Total
	720	19	1	.	.	.	.	20
	Ctrl	16	2	.	.	.	.	18
	Total	35	3	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Hypospermia							
	Group	0	1	2	3	4	5	Total
	720	1	17	2	0	.	.	20
	Ctrl	16	1	0	1	.	.	18
	Total	17	18	2	1	.	.	38
	Frequency Missing = 2							

Epididymis	Inapprop cell types in lumen							
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	Ctrl	15	3	.	.	.	.	18
	Total	35	3	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Ectatic lymphatics w/protein fluid (edema)							
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	Ctrl	13	5	.	.	.	.	18
	Total	33	5	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Cribriform change in Cauda (Other than physiologic d/t immaturity)							
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	Ctrl	16	2	.	.	.	.	18
	Total	36	2	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Dilatation							
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	Ctrl	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Prostate	Acini contain sloughed round cells (not including dorsal, in wh is normal)						
	Group	0	1	2	3	4	5	Total
	720	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Prostate	Infiltrate, lymphoplasmacytic							
	Group	0	1	2	3	4	5	Total
	720	16	4	.	.	.	.	20
	Ctrl	18	0	.	.	.	.	18
	Total	34	4	.	.	.	.	38
	Frequency Missing = 2							

Seminal Vesicle	Intraluminal round cells							
	Group	0	1	2	3	4	5	Total
	720	20	0	0	.	0	.	20
	Ctrl	15	1	1	.	1	.	18
	Total	35	1	1	.	1	.	38
	Frequency Missing = 2							

Seminal Vesicle	Dilated lumen							
	Group	0	1	2	3	4	5	Total
	720	20	.	.	0	.	.	20
	Ctrl	17	.	.	1	.	.	18
	Total	37	.	.	1	.	.	38
	Frequency Missing = 2							

F1 Male Repro – 144mg/kg NTO:

Fisher's Exact Test Results for Reproductive Tissues of F1 Male Rats Exposed to 144 mg/kg NTO

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
Testis	Reduced diameter of Testis	0.0733	No sig. difference between Control and High Dose
	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)	1.0000	
	Sertoli-only tubules	1.0000	
	Sertoli cell Δ	1.0000	
	Inappropriate Mitotic figures (incr,decr,aberrant)	1.0000	
	Multinucleate giant cells	1.0000	
	Sloughed germ cells into lumen	1.0000	
	Dilation (or shrinkage) of seminiferous tubules	1.0000	
	Retained spermatids (visible in Stage IX-X)	0.4737	
	Vacuoles within Sertoli cell cytoplasm	1.0000	
	Apoptotic cells	0.4737	
	Germ cell-free gaps	1.0000	
	Lack of elongating spermatids!	1.0000	
Epididymis	Leukocyte infiltration	0.0741	No sig. difference between Control and High Dose
	Spermatic granuloma	1.0000	No sig. difference between Control and High Dose
	Δ in constitutive cells (e.g., clear cells) in epith	0.2176	No sig. difference between Control and High Dose
	Hypospermia	0.3493	No sig. difference between Control and High Dose
	Inapprop cell types in lumen	1.0000	No sig. difference between Control and High Dose
	Ectatic lymphatics w/protein fluid (edema)	0.0171	**CONTROL** group had sig. higher proportion with this
	Cribriform change in Cauda (Other than physiologic immaturity)	0.2176	No sig. difference between Control and High Dose
	Dilatation	0.4737	No sig. difference between Control and High Dose
Prostate	Acini contain sloughed round cells (not including dorsal, in wh is normal)	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphoplasmacytic	1.0000	
Seminal Vesicle	Intraluminal round cells	0.0967	No sig. difference between Control and High Dose
	Dilated lumen	0.4737	

[1] Fisher's Exact Test p-value < .05 was considered statistically significant.
[2] Sig. = statistically significant

Incidences-Reproductive Tissues of 144 mg/kg NTO-Exposed F1 MALE RAT (53d)

Testis	Group	Reduced diameter of Testis						
		0	1	2	3	4	5	Total
	144	8	7	4	1	.	.	20
	Ctrl	13	5	0	0	.	.	18
	Total	21	12	4	1	.	.	38
	Frequency Missing = 2							

Testis	Group	Leydig cell Δ's (big, little, apoptotic, vacuoles,nec)						
		0	1	2	3	4	5	20
	144	20	.	.	.	.	.	18
	Ctrl	18	.	.	.	.	.	38
	Total	38	.	.	.	.	.	
	Frequency Missing = 2							

Testis	Group	Sertoli-only tubules						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Sertoli cell Δ						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Inappropriate Mitotic figures (incr,decr,aberrant)						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Multinucleate giant cells						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Sloughed germ cells into lumen						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Dilation (or shrinkage) of seminiferous tubules						
		0	1	2	3	4	5	Total
	144	19	1	.	.	.	.	20
	Ctrl	16	2	.	.	.	.	18
	Total	35	3	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Retained spermatids (visible in Stage IX-X)						
		0	1	2	3	4	5	Total
	144	20	0	.	.	.	.	20
	Ctrl	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Vacuoles within Sertoli cell cytoplasm						
		0	1	2	3	4	5	Total
	144	19	1	.	.	.	.	20
	Ctrl	18	0	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Apoptotic cells						
		0	1	2	3	4	5	Total
	144	20	0	.	.	.	.	20
	Ctrl	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Germ cell-free gaps						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Testis	Group	Lack of elongating spermatids!						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Leukocyte infiltration						
		0	1	2	3	4	5	Total
	144	17	3	.	.	.	.	20
	Ctrl	10	8	.	.	.	.	18
	Total	27	11	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Spermatic granuloma						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Δ in constitutive cells (e.g., clear cells) in epith						
		0	1	2	3	4	5	Total
	144	20	0	.	.	.	.	20
	Ctrl	16	2	.	.	.	.	18
	Total	36	2	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Hypospermia						
		0	1	2	3	4	5	Total
	144	12	2	2	3	.	1	20
	Ctrl	16	1	0	1	.	0	18
	Total	28	3	2	4	.	1	38
	Frequency Missing = 2							

Epididymis	Group	Inapprop cell types in lumen						
		0	1	2	3	4	5	Total
	144	16	4	.	.	.	.	20
	Ctrl	15	3	.	.	.	.	18
	Total	31	7	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Ectatic lymphatics w/protein fluid (edema)						
		0	1	2	3	4	5	Total
	144	20	0	.	.	.	.	20
	Ctrl	13	5	.	.	.	.	18
	Total	33	5	.	.	.	.	38
	Frequency Missing = 2							

Epididymis	Group	Cribriform change in Cauda (Other than physiologic d/t immaturity)						
		0	1	2	3	4	5	Total
	Ctrl	19	0	.	.	.	1	20
	144	16	2	.	.	.	0	18
	Total	35	2	.	.	.	1	38
	Frequency Missing = 2							

Epididymis	Group	Dilatation						
		0	1	2	3	4	5	Total
	144	20	0	.	.	.	.	20
	Ctrl	17	1	.	.	.	.	18
	Total	37	1	.	.	.	.	38
	Frequency Missing = 2							

Prostate	Group	Acini contain sloughed round cells (not including dorsal, in wh is normal)						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							
	Group	Infiltrate, lymphoplasmacytic						
		0	1	2	3	4	5	Total
	144	18	1	1	.	.	.	20
	Ctrl	18	0	0	.	.	.	18
	Total	36	1	1	.	.	.	38
	Frequency Missing = 2							

Prostate	Group	Acini contain sloughed round cells (not including dorsal, in wh is normal)						
		0	1	2	3	4	5	Total
	144	20	.	.	.	.	.	20
	Ctrl	18	.	.	.	.	.	18
	Total	38	.	.	.	.	.	38
	Frequency Missing = 2							
	Group	Infiltrate, lymphoplasmacytic						
		0	1	2	3	4	5	Total
	144	18	1	1	.	.	.	20
	Ctrl	18	0	0	.	.	.	18
	Total	36	1	1	.	.	.	38
	Frequency Missing = 2							

Seminal Vesicle	Group	Intraluminal round cells						
		0	1	2	3	4	5	Total
	144	20	0	0	.	0	.	20
	Ctrl	15	1	1	.	1	.	18
	Total	35	1	1	.	1	.	38
	Frequency Missing = 2							

Seminal Vesicle	Group	Dilated lumen						
		0	1	2	3	4	5	Total
	144	20	.	.	0	.	.	20
	Ctrl	17	.	.	1	.	.	18
	Total	37	.	.	1	.	.	38
	Frequency Missing = 2							

MALE WEANLING RATS

Fisher's Exact Test Results for REPRODUCTIVE TISSUE from High Dose NTO-Exposed WEANLING pups at PND 22 +/- 1 day of age

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
Testis	Apoptotic cells	1.0000	No sig. difference between Control and High Dose

[1] Fisher's Exact Test p-value < .05 was considered statistically significant.
[2] Sig. = statistically significant

Incidence Table of High Dose NTO-Exposed WEANLING pups at PND 22 +/- 1 day

Testis	Group	Apoptotic cells						
		0	1	2	3	4	5	Total
	Ctrl	8	2	.	.	.	.	10
	HIGH	7	3	.	.	.	.	10
	Total	15	5	.	.	.	.	20

FEMALE RATS

PARENTAL GENERATION FEMALE RAT TISSUES

All PGEN female tissues were analyzed both with and without 14-0210 (high exposure group) because this rat had lesions in several organs suggestive of a septic process unrelated to NTO exposure.

PGEN FEMALES (SOMATIC AND REPRODUCTIVE TISSUE) (CONTROL, HIGH) WITH (P.74) AND WITHOUT 14-0210

Fisher's Exact Test Results for High Group Parental Generation Females (@ 21wks old)

Analysis WITH HIGH-DOSE FEMALE 14-0210

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
BRAIN, anterior, about Br 3.0mm(Forceps minor cc)	Congestion, meningeal or perivasc extravasation	1.0000	No sig. difference between Control and High Group
CORPUS CALLOSSUM	CORPUS CALLOSSUM	N/A	No lesions
HIPPOCAMPUS	HIPPOCAMPUS	N/A	No lesions
PITUITARY	Cyst (Rathke's pouch remnant)	1.0000	No sig. difference between Control and High Group
CEREBELLUM /BRAINSTEM	CEREBELLUM /BRAINSTEM	N/A	No lesions
PINEAL GLAND	PINEAL GLAND	N/A	No lesions
LUNG	Type II pneumocyte hyperplasia	1.0000	No sig. difference between Control and High Group
	Congestion, alveolar septal	1.0000	No sig. difference between Control and High Group
	Edema, perivascular proteinaceous	1.0000	No sig. difference between Control and High Group
	Edema, alveolar	1.0000	No sig. difference between Control and High Group
	Infiltrate, lymphohistiocytic, subpleural	0.3487	No sig. difference between Control and High Group
	Infiltrate, alveolar, histiocytic	0.5256	No sig. difference between Control and High Group
	Infiltrate, eosinophilic	1.0000	No sig. difference between Control and High Group
	Lymphocytes, perivascular	1.0000	No sig. difference between Control and High Group
	Fibrosis, focal	1.0000	No sig. difference between Control and High Group
	Fibrin	1.0000	No sig. difference between Control and High Group
	Infiltrate, mast cells	0.2347	No sig. difference between Control and High Group
	Neutrophils,	1.0000	No sig. difference between Control and High Group
	Macrophages, with engulfed RBC's	0.2655	No sig. difference between Control and High Group
	Hemorrhage, intraalveolar	0.8164	No sig. difference between Control and High Group
	Crystals, eosinophilic, alveolar	0.4898	No sig. difference between Control and High Group
THYMUS	Epithel remnants (Str Squm or Cilia-lined)	0.5419	No sig. difference between Control and High Group
	Cortical Lymphocytolysis	1.0000	No sig. difference between Control and High Group
	Germinal centers (=focal B cell hyperplasia)	0.7195	No sig. difference between Control and High Group
	Hemorrhage	1.0000	No sig. difference between Control and High Group
LYMPH NODE (not required)	Erythrophagocytosis	0.0181	High Dose Group had sig. higher proportion with this effect
	Medullary sinus erythrocytes	0.3765	No sig. difference between Control and High Group
	Infiltrate, mast cells	0.1809	No sig. difference between Control and High Group
PARATHYROID GLAND	Ectopic thymus	1.0000	No sig. difference between Control and High Group
THYROID GLAND	Follicular cell hypertrophy (+/- vacuoles)	0.4894	No sig. difference between Control and High Group
	Cystic Follicles	0.2553	No sig. difference between Control and High Group
	Macrophages, intrafollicular	1.0000	No sig. difference between Control and High Group
	Cyst, ultimobranchial (lined by squamous epith)	1.0000	No sig. difference between Control and High Group
	Debris, cellular, intrafollicular	1.0000	No sig. difference between Control and High Group
HEART	Fibrosis	0.6092	No sig. difference between Control and High Group
	Infiltrate, lymphohistiocytic	0.2347	No sig. difference between Control and High Group
	Adipose tissue, inflammatory infiltrates	0.4898	No sig. difference between Control and High Group
KIDNEYS	Congestion	1.0000	No sig. difference between Control and High Group
	Dilatation, tubular or vascular (congestion?)	0.4610	No sig. difference between Control and High Group
	Pyknosis, inner stripe	0.2312	No sig. difference between Control and High Group
	Protein in tubules, pale eosinophilic	<0.0001	High Dose Group had sig. higher proportion with this effect
	Infiltrate, lymphocytic, interstitial,	0.3719	No sig. difference between Control and High Group
	Glomerular Bowman's capsule cuboidal or metaplasia	0.2347	No sig. difference between Control and High Group
	Tubules, thickened basement membrane (as in CPN)	1.0000	No sig. difference between Control and High Group
	Tubules, basophilic (not defined as regenerating)	0.4898	No sig. difference between Control and High Group
	Mineral	1.0000	No sig. difference between Control and High Group

ADRENAL GLANDS	Necrosis, focal, with mineral	1.0000	No sig. difference between Control and High Group
	Zona glomerulosa hyperplasia	0.4898	No sig. difference between Control and High Group
	Extracapsular cortical cells/nodules	0.4174	No sig. difference between Control and High Group
	Hemangiectasis	0.0712	No sig. difference between Control and High Group
	Cortical vacuolation, diffuse (10X)	0.0045	High Dose Group had sig. higher proportion with this effect
	Medullary cells, ectopic	1.0000	No sig. difference between Control and High Group
LIVER	Infiltrate, histiocytic (virtually all include lymphocytes)	0.5380	No sig. difference between Control and High Group
	Hepatocellular vacuoles	1.0000	No sig. difference between Control and High Group
	Infiltrate, centrilobular (lymphs or lymphs/macrophages)	0.0955	No sig. difference between Control and High Group
	Necrosis, hepatocellular, single cell	0.1407	No sig. difference between Control and High Group
	Infiltrate, lymphocytic, portal	0.5798	No sig. difference between Control and High Group
	Congestion	0.6078	No sig. difference between Control and High Group
	Infiltrate, neutrophilic	1.0000	No sig. difference between Control and High Group
SPLEEN	Extramedullary hematopoesis ('1's may be 'wnl')	0.0226	**CONTROL Group** had sig. higher proportion with this effect
OVARIES	Sertoliform tubules	1.0000	No sig. difference between Control and High Group
	Proestrus	N/A	All data are missing
	Estrus	N/A	All data are missing
	Metestrus	N/A	All data are missing
	Diestrus	N/A	All data are missing
UTERUS	Fibrosis, periglandular	0.7626	No sig. difference between Control and High Group
	Infiltrate, histiocytic w/pigment (subserosal,	0.1371	No sig. difference between Control and High Group
	Infiltrate, lymphohistiocytic, focal	1.0000	No sig. difference between Control and High Group
	Proestrus (Luminal dilation)	N/A	No lesions
	Estrus	N/A	No lesions
	Neutrophils in gland lumina	0.6092	No sig. difference between Control and High Group
	Metestrus	N/A	No lesions
	Diestrus	N/A	No lesions
VAGINA/CERVIX	Proestrus	N/A	No lesions
	Stratum germinativum hyperplasia	1.0000	No sig. difference between Control and High Group
	Estrus	N/A	No lesions
	Metestrus	N/A	No lesions
	Diestrus	N/A	No lesions

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table: HIGH DOSE NTO PGEN FEMALES (approx. 21 weeks old)								
Analysis INCLUDING Rat # 14-0210								
BRAIN, anterior, approx Br 3.0mm(Forceps minor cc)		Congestion, meningeal or perivasc extravasation						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
	Frequency Missing = 1							
PITUITARY		Cyst (Rathke's pouch remnant)						
	Group	0	1	2	3	4	5	Total
	Ctrl	14	1	.	.	.	.	15
	High	13	1	.	.	.	.	14
	Total	27	2	.	.	.	.	29
	Frequency Missing = 20							
LUNG		Type II pneumocyte hyperplasia						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	0	.	24
	High	23	1	.	.	1	.	25
	Total	47	1	.	.	1	.	49

LUNG		Congestion, alveolar septal						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	0	.	24
	High	23	1	.	.	1	.	25
	Total	46	2	.	.	1	.	49
LUNG		Edema, perivascular proteinaceous						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	46	3	.	.	.	.	49
LUNG		Edema, alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49
LUNG		Infiltrate, lymphohistiocytic, subpleural						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	45	4	.	.	.	.	49
LUNG		Infiltrate, alveolar, histiocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	7	15	2	.	.	.	24
	High	11	12	2	.	.	.	25
	Total	18	27	4	.	.	.	49
LUNG		Infiltrate, eosinophilic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49
LUNG		Lymphocytes, perivascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	0	.	24
	High	22	2	.	.	1	.	25
	Total	45	3	.	.	1	.	49
LUNG		Fibrosis, focal						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	0	.	.	.	24
	High	24	.	1	.	.	.	25
	Total	48	.	1	.	.	.	49

LUNG		Fibrin						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	0	.	.	.	24
	High	23	1	1	.	.	.	25
	Total	46	2	1	.	.	.	49
LUNG		Infiltrate, mast cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	47	2	.	.	.	.	49
LUNG		Neutrophils,						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	0	.	24
	High	23	1	.	.	1	.	25
	Total	47	1	.	.	1	.	49
LUNG		Macrophages, with engulfed RBC's						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	0	.	24
	High	23	1	.	.	1	.	25
	Total	43	5	.	.	1	.	49
LUNG		Hemorrhage, intraalveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	15	9	0	.	0	.	24
	High	16	7	1	.	1	.	25
	Total	31	16	1	.	1	.	49
LUNG		Crystals, eosinophilic, alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49
THYMUS		Epithel remnants (Str Squm or Cilia-lined)						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	6	.	.	.	.	23
	High	16	9	.	.	.	.	25
	Total	33	15	.	.	.	.	48
	Frequency Missing = 1							

THYMUS		Cortical Lymphocytolysis					
	Group	0	1	2	3	4	5	Total
	Ctrl	23	0	0	.	0	.	23
	High	22	1	1	.	1	.	25
	Total	45	1	1	.	1	.	48
	Frequency Missing = 1							
THYMUS		Germinal centers"focal med. B cell hyperplasia"(4X)						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	5	.	.	.	.	23
	High	21	4	.	.	.	.	25
	Total	39	9	.	.	.	.	48
	Frequency Missing = 1							
THYMUS		Hemorrhage						
	Group	0	1	2	3	4	5	Total
	Ctrl	16	7	.	.	.	.	23
	High	17	8	.	.	.	.	25
	Total	33	15	.	.	.	.	48
	Frequency Missing = 1							
LYMPH NODE		Erythrophagocytosis						
(not required)	Group	0	1	2	3	4	5	Total
	Ctrl	11	0	.	.	.	.	11
	High	4	4	.	.	.	.	8
	Total	15	4	.	.	.	.	19
	Frequency Missing = 30							
LYMPH NODE		Medullary sinus erythrocytes						
	Group	0	1	2	3	4	5	Total
	Ctrl	8	3	.	.	.	.	11
	High	4	4	.	.	.	.	8
	Total	12	7	.	.	.	.	19
	Frequency Missing = 30							
LYMPH NODE		Infiltrate, mast cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	3	8	.	.	.	.	11
	High	5	3	.	.	.	.	8
	Total	8	11	.	.	.	.	19
	Frequency Missing = 30							

PARATHYROID GLAND		Ectopic thymus						
	Group	0	1	2	3	4	5	Total
	Ctrl	6	.	.	.	.	.	6
	High	13	.	.	.	.	.	13
	Total	19	.	.	.	.	.	19
	Frequency Missing =		.	.	.	.	.	
THYROID GLAND		Follicular cell hypertrophy (+/- vacuoles)						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	.	.	1	.	.	23
	High	24	.	.	0	.	.	24
	Total	46	.	.	1	.	.	47
	Frequency Missing = 2							
THYROID GLAND		Cystic Follicles						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	.	0	.	.	23
	High	23	0	.	1	.	.	24
	Total	45	1	.	1	.	.	47
	Frequency Missing = 2							
THYROID GLAND		Macrophages, intrafollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	3	.	.	0	.	23
	High	19	4	.	.	1	.	24
	Total	39	7	.	.	1	.	47
	Frequency Missing = 2							
THYROID GLAND		Cyst, ultimobranchial (lined by squamous epith)						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	.	.	0	.	23
	High	21	2	.	.	1	.	24
	Total	43	3	.	.	1	.	47
	Frequency Missing = 2							

THYROID GLAND		Debris, cellular, intrafollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	4	0	1	0	.	23
	High	17	5	1	0	1	.	24
	Total	35	9	1	1	1	.	47
	Frequency Missing = 2							
HEART		Fibrosis						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	46	3	.	.	.	.	49
HEART		Infiltrate, lymphohistiocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	46	3	.	.	.	.	49
HEART		Adipose tissue, inflammatory infiltrates						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	47	2	.	.	.	.	49
KIDNEYS		Congestion						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	0	.	24
	High	23	1	.	.	1	.	25
	Total	46	2	.	.	1	.	49
KIDNEYS		Dilatation, tubular or vascular (congestion?)						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	5	0	.	1	.	24
	High	17	4	3	.	1	.	25
	Total	35	9	3	.	2	.	49
KIDNEYS		Pyknosis, inner stripe						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	1	.	.	.	24
	High	18	5	2	.	.	.	25
	Total	40	6	3	.	.	.	49
KIDNEYS		Protein in tubules, pale eosinophilic						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	0	.	0	.	24
	High	6	16	2	.	1	.	25
	Total	28	18	2	.	1	.	49

KIDNEYS		Infiltrate, lymphocytic, interstitial,						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	0	.	.	.	24
	High	18	6	1	.	.	.	25
	Total	39	9	1	.	.	.	49
KIDNEYS		Glomerular Bowman's capsule cuboidal or metaplasia						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	47	2	.	.	.	.	49
KIDNEYS		Tubules, thickened basement membrane (as in CPN)						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	25	.	.	.	.	.	25
	Total	49	.	.	.	.	.	49
KIDNEYS		Tubules, basophilic (not defined as regenerating)						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	25	0	.	.	.	.	25
	Total	48	1	.	.	.	.	49
KIDNEYS		Mineral						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	45	4	.	.	.	.	49

ADRENAL GL		Necrosis, focal, with mineral						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	0	.	24
	High	24	.	.	.	1	.	25
	Total	48	.	.	.	1	.	49
ADRENAL GL		Zona glomerulosa hyperplasia						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	47	2	.	.	.	.	49
ADRENAL GL		Extracapsular cortical cells/nodules						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	23	2	.	.	.	.	25
	Total	43	6	.	.	.	.	49
ADRENAL GL		Hemangiectasis						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	0	.	.	.	24
	High	23	1	1	.	.	.	25
	Total	41	7	1	.	.	.	49
ADRENAL GL		Cortical vacuolation, diffuse (10X)						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	0	.	.	.	24
	High	10	14	1	.	.	.	25
	Total	30	18	1	.	.	.	49
ADRENAL GL		Medullary cells, ectopic						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	21	4	.	.	.	.	25
	Total	41	8	.	.	.	.	49
LIVER		Infiltrate, histiocytic (virtually all include lymphocytes)						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	.	.	.	.	24
	High	16	9	.	.	.	.	25
	Total	34	15	.	.	.	.	49

LIVER	GROUP	Hepatocellular vacuoles (compare at 10X)*=pattern						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	0	.	.	24
	High	20	4	.	1	.	.	25
	Total	40	8	.	1	.	.	49
LIVER		Infiltrate, lympho- (histio)cytic, centrilobular						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	.	.	.	.	24
	High	16	9	.	.	.	.	25
	Total	37	12	.	.	.	.	49
LIVER		Necrosis, hepatocellular, single cell						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	0	.	24
	High	19	5	.	.	1	.	25
	Total	42	6	.	.	1	.	49
LIVER		Infiltrate, lymphocytic, portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	5	.	0	.	.	24
	High	21	3	.	1	.	.	25
	Total	40	8	.	1	.	.	49
LIVER		Congestion						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	0	.	24
	High	18	6	.	.	1	.	25
	Total	38	10	.	.	1	.	49
LIVER		Infiltrate, neutrophilic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	0	.	24
	High	24	.	.	.	1	.	25
	Total	48	.	.	.	1	.	49
SPLEEN	Extramedullary hematopoesis ('1's may be 'wnl')							
	Group	0	1	2	3	4	5	Total
	Ctrl	16	8	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	39	9	.	.	.	.	48
	Frequency Missing = 1							

OVARIES	Sertoliform tubules							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	47	2	.	.	.	.	49

UTERUS		Fibrosis, periglandular						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	7	7	0	.	.	24
	High	10	9	5	1	.	.	25
	Total	20	16	12	1	.	.	49
		Infiltrate, histiocytic w/pigment (subserosal, vascular layer)						
	Group	0	1	2	3	4	5	Total
	Ctrl	1	1	5	16	1	.	24
	High	5	2	8	8	2	.	25
	Total	6	3	13	24	3	.	49

UTERUS	Infiltrate, lymphohistiocytic, focal							
	Group	0	1	.	.	.	.	Total
	Ctrl	24	0	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49
UTERUS	Neutrophils in gland lumina							
	Group	0	1	.	.	.	.	Total
	Ctrl	23	1	.	.	.	.	24
	High	22	3	.	.	.	.	25
	Total	45	4	.	.	.	.	49
VAGINA/	Stratum germinativum hyperplasia							
CERVIX	Group	0	1	.	.	.	.	Total
	Ctrl	24	0	.	.	.	.	24
	High	24	1	.	.	.	.	25
	Total	48	1	.	.	.	.	49

PGEN FEMALES WITHOUT 14-0210:

Fisher's Exact Test Results for High Group Parental Generation Females: approx. 21 weeks

Analysis WITHOUT case 14-0210

Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
BRAIN, anterior, @ Br 3.0mm (Forceps minor cc)	Congestion, meningeal or perivasc extravasation	1.0000	No sig. difference between Control and High Group
CORPUS CALLOSSUM	CORPUS CALLOSSUM	N/A	No data because there was no lesion.
HIPPOCAMPUS	HIPPOCAMPUS	N/A	No data because there was no lesion.
PITUITARY	Cyst (Rathke's pouch remnant)	1.0000	No sig. difference between Control and High Group
CEREBELLUM /BRAINSTEM	CEREBELLUM /BRAINSTEM	N/A	No data because there was no lesion.
PINEAL GLAND	PINEAL GLAND	N/A	No data because there was no lesion.
LUNG	Type II pneumocyte hyperplasia	1.0000	No sig. difference between Control and High Group
	Congestion, alveolar septal	1.0000	No sig. difference between Control and High Group
	Edema, perivascular proteinaceous	1.0000	No sig. difference between Control and High Group
	Edema, alveolar	1.0000	No sig. difference between Control and High Group
	Infiltrate, lymphohistiocytic, subpleural	0.6085	No sig. difference between Control and High Group
	Infiltrate, alveolar, histiocytic	0.8185	No sig. difference between Control and High Group
	Infiltrate, eosinophilic	1.0000	No sig. difference between Control and High Group
	Lymphocytes, perivascular	1.0000	No sig. difference between Control and High Group
	Fibrosis, focal	1.0000	No sig. difference between Control and High Group
	Fibrin	1.0000	No sig. difference between Control and High Group
	Infiltrate, mast cells	0.4894	No sig. difference between Control and High Group
	Neutrophils,	1.0000	No sig. difference between Control and High Group
	Macrophages, with engulfed RBC's	0.3475	No sig. difference between Control and High Group
	Hemorrhage, intraalveolar	0.7601	No sig. difference between Control and High Group
	Crystals, eosinophilic, alveolar	1.0000	No sig. difference between Control and High Group
THYMUS	Epithel remnants (Str Squm or Cilia-lined)	0.5343	No sig. difference between Control and High Group
	Cortical Lymphocytolysis	1.0000	No sig. difference between Control and High Group
	Germinal centers"focal med. B cell hyperplasia"(4X)	0.7238	No sig. difference between Control and High Group
	Hemorrhage	1.0000	No sig. difference between Control and High Group
LYMPH NODE (not required)	Erythrophagocytosis	0.0429	High Dose Group had sig. higher proportion with this effect
	Medullary sinus erythrocytes	0.6267	No sig. difference between Control and High Group
	Infiltrate, mast cells	0.3322	No sig. difference between Control and High Group
PARATHYROID GLAND	Ectopic thymus	1.0000	No sig. difference between Control and High Group
THYROID GLAND	Follicular cell hypertrophy (+/- vacuoles)	1.0000	No sig. difference between Control and High Group
	Cystic Follicles	1.0000	No sig. difference between Control and High Group
	Macrophages, intrafollicular	1.0000	No sig. difference between Control and High Group
	Cyst, ultimobranchial (lined by squamous epith)	1.0000	No sig. difference between Control and High Group
	Debris, cellular, intrafollicular	1.0000	No sig. difference between Control and High Group
HEART	Fibrosis	1.0000	No sig. difference between Control and High Group
	Infiltrate, lymphohistiocytic	0.2340	No sig. difference between Control and High Group
	Adipose tissue, inflammatory infiltrates	0.4894	No sig. difference between Control and High Group
KIDNEYS	Congestion	1.0000	No sig. difference between Control and High Group
	Dilatation, tubular or vascular (congestion?)	0.3371	No sig. difference between Control and High Group
	Pyknosis, inner stripe	0.1660	No sig. difference between Control and High Group
	Protein in tubules, pale eosinophilic	<0.0001	High Dose Group had sig. higher proportion with this effect
	Infiltrate, lymphocytic, interstitial,	0.2865	No sig. difference between Control and High Group
	Glomerular Bowman's capsule cuboidal or metaplasia	0.4894	No sig. difference between Control and High Group
	Tubules, thickened basement membrane (as in CPN)	1.0000	No sig. difference between Control and High Group
	Tubules, basophilic (not defined as regenerating)	1.0000	No sig. difference between Control and High Group
	Mineral	1.0000	No sig. difference between Control and High Group
ADRENAL GLANDS	Necrosis, focal, with mineral	1.0000	No sig. difference between Control and High Group
	Zona glomerulosa hyperplasia	0.4894	No sig. difference between Control and High Group
	Extracapsular cortical cells/nodules	0.6662	No sig. difference between Control and High Group
	Hemangiectasis	0.0971	No sig. difference between Control and High Group
	Cortical vacuolation, diffuse (10X)	0.0027	High Dose Group had sig. higher proportion with this effect
	Medullary cells, ectopic	1.0000	No sig. difference between Control and High Group

LIVER	Infiltrate, histiocytic (virtually all include lymphocytes)	0.5343	No sig. difference between Control and High Group
	Hepatocellular vacuoles (compare at 10X)*=pattern	1.0000	No sig. difference between Control and High Group
	Infiltrate, lympho- (histio)cytic, centrilobular	0.0933	No sig. difference between Control and High Group
	Necrosis, hepatocellular, single cell	0.1882	No sig. difference between Control and High Group
	Infiltrate, lymphocytic, portal	0.7008	No sig. difference between Control and High Group
	Congestion	0.7238	No sig. difference between Control and High Group
	Infiltrate, neutrophilic	1.0000	No sig. difference between Control and High Group
SPLEEN	Extramedullary hematopoesis ('1's may be 'wnl')	0.0226	**CONTROL Group** had sig. higher proportion with this effect
OVARIES	Sertoliform tubules	1.0000	No sig. difference between Control and High Group
	Proestrus	N/A	No data because there was no lesion.
	Estrus	N/A	No data because there was no lesion.
	Metestrus	N/A	No data because there was no lesion.
	Diestrus	N/A	No data because there was no lesion.
UTERUS	Fibrosis, periglandular	0.6388	No sig. difference between Control and High Group
	Infiltrate, histiocytic w/pigment (subserosal, vascular layer)	0.3527	No sig. difference between Control and High Group
	Infiltrate, lymphohistiocytic, focal	1.0000	No sig. difference between Control and High Group
	Proestrus (Luminal dilation)	N/A	No data because there was no lesion.
	Estrus	N/A	No data because there was no lesion.
	Neutrophils in gland lumina	1.0000	No sig. difference between Control and High Group
	Metestrus	N/A	No data because there was no lesion.
	Diestrus	N/A	No data because there was no lesion.
VAGINA/CERVIX	Proestrus	N/A	No data because there was no lesion.
	Stratum germinativum hyperplasia	1.0000	No sig. difference between Control and High Group
	Estrus	N/A	No data because there was no lesion.
	Metestrus	N/A	No data because there was no lesion.
	Diestrus	N/A	No data because there was no lesion.

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table: PGEN High-EXPOSURE FEMALES (approx. 21 weeks of age at necropsy)

Analysis WITHOUT case 14-0210

BRAIN, anterior, approx Br 3.0mm(Forceps	Congestion, meningeal or perivasc extravasation							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	23	.	.	.	.	.	23
	Total	47	.	.	.	.	.	47
	Frequency Missing = 1							

PITUITARY	Cyst (Rathke's pouch remnant)							
	Group	0	1	2	3	4	5	Total
	Ctrl	14	1	.	.	.	.	15
	High	12	1	.	.	.	.	13
	Total	26	2	.	.	.	.	28
	Frequency Missing = 20							

LUNG		Congestion, alveolar septal						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	46	2	.	.	.	.	48
LUNG		Edema, perivascular proteinaceous						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	46	2	.	.	.	.	48
LUNG		Edema, alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48
LUNG		Type II pneumocyte hyperplasia						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	47	1	.	.	.	.	48
LUNG		Infiltrate, lymphohistiocytic, subpleural						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	44	4	.	.	.	.	48
LUNG		Infiltrate, alveolar, histiocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	7	15	2	.	.	.	24
	High	10	12	2	.	.	.	24
	Total	17	27	4	.	.	.	48
LUNG		Infiltrate, eosinophilic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	47	1	.	.	.	.	48
LUNG		Lymphocytes, perivascular						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	22	2	.	.	.	.	24
	Total	45	3	.	.	.	.	48

LUNG		Fibrosis, focal						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
LUNG		Fibrin						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	46	2	.	.	.	.	48
LUNG		Infiltrate, mast cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	24	0	.	.	.	.	24
	Total	46	2	.	.	.	.	48
LUNG		Neutrophils,						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	47	1	.	.	.	.	48
LUNG		Macrophages, with engulfed RBC's						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	43	5	.	.	.	.	48
LUNG		Hemorrhage, intraalveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	15	9	0	.	.	.	24
	High	16	7	1	.	.	.	24
	Total	31	16	1	.	.	.	48
LUNG		Crystals, eosinophilic, alveolar						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48

THYMUS		Epithelial remnants (Stratified Squamous or Cilia-lined)						
	Group	0	1	2	3	4	5	Total
	Ctrl	17	6	.	.	.	.	23
	High	15	9	.	.	.	.	24
	Total	32	15	.	.	.	.	47
	Frequency Missing = 1							
THYMUS		Cortical Lymphocytolysis						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	0	0	.	.	.	23
	High	22	1	1	.	.	.	24
	Total	45	1	1	.	.	.	47
	Frequency Missing = 1							
THYMUS		Germinal centers"focal med. B cell hyperplasia"(4X)						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	5	.	.	.	.	23
	High	20	4	.	.	.	.	24
	Total	38	9	.	.	.	.	47
	Frequency Missing = 1							
THYMUS		Hemorrhage						
	Group	0	1	2	3	4	5	Total
	Ctrl	16	7	.	.	.	.	23
	High	16	8	.	.	.	.	24
	Total	32	15	.	.	.	.	47
	Frequency Missing = 1							
LYMPH NODE		Erythrophagocytosis						
	Group	0	1	2	3	4	5	Total
	Ctrl	11	0	.	.	.	.	11
	High	4	3	.	.	.	.	7
	Total	15	3	.	.	.	.	18
	Frequency Missing = 30							

LYMPH NODE		Medullary sinus erythrocytes						
	Group	0	1	2	3	4	5	Total
	Ctrl	8	3	.	.	.	.	11
	High	4	3	.	.	.	.	7
	Total	12	6	.	.	.	.	18
	Frequency Missing = 30							
LYMPH NODE		Infiltrate, mast cells						
	Group	0	1	2	3	4	5	Total
	Ctrl	3	8	.	.	.	.	11
	High	4	3	.	.	.	.	7
	Total	7	11	.	.	.	.	18
	Frequency Missing = 30							
PARATHYROID GLAND		Ectopic thymus						
	Group	0	1	2	3	4	5	Total
	Ctrl	6	.	.	.	.	.	6
	High	13	.	.	.	.	.	13
	Total	19	.	.	.	.	.	19
	Frequency Missing = 29							
THYROID GLAND		Follicular cell hypertrophy (+/- vacuoles)						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	.	.	1	.	.	23
	High	23	.	.	0	.	.	23
	Total	45	.	.	1	.	.	46
	Frequency Missing = 2							

THYROID GLAND		Cystic Follicles						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	.	.	.	.	23
	High	23	0	.	.	.	.	23
	Total	45	1	.	.	.	.	46
	Frequency Missing = 2							
THYROID GLAND		Macrophages, intrafollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	3	.	.	.	.	23
	High	19	4	.	.	.	.	23
	Total	39	7	.	.	.	.	46
	Frequency Missing = 2							
THYROID GLAND		Cyst, ultimobranchial (lined by squamous epith)						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	.	.	.	.	23
	High	21	2	.	.	.	.	23
	Total	43	3	.	.	.	.	46
	Frequency Missing = 2							
THYROID GLAND		Debris, cellular, intrafollicular						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	4	0	1	.	.	23
	High	17	5	1	0	.	.	23
	Total	35	9	1	1	.	.	46
	Frequency Missing = 2							
HEART		Fibrosis						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	45	3	.	.	.	.	48
HEART		Infiltrate, lymphohistiocytic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	21	3	.	.	.	.	24
	Total	45	3	.	.	.	.	48
HEART		Adipose tissue, inflammatory infiltrates						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	22	2	.	.	.	.	24
	Total	46	2	.	.	.	.	48

KIDNEYS		Congestion						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	46	2	.	.	.	.	48
KIDNEYS		Dilatation, tubular or vascular (congestion?)						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	5	0	.	1	.	24
	High	17	4	3	.	0	.	24
	Total	35	9	3	.	1	.	48
KIDNEYS		Pyknosis, inner stripe						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	1	1	.	.	.	24
	High	17	5	2	.	.	.	24
	Total	39	6	3	.	.	.	48
KIDNEYS		Protein in tubules, pale eosinophilic						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	0	.	.	.	24
	High	6	16	2	.	.	.	24
	Total	28	18	2	.	.	.	48
KIDNEYS		Infiltrate, lymphocytic, interstitial,						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	0	.	.	.	24
	High	17	6	1	.	.	.	24
	Total	38	9	1	.	.	.	48
KIDNEYS		Glomerular Bowman's capsule cuboidal or metaplasia						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	24	0	.	.	.	.	24
	Total	46	2	.	.	.	.	48
KIDNEYS		Tubules, thickened basement membrane (as in CPN)						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
KIDNEYS		Tubules, basophilic (not defined as regenerating)						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	24	0	.	.	.	.	24
	Total	47	1	.	.	.	.	48

KIDNEYS		Mineral						
	Group	0	1	2	3	4	5	Total
	Ctrl	22	2	.	.	.	.	24
	High	22	2	.	.	.	.	24
	Total	44	4	.	.	.	.	48
ADRENAL		Necrosis, focal, with mineral						
GLAND	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	0	.	24
	High	23	.	.	.	1	.	24
	Total	47	.	.	.	1	.	48
ADRENAL		Zona glomerulosa hyperplasia						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	22	2	.	.	.	.	24
	Total	46	2	.	.	.	.	48
ADRENAL		Extracapsular cortical cells/nodules						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	22	2	.	.	.	.	24
	Total	42	6	.	.	.	.	48
ADRENAL		Hemangiectasis						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	0	.	.	.	24
	High	22	1	1	.	.	.	24
	Total	40	7	1	.	.	.	48
ADRENAL		Cortical vacuolation, diffuse (10X)						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	0	.	.	.	24
	High	9	14	1	.	.	.	24
	Total	29	18	1	.	.	.	48
ADRENAL		Medullary cells, ectopic						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	20	4	.	.	.	.	24
	Total	40	8	.	.	.	.	48
LIVER		Infiltrate, histiocytic (virtually all include lymphocytes)						
	Group	0	1	2	3	4	5	Total
	Ctrl	18	6	.	.	.	.	24
	High	15	9	.	.	.	.	24
	Total	33	15	.	.	.	.	48

LIVER	GROUP	Hepatocellular vacuoles						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	0	.	.	24
	High	19	4	.	1	.	.	24
	Total	39	8	.	1	.	.	48
LIVER		Infiltrate, lympho- (histio)cytic, centrilobular						
	Group	0	1	2	3	4	5	Total
	Ctrl	21	3	.	.	.	.	24
	High	15	9	.	.	.	.	24
	Total	36	12	.	.	.	.	48
LIVER		Necrosis, hepatocellular, single cell						
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	19	5	.	.	.	.	24
	Total	42	6	.	.	.	.	48
LIVER		Infiltrate, lymphocytic, portal						
	Group	0	1	2	3	4	5	Total
	Ctrl	19	5	.	.	.	.	24
	High	21	3	.	.	.	.	24
	Total	40	8	.	.	.	.	48
LIVER		Congestion						
	Group	0	1	2	3	4	5	Total
	Ctrl	20	4	.	.	.	.	24
	High	18	6	.	.	.	.	24
	Total	38	10	.	.	.	.	48
LIVER		Infiltrate, neutrophilic						
	Group	0	1	2	3	4	5	Total
	Ctrl	24	.	.	.	.	.	24
	High	24	.	.	.	.	.	24
	Total	48	.	.	.	.	.	48
SPLEEN	Extramedullary hematopoesis ('1's may be 'wnl')							
	Group	0	1	2	3	4	5	Total
	Ctrl	16	8	.	.	.	.	24
	High	22	1	.	.	.	.	23
	Total	38	9	.	.	.	.	47
	Frequency Missing = 1							
OVARIES	Sertoliform tubules							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	46	2	.	.	.	.	48

UTERUS		Fibrosis, periglandular						
	Group	0	1	2	3	4	5	Total
	Ctrl	10	7	7	.	.	.	24
	High	10	9	5	.	.	.	24
	Total	20	16	12	.	.	.	48
UTERUS		Infiltrate, histiocytic w/pigment (subserosal, vascular layer)						
	Group	0	1	2	3	4	5	Total
	Ctrl	1	1	5	16	1	.	24
	High	5	2	8	8	1	.	24
	Total	6	3	13	24	2	.	48
UTERUS	Infiltrate, lymphohistiocytic, focal							
	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	47	1	.	.	.	.	48
UTERUS	Neutrophils in gland lumina							
	Group	0	1	2	3	4	5	Total
	Ctrl	23	1	.	.	.	.	24
	High	21	3	.	.	.	.	24
	Total	44	4	.	.	.	.	48
VAGINA/	Stratum germinativum hyperplasia							
CERVIX	Group	0	1	2	3	4	5	Total
	Ctrl	24	0	.	.	.	.	24
	High	23	1	.	.	.	.	24
	Total	47	1	.	.	.	.	48

PGEN FEMALES KIDNEYS 720

	Fisher's Exact Test Results for PARENTAL GENERATION Females dosed with 720mg/kg NTO		
Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
KIDNEY	Congestion	1.0000	No sig. difference between Control and Group 720
	Dilatation, tubular	0.6125	No sig. difference between Control and Group 720
	Pyknosis, inner stripe	0.5819	No sig. difference between Control and Group 720
	Protein in tubules, pale eosinophilic	0.6671	No sig. difference between Control and Group 720
	Infiltrate, lymphocytic, interstitial,	1.0000	No sig. difference between Control and Group 720
	Glomerular Bowman's capsule: cuboidal or metaplasia	0.6092	No sig. difference between Control and Group 720
	Tubules, thickened basement membrane (as in CPN)	1.0000	No sig. difference between Control and Group 720
	Tubules, basophilic (not defined as regenerating)	1.0000	No sig. difference between Control and Group 720
	Mineral	0.6671	No sig. difference between Control and Group 720
	Glomerular Bowman's capsule thickened membrane	1.0000	No sig. difference between Control and Group 720
	Infarct (w/tubule regen, l-p infiltrate, depressed cortex)	1.0000	No sig. difference between Control and Group 720

[1] Fisher's Exact Test p-value < .05 was considered statistically significant. [2] Sig. = statistically significant

Incidence Table for PARENTAL GENERATION Females dosed with 720mg/kg NTO								
KIDNEY		Congestion						
	Group	0	1	2	3	4	5	Total
	720	23	2	.	.	.	.	25
	CTR	23	1	.	.	.	.	24
	Total	46	3	.	.	.	.	49
KIDNEY		Dilatation, tubular						
	Group	0	1	2	3	4	5	Total
	720	20	5	0	.	.	.	25
	CTR	17	6	1	.	.	.	24
	Total	37	11	1	.	.	.	49
KIDNEY		Pyknosis, inner stripe						
	Group	0	1	2	3	4	5	Total
	720	20	4	1	.	.	.	25
	CTR	22	1	1	.	.	.	24
	Total	42	5	2	.	.	.	49
KIDNEY		Protein in tubules, pale eosinophilic						
	Group	0	1	2	3	4	5	Total
	720	21	4	.	.	.	.	25
	CTR	22	2	.	.	.	.	24
	Total	43	6	.	.	.	.	49
KIDNEY		Infiltrate, lymphocytic, interstitial,						
	Group	0	1	2	3	4	5	Total
	720	21	4	.	.	.	.	25
	CTR	21	3	.	.	.	.	24
	Total	42	7	.	.	.	.	49
KIDNEY		Glomerular Bowman's capsule: cuboidal or metaplasia						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	CTR	22	2	.	.	.	.	24
	Total	46	3	.	.	.	.	49
KIDNEY		Tubules, thickened basement membrane (as in CPN)						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	CTR	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49

KIDNEY		Tubules, basophilic (not defined as regenerating)						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	CTR	23	1	.	.	.	.	24
	Total	47	2	.	.	.	.	49
KIDNEY		Mineral						
	Group	0	1	2	3	4	5	Total
	720	21	4	.	.	.	.	25
	CTR	22	2	.	.	.	.	24
	Total	43	6	.	.	.	.	49
KIDNEY		Glomerular Bowman's capsule thickened membrane						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	CTR	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49
KIDNEY		Infarct (tubule regen, l-p infiltrate, depressed cortex)						
	Group	0	1	2	3	4	5	Total
	720	24	1	.	.	.	.	25
	CTR	24	0	.	.	.	.	24
	Total	48	1	.	.	.	.	49

F1 FEMALES (SOMATIC AND REPRODUCTIVE TISSUE) CONTROL, HIGH

Fisher's Exact Test Results Comparing Histologic Scores of High-Dose F1 Females and Controls

Source	Metric	Fisher's Exact Test p-value	Conclusion[1,2]
1 Brain	1 Brain, anterior	No lesion observed	
	Congestion, meningeal or perivasc extravasation	1.0000	No sig. difference between Control and High Dose
2 Corpus callosum (+/- hippocampus)	2 Corpus callosum (often with hippocampus)	No lesion observed	
3 Hippocampus	3 Hippocampus	No lesion observed	
4 Pituitary	4 Pituitary	No lesion observed	
4 Cerebellum with brainstem	4 Cerebellum with brainstem	No lesion observed	
4 Pineal gland	4 Pineal gland	No lesion observed	
5 Lung	Tunica media hypertrophy (= 3 affected vessels)	1.0000	No sig. difference between Control and High Dose
	Type II pneumocyte hyperplasia	0.4872	No sig. difference between Control and High Dose
	Congestion, alveolar septal	0.5793	No sig. difference between Control and High Dose
	Osseous metaplasia, focal	1.0000	No sig. difference between Control and High Dose
	Edema, perivascular proteinaceous	0.1060	No sig. difference between Control and High Dose
	Edema, alveolar	0.6050	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, subpleural	1.0000	No sig. difference between Control and High Dose
	Infiltrate, eosinophilic	0.1818	No sig. difference between Control and High Dose
	Fibrin thrombi	0.4872	No sig. difference between Control and High Dose
	Neutrophils,	0.6050	No sig. difference between Control and High Dose
	Macrophages, with engulfed RBC's	1.0000	No sig. difference between Control and High Dose
	Hemorrhage, intraalveolar	0.0462	Control had sig. **HIGHER** proportion with this effect
	Crystals, eosinophilic, alveolar	1.0000	No sig. difference between Control and High Dose

6 Thymus	Cortical Lymphocytolysis (compare at 10X)	0.6948	No sig. difference between Control and High Dose
	Hemorrhage	1.0000	No sig. difference between Control and High Dose
6 Parathyroid glands	Ectopic thymus	1.0000	No sig. difference between Control and High Dose
6 Thyroid gland	Hyperplasia, C cell	1.0000	No sig. difference between Control and High Dose
	Macrophages, intrafollicular	1.0000	No sig. difference between Control and High Dose
	Cyst , lined with squamous epith	0.7164	No sig. difference between Control and High Dose
	Debris, cellular, intrafollicular	1.0000	No sig. difference between Control and High Dose
	Infiltrate, lymphohistiocytic, perifollicular	1.0000	No sig. difference between Control and High Dose
	6 Lymph node	1.0000	No sig. difference between Control and High Dose
	Medullary sinus erythrocytes	0.4643	No sig. difference between Control and High Dose
	Infiltrate, mast cells	0.5000	No sig. difference between Control and High Dose
7 Heart	Proliferation, subendocardial, mesenchymal	0.2308	No sig. difference between Control and High Dose
	Necrosis, myocardial, single cell	1.0000	No sig. difference between Control and High Dose
	Infiltrate, mast cells	0.0471	Control had sig. HIGHER proportion with this effect
	Fibrosis	1.0000	No sig. difference between Control and High Dose
	Fibrosis, perivascular	1.0000	No sig. difference between Control and High Dose
	Adipocyte infiltration	No lesion observed	
	Infiltrate, lymphohistiocytic	0.6050	No sig. difference between Control and High Dose
8 Kidneys	Congestion	1.0000	No sig. difference between Control and High Dose
	Dilatation, tubular or vascular	0.4801	No sig. difference between Control and High Dose
	Hemorrhage	1.0000	No sig. difference between Control and High Dose
	Pyknosis, inner stripe	0.3416	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, periglomerular	0.4872	No sig. difference between Control and High Dose
	Protein in tubules, pale eosinophilic	0.0225	Control had sig. lower proportion with this effect
	Infiltrate, lymphocytic, interstitial,	0.4801	No sig. difference between Control and High Dose
	Glomerular Bowman's capsule cuboidal or metaplasia	0.3416	No sig. difference between Control and High Dose
	Tubules, thickened basement membrane (as in CPN)	1.0000	No sig. difference between Control and High Dose
	Tubules, basophilic	0.1274	No sig. difference between Control and High Dose
Adrenal glands	Extracapsular adrenocortical tissue	0.1060	No sig. difference between Control and High Dose
	Hemangiectasis	0.1274	No sig. difference between Control and High Dose
	Medullary cells, ectopic	1.0000	No sig. difference between Control and High Dose
	Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)	0.4872	No sig. difference between Control and High Dose
Liver	Eosinophils, portal	1.0000	No sig. difference between Control and High Dose
	Infiltrate, histiocytic	1.0000	No sig. difference between Control and High Dose
	Focus of cellular differential staining	1.0000	No sig. difference between Control and High Dose
	Hepatocellular vacuoles (compare at 10X)*=pattern	0.3101	No sig. difference between Control and High Dose
	Infiltrate, peri-bile ductule, lymphocytic	0.2003	No sig. difference between Control and High Dose
	Hyperplasia, biliary, portal	0.4872	No sig. difference between Control and High Dose
	Necrosis, hepatocellular, single cell	0.6050	No sig. difference between Control and High Dose
	Infiltrate, lymphocytic, portal	0.0031	Control had sig. HIGHER proportion with this effect
	Hepatocellular mitotic figures	1.0000	No sig. difference between Control and High Dose
Liver	Congestion, *=portal pattern	0.0407	Control had sig. lower proportion with this effect
	Infiltrate, mast cells, portal	1.0000	No sig. difference between Control and High Dose
	Infiltrate, neutrophilic	1.0000	No sig. difference between Control and High Dose
9 Spleen	Extramedullary hematopoesis (at final tally all '1's will be wnl and dropped from 'findings')	0.4872	No sig. difference between Control and High Dose

Incidence of Histologic Changes in F1 High-Dose Female Rats Compared to Controls

Brain	Congestion, meningeal or perivasc extravasation							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Lung	Tunica media hypertrophy (= or > 3 affected vessels)							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	35	5	.	.	.	.	40
Lung	Type II pneumocyte hyperplasia							
		0	1	3	4	5		Total
	Ctrl	18	2	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Lung	Congestion, alveolar septal							
		0	1	2	3	4	5	Total
	Ctrl	15	3	2	0	0	.	20
	High	15	3	0	1	1	.	20
	Total	30	6	2	1	1	.	40
Lung	Osseous metaplasia, focal							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Lung	Edema, perivascular proteinaceous							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	36	4	.	.	.	.	40

Lung	Edema, alveolar							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	36	4	.	.	.	.	40
Lung	Infiltrate, lymphohistiocytic, subpleural							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	35	5	.	.	.	.	40
Lung	Infiltrate, eosinophilic							
		0	1	2	3	4	5	Total
	Ctrl	15	5	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	34	6	.	.	.	.	40
Lung	Fibrin thrombi							
		0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Lung	Neutrophils							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	36	4	.	.	.	.	40

Lung	Macrophages, with engulfed RBC's							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	36	4	.	.	.	.	40
Lung	Hemorrhage, intraalveolar							
		0	1	2	3	4	5	Total
	Ctrl	5	13	2	0	.	.	20
	High	11	8	0	1	.	.	20
	Total	16	21	2	1	.	.	40
Lung	Crystals, eosinophilic, alveolar							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Thymus	Cortical Lymphocytolysis (compare at 10X) Hemorrhage						
		0	1	2	3	4	5	Total
	Ctrl	5	15	.	.	.	.	20
	High	3	17	.	.	.	.	20
	Total	8	32	.	.	.	.	40

Thymus	Hemorrhage							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	34	6	.	.	.	.	40

Parathyroid glands	Ectopic thymus							
		0	1	2	3	4	5	Total
(not every thyroid gland contained parathyroid glands)	Ctrl	10	1	.	.	.	.	11
	High	8	0	.	.	.	.	8
	Total	18	1	.	.	.	.	19
	Frequency Missing = 21							

Thyroid gland	Hyperplasia, C cell							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Thyroid gland	Macrophages, intrafollicular							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Thyroid gland	Cyst , lined with squamous epith							
		0	1	2	3	4	5	Total
	Ctrl	14	6	.	.	.	.	20
	High	16	4	.	.	.	.	20
	Total	30	10	.	.	.	.	40

Thyroid gland	Debris, cellular, intrafollicular							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	35	5	.	.	.	.	40

Thyroid gland	Infiltrate, lymphohistiocytic, perifollicular							
		0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Lymph Node	Medullary sinus erythrocytes							
(Tissue inadvertantly sampled, not required)		0	1	2	3	4	5	Total
	Ctrl	3	3	.	.	.	.	6
	High	0	3	.	.	.	.	3
	Total	3	6	.	.	.	.	9
	Frequency Missing = 31							
Lymph Node	Infiltrate, mast cells							
		0	1	2	3	4	5	Total
	Ctrl	2	4	.	.	.	.	6
	High	0	3	.	.	.	.	3
	Total	2	7	.	.	.	.	9
	Frequency Missing = 31							
Heart	Proliferation, subendocardial, mesenchymal							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Heart	Necrosis, myocardial, single cell							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Heart	Infiltrate, mast cells							
		0	1	2	3	4	5	Total
	Ctrl	15	5	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	35	5	.	.	.	.	40

Heart	Fibrosis							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	33	7	.	.	.	.	40
Heart	Fibrosis, perivascular							
		0	1	2	3	4	5	Total
	Ctrl	18	2	0	.	.	.	20
	High	18	1	1	.	.	.	20
	Total	36	3	1	.	.	.	40
Heart	Adipocyte infiltration							
		0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Heart	Infiltrate, lymphohistiocytic							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	36	4	.	.	.	.	40
Kidney	Congestion							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	35	5	.	.	.	.	40

Kidney	Dilatation, tubular or vascular							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	13	7	.	.	.	.	20
	Total	29	11	.	.	.	.	40

Kidney	Hemorrhage							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	35	5	.	.	.	.	40
Kidney	Pyknosis, inner stripe							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	35	5	.	.	.	.	40
Kidney	Infiltrate, lymphocytic, periglomerular							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Kidney	Protein in tubules, pale eosinophilic							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	8	12	.	.	.	.	20
	Total	24	16	.	.	.	.	40
Kidney	Infiltrate, lymphocytic, interstitial,							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	13	7	.	.	.	.	20
	Total	29	11	.	.	.	.	40
Kidney	Glomerular Bowman's capsule cuboidal or metaplasia							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	35	5	.	.	.	.	40
Kidney	Tubules, thickened basement membrane (as in CPN)							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	37	3	.	.	.	.	40

Kidney	Tubules, basophilic							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	13	7	.	.	.	.	20
	Total	31	9	.	.	.	.	40
Adrenal glands	Extracapsular adrenocortical tissue							
		0	1	2	3	4	5	Total
	Ctrl	19	0	.	1	.	.	20
	High	16	4	.	0	.	.	20
	Total	35	4	.	1	.	.	40

Adrenal glands	Hemangiectasis							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	13	7	.	.	.	.	20
	Total	31	9	.	.	.	.	40
Adrenal glands	Medullary cells, ectopic							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	34	6	.	.	.	.	40
Adrenal glands	Z. fasciculata-Rare microcluster of vacuolated cells (lipofuscinosis)							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	38	2	.	.	.	.	40
Liver	Eosinophils, portal							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	37	3	.	.	.	.	40
Liver	Infiltrate, histiocytic							
		0	1	2	3	4	5	Total
	Ctrl	14	6	.	.	.	.	20
	High	15	5	.	.	.	.	20
	Total	29	11	.	.	.	.	40
Liver	Focus of cellular differential staining							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	19
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Liver	Hepatocellular vacuoles						
		0	1	2	3	4	5	Total
	Ctrl	11	9	0	.	.	.	20
	High	9	8	3	.	.	.	20
	Total	20	17	3	.	.	.	40

Liver	Infiltrate, peri-bile ductule, lymphocytic							
		0	1	2	3	4	5	Total
	Ctrl	11	9	.	.	.	.	20
	High	6	14	.	.	.	.	20
	Total	17	23	.	.	.	.	40

Liver	Hyperplasia, biliary, portal							
		0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	18	2	.	.	.	.	20
	Total	38	2	.	.	.	.	40

Liver	Necrosis, hepatocellular, single cell							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	36	4	.	.	.	.	40

Liver	Infiltrate, lymphocytic, portal							
		0	1	2	3	4	5	Total
	Ctrl	7	13	.	.	.	.	20
	High	17	3	.	.	.	.	20
	Total	24	16	.	.	.	.	40

Liver	Hepatocellular mitotic figures							
		0	1	2	3	4	5	Total
	Ctrl	20	0	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	39	1	.	.	.	.	40

Liver	Congestion							
		0	1	2	3	4	5	Total
	Ctrl	17	3	.	.	.	.	20
	High	10	10	.	.	.	.	20
	Total	27	13	.	.	.	.	40

Liver	Infiltrate, mast cells, portal							
		0	1	2	3	4	5	Total
	Ctrl	18	2	.	.	.	.	20
	High	19	1	.	.	.	.	20
	Total	37	3	.	.	.	.	40

Liver	Infiltrate, neutrophilic							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	39	1	.	.	.	.	40
Spleen	Extramedullary hematopoesis							
		0	1	2	3	4	5	Total
	Ctrl	.	2	18	.	.	.	20
	High	.	0	20	.	.	.	20
	Total		2	38	.	.	.	40
	Frequency Missing = 1							
Ovary	Mesothelial reactive hypertrophy							
		0	1	2	3	4	5	Total
	Ctrl	19	1	.	.	.		20
	High	19	1	.	.	.		20
	Total	38	2	.	.	.	.	40
Ovary	Sertoliform tubules							
		0	1	2	3	4	5	Total
	Ctrl	16	4	.	.	.	.	20
	High	20	0	.	.	.	.	20
	Total	36	4	.	.	.	.	40

F1 FEMALES KIDNEYS 720

Fisher's Exact Test Results for Group 720 NTO-Treated First Filial (F1) GENERATION Females			
Tissue	Histologic Change 'Metric'	Fisher's Exact Test p-value	Conclusion[1,2]
KIDNEY	Congestion	0.6948	No sig. difference between Control and Group 720
	Protein in tubules, pale eosinophilic	1.0000	No sig. difference between Control and Group 720
	Dilatation, tubular or vascular	0.1060	No sig. difference between Control and Group 720
	Hemorrhage	0.4872	No sig. difference between Control and Group 720
	Pyknosis, inner stripe	1.0000	No sig. difference between Control and Group 720
	Infiltrate, lymphocytic, periglomerular	0.4872	No sig. difference between Control and Group 720
	Infiltrate, lymphocytic, interstitial,	0.1274	No sig. difference between Control and Group 720
	Glomerular Bowman's capsule, cuboidal or metaplasia	0.3416	No sig. difference between Control and Group 720
	Tubules, thickened basement membrane (CPN)	0.1060	No sig. difference between Control and Group 720
	Tubules, basophilic (not defined as regenerating)	0.7524	No sig. difference between Control and Group 720
	Infarct (with tubule regen, l-p infiltrate, depressed cortex.)	1.0000	No sig. difference between Control and Group 720

[1] Fisher's Exact Test p-value < .05 was considered statistically significant.

[2] Sig. = statistically significant

Incidence Table for Group 720 NTO-Treated First Filial (F1) GENERATION Females

KIDNEY		Congestion						
	Group	0	1	2	3	4	5	Total
	720	15	5	.	.	.	.	20
	CTR	17	3	.	.	.	.	20
	Total	32	8	.	.	.	.	40
		Protein in tubules, pale eosinophilic						
	Group	0	1	2	3	4	5	Total
	720	16	4	.	.	.	.	20
	CTR	15	5	.	.	.	.	20
	Total	31	9	.	.	.	.	40
		Dilatation, tubular or vascular						
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	CTR	16	4	.	.	.	.	20
	Total	36	4	.	.	.	.	40
		Hemorrhage						
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	CTR	18	2	.	.	.	.	20
	Total	38	2	.	.	.	.	40
		Pyknosis, inner stripe						
	Group	0	1	2	3	4	5	Total
	720	17	3	.	.	.	.	20
	CTR	16	4	.	.	.	.	20
	Total	33	7	.	.	.	.	40
		Infiltrate, lymphocytic, periglomerular						
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	CTR	18	2	.	.	.	.	20
	Total	38	2	.	.	.	.	40
		Infiltrate, lymphocytic, interstitial,						
	Group	0	1	2	3	4	5	Total
	720	18	2	.	.	.	.	20
	CTR	13	7	.	.	.	.	20
	Total	31	9	.	.	.	.	40
		Glomerular Bowman's capsule, cuboidal or metaplasia						
	Group	0	1	2	3	4	5	Total
	720	19	1	.	.	.	.	20
	CTR	16	4	.	.	.	.	20
	Total	35	5	.	.	.	.	40
		Tubules, thickened basement membrane (CPN)						
	Group	0	1	2	3	4	5	Total
	720	20	0	.	.	.	.	20
	CTR	16	4	.	.	.	.	20
	Total	36	4	.	.	.	.	40
		Tubules, basophilic (not defined as regenerating)						
	Group	0	1	2	3	4	5	Total
	720	11	9	.	.	.	.	20
	CTR	9	11	.	.	.	.	20
	Total	20	20	.	.	.	.	40
		Infarct (with tubule regen, l-p infiltrate, depressed cortex.)						
	Group	0	1	2	3	4	5	Total
	720	19	1	.	.	.	.	20
	CTR	19	1	.	.	.	.	20
	Total	38	2	.	.	.	.	40

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Glomerular Bowman's capsule, cuboidal or metaplasia							
Group	0	1	2	3	4	5	Total
720	19	1	.	.	.	.	20
CTR	16	4	.	.	.	.	20
Total	35	5	.	.	.	.	40

Tubules, thickened basement membrane (CPN)							
Group	0	1	2	3	4	5	Total
720	20	0	.	.	.	.	20
CTR	16	4	.	.	.	.	20
Total	36	4	.	.	.	.	40

Tubules, basophilic (not defined as regenerating)							
Group	0	1	2	3	4	5	Total
720	11	9	.	.	.	.	20
CTR	9	11	.	.	.	.	20
Total	20	20	.	.	.	.	40

Infarct (with tubule regen, l-p infiltrate, depressed cortex.)							
Group	0	1	2	3	4	5	Total
720	19	1	.	.	.	.	20
CTR	19	1	.	.	.	.	20
Total	38	2	.	.	.	.	40

Appendix M

Clinical Chemistry

Table M-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Clinical Chemistry Data
Parental Generation Female Rats

	Group (mg/l)	Animal ID	ALB (g/dL)	ALKP (U/L)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	CHOL (mg/dL)	CREA (mg/dL)	GLOB (mg/dL)	GLU (mg/dL)	TP (g/dL)
Parental Pregnant	0	**14-0121**	2.5	291	88	109	27	100	0.8	3.5	198	5.9
Parental Pregnant	0	**14-0130**	2.6	160	102	118	25	87	0.6	3.0	179	5.7
Parental Pregnant	0	**14-0143**	2.6	94	88	124	24	89	0.5	2.9	154	5.5
Parental Pregnant	0	**14-0157**	2.5	164	82	107	34	99	0.8	3.1	166	5.5
Parental Pregnant	0	**14-0161**	2.6	119	74	114	20	114	0.7	3.0	158	5.7
Parental Pregnant	0	**14-0185**	2.6	243	59	109	24	74	0.9	2.9	123	5.5
Parental Pregnant	0	**14-0196**	2.6	120	60	102	24	117	0.5	3.0	196	5.7
Parental Pregnant	0	**14-0198**	2.5	91	106	163	29	152	0.6	3.1	227	5.7
Parental Non-Pregnant	0	**14-0207**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Parental Pregnant	0	**14-0215**	2.7	110	112	144	37	114	0.4	3.3	171	6.1
		Mean	**2.6**	**154.7**	**85.7**	**121.1**	**27.1**	**105.1**	**0.6**	**3.1**	**174.7**	**5.7**
		SD	**0.1**	**69.6**	**19.1**	**20.0**	**5.4**	**22.7**	**0.2**	**0.2**	**30.0**	**0.2**
Parental Non-Pregnant	144	**14-0125**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Parental Pregnant	144	**14-0134**	2.8	87	71	110	13	81	0.6	3.2	149	6.0
Parental Pregnant	144	**14-0137**	2.7	180	116	117	13	95	0.9	3.0	181	5.7
Parental Pregnant	144	**14-0176**	2.5	172	97	105	29	117	0.9	3.2	117	5.7
Parental Pregnant	144	**14-0178**	2.8	77	51	98	24	77	0.9	3.2	109	6.0
Parental Pregnant	144	**14-0195**	2.5	84	60	68	24	114	0.6	3.1	199	5.6
Parental Pregnant	144	**14-0197**	2.8	114	76	107	34	117	0.8	3.2	131	6.0
Parental Pregnant	144	**14-0199**	2.6	170	75	104	24	103	0.7	3.2	128	5.8
Parental Pregnant	144	**14-0211**	2.6	108	60	102	29	91	0.5	3.2	97	5.7
Parental Non-Pregnant	144	**14-0218**	4.4	75	78	189	23	133	0.3	4.0	246	8.4
		Mean	**2.7**	**124.0**	**75.8**	**101.4**	**23.8**	**99.4**	**0.7**	**3.2**	**138.9**	**5.8**
		SD	**0.1**	**43.2**	**21.4**	**14.6**	**7.5**	**15.9**	**0.2**	**0.1**	**35.4**	**0.2**
Parental Pregnant	720	**14-0128**	2.5	92	78	105	20	99	0.7	3.3	145	5.7
Parental Pregnant	720	**14-0146**	2.7	82	86	139	24	75	0.6	3.1	164	5.8
Parental Pregnant	720	**14-0158**	2.8	301	91	143	28	84	0.8	3.5	110	6.3
Parental Pregnant	720	**14-0160**	2.4	161	71	153	27	116	0.8	3.3	128	5.7
Parental Pregnant	720	**14-0165**	2.7	271	70	115	23	75	0.7	3.2	210	6.0
Parental Pregnant	720	**14-0170**	2.6	97	80	127	27	68	0.6	3.2	139	5.8
Parental Pregnant	720	**14-0188**	2.5	108	47	113	18	92	0.5	3.2	225	5.7
Parental Pregnant	720	**14-0190**	3.1	113	62	136	37	143	0.7	3.7	89	6.8
Parental Pregnant	720	**14-0201**	2.5	141	97	128	25	109	0.7	3.1	176	5.6
Parental Pregnant	720	**14-0202**	2.4	146	100	123	28	135	0.5	3.1	168	5.5
		Mean	**2.6**	**151.2**	**78.2**	**128.2**	**25.7**	**99.6**	**0.7**	**3.3**	**155.4**	**5.9**
		SD	**0.2**	**75.7**	**16.4**	**14.8**	**5.2**	**25.8**	**0.1**	**0.2**	**42.3**	**0.4**
Parental Pregnant	3600	**14-0126**	2.5	128	104	127	28	94	0.5	3.1	147	5.6
Parental Pregnant	3600	**14-0127**	2.8	91	99	98	29	136	0.6	3.1	177	5.9
Parental Pregnant	3600	**14-0135**	2.9	90	61	161	30	93	0.6	3.7	140	6.7
Parental Pregnant	3600	**14-0141**	2.9	95	76	134	30	113	0.5	3.5	91	6.3
Parental Pregnant	3600	**14-0159**	2.7	133	82	118	30	54	0.8	3.1	172	5.8
Parental Non-Pregnant	3600	**14-0168**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Parental Non-Pregnant	3600	**14-0184**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Parental Non-Pregnant	3600	**14-0187**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Parental Pregnant	3600	**14-0209**	2.9	128	73	160	22	88	0.5	3.2	170	6.1
Parental Pregnant	3600	**14-0216**	2.8	105	66	86	30	106	0.7	3.4	127	6.1
		Mean	**2.8**	**110.0**	**80.1**	**126.3**	**28.4**	**97.7**	**0.6**	**3.3**	**146.3**	**6.1**
		SD	**0.1**	**19.1**	**16.1**	**28.6**	**2.9**	**25.2**	**0.1**	**0.2**	**30.6**	**0.4**

Table M-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Clinical Chemistry Data
Parental Generation Male Rats

	Group (mg/l)	Animal ID	ALB (g/dL)	ALKP (U/L)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	CHOL (mg/dL)	CREA (mg/dL)	GLOB (mg/dL)	GLU (mg/dL)	TP (g/dL)
Parental Main	0	**14-0005**	3.5	154	58	71	14	105	0.7	4.2	277	7.7
Parental Main	0	**14-0009**	3.0	92	56	85	17	73	0.9	3.8	120	6.8
Parental Main	0	**14-0014**	3.3	143	77	99	17	85	1.0	4.1	151	7.4
Parental Main	0	**14-0024**	3.1	99	60	102	20	76	0.7	3.8	104	7.0
Parental Main	0	**14-0026**	3.4	113	69	108	15	67	0.6	3.7	88	7.1
Parental Main	0	**14-0064**	3.3	126	51	56	18	77	0.5	3.8	219	7.1
Parental Main	0	**14-0066**	3.2	117	58	88	26	85	0.5	3.8	121	7.0
Parental Main	0	**14-0070**	3.2	83	40	74	14	111	0.6	3.8	232	7.0
Parental Main	0	**14-0094**	3.1	82	43	58	14	83	0.5	3.8	230	6.9
Parental Main	0	**14-0095**	3.4	114	34	66	15	83	0.8	4.0	262	7.4
		Mean	**3.3**	**112.3**	**54.6**	**80.7**	**17.0**	**84.5**	**0.7**	**3.9**	**180.4**	**7.1**
		SD	**0.2**	**24.2**	**13.1**	**18.5**	**3.7**	**13.7**	**0.2**	**0.2**	**70.7**	**0.3**
Parental Main	144	**14-0008**	3.1	126	49	84	16	86	0.6	3.7	239	6.9
Parental Main	144	**14-0015**	3.3	139	54	89	12	80	0.8	3.9	236	7.2
Parental Main	144	**14-0045**	3.3	128	63	121	16	81	0.6	3.9	275	7.2
Parental Main	144	**14-0047**	3.2	106	45	92	15	61	0.6	3.8	217	7.0
Parental Main	144	**14-0051**	3.3	107	53	87	14	105	0.3	3.7	230	7.0
Parental Main	144	**14-0054**	3.2	124	51	81	16	64	0.6	3.8	235	7.1
Parental Main	144	**14-0067**	3.2	121	109	118	14	106	0.6	3.8	296	7.0
Parental Main	144	**14-0075**	2.9	90	54	65	17	83	0.5	3.8	256	6.7
Parental Main	144	**14-0082**	3.1	83	72	73	17	122	0.6	3.6	221	6.7
Parental Main	144	**14-0090**	3.0	76	28	69	14	98	0.8	3.7	318	6.7
		Mean	**3.2**	**110.0**	**57.8**	**87.9**	**15.1**	**88.6**	**0.6**	**3.8**	**252.3**	**7.0**
		SD	**0.1**	**21.2**	**21.3**	**18.8**	**1.6**	**19.2**	**0.1**	**0.1**	**33.7**	**0.2**
Parental Main	720	**14-0004**	3.5	142	55	83	22	85	1.0	3.8	157	7.4
Parental Main	720	**14-0017**	3.2	91	57	87	27	94	0.7	4.0	175	7.2
Parental Main	720	**14-0032**	2.9	125	44	72	16	50	0.6	3.7	179	6.7
Parental Main	720	**14-0033**	3.1	99	54	78	15	109	0.6	3.7	264	6.8
Parental Main	720	**14-0037**	3.2	114	57	97	20	91	0.7	3.9	148	7.1
Parental Main	720	**14-0055**	3.1	98	54	78	17	76	0.6	3.9	216	7.0
Parental Main	720	**14-0062**	3.4	140	49	50	14	73	0.5	3.5	235	6.9
Parental Main	720	**14-0074**	3.2	129	63	71	18	68	0.6	3.6	207	6.9
Parental Main	720	**14-0083**	3.2	165	45	76	17	92	0.6	3.7	305	6.9
Parental Main	720	**14-0093**	3.4	114	35	57	17	103	0.7	3.9	278	7.3
		Mean	**3.2**	**121.7**	**51.3**	**74.9**	**18.3**	**84.1**	**0.7**	**3.8**	**216.4**	**7.0**
		SD	**0.2**	**23.2**	**8.1**	**13.7**	**3.8**	**17.6**	**0.1**	**0.2**	**53.4**	**0.2**
Parental Main	3600	**14-0011**	3.2	189	80	92	21	88	0.8	4.0	244	7.3
Parental Main	3600	**14-0022**	3.3	109	70	77	16	86	0.7	3.8	311	7.1
Parental Main	3600	**14-0040**	3.0	115	54	75	17	78	0.3	3.8	179	6.8
Parental Main	3600	**14-0041**	3.1	105	69	107	16	91	0.6	3.8	203	6.9
Parental Main	3600	**14-0059**	3.1	94	46	89	23	96	0.4	3.9	152	6.9
Parental Main	3600	**14-0077**	3.0	172	73	115	19	102	0.6	3.9	256	6.9
Parental Main	3600	**14-0080**	3.2	77	51	55	16	99	0.8	3.6	241	6.9
Parental Main	3600	**14-0088**	3.1	139	52	79	14	97	0.7	3.8	242	6.9
Parental Main	3600	**14-0092**	3.1	105	57	90	18	116	0.7	4.0	203	7.1
Parental Main	3600	**14-0100**	2.9	97	40	56	13	90	0.6	3.6	219	6.5
		Mean	**3.1**	**120.2**	**59.2**	**83.5**	**17.3**	**94.3**	**0.6**	**3.8**	**225.0**	**6.9**
		SD	**0.1**	**35.7**	**13.0**	**19.4**	**3.1**	**10.4**	**0.2**	**0.1**	**44.4**	**0.2**

Table M-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Clinical Chemistry Data
F-1 Generation Female Rats

	Group (mg/l)	Animal ID	ALB (g/dL)	ALKP (U/L)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	CHOL (mg/dL)	CREA (mg/dL)	GLOB (mg/dL)	GLU (mg/dL)	TP (g/dL)
F1 Pubertal	0	**14-0302**	3.6	270	64	157	21	143	0.5	3.4	98	7.0
F1 Pubertal	0	**14-0309**	3.0	298	71	111	14	72	0.3	3.0	89	6.0
F1 Pubertal	0	**14-0321**	3.0	200	66	132	20	99	0.4	3.0	87	5.9
F1 Pubertal	0	**14-0327**	3.0	268	69	116	22	71	0.4	3.0	73	6.0
F1 Pubertal	0	**14-0332**	3.1	255	88	182	16	65	0.6	2.8	59	5.9
F1 Pubertal	0	**14-0338**	3.3	165	62	102	16	106	0.2	3.0	90	6.4
F1 Pubertal	0	**14-0346**	3.2	255	52	98	15	92	0.4	2.9	105	6.2
F1 Pubertal	0	**14-0355**	3.4	351	40	95	19	96	0.4	3.0	62	6.4
F1 Pubertal	0	**14-0357**	3.1	368	74	204	14	91	0.4	3.0	84	6.0
F1 Pubertal	0	**14-0363**	2.9	313	66	183	24	127	0.5	2.8	52	5.7
		Mean	**3.2**	**274.3**	**65.2**	**138.0**	**18.1**	**96.2**	**0.4**	**3.0**	**79.9**	**6.2**
		SD	**0.2**	**62.4**	**12.8**	**40.4**	**3.6**	**24.7**	**0.1**	**0.2**	**17.6**	**0.4**
F1 Pubertal	144	**14-0339**	3.4	269	64	143	20	151	0.5	3.6	64	7.0
F1 Pubertal	144	**14-0347**	3.1	204	60	193	12	96	0.4	2.9	45	6.0
F1 Pubertal	144	**14-0349**	2.9	342	91	111	27	93	0.5	3.1	111	6.0
F1 Pubertal	144	**14-0350**	3.2	264	49	98	9	62	0.5	2.8	64	6.0
F1 Pubertal	144	**14-0352**	3.1	255	63	87	17	95	0.3	3.1	104	6.2
F1 Pubertal	144	**14-0362**	3.0	319	64	124	31	99	0.4	3.1	75	6.1
F1 Pubertal	144	**14-0365**	3.3	299	52	144	12	119	0.5	3.1	53	6.4
F1 Pubertal	144	**14-0372**	3.0	164	105	444	31	83	0.6	2.8	47	5.8
F1 Pubertal	144	**14-0373**	3.1	340	70	139	27	88	0.5	3.2	63	6.3
F1 Pubertal	144	**14-0375**	3.0	207	162	517	22	97	0.4	3.0	52	6.0
		Mean	**3.1**	**266.3**	**78.0**	**200.0**	**20.8**	**98.3**	**0.5**	**3.1**	**67.8**	**6.2**
		SD	**0.2**	**60.6**	**34.1**	**151.7**	**8.1**	**23.4**	**0.1**	**0.2**	**22.9**	**0.3**
F1 Pubertal	720	**14-0304**	3.3	226	50	118	15	100	0.5	3.1	50	6.4
F1 Pubertal	720	**14-0311**	3.3	252	57	134	20	107	0.5	3.0	79	6.2
F1 Pubertal	720	**14-0316**	3.4	291	67	115	15	94	0.5	2.9	65	6.2
F1 Pubertal	720	**14-0324**	3.6	171	55	160	20	113	0.4	3.0	73	6.6
F1 Pubertal	720	**14-0335**	3.1	198	87	269	15	93	0.4	3.1	52	6.2
F1 Pubertal	720	**14-0340**	3.8	333	41	146	ND	ND	ND	3.1	ND	6.9
F1 Pubertal	720	**14-0344**	3.4	228	53	109	16	114	0.3	3.1	87	6.5
F1 Pubertal	720	**14-0356**	3.1	195	49	83	12	88	0.4	2.9	66	6.0
F1 Pubertal	720	**14-0366**	3.2	223	83	234	21	85	0.4	3.0	57	6.2
F1 Pubertal	720	**14-0368**	3.1	234	58	316	14	91	0.4	3.2	50	6.3
		Mean	**3.3**	**235.1**	**60.0**	**168.4**	**16.4**	**98.3**	**0.4**	**3.0**	**64.3**	**6.4**
		SD	**0.2**	**47.6**	**14.8**	**77.6**	**3.1**	**10.7**	**0.1**	**0.1**	**13.3**	**0.3**
F1 Pubertal	3600	**14-0306**	3.1	231	63	105	13	112	0.4	2.9	62	6.0
F1 Pubertal	3600	**14-0310**	3.1	245	53	134	15	102	0.3	3.2	117	6.2
F1 Pubertal	3600	**14-0314**	3.2	302	67	170	13	113	0.4	3.1	72	6.3
F1 Pubertal	3600	**14-0317**	3.1	159	171	909	15	106	0.4	3.0	195	6.1
F1 Pubertal	3600	**14-0345**	3.0	246	76	194	27	109	0.5	3.1	63	6.1
F1 Pubertal	3600	**14-0353**	3.2	251	52	74	18	139	0.4	3.3	107	6.4
F1 Pubertal	3600	**14-0360**	3.3	268	61	172	19	101	0.5	3.0	74	6.3
F1 Pubertal	3600	**14-0369**	3.3	289	72	341	13	96	0.4	3.2	75	6.5
F1 Pubertal	3600	**14-0370**	3.1	190	54	89	11	76	0.3	2.8	89	5.9
F1 Pubertal	3600	**14-0377**	2.8	350	59	95	10	92	0.4	2.8	71	5.7
		Mean	**3.1**	**253.1**	**72.8**	**228.3**	**15.4**	**104.6**	**0.4**	**3.0**	**92.5**	**6.2**
		SD	**0.1**	**54.5**	**35.4**	**251.4**	**4.9**	**16.3**	**0.1**	**0.2**	**40.4**	**0.2**

Table M-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Clinical Chemistry Data
F-1 Generation Male Rats

	Group (mg/l)	Animal ID	ALB (g/dL)	ALKP (U/L)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	CHOL (mg/dL)	CREA (mg/dL)	GLOB (mg/dL)	GLU (mg/dL)	TP (g/dL)
F1 Pubertal	0	**14-0245**	3.2	307	88	129	15	99	0.9	3.6	80	6.8
F1 Pubertal	0	**14-0246**	3.1	438	68	102	13	116	0.4	3.2	63	6.3
F1 Pubertal	0	**14-0251**	2.8	325	87	115	20	87	0.6	3.3	96	6.1
F1 Pubertal	0	**14-0257**	3.1	445	57	90	22	109	0.6	3.2	201	6.3
F1 Pubertal	0	**14-0258**	2.8	161	60	100	15	113	0.2	3.2	138	6.0
F1 Pubertal	0	**14-0266**	3.2	261	67	80	23	104	0.6	3.2	304	6.4
F1 Pubertal	0	**14-0271**	2.9	353	52	94	15	72	0.4	3.4	56	6.3
F1 Pubertal	0	**14-0275**	3.1	383	70	122	17	92	0.8	3.2	85	6.3
F1 Pubertal	0	**14-0277**	3.2	345	68	83	15	90	0.4	3.1	126	6.3
F1 Pubertal	0	**14-0298**	3.1	296	84	82	23	83	0.9	3.4	193	6.5
		Mean	**3.1**	**331.4**	**70.1**	**99.7**	**17.8**	**96.5**	**0.6**	**3.3**	**134.2**	**6.3**
		SD	**0.2**	**84.0**	**12.6**	**17.3**	**3.8**	**14.2**	**0.2**	**0.1**	**78.1**	**0.2**
F1 Pubertal	144	**14-0228**	2.8	341	75	99	16	140	0.8	3.4	96	6.1
F1 Pubertal	144	**14-0259**	2.9	262	59	94	13	86	0.4	3.2	106	6.1
F1 Pubertal	144	**14-0267**	2.7	284	88	92	12	108	0.5	3.2	81	5.9
F1 Pubertal	144	**14-0268**	3.3	314	69	111	26	94	0.4	3.3	81	6.6
F1 Pubertal	144	**14-0269**	3.2	340	78	85	19	91	0.9	3.4	197	6.6
F1 Pubertal	144	**14-0274**	2.9	343	75	90	13	101	0.6	3.4	138	6.2
F1 Pubertal	144	**14-0282**	3.1	318	52	94	22	81	0.6	3.5	146	6.6
F1 Pubertal	144	**14-0284**	2.7	333	61	95	12	46	0.7	3.2	123	5.9
F1 Pubertal	144	**14-0285**	3.0	341	63	95	17	73	0.5	3.4	131	6.4
F1 Pubertal	144	**14-0295**	2.6	320	74	126	12	98	0.6	3.3	79	5.9
		Mean	**2.9**	**319.6**	**69.4**	**98.1**	**16.2**	**91.8**	**0.6**	**3.3**	**117.8**	**6.2**
		SD	**0.2**	**27.2**	**10.7**	**11.9**	**4.8**	**24.3**	**0.2**	**0.1**	**37.3**	**0.3**
F1 Pubertal	720	**14-0224**	3.1	327	50	77	17	83	0.4	3.4	131	6.5
F1 Pubertal	720	**14-0231**	3.3	237	80	117	47	102	0.6	3.1	111	6.4
F1 Pubertal	720	**14-0236**	3.2	402	64	98	18	107	0.5	3.1	110	6.3
F1 Pubertal	720	**14-0240**	3.0	333	51	85	23	113	0.7	3.6	96	6.6
F1 Pubertal	720	**14-0243**	2.9	456	92	113	16	94	0.5	3.4	112	6.3
F1 Pubertal	720	**14-0244**	3.3	285	54	98	12	96	0.6	3.5	107	6.7
F1 Pubertal	720	**14-0260**	2.9	372	60	99	13	112	0.6	3.2	62	6.1
F1 Pubertal	720	**14-0264**	2.7	324	83	155	23	87	0.3	3.2	140	5.8
F1 Pubertal	720	**14-0276**	2.8	277	48	118	10	85	0.7	3.0	138	5.9
F1 Pubertal	720	**14-0278**	2.9	258	58	93	11	93	0.7	3.2	89	6.1
		Mean	**3.0**	**327.1**	**64.0**	**105.3**	**19.0**	**97.2**	**0.6**	**3.3**	**109.6**	**6.3**
		SD	**0.2**	**67.9**	**15.5**	**22.0**	**10.9**	**10.9**	**0.1**	**0.2**	**23.8**	**0.3**
F1 Pubertal	3600	**14-0225**	3.0	309	67	90	20	93	0.8	3.1	241	6.0
F1 Pubertal	3600	**14-0230**	3.0	281	63	106	18	105	0.7	3.2	214	6.2
F1 Pubertal	3600	**14-0234**	2.9	383	64	90	14	106	0.2	3.3	166	6.2
F1 Pubertal	3600	**14-0237**	2.9	210	88	117	16	91	0.6	3.4	82	6.3
F1 Pubertal	3600	**14-0238**	3.0	330	77	118	14	32	0.5	3.4	113	6.4
F1 Pubertal	3600	**14-0239**	3.0	273	58	96	13	94	0.4	3.3	138	6.2
F1 Pubertal	3600	**14-0280**	3.3	269	91	146	20	87	0.7	3.7	102	7.0
F1 Pubertal	3600	**14-0289**	2.8	310	79	101	12	98	0.5	3.4	110	6.2
F1 Pubertal	3600	**14-0294**	2.8	439	99	140	24	138	0.6	3.2	72	6.0
F1 Pubertal	3600	**14-0297**	2.9	303	49	85	16	126	0.7	3.5	65	6.4
		Mean	**3.0**	**310.7**	**73.5**	**108.9**	**16.7**	**97.0**	**0.6**	**3.4**	**130.3**	**6.3**
		SD	**0.1**	**63.5**	**16.0**	**21.1**	**3.8**	**28.0**	**0.2**	**0.2**	**59.7**	**0.3**

Appendix N

Hematology

Table N-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Hematology Data
Parental Generation Female Rats

	Group	Animal	NEU		LYM		MONO		EOS		BASO		RBC	HGB	HCT	MCV	MCH	MCHC	RDW	PLT	MPV	PT time
	(mg/l)	ID	(K/uL)	(%N)	(K/uL)	(%L)	(K/uL)	(%M)	(K/uL)	(%E)	(K/uL)	(%B)	(M/uL)	(g/dL)	(%)	(fL)	(pg)	(g/dL)	(%)	(K/uL)	(fL)	(sec)
P Preg	0	14-0121	3.790	42.600	4.060	45.600	0.638	7.160	0.033	0.376	0.387	4.340	7.38	14.60	41.5	56.3	19.7	35.1	16.1	1196.0	5.10	8.90
P Preg	0	14-0130	0.656	9.300	5.780	81.900	0.356	5.050	0.100	1.420	0.168	2.380	7.65	15.20	40.8	53.4	19.8	37.1	15.5	1186.0	4.74	9.30
P Preg	0	14-0143	1.110	17.900	4.960	79.900	0.023	0.371	0.058	0.927	0.059	0.945	7.09	14.60	39.2	55.3	20.6	37.3	16.1	1280.0	5.54	8.95
P Preg	0	14-0157	0.553	22.500	1.690	68.400	0.157	6.370	0.003	0.117	0.064	2.610	7.74	15.00	40.7	52.6	19.4	36.8	17.1	1212.0	5.80	9.15
P Preg	0	14-0161	1.860	21.500	5.900	68.200	0.343	3.970	0.035	0.399	0.520	6.000	7.55	15.00	40.6	53.8	19.8	36.9	14.9	1191.0	4.42	8.40
P Preg	0	14-0185	0.678	14.000	3.730	77.000	0.251	5.170	0.034	0.702	0.153	3.160	8.21	16.40	45.8	55.7	20.0	35.9	16.1	1208.0	5.16	9.05
P Preg	0	14-0196	0.865	17.300	3.720	74.300	0.262	5.230	0.027	0.544	0.135	2.700	8.19	15.80	43.5	53.1	19.3	36.3	16.3	1183.0	4.63	8.30
P Preg	0	14-0198	0.864	14.500	4.270	71.600	0.287	4.810	0.087	1.450	0.458	7.670	7.76	14.80	40.5	52.2	19.1	36.6	16.9	1363.0	4.86	7.95
P Non-Preg	0	14-0207	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P Preg	0	14-0215	1.130	23.500	3.240	67.400	0.188	3.910	0.038	0.801	0.208	4.340	8.09	15.00	41.8	51.6	18.5	35.9	17.3	1372.0	4.72	7.90
		Mean	**1.278**	**20.344**	**4.150**	**70.478**	**0.278**	**4.671**	**0.046**	**0.748**	**0.239**	**3.794**	**7.740**	**15.156**	**41.600**	**53.778**	**19.578**	**36.433**	**16.256**	**1243.444**	**4.997**	**8.656**
		SD	**1.019**	**9.506**	**1.306**	**10.698**	**0.169**	**1.916**	**0.031**	**0.458**	**0.172**	**2.049**	**0.378**	**0.590**	**1.960**	**1.643**	**0.595**	**0.702**	**0.767**	**76.122**	**0.448**	**0.527**
P Non-Preg	144	14-0125	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P Preg	144	14-0134	0.845	17.800	3.750	78.900	0.073	1.530	0.045	0.954	0.040	0.835	7.63	14.50	41.0	53.7	19.0	35.4	15.6	1287.0	5.18	8.30
P Preg	144	14-0137	0.648	9.250	5.380	76.800	0.601	8.570	0.038	0.545	0.337	4.810	7.00	14.50	39.6	56.6	20.8	36.7	14.4	1134.0	4.89	8.40
P Preg	144	14-0176	1.360	14.900	6.960	76.000	0.486	5.300	0.079	0.865	0.274	2.990	7.94	15.40	41.8	52.6	19.4	36.9	16.3	1303.0	5.06	8.10
P Preg	144	14-0178	0.424	9.510	3.620	81.300	0.244	5.480	0.016	0.357	0.151	3.390	8.58	16.50	45.0	52.5	19.2	36.7	15.7	1330.0	4.36	8.10
P Preg	144	14-0195	1.010	15.700	4.380	67.800	0.543	8.410	0.040	0.624	0.485	7.500	6.87	13.70	37.4	54.5	20.0	36.6	15.6	1240.0	5.31	8.35
P Preg	144	14-0197	2.210	33.100	3.520	52.800	0.452	6.770	0.056	0.836	0.437	6.550	8.37	16.10	43.7	52.2	19.2	36.7	16.3	1347.0	4.48	7.80
P Preg	144	14-0199	0.897	15.400	4.380	75.000	0.283	4.840	0.097	1.670	0.185	3.180	7.74	15.00	42.8	55.4	19.4	35.0	16.1	1047.0	4.97	8.50
P Preg	144	14-0211	1.700	30.500	3.350	60.100	0.305	5.470	0.017	0.309	0.197	3.540	8.54	16.50	45.7	53.5	19.3	36.1	17.3	1189.0	5.59	8.05
P Non-Preg	144	14-0218	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		Mean	**1.137**	**18.270**	**4.418**	**71.088**	**0.373**	**5.796**	**0.049**	**0.770**	**0.263**	**4.099**	**7.834**	**15.275**	**42.125**	**53.875**	**19.538**	**36.263**	**15.913**	**1234.625**	**4.980**	**8.200**
		SD	**0.589**	**8.896**	**1.220**	**10.024**	**0.177**	**2.237**	**0.028**	**0.433**	**0.150**	**2.125**	**0.658**	**1.032**	**2.779**	**1.542**	**0.588**	**0.703**	**0.827**	**104.596**	**0.409**	**0.228**
P Preg	720	14-0128	1.990	21.700	6.130	66.600	0.623	6.780	0.038	0.416	0.416	4.520	8.08	16.40	46.3	57.3	20.3	35.5	15.4	1039.0	5.00	9.95
P Preg	720	14-0146	1.120	31.600	2.020	57.300	0.280	7.930	0.018	0.514	0.093	2.630	6.98	14.10	38.5	55.2	20.1	36.5	15.6	1270.0	4.67	8.15
P Preg	720	14-0158	1.320	21.600	3.930	64.200	0.486	7.940	0.080	1.310	0.305	4.990	8.00	16.50	46.4	58.0	20.6	35.5	16.5	1332.0	4.94	8.10
P Preg	720	14-0160	0.656	61.300	0.289	27.000	0.050	4.650	0.002	0.216	0.074	6.920	7.77	16.20	44.4	57.2	20.9	36.6	17.1	1453.0	5.36	8.20
P Preg	720	14-0165	0.600	10.400	4.730	81.700	0.258	4.470	0.021	0.356	0.177	3.060	7.36	15.10	42.1	57.1	20.5	35.9	15.7	1246.0	4.64	8.25
P Preg	720	14-0170	1.330	18.700	4.940	69.500	0.392	5.510	0.028	0.390	0.418	5.890	7.37	14.20	39.3	53.3	19.3	36.2	17.1	1344.0	4.40	9.10
P Preg	720	14-0188	0.989	10.600	7.480	80.000	0.562	6.020	0.053	0.567	0.266	2.850	7.85	15.40	42.1	53.6	19.5	36.5	15.7	1270.0	4.75	8.35
P Preg	720	14-0190	0.509	14.200	2.280	63.800	0.405	11.300	0.053	1.490	0.328	9.180	8.21	16.70	46.3	56.4	20.3	36.0	15.0	1466.0	4.89	8.45
P Preg	720	14-0201	0.744	22.700	2.160	66.000	0.267	8.160	0.006	0.173	0.095	2.900	7.34	14.10	40.5	55.2	19.2	34.7	16.0	1320.0	5.30	7.90
P Preg	720	14-0202	2.710	29.700	4.660	51.200	1.130	12.400	0.163	1.790	0.441	4.840	7.38	14.60	40.3	54.6	19.8	36.2	15.6	1225.0	4.62	7.90
		Mean	**1.197**	**24.250**	**3.862**	**62.730**	**0.445**	**7.516**	**0.046**	**0.722**	**0.261**	**4.778**	**7.634**	**15.330**	**42.620**	**55.790**	**20.050**	**35.960**	**15.970**	**1296.500**	**4.857**	**8.435**

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		SD	**0.693**	**14.841**	**2.169**	**15.535**	**0.293**	**2.651**	**0.047**	**0.581**	**0.143**	**2.112**	**0.402**	**1.056**	**3.036**	**1.645**	**0.578**	**0.589**	**0.709**	**121.410**	**0.305**	**0.632**
P Preg	3600	14-0126	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.65
P Preg	3600	14-0127	1.490	23.200	3.980	62.000	0.436	6.780	0.044	0.689	0.477	7.410	7.04	14.60	40.4	57.4	20.7	36.1	15.8	1177.0	4.17	8.45
P Preg	3600	14-0135	0.960	17.600	3.380	61.900	0.577	10.500	0.082	1.490	0.466	8.520	7.26	15.00	41.5	57.2	20.6	36.1	15.7	1195.0	5.82	8.75
P Preg	3600	14-0141	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.15
P Preg	3600	14-0159	1.170	20.500	3.900	68.200	0.368	6.440	0.060	1.040	0.220	3.850	8.00	15.60	43.4	54.2	19.5	36.1	16.0	1058.0	4.30	8.85
P Non-Preg	3600	14-0168	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P Non-Preg	3600	14-0184	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P Non-Preg	3600	14-0187	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P Preg	3600	14-0209	2.350	29.600	4.610	57.900	0.601	7.560	0.056	0.710	0.338	4.240	7.83	16.10	43.9	56.0	20.6	36.8	16.3	1335.0	4.36	8.00
P Preg	3600	14-0216	0.315	13.800	1.810	79.000	0.085	3.700	0.018	0.799	0.064	2.770	7.61	15.40	42.4	55.8	20.3	36.4	16.5	1287.0	4.81	7.70
		Mean	**1.257**	**20.940**	**3.536**	**65.800**	**0.413**	**6.996**	**0.052**	**0.946**	**0.313**	**5.358**	**7.548**	**15.340**	**42.320**	**56.120**	**20.340**	**36.300**	**16.060**	**1210.400**	**4.692**	**8.364**
		SD	**0.747**	**5.967**	**1.059**	**8.247**	**0.208**	**2.440**	**0.023**	**0.335**	**0.174**	**2.471**	**0.396**	**0.573**	**1.417**	**1.285**	**0.493**	**0.308**	**0.336**	**107.204**	**0.675**	**0.427**

Table N-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Hematology Data
Parental Generation Male Rats

	Group	Animal	NEU		LYM		MONO		EOS		BASO		RBC	HGB	HCT	MCV	MCH	MCHC	RDW	PLT	MPV	PT time
	(mg/l)	ID	(K/uL)	(%N)	(K/uL)	(%L)	(K/uL)	(%M)	(K/uL)	(%E)	(K/uL)	(%B)	(M/uL)	(g/dL)	(%)	(fL)	(pg)	(g/dL)	(%)	(K/uL)	(fL)	(sec)
P Main	0	14-0005	1.040	15.900	4.810	73.800	0.187	2.860	0.041	0.622	0.447	6.850	8.52	15.50	41.7	49.0	18.1	37.1	18.7	1435.0	5.61	10.25
P Main	0	14-0009	1.920	13.300	10.500	73.000	1.060	7.320	0.159	1.100	0.756	5.240	8.87	15.90	45.5	51.3	18.0	35.0	17.6	1164.0	4.54	9.30
P Main	0	14-0014	2.170	17.800	7.700	63.300	1.080	8.840	0.187	1.540	1.030	8.510	9.07	16.70	46.1	50.8	18.4	36.3	17.9	1112.0	5.76	9.05
P Main	0	14-0024	0.907	7.490	10.200	84.700	0.308	2.540	0.173	1.430	0.469	3.880	9.79	17.40	47.0	48.0	17.8	37.0	17.8	1194.0	4.76	9.65
P Main	0	14-0026	2.970	21.500	8.680	62.800	0.849	6.140	0.210	1.520	1.120	8.090	8.53	16.80	45.6	53.4	19.7	36.8	16.2	1137.0	5.03	8.45
P Main	0	14-0064	1.600	12.900	9.300	75.000	0.865	6.980	0.116	0.939	0.516	4.160	8.47	15.10	40.8	48.2	17.8	37.0	18.5	1147.0	4.37	9.25
P Main	0	14-0066	5.350	33.200	8.270	51.300	1.300	8.030	0.221	1.370	0.991	6.140	8.83	15.80	42.7	48.4	17.8	36.9	17.2	1165.0	5.51	8.35
P Main	0	14-0070	1.970	19.600	6.280	62.500	0.937	9.330	0.099	0.983	0.761	7.570	8.70	16.40	45.0	51.7	18.8	36.5	16.4	1341.0	5.18	8.35
P Main	0	14-0094	1.430	11.300	9.880	78.400	0.541	4.300	0.193	1.540	0.563	4.470	8.22	15.00	41.0	49.8	18.2	36.6	17.5	1376.0	5.18	8.40
P Main	0	14-0095	2.660	12.600	16.700	78.900	0.785	3.710	0.154	0.731	0.858	4.060	8.79	16.20	44.0	50.0	18.5	36.9	18.7	1228.0	5.19	7.90
		Mean	**2.202**	**16.559**	**9.232**	**70.370**	**0.791**	**6.005**	**0.155**	**1.178**	**0.751**	**5.897**	**8.779**	**16.080**	**43.940**	**50.060**	**18.310**	**36.610**	**17.650**	**1229.900**	**5.113**	**8.895**
		SD	**1.284**	**7.166**	**3.173**	**10.086**	**0.351**	**2.494**	**0.056**	**0.348**	**0.246**	**1.774**	**0.430**	**0.770**	**2.246**	**1.751**	**0.592**	**0.619**	**0.876**	**113.041**	**0.453**	**0.726**
P Main	144	14-0008	2.890	26.600	6.580	60.500	0.797	7.330	0.148	1.360	0.459	4.220	8.21	15.90	42.8	52.2	19.3	37.1	17.5	1382.0	5.06	9.15
P Main	144	14-0015	2.100	11.900	12.300	69.500	1.740	9.840	0.129	0.729	1.420	8.040	9.41	17.10	46.6	49.5	18.1	36.6	19.4	1329.0	5.60	9.35
P Main	144	14-0045	1.920	14.700	10.600	81.100	0.086	0.659	0.297	2.280	0.159	1.220	8.66	16.70	45.0	52.0	19.3	37.1	17.5	852.0	5.16	10.20
P Main	144	14-0047	1.390	9.680	12.500	86.800	0.140	0.973	0.238	1.660	0.129	0.897	8.87	16.00	44.0	49.7	18.0	36.3	18.7	1143.0	5.31	9.95
P Main	144	14-0051	1.660	11.200	10.800	73.200	1.150	7.780	0.319	2.160	0.835	5.640	8.97	16.50	46.0	51.3	18.4	35.9	16.8	1313.0	5.40	9.25
P Main	144	14-0054	2.170	16.600	9.260	70.600	0.667	5.080	0.253	1.930	0.771	5.880	8.83	16.20	43.4	49.2	18.4	37.3	17.5	1326.0	5.02	9.35
P Main	144	14-0067	1.770	12.600	9.810	69.700	1.660	11.800	0.155	1.100	0.670	4.760	8.06	15.60	41.0	50.8	19.4	38.1	17.3	1406.0	7.01	8.95
P Main	144	14-0075	2.450	18.800	9.010	69.000	0.760	5.820	0.153	1.170	0.681	5.220	8.36	15.60	42.1	50.4	18.6	37.0	16.4	1099.0	4.55	8.90
P Main	144	14-0082	2.560	57.900	0.715	16.200	0.877	19.800	0.115	2.610	0.153	3.460	7.97	15.20	41.0	51.5	19.1	37.0	16.9	1020.0	4.40	8.75
P Main	144	14-0090	1.620	8.650	15.300	81.500	0.920	4.910	0.165	0.880	0.757	4.040	9.00	17.00	45.9	51.0	18.8	36.9	19.6	1159.0	5.77	8.55
		Mean	**2.053**	**18.863**	**9.688**	**67.810**	**0.880**	**7.399**	**0.197**	**1.588**	**0.603**	**4.338**	**8.634**	**16.180**	**43.780**	**50.760**	**18.740**	**36.930**	**17.760**	**1202.900**	**5.328**	**9.240**
		SD	**0.473**	**14.687**	**3.932**	**19.682**	**0.544**	**5.578**	**0.073**	**0.639**	**0.398**	**2.139**	**0.468**	**0.636**	**2.063**	**1.043**	**0.517**	**0.591**	**1.100**	**179.319**	**0.728**	**0.514**
P Main	720	14-0004	1.960	13.700	10.100	70.200	0.980	6.820	0.130	0.906	1.210	8.410	9.97	17.70	48.5	48.7	17.8	36.6	18.1	1399.0	4.58	9.70
P Main	720	14-0017	1.540	10.200	13.200	87.300	0.048	0.314	0.284	1.880	0.048	0.314	7.61	14.80	39.6	52.1	19.5	37.3	17.2	1353.0	5.25	9.75
P Main	720	14-0032	1.890	14.000	9.580	70.900	1.370	10.200	0.191	1.410	0.484	3.580	8.49	16.10	43.5	51.2	19.0	37.0	18.6	1388.0	5.11	9.95
P Main	720	14-0033	4.420	19.200	16.300	70.800	0.841	3.660	0.264	1.150	1.180	5.140	8.17	14.80	41.1	50.3	18.2	36.1	18.1	94.8	ND	8.90
P Main	720	14-0037	2.720	18.700	9.830	67.700	0.915	6.300	0.231	1.590	0.824	5.680	9.42	17.40	47.9	50.8	18.5	36.4	18.6	1142.0	5.18	8.95
P Main	720	14-0055	4.820	21.300	15.200	67.500	1.520	6.740	0.328	1.450	0.676	2.990	8.11	15.40	41.3	51.0	19.0	37.3	17.6	1175.0	5.07	9.60
P Main	720	14-0062	1.620	13.200	8.650	70.500	1.190	9.730	0.175	1.420	0.629	5.130	8.29	14.90	40.8	49.2	18.0	36.6	18.0	1177.0	5.33	9.55
P Main	720	14-0074	3.830	28.900	7.350	55.500	0.940	7.100	0.234	1.770	0.893	6.740	8.35	15.10	41.0	49.1	18.1	36.8	18.7	1349.0	4.95	9.05
P Main	720	14-0083	1.070	11.200	8.120	84.800	0.068	0.710	0.138	1.450	0.176	0.184	8.00	15.20	40.7	50.9	18.9	37.2	17.8	1109.0	4.96	8.55
P Main	720	14-0093	2.090	17.600	8.380	70.700	0.604	5.100	0.137	1.150	0.651	5.490	8.10	15.30	41.1	50.8	18.9	37.3	20.5	1420.0	5.48	8.30
		Mean	**2.596**	**16.800**	**10.671**	**71.590**	**0.848**	**5.667**	**0.211**	**1.418**	**0.677**	**4.366**	**8.451**	**15.670**	**42.550**	**50.410**	**18.590**	**36.860**	**18.320**	**1160.680**	**5.101**	**9.230**

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		SD	**1.307**	**5.598**	**3.121**	**8.926**	**0.492**	**3.326**	**0.068**	**0.293**	**0.379**	**2.637**	**0.708**	**1.063**	**3.132**	**1.080**	**0.551**	**0.427**	**0.900**	**392.677**	**0.260**	**0.557**
P Main	3600	14-0011	1.830	17.100	7.280	67.900	0.706	6.580	0.210	1.960	0.695	6.480	7.64	15.20	40.7	53.3	19.9	37.4	17.1	1178.0	5.18	9.65
P Main	3600	14-0022	1.990	17.000	8.010	68.300	0.936	7.980	0.183	1.560	0.608	5.190	8.35	15.60	43.2	51.8	18.7	36.1	17.7	1041.0	4.75	9.15
P Main	3600	14-0040	2.120	18.400	7.670	66.300	1.110	9.610	0.099	0.855	0.559	4.830	7.37	14.70	39.8	53.9	19.9	37.0	16.2	1114.0	5.40	9.40
P Main	3600	14-0041	2.360	15.900	10.700	72.100	1.190	7.990	0.149	1.000	0.459	3.090	7.32	15.00	39.9	54.5	20.5	37.5	18.2	1215.0	5.28	8.85
P Main	3600	14-0059	2.970	21.600	10.400	75.600	0.056	0.405	0.245	1.780	0.076	0.552	8.49	15.90	44.5	52.4	18.7	35.7	16.4	1301.0	4.97	8.65
P Main	3600	14-0077	3.690	14.700	19.100	75.900	0.943	3.750	0.335	1.330	1.090	4.330	8.55	16.50	45.7	53.4	19.2	36.0	17.2	1163.0	5.59	9.35
P Main	3600	14-0080	2.510	19.400	9.070	70.100	0.493	3.810	0.213	1.650	0.650	5.030	8.38	15.40	42.6	50.9	18.4	36.2	18.6	1059.0	4.68	9.45
P Main	3600	14-0088	1.690	10.600	12.200	76.700	0.985	6.190	0.158	0.993	0.865	5.440	8.60	17.30	47.1	54.7	20.1	36.7	16.8	1187.0	4.81	9.30
P Main	3600	14-0092	2.400	17.000	11.300	80.100	0.072	0.512	0.126	0.896	0.212	1.500	7.82	15.30	41.1	52.6	19.5	37.1	16.8	1159.0	4.74	8.45
P Main	3600	14-0100	1.610	10.300	12.000	77.400	1.140	7.310	0.178	1.140	0.596	3.830	8.42	15.90	44.5	52.8	18.9	35.8	16.6	1100.0	5.86	9.20
		Mean	**2.317**	**16.200**	**10.773**	**73.040**	**0.763**	**5.414**	**0.190**	**1.316**	**0.581**	**4.027**	**8.094**	**15.680**	**42.910**	**53.030**	**19.380**	**36.550**	**17.160**	**1151.700**	**5.126**	**9.145**
		SD	**0.635**	**3.572**	**3.426**	**4.724**	**0.423**	**3.177**	**0.067**	**0.398**	**0.292**	**1.841**	**0.503**	**0.766**	**2.527**	**1.183**	**0.705**	**0.672**	**0.783**	**76.998**	**0.404**	**0.380**

Table N-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Hematology Data
F-1 Generation Female Rats

	Group (mg/l)	Animal ID	NEU (K/uL)	NEU (%N)	LYM (K/uL)	LYM (%L)	MONO (K/uL)	MONO (%M)	EOS (K/uL)	EOS (%E)	BASO (K/uL)	BASO (%B)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	RDW (%)	PLT (K/uL)	MPV (fL)	PT time (sec)
Pubertal	0	14-0302	0.408	4.710	7.830	90.400	0.200	2.310	0.058	0.671	0.164	1.890	8.63	18.40	49.1	56.9	21.3	37.4	17.6	1232.0	5.67	ND
Pubertal	0	14-0309	0.611	8.920	5.820	85.000	0.196	2.870	0.057	0.831	0.165	2.410	5.91	13.30	37.5	63.5	22.5	35.4	15.8	1184.0	5.25	8.30
Pubertal	0	14-0321	0.581	11.400	3.950	77.400	0.268	5.240	0.050	0.972	0.253	4.950	6.55	14.80	40.5	61.9	22.6	36.6	14.0	1457.0	5.58	8.70
Pubertal	0	14-0327	1.050	13.000	6.430	79.500	0.320	3.950	0.052	0.649	0.241	2.970	6.40	13.80	37.9	59.3	21.6	36.4	14.6	1440.0	4.95	7.50
Pubertal	0	14-0332	0.298	5.510	4.670	86.400	0.264	4.880	0.033	0.608	0.142	2.620	7.02	14.30	41.0	58.4	20.3	34.8	15.7	824.0	5.59	9.85
Pubertal	0	14-0338	0.789	15.400	3.740	73.100	0.291	5.680	0.063	1.220	0.234	4.570	6.70	14.80	40.2	60.0	22.1	36.8	14.6	1404.0	5.51	8.55
Pubertal	0	14-0346	0.392	7.050	4.560	81.900	0.316	5.680	0.051	0.912	0.248	4.460	7.23	16.00	44.0	60.9	22.1	36.3	15.7	1085.0	5.82	9.20
Pubertal	0	14-0355	0.386	4.810	7.200	89.700	0.260	3.240	0.040	0.501	0.139	1.730	6.54	14.90	40.5	61.9	22.8	36.7	15.1	1224.0	5.67	8.80
Pubertal	0	14-0357	0.377	6.580	4.770	83.300	0.299	5.210	0.082	1.430	0.197	3.440	6.79	14.60	40.6	59.8	21.5	36.0	13.8	1244.0	5.42	9.75
Pubertal	0	14-0363	0.499	8.610	4.740	81.800	0.264	4.550	0.063	1.080	0.229	3.950	6.34	13.30	37.7	59.4	21.0	35.4	14.3	598.0	4.71	6.90
		Mean	**0.539**	**8.599**	**5.371**	**82.850**	**0.268**	**4.361**	**0.055**	**0.887**	**0.201**	**3.299**	**6.811**	**14.820**	**40.900**	**60.200**	**21.780**	**36.180**	**15.120**	**1169.200**	**5.417**	**8.617**
		SD	**0.231**	**3.637**	**1.387**	**5.368**	**0.043**	**1.208**	**0.013**	**0.295**	**0.045**	**1.152**	**0.737**	**1.498**	**3.473**	**1.913**	**0.787**	**0.784**	**1.130**	**274.181**	**0.350**	**0.967**
Pubertal	144	14-0339	0.527	11.500	3.510	76.500	0.313	6.810	0.032	0.701	0.206	4.480	7.46	16.80	45.9	61.6	22.5	36.6	15.5	224.0	6.52	7.70
Pubertal	144	14-0347	0.445	9.690	3.690	80.200	0.256	5.580	0.059	1.290	0.147	3.200	7.02	15.20	42.4	60.3	21.6	35.8	14.8	199.0	5.38	8.90
Pubertal	144	14-0349	0.757	18.300	2.940	70.900	0.263	6.350	0.023	0.545	0.164	3.950	6.46	14.80	41.1	63.6	22.9	36.1	14.9	1241.0	5.39	7.65
Pubertal	144	14-0350	1.080	8.620	10.100	80.700	0.715	5.710	0.050	0.402	0.575	4.600	6.97	15.50	42.0	60.2	22.3	37.0	15.8	751.0	6.24	7.60
Pubertal	144	14-0352	0.460	10.100	3.780	83.500	0.147	3.230	0.026	0.576	0.117	2.580	6.41	13.70	38.1	59.4	21.4	36.1	15.6	1369.0	5.08	8.75
Pubertal	144	14-0362	0.423	11.200	3.220	85.400	0.036	0.957	0.023	0.623	0.066	1.750	6.95	14.80	42.1	60.5	21.2	35.1	15.0	759.0	4.83	8.10
Pubertal	144	14-0365	0.629	12.100	3.660	70.400	0.473	9.100	0.120	2.310	0.314	6.040	7.03	14.80	41.5	59.0	21.1	35.8	15.8	684.0	5.17	8.25
Pubertal	144	14-0372	0.631	10.100	5.040	80.700	0.352	5.630	0.030	0.478	0.193	3.090	6.19	13.20	37.3	60.4	21.3	35.3	15.3	675.0	5.60	ND
Pubertal	144	14-0373	0.807	11.400	5.260	74.300	0.553	7.810	0.070	0.985	0.393	5.550	6.29	14.20	39.1	62.1	22.5	36.3	14.8	1358.0	5.48	8.15
Pubertal	144	14-0375	0.807	13.500	4.580	76.700	0.279	4.680	0.085	1.420	0.220	3.690	6.17	14.10	37.9	61.3	22.9	37.3	14.8	1423.0	4.96	8.30
		Mean	**0.657**	**11.651**	**4.578**	**77.930**	**0.339**	**5.586**	**0.052**	**0.933**	**0.240**	**3.893**	**6.695**	**14.710**	**40.740**	**60.840**	**21.970**	**36.140**	**15.230**	**868.300**	**5.465**	**8.156**
		SD	**0.208**	**2.707**	**2.085**	**5.057**	**0.197**	**2.290**	**0.032**	**0.594**	**0.151**	**1.320**	**0.444**	**1.010**	**2.648**	**1.353**	**0.720**	**0.695**	**0.419**	**459.133**	**0.541**	**0.463**
Pubertal	720	14-0304	0.168	5.210	2.720	84.300	0.227	7.030	0.011	0.352	0.101	3.130	7.44	16.00	43.8	58.9	21.5	36.5	15.8	1919.0	5.60	7.70
Pubertal	720	14-0311	0.399	7.250	4.370	79.500	0.416	7.570	0.320	0.574	0.282	5.130	6.68	15.60	43.0	64.3	23.3	36.2	15.8	1267.0	5.25	7.20
Pubertal	720	14-0316	0.738	11.300	5.340	82.000	0.267	4.100	0.027	0.419	0.138	2.110	6.82	15.00	41.4	60.7	22.0	36.2	15.6	1497.0	4.98	8.00
Pubertal	720	14-0324	0.897	15.900	4.020	71.100	0.320	5.660	0.144	2.540	0.274	4.840	5.83	13.50	37.1	63.5	23.2	36.5	15.4	1329.0	4.89	9.00
Pubertal	720	14-0335	0.436	16.400	2.000	75.500	0.100	3.780	0.036	1.360	0.077	2.890	6.62	14.70	39.9	60.2	22.2	36.8	15.9	1531.0	6.14	8.80
Pubertal	720	14-0340	0.446	13.200	2.710	80.400	0.059	1.750	0.035	1.040	0.120	3.560	7.62	16.90	46.1	60.5	22.1	36.6	16.8	1524.0	5.15	8.05
Pubertal	720	14-0344	0.548	19.600	1.980	71.000	0.111	3.970	0.045	1.620	0.105	3.770	6.51	14.80	40.6	62.4	22.8	36.5	14.7	930.0	5.63	8.00
Pubertal	720	14-0356	0.456	8.240	4.430	80.200	0.360	6.510	0.037	0.661	0.243	4.400	5.90	12.90	35.7	60.4	21.9	36.2	15.7	1639.0	5.42	8.05
Pubertal	720	14-0366	1.240	15.300	6.130	75.800	0.458	5.660	0.109	1.350	0.154	1.910	6.43	14.10	39.2	61.0	22.0	36.1	14.8	853.0	4.72	8.20
Pubertal	720	14-0368	0.003	0.094	3.460	94.600	0.124	3.400	0.009	0.251	0.062	1.690	5.29	12.70	33.0	62.4	23.9	38.3	14.8	7.3	ND	ND
		Mean	**0.533**	**11.249**	**3.716**	**79.440**	**0.244**	**4.943**	**0.077**	**1.017**	**0.156**	**3.343**	**6.514**	**14.620**	**39.980**	**61.430**	**22.490**	**36.590**	**15.530**	**1249.627**	**5.309**	**8.111**

		SD	**0.354**	**6.001**	**1.395**	**6.921**	**0.142**	**1.836**	**0.096**	**0.717**	**0.081**	**1.217**	**0.712**	**1.351**	**3.937**	**1.665**	**0.767**	**0.640**	**0.641**	**540.046**	**0.440**	**0.537**
Pubertal	3600	14-0306	0.711	10.400	5.710	84.000	0.175	2.580	0.057	0.831	0.145	2.140	5.72	13.00	35.7	62.5	22.7	36.2	14.5	1455.0	4.45	8.15
Pubertal	3600	14-0310	0.433	8.310	4.220	81.000	0.328	6.310	0.028	0.544	0.199	3.830	6.56	14.70	41.7	63.5	22.3	35.2	17.3	1249.0	6.06	8.80
Pubertal	3600	14-0314	0.576	33.000	0.913	52.300	0.125	7.140	0.038	2.200	0.092	5.300	5.97	13.70	37.4	62.7	23.0	36.7	14.8	1404.0	5.06	8.20
Pubertal	3600	14-0317	0.822	22.700	2.670	73.600	0.047	1.280	0.042	1.160	0.045	1.250	6.80	15.40	42.7	62.8	22.6	36.1	15.1	1565.0	5.60	8.65
Pubertal	3600	14-0345	0.321	10.700	2.180	72.800	0.305	10.200	0.015	0.492	0.174	5.790	6.55	14.50	38.6	58.9	22.1	37.5	16.4	283.0	ND	7.95
Pubertal	3600	14-0353	0.518	7.760	5.990	89.800	0.042	0.622	0.039	0.588	0.083	1.240	5.78	13.80	36.7	63.5	23.9	37.7	14.6	1575.0	5.99	7.65
Pubertal	3600	14-0360	0.827	8.490	8.340	85.600	0.279	2.870	0.042	0.427	0.252	2.570	6.46	13.90	39.0	60.3	21.6	35.7	14.8	241.0	5.90	8.75
Pubertal	3600	14-0369	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pubertal	3600	14-0370	0.711	8.230	7.610	88.100	0.147	1.700	0.055	0.634	0.114	1.320	5.78	13.10	34.7	60.1	22.7	37.7	14.6	1598.0	5.09	8.35
Pubertal	3600	14-0377	0.249	4.340	5.150	90.000	0.165	2.880	0.048	0.841	0.112	1.960	6.07	13.30	37.7	62.1	22.0	35.4	16.8	1269.0	5.09	8.95
		Mean	**0.574**	**12.659**	**4.754**	**79.689**	**0.179**	**3.954**	**0.040**	**0.857**	**0.135**	**2.822**	**6.188**	**13.933**	**38.244**	**61.822**	**22.544**	**36.467**	**15.433**	**1182.111**	**5.405**	**8.383**
		SD	**0.211**	**9.169**	**2.491**	**12.089**	**0.105**	**3.207**	**0.013**	**0.552**	**0.064**	**1.749**	**0.408**	**0.798**	**2.620**	**1.648**	**0.665**	**0.981**	**1.087**	**536.627**	**0.571**	**0.435**

Table N-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Hematology Data
F-1 Generation Male Rats

	Group (mg/l)	Animal ID	NEU (K/uL)	NEU (%N)	LYM (K/uL)	LYM (%L)	MONO (K/uL)	MONO (%M)	EOS (K/uL)	EOS (%E)	BASO (K/uL)	BASO (%B)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	RDW (%)	PLT (K/uL)	MPV (fL)	PT time (sec)
Pubertal	0	14-0245	1.230	11.600	8.400	79.400	0.573	5.420	0.063	0.600	0.308	2.910	7.94	16.40	46.3	58.3	20.7	35.5	17.4	1475.0	5.39	9.00
Pubertal	0	14-0246	1.810	21.000	6.000	69.500	0.326	3.770	0.131	1.520	0.367	4.250	6.70	14.70	40.0	59.6	22.0	36.9	16.7	1341.0	4.73	8.60
Pubertal	0	14-0251	1.740	17.900	7.370	75.900	0.310	3.190	0.031	0.324	0.260	2.670	6.02	13.80	38.7	64.3	22.9	35.6	14.7	1239.0	5.03	9.30
Pubertal	0	14-0257	2.120	14.900	10.100	70.500	0.899	6.300	0.117	0.822	1.070	7.470	6.71	14.40	39.0	58.1	21.4	36.9	16.2	1800.0	4.85	8.75
Pubertal	0	14-0258	1.360	24.700	3.410	62.200	0.298	5.440	0.040	0.732	0.375	6.840	6.28	13.50	38.3	61.0	21.6	35.3	15.5	1103.0	5.12	8.95
Pubertal	0	14-0266	1.290	15.000	6.480	75.000	0.528	6.110	0.035	0.410	0.305	3.530	6.84	15.00	40.9	59.8	21.9	36.7	15.9	1286.0	4.95	9.35
Pubertal	0	14-0271	1.030	9.400	9.640	88.200	0.133	1.210	0.056	0.509	0.072	0.661	7.39	15.60	43.1	58.3	21.1	36.1	16.6	1170.0	5.53	8.90
Pubertal	0	14-0275	1.270	18.300	5.040	72.600	0.370	5.330	0.049	0.700	0.214	3.080	7.45	15.80	44.0	59.0	21.2	35.9	14.7	1305.0	6.07	9.10
Pubertal	0	14-0277	1.190	28.400	2.640	62.900	0.160	3.820	0.035	0.825	0.169	4.040	6.27	13.90	37.7	60.1	22.2	36.9	15.7	1558.0	5.59	8.30
Pubertal	0	14-0298	1.050	15.300	4.940	71.800	0.564	8.210	0.058	0.838	0.260	3.780	7.79	16.10	45.8	58.8	20.7	35.3	14.9	1332.0	5.30	8.80
		Mean	**1.409**	**17.650**	**6.402**	**72.800**	**0.416**	**4.880**	**0.062**	**0.728**	**0.340**	**3.923**	**6.939**	**14.920**	**41.380**	**59.730**	**21.570**	**36.110**	**15.830**	**1360.900**	**5.256**	**8.905**
		SD	**0.360**	**5.790**	**2.502**	**7.621**	**0.229**	**1.947**	**0.035**	**0.331**	**0.272**	**1.981**	**0.670**	**1.025**	**3.190**	**1.850**	**0.696**	**0.684**	**0.913**	**203.431**	**0.405**	**0.316**
Pubertal	144	14-0228	1.660	13.600	9.150	75.200	0.711	5.850	0.066	0.542	0.579	4.760	6.55	14.60	40.2	61.4	22.3	36.3	16.6	1466.0	5.16	8.45
Pubertal	144	14-0259	1.350	15.300	6.570	74.300	0.572	6.470	0.047	0.532	0.303	3.430	7.15	15.60	42.6	59.5	21.7	36.5	15.4	1204.0	5.43	9.35
Pubertal	144	14-0267	0.742	17.300	2.950	68.700	0.329	7.660	0.037	0.851	0.236	5.510	6.54	13.80	39.1	59.8	21.1	35.3	16.1	1284.0	4.81	9.65
Pubertal	144	14-0268	1.210	17.000	5.130	72.000	0.345	4.840	0.057	0.796	0.388	5.440	7.34	16.30	44.2	60.2	22.2	36.9	16.0	1545.0	5.54	9.15
Pubertal	144	14-0269	1.770	13.600	9.540	73.200	0.857	6.570	0.093	0.711	0.772	5.920	7.13	16.90	46.5	65.2	23.7	36.3	15.4	1277.0	5.13	8.40
Pubertal	144	14-0274	0.805	15.400	4.070	77.600	0.184	3.510	0.013	0.242	0.170	0.325	6.44	13.90	39.8	61.8	21.5	34.8	14.9	1172.0	5.15	9.05
Pubertal	144	14-0282	0.881	9.040	7.950	81.500	0.615	6.310	0.035	0.359	0.268	2.750	7.35	15.00	41.8	56.8	20.4	35.9	16.2	1426.0	4.71	9.05
Pubertal	144	14-0284	0.711	10.400	5.440	79.100	0.335	4.880	0.091	1.320	0.295	4.290	7.43	15.40	42.8	57.7	20.8	36.0	15.4	1378.0	4.90	8.95
Pubertal	144	14-0285	0.795	11.100	5.550	77.400	0.532	7.430	0.031	0.434	0.260	3.630	7.22	15.70	43.5	60.3	21.7	36.0	15.6	1285.0	4.98	9.05
Pubertal	144	14-0295	0.896	13.500	5.590	84.200	0.028	0.419	0.034	0.507	0.090	1.360	6.85	14.90	41.6	60.7	21.8	35.9	15.9	1129.0	4.81	9.35
		Mean	**1.082**	**13.624**	**6.194**	**76.320**	**0.451**	**5.394**	**0.050**	**0.629**	**0.336**	**3.742**	**7.000**	**15.210**	**42.210**	**60.340**	**21.720**	**35.990**	**15.750**	**1316.600**	**5.062**	**9.045**
		SD	**0.392**	**2.762**	**2.126**	**4.610**	**0.252**	**2.154**	**0.026**	**0.308**	**0.201**	**1.842**	**0.374**	**0.983**	**2.226**	**2.298**	**0.914**	**0.595**	**0.499**	**134.427**	**0.273**	**0.386**
Pubertal	720	14-0224	0.892	14.000	5.030	78.900	0.255	4.010	0.045	0.707	0.156	2.450	7.28	15.10	43.1	59.2	20.8	35.1	15.5	1360.0	5.42	9.45
Pubertal	720	14-0231	0.799	7.170	9.910	88.900	0.152	1.360	0.054	0.482	0.232	2.080	7.44	15.70	44.0	59.2	21.1	35.7	16.2	1303.0	5.02	8.45
Pubertal	720	14-0236	1.650	18.400	6.390	71.200	0.573	6.390	0.050	0.561	0.307	3.420	7.18	15.30	43.0	59.8	21.2	35.5	15.4	1188.0	5.30	8.70
Pubertal	720	14-0240	1.760	16.100	8.010	73.500	0.680	6.240	0.069	0.634	0.379	3.480	6.78	14.80	40.7	60.1	21.9	36.4	15.4	1176.0	5.16	8.60
Pubertal	720	14-0243	1.420	23.300	3.840	63.000	0.528	8.670	0.020	0.324	0.287	4.710	6.51	14.90	40.6	62.4	22.9	36.7	15.5	1198.0	4.74	8.70
Pubertal	720	14-0244	0.587	18.000	2.160	66.300	0.313	9.610	0.019	0.594	0.178	5.490	7.44	15.90	45.2	60.8	21.3	35.1	16.6	1103.0	5.06	9.15
Pubertal	720	14-0260	1.190	17.300	5.080	74.000	0.308	4.490	0.073	1.060	0.215	3.120	6.76	15.40	42.8	63.3	22.7	35.9	15.6	1464.0	4.97	9.55
Pubertal	720	14-0264	2.520	22.200	7.340	64.700	0.890	7.840	0.122	1.080	0.481	4.240	6.53	13.90	37.7	57.8	21.3	36.8	16.0	1325.0	5.12	9.55
Pubertal	720	14-0276	1.110	12.400	6.600	73.800	0.815	9.110	0.083	0.930	0.337	3.760	6.89	15.60	42.6	61.8	22.7	36.7	15.0	1384.0	5.48	9.30
Pubertal	720	14-0278	0.662	15.800	2.980	71.200	0.355	8.480	0.014	0.328	0.175	4.180	6.86	14.50	39.9	58.2	21.1	36.3	15.6	585.0	5.02	8.95

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		Mean	**1.259**	**16.467**	**5.734**	**72.550**	**0.487**	**6.620**	**0.055**	**0.670**	**0.275**	**3.693**	**6.967**	**15.110**	**41.960**	**60.260**	**21.700**	**36.020**	**15.680**	**1208.600**	**5.129**	**9.040**
		SD	**0.596**	**4.666**	**2.386**	**7.511**	**0.250**	**2.656**	**0.034**	**0.275**	**0.104**	**1.022**	**0.347**	**0.606**	**2.211**	**1.803**	**0.787**	**0.653**	**0.461**	**245.629**	**0.222**	**0.415**
Pubertal	3600	14-0225	0.479	9.960	3.720	77.300	0.375	7.790	0.017	0.357	0.219	4.550	6.84	15.10	41.5	60.7	22.0	36.2	15.2	1275.0	4.96	8.95
Pubertal	3600	14-0230	0.875	9.250	7.620	80.500	0.447	4.730	0.081	0.852	0.439	4.640	6.46	14.50	40.7	63.0	22.5	35.7	14.4	1553.0	5.78	9.30
Pubertal	3600	14-0234	0.850	7.470	9.170	80.600	0.828	7.280	0.096	0.845	0.431	3.790	5.58	13.00	34.9	62.5	23.3	37.3	15.0	1418.0	5.10	8.70
Pubertal	3600	14-0237	1.530	19.000	5.390	66.800	0.393	4.880	0.081	1.010	0.667	8.270	8.39	17.10	48.8	58.2	20.4	35.0	15.6	723.0	5.40	9.40
Pubertal	3600	14-0238	1.720	18.300	6.540	69.700	0.641	6.840	0.061	0.646	0.419	4.470	7.58	16.10	44.9	59.3	21.2	35.8	16.2	1125.0	5.21	9.30
Pubertal	3600	14-0239	2.560	25.200	6.450	63.300	0.693	6.810	0.025	0.243	0.454	4.450	6.57	14.00	38.3	58.2	21.3	36.5	15.9	1587.0	5.03	8.50
Pubertal	3600	14-0280	2.200	24.900	6.000	67.700	0.327	3.690	0.057	0.640	0.273	3.080	7.60	15.70	44.3	58.2	20.6	35.4	16.6	1586.0	5.56	8.90
Pubertal	3600	14-0289	1.460	11.600	9.310	73.900	1.330	10.600	0.046	0.363	0.452	3.580	6.64	13.10	38.4	57.9	19.7	34.1	17.6	1400.0	5.64	8.20
Pubertal	3600	14-0294	0.518	11.300	3.380	73.900	0.438	9.580	0.040	0.873	0.199	4.340	7.02	15.00	42.5	60.6	21.4	35.3	15.6	816.0	5.12	8.90
Pubertal	3600	14-0297	0.946	16.800	3.720	66.100	0.680	12.100	0.067	1.190	0.217	3.850	6.90	15.00	40.2	58.3	21.7	37.2	16.3	1536.0	5.23	8.90
		Mean	**1.314**	**15.378**	**6.130**	**71.980**	**0.615**	**7.430**	**0.057**	**0.702**	**0.377**	**4.502**	**6.958**	**14.860**	**41.450**	**59.690**	**21.410**	**35.850**	**15.840**	**1301.900**	**5.303**	**8.905**
		SD	**0.703**	**6.422**	**2.150**	**6.172**	**0.301**	**2.690**	**0.025**	**0.309**	**0.148**	**1.416**	**0.765**	**1.282**	**3.936**	**1.905**	**1.046**	**0.988**	**0.902**	**317.314**	**0.278**	**0.374**

Appendix O

Thyroid Assays

Table O-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Thyroxine Hormone Data
Parental Generation Female Rats

	Sex	Group (mg/l)	Animal ID	Total T4 (ug/dL)	TSH (ng/ml)
Parental Pregnant	F	0	14-0121	1.7	0.33
Parental Pregnant	F	0	14-0130	3.1	1.13
Parental Pregnant	F	0	14-0143	2.8	5.39
Parental Pregnant	F	0	14-0157	2.4	1.55
Parental Pregnant	F	0	14-0161	4.5	0.76
Parental Pregnant	F	0	14-0185	2.8	0.42
Parental Pregnant	F	0	14-0196	3.2	1.13
Parental Pregnant	F	0	14-0198	2.5	3.05
Parental Non-Pregnant	F	0	14-0207	ND	4.06
Parental Pregnant	F	0	14-0215	1.9	0.95
			Mean	**2.8**	**1.88**
			SD	**0.8**	**1.71**
Parental Non-Pregnant	F	144	14-0125	ND	3.93
Parental Pregnant	F	144	14-0134	3.5	1.04
Parental Pregnant	F	144	14-0137	2.8	1.35
Parental Pregnant	F	144	14-0176	4.1	1.75
Parental Pregnant	F	144	14-0178	2.3	0.76
Parental Pregnant	F	144	14-0195	1.5	2.63
Parental Pregnant	F	144	14-0197	2.6	1.04
Parental Pregnant	F	144	14-0199	2.9	1.64
Parental Pregnant	F	144	14-0211	2.4	2.19
Parental Non-Pregnant	F	144	14-0218	2.3	4.11
			Mean	**2.7**	**2.04**
			SD	**0.8**	**1.18**
Parental Pregnant	F	720	14-0128	3.0	1.15
Parental Pregnant	F	720	14-0146	3.0	1.13
Parental Pregnant	F	720	14-0158	2.2	1.04
Parental Pregnant	F	720	14-0160	2.0	0.95
Parental Pregnant	F	720	14-0165	3.6	2.11
Parental Pregnant	F	720	14-0170	3.9	1.04
Parental Pregnant	F	720	14-0188	2.8	1.22
Parental Pregnant	F	720	14-0190	3.7	3.60
Parental Pregnant	F	720	14-0201	2.7	0.85
Parental Pregnant	F	720	14-0202	2.7	1.88
			Mean	**3.0**	**1.50**
			SD	**0.6**	**0.84**
Parental Pregnant	F	3600	14-0126	3.5	1.93
Parental Pregnant	F	3600	14-0127	2.4	2.84
Parental Pregnant	F	3600	14-0135	2.2	1.39
Parental Pregnant	F	3600	14-0141	3.4	3.26
Parental Pregnant	F	3600	14-0159	2.7	1.72
Parental Non-Pregnant	F	3600	14-0168	ND	4.06
Parental Non-Pregnant	F	3600	14-0184	ND	4.19
Parental Non-Pregnant	F	3600	14-0187	ND	3.53
Parental Pregnant	F	3600	14-0209	4.1	2.34
Parental Pregnant	F	3600	14-0216	3.2	2.11
			Mean	**3.1**	**2.74**
			SD	**0.7**	**0.99**

Table O-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Thyroxine Hormone Data
Parental Generation Male Rats

	Sex	Group (mg/l)	Animal ID	Total T4 (ug/dL)	TSH (ng/ml)
Parental Main	M	0	14-0005	3.9	22.51
Parental Main	M	0	14-0009	3.0	4.11
Parental Main	M	0	14-0014	3.5	4.75
Parental Main	M	0	14-0024	1.5	1.94
Parental Main	M	0	14-0026	3.7	2.76
Parental Main	M	0	14-0064	3.9	3.95
Parental Main	M	0	14-0066	4.8	2.94
Parental Main	M	0	14-0070	4.3	2.77
Parental Main	M	0	14-0094	4.2	1.96
Parental Main	M	0	14-0095	3.3	6.07
			Mean	**3.6**	**5.38**
			SD	**0.9**	**6.16**
Parental Main	M	144	14-0008	4.3	1.94
Parental Main	M	144	14-0015	4.9	6.14
Parental Main	M	144	14-0045	3.9	2.85
Parental Main	M	144	14-0047	4.5	8.83
Parental Main	M	144	14-0051	4.5	2.58
Parental Main	M	144	14-0054	3.4	4.99
Parental Main	M	144	14-0067	4.2	3.95
Parental Main	M	144	14-0075	3.4	4.03
Parental Main	M	144	14-0082	3.9	4.19
Parental Main	M	144	14-0090	2.9	6.74
			Mean	**4.0**	**4.63**
			SD	**0.6**	**2.11**
Parental Main	M	720	14-0004	3.6	4.91
Parental Main	M	720	14-0017	4.5	3.20
Parental Main	M	720	14-0032	4.0	5.15
Parental Main	M	720	14-0033	3.8	3.20
Parental Main	M	720	14-0037	3.6	2.40
Parental Main	M	720	14-0055	3.3	4.68
Parental Main	M	720	14-0062	2.2	3.02
Parental Main	M	720	14-0074	4.4	6.96
Parental Main	M	720	14-0083	3.7	5.15
Parental Main	M	720	14-0093	4.2	2.26
			Mean	**3.7**	**4.09**
			SD	**0.7**	**1.51**
Parental Main	M	3600	14-0011	4.2	2.22
Parental Main	M	3600	14-0022	3.4	4.27
Parental Main	M	3600	14-0040	4.5	4.60
Parental Main	M	3600	14-0041	3.9	1.59
Parental Main	M	3600	14-0059	<L	1.41
Parental Main	M	3600	14-0077	4.0	4.83
Parental Main	M	3600	14-0080	4.4	3.20
Parental Main	M	3600	14-0088	4.0	2.94
Parental Main	M	3600	14-0092	4.6	4.26
Parental Main	M	3600	14-0100	4.2	5.82
			Mean	**4.1**	**3.51**
			SD	**0.4**	**1.48**

Table O-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Thyroxine Hormone Data
F1 Generation Weanling Female Rats

	Sex	Group (mg/l)	Animal ID	Total T4 (ug/dL)	TSH (ng/ml)
F-1 Weanling	F	0	14-0122-11	3.0	0.95
F-1 Weanling	F	0	14-0130-7	2.4	1.07
F-1 Weanling	F	0	14-0133-14	2.9	0.24
F-1 Weanling	F	0	14-0148-8	2.5	3.37
F-1 Weanling	F	0	14-0150-16	2.8	0.70
F-1 Weanling	F	0	14-0156-10	2.4	1.94
F-1 Weanling	F	0	14-0173-10	NS	0.83
F-1 Weanling	F	0	14-0185-12	2.8	1.66
F-1 Weanling	F	0	14-0186-9	3.7	0.66
F-1 Weanling	F	0	14-0217-8	2.7	1.13
			Mean	**2.8**	**1.26**
			SD	**0.4**	**0.89**
F-1 Weanling	F	144	14-0123-11	3.3	1.02
F-1 Weanling	F	144	14-0123-12	3.9	0.66
F-1 Weanling	F	144	14-0166-9	3.3	3.50
F-1 Weanling	F	144	14-0177-8	3.9	0.95
F-1 Weanling	F	144	14-0180-11	2.7	1.56
F-1 Weanling	F	144	14-0195-13	3.1	5.03
F-1 Weanling	F	144	14-0200-15	3.6	1.24
F-1 Weanling	F	144	14-0211-8	2.9	1.02
F-1 Weanling	F	144	14-0214-8	3.3	0.52
F-1 Weanling	F	144	14-0220-10	3.1	1.13
			Mean	**3.3**	**1.66**
			SD	**0.4**	**1.45**
F-1 Weanling	F	720	14-0132-9	2.2	0.95
F-1 Weanling	F	720	14-0144-9	2.4	1.07
F-1 Weanling	F	720	14-0147-10	2.2	2.69
F-1 Weanling	F	720	14-0165-10	4.1	1.63
F-1 Weanling	F	720	14-0169-11	2.7	0.70
F-1 Weanling	F	720	14-0170-12	4.5	0.78
F-1 Weanling	F	720	14-0171-12	4.2	1.07
F-1 Weanling	F	720	14-0193-9	2.4	1.02
F-1 Weanling	F	720	14-0202-10	4.4	1.24
F-1 Weanling	F	720	14-0204-10	2.8	1.66
			Mean	**3.2**	**1.28**
			SD	**1.0**	**0.59**
F-1 Weanling	F	3600	14-0126-11	2.9	1.66
F-1 Weanling	F	3600	14-0135-12	3.7	2.04
F-1 Weanling	F	3600	14-0139-12	4.8	0.78
F-1 Weanling	F	3600	14-0155-8	2.5	0.78
F-1 Weanling	F	3600	14-0159-10	2.6	1.53
F-1 Weanling	F	3600	14-0167-7	3.2	1.24
F-1 Weanling	F	3600	14-0181-11	3.9	1.42
F-1 Weanling	F	3600	14-0181-7	4.1	1.63
F-1 Weanling	F	3600	14-0182-7	3.1	1.56
F-1 Weanling	F	3600	14-0194-10	3.3	1.02
			Mean	**3.4**	**1.37**
			SD	**0.7**	**0.41**

Table O-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Thyroxine Hormone Data
F1 Generation Weanling Male Rats

	Sex	Group (mg/l)	Animal ID	Total T4 (ug/dL)	TSH (ng/ml)
F-1 Weanling	M	0	14-0157-1	2.6	0.83
F-1 Weanling	M	0	14-0162-3	3.2	0.70
F-1 Weanling	M	0	14-0163-3	4.0	0.66
F-1 Weanling	M	0	14-0185-3	3.4	1.31
F-1 Weanling	M	0	14-0185-4	3.9	0.70
F-1 Weanling	M	0	14-0186-4	3.8	0.90
F-1 Weanling	M	0	14-0191-1	<L	1.42
F-1 Weanling	M	0	14-0196-5	3.5	0.66
F-1 Weanling	M	0	14-0198-3	3.2	1.56
F-1 Weanling	M	0	14-0198-5	3.4	
			Mean	**3.4**	**0.97**
			SD	**0.4**	**0.36**
F-1 Weanling	M	144	14-0123-1	3.1	1.86
F-1 Weanling	M	144	14-0129-2	3.7	1.56
F-1 Weanling	M	144	14-0137-3	2.5	0.56
F-1 Weanling	M	144	14-0174-3	2.6	1.31
F-1 Weanling	M	144	14-0177-1	2.7	1.19
F-1 Weanling	M	144	14-0183-1	3.3	1.02
F-1 Weanling	M	144	14-0183-2	2.7	0.66
F-1 Weanling	M	144	14-0197-4	3.2	0.90
F-1 Weanling	M	144	14-0199-1	2.8	1.02
F-1 Weanling	M	144	14-0200-1	2.7	1.13
			Mean	**2.9**	**1.12**
			SD	**0.4**	**0.39**
F-1 Weanling	M	720	14-0128-2	2.9	1.84
F-1 Weanling	M	720	14-0132-6	3.1	0.83
F-1 Weanling	M	720	14-0165-6	3.9	1.19
F-1 Weanling	M	720	14-0169-3	3.2	0.41
F-1 Weanling	M	720	14-0171-4	3.3	0.83
F-1 Weanling	M	720	14-0188-3	3.5	1.95
F-1 Weanling	M	720	14-0188-5	3.7	0.78
F-1 Weanling	M	720	14-0190-5	2.9	1.02
F-1 Weanling	M	720	14-0193-2	2.9	1.86
F-1 Weanling	M	720	14-0203-2	2.4	1.24
			Mean	**3.2**	**1.20**
			SD	**0.4**	**0.53**
F-1 Weanling	M	3600	14-0126-5	3.2	0.66
F-1 Weanling	M	3600	14-0127-1	5.1	2.24
F-1 Weanling	M	3600	14-0131-4	4.2	1.19
F-1 Weanling	M	3600	14-0131-5	3.1	0.41
F-1 Weanling	M	3600	14-0135-5	3.5	1.42
F-1 Weanling	M	3600	14-0151-1	3.7	1.07
F-1 Weanling	M	3600	14-0159-3	2.3	0.70
F-1 Weanling	M	3600	14-0172-5	3.0	0.56
F-1 Weanling	M	3600	14-0216-1	3.7	0.78
F-1 Weanling	M	3600	14-0216-5	3.5	1.24
			Mean	**3.5**	**1.03**
			SD	**0.7**	**0.54**

Table O-5
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Thyroxine Hormone Data
F-1 Generation Female Rats

	Sex	Group (mg/l)	Animal ID	Total T4 (ug/dL)	TSH (ng/ml)
F1 Pubertal	F	0	14-0302	2.1	1.13
F1 Pubertal	F	0	14-0309	2.0	1.56
F1 Pubertal	F	0	14-0321	2.4	0.66
F1 Pubertal	F	0	14-0327	3.0	0.78
F1 Pubertal	F	0	14-0332	1.8	1.86
F1 Pubertal	F	0	14-0338	2.5	1.24
F1 Pubertal	F	0	14-0346	2.0	1.02
F1 Pubertal	F	0	14-0355	1.7	
F1 Pubertal	F	0	14-0357	2.7	0.66
F1 Pubertal	F	0	14-0363	1.9	0.92
			Mean	**2.2**	**1.09**
			SD	**0.4**	**0.41**
F1 Pubertal	F	144	14-0339	2.5	2.69
F1 Pubertal	F	144	14-0347	2.4	1.95
F1 Pubertal	F	144	14-0349	2.2	0.78
F1 Pubertal	F	144	14-0350	4.1	0.66
F1 Pubertal	F	144	14-0352	2.2	1.56
F1 Pubertal	F	144	14-0362	2.5	1.56
F1 Pubertal	F	144	14-0365	3.6	1.02
F1 Pubertal	F	144	14-0372	2.0	1.01
F1 Pubertal	F	144	14-0373	2.6	1.86
F1 Pubertal	F	144	14-0375	2.9	1.02
			Mean	**2.7**	**1.41**
			SD	**0.7**	**0.63**
F1 Pubertal	F	720	14-0304	1.9	0.66
F1 Pubertal	F	720	14-0311	1.9	0.78
F1 Pubertal	F	720	14-0316	2.3	1.02
F1 Pubertal	F	720	14-0324	2.1	0.52
F1 Pubertal	F	720	14-0335	1.5	0.78
F1 Pubertal	F	720	14-0340	ND	3.37
F1 Pubertal	F	720	14-0344	2.8	0.90
F1 Pubertal	F	720	14-0356	2.6	1.56
F1 Pubertal	F	720	14-0366	2.6	1.19
F1 Pubertal	F	720	14-0368	2.1	2.10
			Mean	**2.2**	**1.29**
			SD	**0.4**	**0.87**
F1 Pubertal	F	3600	14-0306	2.4	1.66
F1 Pubertal	F	3600	14-0310	1.3	1.02
F1 Pubertal	F	3600	14-0314	1.8	1.24
F1 Pubertal	F	3600	14-0317	1.9	0.90
F1 Pubertal	F	3600	14-0345	2.7	0.66
F1 Pubertal	F	3600	14-0353	1.9	1.24
F1 Pubertal	F	3600	14-0360	2.3	0.78
F1 Pubertal	F	3600	14-0369	1.8	0.66
F1 Pubertal	F	3600	14-0370	3.1	2.10
F1 Pubertal	F	3600	14-0377	3.0	5.03
			Mean	**2.2**	**1.53**
			SD	**0.6**	**1.31**

Table O-6
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Thyroxine Hormone Data
F-1 Generation Male Rats

	Sex	Group (mg/l)	Animal ID	Total T4 (ug/dL)	TSH (ng/ml)
F1 Pubertal	M	0	14-0245	3.3	1.13
F1 Pubertal	M	0	14-0246	3.9	6.34
F1 Pubertal	M	0	14-0251	3.9	2.06
F1 Pubertal	M	0	14-0257	3.8	2.54
F1 Pubertal	M	0	14-0258	5.4	3.51
F1 Pubertal	M	0	14-0266	4.0	1.10
F1 Pubertal	M	0	14-0271	3.6	4.26
F1 Pubertal	M	0	14-0275	4.2	0.52
F1 Pubertal	M	0	14-0277	3.2	1.01
F1 Pubertal	M	0	14-0298	3.5	1.77
			Mean	**3.9**	**2.42**
			SD	**0.6**	**1.81**
F1 Pubertal	M	144	14-0228	3.0	0.78
F1 Pubertal	M	144	14-0259	3.8	2.26
F1 Pubertal	M	144	14-0267	3.9	1.24
F1 Pubertal	M	144	14-0268	4.5	1.19
F1 Pubertal	M	144	14-0269	3.6	1.67
F1 Pubertal	M	144	14-0274	3.9	5.21
F1 Pubertal	M	144	14-0282	3.6	1.24
F1 Pubertal	M	144	14-0284	3.1	1.56
F1 Pubertal	M	144	14-0285	3.5	2.06
F1 Pubertal	M	144	14-0295	3.6	1.67
			Mean	**3.7**	**1.89**
			SD	**0.4**	**1.25**
F1 Pubertal	M	720	14-0224	3.6	1.35
F1 Pubertal	M	720	14-0231	2.9	0.78
F1 Pubertal	M	720	14-0236	3.6	4.66
F1 Pubertal	M	720	14-0240	2.9	1.67
F1 Pubertal	M	720	14-0243	3.9	2.81
F1 Pubertal	M	720	14-0244	4.6	2.26
F1 Pubertal	M	720	14-0260	3.4	2.54
F1 Pubertal	M	720	14-0264	2.6	0.90
F1 Pubertal	M	720	14-0276	4.7	1.97
F1 Pubertal	M	720	14-0278	3.8	1.87
			Mean	**3.6**	**2.08**
			SD	**0.7**	**1.12**
F1 Pubertal	M	3600	14-0225	2.9	1.01
F1 Pubertal	M	3600	14-0230	2.9	2.72
F1 Pubertal	M	3600	14-0234	3.6	0.78
F1 Pubertal	M	3600	14-0237	2.8	1.67
F1 Pubertal	M	3600	14-0238	3.1	2.54
F1 Pubertal	M	3600	14-0239	5.5	3.60
F1 Pubertal	M	3600	14-0280	2.7	1.24
F1 Pubertal	M	3600	14-0289	2.7	0.78
F1 Pubertal	M	3600	14-0294	3.3	1.77
F1 Pubertal	M	3600	14-0297	3.8	3.51
			Mean	**3.3**	**1.96**
			SD	**0.8**	**1.07**

Appendix P

Immunology Analysis

Study Title

Toxicology Study No. S.0027395-15
Protocol No. 56-13-02-01
Contributing Scientist Report
Immunotoxicity of NTO in Extended One Generation Reproductive Toxicity Study
F1 (offspring) Male and Female Rats

Author

Valerie H Adams Ph.D.

Study Completed

April 2015

Performing Laboratory

U.S. Army Public Health Command
Portfolio of Toxicology
Health Effects Research Program
MCHB-IP-THE
Aberdeen Proving Ground, MD 21010

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The author would like to thank Dr. Emily Reinke for her time and effort during the tissue processing and data collection phase of this study.

GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

The study described in this report was conducted in compliance with Title 40 Code of Federal Regulations Part 792, Good Laboratory Practice Standards, except for the following:

1. The immunotoxicity study was part of a larger animal study. Any exceptions to GLP reported in the main study may apply to this study, as well.

No deviations from the aforementioned regulation affected the quality or integrity of the immunotoxicity assessment or the interpretation of the results.

29 Feb 2016

Valerie H. Adams, Ph.D.

Study Director

HERP

Date

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Extended One Generation Reproductive Toxicity Study- NTO
Contributing Scientist Report-Immunotoxicology parameters

1 Summary

1.1 Objective

The objective of the Extended One Generation Reproductive Toxicity Study (EOGRTS) is to assess the reproductive toxicity of NTO in rats. The immunotoxic effects of NTO in the offspring (F1 generation) were characterized by enumerating the T cell populations in the thymus and B and T cell populations in the spleens of the F1 rats at scheduled necropsy.

1.2 Purpose

The purpose of this study is to provide environmental and occupational health information for a constituent of a new explosives formulation. This information is critical to the research, development, testing, and evaluation (RDT&E) of alternatives under the Environmental Quality Technology (EQT) program and is necessary for work unit program evaluation. A potential sensitive endpoint is the development of the nascent immune system in animals that have been exposed in utero and as pups to NTO in drinking water.

1.3 Conclusions

No significant biologically relevant differences between NTO treatment groups that suggested immunotoxicity were identified. Some global immunological differences between male and female rats were noted; however, these differences were not further influenced by NTO intake.

1.4 Recommendations

NTO was found to not be toxic to the immunological parameters that were subject of this study (thymus and spleen lymphocyte populations). If further characterization of the immunotoxicological effect of NTO exposure is needed, then a functional immune response assay- such as the T-cell dependent antibody response (TDAR) assay- should be conducted.

2 References

References are listed in Appendix A.

3 Authority

This immunotoxicology project was funded as part of the main EOGRTS.

4 Background

As a result of an initiative by the DOD to improve munitions safety, the US Army is developing insensitive munitions (IM) for incorporation into its inventory of conventional military munitions systems. The Army's IM Program is dedicated to developing munitions that reliably perform as they are intended but are less prone to inadvertent initiation from external stimuli such as bullet/fragment impact, heat from fire, and shock from neighboring explosions (Duncan 2002). The production of insensitive munitions requires the use of intrinsically less sensitive explosives. NTO is being investigated as a less sensitive direct replacement for traditional explosives such as TNT and RDX. NTO is a crystalline powder that is one of the components used in the formulation of an insensitive explosive referred to as IMX101. The reduced sensitivity to environmental stimuli and nearly equal performance during testing make NTO-based

formulations desirable replacements for currently fielded munitions (Spear et al. 1989; Smith and Cliff 1999).
Acute toxicity testing of NTO demonstrated that NTO has low toxicity (LD_{50} >5g/kg) in rats and mice (USAPHC 2010). NTO caused mild skin irritation in the rabbit primary skin irritation study, but was negative in the rabbit eye irritation test. NTO did not induce dermal sensitization in the intradermal guinea pig assay (London and Smith 1985). Subacute and subchronic oral studies in rats demonstrated limited hematological effects (slight anemia) and liver hyperplasia/hypertrophy only in doses at or above 1000 mg/kg-day NTO. The most pronounced effects of NTO exposure were testicular and epididymal toxicity and hypospermia (USAPHC 2010).
To determine whether the testicular toxicity of NTO is indicative of further reproductive and/or endocrine disrupting effects, a reproductive/developmental screening test and a battery of *in vivo* (Hershberger and uterotrophic) and *in vitro* (estrogen receptor binding, estrogen functional reporter, androgen receptor binding, steroidogenesis activation/inhibition and aromatase inhibition) endocrine disruption screening assays were performed by AIPH. The results from all these tests consistently showed no endocrine mediated effect for estrogen, androgen (testosterone) or thyroid endpoints (USAPHC 2012a; USAPHC 2012b; USAPHC 2013 In Prep.). The EOGRTS bridges the data gaps between the various NTO studies by evaluating specific life stages not covered by the previous studies. Additionally, the EOGRTS tests for effects that may result from combined pre- and postnatal exposure, developmental neurotoxicity and developmental immunotoxicity. The immune system is a complex interactive network of cells and tissues that defend the individual from infections and survey the body for signs of disease and cancer. Immunotoxicology studies deal with immune alterations- stimulatory or suppressive- and their resulting effects on susceptibility or duration of infectious, allergic, or autoimmune disease (Burleson et al. 1995). Although the TDAR is considered to be more sensitive than simple enumeration protocols where white blood cells are counted in a resting state (i.e. un-stimulated by antigen) (DeWitt et al. 2012), the thymic and splenic lymphocyte populations in young adult rats that were exposed both gestationally and post-natal permits immunotoxicity assessment of critical immunological development windows.

5 Methods

The full description of the EOGRTS main study including dosing schedule and study conduct are described in the EOGRTS final report. The EOGRTS was conducted as a drinking water study and the nominal dose groups were 0, 144, 720, and 3600 mg NTO/L. For this contributing immunotoxicology scientist report, spleen sections and ½ the thymus from F1 animals (10 per dose group) scheduled for necropsy at post-natal day PND42 (females) and PND53 (males) were used. At necropsy, the intact spleen and thymus from each animal were weighed and then a portion of the spleen and ½ the thymus were transferred to cold RPMI (Roswell Park Memorial Institute) 1640; Fisher Scientific, Pittsburg, PA, USA) medium and maintained on ice until processed for flow cytometry analysis (FCA). Prior to dissociation of the tissues, the weights of the spleen and thymus portions were recorded.
Spleen: To dissociate each spleen, the tissue was rubbed against a sterile nylon strainer screen (70 micron; Corning # 352350; Fisher Scientific) with the neoprene end of a 5 mL syringe plunger (BD # S05857; Fisher Scientific) while wetted with 4 mL of RPMI 1640. The cell suspension was transferred to a 15 mL conical tube and the strainer was rinsed with an additional 6 mLs RPMI and then combined into the 15 mL conical tube. Fifty microliters were removed for cell counting (total population) and the cell suspension was centrifuged at 300xg, 4^{O}, 5 min. The supernatant was then decanted and the pellet was resuspended into 2 mL red blood cell lysis buffer (0.8 g NH_4Cl/ 84 mg $NaHCO_3$/ 0.2 mL 450 mM EDTA per mL H_2O; NH4Cl (Fisher Scientific # A660); $NaHCO_3$ (Fisher Scientific #S233); EDTA (Pulpdent, Watertown MA, USA); H_2O (molecular grade- Hyclone #SH30538, Fisher Scientific) and incubated on ice for 5 minutes. The lysis reaction was quenched with 8 mL cold PBS (Hyclone #SH30028.03; minus Ca^{+2} and Mg^{+2}). The suspension was centrifuged (250xg, 4^{O}, 5 min) and the supernatant was decanted. The resulting pellet was resuspended in 10 mL PBS and an aliquot was removed for cell counting. The volume necessary to provide 2 x 10^7 cells was taken, centrifuged, resuspended in 1 mL PBS containing 1% FBS (DCC-FBS- Heat Inactivated- Hyclone # AVH78911, Fisher Scientific), and stored on ice until the antibody staining step.
Thymus: To dissociate each thymus, the tissue was rubbed against a sterile nylon strainer screen (70 micron; Corning # 352350; Fisher Scientific) with the neoprene end of a 5 mL syringe plunger (BD #

S05857; Fisher Scientific, PA) while wetted with 4 mL of RPMI 1640. The cell suspension was transferred to a 15 mL conical and the strainer was rinsed with an additional 6 mLs RPMI and then combined into the 15 mL conical. Fifty microliters were removed for cell counting (total population) and the cell suspension was centrifuged at 300xg, 4^{O}, 5 min. The supernatant was decanted and the pellet was resuspended in 10 mLs cold PBS. An aliquot was removed for counting and then the volume necessary to provide 2×10^{7} cells was transferred to a new tube, centrifuged, resuspended in 1 mL 1 percent FBS in PBS and stored on ice until FCA.

Antibody Preparation: All antibodies used for this study were purchased from BD Biosciences (spleen: FITC-α-Rat CD3 (G41.8), PECy5-α-Rat CD45RA (OX-33), and PE-α-Rat CD161a (NKR-P1A); thymus: FITC-α-Rat CD4 (OX-38), PE-α-Rat CD8 alpha (OX-8) and PerCP-α-Rat Thy-1 (OX-7); isotype matched controls: FITC-mouse-IgG2a (G155-178), FITC-mouse IgG3 (A112-3), and PerCP-mouse-IgG1 (MOPC-31C); San Jose, CA, USA). For both the spleen and thymus samples the antibodies were optimized prior to FCA. Briefly, 0.1-1.0 ug of each antibody was mixed with 10^{6} cells of the appropriate type (i.e. isolated splenocytes or thymocytes) and tested by FCA. Increased concentrations of antibody resulted in a right-shift of fluorophore intensity, increased amplitude of the peak signal and a broadening of the base of the peak. The concentration at which each antibody had the most right-shifted, highest amplitude and least broadened signal was selected as the optimized concentration. These concentrations were used for the duration of the study. Volumes and product information for the antibodies are provided in Appendix B.

Staining Procedure: Propidium iodide (PI), individual antibodies and antibody cocktails stock staining solutions were prepared each day of FCA and maintained on ice and darkened conditions. Fifty microliters of each staining solution were aliquoted to tubes and then 50 µL of cells (either splenocytes or thymocytes) were added and then incubated in the dark at 4^{O}C for 30 minutes. After incubation, 1 mL of cold PBS was added to each tube and the tubes were centrifuged (300xg, 4^{O}, 5 min). The supernatant was decanted and this wash step was repeated. The cells were resuspended in 300 µL 1 percent FBS PBS and FCA using the BD FACSVerse was performed.

BD FACSVerse setup: The manufacturer's "User's Guide" was followed for configuring and operating the instrument. An initial characterization quality control (CQC) was performed to generate the baseline performance of the instrument using the CS&T beads (# 650622, BD Biosciences, San Jose, CA, USA). Subsequently, for each day FCA was conducted, the BD FACSVerse flow cytometer was prepared by performing a performance quality control (PQC) with the CS&T beads to track instrument performance and automatically adjust the instrument back to baseline performance if needed. The CQC and PQC data were logged within the software and stored on the computer hard drive. Separate FCA folders were created for the splenocytes and thymocytes experiments. For each experiment, the default lyse/wash settings were independently modified and stored for the duration of the study.

FCA: On each day of analysis, after the PQC, the default lyse/wash settings were verified using either single stained splenocytes or single stained thymocytes (using samples from the negative control animals). FCA then proceeded with the following tubes for each sample: unstained, P.I., single stained samples (for negative control animals), antibody cocktails (splenocytes=CD3/CD45RA/CD161a; thymocytes=Thy-1/CD4/CD8), and isotype control cocktails (splenocytes=IgG1/IgG3; thymocytes=IgG1/IgG2). Populations of interest (and negative for PI) were gated and the stopping criterion was 10,000 events. For thymus samples, quadrants for the populations of interest were developed to discern the percent double negative, double positive, CD4+ and CD8+ cells. For spleen samples, data for the percent B cell (CD45RA), T cell (CD3) and natural killer cell (CD161a) populations were collected. Cells positive for PI were counted separately to yield percent viability.

Tissue Cellularity: The total cellularity for each spleen was determined by manually counting cells from a sample on a hemocytometer after the disruption step and dividing this number by the gram weight of the corresponding spleen sample (=cell/g spleen). The total cellularity for each thymus was determined by manually counting the number of cells in a sample on a hemocytometer after the disruption step and dividing this number by the gram weight of the corresponding thymus sample (=cells/g thymus).

Statistical Analysis: Data were analyzed with SigmaPlot 12.3. One way analysis of variance (ANOVA) was used to analyze treatment effects and two way ANOVA were performed to analyze the treatment and sex effects on the spleen and thymus parameters. Where data met normality (Shapiro-Wilk) and equal variance criteria, the Holm-Sidak test was used for pairwise comparisons. Where normality and/or equal variance criteria were not met, a Kruskal-Wallis one way ANOVA on Ranks was performed and Dunnett's method was used for multiple comparisons versus the control group.

6 Results

The cellularity and cell population distribution (enumeration) of the spleen and thymus provide insight into the functional status of the rats on the NTO EOGRTS. Immunotoxic effects of NTO treatment could alter the development of T cells in the thymus or skew the white blood cell populations in the spleen.

Table 1. Cellularity of thymus in young rats exposed to NTO.

	10^9 cells/g thymus (SEM)	
NTO dose	**Male**	**Female**
0	5.9 (0.58)	5.0 (0.65)
144	6.1 (0.58)	5.4 (0.58)
720	6.6 (0.61)	4.1 (0.58)
3600	5.2 (0.58)	5.6 (0.58)
Average*	**5.9 (0.29)**	**5.0 (0.3)**

* p=0.034 statistically different between male and female.

6.1 Thymus Cellularity

Young male and female rats were exposed in utero and then in drinking water to 0, 144, 720 and 3600 mg NTO/L. Females were scheduled for euthanasia at PND 42 and males were scheduled for euthanasia at PND 56. Upon necropsy, ½ the thymus from each selected rat (10 per sex per dose; total 40 female and 40 male) was collected and processed for cellularity and FCA to enumerate the populations of developing thymocytes.

The results of the thymus cellularity are provided in Table 1. Although there was a significant difference between the male and female cellularity dosed with 720 mg/L NTO, within the male and female groups the cellularity was nonsignificant between treatments. In the male 720 mg/L group, the thymus cellularity for rat 14-0276 was approximately double (14 X10^9) the average cellularity for that group.

Removal of this data point resulted in achievement of normality and although there were no significant differences between treatment groups, a statistically significant difference between males and female thymus cellularity was observed (p=0.034).

6.2 Thymocyte subpopulation enumeration

The thymus is the tissue where T lymphocytes mature. T cell progenitors originate in the bone marrow and migrate to the thymus and differentiate and mature into naïve T cells before emigrating into the systemic circulation. The steps in the differentiation process are delineated into 3 main stages: double negative (DN; where thymocyte markers are expressed but neither CD4 nor CD8 is present), then double positive (DP; where both CD4 and CD8 are both expressed) followed by single positive (either CD4+ or CD8+). After additional maturation these single positive CD4 and CD8 T-cells will emigrate from the thymus. Disruption of the differentiation process can skew the proportion of these populations within the thymus.

Thymocytes from male and female rats dosed with NTO were analyzed for the distribution of DN/DP/CD4+/CD8+ cells. The viability of cells used for the FCA is reported in Table 2 and individual data are in Appendix C. Optimal viability is considered >90 percent; therefore these cells were considered suitable for further analysis.

Table 2. Percent non-viable cells used for thymocyte FCA as measured by PI fluorescence.

mg/L NTO	Male	S.D. (N)	Female	S.D. (N)
0	6.599	1.774 (10)	4.881	3.469 (10)
144	5.214	1.661 (10)	1.994	1.019 (9)
720	5.772	1.4 (10)	2.539	0.969 (10)
3600	6.42	1.781 (10)	2.766	1.478 (10)

The distributions of DN/DP/CD4+/CD8+ cells are reported in Table 3 and individual data are provided in Appendix D. One-way ANOVA on ranks for treatment effects in male rats found a significant difference between the 0 and 3600 mg NTO/L treatments (p=0.036). There were no significant differences between the treatment groups for the female rats. Two-way ANOVA for sex and treatment interactions found a significant difference between male and female CD8+ percentages (p=0.005) with females rats having a slight increase in percent CD8+ cells compared to male rats. However, there were no treatment related effects between the male and female dose groups.

Table 3. Percent subpopulations of thymocytes in young rats exposed to NTO, (S.D.; N)

mg/L NTO	Male				Female			
	DN	**DP**	**CD4+**	**CD8+**	**DN**	**DP**	**CD4+**	**CD8+**
0	1.5 (0.378; 10)	83.5 (2.676; 10)	8.4 (1.986; 10)	6.6 (1.388; 10)	1.1 (0.659; 10)	86.4 (4.837; 10)	5.4 (2.362; 10)	7.1 (2.166; 10)
144	1.6 (0.554; 10)	82.6 (4.485; 10)	9.3 (3.449; 10)	6.4 (1.512; 10)	1.8 (1.024; 10)	80.4 (6.628; 10)	10.6 (5.842; 10)	7.1 (0.982; 10)
720	1.7 (0.727; 10)	82.9 (4.239; 10)	9.2 (3.399; 10)	6.2 (0.858; 10)	1.4 (0.586; 10)	82.9 (8.125; 10)	8.1 (7.605; 10)	7.7 (2.592; 10)
3600	**1.0 * (0.293; 10)**	86.1 (2.428; 10)	6.7 (2.104; 10)	6.1 (1.231; 10)	1.4 (0.854; 10)	83.0 (4.593; 10)	7.6 (3.492; 10)	8.0 (2.35; 10)
Difference between treatments	* p= 0.036	NS	NS	NS	NS	NS	NS	NS
Difference between sexes	CD8+ males < CD8+ females; p= 0.005							
NS= non-significant								

Table 4. Cellularity of spleen in young rats exposed to NTO.

mg/L NTO	10^9 cells/g spleen (SEM; N) Male	Female
0	10.6 (1.15; 10)	13.2 (1.37; 7)
144	11.2 (1.15; 10)	9.8 (1.15; 10)
720	9.4 (1.15; 10)	10.4 (1.15; 10)
3600	9.7 (1.15; 10)	10.7 (1.15; 10)
Average	10.2 (0.57)	11.0 (0.60)

6.3 Spleen cellularity

Young male and female rats were exposed in utero and then in drinking water to 0, 144, 720 and 3600 mg NTO/L. Females were scheduled for euthanasia at PND 42 and males were scheduled for euthanasia at PND 56. Upon necropsy, a section of spleen from each selected rat (10 per sex per dose; total 40 female and 40 male) was collected and processed for cellularity and FCA to enumerate the populations of B cells, T cells and NK cells. The results of the spleen cellularity are shown in Table 4; individual animal data are provided in Appendix D.

6.4 Spleen population enumeration

The viability of the splenocytes was measured using PI to label the nuclei of membrane compromised cells. The results of the viability test are shown in Table 5; individual data are provided in Appendix D. The percent non-viable cells in the female treatments were approximately double the male values. To ascertain the effect of reduced viability on the quality of the data, data were analyzed with all data points and with data points greater than 25 percent removed (culled). Although the SD were reduced in the culled data sets, no statistically significant differences between the culled and unculled data were observed. Additionally the statistically significant difference between males and females remained; therefore, the unculled female data were used for the remainder of the splenic enumeration analysis.

Table 5. Percent non-viable cells used for splenocyte FCA as measured by PI fluorescence.

mg/L NTO	Male	S.D.	(N)	Female	S.D.	(N)	Female*	S.D.	(N)
0	11.3	5.589	(10)	24.4	10.315	(9)	17.1	5.667	(5)
144	10.9	5.366	(10)	18.3	4.567	(9)	17.1	2.808	(8)
720	12.4	7.118	(10)	21.0	5.67	(10)	18.1	3.739	(7)
3600	10.0	4.216	(10)	18.7	6.359	(10)	17.1	3.986	(9)

* Samples with non-viability > 25 percent removed from analysis.

The subpopulations of B, T and NK cells in the spleen were counted and reported as percent events. The results for the splenocyte enumeration are shown in Table 6; individual data are provided in Appendix D. No treatment related differences were observed; however, there were statistically significant differences between male and females for several parameters; see Table 6.

Table 6. Splenic lymphocyte populations in young rats treated with NTO reported as average percent total events, (SD;N).

mg/L NTO	Male			Female		
	B cells	**T cells**	**NK cells**	**B cells**	**T cells**	**NK cells**
0	9.2 (3.637; 10)	12.2 (2.94; 10)	2.3 (0.623; 10)	15.8 (3.324; 9)	16.5 (3.933; 9)	4.3 (0.894; 9)
144	11.1 (2.578; 10)	15.0 (4.428; 10)	1.9 (0.317; 10)	16.6 (2.749; 10)	18.8 (3.115; 10)	3.9 (0.765; 10)
720	9.7 (3.407; 10)	14.3 (2.361; 10)	2.1 (0.635; 10)	16.5 (2.434; 10)	14.8 (3.519; 10)	4.1 (1.113; 10)
3600	10.3 (2.708; 10)	14.5 (4.357; 10)	1.8 (0.488; 10)	16.6 (3.766; 10)	17.1 (3.344; 10)	3.8 (0.683; 10)
Difference between Treatment	NS	NS	NS	NS	NS	NS
Difference	Percent B cells- males < females p=<0.001					

between sexes	Percent T cells males < females p=<0.001 Percent NK cells males < females p=<0.001 B:T cell ratio females < males p=0.001
NS=non-significant	

7 Discussion

The status of the immune system in young rats pre- and post-natally exposed to NTO in drinking water was assessed by measuring the cellularity of the thymus and spleen and by using FCA to enumerate the populations of developing thymocytes (DN/DP/CD4+/CD8+) and splenic lymphocytes (B-, T-, and NK cells). In the thymus there were sex but not treatment related effects for cellularity. Within the male treatment groups, the thymic DN population in males dosed with 3600 mg/L NTO was lower compared to the control group (0 mg/L NTO). It is not clear whether this has biological significance as there were no treatment differences in DP, CD4+ and CD8+ populations of the male rats. The DN, DP, and CD4+ groups were not statistically different between the male and female rats. There was a statistical difference between the male and female groups for CD8+ cells but it was not related to treatment. No treatment related effects were found in the spleen parameter assessment. There were differences between the male and female rats for B-, T- and NK cell populations however these were not related to NTO exposure. Sex differences are an expected finding for *in vivo* studies wherein sex-biased hormones have a regulatory role in the immune system.

In summary, the NTO did not affect the status of the immune system as measured by thymic and splenic cellularity, thymocyte subpopulation enumeration and splenic lymphocyte enumeration. Small expected differences between male and female groups were measured; however there were no biologically relevant treatment related effects. The immunotoxicological endpoints tested here are not considered sensitive measures of immune system function. If further immunotoxicity data were needed then it is recommended that immune system functional assays, such as the T-cell dependent antibody response, be conducted.

8 Point of Contact

The point of contact for this contributing scientist report is Dr. Valerie H Adams. She may be reached at 410-436-5063 email: Valerie.h.adams.civ@mail.mil.

Appendix A

References

Burleson, G. R., J. H. Dean and A. E. Munson, Eds. 1995. *Methods in Immunotoxicology*. Pp 527. New York, Wiley-Liss.

DeWitt, J. C., M. M. Peden-Adams, D. E. Keil and R. R. Dietert. 2012. Current status of developmental immunotoxicity: early-life patterns and testing. *Toxicol Pathol* 40(2): 230-6.

Duncan, K. 2002. Insensitive Munitions and the Army: Improving Safety and Survivability. *Army Logistician PB700-02-1* 34(1): 16-17.

Smith, M. W. and M. D. Cliff. 1999. NTO-Based Explosive Formulations: A Technology Review. Weapons Systems Division, DSTO Aeronautical and Maritime Research Laboratory, Salisbury South Australia 5108 Australia.

Spear, R. J., C. N. Louey and M. G. Wolfson. 1989. A Preliminary Assessment of NTO as an Insensitive High Explosive. DSTO Materials Research Laboratory, Maribyrnong, Victoria 3032, Australia.

USAPHC. 2010. Toxicology Study No. 85-XC-0A6W-08, Protocol No. 0A6W-38-08-02-01, Subchronic oral toxicity of 3-nitro-1,2,4-triazol-5-one (NTO) in rats. E. M. L. (Prepared by L.C.B. Crouse, J. T. Houpt, A. O'Neill, M.R. Way, T.L. Hanna, and M.J. Quinn),. U.S. Army Public Health Command, Aberdeen Proving Ground, MD 21010-5403.

USAPHC. 2012a. Toxicology Report No. S.0002745-12, In Vitro Endocrine Disruption Screening of 3-nitro-1,2,4-triazol-5-one (NTO). (Prepared by: V. H. Adams). US Army Public Health Command. Aberdeen Proving Ground, MD.

USAPHC. 2012b. Toxicology Study No. 87-XE-OFV5-12, Assessment of 3-nitro-1,2,4-triazol-5-one (NTO) as a potential endocrine disrupting chemical in rats using the Hershberger and uterotrophic bioassays. (Prepared by M.J. Quinn, D. I. Bannon, T.L. Hanna, A.A. Shifflet, A. M. Jackovitz, and M.S. Johnson). U.S. Army Public Health Command, Aberdeen Proving Ground, MD.

USAPHC. 2013 In Prep. Toxicology Study No. 85-XC-0FP3-12, Pubertal Development and Thyroid Function in Intact Juvenile Rats Exposed to NTO - Draft Report. (Prepared by E.M. Lent, L.C.B. Crouse, T.L. Hanna, and S.M. Wallace). U.S. Army Public Health Command, Aberdeen Proving Ground, MD.

Appendix B
Antibody Optimization

Optimization step: in a preliminary experiment, antibodies were titrated between 0.1 and 1 µg antibody per 100 µL volume of buffer containing 10E+6 cells.

BD Pharmingen ™ Product ID	SPLEEN	Optimized volume/tube
554832	Anti CD3 (G4.18-FITC)	0.5 µL
557015	Anti CD45RA (OX-33-PECy5)	0.3 µL
555009	Anti CD161a (NKR-P1A-PE)	1.0 µL
	THYMUS	
557266	Anti CD90/Thy-1 (Ox-7-PerCP)	0.5 µL
554843	Anti CD4 (OX-38-FITC)	0.3 µL
554857	Anti CD8a (Ox-8-PE)	0.7 µL
	ISOTYPE CONTROLS	
556653	mouse-IgG2a (G155-178-FITC)	0.5 µL
550672	mouse-IgG1 (MOPC-31C-PerCP)	0.5 µL
559806	mouse IgG3 (A112-3-FITC)	0.5 µL

Appendix C

QUALITY ASSURANCE STATEMENT

For the Contributing Scientist Report entitled: Immunotoxicity of NTO in Extended One Generation Reproductive Toxicity Study F1 (offspring) Male and Female Rats, the following critical phases were audited by the APHC Quality Systems and Regulatory Compliance Office (QSARC), Laboratory and Toxicology Accreditation and Compliance Office (LTACO):

Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Review of Immunotoxicity Procedures to be contained in protocol # 56-13-02-01	11/29/2012	11/30/2012
Review of Draft *Operation of the BD FACSVerse Flow Cytometer* Standing Operating Procedure	02/26/2013	02/27/2013
Review and approval of the final Operation of the BD FACSVerse Flow Cytometer Standing Operating Procedure	06/13/2013	06/14/2013
Immunotoxicy Contributing Scientist Inspection - Interim Immunotoxicy Report GLP Standard Regulation Review	01/13/2016	01/13/2016
Immunotoxicy Contributing Scientist Inspection- Final Immunotoxicy Report GLP Standard Regulation Review	02/26/2016	02/29/2016

Note 1 All findings were made known to the Study Director and the Program Manager at the time of the audit/inspection. If there were no findings during the inspection, the inspection was reported to Management and the Study Director on the date shown in the table.

Note 2 In addition to the study specific critical phase inspections listed here, general facility and process based inspections not specifically related to this study are done monthly or annually in accordance with QSARC, LTACO Standing Operating Procedures.

Note 3 This report has been audited by the Quality Assurance Unit (QSARC, LTACO), and is considered to be on accurate account of the data generated and of the procedures followed.

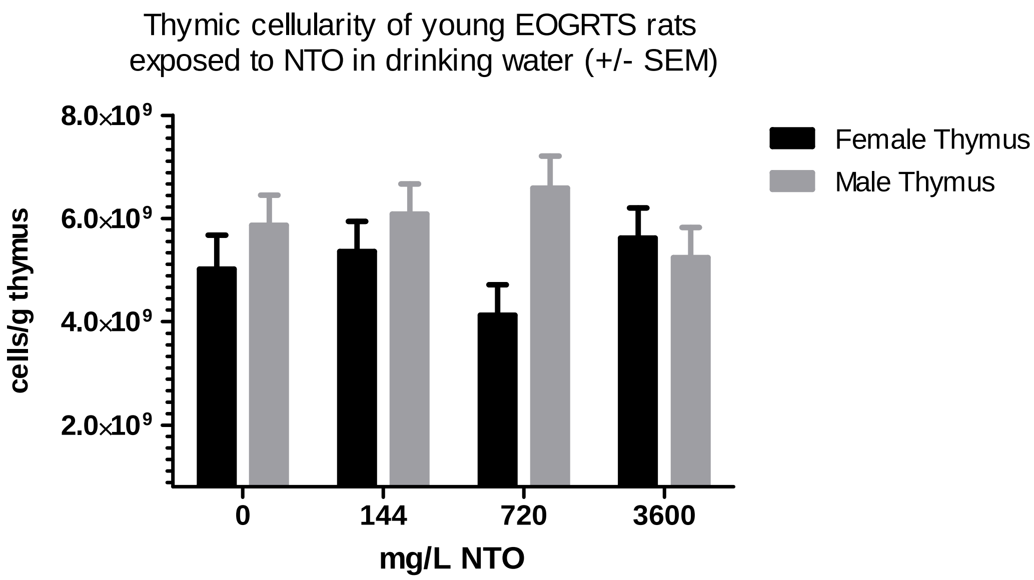
Michael P. Kefauver
Quality Assurance Specialist, QSARC

29 FEB 2016
Date

Appendix D
Organ Cellularity Data: Thymus- Summary Male and Female Data

Thymus cellularity 10^9 cells/g thymus (SEM; N)		
mg/L NTO	Male	Female
0	5.9 (0.58; 10)	5.0 (0.65; 8)
144	6.1 (0.58; 10)	5.4 (0.58; 10)
720	6.6 (0.61; 9)	4.1 (0.58; 10)
3600	5.2 (0.58; 10)	5.6 (0.58; 10)
Average*	5.9 (0.29)	5.0 (0.3)

* p=0.034 statistically different between male and female.



Appendix D
Organ Cellularity Data: Thymus-Female Individual data

Female rats						
mg/L NTO	Animal ID#	Necropsy date	Thymus wt. (g)	cell count x 10^4	Total cells (cell count x 2000)	cells/g
0	14-0302	1/29/2014	0.323	ND	ND	ND
	14-0332	1/29/2014	0.207	ND	ND	ND
	14-0346	1/30/2014	0.259	126	2.52E+09	9.73E+09
	14-0357	1/30/2014	0.258	75	1.49E+09	5.78E+09
	14-0309	1/31/2014	0.336	55	1.10E+09	3.27E+09
	14-0337	1/31/2014	0.288	38	7.60E+08	2.64E+09
	14-0321	2/1/2014	0.218	35	7.00E+08	3.21E+09
	14-0355	2/1/2014	0.246	49	9.80E+08	3.98E+09
	14-0338	2/3/2014	0.324	88	1.76E+09	5.43E+09
	14-0363	2/4/2014	0.238	73	1.46E+09	6.13E+09
144	14-0339	1/31/2014	0.324	59	1.18E+09	3.64E+09
	14-0349	1/31/2014	0.279	37	7.40E+08	2.65E+09
	14-0350	1/31/2014	0.268	77	1.54E+09	5.75E+09
	14-0347	2/1/2014	0.269	84	1.68E+09	6.25E+09
	14-0365	2/1/2014	0.279	79	1.58E+09	5.66E+09
	14-0362	2/3/2014	0.366	88	1.76E+09	4.81E+09
	14-0373	2/3/2014	0.302	83	1.66E+09	5.50E+09
	14-0375	2/3/2014	0.351	165	3.30E+09	9.40E+09
	14-0352	2/4/2014	0.294	120	2.40E+09	8.16E+09
	14-0372	2/4/2014	0.254	23	4.60E+08	1.81E+09
720	14-0304	1/31/2014	0.296	30	6.05E+08	2.04E+09
	14-0316	1/31/2014	0.26	41	8.20E+08	3.15E+09
	14-0340	1/31/2014	0.238	34	6.80E+08	2.86E+09
	14-3011	1/31/2014	0.345	63	1.26E+09	3.65E+09
	14-0344	2/1/2014	0.284	63	1.26E+09	4.44E+09
	14-0324	2/3/2014	0.303	56	1.12E+09	3.70E+09
	14-0335	2/3/2014	0.273	87	1.74E+09	6.37E+09
	14-0356	2/3/2014	0.259	50	1.00E+09	3.86E+09
	14-0366	2/4/2014	0.307	101	2.02E+09	6.58E+09
	14-0368	2/4/2014	0.211	49	9.80E+08	4.64E+09
3600	14-0306	1/31/2014	0.235	78	1.56E+09	6.64E+09
	14-0314	1/31/2014	0.282	67	1.34E+09	4.75E+09
	14-0310	2/1/2014	0.251	52	1.04E+09	4.14E+09
	14-0345	2/1/2014	0.195	34	6.80E+08	3.49E+09
	14-0360	2/1/2014	0.321	141	2.82E+09	8.79E+09
	14-0369	2/1/2014	0.231	106	2.12E+09	9.18E+09
	14-0371	2/1/2014	0.262	47	9.40E+08	3.59E+09
	14-0377	2/3/2014	0.345	95	1.90E+09	5.51E+09
	14-0353	2/4/2014	0.352	115	2.30E+09	6.53E+09
	14-0370	2/4/2014	0.234	42	8.40E+08	3.59E+09
ND= No Data						

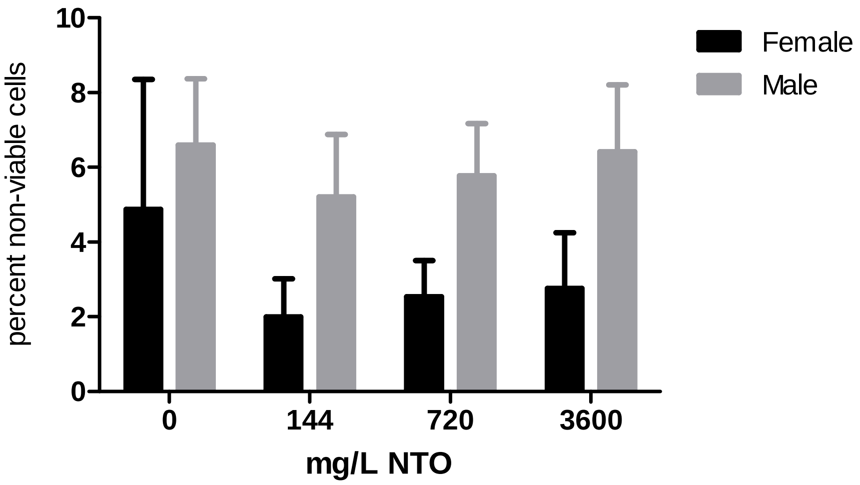
Appendix D
Organ Cellularity Data: Thymus- Male individual data

Male rats						
mg/L NTO	Animal ID#	Necropsy date	Thymus wt. (g)	cell count x 10^4	Total cells (cell count x 2000)	cells/g
0	14-0266	2/10/2014	0.326	103	2.06E+09	6.32E+09
	14-0271	2/10/2014	0.272	69	1.38E+09	5.07E+09
	14-0277	2/10/2014	0.324	98	1.96E+09	6.05E+09
	14-0246	2/11/2014	0.346	97	1.94E+09	5.61E+09
	14-0257	2/11/2014	0.319	138	2.76E+09	8.65E+09
	14-0251	2/12/2014	0.308	95	1.90E+09	6.17E+09
	14-0275	2/12/2014	0.339	96	1.92E+09	5.66E+09
	14-0298	2/12/2014	0.337	112	2.24E+09	6.65E+09
	14-0245	2/14/2014	0.342	53	1.06E+09	3.10E+09
	14-0258	2/14/2014	0.464	125	2.50E+09	5.39E+09
144	14-0268	2/10/2014	0.314	112	2.24E+09	7.13E+09
	14-0259	2/11/2014	0.446	121	2.42E+09	5.43E+09
	14-0269	2/11/2014	0.326	130	2.60E+09	7.98E+09
	14-0267	2/12/2014	0.301	82	1.64E+09	5.45E+09
	14-0285	2/12/2014	0.307	108.5	2.17E+09	7.07E+09
	14-0228	2/13/2014	0.35	107	2.14E+09	6.11E+09
	14-0284	2/13/2014	0.435	129	2.58E+09	5.93E+09
	14-0274	2/14/2014	0.291	30	6.00E+08	2.06E+09
	14-0282	2/14/2014	0.361	154	3.08E+09	8.53E+09
	14-0295	2/14/2014	0.342	88	1.76E+09	5.15E+09
720	14-0224	2/11/2014	0.377	141	2.82E+09	7.48E+09
	14-0231	2/11/2014	0.257	59	1.18E+09	4.59E+09
	14-0236	2/11/2014	0.329	127	2.54E+09	7.72E+09
	14-0240	2/11/2014	0.377	155	3.10E+09	8.22E+09
	14-0243	2/11/2014	0.354	123	2.46E+09	6.95E+09
	14-0260	2/11/2014	0.318	132	2.64E+09	8.30E+09
	14-0264	2/12/2014	0.237	77	1.54E+09	6.50E+09
	14-0278	2/13/2014	0.283	70	1.40E+09	4.95E+09
	14-0244	2/14/2014	0.383	88	1.76E+09	4.60E+09
	14-0276	2/14/2014	0.277	204	4.08E+09	1.47E+10
3600	14-0234	2/11/2014	0.349	75	1.50E+09	4.30E+09
	14-0238	2/11/2014	0.358	111	2.22E+09	6.20E+09
	14-0239	2/11/2014	0.366	82	1.64E+09	4.48E+09
	14-0230	2/12/2014	0.386	77	1.54E+09	3.99E+09
	14-0280	2/12/2014	0.279	75	1.50E+09	5.38E+09
	14-0289	2/12/2014	0.285	107	2.14E+09	7.51E+09
	14-0225	2/13/2014	0.373	89	1.78E+09	4.77E+09
	14-0294	2/13/2014	0.277	114	2.28E+09	8.23E+09
	14-0237	2/14/2014	0.318	74	1.48E+09	4.65E+09
	14-0297	2/14/2014	0.344	50	1.00E+09	2.91E+09

Appendix E
Thymus Cell Populations: Female and Male Summary Viability Data

percent non-viable thymus cells (SD; N)		
mg/L NTO	Female	Male
0	4.881 (3.469; 10)	6.599 (1.774; 10)
144	1.994 (1.019; 9)	5.214 (1.661; 10)
720	2.539 (0.969; 10)	5.772 (1.4; 10)
3600	2.766 (1.478; 10)	6.42 (1.781; 10)

Percent non-viable cells in samples used for FCA of thymus



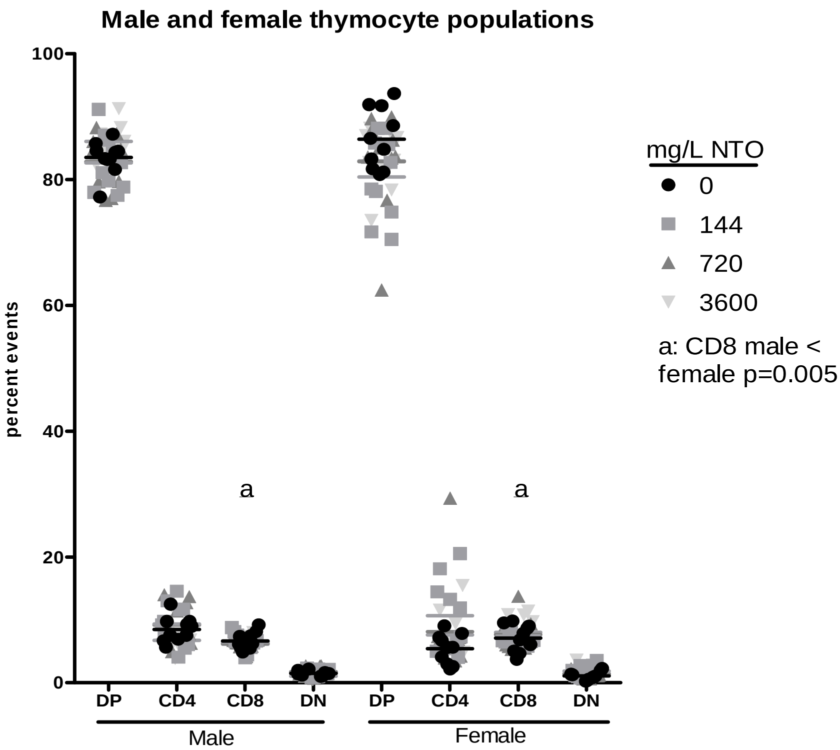
Appendix E
Thymus Cell Populations: Female and Male Individual Data
Non-viability (percent positive for PI)

mg/L NTO	Female ID	event %	total %	FSC ave	SSC ave		Male ID	event %	total %	FSC ave	SSC ave
0	14-0302	306	3.06	58332	30915		14-0266	10.17	10.17	44596	35899
	14-0332	521	5.21	63889	30972		14-0271	6.15	6.15	46107	41011
	14-0346	747	7.47	60177	40514		14-0277	7.53	7.53	46532	38955
	14-0357	1300	13	60868	37746		14-0246	8.67	8.67	44907	41366
	14-0309	679	6.79	61219	42199		14-0257	5.61	5.61	44704	42367
	14-0327	386	3.86	63439	42584		14-0251	6.89	6.89	46534	41084
	14-0321	248	2.48	61465	47537		14-0275	5.43	5.43	45993	42238
	14-0355	166	1.66	61310	45095		14-0298	4.28	4.28	46846	41634
	14-0338	348	3.48	57058	37799		14-0245	6.14	6.14	45979	43613
	14-0363	180	1.8	60192	40787		14-0258	5.12	5.12	47343	44111
144	14-0339	450	4.5	64045	42465		14-0268	9.42	9.42	45164	39328
	14-0349	225	2.25	64811	43380		14-0259	5.68	5.68	44704	44278
	14-0350	85	0.85	57009	42308		14-0269	5.12	5.12	44408	47735
	14-0347	ND	ND	ND	ND		14-0267	5.14	5.14	46346	43812
	14-0365	171	1.71	56840	44303		14-0285	5.36	5.36	46160	44381
	14-0362	172	1.72	57344	38356		14-0228	4.91	4.91	45535	36834
	14-0373	139	1.39	61580	40008		14-0284	3.27	3.27	44481	42978
	14-0375	165	1.65	55319	35904		14-0274	5.2	5.2	48218	38440
	14-0352	188	1.88	58877	40105		14-0282	3.74	3.74	45266	50144
	14-0372	200	2	56497	40706		14-0295	4.3	4.3	46459	46567
720	14-0304	456	4.56	64004	45777		14-0224	5.34	5.34	44888	41755
	14-0316	296	2.96	63337	43349		14-0231	5.25	5.25	46547	44818
	14-0340	225	2.25	64850	43009		14-0236	4.18	4.18	45191	44419
	14-3011	147	1.47	59001	43539		14-0240	8.81	8.81	44544	40659
	14-0344	220	2.2	60058	45390		14-0243	7.12	7.12	44885	40989
	14-0324	371	3.71	59840	40881		14-0260	6.01	6.01	44932	45930
	14-0335	267	2.67	59470	38738		14-0264	3.96	3.96	45661	44749
	14-0356	199	1.99	61940	39221		14-0278	6.09	6.09	46333	42410
	14-0366	166	1.66	56917	43710		14-0244	5.46	5.46	46796	42073
	14-0368	192	1.92	58721	39558		14-0276	5.5	5.5	46299	46229
3600	14-0306	456	4.56	65159	43343		14-0234	5.87	5.87	46226	40380
	14-0314	489	4.89	66902	45989		14-0238	6.84	6.84	46206	46788
	14-0310	297	2.97	59021	45160		14-0239	8.56	8.56	46267	41577
	14-0345	199	1.99	58283	43855		14-0230	5.54	5.54	46752	38876
	14-0360	171	1.71	60237	44104		14-0280	8.17	8.17	47648	41049
	14-0369	150	1.5	57744	46118		14-0289	3.51	3.51	46410	49207
	14-0317	484	4.84	55183	42370		14-0225	3.97	3.97	45837	42763
	14-0377	115	1.15	62016	41169		14-0294	7.04	7.04	45966	42257
	14-0353	255	2.55	60311	40101		14-0237	6.11	6.11	46294	41666
	14-0370	150	1.5	56857	39624		14-0297	8.59	8.59	48630	37663

ND=No Data

Appendix E
Thymus Cell Populations: Summary Thymocyte Data

	Thymocyte Percent (+/-SD)*							
	Female				Male			
mg/L NTO	DN	DP	CD4+	CD8+	DN	DP	CD4+	CD8+
0	1.074 (0.659)	86.439 (4.837)	5.38 (2.362)	7.108 (2.166)	1.466 (0.378)	83.513 (2.676)	8.441 (1.986)	6.58 (1.388)
144	1.806 (1.024)	80.41 (6.628)	10.647 (5.842)	7.137 (0.982)	1.556 (0.554)	82.655 (4.485)	9.336 (3.449)	6.453 (1.512)
720	1.394 (0.586)	82.862 (8.125)	8.084 (7.605)	7.662 (2.592)	1.739 (0.727)	82.873 (4.239)	9.169 (3.399)	6.217 (0.858)
3600	1.426 (0.854)	82.974 (4.593)	7.602 (3.492)	8 (2.35)	**1.029 (0.293)**	86.098 (2.428)	6.736 (2.104)	6.139 (1.231)
Differences within treatments	NS	NS	NS	NS	p=0.036	NS	NS	NS
Differences between sexes	Percent CD8+ male < CD8+ female p = 0.005							
* N=10 animals per treatment								



Appendix E
Thymus Cell Populations: Individual Thymocyte Data Females

0 mg/L NTO

Animal ID	Cell type	Events	event %	FSC	SSC
14-0302	all	10000		80974	23046
	SP-CD4+	90	2.95	105245	23659
	DP	2804	91.78	94792	21734
	SP-CD8+	154	5.04	104149	26023
	DN	7	0.23	116368	27852
14-0332	all	10000		84762	26826
	SP-CD4+	74	2.2	102974	27644
	DP	3147	93.72	96138	26431
	SP-CD8+	125	3.72	103749	28204
	DN	12	0.36	99044	24297
14-0346	all	10000		89409	39742
	SP-CD4+	515	7.82	105044	38713
	DP	5350	81.22	92051	35363
	SP-CD8+	593	9	104561	41230
	DN	129	1.96	104791	41567
14-0357	all	10000		92435	43158
	SP-CD4+	595	9.05	105397	37987
	DP	5310	80.81	94219	34776
	SP-CD8+	517	7.87	112415	45198
	DN	149	2.27	105650	40833
14-0309	all	10000		97307	46024
	SP-CD4+	206	5.6	107594	42674
	DP	3184	86.55	96159	40488
	SP-CD8+	250	6.8	108625	48276
	DN	39	1.06	106463	42332
14-0337	all	10000		88482	45951
	SP-CD4+	207	4.09	106915	48380
	DP	4483	88.58	92469	41553
	SP-CD8+	307	6.07	106530	49080
	DN	64	1.26	119299	53387
14-0321	all	10000		87400	47882
	SP-CD4+	338	6.7	111277	49224
	DP	4201	83.27	93862	41085
	SP-CD8+	479	9.49	109355	52558
	DN	27	0.54	111376	50836
14-0355	all	10000		88715	49869
	SP-CD4+	257	7.19	110162	48909
	DP	2919	81.7	94708	43557
	SP-CD8+	350	9.8	109109	55288
	DN	47	1.32	103895	50418
14-0338	all	10000		76871	39490
	SP-CD4+	214	5.64	104339	44289
	DP	3217	84.81	89612	39182
	SP-CD8+	327	8.62	99971	45446
	DN	35	0.92	98609	43469
14--0363	all	10000		80757	45519
	SP-CD4+	128	2.56	107940	46705
	DP	4592	91.95	91246	42094
	SP-CD8+	233	4.67	105056	53917
	DN	41	0.82	122850	69426

144 mg/L NTO

Animal ID	Cell type	Events	event %	FSC	SSC
14-0339	all	10000		86960	49516
	SP-CD4+	223	5.35	107635	49516
	DP	3565	85.55	91985	46877
	SP-CD8+	350	8.4	106333	59601
	DN	29	0.7	106759	60416
14-0349	all	10000		90807	50395
	SP-CD4+	234	4.98	106675	46987
	DP	4145	88.15	94462	43891
	SP-CD8+	272	5.78	111859	52829
	DN	51	1.08	114758	53566
14-0350	all	10000		89500	48078
	SP-CD4+	244	4.03	107228	45698
	DP	5332	88.16	91259	40318
	SP-CD8+	426	7.04	106214	50413
	DN	46	0.76	110199	52899
14-0347	all	10000		86905	45505
	SP-CD4+	259	6.68	103491	46413
	DP	3328	85.82	93766	42374
	SP-CD8+	254	6.55	106424	48792
	DN	37	0.95	105367	47300
14-0365	all	10000		87826	48577
	SP-CD4+	368	7.26	110014	51143
	DP	4192	82.75	94200	43796
	SP-CD8+	452	8.92	105089	51860
	DN	54	1.07	107710	49203
14-0362	all	10000		89005	43969
	SP-CD4+	410	11.86	97254	40737
	DP	2715	78.51	94438	41088
	SP-CD8+	237	6.85	113622	50663
	DN	96	2.78	105352	45355
14-0373	all	10000		84899	41884
	SP-CD4+	553	13.23	95566	41382
	DP	3267	78.14	93112	40289
	SP-CD8+	280	6.7	109509	50103
	DN	81	1.94	98792	42427
14-0375	all	10000		79866	42035
	SP-CD4+	816	20.54	91362	40852
	DP	2800	70.48	94152	42446
	SP-CD8+	257	6.47	108375	53494
	DN	100	2.52	95848	45495
14-0352	all	10000		85397	41587
	SP-CD4+	1101	18.11	93732	39136
	DP	4358	71.7	93220	39312
	SP-CD8+	404	6.65	109807	47939
	DN	215	3.54	104453	44633
14-0372	all	10000		85383	48715
	SP-CD4+	913	14.43	94408	43944
	DP	4735	74.84	91467	43340
	SP-CD8+	507	8.01	106007	50507
	DN	172	2.72	95879	44987

720 mg/L NTO

Animal ID	Cell type	Events	event %	FSC	SSC
14-0304	all	10000		93509	46104
	SP-CD4+	180	4.21	108888	48354
	DP	3753	87.83	93730	42249
	SP-CD8+	315	7.37	104983	49008
	DN	25	0.59	106083	47162
14-0316	all	10000		80482	46188
	SP-CD4+	341	7.3	106631	51903
	DP	3582	76.7	90658	44879
	SP-CD8+	640	13.7	103291	51463
	DN	107	2.29	104075	51289
14-0340	all	10000		95491	51083
	SP-CD4+	272	6.85	104257	43793
	DP	3426	86.3	93841	42641
	SP-CD8+	210	5.29	114238	52139
	DN	62	1.56	112722	50533
14-3011	all	10000		92047	48903
	SP-CD4+	379	7.16	107084	42694
	DP	4424	83.58	93228	40513
	SP-CD8+	432	8.16	112064	51656
	DN	58	1.1	108803	46526
14-0344	all	10000		87199	49236
	SP-CD4+	171	3.45	111877	47877
	DP	4447	89.68	94528	42335
	SP-CD8+	285	5.75	112489	52176
	DN	56	1.13	119650	54341
14-0324	all	10000		88352	42862
	SP-CD4+	165	3.93	111602	47181
	DP	3781	89.96	92490	39257
	SP-CD8+	231	5.5	113253	53938
	DN	26	0.62	116381	55768
14-0335	all	10000		81536	38904
	SP-CD4+	195	7.07	102338	42406
	DP	2347	85.04	92545	38696
	SP-CD8+	175	6.34	106015	47717
	DN	43	1.56	97129	44493
14-0356	all	10000		85442	42268
	SP-CD4+	213	5.43	105131	44114
	DP	3280	83.67	93824	40566
	SP-CD8+	361	9.21	105571	45784
	DN	66	1.68	102570	44420
14-0366	all	10000		73034	50950
	SP-CD4+	254	6.1	107305	51161
	DP	3473	83.41	91493	44310
	SP-CD8+	388	9.32	104028	53278
	DN	49	1.18	117436	62705
14-0368	all	10000		87524	49636
	SP-CD4+	1658	29.34	92142	41819
	DP	3529	62.45	96139	44953
	SP-CD8+	338	5.98	115578	61453
	DN	126	2.23	106670	54891

3600 mg/L NTO

Animal ID	Cell type	Events	event %	FSC	SSC
14-0306	all	10000		99555	47694
	SP-CD4+	233	5.5	107345	45301
	DP	3695	87.23	95926	41943
	SP-CD8+	286	6.75	110341	48949
	DN	22	0.52	114327	49880
14-0314	all	10000		106691	51091
	SP-CD4+	538	15.44	99043	40656
	DP	2731	78.39	98730	43008
	SP-CD8+	183	5.25	115042	52175
	DN	32	0.92	107840	40121
14-0310	all	10000		86028	48711
	SP-CD4+	233	4.85	107167	49003
	DP	4175	86.98	97137	42910
	SP-CD8+	326	6.79	110809	56311
	DN	66	1.38	115551	62437
14-0345	all	10000		88313	50885
	SP-CD4+	195	4.58	108966	47134
	DP	3756	88.15	94155	42863
	SP-CD8+	261	6.13	107141	51085
	DN	49	1.15	113029	55623
14-0360	all	10000		83831	46704
	SP-CD4+	312	6.27	107695	49006
	DP	4118	82.74	92557	41283
	SP-CD8+	481	9.66	106820	51098
	DN	66	1.33	101967	44486
14-0369	all	10000		76403	54345
	SP-CD4+	320	5.82	107682	50179
	DP	4480	81.44	91340	41622
	SP-CD8+	594	10.8	103909	49002
	DN	107	1.95	106443	54336
14-0317	all	10000		82754	47976
	SP-CD4+	212	6.31	109511	50472
	DP	2915	86.7	96516	43787
	SP-CD8+	211	6.28	108156	53765
	DN	24	0.71	103259	65626
14-0377	all	10000		90968	45091
	SP-CD4+	313	6.29	108118	47350
	DP	4053	81.5	95706	42524
	SP-CD8+	535	10.76	107371	48765
	DN	72	1.45	99720	45821
14-0353	all	10000		81691	48868
	SP-CD4+	521	9.41	96026	41721
	DP	4598	83.09	92682	41463
	SP-CD8+	344	6.22	109177	53910
	DN	71	1.28	102886	47284
14-0370	all	10000		80021	45920
	SP-CD4+	654	11.55	100539	46326
	DP	4161	73.52	91931	42703
	SP-CD8+	643	11.36	104542	50927
	DN	202	3.57	101911	46960

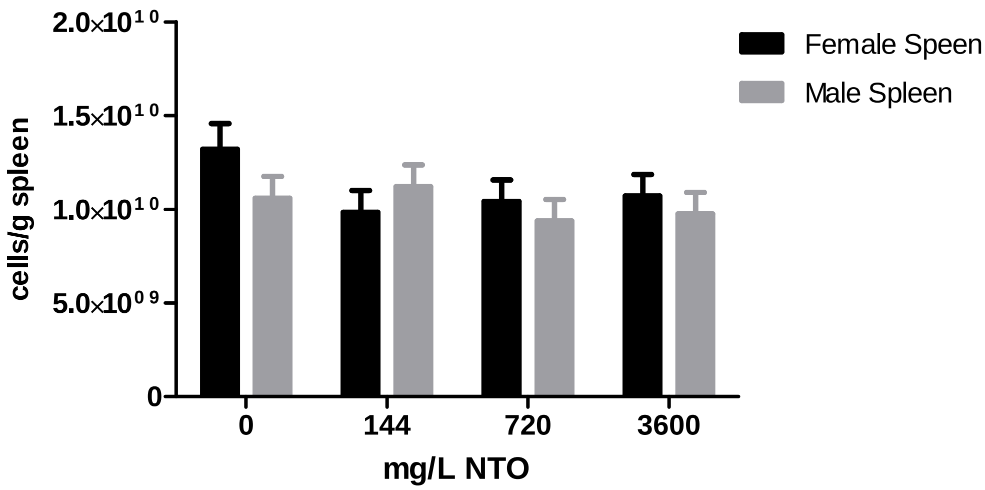
Appendix E
Thymus Cell Populations: Individual Thymocyte Data Males

0 mg/L NTO						144 mg/L NTO						720 mg/L NTO						3600 mg/L NTO					
Animal ID	Cell type	Events	event %	FSC	SSC	Animal ID	Cell type	Events	event %	FSC	SSC	Animal ID	Cell type	Events	event %	FSC	SSC	Animal ID	Cell type	Events	event %	FSC	SSC
14-0245	all	10000		92379	46022	**14-0228**	all	10000		99636	52226	**14-0224**	all	10000		89921	46326	**14-0225**	all	10000		95071	47021
	SP-CD4+	828	9.73	89993	38518		SP-CD4+	883	11.67	88251	38624		SP-CD4+	1183	13.98	85955	36343		SP-CD4+	612	7.28	97556	41170
	DP	7092	83.36	84339	35639		DP	5964	78.82	81742	35701		DP	6517	77.01	81821	35136		DP	7165	85.2	83145	35760
	SP-CD8+	464	5.45	105728	43658		SP-CD8+	614	8.11	93225	40269		SP-CD8+	538	6.36	95024	40579		SP-CD8+	533	6.34	99582	41452
	DN	124	1.46	106328	43874		DN	106	1.4	90696	39830		DN	224	2.65	93725	40468		DN	100	1.19	106332	45492
14-0246	all	10000		86725	43795	**14-0259**	all	10000		86284	42909	**14-0231**	all	10000		87839	44474	**14-0230**	all	10000		92092	46638
	SP-CD4+	802	9.26	92364	40229		SP-CD4+	835	9.76	87746	35795		SP-CD4+	1101	12.74	90016	38114		SP-CD4+	442	5.2	101250	43854
	DP	7218	83.31	79693	34613		DP	7070	82.68	81481	33711		DP	6882	79.65	81004	35212		DP	7420	87.25	83415	37454
	SP-CD8+	474	5.47	100350	42555		SP-CD8+	479	5.6	101471	41277		SP-CD8+	492	5.69	97897	42269		SP-CD8+	564	6.63	97149	42568
	DN	170	1.96	100748	43214		DN	167	1.95	98152	41446		DN	165	1.91	96671	42589		DN	78	0.92	106493	46284
14-0251	all	10000		87745	45265	**14-0267**	all	10000		89310	45737	**14-0236**	all	10000		82830	42572	**14-0234**	all	10000		87638	42803
	SP-CD4+	496	5.65	96800	43724		SP-CD4+	999	11.6	93171	41240		SP-CD4+	1186	13.67	85884	36110		SP-CD4+	677	7.75	96010	39938
	DP	7654	87.21	80622	36926		DP	6867	79.76	81217	36801		DP	6651	76.69	78570	32801		DP	7502	85.87	81155	34799
	SP-CD8+	537	6.12	93686	42084		SP-CD8+	562	6.53	102130	44162		SP-CD8+	602	6.94	93521	38531		SP-CD8+	470	5.38	94755	39937
	DN	90	1.03	110821	49982		DN	182	2.11	100338	45828		DN	234	2.7	88671	36189		DN	87	1	101428	43855
14-0257	all	10000		83320	40092	**14-0268**	all	10000		83232	44651	**14-0240**	all	10000		87046	43335	**14-0237**	all	10000		91002	46182
	SP-CD4+	797	8.97	90018	37733		SP-CD4+	1258	14.55	81517	38033		SP-CD4+	679	7.8	96688	41716		SP-CD4+	595	7.13	94710	40127
	DP	7391	83.19	79180	33295		DP	6703	77.51	78720	36096		DP	7351	84.4	79530	34223		DP	7035	84.25	81345	34621
	SP-CD8+	553	6.22	96852	39096		SP-CD8+	546	6.31	94064	42525		SP-CD8+	590	6.77	97049	42070		SP-CD8+	609	7.29	98424	40862
	DN	143	1.61	100067	41556		DN	141	1.63	90651	43132		DN	90	1.03	91638	39663		DN	111	1.33	103898	43361
14-0258	all	10000		90267	44683	**14-0269**	all	10000		86214	42810	**14-0243**	all	10000		83582	41705	**14-0238**	all	10000		85394	42410
	SP-CD4+	845	9.72	91559	36882		SP-CD4+	685	7.98	84100	35932		SP-CD4+	633	7.19	92432	38846		SP-CD4+	529	6.06	95376	39664
	DP	7335	84.36	82785	33582		DP	7410	86.27	80498	34076		DP	7684	87.3	78394	33359		DP	7708	88.28	80134	34114
	SP-CD8+	425	4.89	102201	39915		SP-CD8+	377	4.39	96939	39686		SP-CD8+	367	4.17	98210	40956		SP-CD8+	417	4.78	91001	39372
	DN	90	1.04	105259	42355		DN	117	1.36	101318	42592		DN	118	1.34	99420	43237		DN	77	0.88	97414	41817
14-0266	all	10000		89118	44755	**14-0274**	all	10000		91187	42364	**14-0244**	all	10000		90383	47173	**14-0239**	all	10000		86394	42059
	SP-CD4+	1050	12.47	87071	38870		SP-CD4+	360	4.05	103797	42270		SP-CD4+	410	4.92	97281	42522		SP-CD4+	338	3.85	100043	43250
	DP	6504	77.25	79419	35763		DP	8105	91.15	83344	34276		DP	7356	88.26	82071	36083		DP	8026	91.31	80407	34527
	SP-CD8+	685	8.14	96380	42086		SP-CD8+	353	3.97	105637	41505		SP-CD8+	482	5.78	99114	41416		SP-CD8+	385	4.38	98759	42638
	DN	180	2.14	90709	41137		DN	74	0.83	111573	46187		DN	86	1.03	115583	48636		DN	41	0.47	104738	44590
14-0271	all	10000		84983	44446	**14-0282**	all	10000		89841	46382	**14-0260**	all	10000		86419	44759	**14-0280**	all	10000		88690	43242
	SP-CD4+	611	7.53	91237	40091		SP-CD4+	1110	13.02	89467	36274		SP-CD4+	962	11.36	84361	34976		SP-CD4+	1019	11.68	89769	37322
	DP	6620	81.62	79091	35041		DP	6646	77.97	82086	33577		DP	6750	79.71	79838	33571		DP	7186	82.38	81732	34658
	SP-CD8+	746	9.2	92085	40436		SP-CD8+	572	6.71	97624	39899		SP-CD8+	535	6.32	100389	41815		SP-CD8+	422	4.84	97123	41009
	DN	134	1.65	96306	43436		DN	196	2.3	96322	39088		DN	221	2.61	91189	40288		DN	96	1.1	95697	41656
14-0275	all	10000		89297	45039	**14-0284**	all	10000		91175	46177	**14-0264**	all	10000		90384	47369	**14-0289**	all	10000		89414	47484
	SP-CD4+	653	7.52	96802	40576		SP-CD4+	521	6.04	100592	43625		SP-CD4+	622	7.27	99141	44535		SP-CD4+	430	5.09	100213	43114
	DP	7442	85.74	81059	34662		DP	7271	84.23	82875	36304		DP	7254	84.82	82155	37822		DP	7271	86.1	81510	37000
	SP-CD8+	482	5.55	94688	40729		SP-CD8+	757	8.77	94228	40275		SP-CD8+	537	6.28	96990	42929		SP-CD8+	671	7.95	92095	41204
	DN	103	1.19	102067	44329		DN	83	0.96	102505	44501		DN	139	1.63	104689	48065		DN	73	0.86	102858	47003
14-0277	all	10000		84168	44401	**14-0285**	all	10000		93052	48139	**14-0276**	all	10000		90377	47036	**14-0294**	all	10000		89997	45709
	SP-CD4+	577	6.66	89654	40169		SP-CD4+	771	9.21	91977	38676		SP-CD4+	533	6.25	100101	39763		SP-CD4+	561	6.52	100047	43651
	DP	7317	84.51	79067	34883		DP	6787	81.1	80610	35135		DP	7231	84.83	82880	34390		DP	7327	85.15	80843	35152
	SP-CD8+	643	7.43	91559	40627		SP-CD8+	632	7.55	92158	38930		SP-CD8+	609	7.14	101700	41957		SP-CD8+	632	7.34	90575	39848
	DN	121	1.4	94676	42583		DN	179	2.14	94030	40109		DN	151	1.77	120523	48906		DN	85	0.99	100873	44011
14-0298	all	10000		90963	45590	**14-0295**	all	10000		87443	44791	**14-0278**	all	10000		91737	46827	**14-0297**	all	10000		86821	41739
	SP-CD4+	592	6.9	99303	41514		SP-CD4+	476	5.48	99214	40004		SP-CD4+	555	6.51	100355	42259		SP-CD4+	601	6.8	97694	38672
	DP	7254	84.58	81289	34595		DP	7559	87.06	81831	34162		DP	7340	86.06	82286	36589		DP	7532	85.19	80025	32525
	SP-CD8+	629	7.33	99015	40573		SP-CD8+	572	6.59	100860	41648		SP-CD8+	573	6.72	99161	42435		SP-CD8+	571	6.46	97956	39860
	DN	101	1.18	111070	47274		DN	76	0.88	112943	47937		DN	61	0.72	105846	47822		DN	137	1.55	101025	41105

Appendix F
Organ Cellularity Data: Spleen Summary Data

	Spleen cellularity 10^9 cells/g spleen (SEM; N)	
mg/L NTO	Male	Female
0	10.6 (1.15; 10)	13.2 (1.37; 7)
144	11.2 (1.15; 10)	9.8 (1.15; 10)
720	9.4 (1.15; 10)	10.4 (1.15; 10)
3600	9.7 (1.15; 10)	10.7 (1.15; 10)
Average	10.2 (0.57)	11.0 (0.60)

Splenic cellularity of young EOGRTS rats
exposed to NTO in drinking water (+/- SEM)



Appendix F
Organ Cellularity Data: Spleen Female Individual Data

Female rats						
mg/L NTO	Animal ID#	Necropsy date	Spleen wt. (g)	cell count x 10^4	Total cells (cell count x 5000)	cells/g Spleen
0	14-0302	1/29/2014	0.205	ND	ND	ND
	14-0332	1/29/2014	0.22	ND	ND	ND
	14-0346	1/30/2014	0.248	62	3.10E+09	1.25E+10
	14-0357	1/30/2014	0.178	106	5.30E+09	2.98E+10
	14-0309	1/31/2014	0.338	41	2.05E+09	6.07E+09
	14-0337	1/31/2014	0.227	70	3.50E+09	1.54E+10
	14-0321	2/1/2014	0.261	46	2.30E+09	8.81E+09
	14-0355	2/1/2014	0.161	23	1.15E+09	7.14E+09
	14-0338	2/3/2014	0.247	62	3.10E+09	1.26E+10
	14-0363	2/4/2014	ND	ND	ND	ND
144	14-0339	1/31/2014	0.256	66	3.30E+09	1.29E+10
	14-0349	1/31/2014	0.256	56	2.80E+09	1.09E+10
	14-0350	1/31/2014	0.23	66	3.30E+09	1.43E+10
	14-0347	2/1/2014	0.22	39	1.95E+09	8.86E+09
	14-0365	2/1/2014	0.202	41	2.05E+09	1.01E+10
	14-0362	2/3/2014	0.282	67	3.35E+09	1.19E+10
	14-0373	2/3/2014	0.262	20	1.00E+09	3.82E+09
	14-0375	2/3/2014	0.171	39	1.95E+09	1.14E+10
	14-0352	2/4/2014	0.201	32	1.60E+09	7.96E+09
	14-0372	2/4/2014	0.146	18	9.00E+08	6.16E+09
720	14-0304	1/31/2014	0.215	53.25	2.66E+09	1.24E+10
	14-0316	1/31/2014	0.22	34	1.70E+09	7.73E+09
	14-0340	1/31/2014	0.157	52	2.60E+09	1.66E+10
	14-3011	1/31/2014	0.203	40	2.00E+09	9.85E+09
	14-0344	2/1/2014	0.202	48	2.40E+09	1.19E+10
	14-0324	2/3/2014	0.308	58	2.90E+09	9.42E+09
	14-0335	2/3/2014	0.222	58	2.90E+09	1.31E+10
	14-0356	2/3/2014	0.263	36	1.80E+09	6.84E+09
	14-0366	2/4/2014	0.227	49	2.45E+09	1.08E+10
	14-0368	2/4/2014	0.168	19	9.50E+08	5.65E+09
3600	14-0306	1/31/2014	0.222	49	2.45E+09	1.10E+10
	14-0314	1/31/2014	0.174	39	1.95E+09	1.12E+10
	14-0310	2/1/2014	0.231	54	2.70E+09	1.17E+10
	14-0345	2/1/2014	0.176	27	1.35E+09	7.67E+09
	14-0360	2/1/2014	0.19	56	2.80E+09	1.47E+10
	14-0369	2/1/2014	0.179	31	1.55E+09	8.66E+09
	14-0371	2/1/2014	0.219	38	1.90E+09	8.68E+09
	14-0377	2/3/2014	0.198	29	1.45E+09	7.32E+09
	14-0353	2/4/2014	0.274	82	4.10E+09	1.50E+10
	14-0370	2/4/2014	0.263	57	2.85E+09	1.08E+10
ND= No Data						

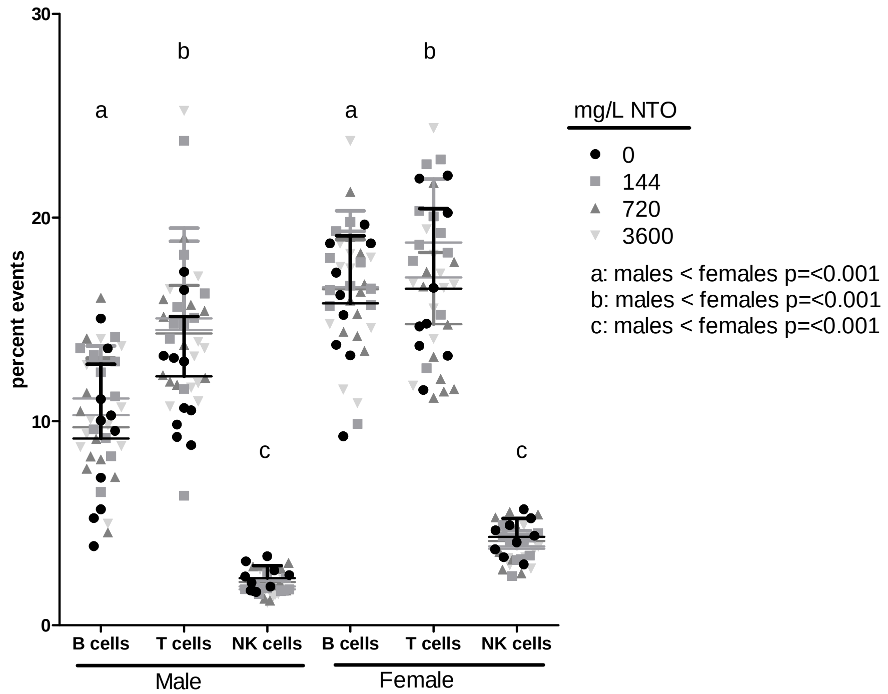
Appendix F
Organ Cellularity Data: Male Individual Data

Male rats						
mg/L NTO	Animal ID#	Necropsy date	Spleen wt. (g)	cell count x 10^4	Total cells (cell count x 5000)	cells/g Spleen
0	14-0266	2/10/2014	0.387	64	3.20E+09	8.27E+09
	14-0271	2/10/2014	0.518	120	6.00E+09	1.16E+10
	14-0277	2/10/2014	0.307	53	2.65E+09	8.63E+09
	14-0246	2/11/2014	0.287	72	3.60E+09	1.25E+10
	14-0257	2/11/2014	0.309	93	4.65E+09	1.50E+10
	14-0251	2/12/2014	0.287	37	1.85E+09	6.45E+09
	14-0275	2/12/2014	0.262	60	3.00E+09	1.15E+10
	14-0298	2/12/2014	0.261	72	3.60E+09	1.38E+10
	14-0245	2/14/2014	0.348	66	3.30E+09	9.48E+09
	14-0258	2/14/2014	0.427	79	3.95E+09	9.25E+09
144	14-0268	2/10/2014	0.275	62	3.10E+09	1.13E+10
	14-0259	2/11/2014	0.469	101	5.05E+09	1.08E+10
	14-0269	2/11/2014	0.451	118	5.90E+09	1.31E+10
	14-0267	2/12/2014	0.305	92	4.60E+09	1.51E+10
	14-0285	2/12/2014	0.314	57	2.85E+09	9.08E+09
	14-0228	2/13/2014	0.312	75	3.75E+09	1.20E+10
	14-0284	2/13/2014	0.379	58	2.90E+09	7.65E+09
	14-0274	2/14/2014	0.298	58	2.90E+09	9.73E+09
	14-0282	2/14/2014	0.365	68	3.40E+09	9.32E+09
	14-0295	2/14/2014	0.257	70	3.50E+09	1.36E+10
720	14-0224	2/11/2014	0.294	77	3.85E+09	1.31E+10
	14-0231	2/11/2014	0.298	53	2.65E+09	8.89E+09
	14-0236	2/11/2014	0.272	53	2.65E+09	9.74E+09
	14-0240	2/11/2014	0.345	40	2.00E+09	5.80E+09
	14-0243	2/11/2014	0.301	81	4.05E+09	1.35E+10
	14-0260	2/11/2014	0.222	39	1.95E+09	8.78E+09
	14-0264	2/12/2014	0.235	55	2.75E+09	1.17E+10
	14-0278	2/13/2014	0.379	72	3.60E+09	9.50E+09
	14-0244	2/14/2014	0.339	31	1.55E+09	4.57E+09
	14-0276	2/14/2014	0.411	68	3.40E+09	8.27E+09
3600	14-0234	2/11/2014	0.305	46	2.30E+09	7.54E+09
	14-0238	2/11/2014	0.345	57	2.85E+09	8.26E+09
	14-0239	2/11/2014	0.314	72	3.60E+09	1.15E+10
	14-0230	2/12/2014	0.272	36	1.80E+09	6.62E+09
	14-0280	2/12/2014	0.266	66	3.30E+09	1.24E+10
	14-0289	2/12/2014	0.529	154	7.70E+09	1.46E+10
	14-0225	2/13/2014	0.381	99	4.95E+09	1.30E+10
	14-0294	2/13/2014	0.362	77	3.85E+09	1.06E+10
	14-0237	2/14/2014	0.354	43	2.15E+09	6.07E+09
	14-0297	2/14/2014	0.282	39	1.95E+09	6.91E+09

Appendix G
Spleen Cell Populations: Summary Male and Female Data

Splenic lymphocyte populations in young rats treated with NTO reported as average percent total events, (SD;N).						
mg/L NTO	**Male**			**Female**		
	B cells	**T cells**	**NK cells**	**B cells**	**T cells**	**NK cells**
0	9.2 (3.637; 10)	12.2 (2.94; 10)	2.3 (0.623; 10)	15.8 (3.324; 9)	16.5 (3.933; 9)	4.3 (0.894; 9)
144	11.1 (2.578; 10)	15.0 (4.428; 10)	1.9 (0.317; 10)	16.6 (2.749; 10)	18.8 (3.115; 10)	3.9 (0.765; 10)
720	9.7 (3.407; 10)	14.3 (2.361; 10)	2.1 (0.635; 10)	16.5 (2.434; 10)	14.8 (3.519; 10)	4.1 (1.113; 10)
3600	10.3 (2.708; 10)	14.5 (4.357; 10)	1.8 (0.488; 10)	16.6 (3.766; 10)	17.1 (3.344; 10)	3.8 (0.683; 10)
Difference between Treatment	NS	NS	NS	NS	NS	NS
Difference between sexes	Percent B cells- males < females p=<0.001 Percent T cells males < females p=<0.001 Percent NK cells males < females p=<0.001 B:T cell ratio females < males p=0.001					
NS=non-significant						

Splenic lymphocyte populations in EOGRTS offspring male and female rats exposed to NTO in drinking water



Appendix G
Spleen Cell Populations: Individual Female Data

0 mg/L NTO						144 mg/L NTO						720 mg/L NTO						3600 mg/L NTO					
Animal ID	Cell type	Events	Total %	FSC	SSC	Animal ID	Cell type	Events	Total %	FSC	SSC	Animal ID	Cell type	Events	Total %	FSC	SSC	Animal ID	Cell type	Events	Total %	FSC	SSC
14-0302	all	10000	100	73169	36108	14-0339	all	10000	100	78223	57359	14-0304	all	10000	100	93704	66423	14-0306	all	10000	100	86543	63794
	T cells	879	8.79	112460	36123		T cells	1775	17.75	100309	52153		T cells	1639	16.39	100895	56954		T cells	1530	15.3	99019	55786
	B cells	868	8.68	93395	34777		B cells	1496	14.96	87935	49133		B cells	1445	14.45	89265	51346		B cells	1639	16.39	88074	50586
	NK cells	372	3.72	115892	41317		NK cells	451	4.51	103211	62839		NK cells	528	5.28	104740	62811		NK cells	414	4.14	103526	64441
14-0332	all	10000	100	79903	35465	14-0349	all	10000	100	81599	60916	14-0316	all	10000	100	84827	66647	14-0314	all	10000	100	73003	60777
	T cells	1088	10.88	112887	33866		T cells	1198	11.98	99307	56709		T cells	1045	10.45	101085	61051		T cells	1053	10.53	99665	58433
	B cells	1206	12.06	94954	34298		B cells	1962	19.62	87852	51642		B cells	1310	13.1	90883	55011		B cells	1057	10.57	87871	54967
	NK cells	466	4.66	115564	39941		NK cells	241	2.41	109057	68703		NK cells	254	2.54	106484	66003		NK cells	330	3.3	108548	71707
14-0346	all	10000	100	78212	51085	14-0350	all	10000	100	80041	57985	14-0340	all	10000	100	75594	56090	14-0310	all	10000	100	88117	61292
	T cells	2065	20.65	99665	47404		T cells	1691	16.91	99405	50688		T cells	1642	16.42	98102	51635		T cells	1866	18.66	102581	53704
	B cells	1519	15.19	87758	48182		B cells	1566	15.66	89778	48927		B cells	1622	16.22	85834	48807		B cells	1688	16.88	90778	47958
	NK cells	525	5.25	107550	68257		NK cells	342	3.42	105268	64833		NK cells	555	5.55	102388	62661		NK cells	491	4.91	105004	61457
14-0357	all	10000	100	87185	57029	14-0347	all	10000	100	86060	59516	14-3011	all	10000	100	81245	56833	14-0345	all	10000	100	80926	58899
	T cells	1803	18.03	99913	51674		T cells	1921	19.21	99859	53450		T cells	1545	15.45	100260	51906		T cells	1442	14.42	99218	51623
	B cells	1788	17.88	87822	47746		B cells	1832	18.32	89648	45210		B cells	1863	18.63	88545	48241		B cells	1814	18.14	88302	45447
	NK cells	491	4.91	103929	65128		NK cells	434	4.34	103849	59342		NK cells	543	5.43	104083	63885		NK cells	278	2.78	105019	61802
14-0309	all	10000	100	96312	71687	14-0365	all	10000	100	81554	58959	14-0344	all	10000	100	81024	59210	14-0360	all	10000	100	81316	58574
	T cells	1338	13.38	103932	61327		T cells	1921	19.21	98680	49327		T cells	1091	10.91	103648	57958		T cells	2323	23.23	98379	49530
	B cells	1234	12.34	91667	51737		B cells	1759	17.59	88740	45026		B cells	2026	20.26	89150	48298		B cells	1708	17.08	87987	48357
	NK cells	439	4.39	104773	60631		NK cells	324	3.24	103796	60322		NK cells	411	4.11	104909	62586		NK cells	386	3.86	106271	65045
14-0337	all	10000	100	84181	59488	14-0362	all	10000	100	70496	56457	14-0324	all	10000	100	80048	59601	14-0369	all	10000	100	73986	55260
	T cells	1595	15.95	100386	53187		T cells	1434	14.34	100243	51073		T cells	1265	12.65	101277	54668		T cells	1595	15.95	100257	51251
	B cells	1575	15.75	91607	49006		B cells	951	9.51	88741	52699		B cells	1642	16.42	88032	47205		B cells	1466	14.66	88634	47407
	NK cells	569	5.69	104802	62676		NK cells	414	4.14	100861	62104		NK cells	360	3.6	102381	56205		NK cells	427	4.27	105482	64542
14-0321	all	10000	100	77502	59085	14-0373	all	10000	100	84014	59567	14-0335	all	10000	100	72440	52776	14-0317	all	10000	100	78578	58572
	T cells	1409	14.09	102115	55816		T cells	1713	17.13	100330	50852		T cells	1399	13.99	98675	50248		T cells	1579	15.79	101777	52294
	B cells	1813	18.13	88946	47624		B cells	1604	16.04	89193	45927		B cells	1333	13.33	86960	46883		B cells	1135	11.35	88016	46148
	NK cells	334	3.34	105662	58625		NK cells	430	4.3	104561	60234		NK cells	272	2.72	102568	58133		NK cells	442	4.42	106031	62842
14-0355	all	10000	100	79171	56746	14-0375	all	10000	100	74943	53506	14-0356	all	10000	100	73352	54476	14-0377	all	10000	100	71313	54186
	T cells	2089	20.89	98142	50145		T cells	1751	17.51	95888	49540		T cells	1168	11.68	100744	52803		T cells	1638	16.38	97489	48425
	B cells	1859	18.59	89774	47896		B cells	1669	16.69	86320	44368		B cells	1420	14.2	87690	46725		B cells	1451	14.51	87677	49257
	NK cells	407	4.07	104342	62317		NK cells	319	3.19	103070	62017		NK cells	411	4.11	103945	62438		NK cells	294	2.94	104404	63630
14-0338	all	10000	100	72887	52765	14-0352	all	10000	100	79608	54914	14-0366	all	10000	100	85109	62473	14-0353	all	10000	100	79702	57983
	T cells	1364	13.64	97940	49887		T cells	2167	21.67	97773	45179		T cells	2066	20.66	100889	51140		T cells	1325	13.25	102173	53183
	B cells	1496	14.96	87022	47053		B cells	1573	15.73	87853	47805		B cells	1584	15.84	88441	47466		B cells	2318	23.18	87952	47081
	NK cells	298	2.98	105075	61725		NK cells	412	4.12	102599	60926		NK cells	483	4.83	102309	59660		NK cells	334	3.34	108080	67343
14-0363	all	ND				14-0372	all	10000	100	88448	62833	14-0368	all	10000	100	72497	56926	14-0370	all	10000	100	85037	61513
	T cells	ND					T cells	2117	21.17	97591	49765		T cells	1000	10	97629	54518		T cells	1746	17.46	100045	51959
	B cells	ND					B cells	1694	16.94	89541	48511		B cells	1839	18.39	87039	48631		B cells	1773	17.73	88690	46687
	NK cells	ND					NK cells	493	4.93	102547	61230		NK cells	322	3.22	104642	68082		NK cells	370	3.7	106063	64303

ND=No Data

Appendix G
Spleen Cell Populations: Individual Male Data

0 mg/L NTO						144 mg/L NTO						720 mg/L NTO						3600 mg/L NTO					
Animal ID	Cell type	Events	Total %	FSC	SSC	Animal ID	Cell type	Events	Total %	FSC	SSC	Animal ID	Cell type	Events	Total %	FSC	SSC	Animal ID	Cell type	Events	Total %	FSC	SSC
14-0245	all	10000	100	55052	58730	14-0228	all	10000	100	71133	64585	14-0224	all	10000	100	66303	61958	14-0225	all	10000	100	67646	63028
	T cells	1066	10.66	74300	44462		T cells	1159	11.59	74674	45331		T cells	1573	15.73	73095	41846		T cells	1712	17.12	74206	45583
	B cells	388	3.88	67736	41342		B cells	1360	13.6	65808	41607		B cells	914	9.14	67436	39082		B cells	874	8.74	66826	41626
	NK cells	314	3.14	76031	52876		NK cells	169	1.69	74532	52080		NK cells	199	1.99	75224	49497		NK cells	273	2.73	74830	52320
14-0246	all	10000	100	70485	64187	14-0259	all	10000	100	66713	61839	14-0231	all	10000	100	60986	58613	14-0230	all	10000	100	70256	63984
	T cells	1735	17.35	73130	44997		T cells	1561	15.61	74782	45834		T cells	1227	12.27	72711	43714		T cells	1360	13.6	75067	47365
	B cells	1505	15.05	66183	41716		B cells	1325	13.25	67322	41667		B cells	767	7.67	66122	40938		B cells	938	9.38	68261	43024
	NK cells	170	1.7	74979	51837		NK cells	254	2.54	74870	52741		NK cells	209	2.09	75865	51533		NK cells	176	1.76	75100	54997
14-0251	all	10000	100	66634	64645	14-0267	all	10000	100	68609	63870	14-0236	all	10000	100	73146	67836	14-0234	all	10000	100	74937	69897
	T cells	884	8.84	75117	45097		T cells	1407	14.07	74601	45185		T cells	1600	16	74507	43200		T cells	1074	10.74	76885	45944
	B cells	954	9.54	67588	42729		B cells	920	9.2	67304	42638		B cells	814	8.14	68192	40334		B cells	1070	10.7	69342	41799
	NK cells	339	3.39	75122	52946		NK cells	208	2.08	75360	53624		NK cells	171	1.71	76843	51314		NK cells	191	1.91	77124	52737
14-0257	all	10000	100	65422	60337	14-0268	all	10000	100	64730	61123	14-0240	all	10000	100	60988	54380	14-0237	all	10000	100	68772	70134
	T cells	1294	12.94	72399	43820		T cells	635	6.35	73805	44632		T cells	1903	19.03	71745	43455		T cells	1319	13.19	75107	45324
	B cells	1359	13.59	66051	41105		B cells	1415	14.15	67117	40529		B cells	1139	11.39	65394	40749		B cells	499	4.99	66284	39800
	NK cells	209	2.09	75376	52192		NK cells	167	1.67	75371	51639		NK cells	130	1.3	74217	52771		NK cells	154	1.54	76743	52581
14-0258	all	10000	100	72415	67792	14-0269	all	10000	100	64091	62013	14-0243	all	10000	100	62466	57481	14-0238	all	10000	100	61193	57655
	T cells	1312	13.12	76354	42689		T cells	1480	14.8	76035	46143		T cells	1375	13.75	72416	44316		T cells	1188	11.88	72664	44251
	B cells	1029	10.29	68632	39641		B cells	829	8.29	69034	40789		B cells	1407	14.07	65641	40267		B cells	1278	12.78	65036	41425
	NK cells	189	1.89	78053	50570		NK cells	153	1.53	77849	53786		NK cells	195	1.95	74451	52273		NK cells	110	1.1	75083	51742
14-0266	all	10000	100	65005	57755	14-0274	all	10000	100	79627	71404	14-0244	all	10000	100	69765	70869	14-0239	all	10000	100	69915	66822
	T cells	1646	16.46	74745	45281		T cells	1509	15.09	76109	41901		T cells	1213	12.13	74795	44980		T cells	1099	10.99	74675	46781
	B cells	1004	10.04	67147	40218		B cells	1294	12.94	67940	39229		B cells	455	4.55	68332	41454		B cells	1370	13.7	67207	41547
	NK cells	269	2.69	76597	53061		NK cells	232	2.32	77768	51481		NK cells	289	2.89	77123	54519		NK cells	150	1.5	75239	52779
14-0271	all	10000	100	63237	67381	14-0282	all	10000	100	71766	65495	14-0260	all	10000	100	66668	65907	14-0280	all	10000	100	63701	60768
	T cells	924	9.24	73639	44085		T cells	1818	18.18	75804	42769		T cells	1180	11.8	74091	46463		T cells	1166	11.66	73930	45364
	B cells	569	5.69	66121	40162		B cells	654	6.54	68094	39364		B cells	1050	10.5	66763	41873		B cells	1010	10.1	65238	40714
	NK cells	238	2.38	76203	52924		NK cells	177	1.77	77942	52604		NK cells	121	1.21	75774	54305		NK cells	140	1.4	74966	51290
14-0275	all	10000	100	68015	62867	14-0284	all	10000	100	68989	61050	14-0264	all	10000	100	75535	71154	14-0289	all	10000	100	67724	64130
	T cells	985	9.85	75259	46831		T cells	2377	23.77	73093	43844		T cells	1514	15.14	76314	45913		T cells	1392	13.92	76383	47853
	B cells	1109	11.09	67045	39799		B cells	961	9.61	67297	42185		B cells	727	7.27	67715	43242		B cells	981	9.81	67610	42100
	NK cells	246	2.46	73987	51404		NK cells	182	1.82	76458	52971		NK cells	276	2.76	76369	54385		NK cells	225	2.25	77566	55941
14-0277	all	10000	100	69339	72296	14-0285	all	10000	100	66189	62507	14-0276	all	10000	100	72266	64798	14-0294	all	10000	100	69016	65084
	T cells	1054	10.54	73683	44942		T cells	1479	14.79	72196	44663		T cells	1195	11.95	76584	43155		T cells	1649	16.49	74363	46167
	B cells	526	5.26	67487	40493		B cells	1123	11.23	66005	41433		B cells	1607	16.07	67643	38808		B cells	1406	14.06	65994	40969
	NK cells	163	1.63	75744	53126		NK cells	176	1.76	75025	53388		NK cells	306	3.06	77666	50445		NK cells	136	1.36	76524	52933
14-0298	all	10000	100	69190	66874	14-0295	all	10000	100	71047	63670	14-0278	all	10000	100	70691	67743	14-0297	all	10000	100	74445	66603
	T cells	1322	13.22	72719	44001		T cells	1629	16.29	74779	41823		T cells	1542	15.42	75349	45955		T cells	2526	25.26	76180	41136
	B cells	724	7.24	66667	41097		B cells	1241	12.41	68641	39569		B cells	828	8.28	67047	42312		B cells	880	8.8	68300	39300
	NK cells	167	1.67	74605	50164		NK cells	182	1.82	77199	52391		NK cells	230	2.3	75206	53214		NK cells	207	2.07	78204	52080

Appendix H
Archives and study personnel

H-1. Archives

All raw data, documentation, records (including test system), protocol, and a copy of the final report generated as a result of this study will be archived in the storage facilities of the Toxicology Directorate, Army Public Health Center, for a minimum of five (5) years following submission of the final report to the Sponsor. If the report is used to support a regulatory action, it shall, along with all supporting data, be retained indefinitely.

The present study used the toxicology protocol number S.0027395-15 and animal protocol number 56-13-02-01 for all filings.

The protocol, raw data, summary data, and the final report pertaining to this study will be physically maintained within Building E-2100, USAPHC. These data may be scanned to a computer disk. Scanned study files will be stored electronically in Room 3010, Building E-2100, USAPHC, Aberdeen Proving Ground (APG), MD, 21010.

Archived SOPs and maintenance and calibration logbooks may be found in Room 1026, Building E-2100, USAPHC, APG, MD, 21010.

Archivist: Martha Thompson

H-2. Personnel

Management: Mark S Johnson, Ph.D, Portfolio Toxicology Director; Michael J Quinn, Ph.D., Program Manager, Health Effects Research Program (HERP)

Study Director: Valerie H Adams, Biologist, HERP.

Quality Assurance: Michael P Kefauver, Chemist, Quality Systems Office.

Appendix Q

Sperm Analysis

Table Q-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Individual Sperm Data
Parental Generation Male Rats

Group (mg/l)	Phase	Animal ID	Epidid. (g)	Cauda (g)	Sperm Count	Total Sperm in Sample (M)	Caudal Sperm Conc. (M/ml)	Motile Sperm Conc. (M/ml)	% Motile Sperm	Progressive Motile Conc. (M/ml)	% Progressive Motile	Sperm Per Gram (M/g)	Sperm Per Epidid
0	Main	14-0001	0.790	0.33	271.00	125.25	12.55	6.00	47.50	1.75	14.00	379.60	299.9
0	Main	14-0002	0.711	0.29	181.50	151.05	15.10	7.65	50.50	2.35	15.50	526.20	374.1
0	Main	14-0005	0.691	0.29	158.00	131.45	13.15	6.50	50.00	2.10	15.50	453.35	313.3
0	Main	14-0009	0.653	0.30	187.00	155.60	15.55	4.45	28.50	1.20	7.50	513.50	335.3
0	Main	14-0010	0.766	0.31	208.50	173.50	17.35	6.50	37.50	2.35	13.00	557.85	427.3
0	Main	14-0013	0.626	0.26	77.50	78.80	7.85	1.95	24.50	0.85	11.00	305.45	191.2
0	Main	14-0014	0.730	0.33	153.50	156.10	15.65	6.50	41.50	1.90	12.50	471.60	344.3
0	Main	14-0023	0.690	0.30	169.50	172.40	17.25	7.90	46.00	2.35	14.00	568.90	392.5
0	Main	14-0024	0.628	0.27	139.50	141.85	14.15	5.80	41.00	1.45	10.50	535.35	336.2
0	Main	14-0025	0.703	0.28	166.00	168.80	16.90	8.15	49.00	4.00	23.50	607.25	426.9
0	Main	14-0026	0.718	0.29	90.00	91.50	9.15	4.25	45.00	1.25	13.50	321.15	230.6
0	Main	14-0043	0.585	0.23	128.00	130.20	13.00	6.30	48.50	2.15	16.50	565.95	331.1
0	Main	14-0044	0.705	0.29	137.50	139.80	13.95	6.60	47.00	1.55	11.00	482.20	340.0
0	Main	14-0049	0.670	0.28	147.50	150.00	15.00	7.10	48.00	1.80	12.50	530.05	355.1
0	Main	14-0050	0.672	0.25	120.50	122.55	12.25	5.85	48.00	1.60	13.50	496.15	333.4
0	Main	14-0063	0.690	0.27	157.00	159.65	15.95	8.75	55.00	2.55	17.00	595.75	411.1
0	Main	14-0064	0.649	0.25	181.50	184.60	18.45	8.50	46.00	1.35	7.50	750.30	486.9
0	Main	14-0065	0.681	0.30	134.50	136.75	13.70	2.95	21.50	1.00	8.50	463.65	315.7
0	Main	14-0066	0.502	0.21	120.50	122.50	12.25	4.90	40.00	1.95	16.50	578.00	290.2
0	Main	14-0069	0.720	0.28	107.50	109.35	10.95	4.20	38.00	1.25	11.00	386.30	278.1
0	Main	14-0070	0.710	0.28	142.50	144.90	14.45	5.65	39.00	1.90	13.50	517.55	367.5
0	Main	14-0094	0.662	0.28	116.50	118.45	11.85	5.00	42.50	1.40	12.00	417.15	276.2
0	Main	14-0095	0.715	0.28	96.00	97.65	9.75	5.15	53.00	1.80	19.00	344.95	246.6
0	Main	14-0096	0.688	0.25	114.00	115.95	11.60	5.45	47.00	2.20	19.50	471.25	324.2
0	Main	14-0101	0.618	0.27	175.00	145.65	14.55	6.00	41.00	2.30	15.50	547.40	338.3
		Mean	**0.679**	**0.278**	**147.220**	**136.972**	**13.694**	**5.922**	**43.020**	**1.854**	**13.760**	**495.474**	**334.640**
		SD	**0.058**	**0.028**	**41.533**	**26.468**	**2.649**	**1.644**	**8.280**	**0.645**	**3.745**	**100.112**	**65.372**
		SEM	**0.012**	**0.006**	**8.307**	**5.294**	**0.530**	**0.329**	**1.656**	**0.129**	**0.749**	**20.022**	**13.074**
144	Main	14-0007	0.705	0.30	188.50	156.85	15.65	7.40	47.50	2.25	14.50	517.65	364.9
144	Main	14-0008	0.639	0.26	190.50	158.50	15.85	6.35	40.50	2.35	15.00	611.95	391.0
144	Main	14-0015	0.608	0.26	174.00	144.75	14.50	5.70	40.00	1.75	12.50	554.70	337.3

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144	Main	14-0016	0.615	0.25	152.00	126.50	12.65	5.80	46.00	1.80	14.50	507.90	312.4
144	Main	14-0035	0.702	0.32	164.00	166.75	16.70	5.55	33.00	1.60	9.50	529.45	371.7
144	Main	14-0036	0.789	0.36	213.50	217.15	21.75	9.05	42.00	2.80	13.50	613.35	483.9
144	Main	14-0045	0.772	0.31	184.00	187.10	18.70	9.15	49.00	2.10	11.00	599.75	463.0
144	Main	14-0046	0.689	0.31	124.50	126.60	12.65	5.15	39.00	1.35	11.00	409.75	282.3
144	Main	14-0047	0.764	0.33	127.00	129.15	12.90	7.25	56.00	2.05	16.00	392.55	299.9
144	Main	14-0048	0.697	0.28	131.50	133.75	13.35	4.35	31.50	1.05	7.50	481.05	335.3
144	Main	14-0051	0.657	0.24	138.00	140.35	14.00	5.95	42.50	1.90	13.50	584.75	384.2
144	Main	14-0052	0.779	0.33	194.50	197.80	19.75	7.40	37.50	2.35	12.00	606.75	472.7
144	Main	14-0053	0.723	0.28	215.50	100.82	21.90	7.10	31.50	2.45	11.50	777.10	561.8
144	Main	14-0054	0.698	0.28	177.50	180.55	18.05	6.60	36.50	1.60	9.00	656.40	458.2
144	Main	14-0067	0.648	0.29	142.00	144.45	14.45	6.05	42.00	2.25	16.00	497.95	322.7
144	Main	14-0068	0.727	0.29	110.50	112.35	11.25	2.65	24.50	0.80	7.50	392.90	285.6
144	Main	14-0071	0.644	0.26	127.50	129.65	12.95	5.95	46.00	1.75	14.00	506.50	326.2
144	Main	14-0072	0.730	0.32	148.50	151.00	15.10	6.80	45.00	2.60	17.00	467.55	341.3
144	Main	14-0075	0.777	0.27	111.50	113.40	11.35	6.25	55.50	2.05	18.50	415.35	322.7
144	Main	14-0076	0.659	0.26	93.50	95.10	9.55	4.40	46.00	1.05	11.00	367.15	242.0
144	Main	14-0078	0.727	0.30	94.00	95.60	9.90	4.55	47.00	1.65	17.50	321.85	234.0
144	Main	14-0081	0.734	0.29	127.00	129.15	12.90	5.65	43.50	2.20	17.00	453.20	332.6
144	Main	14-0082	0.695	0.30	92.00	93.55	9.40	4.65	49.50	1.55	17.00	317.15	220.4
144	Main	14-0089	0.783	0.34	100.50	102.20	10.25	3.95	38.50	1.75	17.50	305.10	238.9
144	Main	14-0090	0.492	0.20	33.50	34.05	3.40	0.80	24.00	0.30	8.00	170.35	83.8
		Mean	**0.698**	**0.288**	**142.220**	**134.685**	**13.956**	**5.780**	**41.360**	**1.814**	**13.280**	**482.326**	**338.753**
		SD	**0.068**	**0.035**	**43.839**	**39.000**	**4.161**	**1.811**	**8.159**	**0.585**	**3.379**	**132.764**	**100.686**
		SEM	**0.014**	**0.007**	**8.768**	**7.800**	**0.832**	**0.362**	**1.632**	**0.117**	**0.676**	**26.553**	**20.137**
720	Main	14-0003	0.646	0.29	82.00	68.25	6.80	4.70	69.00	2.05	30.00	233.65	150.9
720	Main	14-0004	0.878	0.34	128.00	106.50	10.65	6.35	59.00	1.65	15.50	315.10	276.7
720	Main	14-0017	0.649	0.27	133.00	110.70	11.05	4.45	41.00	1.05	9.50	409.85	266.0
720	Main	14-0018	0.680	0.34	180.50	150.20	15.00	7.10	47.00	2.70	18.00	446.95	303.9
720	Main	14-0029	0.353	0.13	33.50	27.85	2.80	0.00	0.00	0.00	0.00	217.75	76.9
720	Main	14-0030	0.518	0.26	130.00	108.15	10.80	4.20	39.50	1.50	14.00	419.30	217.2
720	Main	14-0031	0.611	0.22	155.00	157.60	15.80	6.95	44.50	2.20	14.00	716.50	437.8
720	Main	14-0032	0.668	0.29	165.50	168.30	16.85	6.35	37.50	2.65	15.50	580.35	387.7
720	Main	14-0033	0.662	0.29	164.00	166.75	16.70	6.10	37.00	1.60	9.50	581.10	384.7
720	Main	14-0034	0.721	0.26	194.00	197.30	19.70	6.35	32.50	1.85	9.50	753.00	542.9
720	Main	14-0037	0.696	0.25	126.50	128.65	12.85	5.70	44.00	1.50	12.00	510.50	355.3
720	Main	14-0038	0.760	0.31	156.00	158.60	15.90	7.05	45.00	1.70	10.50	516.75	392.7
720	Main	14-0055	0.718	0.29	178.00	181.00	18.10	6.10	36.50	1.40	8.50	624.20	448.2
720	Main	14-0056	0.591	0.24	153.00	155.60	15.60	6.25	40.50	1.55	10.00	640.30	378.4
720	Main	14-0057	0.771	0.33	204.50	207.95	20.80	8.30	40.00	2.95	14.50	624.50	481.5
720	Main	14-0058	0.572	0.26	167.00	169.85	17.00	6.25	37.00	2.00	12.00	645.75	369.4
720	Main	14-0061	0.741	0.31	181.00	184.10	18.40	9.05	49.50	2.35	13.00	599.60	444.3
720	Main	14-0062	0.691	0.27	117.50	119.45	11.95	6.15	51.50	2.35	20.50	437.70	302.5

720	Main	14-0073	0.681	0.29	110.50	112.35	11.25	5.15	46.00	1.75	16.00	390.20	265.7
720	Main	14-0074	0.657	0.26	87.50	88.95	8.90	5.05	56.50	1.75	19.50	348.95	229.3
720	Main	14-0083	0.613	0.23	133.00	135.25	13.50	5.65	42.00	1.95	15.00	580.50	355.8
720	Main	14-0084	0.692	0.25	93.00	94.60	9.45	5.00	52.50	1.35	14.50	384.45	266.0
720	Main	14-0093	0.670	0.26	80.50	81.85	8.20	4.60	58.00	1.25	17.00	312.50	209.4
720	Main	14-0097	0.649	0.26	81.50	82.85	8.30	3.90	50.00	1.55	21.50	322.50	209.3
720	Main	14-0098	0.664	0.28	121.50	123.60	12.35	6.15	50.00	2.30	19.00	442.85	294.1
		Mean	**0.662**	**0.271**	**134.260**	**131.450**	**13.148**	**5.716**	**44.240**	**1.798**	**14.360**	**482.192**	**321.859**
		SD	**0.096**	**0.043**	**42.081**	**44.136**	**4.416**	**1.694**	**12.537**	**0.607**	**5.649**	**148.452**	**109.307**
		SEM	**0.019**	**0.009**	**8.416**	**8.827**	**0.883**	**0.339**	**2.507**	**0.121**	**1.130**	**29.690**	**21.861**
3600	Main	14-0011	0.498	0.21	70.00	58.25	5.80	0.45	7.50	0.15	2.00	274.75	136.8
3600	Main	14-0012	0.641	0.26	201.50	167.65	16.75	4.70	28.50	1.20	7.50	639.95	410.2
3600	Main	14-0019	0.659	0.26	155.00	129.00	12.85	4.75	37.00	1.00	8.00	497.95	328.1
3600	Main	14-0020	0.620	0.22	139.50	116.05	11.60	3.95	34.50	1.05	9.00	530.00	328.6
3600	Main	14-0021	0.645	0.27	146.00	148.50	14.80	6.85	46.00	2.10	14.50	554.00	357.3
3600	Main	14-0022	0.587	0.22	83.00	84.45	8.40	2.00	24.50	0.45	5.50	376.80	221.2
3600	Main	14-0027	0.632	0.26	170.50	173.40	17.35	7.65	44.00	2.30	13.00	664.30	419.8
3600	Main	14-0028	0.611	0.22	132.00	134.25	13.40	4.50	33.00	0.70	5.50	621.45	379.7
3600	Main	14-0039	0.637	0.25	137.50	139.85	13.95	5.95	42.50	1.70	12.50	552.70	352.1
3600	Main	14-0040	0.653	0.26	143.00	145.40	14.55	7.05	49.00	1.90	13.00	559.35	365.3
3600	Main	14-0041	0.718	0.25	69.50	70.70	7.05	4.55	64.50	1.10	18.50	282.70	203.0
3600	Main	14-0042	0.460	0.16	53.00	53.90	5.40	1.20	21.50	0.35	6.00	339.00	155.9
3600	Main	14-0059	0.615	0.26	114.50	116.45	11.65	5.30	45.50	2.10	18.50	447.85	275.4
3600	Main	14-0060	0.633	0.23	161.50	164.25	16.45	4.90	30.00	1.95	12.00	707.90	448.1
3600	Main	14-0077	0.663	0.28	115.00	116.95	11.70	5.60	48.00	1.90	16.50	411.80	273.0
3600	Main	14-0079	0.644	0.22	103.00	104.75	10.50	4.55	43.00	1.25	12.50	484.95	312.3
3600	Main	14-0080	0.596	0.21	91.50	93.05	9.30	4.45	47.50	1.50	16.00	443.10	264.1
3600	Main	14-0085	0.700	0.26	62.50	63.55	6.35	0.10	1.50	0.05	1.00	240.75	168.5
3600	Main	14-0086	0.474	0.15	26.00	26.40	2.65	0.20	7.00	0.10	3.00	172.80	81.9
3600	Main	14-0087	0.674	0.26	125.50	127.60	12.75	6.75	53.00	2.45	19.00	485.25	327.1
3600	Main	14-0088	0.590	0.17	67.00	68.15	6.80	4.05	59.50	1.60	24.00	405.60	239.3
3600	Main	14-0091	0.604	0.23	102.00	103.75	10.40	5.05	49.50	1.90	19.50	443.30	267.8
3600	Main	14-0092	0.733	0.33	66.50	67.65	6.75	4.15	60.50	1.55	23.50	208.10	152.5
3600	Main	14-0099	0.673	0.27	120.00	122.00	12.20	5.55	45.50	1.95	16.50	458.75	308.7
3600	Main	14-0100	0.724	0.31	128.00	130.20	13.00	4.55	35.00	1.15	9.00	426.80	309.0
		Mean	**0.627**	**0.241**	**111.340**	**109.046**	**10.896**	**4.352**	**38.320**	**1.338**	**12.240**	**449.196**	**283.434**
		SD	**0.069**	**0.041**	**42.129**	**39.208**	**3.920**	**2.083**	**16.424**	**0.718**	**6.476**	**141.722**	**95.260**
		SEM	**0.014**	**0.008**	**8.426**	**7.842**	**0.784**	**0.417**	**3.285**	**0.144**	**1.295**	**28.344**	**19.052**
0	Recovery	14-0006	0.760	0.36	133.50	259.20	51.85	15.70	30.50	3.50	7.00	720.00	547.2
0	Recovery	14-0102	1.022	0.43	133.50	259.20	51.85	23.70	45.50	8.20	15.50	607.05	620.4
0	Recovery	14-0105	0.728	0.36	146.00	283.50	56.70	28.55	50.50	9.70	17.00	791.90	576.5
0	Recovery	14-0106	0.747	0.30	59.00	114.60	11.45	7.65	66.50	2.30	20.00	379.45	283.4

0	Recovery	14-0109	0.778	0.34	71.00	137.85	13.80	9.90	71.50	4.00	29.00	411.50	320.1
0	Recovery	14-0110	0.654	0.27	92.00	178.60	17.85	10.20	57.50	2.60	15.00	663.95	434.2
0	Recovery	14-0113	0.864	0.32	96.50	187.35	18.75	10.45	55.50	4.30	22.50	591.00	510.6
0	Recovery	14-0114	0.832	0.34	111.50	216.50	21.65	11.55	53.50	3.50	16.00	629.25	523.5
0	Recovery	14-0119	0.715	0.30	87.50	169.90	16.95	10.70	63.50	3.80	22.50	566.25	404.9
0	Recovery	14-0120	0.855	0.32	95.00	184.40	18.40	10.35	56.00	2.80	15.00	569.30	486.8
		Mean	**0.796**	**0.334**	**102.550**	**199.110**	**27.925**	**13.875**	**55.050**	**4.470**	**17.950**	**592.965**	**470.771**
		SD	**0.103**	**0.043**	**28.298**	**54.943**	**17.889**	**6.855**	**11.534**	**2.468**	**5.923**	**125.637**	**109.288**
		SEM	**0.033**	**0.014**	**8.949**	**17.375**	**5.657**	**2.168**	**3.647**	**0.781**	**1.873**	**39.730**	**34.560**
3600	Recovery	14-0103	0.671	0.27	71.50	138.80	13.90	8.95	65.00	3.10	23.00	514.15	345.0
3600	Recovery	14-0104	0.804	0.27	73.00	141.75	14.20	8.85	62.00	1.75	12.00	532.80	428.4
3600	Recovery	14-0107	0.646	0.30	94.00	182.50	18.25	11.15	61.00	3.60	20.00	606.35	391.7
3600	Recovery	14-0108	0.666	0.26	50.50	98.05	9.80	6.40	66.00	2.00	21.50	380.05	253.1
3600	Recovery	14-0111	0.593	0.24	58.00	112.60	11.30	7.10	62.50	2.10	19.00	477.15	282.9
3600	Recovery	14-0112	0.721	0.29	87.00	168.90	16.85	10.00	59.00	4.40	26.00	580.45	418.5
3600	Recovery	14-0115	0.690	0.25	108.50	210.65	21.05	12.25	58.50	4.00	19.00	829.35	572.3
3600	Recovery	14-0116	0.742	0.26	96.50	187.35	18.75	11.00	59.50	3.40	18.50	717.85	532.6
3600	Recovery	14-0117	0.831	0.32	83.50	162.10	16.20	9.40	58.50	4.05	26.00	506.60	421.0
3600	Recovery	14-0118											
		Mean	**0.707**	**0.273**	**80.278**	**155.856**	**15.589**	**9.456**	**61.333**	**3.156**	**20.556**	**571.639**	**405.057**
		SD	**0.076**	**0.026**	**18.764**	**36.428**	**3.632**	**1.900**	**2.784**	**0.984**	**4.312**	**134.049**	**104.279**
		SEM	**0.025**	**0.009**	**6.255**	**12.143**	**1.211**	**0.633**	**0.928**	**0.328**	**1.437**	**44.683**	**34.760**

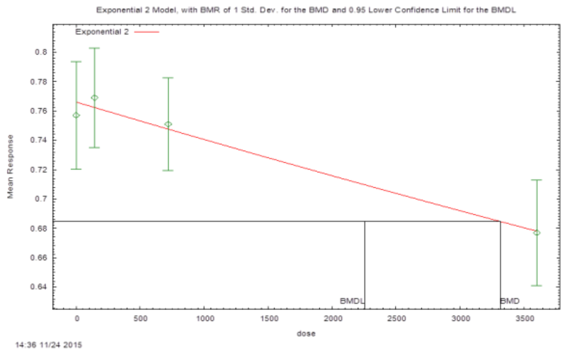
Appendix R

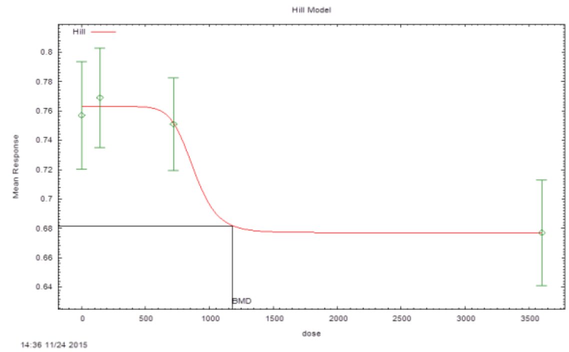
Benchmark Dose Modeling

Table R-1
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
Parental Generation Male Rats
Epididymal Mass

Continuous

Model Name	Estimates+Scaled Res.	Inputs+Estimates+Scaled Res.	Specified Effect	Risk Type	BMD	BMDL	p-value Test 1: Lack dose response?	p-value Test 2: Constant variance?	p-value Test 3: Good variance model?	p-value for fit: Does the model for the mean fit?	AIC	Scaled residual for dose group nearest the BMD	Scaled residual for control group
Exponential2	Array		1	SD	3315.85	2257.64	0.005289	0.8806	0.7482	0.7503	-391.9068	-0.06628	-0.5547
Exponential3	Array		1	SD	3452.55	2289.32	0.005289	0.8806	0.7482	0.5473	-390.1192	0.009547	-0.3414
Exponential4	Array		1	SD	3315.85	1679.24	0.005289	0.8806	0.7482	0.7503	-391.9068	-0.06628	-0.5547
Exponential5	Array		1	SD	938.762	761.795	0.005289	0.8806	0.7482	N/A	-388.1824	-0.02887	-0.3576
Hill		Array	1	SD	1180.86		0.005289	0.8806	0.7482	NA	-388.182377	-0.0289	-0.358
Linear		Array	1	SD	3332.22	2328.89	0.005289	0.8806	0.7482	0.7629	-391.940213	-0.0525	-0.537
Polynomial		Array	1	SD	3474.36	2349.28	0.005289	0.8806	0.7482	0.5289	-390.084954	0.00761	-0.347
Polynomial		Array	1	SD	3474.36	2349.28	0.005289	0.8806	0.7482	0.5289	-390.084954	0.00762	-0.347
Power		Array	1	SD	3458.64	2353.84	0.005289	0.8806	0.7482	0.5458	-390.116523	0.00939	-0.34


Exponential 2 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 2
Mean Response
dose
BMDL
BMD
14:36 11/24 2015


Hill Model
Hill
Mean Response
dose
BMD
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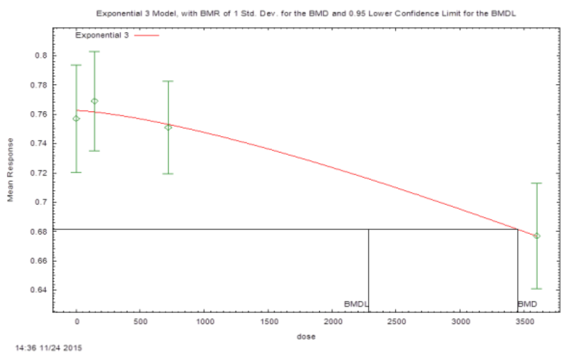
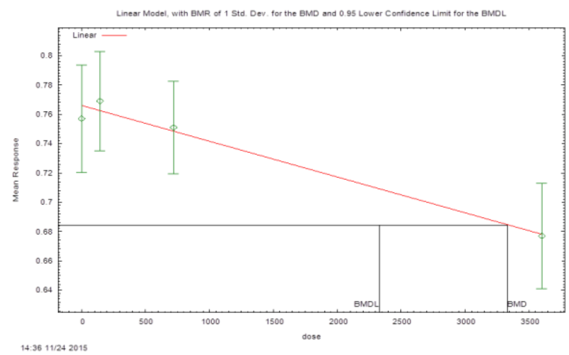

Exponential 3 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 3
Mean Response
dose
BMDL
BMD
14:36 11/24 2015


Linear Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Linear
Mean Response
dose
BMDL
BMD
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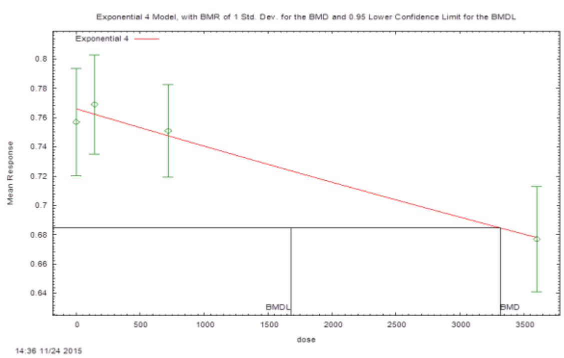
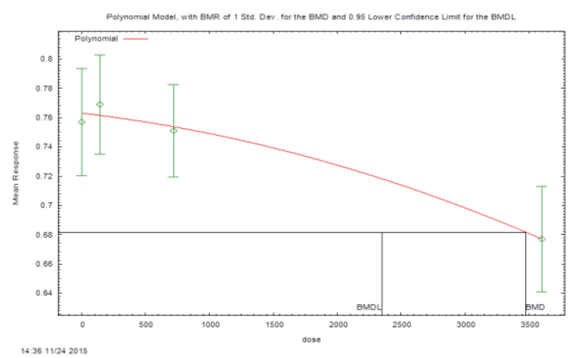
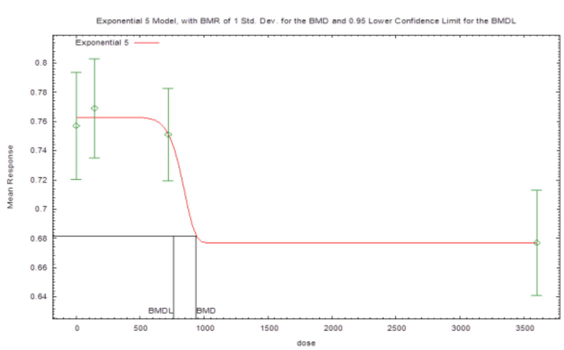
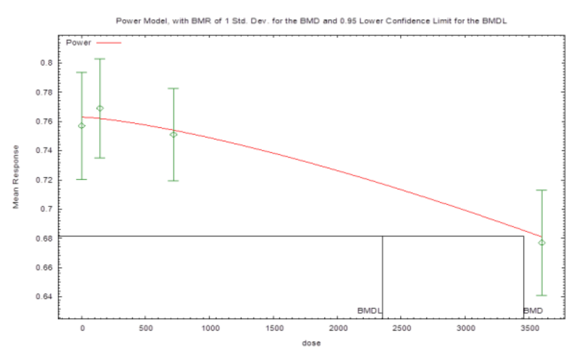

Exponential 4 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 4
Mean Response
dose
BMDL
BMD
14:36 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
dose
BMDL
BMD
14:36 11/24 2015


Exponential 5 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 5
Mean Response
dose
BMDL
BMD
14:36 11/24 2015


Power Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Power
Mean Response
dose
BMDL
BMD
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Toxicity Report No. S.0027395, February 13–March 2014

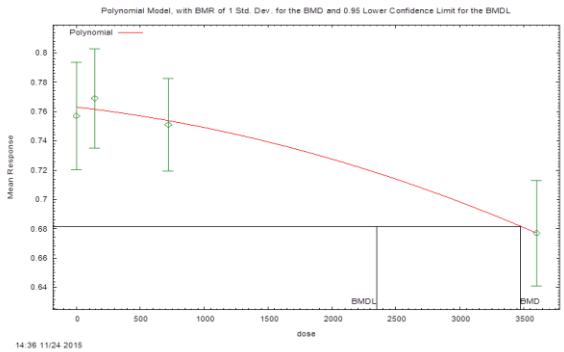
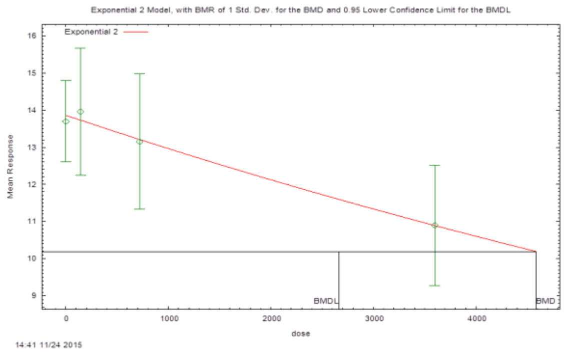
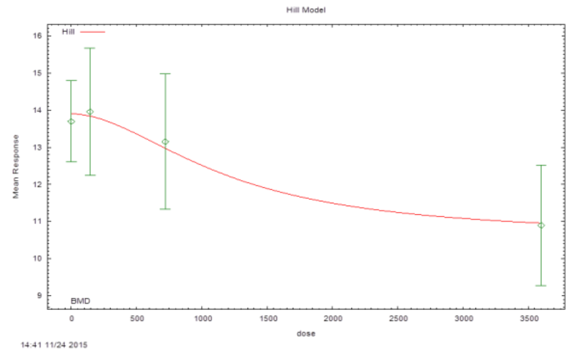


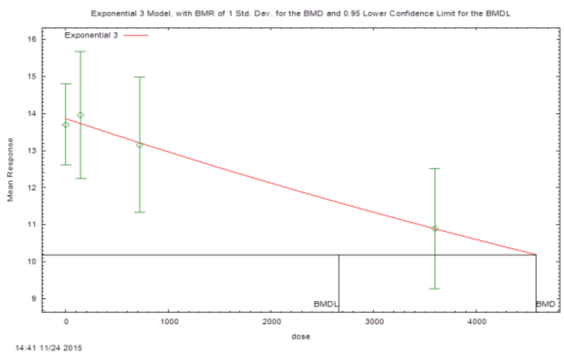
Table R-2
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
Parental Generation Male Rats
Sperm Count

Continuous

Model Name	Estimates + Scaled Res.	Inputs + Estimates + Scaled Res.	Specified Effect	Risk Typ e	BMD	BMDL	p-value Test 1: Lack dose response?	p-value Test 2: Constant variance ?	p-value Test 3: Good variance model?	p-value for fit: Does the model for the mean fit?	AIC	Scaled residual for dose group nearest the BMD	Scaled residual for control group
Exponential2	Array		1	SD	4588.14	2664.91	0.01067	0.07525	0.03508	0.9442	373.2961	0.004655	-0.2297
Exponential3	Array		1	SD	4588.14	2664.91	0.01067	0.07525	0.03508	0.9442	373.2961	0.004655	-0.2297
Exponential4	Array		1	SD	6881.62	964.195	0.01067	0.07525	0.03508	0.8928	375.1993	-0.1202	-0.3969
Exponential5	Array		1	SD	Not_Computed	0	0.01067	0.07525	0.03508	N/A	377.1811	0	NA
Hill		Array					0.01067	0.07525	0.03508	NA	377.181138	0	NA
Linear		Array	1	SD	4486.3	2829.56	0.01067	0.07525	0.03508	0.9276	373.331443	0.0107	-0.197
Polynomial		Array	1	SD	4486.31	2829.56	0.01067	0.07525	0.03508	0.9276	373.331443	0.0107	-0.197
Polynomial		Array	1	SD	4486.31	2829.56	0.01067	0.07525	0.03508	0.9276	373.331443	0.0107	-0.197
Power		Array	1	SD	4486.31	2829.56	0.01067	0.07525	0.03508	0.9276	373.331443	0.0107	-0.197


Exponential 2 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 2
Mean Response
dose
BMDL
BMD
14:41 11/24 2015


Hill Model
Hill
Mean Response
dose
BMD
14:41 11/24 2015


Exponential 3 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 3
Mean Response
dose
BMDL
BMD
14:41 11/24 2015


Linear Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Linear
Mean Response
dose
BMDL
BMD
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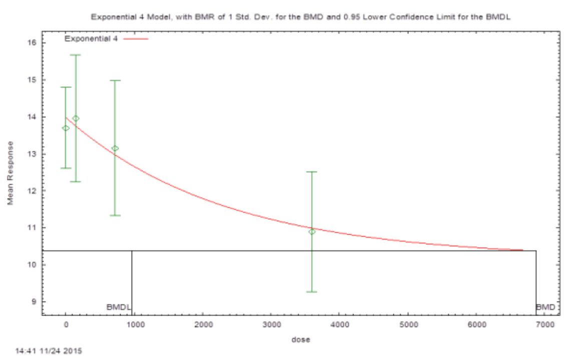
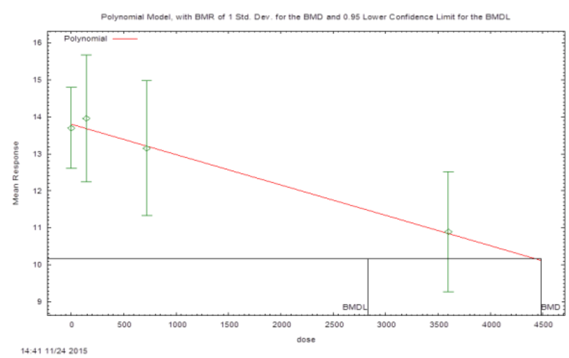

Exponential 4 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 4
Mean Response
dose
BMDL
BMD
14:41 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
dose
BMDL
BMD
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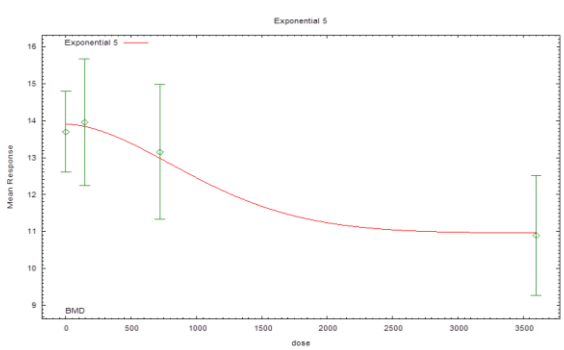
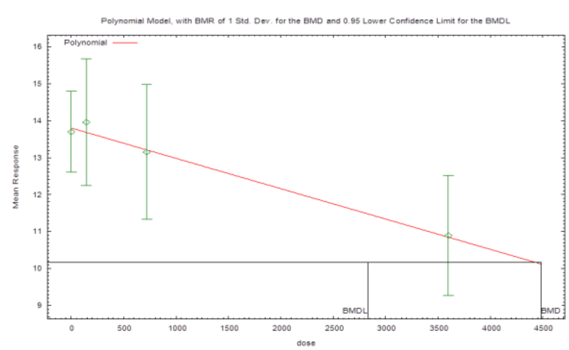

Exponential 5
Exponential 5
Mean Response
dose
BMD
14:41 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
dose
BMDL
BMD
14:41 11/24 2015

Toxicity Report No. S.0027395, February 13–March 2014

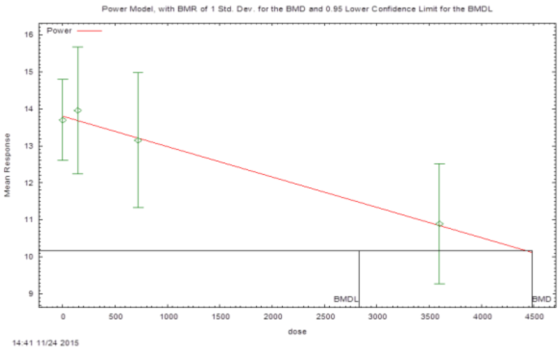
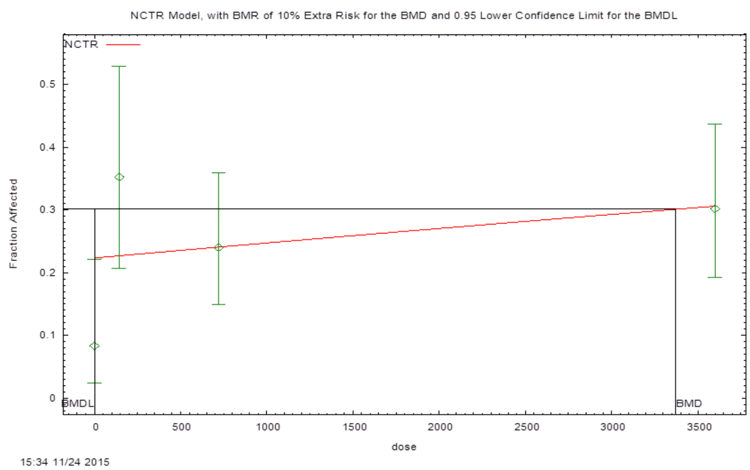
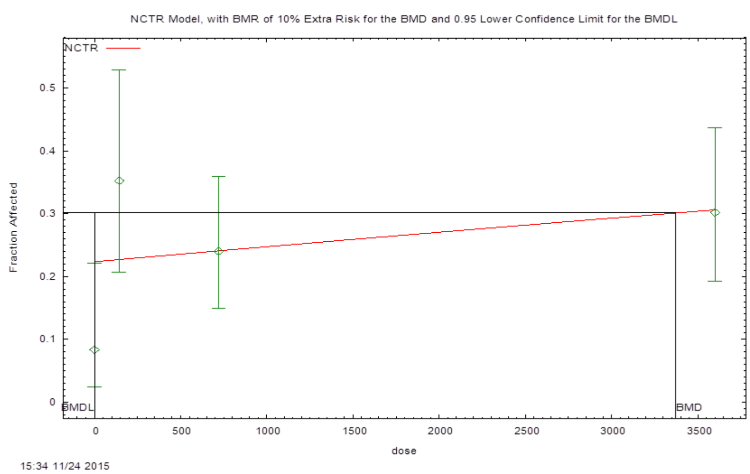


Table R-3
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
F1 Generation Male Rats
Nipple Retention

Nested_Dichotomous

Model Name	Parameter Estimates	Number of Bootstrap Iterations per run	Bootstrap Seed	Bootstrapping Results	Specified Effect	Risk Type	BMD	BMDL	AIC	Minimum scaled residual for dose group nearest the BMD	Minimum ABS (scaled residual) for dose group nearest the BMD	Average scaled residual for dose group nearest the BMD	Average ABS (scaled residual) for dose group nearest the BMD	Maximum scaled residual for dose group nearest the BMD	Maximum ABS (scaled residual) for dose group nearest the BMD	Number of litters used for scaled residual for dose group nearest the BMD
NLogistic	Array	1000	1.448E+09	Array	0.1	Extra risk	3303.69	1048.35	435.901	-1.1083	0.3379	0.4118	1.0288	2.5073	2.5073	7
NCTR	Array	1000	1.448E+09	Array	0.1	Extra risk	3373.51	0.332825	435.913	-1.1072	0.3401	0.4139	1.0303	2.5109	2.5109	7
Rai_and_Van_Ryzin	Array	1000	1.448E+09	Array	0.1	Extra risk	3373.51	0.332825	435.913	-1.185	0.3836	-0.7843	0.7843	-0.3836	1.185	2


NCTR Model, with BMR of 10% Extra Risk for the BMD and 0.95 Lower Confidence Limit for the BMDL
NCTR
Fraction Affected
0.5
0.4
0.3
0.2
0.1
0
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
15:34 11/24 2015


NCTR Model, with BMR of 10% Extra Risk for the BMD and 0.95 Lower Confidence Limit for the BMDL
NCTR
Fraction Affected
0.5
0.4
0.3
0.2
0.1
0
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
15:34 11/24 2015

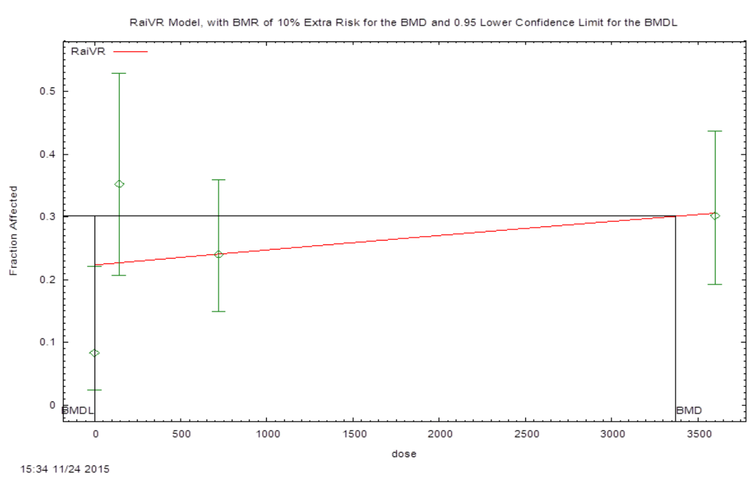
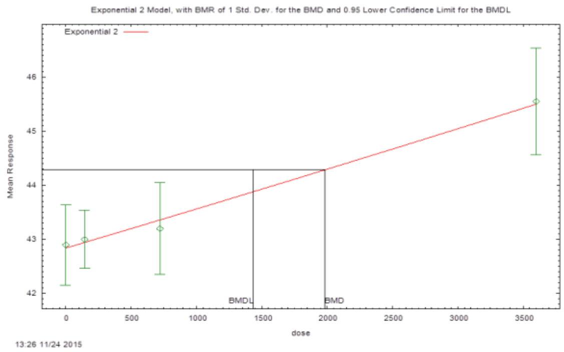
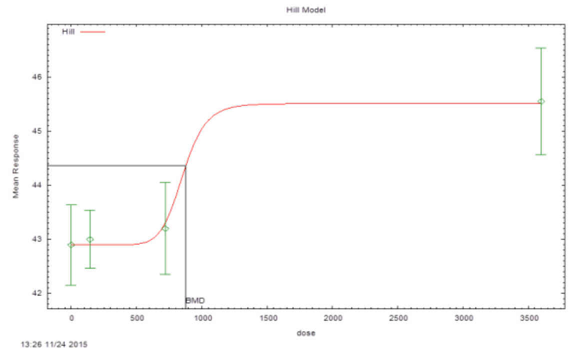

RaiVR Model, with BMR of 10% Extra Risk for the BMD and 0.95 Lower Confidence Limit for the BMDL
RaiVR
Fraction Affected
0.5
0.4
0.3
0.2
0.1
0
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
15:34 11/24 2015

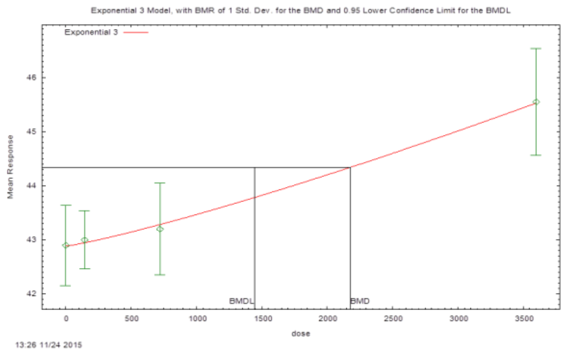
Table R-4
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
F1 Generation Male Rats
Preputial Separation

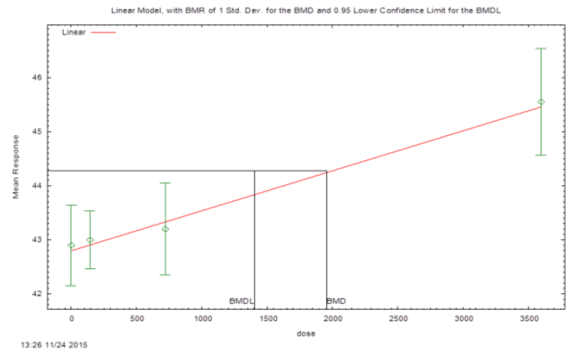
Continuous

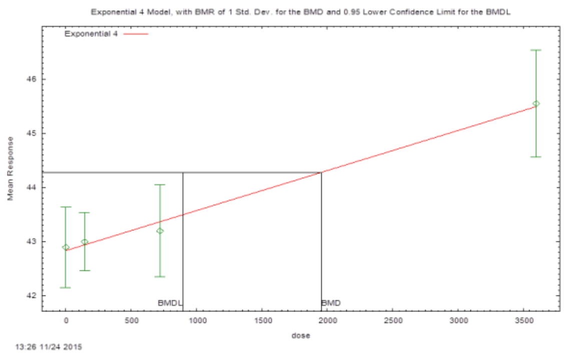
Model Name	Estimates+Scaled Res.	Inputs+Estimates+Scaled Res.	Specified Effect	Risk Type	BMD	BMDL	p-value Test 1: Lack dose response?	p-value Test 2: Constant variance?	p-value Test 3: Good variance model?	p-value for fit: Does the model for the mean fit?	AIC	Scaled residual for dose group nearest the BMD	Scaled residual for control group
Exponential2	Array		1	SD	1983.81	1437.07	< 0.0001	0.06237	0.1721	0.9197	165.5443	-0.4586	0.183
Exponential3	Array		1	SD	2180.44	1443.76	< 0.0001	0.06237	0.1721	0.772	167.4609	0.04361	0.04192
Exponential4	Array		1	SD	1955.9	895.432	< 0.0001	0.06237	0.1721	0.6684	167.5604	-0.483	0.1951
Exponential5	Array		1	SD	843.276	733.121	< 0.0001	0.06237	0.1721	N/A	169.3967	-0.3243	-0.0237
Hill		Array	1	SD	876.414		<.0001	0.06237	0.1721	NA	169.396717	-0.324	-0.0237
Linear		Array	1	SD	1956.06	1402.8	<.0001	0.06237	0.1721	0.9124	165.560318	-0.483	0.195
Polynomial		Array	1	SD	2219.62	1409.32	<.0001	0.06237	0.1721	0.7485	167.479723	0.046	0.0692
Polynomial		Array	1	SD	2219.62	1409.32	<.0001	0.06237	0.1721	0.7485	167.479723	0.046	0.0692
Power		Array	1	SD	2169.98	1411.02	<.0001	0.06237	0.1721	0.7744	167.459036	0.044	0.041

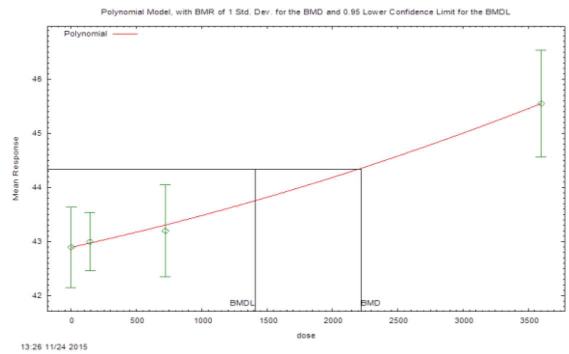

Exponential 2 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 2
Mean Response
BMDL
BMD
dose
13:26 11/24 2015

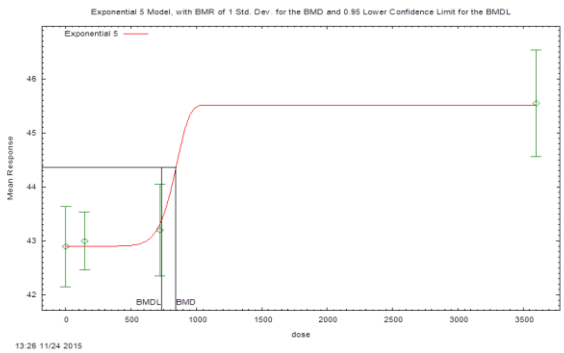

Hill Model
Hill
Mean Response
BMD
dose
13:26 11/24 2015

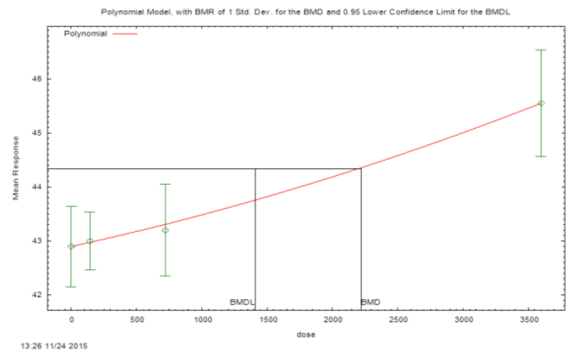

Exponential 3 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 3
Mean Response
BMDL
BMD
dose
13:26 11/24 2015


Linear Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Linear
Mean Response
BMDL
BMD
dose
13:26 11/24 2015


Exponential 4 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 4
Mean Response
BMDL
BMD
dose
13:26 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
BMDL
BMD
dose
13:26 11/24 2015


Exponential 5 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 5
Mean Response
BMDL
BMD
dose
13:26 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
BMDL
BMD
dose
13:26 11/24 2015

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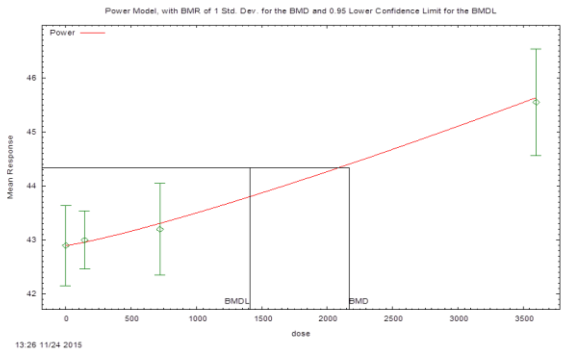
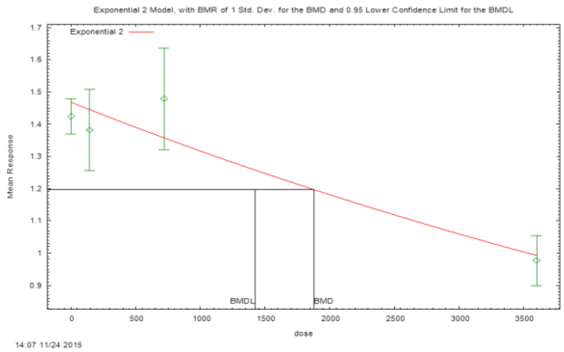
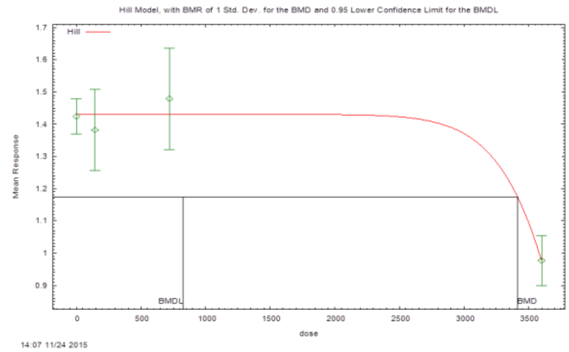


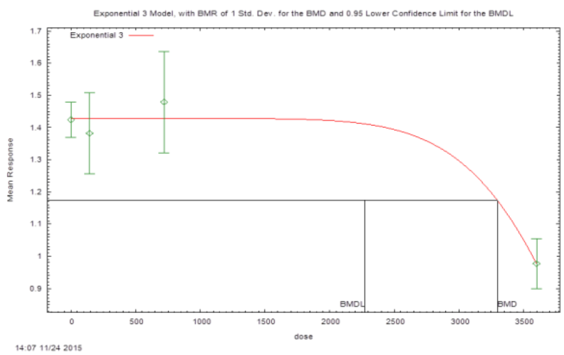
Table R-5
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
F1 Generation Male Rats
Testes Mass

Continuous

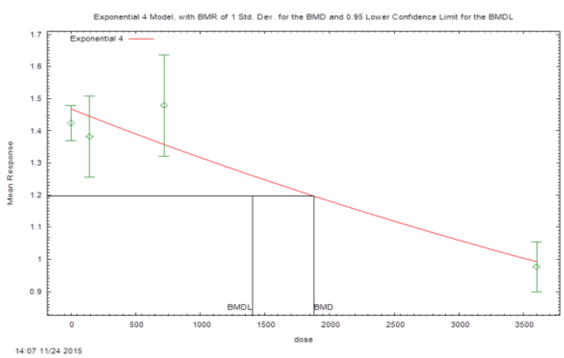
Model Name	Estimates + Scaled Res.	Inputs + Estimates + Scaled Res.	Specified Effect	Risk Type	BMD	BMDL	p-value Test 1: Lack dose response?	p-value Test 2: Constant variance?	p-value Test 3: Good variance model?	p-value for fit: Does the model for the mean fit?	AIC	Scaled residual for dose group nearest the BMD	Scaled residual for control group
Exponential2	Array		1	SD	1879.04	1424.71	< 0.0001	< 0.0001	0.0001637	0.003426	-140.9125	2.173	-0.7256
Exponential3	Array		1	SD	3297.39	2273.79	< 0.0001	< 0.0001	0.0001637	0.06806	-146.936	-0.000107	-0.07603
Exponential4	Array		1	SD	1879.04	1406.98	< 0.0001	< 0.0001	0.0001637	0.003426	-140.9125	2.173	-0.7256
Exponential5	Array		1	SD	3411.71	2258.71	< 0.0001	< 0.0001	0.0001637	N/A	-144.9361	-2.30E-08	-0.07605
Hill		Array	1	SD	3415.05	827.844	<.0001	<.0001	0.0001637	NA	-144.936135	5.28E-07	-0.076
Linear		Array	1	SD	2024.22	1604.47	<.0001	<.0001	0.0001637	0.007146	-142.38272	1.97	-0.674
Polynomial		Array	1	SD	2702.56	2421	<.0001	<.0001	0.0001637	0.1118	-147.883483	-0.0239	-0.183
Polynomial		Array	1	SD	2975.06	2465.09	<.0001	<.0001	0.0001637	0.1713	-148.736426	-0.00398	-0.0969
Power		Array	1	SD	3454.1	2347.57	<.0001	<.0001	0.0001637	0.06806	-146.936135	-4.68E-10	-0.076

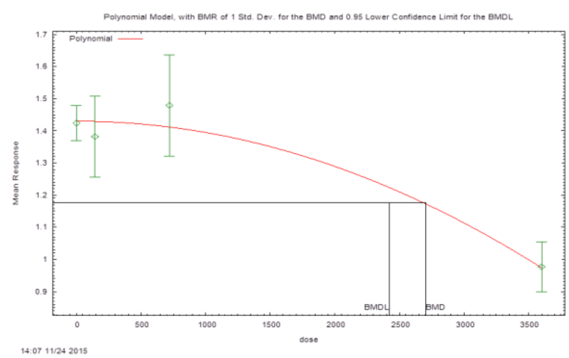

Exponential 2 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 2
Mean Response
BMDL
BMD
dose
14:07 11/24 2015

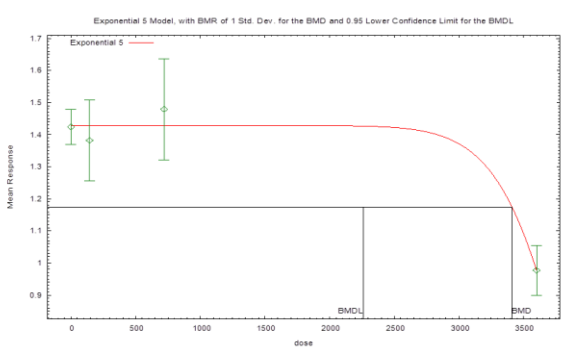

Hill Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Hill
Mean Response
BMDL
BMD
dose
14:07 11/24 2015

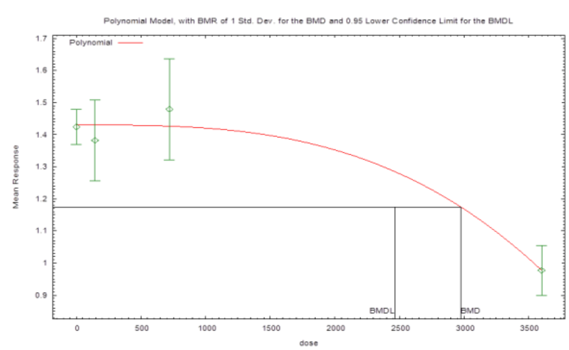

Exponential 3 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 3
Mean Response
BMDL
BMD
dose
14:07 11/24 2015


Linear Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Linear
Mean Response
BMDL
BMD
dose
14:07 11/24 2015


Exponential 4 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 4
Mean Response
BMDL
BMD
dose
14:07 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
BMDL
BMD
dose
14:07 11/24 2015


Exponential 5 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 5
Mean Response
BMDL
BMD
dose
14:07 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
BMDL
BMD
dose
14:07 11/24 2015

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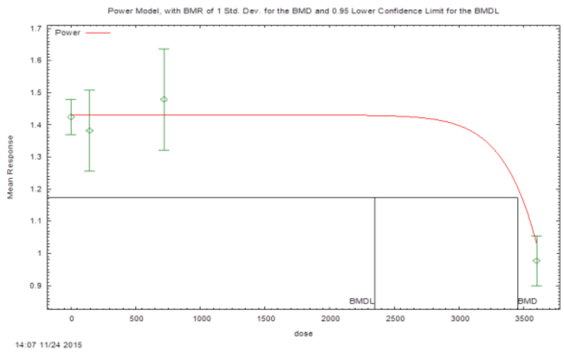
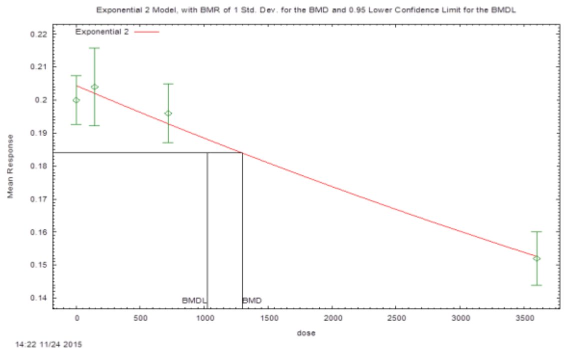
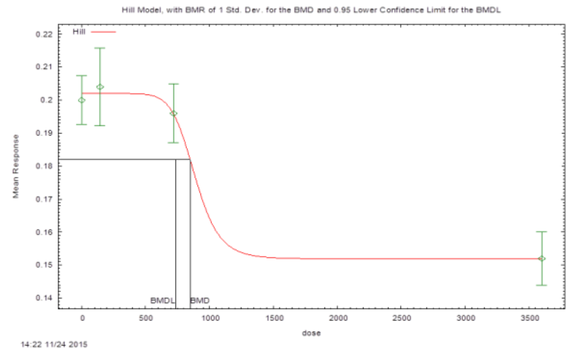


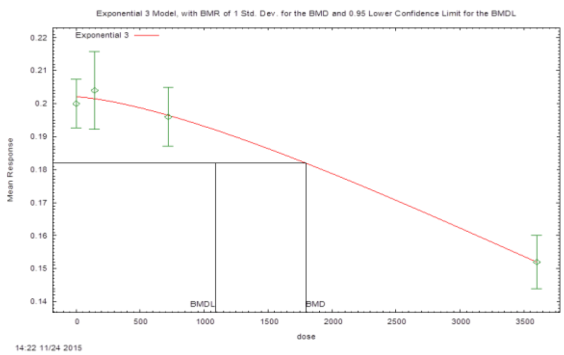
Table R-6
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
F1 Generation Male Rats
Epididymides Mass

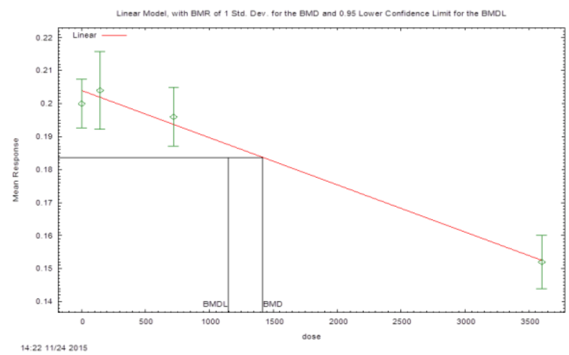
Continuous

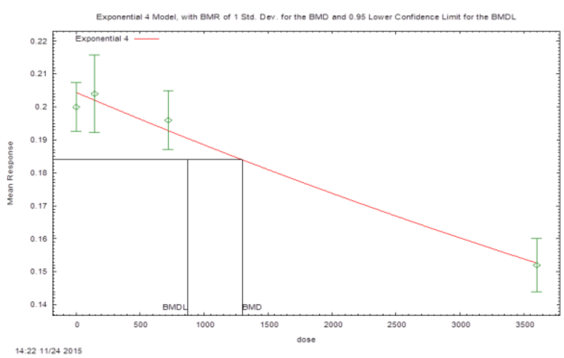
Model Name	Estimates + Scaled Res.	Inputs + Estimates + Scaled Res.	Specified Effect	Risk Type	BMD	BMDL	p-value Test 1: Lack dose response?	p-value Test 2: Constant variance?	p-value Test 3: Good variance model?	p-value for fit: Does the model for the mean fit?	AIC	Scaled residual for dose group nearest the BMD	Scaled residual for control group
Exponential2	Array		1	SD	1298.06	1027.38	< 0.0001	0.1387	0.116	0.3563	-544.2304	0.7192	-0.9721
Exponential3	Array		1	SD	1795.82	1087.94	< 0.0001	0.1387	0.116	0.3519	-543.4275	-0.1044	-0.4585
Exponential4	Array		1	SD	1298.06	872.975	< 0.0001	0.1387	0.116	0.3563	-544.2304	0.7192	-0.9721
Exponential5	Array		1	SD	819.967	734.503	< 0.0001	0.1387	0.116	N/A	-541.6087	0.03623	-0.4614
Hill		Array	1	SD	849.514	737.552	<.0001	0.1387	0.116	NA	-541.608742	0.0362	-0.461
Linear		Array	1	SD	1418.77	1148.48	<.0001	0.1387	0.116	0.4383	-544.644197	0.528	-0.879
Polynomial		Array	1	SD	1946.81	1179.18	<.0001	0.1387	0.116	0.319	-543.301123	-0.145	-0.478
Polynomial		Array	1	SD	1946.8	1179.18	<.0001	0.1387	0.116	0.319	-543.301123	-0.145	-0.478
Power		Array	1	SD	3430.17	1134.52	<.0001	0.1387	0.116	0.3701	-544.306262	-2.90E-07	-4.48E-07

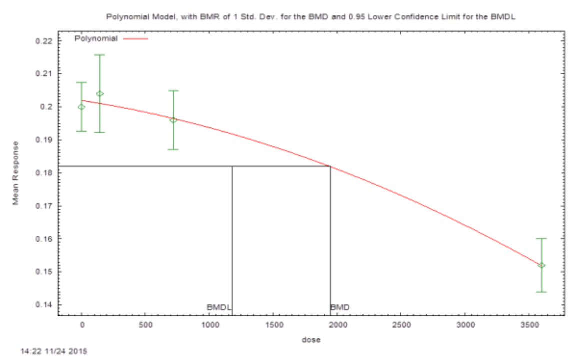

Exponential 2 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 2
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015

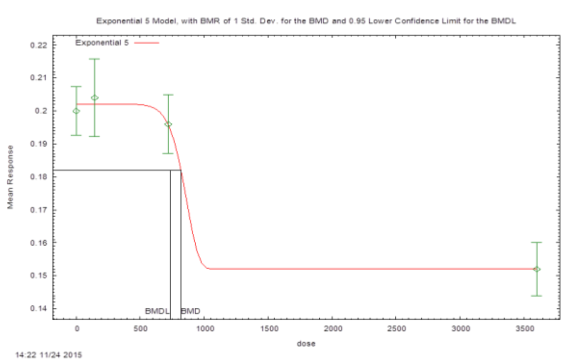

Hill Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Hill
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015

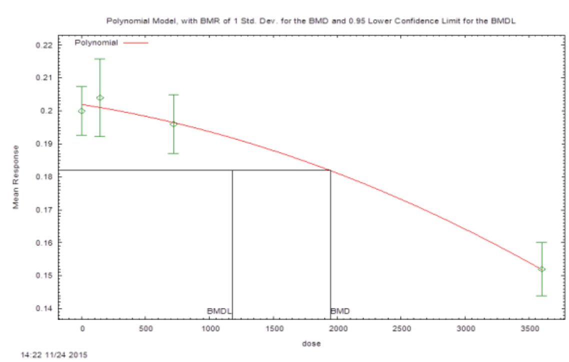

Exponential 3 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 3
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015


Linear Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Linear
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015


Exponential 4 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 4
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015


Exponential 5 Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Exponential 5
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015


Polynomial Model, with BMR of 1 Std. Dev. for the BMD and 0.95 Lower Confidence Limit for the BMDL
Polynomial
Mean Response
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
BMDL
BMD
0
500
1000
1500
2000
2500
3000
3500
dose
14:22 11/24 2015

Toxicity Report No. S.0027395, February 13–March 2014

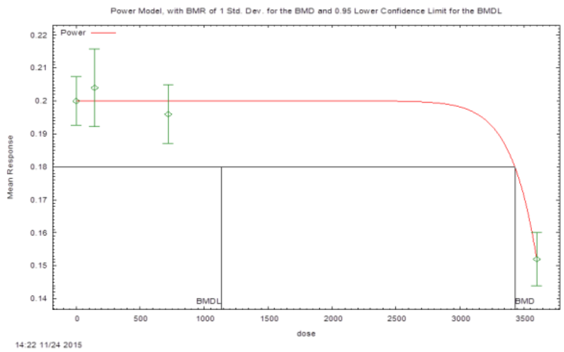


Table R-7
Protocol No. 56-13-02-01
Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)
Benchmark Dose Modeling
Parental Generation Male Rats
SVCG Mass

Continuous

Model Name	Estimates + Scaled Res.	Inputs + Estimates + Scaled Res.	Specified Effect	Risk Type	BMD	BMDL	p-value Test 1: Lack dose response?	p-value Test 2: Constant variance?	p-value Test 3: Good variance model?	p-value for fit: Does the model for the mean fit?	AIC	Scaled residual for dose group nearest the BMD	Scaled residual for control group
Exponential2	Array		1	SD	6350.27	3354.43	0.0003879	0.007494	0.06638	0.001965	-286.1672	0.3112	1.887
Exponential3	Array		1	SD	6350.27	3354.43	0.0003879	0.007494	0.06638	0.001965	-286.1672	0.3112	1.887
Exponential4	Array		1	SD	Not_Computed	0	0.0003879	0.007494	0.06638	0.3544	-295.774	0	NA
Exponential5	Array		1	SD	Not_Computed	0	0.0003879	0.007494	0.06638	N/A	-293.8813	0	NA
Hill		Array					0.0003879	0.007494	0.06638	NA	-293.881327	0	NA
Linear		Array	1	SD	6106.21	3488.58	0.0003879	0.007494	0.06638	0.001771	-285.959121	0.257	1.93
Polynomial		Array	1	SD	6106.21	3488.58	0.0003879	0.007494	0.06638	0.001771	-285.959121	0.257	1.93
Polynomial		Array	1	SD	6106.2	3488.58	0.0003879	0.007494	0.06638	0.001771	-285.959121	0.257	1.93
Power		Array	1	SD	6106.2	3488.58	0.0003879	0.007494	0.06638	0.001771	-285.959121	0.257	1.93

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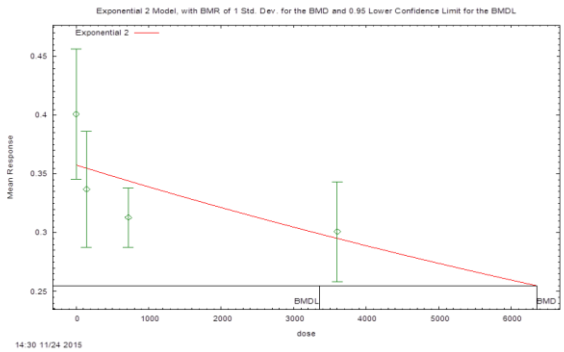

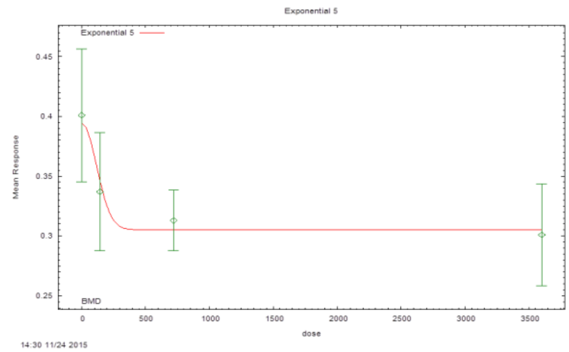

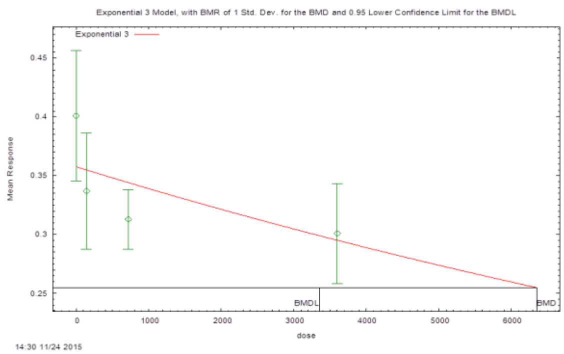

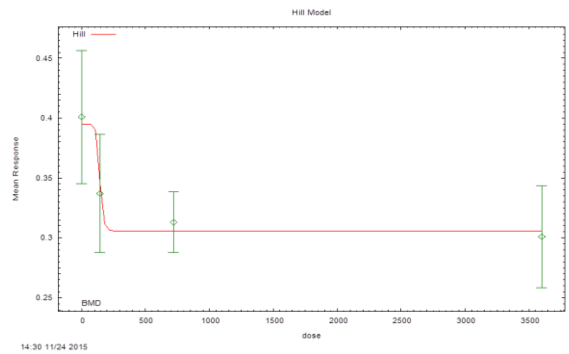

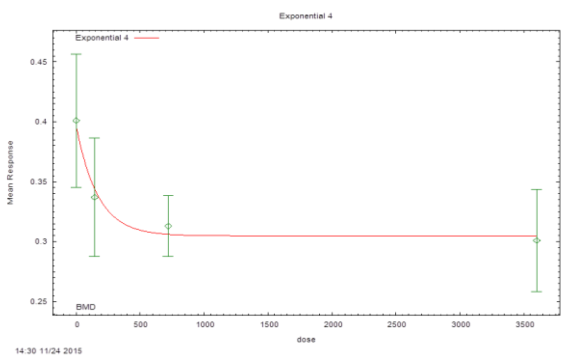

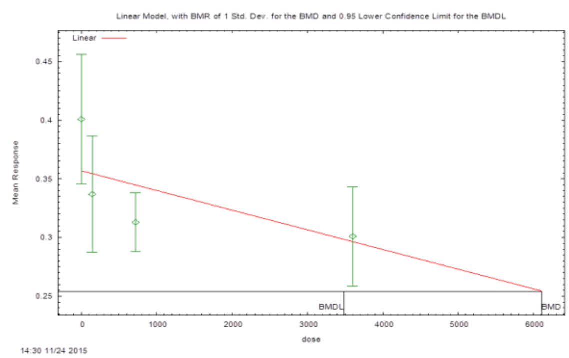

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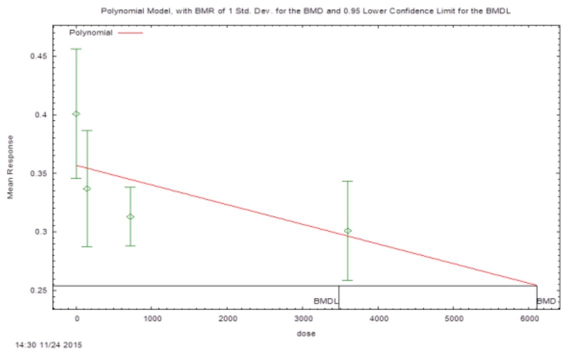

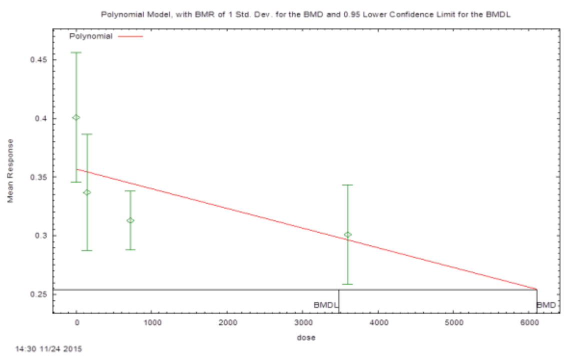

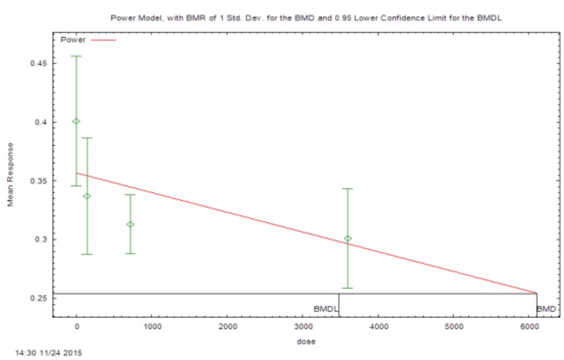

Appendix S

Study Protocol with Modification

ANIMAL USE PROTOCOL
ARMY INSTITUTE OF PUBLIC HEALTH
U.S. ARMY PUBLIC HEALTH COMMAND
ABERDEEN PROVING GROUND, MD 21010-5403

PROTOCOL TITLE: Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

PROTOCOL NUMBER: 56-13-Ø2-Ø1

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ACRONYMS:

AAALAC: Association for Assessment and Accreditation of Laboratory Animal Care International
AGD: anogenital distance
AIPH: Army Institute of Public Health
ALB: albumin
ALK P: alkaline phosphatase
ALT: alanine aminotransferase
AST: aspartate aminotransferase
ANCOVA: Analysis of Covariance
ANOVA: Analysis of Variance
BRD: Biomedical Research Database
BUN: Blood Urea Nitrogen
CFR: Code of Federal Regulations
CHOL: cholesterol
Cy5: cyanine 5
DOAC: DTIC Online Access Controlled
DOD: Department of Defense
ELISA: Enzyme-Linked Immunosorbent Assay
ESTCP: Environmental Security Technology Certification Program
F1: first generation
F2: second generation
FEDRIP: Federal Research in Progress
FITC: fluorescein isothiocyanate
GD: gestation day
GLP: Good Laboratory Practice
GLU: glucose
IAW: in accordance with
IM: insensitive munitions
LD: lactation day
LS: Laboratory Sciences Portfolio
NTO: 3-nitro-1,2,4-triazol-5-one
OECD: Organisation for Economic Co-operation and Development
P: parental generation
PAX: Picatinnay Arsenal eXplosive
PBS: phosphate buffered saline

PE: phycoerythrin
PND: post natal day
PPS: preputial separation
QC: quality control
RDX: Research Department Explosive or Royal Demolition Explosive
RPMI-1640: Roswell Park Memorial Institute-1640
SERDP: Strategic Environmental Research and Development Program
SOP: Standing Operating Procedure
T4: thyroxine
TMB: 3,3',5,5'-Tetra-Methyl-Benzidine
TNT: trinitrotoluene
TOX: Portfolio of Toxicology
TP: total protein
TSCA: Toxic Substance Control Act
TSH: thyroid stimulating hormone
USAPHC: United States Army Public Health Command
VO: vaginal opening

I. NON-TECHNICAL SYNOPSIS:

NTO is an energetic material used in explosive formulations designed to be less sensitive to unintentional discharge than its predecessors. This study will assess the reproductive and developmental toxicity of NTO using an extended one-generation reproductive toxicity test in rats. The study will examine the toxicity of NTO on male and female reproductive systems including: gonadal function, the estrous cycle, sperm maturation, mating behavior, pregnancy, delivery, and lactation. The effects of combined pre- and postnatal exposure to NTO on development and reproductive toxicity, neurotoxicity, and immunotoxicity will be evaluated in young and adult offspring. In this study, the P generation will be comprised of groups of 25 sexually-mature males and females. NTO will be administered orally via drinking water for all animals in this study. NTO will be administered orally to the P males for four weeks pre-mating and to the P females for two weeks pre-mating and to both males and females for a two-week mating period. Treatment of the P generation males will be continued for 10 weeks and will be continued in P females during pregnancy and lactation until termination after weaning of the litters (i.e., 10 weeks of treatment). At weaning, pups will be selected and assigned to cohorts for reproductive/developmental toxicity testing (Cohorts 1A and 1B) and developmental neurotoxicity testing (Cohorts 2A and 2B). The Cohorts 1A and 1B offspring will be dosed with NTO from weaning to adulthood (PND 90). Part of Cohort 1 (Cohort 1B) may be extended to include an F2 generation based on effects observed in F1 animals. Procedures for mating F1 animals will be similar to those for the P animals. Pups in Cohort 2B will be euthanized at weaning for assessment of neuropathology at PND 21±1. Pups in Cohort 2A will be transferred to another protocol for completion of neurotoxicity testing. Pups not selected for placement in cohorts will be submitted for gross necropsy.

All rats will be monitored throughout the study for body weight changes and clinical signs of toxicity. Estrous cyclicity will be monitored in P females from the beginning of NTO administration until confirmation of mating or the end of the 2-week mating period. The number and sex of pups, stillbirths, live births, and the presence of gross abnormalities in each litter will be determined. The AGD of each pup will be measured between PND 0 and PND 4 and male pups will be examined for the presence of nipples on PND 12 or 13 to assess masculinization/feminization. F1 females and males will be examined daily (starting on PND 22 and 30, respectively) for VO and PPS, markers of sexual maturation.

Blood samples will be collected at termination from at least ten randomly selected males and females per dose group for P and Cohort 1A and subjected to clinical chemistry and hematology assessments. Blood from Cohort 1A animals and F1 weanlings not selected for cohorts and submitted for gross necropsy at PND 22 will be analyzed for thyroid hormones (T4 and TSH). All blood samples collected at termination will be taken from anesthetized animals. At the time of termination, all P and F1 animals will be necropsied with special emphasis on the reproductive systems. Sperm parameters will be measured in all P and Cohort 1A males. Selected tissues will be weighed and processed for histopathology. This study will provide and/or confirm information about the effects of NTO on the adult male and female reproductive system. Examination of physical and functional development following combined pre- and postnatal exposure is expected to identify specific target organs in the offspring and may reveal effects not seen with more abbreviated exposures. Information obtained from the developmental neurotoxicity and developmental immunotoxicity assessments will characterize potential effects in those systems.

II. BACKGROUND:

II.1. <u>Background</u>: Acute toxicity testing of NTO demonstrated that NTO has low toxicity (LD_{50} >5g/kg) in rats and mice. NTO caused mild skin irritation in the rabbit primary skin irritation study, but was negative in the rabbit eye irritation test. NTO did not induce dermal sensitization in the intradermal guinea pig assay (London and Smith 1985). Subacute and subchronic oral studies in rats demonstrated limited hematological effects (slight anemia) and liver hyperplasia/hypertrophy only in doses at or above 1000 mg/kg-day NTO. The most pronounced effects of NTO exposure were testicular and epididymal toxicity and hypospermia (Crouse et al. 2009). Testes weights and weight ratios were significantly reduced compared to controls in male rats administered 500 mg/kg-day NTO and above in the subacute study. The subchronic study revealed significant reductions in testes and epididymides weights and sperm counts at doses of 315 mg/kg-day and above. The incidence of testicular hypoplasia was significantly increased at doses of 315 mg/kg-day and above in the subchronic study. Less severe, non-significant increases in the incidence of testicular hypoplasia were also noted at doses of 100 mg/kg-day and below (Crouse et al. 2009).

To determine whether the testicular toxicity of NTO is indicative of further reproductive and/or endocrine disrupting effects, a reproductive/developmental screening test and a battery of *in vivo* endocrine disruptor screening tests were conducted by this Institute. Preliminary results from these screening studies suggest that at doses between 31.25 and 500 mg/kg-day administered for 2 weeks pre-mating, NTO did not affect mating or pregnancy rate. However, the power to detect a reduction in pregnancy rate may have been hindered by the reduced pregnancy rate in the control group. Sperm counts were not analyzed at the time of mating; however, two weeks later (total of four weeks of exposure) the sperm count was reduced by 93% in the 500 mg/kg-day group.

The Hershberger and uterotrophic assays did not demonstrate anti-androgenic or estrogenic activity, respectively, for NTO at doses up to 1000 mg/kg-day. NTO had no effect on timing of pubertal development in the male and female pubertal development and thyroid function assays. In females, there was no effect on tissue mass; however, in males, significant reductions in the mass of the testes and epididymides were observed. Testis mass was reduced to 70% and 35% of control in the 250 and 500 mg/kg-day groups ($p<0.001$ and $p<0.001$, respectively), while epididymides were reduced to 76% of control in the 500 mg/kg-day group ($p\leq0.001$). Non-significant reductions in dorsolateral prostate (to 76% of control) and ventral prostate (to 81% of control) mass were also observed in the 500 mg/kg-day group. These preliminary results may indicate antiandrogenic activity or effects on steroidogenesis; however, direct testicular toxicity is likely given the lack of effects on pubertal timing. The limited effects on accessory tissues may be secondary to testicular toxicity and impaired testicular endocrine function (Lent et al. in prep.).

The present study, an extended one-generation reproductive toxicity study, will bridge the gaps between the previously conducted studies by evaluating specific life stages not covered by other types of studies and testing for effects that may occur as a result of combined pre- and postnatal exposure. Additionally, this study will incorporate further measures of developmental and reproductive toxicity, as well as evaluate developmental neurotoxicity, and immunotoxicity.

II.2. <u>Literature Search for Duplication</u>:

II.2.1. Literature Source(s) Searched: BRD, DOAC Technical Reports, DOAC Research in Progress, FEDRIP, PubMed, Web of Science

II.2.2. Date of Search: 23 October 2012

II.2.3. Period of Search: all years covered by databases

II.2.4. Key Words of Search: (3-nitro-1,2,4-triazol-5-one or 3 nitro 1,2,4 triazol 5 one or triazole* or nitro compound*) and (reproduction or development* or pregnan* or fetus or fetal or embryo or sperm or ovum or maternal exposure or paternal exposure) and (toxic*) and (rat or rats)

II.2.5. Results of Search: A total of 208 references resulted from the literature search that was performed using the key words listed above in all the listed databases.

However, no reproductive/developmental toxicity studies for NTO were found that would suggest that this study would be a duplicate effort. As such, the present study is not a duplication of the information available in the literature.

III. OBJECTIVE/HYPOTHESIS:

The main objective of the Extended One-Generation Reproductive Toxicity Study is to evaluate specific life stages not covered by other types of toxicity studies (e.g., reproductive toxicity screen and endocrine disruptor screening assays) and test for effects that may occur as a result of pre- and postnatal exposure to NTO. The purpose of this study is to test for effects of NTO on reproductive endpoints that require the interaction of males with females, females with conceptus, and females with offspring and effects occurring in the F1 generation after sexual maturity.

IV. MILITARY RELEVANCE:

As a result of an initiative by the DOD to improve munitions safety, the US Army is developing IM for incorporation into its inventory of conventional military munitions systems. The Army's IM Program is dedicated to developing munitions that reliably perform as they are intended but are less prone to inadvertent initiation from external stimuli such as bullet/fragment impact, heat from fire, and shock from neighboring explosions (Duncan 2002). The production of insensitive munitions requires the use of intrinsically less sensitive explosives. NTO is being investigated as a less sensitive direct replacement for traditional explosives such as TNT and RDX. NTO is a crystalline powder that is one of the components used in the formulation of an insensitive explosive referred to as IMX101. The reduced sensitivity to environmental stimuli and nearly equal performance during testing make NTO-based formulations desirable replacements for currently fielded munitions (Spear et al. 1989; Smith and Cliff 1999). As a potential component of new munitions formulations, NTO must not only meet certain performance criteria, but must also be acceptable from the perspective of human health and the environment. To ensure its safe use by military personnel and production employees handling the material on a daily basis, the toxicity of NTO must be investigated. To support possible fielding of these IM explosives and development of occupational exposure guidelines, toxicity data in a mammalian system need to be generated to assess occupational health hazards associated with the use and production of this material.

V. MATERIALS AND METHODS:

Test Article: This study will be conducted with NTO. A neat sample of the test article will be submitted to LS for purity determination. NTO will be mixed with drinking water taken from the animal's automatic watering system manifold in the animal room and buffered with sodium hydroxide, if necessary, to achieve desired test article concentrations and appropriate pH. A copy of the most recent water quality analysis for the animal facility will be maintained in the study records. Samples of each batch of the resulting dosing solutions will be submitted to LS for concentration verification. NTO was previously determined to be stable in water for at least three weeks (Houpt and Hable 2010); therefore a stability study will not be conducted. Neat test material will be stored at room temperature (20±5 ºC). Neat material may be stored in anti-static bags or sample jars and may be stored in a dessicator to reduce contamination with moisture. Sample analysis will be done IAW SOP DLS 801.1 (USAPHC 2012a).

Test Substance Chemical/Physical Properties

Name	3-nitro-1,2,4-triazol-5-one
Synonym	NTO
CAS#	932-64-9
Physical State	White to pale yellow crystalline powder
Molecular Formula	$C_2H_2N_4O_3$
Molecular Weight	130
Density	1.93 g/cm^3
Solubility	Soluble in water (16 g/L)

V.1. <u>Experimental Design and General Procedures</u>: The reproductive and developmental toxicity of NTO, an insensitive, energetic material used in explosive formulations, will be assessed using an extended one-generation reproductive toxicity test (OECD 2011). This study will evaluate the effects of NTO on male and female reproductive systems including: gonadal function, the estrous cycle, epididymal sperm maturation, mating behavior, conception, pregnancy, parturition, and lactation. Pre- and postnatal effects of NTO on development as well as systemic toxicity in pregnant and lactating females and young and adult offspring will also be evaluated. In this study, rats will be given NTO in drinking water at five concentrations (control and four NTO doses) from pre-mating of the P generation to adulthood of the offspring (F1 and possibly F2).

Diagram of Experimental Design

	Pre-mating Exposure	Mating Exposure	Post-Mating Exposure			
P Males	4 weeks	2 weeks	4 weeks			
P Females	2 weeks	2 weeks	Pregnancy: 3 weeks	Lactation: 3 weeks		
			In-utero	Pre-weaning	F1 Post-weaning Exposure	
					10 weeks	Cohort1A: Reproductive
					11-14 weeks or 17	Cohort1B: Reproductive (for F2 mating)
					8 weeks	Cohort2A: Neurotox (FOB)
					0 weeks	Cohort2B: Neurotox (PND21)
					0 weeks	Surplus

A pilot study will be conducted prior to initiation of dosing of the P generation to determine if the toxicity of NTO administered via drinking water differs substantially from the toxicity observed in oral gavage studies. Additionally, animals from the pilot study will be used to verify and calibrate the behavioral and immunotoxicity tests prior to use in the main study. The remaining pilot animals may be used to conduct a pilot run of the perfusion fixation technique to be used on the neurotoxicity Cohort (2A).

The P generation will be comprised of seven groups of 25 sexually-mature males and six groups of 25 sexually-mature females. The male P generation groups will be the control and four NTO dose groups plus two recovery groups (control and high dose). The recovery group animals will be dosed concurrently with the main study animals for the appropriate time period and held for a period of 10 weeks following cessation of dosing. The purpose of the recovery group is to evaluate the reversibility or persistence of the testicular toxicity and reduced sperm count associated with NTO exposure. The female P generation groups will be the control and four NTO dose groups plus an additional high dose group that will be mated to the recovery-control males. The high dose female-control male (recovery group) mating is being added to ensure that an F1 generation is produced in the event that the high dose renders the males infertile. If litters are produced in the high dose mating, the high dose-control mating group will be discontinued and litters will be euthanized at PND 22±1.

NTO will be provided via drinking water to the P males for four weeks pre-mating and the P females for two weeks pre-mating and to both males and females for a two-week mating period. Treatment of the P generation males will be continued for a complete spermatogenic cycle (i.e., 10 weeks). Treatment of P generation females will be continued during pregnancy and lactation until euthanasia (as described in section V.4.6) after weaning of the litters (i.e., 10 weeks of treatment).

At weaning, pups (F1) will be selected and assigned to cohorts for reproductive/developmental toxicity testing (Cohorts 1A and B) (20 pups/sex/group/cohort) and developmental neurotoxicity testing (Cohorts 2A and B) (10 pups/sex/group/cohort). Priority will be given to placing pups in Cohorts 1A and B. Treatment groups for the F1 cohorts will be control and four NTO dose groups for males and females. The Cohorts 1A and B will be given NTO in drinking water from weaning to adulthood (post natal day (PND) 90). Part of Cohort 1 (Cohort 1B) may be extended to include an F2 generation based on effects observed in F1 animals (See Appendix B for triggers). Procedures for mating F1 animals will be similar to those for the P animals. Pups in Cohort 2B will be euthanized at weaning for assessment of neuropathology at PND 22±1. Pups in Cohorts 2A will be transferred to another protocol for completion of neurotoxicity testing. Pups not selected for placement in cohorts will be euthanized and submitted for gross necropsy.

All rats will be monitored throughout the study for body weight changes and clinical signs of toxicity. Estrous cyclicity will be monitored (as described in section V.4.4.3.) in P females from the beginning of treatment until confirmation of mating or the end of the 2-week mating period. The number and sex of pups, stillbirths, live births, and the presence of gross anomalies in each litter will be determined on PND 0/1. The AGD of each pup will be measured between PND 0 and PND 4 and male pups will be examined for the presence of nipples on PND 12 or 13 to assess masculinization/feminization. F1 females will be examined daily (starting on PND 22) for VO (as described in section V.4.4.8.) and vaginal fluid will be collected (as described in section V.4.4.3.) and examined from VO until the first cornified sample is observed and for two weeks beginning at PND 75. F1 males will be examined daily, starting on PND 30, for PPS (as described in section V.4.4.8.).

Blood samples will be collected (as described in section V.4.4.3.) at termination from at least ten randomly selected males and females per dose group for P and F1 (Cohort 1A) and subjected to clinical chemistry and hematology assessments. Blood from Cohort 1A animals and F1 weanlings not selected for cohorts and submitted for gross necropsy at PND 22 will be analyzed for thyroid hormones (T4 and TSH). At the time of termination, all P and F1 animals will be necropsied with special emphasis on the reproductive systems. Sperm will be collected (as described in section V.4.4.3.) and sperm parameters will be measured in all P and Cohort 1A males. Selected tissues will be weighed and processed for histopathology. Although selected tissues are specified by generation and Cohort, the tissue list(s) may be altered at the discretion of the pathologist/PI based on observations at the time of necropsy.

Group	No. of Male Rats	No. of Female Rats	Pain Category
Pilot Study			
Vehicle Control	5	5	10 D
NTO Dose 3	5	5	10 D
NTO Dose 4	5	5	10 D
	TOTAL = 15	**TOTAL = 15**	**TOTAL = 30 D**
Parental Generation (P)			
Vehicle Control	25	25	20 D / 30 C
NTO Dose 1	25	25	20 D / 30 C
NTO Dose 2	25	25	20 D / 30 C
NTO Dose 3	25	25	20 D / 30 C
NTO Dose 4	25	25	20 D / 30 C
NTO Dose 4 – control mating	NA	25	20 D / 30 C
Recovery – control	25	NA	20 D / 30 C
Recovery – NTO dose 4	25	NA	20 D / 30 C
	TOTAL = 175	**TOTAL = 150**	**TOTAL = 160 D / 240 C**
Estimated No. Pups Produced F1*			
Vehicle Control	175	175	
NTO Dose 1	175	175	
NTO Dose 2	175	175	
NTO Dose 3	175	175	
NTO Dose 4	175	175	
NTO Dose 4 – control mating	175	175	
	TOTAL = 1050	**TOTAL = 1050**	
No. Pups Culled at PND 4			
Vehicle Control	50	50	100 C
NTO Dose 1	50	50	100 C
NTO Dose 2	50	50	100 C
NTO Dose 3	50	50	100 C
NTO Dose 4	50	50	100 C

NTO Dose 4 – control mating	50	50	100 C
	TOTAL = 300	**TOTAL = 300**	**TOTAL = 600 C**
No. Pups Available Post-Cull			
Vehicle Control	125	125	
NTO Dose 1	125	125	
NTO Dose 2	125	125	
NTO Dose 3	125	125	
NTO Dose 4	125	125	
NTO Dose 4 – control mating	125	125	
	TOTAL = 750	**TOTAL = 750**	
F1 Generation			
Cohort 1A – Reproductive toxicity			
Vehicle Control	20	20	20 C / 20 D
NTO Dose 1	20	20	20 C / 20 D
NTO Dose 2	20	20	20 C / 20 D
NTO Dose 3	20	20	20 C / 20 D
NTO Dose 4 / Dose 4 – control mating	20	20	20 C / 20 D
	TOTAL = 100	**TOTAL = 100**	**TOTAL = 100 C / 100 D**
Cohort 1B – Reproductive toxicity (for F2)			
Vehicle Control	20	20	40 C
NTO Dose 1	20	20	40 C
NTO Dose 2	20	20	40 C
NTO Dose 3	20	20	40 C
NTO Dose 4 / Dose 4 – control mating	20	20	40 C
	TOTAL = 100	**TOTAL = 100**	**TOTAL = 200 C**
Cohort 2A – Neurotoxicity			
Vehicle Control	10	10	20 C (at time of transfer)
NTO Dose 1	10	10	20 C (at time of transfer)
NTO Dose 2	10	10	20 C (at time of transfer)
NTO Dose 3	10	10	20 C (at time of transfer)
NTO Dose 4 / Dose 4 – control mating	10	10	20 C (at time of transfer)
	TOTAL = 50	**TOTAL = 50**	**TOTAL = 100 C**
Cohort 2B – Neurotoxicity			
Vehicle Control	10	10	20 C
NTO Dose 1	10	10	20 C
NTO Dose 2	10	10	20 C
NTO Dose 3	10	10	20 C
NTO Dose 4 / Dose 4 – control mating	10	10	20 C
	TOTAL = 50	**TOTAL = 50**	**TOTAL = 100**
Pups not placed in Cohorts (euthanized at PND 22±1)			
Vehicle Control	65	65	20 D / 110 C
NTO Dose 1	65	65	20 D / 110 C
NTO Dose 2	65	65	20 D / 110 C
NTO Dose 3	65	65	20 D / 110 C
NTO Dose 4 / Dose 4 – control mating	190	190	20 D / 360 C
	TOTAL = 450	**TOTAL = 450**	**TOTAL = 100 D / 800 C**
Estimated No. Pups Produced F2*			
Vehicle Control	140	140	280 C
NTO Dose 1	140	140	280 C
NTO Dose 2	140	140	280 C
NTO Dose 3	140	140	280 C
NTO Dose 4 / Dose 4 – control mating	140	140	280 C

	TOTAL = 700	**TOTAL = 700**	**TOTAL = 1400 C**

*Pup estimation based on 14 pups per litter and a sex ratio of 1:1.

V.1.1. Pilot Study: A pilot study using a control group and two NTO dose groups will be conducted to determine if the toxicity of NTO administered via drinking water differs substantially from the toxicity observed in oral gavage studies. The results of the pilot study will be used to determine the doses for the main study. Additionally, animals from the pilot study will be used to verify that the behavioral testing equipment is functioning appropriately. Tissues from a sub-set of pilot animals will also be used to set-up and calibrate the immunotoxicity assays prior to use in the main study. The remaining pilot animals may be used to conduct a pilot run of the perfusion fixation technique to be used on the developmental neurotoxicity testing Cohort 2A.

V.1.1.1. Dose Selection: Dose selection is based on the ultimate objective of being able to detect reproductive, developmental, and immunotoxic effects, if present, in the main study. To that end, it is recommended that "the highest dose should be chosen with the aim to induce some systemic toxicity, but not death or severe suffering of the animals" (OECD 2011). In the subacute and subchronic toxicity studies, the limit dose (1000 mg/kg-day) produced minimal systemic toxicity. Testicular toxicity was the primary effect, occurring at doses as low as 315 mg/kg-day in the 90-day study and 500 mg/kg-day in the 14-day study. Reproductive toxicity was not, however, observed at 500 mg/kg-day in the reproductive toxicity and developmental toxicity screening study (see section II.1.). Reduced sperm counts were observed in the reproductive screen after four weeks of dosing at 500 mg/kg-day. As such, this study will be conducted with the same nominal high dose of 500 mg/kg-day, but with the pre-mating dosing period extended to four weeks to induce testicular toxicity prior to mating (as opposed to just affecting sperm in epididymal transit). Subsequent dose groups will be set at four fold intervals. To determine approximately equivalent doses via drinking water, a default water intake of 0.037 L/day and a default body weight of 0.267 kg were used to arrive at a rate of 0.139 L/kg-day in young adult male rats. This results in a drinking water concentration of 3597 mg/L. The doses for the pilot study will therefore be 3600 and 900 mg/L. The doses used in the main study will be based on the toxicity observed in the pilot study, but are expected to be 3600, 900, 225, and 56 mg/L.

V.1.1.2. Administration of Test Substance: NTO will be administered 7-days/week via drinking water at a constant dietary concentration (mg/L) for 14-days.

V.1.1.3. Observations: A thorough physical examination of each rat will be performed by study personnel at a similar time at least once per day. The examination process will consist of each rat being removed from its home cage, individually handled, and carefully observed. Observations will include, but not be limited to, evaluation of skin and fur, eyes and mucous membranes, respiratory and circulatory effects, autonomic effects such as salivation, central nervous system effects, including tremors and convulsions, changes in the level of activity, gait and posture, reactivity to handling or sensory stimuli, altered strength, and stereotypes or abnormal behavior (e.g., self mutilation, walking backwards). All data related to the observation of rats will be detailed and thoroughly documented in the study records by study personnel.

V.1.1.4. Body Weight and Food/Water Consumption: Pilot animals will be weighed at the start of test compound administration, at least weekly thereafter, and at termination. Food and water consumption will be monitored at least weekly for all pilot animals by weighing the food hopper/water bottle or measuring the amount of water remaining.

V.1.1.5. Assessment of Sexual Development: Pilot animals may be evaluated daily for VO or PPS (as described in sections V.4.4.8.2. and V.4.4.8.3.).

V.1.1.6. Behavioral Testing: An auditory startle test will be performed as described in section V.4.4.7.

V.1.1.7. Terminal Observations

V.1.1.7.1. Hormone Assays: Fasted blood samples may be taken from pilot animals and used to validate the thyroid hormone assays (as described in section V.4.4.3.1.).

V.1.1.7.2. Gross Necropsy, Tissue Collection and Preservation: At the time of termination pilot animals will be euthanized as described in section V.4.6. or will be subjected to perfusion fixation (as described in section V.4.4.8.4). Animals will then be necropsied and examined macroscopically for any structural abnormalities or pathological changes. Tissues may be removed, weighed and processed as described in sections V.1.2.7.2 and 1.3.6.2. The thymus and spleen will be collected for thymic subpopulation analysis (CD4+ and CD8+ T lymphocytes) and splenic lymphocyte subpopulation analysis (T lymphocytes, B lymphocytes, and natural killer cells) (as described in section V.4.4.3.4.) from a sub-set of pilot animals. Epididymides may also be collected from a sub-set of males for refinement of the sperm analysis techniques (as described in section V.4.4.3.3.).

V.1.2. P Generation:

V.1.2.1. Administration of Test Substance: NTO will be administered 7-days/week via drinking water at a constant dietary concentration (mg/L). NTO will be administered to males and females during a pre-mating exposure period and a two-week co-housing period. The pre-mating period will be four weeks for males and two weeks for females. Initiation of administration of NTO may be staggered by 2-5 days to facilitate necropsy. An approximately equal number of animals per dose group will be placed in each starting group. Administration of NTO via drinking water will be continued for both males and females during pregnancy and lactation until termination of the P generation after weaning of the litters (i.e., total of 10 and 12 weeks of treatment for females and males, respectively). Males in the recovery groups (control and high dose) will be dosed until termination of the P generation, at which time they will stop treatment and begin receiving untreated (control) water for 10 weeks.

V.1.2.2. Co-Housing Procedure: Each P female will be co-housed in a solid bottom cage with a wire bottom insert with a single, randomly selected, unrelated male from the same dose group (1:1 pairing) until evidence of copulation is observed (e.g., sperm plug is observed) or 2 weeks have elapsed, whichever comes first. If there are insufficient males, for example due to male death before pairing, then male(s) which have already mated may be paired (1:1) with a second female(s) such that all females are paired. Female rats and cages will be examined for the presence of a sperm plug each morning during the co-housing period. Animals will be separated as soon as possible after evidence of copulation is observed. If mating has not occurred after 2 weeks, the animals will be separated without further opportunity for mating. Day 0 of pregnancy (aka GD 0) is defined as the day on which mating evidence is confirmed (a sperm plug is found).

V.1.2.3. Observations: A thorough physical examination of each rat will be performed by study personnel at a similar time at least once per day. The examination process will consist of each rat being removed from its home cage, individually handled, and carefully observed. Observations will include, but not be limited to, evaluation of skin and fur, eyes and mucous membranes, respiratory and circulatory effects, autonomic effects such as salivation, central nervous system effects, including tremors and convulsions, changes in the level of activity, gait and posture, reactivity to handling or sensory stimuli, altered strength, and stereotypes or abnormal behavior (e.g., self mutilation, walking backwards). All data related to the observation of rats will be detailed and thoroughly documented in the study records by study personnel.

P females will be carefully examined at the time of expected parturition for signs of dystocia. Abnormalities in nesting behavior, nursing, or failure to care for litters will be recorded. The dates of pairing, the date of insemination and the date of parturition will be recorded and the precoital interval (pairing to insemination) and the duration of pregnancy (insemination to parturition) calculated.

V.1.2.4. Body Weight and Food/Water Consumption: P animals will be weighed on the first day of dosing, weekly thereafter, and at termination (pre-fasted and fasted). During pregnancy, female rats will be weighed on GD 0, every two days thereafter, and on GD 21. During lactation, females will be weighed on the same days as pups in their litters (i.e., PND 0 or 1, 4, 7, 14, and 21). Food and water consumption will be monitored weekly during pre-mating, pregnancy, and lactation. Food and water consumption will not be monitored during the 2-week co-housing period. Food and water consumption will be monitored weekly for all recovery animals.

V.1.2.5. Litter and Offspring Parameters: The duration of gestation will be recorded and is calculated from GD 0 as indicated by the presence of a sperm plug. Each litter will be examined as soon as possible after delivery (PND 0 or 1) to establish the number and sex of pups, stillbirths, live births, runts, and the presence of gross abnormalities (externally visible abnormalities, including cleft palate; subcutaneous hemorrhages; abnormal skin color or texture; presence of umbilical cord; lack of milk in stomach; presence of dried secretions). The first clinical examination of neonates will also include a qualitative assessment of body temperature, state of activity and reaction to handling. Live pups will be counted and weighed individually on PND 0 or 1, and at least on PND 4, 7, 14, and 21. Physical examinations will be repeated when the offspring are weighed, or more often if case-specific findings have been made at birth. The AGD of each pup will be measured on at least one occasion from PND 0 through PND 4. Pup body weight will also be collected on the day the AGD is measured. On PND 4, the size of each litter may be adjusted by euthanizing (as described in section V.4.6.) extra pups by random selection to yield, as nearly as possible, five males and five females per litter. Male pups will be checked for the presence of nipples/areolae on PND 12 or 13.

V.1.2.6. Selection of Pups for Post-weaning Studies: At weaning (PND 21±1) pups from all available litters, up to 20 per dose and control group, will be selected for further examinations. Pups will be selected randomly, with the exception that obvious runts (animals with a body weight more than two standard deviations below the mean pup weight of the respective litter) will not be included, as they are unlikely to be representative of the treatment group. On PND 21±1, the selected F1 pups will be randomly assigned to cohorts, as follows:

Cohort 1A: Reproductive/Developmental toxicity (20/sex/group; one male & one female/litter/group): for primary assessment of effects upon reproductive systems and of general toxicity.

Cohort 1B: Reproductive/Developmental toxicity (20/sex/group; one male & one female/litter/group): for follow-up assessment of reproductive performance by mating F1 animals, and for obtaining additional histopathology data in cases of suspected reproductive or endocrine toxicants, or when results from Cohort 1A are equivocal. If Cohort 1B animals are not needed for production of the F2 generation and the results from Cohort 1A are not ambiguous or equivocal (e.g., dose response curves are not atypical, any lack statistical significance is not due to inadequate power, no rare serious effects), animals from this group may be transferred to another protocol for immunotoxicity testing.

Cohort 2A: Developmental neurotoxicity testing (10 pups/sex/group; one male or one female per litter) assigned for neurobehavioral testing followed by neurohistopathology assessment as adults. To be transferred to another protocol for testing.

Cohort 2B: Developmental neurotoxicity testing (10 pups/sex/group; one male or one female per litter) assigned for neurohistopathology assessment at weaning (PND 21±1).

V.1.2.7. Terminal Observations

V.1.2.7.1. Clinical Chemistry, Hematology and Hormone Assays: Fasted blood samples will be taken from ten randomly-selected P males and females per dose group at termination and subjected to hematology, clinical chemistry and/or hormone analyses (as described in section V.4.4.3.1.). The following hematology parameters will be evaluated: hematocrit, hemoglobin concentration, erythrocyte count, total and differential leukocyte count, platelet count, and clotting time. Serum will be evaluated for the following chemistries and hormones: BUN, GLU, TP, ALB, ALT, ALK P, AST, CHOL, T4, and TSH. Blood may also be collected from the 10 randomly selected weanlings/sex/group subjected to gross necropsy at termination for T4 and TSH analyses. Details concerning clinical chemistry and hematology analyses are outlined in TOX SOP 034 and TOX SOP 001, respectively (USAPHC 2011a and b, respectively).

V.1.2.7.2. Gross Necropsy, Organ Weight and Tissue Preservation: At the time of termination or premature death, surplus pups at PND 4, a subset of the weanlings not selected for cohorts at PND 22 (10 randomly selected/sex/group), and all P animals will be necropsied and examined macroscopically for any structural abnormalities or pathological changes, paying special attention to the organs of the reproductive system, when appropriate. For P females, a vaginal smear (as described in section V.4.4.3.2.) will be examined on the day of necropsy to determine the stage of the estrous cycle and allow correlation with histopathology in reproductive organs. For all P females, uteri will be examined for the presence and number of implantation sites and ovaries will be examined for the number of corpora lutea. Wet weights of the organs listed below from all P animals and from 10 randomly selected weanlings per sex per group will be determined as soon as possible after dissection to avoid drying. A single testis and epididymis from each animal (either left or right, but the same side from all animals) will be placed in Davidson's fixative overnight (no longer than 24 hours) or 10% buffered formalin for at least 24 hours; however, fixing in Davidson's solution for less than 24 hours is preferred. All other organs will be placed in 10% buffered formalin for at least 24 hours for fixation.

- Uterus (with oviducts and cervix)
- Ovaries
- Testes
- Epididymides (total and cauda for the samples used for sperm counts)
- Prostate (dorsolateral and ventral parts combined). In the event of a treatment-related effect on total prostate weight, the dorsolateral and ventral segments may be dissected after fixation, and weighed separately.
- Seminal vesicles with coagulating glands and their fluids (as one unit)
- Brain
- Liver
- Kidneys
- Heart
- Spleen
- Thymus
- Pituitary
- Thyroid (trimmed and weighed post-fixation)
- Adrenal glands

In addition to the organs listed above, samples of peripheral nerve, muscle, spinal cord, eye plus optic nerve, gastrointestinal tract, urinary bladder, lung, trachea (with thyroid and parathyroid attached), bone marrow, vas deferens (males), mammary gland (males and females) and vagina will be collected and will be placed in 10% buffered formalin for at least 24 hours for fixation.

Sperm parameters will be measured in all P generation males. After wet weight of the epididymides is determined as described above, at least one epididymis (either left or right, but the same side from all animals) will be reserved for histopathological examination (as described in section V.1.1.7.3.). The remaining epididymis will be used for enumeration of cauda epididymis sperm reserves, sperm motility and morphology (as described in section V.4.4.3.3.).

V.1.2.7.3. Histopathology: Full histopathology of the organs listed in section V.1.1.7.2 will be performed for all high-dose and control P animals except the recovery group animals. Histopathology of the recovery group animals will be limited to the reproductive tract, but may be expanded to include additional organs demonstrating effects in the main study. Organs demonstrating treatment-related changes will also be examined in all animals in the lower dose groups. Additionally, reproductive organs of all animals suspected of reduced fertility, e.g., those that failed to mate, conceive, sire, or deliver healthy offspring, or for which estrous cyclicity or sperm number, motility, or morphology were affected, and all gross lesions will be subjected to histopathological evaluation.

V. 1.3. Post-weaning Offspring (F1) Generation:

V.1.3.1. Administration of Test Substance: NTO will be administered 7-days/week via drinking water at a constant dietary concentration (mg/L). F1 males and females will be given NTO in drinking water beginning at weaning (PND 22±1). NTO in drinking water provided to the P females will be also be available to nursing/weanling pups during the weaning period, therefore, direct dosing of the F1 generation may begin prior to PND 22±1. Cohort 1A offspring will be given NTO through PND 90. Dosing of Cohort 1B may be terminated between PND 90 and 120 or may be extended through PND 4 of the F2 generation, if necessary.

V.1.3.2. Observations: A thorough physical examination of each rat will be performed by study personnel at a similar time at least once per day. The examination process will consist of each rat being removed from its home cage, individually handled, and carefully observed. Observations will include, but not be limited to, evaluation of skin and fur, eyes and mucous membranes, respiratory and circulatory effects, autonomic effects such as salivation, central nervous system effects, including tremors and convulsions, changes in the level of activity, gait and posture, reactivity to handling or sensory stimuli, altered strength, and stereotypes or abnormal behavior (e.g., self mutilation, walking backwards). All data related to the observation of rats will be detailed and thoroughly documented in the study records by study personnel.

V.1.3.3. Body Weight and Food/Water Consumption: F1 animals will be weighed on PND 21±1, at least weekly thereafter, the day puberty is attained (completion of PPS or

VO), and at termination (pre-fasted and fasted). Food and water consumption will be monitored weekly for all F1 animals by weighing the food hopper/water bottle or measuring the amount of water remaining.

V.1.3.4. Assessment of Sexual Development: All selected F1 animals will be evaluated daily for VO or PPS (as described in sections V.4.4.8.2. and V.4.4.8.3.) beginning on PND 22 or 30 for females and males, respectively, to detect alterations in timing of sexual maturation. Any abnormalities of genital organs, such as persistent vaginal thread, hypospadia or cleft penis, will be noted. Body weight will be determined on the day VO or PPS is observed. Assessments of sexual development will occur at approximately the same time each day.

V.1.3.5. Estrous Cyclicity: Vaginal smears will be examined daily (as described in section V.4.4.3.2.) for all Cohort 1A females, after VO, until the first cornified smear is recorded, in order to determine the time interval between these two events. Estrous cycles for all Cohort 1A females will also be monitored for a period of two weeks, beginning on PND 75±1, to include the day of necropsy. In addition, should mating of the F1 generation be necessary, the vaginal cytology in Cohort 1B may be followed from the time of pairing until mating evidence is detected.

V.1.3.6. Terminal Observations

V.1.3.6.1. Clinical Chemistry, Hematology and Hormone Assays: Fasted blood samples will be taken from ten randomly-selected Cohort1A males and females per dose group at termination (as described in section V.4.4.3.1.) and subjected to hematology, clinical chemistry and hormone analyses. The following hematology parameters will be evaluated: hematocrit, hemoglobin concentration, erythrocyte count, total and differential leukocyte count, platelet count, and clotting time. Serum will be evaluated for the following chemistries and hormones: BUN, GLU, TP, ALB, ALT, ALK P, AST, CHOL, T4, and TSH. Details concerning clinical chemistry and hematology analyses are outlined in TOX SOP 034 and TOX SOP 001, respectively (USAPHC 2011 a and b, respectively).

V.1.3.6.2. Gross Necropsy, Organ Weight and Tissue Preservation: At the time of termination or premature death all Cohort 1A animals will be necropsied and examined macroscopically for any structural abnormalities or pathological changes, paying special attention to the organs of the reproductive system. For Cohort 1A females, a vaginal smear will be examined on the day of necropsy to determine the stage of the estrous cycle and allow correlation with histopathology in reproductive organs. Wet weights of the organs listed below (tissue list may be altered at the discretion of the pathologist/PI based on observations at the time of necropsy) from all Cohort 1A animals will be determined as soon as possible after dissection to avoid drying. For Cohort 1A animals, a single testis and epididymis from each animal (either left or right, but the same side from all animals) will be placed in Davidson's fixative overnight (no longer than 24 hours) or 10% buffered formalin for at least 24 hours; however, fixing in Davidson's solution for less than 24 hours is preferred. All other organs will be placed in 10% buffered formalin for at least 24 hours for fixation.

- Uterus (with oviducts and cervix)
- Ovaries
- Testes
- Epididymides (total and cauda for the samples used for sperm counts)
- Prostate (dorsolateral and ventral parts combined). In the event of a treatment-related effect on total prostate weight, the dorsolateral and ventral segments may be dissected after fixation, and weighed separately.
- Seminal vesicles with coagulating glands and their fluids (as one unit)
- Brain
- Liver
- Kidneys
- Heart
- Spleen (half of spleen used in immunotox analysis; half preserved for histopathology)
- Thymus (half of thymus used in immunotox analysis; half preserved for histopathology)
- Pituitary
- Thyroid (trimmed and weighed post-fixation)
- Adrenal glands
- Lymph nodes (near point of administration) (10 male and 10 female Cohort 1A animals/group; 1 male or 1 female per litter; all litters represented by at least 1 pup; randomly selected)
- Lymph nodes (distant point of administration) (10 male and 10 female Cohort 1A animals/group; 1 male or 1 female per litter; all litters represented by at least 1 pup; randomly selected)

In addition to the organs listed above, samples of peripheral nerve, muscle, spinal cord, eye plus optic nerve, gastrointestinal tract, urinary bladder, lung, trachea (with thyroid and parathyroid attached), bone marrow, vas deferens (males), fourth and/or fifth inguinal mammary gland (males and females) and vagina will be collected and will be placed in 10% buffered formalin for at least 24 hours for fixation.

Sperm parameters will be measured in all Cohort 1A males. After wet weight of the epididymides is determined as described above, at least one epididymis (either left or right, but the same side from all animals) will be reserved for histopathological examination (as described in section V.1.1.7.3.). The remaining epididymis will be used for enumeration of cauda epididymis sperm reserves (as described in section V.4.4.3.3.).

Pre- and postnatally induced immunotoxic effects of NTO will be examined in 10 male and 10 female Cohort 1A animals from each treatment group (1 male or 1 female per litter; all litters represented by at least 1 pup; randomly selected). Splenic and thymic lymphocyte subpopulation analysis (CD4+ and CD8+ T lymphocytes, B lymphocytes, and natural killer cells) will be conducted using one half of the spleen and thymus (as described in section V.4.4.3.4.).

Cohort 1B animals will have the following organs weighed and corresponding tissues processed to the block stage or retained in formalin or ethanol:

- Vagina (not weighed)
- Uterus with cervix
- Ovaries
- Testes (at least one)
- Epididymides
- Seminal vesicles and coagulating glands
- Prostate
- Pituitary

V.1.3.6.3. Histopathology: Full histopathology of the organs listed in section V1.1.7.2 will be performed for all high-dose and control Cohort 1A animals. Organs demonstrating treatment-related changes may also be examined in animals in the lower dose groups. Additionally, reproductive organs of all animals for which estrous cyclicity or sperm number, motility, or morphology were affected, and all gross lesions will be subjected to histopathological evaluation. For the evaluation of pre- and postnatally induced effects on lymphoid organs, the histopathology on the collected lymph nodes and bone marrow will be evaluated in 10 male and 10 female Cohort 1A animals. The histopathological examination of ovaries from Cohort 1A females will include enumeration of primordial and small growing follicles (may be combined), as well as corpora lutea. The ovary may be trimmed until the outer third has been removed and a clear rim of follicles/corpora lutea established around the central stroma. The ovary will be sectioned at 5 µm thickness and 5 sections retained every 20 sections (i.e., 100 µm between collection of 5 sections). Follicular enumeration may first be conducted on control and high-dose animals, and in the event of an adverse effect in the latter, lower doses may be examined. Corpora lutea assessment will be conducted in parallel with estrous cyclicity testing so that the stage of the cycle can be taken into account in the assessment. Oviduct, uterus and vagina will be examined for appropriate organ-typic development. Detailed testicular histopathology examinations will be conducted on the Cohort 1A males in order to identify treatment-related effects on testis differentiation and development and on spermatogenesis. When possible, sections of the rete testis will be examined. Caput, corpus, and cauda of the epididymis and the vas deferens will be examined for appropriate organ-typic development. Histopathology in Cohort 1B will be conducted if results from Cohort 1A are equivocal or in cases of suspected reproductive or endocrine toxicants. The mammary glands will be cut in horizontal sections cut parallel to the skin or whole mounts of mammary glands may be examined, noting development of the terminal end buds into differentiated structures (Fenton et al. 2002).

Brain histopathology will be performed for all high-dose and control Cohort 2B animals euthanized on PND 21±1. For Cohort 2B animals, multiple sections will be examined from the brain to allow examination of olfactory bulbs, cerebral cortex, hippocampus, basal ganglia, thalamus, hypothalamus, mid-brain (thecum, tegmentum, and cerebral peduncles), brain-stem and cerebellum.

V.1.4. Study Time Frame: Estimated initiation date for the study is March 2013. Estimated completion date for the study is October 2013.

V.2. Sample Size Evaluation, Data Analysis Plan, and Archiving of Data: The sample size of 20 litters per dose group is in accordance with that indicated in current reproductive toxicity test guidelines (OECD 2011; OECD 1983; OECD 2001; USEPA 2009a; ICH 2005). These guidelines state that, "for all but the rarest events (such as malformations, abortions, total litter loss), evaluation of between 16 to 20 litters for rodents and rabbits tends to provide a degree of consistency between studies. Below 16 litters per evaluation, between study results become inconsistent, above 20-24 litters per group consistency and precision is not greatly enhanced" (ICH 2005). Examining all pups in each litter in the F1 generation will enhance the ability to detect effects. Examining all of the pups can improve the statistical precision of the analysis, reducing the error mean square used to calculate the F statistic. Developmental toxicity studies using a sample size of 20 litters and evaluating all fetuses reportedly have the power to detect an increased incidence of malformations of 5 to 12 times above control levels, an increase of 3 to 6 times the *in utero* death rate, and a decrease of 0.15 to 0.25 times the fetal weight (OECD 2008). In order to produce the desired 20 litters, 25 pairs will be mated as the expected success rate is approximately 80%.

Data will be reported individually and summarized in tabular form. Where appropriate, for each test group and each generation, the following will be reported:

- Food consumption, water consumption if available, food efficiency (body weight gain per gram of food consumed, except for the period of cohabitation and during lactation), and test material consumption for P and F1 animals;
- Body weight data for P animals and selected F1 animals postweaning;
- Time of death during the study or whether animals survived to termination;
- Nature, severity and duration of clinical observations (whether reversible or not);
- Hematology and clinical chemistry data including TSH and T4;
- Phenotypic analysis of spleen cells (T-, B-, NK-cells);
- Bone marrow cellularity;
- Toxic response data;
- Number of P and F1 females with normal (having recurring 4- to 5-day cycles) or abnormal estrous cycle and cycle duration (number of days from one proestrus to the next proestrus (or diestrus to diestrus));
- Time to mating (precoital interval, the number of days between pairing and mating);
- Toxic or other effects on reproduction, including numbers and percentages of animals that accomplished mating, pregnancy, parturition and lactation, of males inducing pregnancy, of females with signs of dystocia/prolonged or difficult parturition;
- Duration of pregnancy;

- Numbers of implantations, litter size and percentage of male pups;
- Number and percent of post-implantation loss, live births and stillbirths;
- Litter weight and pup weight data (males, females and combined), the number of runts if determined;
- Number of pups with grossly visible abnormalities;
- Toxic or other effects on offspring, postnatal growth, viability, etc.;
- Data on physical landmarks in pups (i.e., AGD and nipple retention)
- Data on sexual maturation of F1 animals (i.e., age and body weight at VO and PPS);
- Data on functional observations in pups and adults, as applicable;
- Body weight at sacrifice and absolute and relative organ weight data for the P and adult F1 animals;
- Necropsy findings;
- Detailed description of all histopathological findings;
- Total cauda epididymal sperm number, percent progressively motile sperm, and percent morphologically normal sperm for P and F1 males;
- Numbers and maturational stages of follicles contained in the ovaries of P and F1 females, where applicable;
- Enumeration of corpora lutea in the ovaries of F1 females;

Calculation of reproductive indices

Index	Calculation	Definition
Male Mating Index	$\frac{\text{No. of males with confirmed mating}}{\text{Total No. of males cohabited}} \times 100$	Measure of male's ability to mate
Female Mating Index	$\frac{\text{No. of sperm-positive females}}{\text{Total No. of females cohabited}} \times 100$	Measure of female's ability to mate
Male Fertility Index	$\frac{\text{No. of males impregnating a female}}{\text{Total No. of males cohabited}} \times 100$	Measure of male's ability to produce sperm that can fertilize eggs
Female Fertility Index	$\frac{\text{No. of pregnant females}}{\text{No. of sperm-positive females}} \times 100$	Measure of female's ability to become pregnant
Gestation Index	$\frac{\text{No. of females with live born pups}}{\text{No. of pregnant females}} \times 100$	Measure of pregnancy that provides at least one live pup
Survival Index	$\frac{\text{No. of live pups (at designated time)}}{\text{No. of pups born}} \times 100$	Measure of pup survival which is calculated at several times during lactation
Pre-Implantation Loss	No. of corpora lutea – No. of implantation sites	Measure of effects on gamete function, fertilization, direct effects on preimplantation embryo or indirect effects on uterus or endocrine status of dam
Post-Implantation Loss	No. of implantation sites – (No. of live + No. of dead pups)	Measure of direct effects on postimplantation embryo or indirect effects on uterus or endocrine status of dam

Continuous data will be analyzed using a one-way ANOVA with dose group as the main effect. Age and body weight at VO and PPS will be analyzed by ANCOVA using body weight at PND 21±1 as the covariate.All organ weights will be analyzed by ANCOVA using final body weight as the covariate. Mean pup body weight per litter will be calculated then analyzed with ANOVA. Weekly body weight and food and water consumption data will be analyzed using repeated measures ANOVA to determine dose effect. Paired t-tests will be used in the event of significant main effects (Wilks's lambda, $p \leq 0.05$) to test for week effect. Since the AGD may correlate with the body weight of the pup, AGD will be normalized to the cubed root of body weight or will be analyzed by ANCOVA using body weight or cubed root of body weight at the time of measurement of AGD as the covariate (Gallavan et al 1999). When statistically significant main effects are observed ($p \leq 0.05$), post hoc tests will be used to compare pairs of dose groups and dose groups to the control group; Tukey's multiple, comparison test if the variance of the groups is similar and Dunnett's T3 test if the variances are unequal. Variance equality will be determined by Levene's test. If the data are not normally distributed, the data may be transformed appropriately prior to ANOVA/ANCOVA, or analyzed using a nonparametric Kruskal-Wallis test. Non-parametric analysis will be the method of last resort since it does not allow analysis of co-variation.

Chi-square analysis will be used to determine significant differences between treated and control groups for nominal or count data (e.g., estrous cycle status, malformation frequency, etc.). When possible, appropriate statistical analysis, such as Chi-square analysis, will be applied to the histology results.

SPSS or SAS will be used to perform all analyses and statistical significance will be defined as $p \leq 0.05$ for all tests.

This study will be conducted in a manner consistent with the principles of 40 CFR Part 792 TSCA GLP Regulation (CFR 1989). The investigators and technicians will adhere to The Guide for Care and Use of Laboratory Animals (NRC 2011).

Records will be kept in standard USAPHC laboratory notebooks and/or three ring binders. Daily records will be kept on survival and clinical signs collected on the animals during the study. Procedures for preparation of any euthanasia solution, drug administration, animal blood collection, observation logs, morbidity/mortality logs, etc., will be stored with the study records. These records will be made available to oversight organizations such as the US EPA, Quality Systems Office, and the IACUC. The protocol, protocol amendments, raw data, statistical analysis, tabular calculations, and graphic analysis of the data will be saved with the study records. Additionally, memoranda to the study file, study logs, signature logs, final reports, and final report amendments will be archived at USAPHC. Some ancillary records such as maintenance and calibration logs, environmental monitoring logs, animal room husbandry and health rounds sheets, all veterinarian staff duties logbooks, training files, etc. may be stored in the archives but not stored with the study files.

V.3. Laboratory Animals Required and Justification:

V.3.1. Non-animal Alternatives Considered: The objectives of this study are to determine the reproductive and developmental toxicity of NTO following combined pre- and postnatal exposure. There are no appropriate animal substitutes (e.g., computer models, tissue/cell cultures) for the data that will be produced in this study. No non-animal alternative would provide the necessary toxicological information provided by this study. Therefore, it is necessary to perform this study in an animal model.

V.3.2. Animal Model and Species Justification: Sprague-Dawley is the strain of rat that has been historically used for oral toxicity studies by USAPHC TOX and is the recommended species due to an historical and extensive database. Rats are preferred due to their high fecundity and low incidence of spontaneous developmental defects.

V.3.3. Laboratory animals:

V.3.3.1. Genus and Species: *Rattus norvegicus*

V.3.3.2. Strain/Stock: Sprague-Dawley (Crl:CD(SD))

V.3.3.3. Source vendor: Charles River Laboratories, Wilmington, MA (USDA 14-R-0144

V.3.3.4. Age (at arrival): Pilot Study: females – approximately 22 days
males – approximately 30 days
P Generation: approximately 8 weeks

V.3.3.5. Weight: Age appropriate

V.3.3.6. Sex: Male and female (nulliparous and non-pregnant on arrival)

V.3.3.7. Special Considerations: None

V.3.4. Number of Animals Required (By Species): N=3930
A total of 30 rats will be used for the pilot study. The P generation will consist of 400 rats ordered from an external vendor. The F1 generation will result from breeding the P animals and is estimated to be 2100 pups (14 per litter, 25 litters/group, 6 groups). The F1 generation will be allocated as follows: 600 pups culled on PND 4; 900 pups not selected for cohorts; 200 in Cohort 1A, 200 in Cohort 1B, 100 in Cohort 2A, 100 in Cohort 2B. If triggered, Cohort 1B will be bred to produce the F2 generation which is estimated to be 1400 pups.

V.3.5. Refinement, Reduction, Replacement (3 Rs):

V.3.5.1. Refinement: Standard rat enrichment will be implemented in accordance with TOX SOP 122.002 (USAPHC 2012b). Animals will be socially housed on this study with the exception of P generation females which may be singly housed prior to parturition. All animals on this study will be handled on a frequent basis and provided a form of environmental enrichment (e.g., nylabones, rodent retreats) throughout the study period. Animals will be considered for early removal from this study as described in section V.4.5.

V.3.5.2. Reduction: The extended one-generation study is designed to replace both the one-generation and two-generation reproductive toxicity studies, thereby reducing animal use. Additionally, the extended one-generation study uses approximately 40% fewer animals than the two-generation study. The extended one-generation study incorporates additional measures (AGD, nipple retention, hormone analysis, etc.) not included in previous reproductive toxicity tests, making more efficient use of animals and further reducing the need for future studies.

V.3.5.3. Replacement: No non-animal alternatives are known to exist that will provide the required data. At this time, there are no non-animal alternatives that can fully replicate the complex processes that occur within an intact mammalian organism.

V.4. Technical Methods:

V.4.1. Pain/Distress Assessment:

V.4.1.1. APHIS Form 7023 Information:

V.4.1.1.1. Number of Animals:

V.4.1.1.1.2. Column B: 0

V.4.1.1.1.2. Column C: 3540

V.4.1.1.1.3. Column D: 390

V.4.1.1.1.4. Column E: 0

V.4.1.2. Pain Relief/Prevention:

V.4.1.2.1. Anesthesia/Analgesia/Tranquilization: Animals will be anesthetized with CO2 prior to blood collection. Animals will be brought to the necropsy room in home cage or transport cage. The stainless steel lid will be placed on the cage. If using a transport cage, the grommet will be covered with tape or magnet. The CO2 tank will be turned on then the regulator opened to approximately ¼ to ½ turn. Animals will remain in the cage until they are recumbent, but breathing regularly. Once recumbent, a toe or space between the toes will be pinched to assess appropriate depth of anesthesia. If no response to toe pinch, the animal will be removed and blood collected (as described in V.4.4.3.). Upon completion of blood collection the animal will be returned to the cage and euthanized IAW TOX SOP AP066.003 (USAPHC 2012c). Pilot animals will be anesthetized prior to perfusion fixation using ketamine (70-80 mg/kg) in combination with xylazine (7-10 mg/kg) given either intramuscularly or intraperitoneally in the same syringe using a 23-25 gauge needle. A dose sufficient to reach a deep surgical plane of anesthesia will be administered. Unconsciousness will be confirmed by lack of response to hard pinch to feet or blink reflex when eye is touched. If, after 10-15 minutes, the rats are not sufficiently anesthetized, additional anesthetics will be given. Ketamine and xylazine will be given at ½ the original volume/dose by the same route of administration.

V.4.1.2.2. Pre- and Post-procedural Provisions: A physical examination will be made at least once each day during all phases of the study. Observations will be detailed and carefully recorded in the study records. Details related to observations and/or physical examination of rats is described in Sections V.1.1.3, V.1.2.3 and V.1.3.2.

V.4.1.2.3. Paralytics: None

V.4.1.3. Literature Search for Alternatives to Painful or Distressful Procedures

V.4.1.3.1. Source(s) Searched: FEDRIP, PubMed, Web of Science

V.4.1.3.2. Date of Search: 3 December 2012

V.4.1.3.3. Period of Search: All years covered by databases

V.4.1.3.4. Key Words of Search: (3-nitro-1,2,4-triazol-5-one or 3 nitro 1,2,4 triazol 5 one or triazole* or nitro compound*) and (reproduction or development* or pregnan* or fetus or fetal or embryo or sperm or ovum or maternal exposure or paternal exposure) and (toxic*) and ((cardiac or heart) and (blood collection) or (perfusion fixation)) and (rat or rats)

V.4.1.3.5. Results of Search: The literature search identified 105 references pertaining to alternatives to painful procedures. However, no acceptable alternatives to the painful or distressful procedures (e.g., perfusion fixation, cardiac bleed) in this protocol were found. Although other methods exist for blood collection (e.g., saphenous vein, dorsal pedal vein, tail vein) from the laboratory rat, none of these alternative methods would allow collection of a sufficient volume of blood to perform clinical chemistry, hematology, and hormone analyses. Alternative fixation methods also exist (e.g., immersion), however, these methods can introduce artifacts in sensitive tissues and are not suitable for the neurotoxicity evaluation. Anesthesia will be provided prior to both painful procedures (as described in section V.4.1.2.1).

V.4.1.4. Unalleviated Painful/Distressful Procedure Justification: N/A

V.4.2. Prolonged Restraint: N/A

V.4.3. Surgery:

V.4.3.1. Pre-Surgical Provisions: N/A

V.4.3.2. Procedure: N/A

V.4.3.3. Post-Surgical Provisions: N/A

V.4.3.4. Location: N/A

V.4.3.5. Surgeon: N/A

V.4.3.6. Multiple Major Survival Operative Procedures:

V.4.3.6.1. Procedures: N/A

V.4.3.6.2. Scientific Justification: N/A

V.4.4. Animal Manipulations:

V.4.4.1. Injections: Anesthesics will be provided to pilot animals prior to perfusion fixation using ketamine (70-80 mg/kg) in combination with xylazine (7-10 mg/kg) given either intramuscularly or intraperitoneally in the same syringe using a 23-25 gauge needle. If, after 10-15 minutes, the rats are not sufficiently anesthetized, additional anesthetics will be given. Ketamine and xylazine will be given at ½ the original volume/dose by the same route of administration

V.4.4.2. Use of Non-pharmaceutical-grade chemicals: The agents being tested are not available in a pharmaceutical-grade composition. They are under investigation as described in the objective section (Section III) of this protocol.

V.4.4.3. Biosamples:

V.4.4.3.1. Blood Collection and Analysis: Blood will be collected from a minimum of ten randomly selected males and females per treatment group from the P generation following weaning of offspring. Blood will be collected from the Recovery males, if used, at the conclusion of the holding period (10 weeks). Blood will be collected from a minimum of ten randomly selected males and females per treatment group from Cohort 1A at euthanasia at PND 90. Blood may also be collected for thyroid hormone analysis from weanlings not placed on study and euthanized at PND 22; however, this blood may be pooled for analysis if sample volumes are not sufficient. All blood collection will be conducted under CO2 gas anesthesia (as described in section V.4.1.2.1.) just prior to euthanasia. Once the anesthetic has taken effect (ensured by toe pinch), the rat will be placed in dorsal recumbency. The rat can then be immobilized by either holding the base of the tail or by holding the forelimbs apart and upward with the thumb and index finger. There should be no response by the rat to entry of the needle into its skin. If there is any response, the rat is not at a deep enough level of anesthesia for this method of blood collection and the procedure will stop until the rat is anesthetized to a deeper plane of anesthesia. An appropriate size needle (18-25 gauge, 1-1.5 inch needle, depending on the size of the rat) will be fitted onto a 1-6 ml syringe and inserted anteriorly under the xiphoid region of the rat at an approximately 45º angle and advanced firmly through the diaphragm and into the heart. Slight negative pressure should be placed on the syringe plunger and the required amount of blood withdrawn from the rat. Following collection of the blood sample, the needle should be slowly withdrawn from the rat. To minimize blood hemolysis, the needle should be removed from the syringe before discharging the blood sample into microtubes. For hematology samples, approximately 1-2 ml of blood will be transferred to an EDTA microtube and immediately inverted gently several times. For clinical chemistry and hormone samples, approximately 1-2 ml of blood will be transferred to a serum-gel microtube and allowed to stand at room temperature for at least 20 minutes to allow sufficient clotting prior to centrifugation. The remainder of the blood from each animal (approx. 1-2 ml) will be transferred to a sodium citrate microtube for analysis of prothrombin time. Details concerning clinical chemistry and hematology parameters are outlined in TOX SOP 034.003 and TOX SOP 001.002, respectively (USAPHC 2011 a and b, respectively). For hormone analyses, serum will be removed and assayed immediately or aliquotted into microcentrifuge tubes and stored at -20 °C or colder for subsequent analyses. Hormonal measurements will be conducted using ELISA and/or time-resolved immunofluorescent procedures. Details concerning use of the TOSOH Automated Enzyme Immunoassay System for measurement of thyroid and reproductive hormones are outlined in TOX SOP 145.002 (USAPHC 2011c). Analysis of TSH will be conducted using a rat TSH ELISA kit per the manufacturer's (ALPCO Immunoassays or similar) instructions (ALPCO 2012). Briefly, 25 µl of standard, blank, or sample will be added to the appropriate wells, 200 µl of enzyme-labeled anti-rat TSH-antibody added to all wells, plate covered with the adhesive strip, and incubated for 18-20 hours at 4±2°C. Liquid will then be aspirated from each well and the plate washed 4 times (Wash: Each well filled with diluted wash solution (300 µl) and let stand for 2 minutes, then liquid removed by flicking the plate over a sink. The remaining drops are removed by patting the plate on a paper towel). The TMB Substrate Solution (200 µl) will be added to each well and the plate incubated in the dark for 10-30 minutes (timing based on color development), keeping the plate away from drafts and other temperature fluctuations. Stop Solution (50 µl) will be added to each well when the first four wells containing the highest concentration of standards develop obvious blue color. The optical density of each well will be determined within 30 minutes, using a microplate reader set to 450 nm. Test samples and QC samples will be run in duplicate, with QC samples dispersed among the test samples. The hormone tests and kit(s) will be validated (i.e., kit standards perform as expected and hormone measures fall within assay performance criteria for controls) using blood and tissues collected from pilot rats prior to use in the full study. Blood collection will be promptly followed by euthanasia as described in Section V.4.6.

V.4.4.3.2. Vaginal Fluid Collection: Vaginal fluid will be collected via vaginal lavage (OECD 2009; Marcondes et al. 2002). A small amount (approximately 0.1 ml) of saline will be drawn up into a disposable pipette tip. The rat will be restrained by grasping around the thorax with one hand, scruffing, or placing in dorsal recumbency and placing one hand over the thorax and applying gentle pressure. The tip of the pipette will be pushed gently into the entrance of the vagina to a depth of 2-5 mm. Then fluid will be flushed into the vagina and back up into the pipette until the fluid appears cloudy (one to four times) by gently depressing the pipette plunger. The cell suspension will then be expelled into a labelled microcentrifuge tube for transport. Samples will then be gently mixed; several drops placed onto a labeled glass slide and may be covered with a cover slip to provide a uniform field of depth. Slides will be evaluated shortly after collection to obviate fixing and staining; slides will be discarded after evaluation. If slides cannot be read promptly, slides may be air-dried, fixed and stained (using Diff-Quik or similar) for subsequent evaluation. Slides will be examined under low-power (10-40X) using a light microscope for the presence of leukocytes, nucleated epithelial cells, or cornified epithelial cells (USEPA 2009b; OECD 2009; Marcondes et al. 2002). The vaginal samples will be classified as diestrus (predominance of leukocytes mixed with some cornified epithelial cells), proestrus (predominance of clumps of round, nucleated epithelial cells), or estrus (predominance of cornified epithelial cells). The estrous stage will be determined daily after vaginal opening and the age at first vaginal estrus noted. The vaginal opening and estrous cyclicity observations will be collected at approximately the same time each day.

V.4.4.3.3. Sperm Collection and Analysis: Cauda epididymal sperm counts will be determined using a computer assisted sperm analyzer (TOX IVOS-CASA). After removal, trimming, and weighing, one epididymis will be further trimmed to select the cauda portion and re-weighed. The cauda will be placed in a well of a petri dish containing 10 ml RPMI-1640 medium at 34-37 °C and the surface minced using a scalpel to release sperm. The cauda will be incubated for 15 minutes at 34-37 °C, gently mixed to uniformly suspend the sperm, and 0.5 ml of the suspension transferred to another well containing 2 ml of RPMI-1640. A chamber of a rat toxicology slide (Leja® or Hamilton Thorne) will be loaded with the sperm suspension and the slide loaded into the sperm analyzer. The number of sperm, number of motile sperm, and number of progressive sperm will be determined in duplicate for each animal. The data will be expressed as millions of sperm per ml of suspension and millions of sperm per gram cauda epididymis. For the assessment of morphology, a small sample will be placed on a slide and can be viewed either as a wet preparation or the slide can be air-dried. Samples may be stained with Eosin Y, but a variety of stains are acceptable as long as they allow appropriate viewing of the sperm. The samples will be viewed with a light microscope at a magnification of 400X and at least 200 spermatozoa per sample classified as either normal (both head and midpiece/tail appear normal) or abnormal (e.g., fusion, isolated heads, and misshapen heads and/or tails) (Linder et al. 1992; OECD 2008).

V.4.4.3.4. Thymic and Splenic Lymphocyte Subpopulation Analysis: Lymphocytes are analyzed using a flow cytometry system (e.g., BD FACSVerse; BD Biosciences, Milpitas CA). The manufacturer's recommended daily start up, performance quality check (P-QC) and maintenance guidelines are followed. The thymus and spleen weights will be measured and recorded after removal from the animal. The thymus will be bisected laterally while the spleen will be cut in cross-section to yield the distal and proximal halves of the spleen. One half (i.e., test half) will be transferred into a suitable tissue culture container with sufficient volume of a physiological buffer (e.g., PBS or RPMI medium) to cover the test half. The other half of the tissues will be reweighed (subtraction yields the weight of the test half) and transferred to formalin for histopathology.

The test half will be processed in a clean Petri plate (35 X 100 mm and 35 X 60 mm have both been used successfully). The procedure for making a single cell suspension from the test pieces is similar for both the thymus and the spleen. For either the thymus or the spleen, the test piece will be minced with a clean scalpel blade and the pieces pushed through sterile wire mesh screen (Sigma 60 mesh #S1020 or similar) using the rubber end of a syringe plunger. Additional buffer/media can be added to facilitate dissociation of the tissue pieces. Repeated (3-5 times) aspiration and expression of the liquid/tissue mixture using a syringe and needle (large bore e.g., 18-20 gauge) also facilitates the generation of single cell suspensions. Care will be taken that the dissociation steps are performed gently with minimal bubble/foam production, as bubbles and/or foam is an indication of cellular fragmentation. Once the tissue has been suitably converted to a single cell suspension (i.e., there are no clumps or cell aggregates) the volume is brought to 30 mLs with PBS/RPMI and the cell suspension(s) will be washed by centrifuging at ~250xg for 5 minutes at $4 \pm 2^{\circ}C$. The resulting supernatant will be discarded, and the cell pellet resuspended in 5- 10 mL PBS. An optional RBC lysis for the splenic samples is performed at this step. Red blood cells are lysed with an ammonium chloride based reagent (e.g., BD- Pharm Lyse; BD Biosciences, Milpitas CA). The manufacturer's recommended procedures are used. The wash step will be repeated once and then 50-100 microliters of the suspension is removed for counting. The cell suspension will be centrifuged again at 250xg for 5 minutes at $4 \pm 2^{\circ}C$. The supernatant will be discarded and the pellet resuspended to a concentration of 5 million cells per mL. From this point on, the cells and buffers should be kept on ice as much as possible. The volume for each sample will be calculated based on the number of cells in each of the suspensions. TOX SOP AP128.003 (USAPHC, 2011d) outlines two methods for counting cells, one method uses the Coulter Z instrument while the other method is performed manually. Either approach provides satisfactory results and either approach may be used to measure cellularity. The preference for either approach is based on timeliness of processing samples. If there are more than twelve animals necropsied per day the automated approach may be the method of choice. To count the cells manually, 10 microliters of the 50-100 microliter sample will be transferred to a microcentrifuge tube and stained with an equal volume (dilution factor = 2) of 4 percent trypan blue. Trypan blue stains dead cells blue, live cells will be unstained. Approximately 10 microliters of this mixture will be loaded (by capillary action) into one side of a hemocytometer (glass reusable and plastic disposable are acceptable). The numbers of unstained and blue cells will be counted in each of the 4 corners of the hemocytometer grid. These numbers will be recorded and the cellularity of the sample calculated using the following formulas:

live cell count:
(total # live cells/4) X 2 (dilution factor) x 10,000 = live cells / mL

dead cell count:
(total # dead cells/4) X 2 (dilution factor) x 10000 = dead cells / mL

percent viability:
(total # live cells)/(total # live + total # dead) X 100

If the percent viability is less than 90, the volume used to resuspend the final pellet will be adjusted appropriately. TOX SOP AN120.003 (USAPHC 2011e) describes the method for counting cells with the Coulter Z instrument.

For analysis of the thymus, one hundred microliters of the cell samples will be aliquoted to 4 mL tubes (~ 500,000 cells/tube) suitable for flow cytometry and containing a cocktail of fluorescently labeled antibodies specific for the following T cell markers: CD4, CD8 and CD90.1 (Thy-1). For analysis of the spleen, one hundred microliters of the cell samples will be aliquoted to 4 mL tubes (~ 500,000 cells/tube) suitable for flow cytometry and containing a cocktail of fluorescently labeled antibodies specific for T cells (CD3) and B cells (CD45RA) and NK cells (CD161a). The cell/antibody mixtures will be vortexed gently to mix and incubated in the dark on ice for 30 minutes followed by a 5 minute centrifugation at 250xg. The supernatant will be removed and the cell pellet resuspended in 500 microliters of PBS. The centrifugation step will be repeated. Cells will be resuspended in 200 microliters of PBS (~ 250,000 cells/tube). Note, the sample volume, wash volume and cell number may be adjusted if a 96 well plate (or other suitable vessel) is used instead of the 4 mL tubes. The samples will then be analyzed on the FACSVerse flow cytometer. If there are time constraints due to the number of animals processed each day, a fixation step using a buffered paraformaldehyde solution (e.g., BD Cytofix™ Fixation Buffer) can be performed at this point. Fixation of the stained cells preserves the cells for subsequent analysis. Cells that are fixed must be maintained at 4±2°C in the dark until analysis (no longer than 2 weeks). The specific settings for each day's analysis will be determined by performing a P-QC using cytometer setup and tracking (CS&T) beads supplied by the FACSVerse manufacturer (BD Biosciences). For daily experimental controls, additional samples originating from the vehicle only control rats are prepared containing control antibodies (negative control) and single-label antibodies (positive control for each antibody). Data will be recorded as forward scatter, side scatter, and fluorophore intensity. In the typical fluorophore cocktail used by this Institute, fluorophores are PE, FITC, PE-Cy5. However, any fluorphores compatible with the assay endpoints and the laser configuration of the FACSVerse are acceptable.

V.4.4.4. Adjuvants: N/A

V.4.4.5. Monoclonal Antibody (MAbs) Production: N/A

V.4.4.6. Animal Identification: Animals will be identified by cage cards according to TOX SOP 003.002 (USAPHC 2011f). An identification number (e.g., the last 3 digits of the animal number) will also be tattooed (as described in section V.4.4.8.5.) or marked on the tail of each rat with a water-insoluble marker in order to ensure proper identification of rats when removed from their cages or when group-housed. On PND 0/1, pups will be individually identified by tail/toe tattoo or markings on the tail or head with water-insoluble marker (due to the size of the pups coded markings may be used instead of numbers). On or about PND 21, individual animal numbers will be marked on the tails of juvenile rats as described above.

V.4.4.7. Behavioral Studies: The rats will be moved to the behavior lab 30 minutes prior to the acoustic startle testing for acclimation. The rat will be placed into the startle chamber (San Diego Instruments, SR LAB Acoustic Startle Chamber). The test will begin 5 minutes after chamber habituation during which the animal will be exposed to a background noise of 70 dB. During the test session, animals will be exposed to a series of acoustic bursts above the background noise level. Trials will consist of startle stimulus alone (pulse-alone) and pre-pulse followed by startle stimulus (prepulse-pulse). Startle response and prepulse inhibition will be measured. Startle responses will be measured by an accelerometer mounted below the animal and recorded by the system software/computer. Dependent variables include the average voltage over the entire scoring window, the maximal voltage (peak) during the scoring window, and the time at which that peak occurred (latency).

V.4.4.8. Other Procedures:

V.4.4.8.1. Anogenital Distance Measurement: AGD can be measured using calipers or a stereomicroscope with measuring scale. It can be measured from the center of anus to the center of the genital bud or from the anterior rim of the anus to the posterior rim of the genital papilla, but will be measured in the same manner in all animals. In addition, care will be taken to avoid inducing variation in the measure by stretching the region in some animals more than in others.

V.4.4.8.2. Vaginal Opening Assessment: Beginning on PND 22, Cohort 1 females will be examined after daily dosing for vaginal opening until vaginal opening is complete. The rat will be restrained by grasping around the thorax with one hand, scruffing, or placing in dorsal recumbency and placing one hand over the thorax and applying gentle pressure. The vaginal opening will be visually examined for the appearance of a small "pin hole," a vaginal thread, or complete vaginal opening. It may be necessary to gently probe the opening with a disposable pipette tip to determine if opening is complete. If this is necessary it will be done in conjunction with collection of vaginal fluid (as described in section V.4.4.3.2.). Each observation will be recorded on the day (PND) it is observed.

V.4.4.8.3. PPS Assessment: Beginning on PND 30, Cohort 1 males will be examined daily for PPS until complete PPS is observed. The rat will be restrained by grasping around the thorax with one hand, scruffing, or placing in dorsal recumbency and placing one hand over the thorax and applying gentle pressure. PPS will then be determined by attempting to manually retract the prepuce using gentle pressure (Korenbrot et al. 1977). The appearance of partial and complete PPS, or a persistent thread of tissue between the glans and prepuce, will be recorded on the days they are observed. The PPS observations will be collected at approximately the same time each day.

V.4.4.8.4. Perfusion Fixation: Animals will be anesthetized prior to perfusion fixation (as described in section V.4.1.2.1.). The perfusion pump will be set-up by attaching a perfusion needle to the animal receiving end and a weight to the liquid receiving end. The weighted end will then be submerged into a beaker of saline. The pump valve will be opened and speed adjusted to a slow steady drip (40-50 ml/min), and valve closed when air bubbles are pumped out of the line. Once the animal is under anesthesia, but before the heart stops beating, it will be placed on its back and the ventral region wetted with water, saline, or alcohol. A midline ventral longitudinal incision will be made from the cervical region to the bottom of the thoracic region and the skin will then be separated from the muscle. The thoracic cavity will be opened by cutting the ribs at or near the costochondral junction along both sides of the sternum and reflecting the sternum rostrally. The pericardium will be removed and the needle inserted into the apex portion of the left ventricle of the heart. A cut will be made through the right atrium. Alternate placements are acceptable, but they alter the speed and direction of flow and are therefore not desired. The perfusion pump will then be turned on and saline perfused through the animal until blood is removed and the fluid leaving is relatively clear (approximately 250-700 ml). The weighted tubing will then be moved to the beaker of fixative (machine may be paused while transferring) and fixative perfused until the upper torso of the animal is stiff (approximately 250-700 ml). The body may be stabilized in an appropriate position before fixation stiffens the body. When fixation is complete, the machine may be paused, the tubing removed from the needle and the weighted tubing switched to a cleaning solution (water or saline). The pump will be run to flush the line and prepare the tubing for the next use. The speed, volume of solution and quality of perfusion will be noted. Tissues may then be removed and placed in fixative with a 10:1 fixative volume to tissue volume ratio.

V.4.4.8.5. Animal Tattooing: Animals will be tattooed using an electric tattoo machine or a micro-tattoo/lancet system. The rat will be restrained by placing adults on a table and applying gentle but firm pressure to the dorsal surface, leaving the tail exposed. Adults may also be placed in restraining devices (i.e., decapicones or solid restrainers). Pre-weaned pups may be cupped in the hand, leaving the selected foot or tail exposed or may be placed on the table and gently restrained. The surface to be tattooed will be wiped with alcohol and the tip of the tattooing needle/lancet inserted into the skin surface at an approximately 45 degree angle. After the appropriate identification marking is drawn on the tail or foot pad, the skin will be gently wiped with alcohol to remove excess ink. The animal can then be returned to the cage.

V.4.4.9. Tissue Sharing: Tissues from animals euthanized on this study may be made available to other personnel with approved protocols if doing so does not affect the quality and validity of the study or change the euthanasia methods.

V.4.5. Study Endpoint: The study endpoint is euthanasia. All euthanasia will be conducted as described in section V.4.6. The scheduled euthanasia timepoints are as follows:

- P generation female rats will be euthanized after weaning of the F1 generation. For euthanasia/necropsy of the P generation, priority will be given to females which should be necropsied on the same/similar day of lactation (i.e., PND 21±1).
- P generation male rats will be euthanized after 10 weeks of exposure to NTO treated water. Timing of necropsy of P males is not critical and may be spread over several days as facility/personnel demands necessitate (i.e. study day 70-77).
- Pups culled to standardize litters will be euthanized on PND 4.
- Weanlings not placed in cohorts will be euthanized on PND 22±1.
- Cohort 2B animals will be euthanized on PND 21±1.
- Cohort 1A animals will be euthanized on PND 90.
- Cohort 1B animals may be euthanized between PND 90 and 120 if an F2 generation is not triggered. Alternatively, Cohort 1B animals may be transferred to another protocol for immunotoxicity testing if additional data are not needed from Cohort 1B animals to clarify ambiguous or equivocal results from Cohort 1A (e.g., atypical dose response curves, lack of statistical significance due to inadequate power, low incidence of rare/serious effects). If an F2 generation is triggered, Cohort 1B and the F2 generation pups will be euthanized when the F2 generation is at PND 4.
- Animals for Cohort 2A will either be transferred to another approved protocol or euthanized on PND 24±3 days.

Intervention euthanasia will be conducted on moribund animals, but animals are not expected to become ill on this study. Animals will be assessed for moribundity based on a weight of evidence of the following signs: impaired ambulation which prevents animals from reaching food/water; excessive weight loss or emaciation (≥ 20% body weight loss compared to controls); lack of physical or mental alertness; prolonged labored breathing (e.g., lasting longer than 8 hours and accompanied by extreme lethargy); unabated seizure activity (e.g., lasting longer than 1 hour); inability to urinate or defecate for greater than 24 hours; or a prolonged inability to remain upright (e.g., lasting more than 2 hours). Pregnant females in labor will be evaluated for moribundity and early removal if labor has begun, but is not progressing. Removal criteria listed above, with the exception of body weight, will also be used to assess pregnant females. Animals considered to be moribund will be immediately euthanized. The Attending Veterinarian will be consulted to evaluate potentially moribund animals, unless the PI/SD plans to immediately euthanize the animal.

V.4.6. Euthanasia: Euthanasia will be accomplished by asphyxiation from CO2 exposure IAW TOX SOP AP066.003 (USAPHC 2012c). Death of all rats euthanized by CO2 will be ensured by thoracotomy, immediate necropsy with perforation of the diaphragm, or by decapitation (pups). Thoracotomy will be accomplished by inserting a sharp blade into the chest cavity behind a rib and moving the blade the length of the rib.

Alternatively, for animals being immediately necropsied, the abdomen will be opened and a puncture made through the diaphragm via the abdominal cavity. Decapitation will be performed on young pups to ensure death IAW TOX SOP 035 (USAPHC 2013). Using sharp scissors, the blades will be positioned to cut caudal to the base of the skull and cranial to the thoracic vertebrae. The blades will be closed using one swift smooth motion.

V.5. <u>Veterinary Care</u>:

V.5.1. Husbandry Considerations: Animal rooms will be maintained IAW TOX SOP AP004.002 (USAPHC 2012d). Animals will be provided ad lib rodent chow that is certified free of contaminants (with exception of overnight fasting prior to necropsy). Water will be provided ad lib either by the automated watering system, by reservoirs that feed into the racks, or by water bottles. Light cycle will be 12 hours on and 12 hours off. Room temperature will be set at 68-72º F and humidity at 30-70%. Cage sanitation will be checked at least once daily by animal care staff. The animals will be housed in plastic, solid-bottom shoebox cages (size appropriate to the body weight of the rat). The P generation males will be pair housed within treatment group during the pre-mating phase and after the co-housing period. The P generation females will be singly housed during the pre-mating period and after the co-housing period until parturition when they will be housing with their litters. During the 2-week co-housing period, rats will be pair-housed (1 male to 1 female) in shoebox cages with an elevated wire rack (no bedding) which will allow investigators to check for the presence of a sperm plug in the bottom of the cage. The F1 generation will be socially housed in small groups of the same sex and treatment group. All rats will undergo a 5-day acclimation period. Body weight and observation data may also be collected for rats by study personnel during the acclimation period in an attempt to more accurately monitor the health status of the rats in preparation for their use on study. However, animals will not be weighed or handled by study personnel within the first 24 hours after their arrival to the facility.

V.5.1.1. Study Room: Studies will be conducted at the USAPHC TOX animal facility, Bldg E-2100 or Bldg E-2101, housing room as assigned. All live animal work will occur in the housing room.

V.5.1.2. Special Husbandry Provisions: Water will be provided via the automated watering system, by water bottles, or by carboys/reservoirs that feed into the racks. General husbandry procedures performed by the animal care staff (e.g., cage changes) will need to be performed with consideration of morning observations, and collection of PPS, VO and cyclicity data.

V.5.1.3. Exceptions: P Generation female animals will be singly housed except during the 2-week co-housing period and during the lactation period when females will be co-housed with litters. Females will be singly housed because they will be pregnant and cannot be co-housed with other pregnant females as litters cannot be intermingled. Males may be singly housed if post-mating aggression occurs.

V.5.2. Veterinary Medical Care

V.5.2.1. Routine Veterinary Medical Care: Animals will routinely be observed no less than once daily by assigned veterinary medical personnel for husbandry conditions, humane care, and general health status. In the event an animal becomes ill or injured, veterinary or toxicology personnel will immediately contact the Attending Veterinarian or their designated backup who will determine the appropriate course of action. Animals will be assessed for moribundity based on a weight of evidence of the following signs: impaired ambulation which prevents animals from reaching food/water; excessive weight loss or emaciation (≥ 20% body weight loss compared to controls); lack of physical or mental alertness; prolonged labored breathing (e.g., lasting longer than 8 hours and accompanied by extreme lethargy); unabated seizure activity (e.g., lasting longer than 1 hour); inability to urinate or defecate for greater than 24 hours; or a prolonged inability to remain upright (e.g., lasting more than 2 hours). Animals considered to be moribund will be immediately euthanized as described in section V.4.6. The Attending Veterinarian will be consulted to evaluate potentially moribund animals, unless the PI/SD plans to immediately euthanize the animal.

V.5.2.2. Emergency Veterinary Medical Care: Veterinary care is available 24 hours a day, 7 days a week. In the case of an emergency health problem, if the PI or co-PI is unavailable or if the investigator staff and veterinary staff cannot reach consensus on treatment, the veterinarian has the authority to treat the animal, remove it from the experiment, institute appropriate measures to relieve severe pain or distress, or perform euthanasia if necessary. A veterinarian will conduct a physical exam of the animal if the veterinarian orders treatment or euthanasia and the PI/SD does not concur. To facilitate communication, the vet med staff will maintain an emergency contact roster in the vet tech office. In an emergency, the veterinary staff will phone the numbers (office, home, and mobile) listed for the PI, primary co-PI, or on-call designee. If the PI, primary co-PI, or on-call designee cannot be reached by phone within 15 minutes, then they are considered unavailable.

V.5.3. Environmental Enrichment:

V.5.3.1 Enrichment Strategy: All animals, with the exception of the P generation females, will be socially housed. All animals will have an enrichment device (e.g., nylabone, rodent retreat, nestlets) in their cage. All animals on this study will receive the same type of enrichment throughout the study. There will be an environmental enrichment plan posted on the door of the animal room to communicate the enrichment plan to the animal care technicians. This enrichment plan will be in accordance with TOX SOP AP122.002, Animal Environmental Enrichment (USAPHC 2012b) unless otherwise noted in this section.

V.5.3.2. Enrichment Restriction: P generation female rats will be singly housed except during the 2-week co-housing period. Females will be singly housed because they will be pregnant and cannot be co-housed with other pregnant females as litters cannot be intermingled. Males may be singly housed if post-mating aggression occurs. Cylindrical retreats will not be placed in the cages during the co-housing, parturition, and lactation phases.

VI. STUDY PERSONNEL QUALIFICATIONS AND TRAINING: Personnel may not actually perform all activities listed for them in the table. Personnel will only perform activities for which they have received training.

Person	Activity Name	Training	Qualifications and Experience
Emily Lent	Handling/observations	Rat handling (7/19/07)	Ph.D., Natural Resources and Environmental Studies; M.S., Wildlife Biology 13+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	OJT (02/12-04/12)	
	Vaginal lavage	Vaginal lavage and fluid collection (2/13/12)	
	Blood collection	Rat bleeding techniques (7/19/07; 4/30/08)	
	Injections	Rat injection techniques (7/19/07)	
	Perfusion fixation	TBS	
	CO2 euthanasia	Rat euthanasia via CO2 (7/19/07; 11/18/10)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
	Necropsy	Necropsy weighing (4/30/08); Necropsy recording (7/30/07); Necropsy tech. in rats (4/30/08; 11/18/10); Tissue trimming and brain removal (12/1/08); neonate rat necropsy (10/25/07)	
Lee Crouse	Handling/observations	Rodent handling techniques (11/21/96); Rat handling (7/19/07)	M.S., Environmental Science 16+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	OJT (02/12-04/12)	
	Vaginal lavage	Vaginal lavage and fluid collection (2/13/12)	
	CO2 anesthesia/blood collection	OJT (1996-present)	
	Blood collection	Rat bleeding techniques: cardiac under isoflurance (12/17/08); rat blood collection (7/19/07); Terminal cardiac blood draw (5/1/09)	
	Injections	Rat injection techniques (7/19/07); Rat IP and IM injections (2/15/12)	
	Perfusion fixation	TBS	
	CO2 euthanasia	Rat euthanasia via CO2 (7/19/07; 5/01/09)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
	Necropsy	Necropsy procedures: recording, bleeding, euthanasia, brain, bones, tissue trimming/weighing(4/27/00); Bone removal (12/3/07); rat anatomy (10/16/07)	
Valerie Adams	Handling/observations	Rat techniques: handling and observations (11/3/08); Small animal handling workshop (5/28/09)	Ph.D., Cell and Structural Biology 7+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	TBS	
	Blood collection	Rat techniques: basic bleeding (11/03/08); Small animal handling workshop: IC bleed (5/28/09)	
	Injections	Rat injection techniques (11/03/08); Small animal handling workshop: IM/IP/SQ/IC injections (5/28/09)	

	Perfusion fixation	TBS	
	CO_2 euthanasia	Small animal handling workshop: euthanasia (5/28/09)	
	Decapitation (scissors)	TBS	
	Necropsy	Necropsy: recording, weighing, brain removal (11/5/08)	
Larry Williams	Handling/observations	Rat techniques: handling and observations (11/3/08); Small animal handling workshop (5/28/09); Rat training: handling/observations (6/24/09)	Ph.D., Anatomy 30+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	TBS	
	Blood collection	Rat techniques: basic bleeding (11/03/08); Small animal handling workshop: IC bleed (5/28/09)	
	Injections	Rat injection techniques (11/03/08); Small animal handling workshop: IM/IP/SQ/IC injections (5/28/09)	
	CO_2 euthanasia	Small animal handling workshop: euthanasia (5/28/09); Rat training: CO_2 euthanasia (6/24/09)	
	Perfusion fixation	TBS	
	Decapitation (scissors)	TBS	
	Necropsy	Necropsy: rat brain removal, bone prep, knee joint & sciatic prep (12/10/08)	
Theresa Hanna	Handling/observations	Animal handling: rat (3/12/92); rat techniques: handling/observations (11/3/08); Rodent small animal handling workshop (2/25/98; 4/2/04; 11/22/05)	ALAT 15+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Behavioral testing	Acoustic startle (1/22/09); FOB (5/9/07; 8/22/08; 1/12/09)	
	Sexual development assessment	OJT (02/12-04/12)	
	Vaginal lavage	Rat vaginal lavage (2/13/12; 6/19/12; 6/26/12)	
	CO_2 anesthesia/cardiac blood collection	TBS	
	Blood collection	Rat techniques: basic bleeding (11/3/08; Rat terminal cardiac blood draw (5/1/09)	
	Injections	Rat techniques: basic injections (11/3/08); rat SQ injections (6/19/12; 6/26/12); Rats: IP/IM injections (2/15/12)	
	CO_2 euthanasia	Rat euthanasia CO_2 (3/27/09); Rat CO_2 euthanasia (5/1/09)	
	Necropsy	Necropsy recording (5/26/10); tissue weighing/trimming (10/19/10); brain removal (6/23/92); bones (2/26/09)	
Allison Jackovitz	Handling/observations	Small animal handling workshop (6/4/09); Rat handling (6/12/12)	B.S., Biology 2+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	Rat vaginal lavage (6/12/12; 6/19/12)	
	Injections	Small animal handling workshop: IM/IP/SQ/IC injections (6/4/09); Rat injections:IM/SQ (6/12/12; 6/19/12)	
	CO_2 anesthesia/cardiac blood collection	TBS	
	CO_2 euthanasia	Small animal handling workshop: euthanasia (6/4/09); Rat CO_2 euthanasia (6/12/12)	

	Decapitation (scissors)	TBS	
	Necropsy	Necropsy recording (5/26/10); tissue weighing (10/25/11)	
Alicia Shiflett	Handling/observations	Rat techniques: handling/observations (11/3/08): rat handling (6/12/12)	Associates Degree, Histology/Science 2+ Yrs Animal Research Experience
	Sexual development assessment	TBS	
	Vaginal lavage	Rat vaginal lavage (6/12/12); (6/19/12)	
	Blood collection	Rat techniques: basic bleeding (11/3/08)	
	Injections	Rat techniques: basic injections (11/3/08); rat SQ injections (6/19/12)	
	CO2 euthanasia	Rat CO2 euthanasia (3/27/09)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
	Necropsy	Necropsy: recording, weighing, brain removal (11/5/08); tissue trimming (1/8/10); tissue collection in rats (3/19/08);	
Matt Bazar	Handling/observations	Rodent handling workshop (2/17/04); Rodent and small animal handling workshop (12/7/04); Small animal handling workshop (8/28/09)	M.S., Biology 8+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	TBS	
	Injections	Small animal handling workshop: injections IM/IP/SQ (8/28/09)	
	CO2 euthanasia	Rat CO2 euthanasia (11/18/10); Small animal handling workshop: euthanasia tech. (8/28/09)	
	Necropsy	Necropsy recording (2/15/05); technique and examination in rats (11/18/10)	
Wilfred McCain	Handling/observations	TBS	Ph.D., Toxicology 30+ Yrs Animal Research Experience
	CO2 euthanasia	TBS	
	Necropsy	Necropsy recording and weighing (11/16/10); brain removal (2/4/08; 12/10/08; 2/26/09); procedures and trimming (12/9/09); rat bones (12/4/07; 2/26/09); bone prep, knee joint & sciatic (12/10/08)	
Craig McFarland	Handling/observations	Rat handling techniques (7/19/07); Rodent handling techniques (6/30/11)	Ph.D., DVM, Environmental Toxicology 12+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	TBS	
	CO2 anesthesia/cardiac blood collection	TBS	
	Blood collection	Rat techniques: blood collection (7/19/07)	
	Injections	Rat techniques: injections (7/19/07); Rodent IP injections (6/30/11)	
	CO2 euthanasia	Rat techniques: euthanasia (7/19/07); Rat euthanasia (10/16/07)	
	Decapitation (scissors)		
	Necropsy	Necropsy: fetal rat anatomy (10/25/07)	
Art O'Neill	Handling/observations	Inhalation testing experience (memo from DuPont dated 10/08)	B.S., Biology LATG 30+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	CO2 euthanasia	Inhalation testing experience (memo from DuPont dated 10/08)	
	Necropsy	Necropsy rat bones (12/4/07)	

Michael Quinn	Handling/observations	Rodent small animal handling workshop (6/21/05); Rodent handling techniques (6/30/11)	Ph.D., Animal Science 13+ Yrs Animal Research Experience
	Sexual development assessment	OJT (02/12-04/12)	
	Vaginal lavage	Rat vaginal lavage (2/13/12; 6/19/12)	
	Injections	Rodent IP injections (6/30/11)Rat IP/IM injections (2/15/12); Rat SQ injections (6/19/12)	
	CO2 euthanasia	Rodent small animal handling workshop (6/21/05)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
	Necropsy	Necropsy: rat brains, bones, trimming, weighing (5/24/05); Necropsy procedures and trimming (12/9/09); Rat gross anatomy (10/16/07); tissue weighing (10/25/11); Fine dissection male rat accessory sex organs (5/4/12)	
SPC Brandin Versteegh	Handling/observations	OJT as Animal Care Tech.	Academy of Health Sciences Diploma, Animal Care Specialist 1 Yr Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	Vaginal lavage and fluid collection (2/13/12)	
	Blood collection	TBS	
	Injections	TBS	
	CO2 euthanasia	TBS	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
	Necropsy	TBS	
Mark Way	Handling/observations	Rodent and small animal handling workshop (5/17/07); Rat handling (7/19/07; 7/9/09)	B.S., Biology AALAS-LAT 17+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Blood collection	Rat techniques: blood collection (7/19/07)	
	Injections	Rat techniques: injections (7/19/07)	
	CO2 euthanasia	Rat techniques: euthanasia (7/19/07); CO2 euthanasia (7/9/09)	
	Necropsy	Necropsy procedures, brain (5/15/07); tissue trimming (11/23/10); fetal rat anatomy (10/25/07)	
Desmond Bannon	Handling/observations	Rodent small animal handling workshop (1/10/05)	Ph.D., D.A.B.T. 14+ Yrs Animal Research Experience 12+ Yrs Clinical Toxicology Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	TBS	
	Injections	Rodent small animal handling workshop (1/10/05); Rat IP/IM injections (2/15/12)	
	CO2 euthanasia	Rodent small animal handling workshop (1/10/05)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
	Necropsy	TBS	
Bill Eck	Handling/observations	Rat handling (7/19/07): Small animal handling workshop (5/28/09)	Ph.D., Biochemistry 8+ Yrs Animal Research Experience
	Sexual development assessment	TBS	
	Blood collection	Rat techniques: blood collection (7/19/07); Small animal handling workshop: IC bleed in rats (5/28/09)	
	Injections	Rat techniques: injections (7/19/07); Small animal handling workshop: IM/IP/SQ/IC injections (5/28/09)	
	CO2 euthanasia	Rat techniques: euthanasia (7/19/07); Small animal handling workshop: CO2 euthanasia (5/28/09)	
	Necropsy	Necropsy recording and weighing (2/5/08); rat brain	

		removal (2/4/08); rat bones (12/3/07);	
Emily Reinke (nee Terry)	Handling/observations	Rat handling (6/12/12)	M.S. Animal Science 4 Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Vaginal lavage	Rat vaginal lavage (6/12/12; 6/26/12))	
	Injections	Rat injections: IM/SQ (6/12/12); SQ injections (6/26/12)	
	CO2 euthanasia	Rat CO2 euthansia (6/12/12)	
	Decapitation (scissors)	TBS	
	Necropsy	Necropsy recording (6/4/12)	
Wei-Sing Chu	Handling/observations	TBS	M.D., M.S. Immunology
	Sexual development assessment	TBS	
	Perfusion fixation	TBS	
	Injections	TBS	
	Necropsy	TBS	

VII. BIOHAZARD/SAFETY: Risks associated with this protocol include bites/scratches/needle sticks, transmission of zoonotic diseases, and the development of animal allergies. To minimize risk, appropriate handling techniques will be used and appropriate personal protective equipment (PPE) will be worn for all animal handling work. This includes (but may not be limited to) facemask, gloves, and disposable lab coat. Personnel will wash their hands upon completion of animal work. Applicable current TOX SOPs and PHC regulations (TOX SOP GL083.003 and USACHPPM 385-5, OHS of Animal Users) (USAPHC 2012e; USACHPPM 2007) will be followed. These documents specify hazardous waste disposal, bite/scratch procedures, and zoonotic disease prevention. A sharps container will be present at all times when using sharps and needles will not be recapped after entering animal tissue. The NTO treated water will be treated as hazardous. NTO treated water will not be disposed of down the floor or sink drains. Waste containers will be provided for collection of liquid and solid waste (e.g., bedding) and will be disposed of by contacting the Hazardous Waste Manager.

VIII. ENCLOSURES:

- **A.** References
- **B.** F2 Trigger Table

IX. ASSURANCES: The law specifically requires several written assurances from the Study Director/ Principal Investigator. Please read and sign the assurances as indicated.

As the Study Director/ Principal Investigator on this protocol, I acknowledge my responsibilities and provide assurances for the following:

A. Animal Use: The animals authorized for use in this protocol will be used only in the activities and in the manner described herein, unless a modification is specifically approved by the IACUC prior to its implementation.

B. Duplication of Effort: I have made every effort to ensure that this protocol is not an unnecessary duplication of previous experiments.

C. Statistical Assurance: I assure that I have consulted with a qualified individual who evaluated the experimental design with respect to the statistical analysis, and that the minimum number of animals needed for scientific validity will be used.

D. Biohazard/Safety: I have taken into consideration, and I have made the proper coordinations regarding all applicable rules and regulations regarding radiation protection, biosafety, recombinant issues, and so forth, in the preparation of this protocol.

E. Training: I verify that the personnel performing the animal procedures/manipulations/ observations described in this protocol are technically competent and have been properly trained to ensure that no unnecessary pain or distress will be caused to the animals as a result of the procedures/manipulations.

F. Responsibility: I acknowledge the inherent moral, ethical and administrative obligations associated with the performance of this animal use protocol, and I assure that all individuals associated with this project will demonstrate a concern for the health, comfort, welfare, and well-being of the research animals. Additionally, I pledge to conduct this study in the spirit of the fourth "R", namely “Responsibility,” which the DOD has embraced for implementing animal use alternatives where feasible and conducting humane and lawful research.

G. Scientific Review: This proposed animal use protocol has received appropriate peer scientific review and is consistent with good scientific research practice.

H. Painful Procedures: (A signature for this assurance is required by the Study Director/Principal Investigator if the research being conducted has the potential to cause more than momentary or slight pain or distress even if an anesthetic or analgesic is used to relieve the pain and/or distress.)

I am conducting biomedical experiments which may potentially cause more than momentary or slight pain or distress to animals. This potential pain and/or distress

WILL or WILL NOT (circle one or both, if applicable) be relieved with the use of anesthetics, analgesics and/or tranquilizers. I have considered alternatives to such procedures; however, I have determined that alternative procedures are not available to accomplish the objectives of this proposed experiment.

Emily May Lent

(PRINT) First Name, MI, Last Name of Study Director/ Principal Investigator

Emily May Lent

Signature

20130204

Date (YYYYMMDD)

IX.2 ASSURANCES: As the Primary Co-Investigator on this protocol, I provide the following assurances:

A. Animal Use: The animals authorized for use in this protocol will be used only in the activities and in the manner described herein, unless a modification is specifically approved by the IACUC prior to its implementation.

B. Authority: I understand that, as the Primary Co-Investigator, I am authorized and responsible for performing all procedures and manipulations as assigned to the SD/PI in the SD/PI's absence. This includes euthanasia of distressed animals.

C. Training: I verify that I am technically competent and have been properly trained to ensure that no unnecessary pain or distress will be caused to the animals as a result of the procedures/manipulations.

D. Responsibility: I acknowledge the inherent moral and administrative obligations associated with the performance of this animal use protocol, and I assure that I will demonstrate a concern for the health, comfort, welfare, and well-being of the research animals. Additionally, I pledge to conduct this study in the spirit of the fourth "R", namely "Responsibility," which the DOD has embraced for implementing animal use alternatives where feasible, and conducting humane and lawful research.

E. Painful Procedures: I am conducting biomedical experiments, which may potentially cause more than momentary or slight pain or distress to animals. This potential pain and/or distress WILL or WILL NOT (circle one or both, if applicable) be relieved with the use of anesthetics, analgesics and/or tranquilizers. I have considered alternatives to such procedures; however, I have determined that alternative procedures are not available to accomplish the objectives of this proposed experiment.

Lee C Crouse
(PRINT) First name, MI, Last name of Primary Co-Investigator

[signature]
(Signature)

4 Feb 2013
(Date)

IX.3 ASSURANCES: As a Co-Investigator on this protocol, I provide the following assurances:

A. Animal Use: The animals authorized for use in this protocol will be used only in the activities and in the manner described herein, unless a modification is specifically approved by the IACUC prior to its implementation.

B. Authority: I understand that, as a Co-Investigator, I am authorized, responsible for, and willing to perform all procedures and manipulations as assigned to me by the SD/PI.

C. Training: I verify that I am technically competent and have been or will be properly trained to ensure that no unnecessary pain or distress will be caused to the animals as a result of the assigned procedures/manipulations performed by me.

D. Responsibility: I acknowledge the inherent moral and administrative obligations associated with the performance of this animal use protocol, and I assure that I will demonstrate a concern for the health, comfort, welfare, and well-being of the research animals. Additionally, I pledge to participate in this study in the spirit of the fourth "R", namely "Responsibility," which the DOD has embraced for implementing animal use alternatives where feasible, and conducting humane and lawful research.

E. Painful Procedures: I am participating in biomedical experiments, which may potentially cause more than momentary or slight pain or distress to animals. I will follow the direction of the SD/PI relative to potential pain and/or distress and relief by the use of anesthetics, analgesics and/or tranquilizers.

Valerie H Adams [signature] 4 Feb 2013
(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

Larry Williams [signature] 2-4-13
(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

APPENDIX A

REFFERENCES

ALPCO Immunoassays. Thyroid Stimulating Hormone (Rat) ELISA Kit Instruction Manual. http://www.alpco.com/pdfs/55/55-TSHRT-E01.pdf (accessed 12 December 2012).

CFR. 1989. Title 40, Code of Federal Regulations (CFR), Part 792, Toxic Substances Control Act (TSCA), Good Laboratory Practice Standards.

Crouse, L.C.B., et al. 2010. Subchronic Oral Toxicity of NTO in Rats. U.S. Army Public Health Command, Aberdeen Proving Ground, MD. Toxicology Study No. 85-XC-0A6W-08.

Duncan, K. 2002. Insensitive Munitions and the Army: Improving Safety and Survivability. Army Logistician PB700-02-1, Volume 34, Issue 1: 16-17.

Fenton, S.E., et al. 2002. Persistent abnormalities in the rat mammary gland following gestational and lacatational exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Toxicological Sciences 67: 63-74.

Gallavan, R., et al. 1999. Interpretting the toxicological significance of alterations in anogenital distance: potential for confounding effects of progeny body weights. Reproductive Toxicology 13(5): 383-390.

Houpt, J.T. and Hable, M.A. 2010. Determination of the Water Solubility, Octanol-Water Partition Coefficient and Biodegradation Potential of 3-Nitro-1,2,4-Triazol-5-One (NTO). U.S. Army Public Health Command, Aberdeen Proving Ground, MD. Report No. 85-XC-0A6Wb-08.

International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH). 2005. Detection of Toxicity to Reproduction for Medicinal Products and Toxicity to Male Fertility S5(R2).

Korenbrot, C.C., Huhtaniemi, I.T., Weiner, R.I. 1977. Preputial separation as an external sign of pubertal development in the male rat. Biology of Reproduction 17: 298-303.

Lent, E.M., et al. in prep. Pubertal Development and Thyroid Function in Intact Juvenile Rats Exposed to NTO. U.S. Army Public Health Command, Aberdeen Proving Ground, MD. Toxicology Study No. 85-XC-0FP3-12.

Linder, R.E., et al. 1992. Endpoints of Spermatoxicity in the Rat After Short Duration Exposures to Fourteen Reproductive Toxicants. Reproductive Toxicology 6:491-505.

London, J.E., Smith, D.M. 1985. A Toxicological study of NTO. Los Alamos National Laboratory, Los Alamos, New Mexico. Report No. LA-10533-MS.

Marcondes, F.K., Bianchi, F.J., Tanno, A.P. 2002. Determination of the estrous cycle phases of rats: some helpful considerations. Braz. J. Biol. 62(4A): 609-614.

NRC. 2011. Guide for the Care and Use of Laboratory Animals, National Academies Press, 2011.

Organisation for Economic Co-Operation and Development (OECD). 1983. Test Guideline 415: One-Generation Reproductive Toxicity Study.

Organisation for Economic Co-Operation and Development (OECD). 2001. Test Guideline 416: Two-Generation Reproductive Toxicity Study.

Organisation for Economic Co-Operation and Development (OECD). 2008. Environment, Health and Safety Publications Series on Testing and Assessment No. 43: Guidance Document on Mammalian Reproductive Toxicity Testing and Assessment.

Organisation for Economic Co-Operation and Development (OECD). 2009. Series on Testing and Assessment (Number 106): Guidance Document for Histologic Evaluation of Endocrine and Reproductive Tests in Rodents: Part 5: Preparation, Reading and Reporting of Vaginal Smears.

Organisation for Economic Co-Operation and Development (OECD). 2011. Test Guideline 443: Extended One-Generation Reproductive Toxicity Study.

Smith, M.W. and Cliff, M.D. 1999. NTO-Based Explosive Formulations: A Technology Review. Weapons Systems Division, DSTO Aeronautical and Maritime Research Laboratory, Salisbury South Australia 5108 Australia, DSTO-TR-0796.

Spear, R.J., Louey, C.N., and Wolfson, M.G. 1989. A Preliminary Assessment of NTO as an Insensitive High Explosive. DSTO Materials Research Laboratory, Maribyrnong, Victoria 3032, Australia, MRL-TR-89-18.

U.S. Environmental Protection Agency, Office of Prevention, Pesticides, and Toxic Substances. 2009a. Health Effects Test Guidelines: OPPTS 870.3800 Reproduction and Fertility Effects.

U.S. Environmental Protection Agency, Office of Prevention, Pesticides, and Toxic Substances. 2009b. Endocrine Disruptor Screening Program Guidelines: OPPTS 890.1450, Pubertal Development and Thyroid Function in Intact Juvenile/Peripubertal Female Rats.

USACHPPM. 2007. Regulation 385-5, Occupational Health and Safety of Animal Users.

USAPHC. 2011a. TOX SOP No. CP034.003, Clinical Chemistry Analysis of Blood Specimens. Aberdeen Proving Ground, Maryland.

USAPHC. 2011b. TOX SOP No. CP001.002, Cell-Dyn Hematology Analyzer. Aberdeen Proving Ground, Maryland.

USAPHC. 2011c. TOX SOP No. AN145.002, TOSOH Automated Enzyme Immunoassay System. Aberdeen Proving Ground, Maryland.

USAPHC. 2011d. TOX SOP No. AP128.003, Assessing Immunotoxicity in Rats. Aberdeen Proving Ground, Maryland.

USAPHC. 2011e. TOX SOP No. AN120.003, Coulter Z Series. Aberdeen Proving Ground, Maryland.

USAPHC. 2011f. TOX SOP No. AP003.002, Individual Animal Identification. Aberdeen Proving Ground, Maryland.

USAPHC. 2012a. SOP DLS 801.1, Chromatographic-Spectrophotometric Analysis of Toxicology Samples. Aberdeen Proving Ground, Maryland.

USAPHC. 2012b. TOX SOP No. AP122.002, Animal Environmental Enrichment. Aberdeen Proving Ground, Maryland.

USAPHC. 2012c. TOX SOP No. AP66.003, Animal Euthanasia. Aberdeen Proving Ground, Maryland.

USAPHC. 2012d. TOX SOP No. AP004.002, Animal Health Technician Duties in Animal Holding Rooms. Aberdeen Proving Ground, Maryland.

USAPHC. 2012e. TOX SOP No. GL083.003, Health and Safety of Laboratory Personnel. Aberdeen Proving Ground, Maryland.

USAPHC. 2013 TOX SOP 035.000, The Use and Maintenance of Decapitation Equipment. Aberdeen Proving Ground, Maryland.

APPENDIX B
CRITERIA FOR TRIGGERING F2 GENERATION

Trigger Endpoints[a]	**Recommendations**
Adult Endpoints	
P Fertility (# implantations, pregnancy rate, gestational interval)	Mate F1 in the absence of corresponding biologically relevant and dose-related changes in reproductive histopathology
F1 Estrous Cycle Evaluation	Mate F1 if biologically relevant and dose-related changes in estrous cycle length without severe toxicity in the dams[b]
Offspring Endpoints	
F1 Litter parameters (litter size)	Mate F1 if biologically relevant and dose-related decreases in litter size are seen in the absence of severe maternal toxicity or lethality[b]
F1 Developmental landmarks (AGD, nipple retention, puberty onset, PPS, VO)	Mate F1 if biologically relevant and dose-related effects in the absence of body weight-mediated changes in these parameters
↓ F1 pup survival post-natally	Mate F1 in the absence of severe maternal toxicity[b]
F1 pup malformations	Mate F1 in the absence of severe maternal toxicity[b]
↓ F1 live birth index	Mate F1 in the absence of severe maternal toxicity[b]
↓ F1 pup body weight	Mate F1, if pup body weight decrease is biologically relevant and in the absence of maternal body weight decrements

[a] Data from each endpoint will be available in sufficient time to determine whether or not the F1 should be mated.

[b] Type, incidence, magnitude, severity of effect(s) should be considered in relation to maternal toxicity.

PROTOCOL REVIEW, SUPPORT, APPROVAL SHEET

PROTOCOL NUMBER: - 56 - 13-02-01

SUB-JONO TEST TYPE IACUC NUMBER

TITLE: Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

Printed Name (First, MI, Last)	Title	Signature	Date (yyyy/mm/dd)
1. SCIENTIFIC MERIT (PEER REVIEW)			
1a. Matt Bazar	1b. Biologist	1c. BAZAR.MATTHEW.A.124142932	1d. 20130103
2. DIRECTOR			
2a. Mark S. Johnson	2b. Portfolio Director, Toxicology (Acting)	2c. JOHNSON.MARK.STEVEN.122938071	2d. 20130103
3. PROGRAM MANAGER			
3a. Shannon M. Wallace	3b. LTC, VC Program Manager, TEP	3c. WALLACE.SHANNON.MARIE.106827904	3d. 20130103
4. ATTENDING VETERINARIAN			
4a. Dawn Fitzhugh	4b. LTC, VC Attending Veterinarian	4c. FITZHUGH.DAWN.CATHERINE.103692612	4d. 20130103
5. ANALYTICAL CHEMISTRY (If Applicable)			
5a. David Morrow	5b. Chief, Laboratory Consultants Division	5c. MORROW.DAVID.F.123144523	5d. 20130104
6. SAFETY MANAGER			
6a. Roy Valiant	6b. Safety Manager	6c. VALIANT.ROY.A.108178059	6d. 20130107
7. STATISTICIAN (If Applicable)			
7a. Karen Deaver	7b. Statistician	7c. DEAVER.KAREN.DEVILBISS.140051967	7d. 20130103

PROTOCOL NUMBER:	TITLE: Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)		
- 56 - 13-02-01 SUB-JONO TEST TYPE IACUC NUMBER			
8. SIO-QAT (GLP COMPLIANCE AND QA SUPPORT)			
8a. Printed Name (First, MI, Last) Michael P. Kefauver	8b. Title Quality Assurance Specialist, USAPHC Quality Systems Office	8c. Signature KEFAUVER.MICHAEL.P.1229209678	8d. Date (yyyy/mm/dd) 20130103
9. CHAIRMAN, IACUC			
9a. Printed Name (First, MI, Last) Kristin Newkirk	9b. Title Chairman, IACUC	9c. Signature NEWKIRK.KRISTIN.TORELL.1014786895	9d. Date (yyyy/mm/dd) 20130204
10. INSTITUTIONAL OFFICIAL			
10a. Printed Name (First, MI, Last) John Resta	10b. Title Director, IPH	10c. Signature RESTA.JOHN.J.1229129305	10d. Date (yyyy/mm/dd) 20130204
11. STUDY DIRECTOR/PRINCIPAL INVESTIGATOR	[redacted]		
11a. Printed Name (First, MI, Last) Emily May Lent	11b. Title Toxicologist	11c. Signature LENT.EMILY.MAY.1296114371	11d. Date (yyyy/mm/dd) 20130205
12. OTHER ORGANIZATION(S) PROVIDING SUPPORT (AS NEEDED):			
12a. Printed Name (First, MI, Last)	12b. Title	12c. Signature	12d. Date (yyyy/mm/dd)
13. STUDY SPONSOR:			
13a. Printed Name (First, MI, Last) Andrea Leeson	13b. Title Environmental Restoration Program Manager, SERDP & ESTCP	13c. Signature for	13d. Date (yyyy/mm/dd) 2013/02/06

USACHPPM PROTOCOL MODIFICATION

For use of this form, see DTOX SOP 085

1. DATE: (YYYY/MM/DD) 2013/09/03	2. PROTOCOL NUMBER: 56-13-02-01	3. MODIFICATION#: 1

4. PROTOCOL TITLE: Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

5. STUDY DIRECTOR/PRINCIPAL INVESTIGATOR:	6. WORK PHONE:	7. OFFICE SYMBOL:
Emily Lent	436-7749	MCHB-IP-TTE

SECTION I: PREVIOUSLY APPROVED AND CURRENTLY IN USE PROTOCOL MODIFICATIONS:

1. MODIFICATION NUMBER	2. SHORT DESCRIPTION OF PRIOR APPROVED MODIFICATION(S)	3. NO. & SPECIES OF ANIMAL REQUESTED	4. APPROVED DATE (XX XXX XXXX)

SECTION II: CHANGE IN TOTAL # OF ANIMALS USED AND/OR CHANGE IN USDA PAIN CATEGORY

1a. CHANGE: INCREASE TOTAL APPROVED ANIMALS BY: 0 — 1b. N/A ☑

2. ORIGINAL PROTOCOL TOTAL: 3930					3. PROTOCOL TOTAL AFTER MODIFICATION: 1650				
2a. USDA pain cat:	B: 0	C: 3540	D: 390	E. 0	3a. USDA pain cat:	B: 0	C: 1360	D: 290	E: 0

4. Yes	No	
☑	☐	Modification requires specific changes or additions to the experimental design of the protocol. (Section V.I. of the template.)
☑	☐	Modification requires changes to the technical methods, i.e., procedures, routes of administration, biosample collection, etc. (Section V.4. of the protocol template.) Indicate training of personnel for new methods, procedures being used.
☐	☑	Modification requires additions or changes in personnel performing procedures. (Section VI of the protocol template.) Include training and qualification information and tasks that each individual will be performing. If changing the Study Director/PI, a signed Assurance Statement needs to be submitted with the modifications.

PROTOCOL Page, paragraph, Section	SECTION III: MODIFICATION/JUSTIFICATION Explain the modification indicated above in the area below. Indicate any changes to the 3R's (Refinement, Reduction, Replacement) resulting from changes in number of animals
various, see attached - all highlighted areas were edited	1. MODIFICATION: Reduce scope of the study to: -eliminate all Cohorts except Cohort 1A - now referred to as just F1 -eliminate F2 -change endpoint for F1 from PND90+/-1 to PND42+/-1 and PND53+/-1 for females and males, respectively (i.e., through puberty) -eliminate dose group 4 and mating of dose group 4 females with control males - now just control and 3 NTO dose groups -reduce recovery group males from n=25 per group (control and high) to n=10 per group (control and high) -eliminate estrous cyclicity measures -eliminate sperm measures for F1 males - not a valid endpoint at PND53 -change observations from daily handheld to weekly handheld and daily in cage
	1a. JUSTIFICATION/REASON: The scope of the study as described in the approved protocol could not be acheived due to limited personnel and resources. Reducing the scope of the protocol as described will fulfill the study objectives and provide a study that can be accomplished with the current/future personnel.

PROTOCOL Page, paragraph, section	Explain the modification indicated above in the area below. Indicate any changes to the 3R's (Refinement, Reduction, Replacement) resulting from changes in number of animals used.
various, see attached lines 1647 - 1684	2. MODIFICATION: Updated TOX SOP references.
	2a. JUSTIFICATION/REASON: Update of euthanasia SOP necessary to remain compliant with current guidelines. New SOP developed for tattoo machine since protocol was written. Other SOPs updated for consistency.
V.1.2.7.2 Gross Necropsy, lines 529 -531 V.1.3.6.2 Gross Necropsy, lines 639-641	3. MODIFICATION: Added: If organs cannot be weighed immediately, they may be placed in a weigh-boat and a moist paper towel used to cover the weigh-boat, but the organs should not be allowed to come into contact with water.
	3a. JUSTIFICATION/REASON: Clarifying that organs should not be allowed to dry out AND should not be allowed to sit in water will improve both the precise and accuracy of organ weights and reduce the potential for artifacts in histology due to drying out and cell lysing due to exposure to water.
V.3.3.4. Age (at arrival)	4. MODIFICATION: Change the age of P Generation animals from approximately 8 weeks to females being approximately 10 weeks and males being approximately 8 weeks.
	4a. JUSTIFICATION/REASON: In order to facilitate the arrival/unpacking process for the animal care takers, the animal shipment was divided into two shipments. This required ordering females at an older age on arrival.

Continued on next page YES ☑ NO ☐

SECTION IV. SIGNATURES AND DATES

1. STUDY DIRECTOR: (Printed Name) Emily May Lent	Signature Emily May Lent	DATE: (yyyy/mm/dd) 2013/09/30
2. PROGRAM MANAGER:: (Printed Name) ARTHUR J. O'NEILL	Signature	DATE: (yyyy/mm/dd) 2013/04/30
3. ATTENDING VETERINARIAN: (Printed Name) Dawn C Fitzhugh	Signature	DATE: (yyyy/mm/dd) 2013/09/30
4. CHPPM SAFETY OFFICER/OCC HEALTH REP: (IF APPLICABLE)	Signature	DATE: (yyyy/mm/dd)
5. CHAIR, IACUC OR QA (If no animal related changes): (Printed Name) KRISTIN NEWKIRK	APPROVED / REVIEWED YES ☒ NO ☐ Signature	DATE: (yyyy/mm/dd) 2013/10/01

PROTOCOL Page, paragraph, section	Explain the modification indicated above in the area below. Indicate any changes to the 3R's (Refinement, Reduction, Replacement) resulting from changes in number of animals used.
V.1.2.7.3. Histopathology, lines 569-572	5 MODIFICATION: Add: Histopathology may be limited or omitted for the P generation animals at the discretion of the PI based on comparison of results (e.g. mating success, organ weights, gross observations) with previous sub-chronic and reproductive screening studies.
	5a JUSTIFICATION/REASON: Histopathology data are available for similarly exposed P generation animals. Limiting or omitting collection of these data will allow resources to be reallocated to collection of novel data.
	MODIFICATION:
	JUSTIFICATION/REASON:
	MODIFICATION:
	JUSTIFICATION/REASON:
	MODIFICATION:
	JUSTIFICATION/REASON:

ANIMAL USE PROTOCOL
ARMY INSTITUTE OF PUBLIC HEALTH
U.S. ARMY PUBLIC HEALTH COMMAND
ABERDEEN PROVING GROUND, MD 21010-5403

PROTOCOL TITLE: Extended One-Generation Reproductive Toxicity Test in Rats Exposed to 3-nitro-1,2,4-triazol-5-one (NTO)

PROTOCOL NUMBER: 56-13-02-01 - **Modification 1** document with all edited sections highlighted

MODIFICATION APPROVAL DATE: 01 Oct 2013

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ACRONYMS:

AAALAC: Association for Assessment and Accreditation of Laboratory Animal Care International
AGD: anogenital distance
AIPH: Army Institute of Public Health
ALB: albumin
ALK P: alkaline phosphatase
ALT: alanine aminotransferase
AST: aspartate aminotransferase
ANCOVA: Analysis of Covariance
ANOVA: Analysis of Variance
BRD: Biomedical Research Database
BUN: Blood Urea Nitrogen
CFR: Code of Federal Regulations
CHOL: cholesterol
Cy5: cyanine 5
DOAC: DTIC Online Access Controlled
DOD: Department of Defense
ELISA: Enzyme-Linked Immunosorbent Assay
ESTCP: Environmental Security Technology Certification Program
F1: first generation
F2: second generation
FEDRIP: Federal Research in Progress
FITC: fluorescein isothiocyanate
GD: gestation day
GLP: Good Laboratory Practice
GLU: glucose
IAW: in accordance with
IM: insensitive munitions
LD: lactation day
LS: Laboratory Sciences Portfolio
NTO: 3-nitro-1,2,4-triazol-5-one

OECD: Organisation for Economic Co-operation and Development
P: parental generation
PAX: Picatinnay Arsenal eXplosive
PBS: phosphate buffered saline
PE: phycoerythrin
PND: post natal day
PPS: preputial separation
QC: quality control
RDX: Research Department Explosive or Royal Demolition Explosive
RPMI-1640: Roswell Park Memorial Institute-1640
SERDP: Strategic Environmental Research and Development Program
SOP: Standing Operating Procedure
T4: thyroxine
TMB: 3,3',5,5'-Tetra-Methyl-Benzidine
TNT: trinitrotoluene
TOX: Portfolio of Toxicology
TP: total protein
TSCA: Toxic Substance Control Act
TSH: thyroid stimulating hormone
USAPHC: United States Army Public Health Command
VO: vaginal opening

I. NON-TECHNICAL SYNOPSIS:

NTO is an energetic material used in explosive formulations designed to be less sensitive to unintentional discharge than its predecessors. This study will assess the reproductive and developmental toxicity of NTO using an extended one-generation reproductive toxicity test in rats. The study will examine the toxicity of NTO on male and female reproductive systems including: gonadal function, the estrous cycle, sperm maturation, mating behavior, pregnancy, delivery, and lactation. The effects of combined pre- and postnatal exposure to NTO on development and reproductive toxicity, and immunotoxicity will be evaluated in young and adult offspring. In this study, the P generation will be comprised of groups of 25 sexually-mature males and females. NTO will be administered orally via drinking water for all animals in this study. NTO will be administered orally to the P males for four weeks pre-mating and to the P females for two weeks pre-mating and to both males and females for a two-week mating period. Treatment of the P generation males will be continued for 10 weeks and will be continued in P females during pregnancy and lactation until termination after weaning of the litters (*i.e.,* 10 weeks of treatment). At weaning, pups will be assigned to treatment groups and will be dosed with NTO from weaning through puberty (PND 42±1 and PND 53±1 for females and males, respectively). Pups not selected for placement in treatment groups will be submitted for gross necropsy.

All rats will be monitored throughout the study for body weight changes and clinical signs of toxicity. The number and sex of pups, stillbirths, live births, and the presence of gross abnormalities in each litter will be determined. The AGD of each pup will be measured between PND 0 and PND 4 and male pups will be examined for the presence of nipples on PND 12 or 13 to assess masculinization/feminization. F1 females and males will be examined daily (starting on PND 22 and 30, respectively) for VO and PPS, markers of sexual maturation.

Blood samples will be collected at termination from at least ten randomly selected males and females per dose group for P and F1 and subjected to clinical chemistry and hematology assessments. Blood from F1 study animals will be analyzed for thyroid hormones (T4 and TSH). All blood samples collected at termination will be taken from anesthetized animals. At the time of termination, all P and F1 animals will be necropsied with special emphasis on the reproductive systems. Sperm parameters will be measured in all P males. Selected tissues will be weighed and processed for histopathology. This study will provide and/or confirm information about the effects of NTO on the adult male and female reproductive system. Examination of physical and functional development following combined pre- and postnatal exposure is expected to identify specific target organs in the offspring and may reveal effects not seen with more abbreviated exposures. Information obtained from the developmental immunotoxicity assessment will characterize potential effects in those systems.

II. BACKGROUND:

II.1. <u>Background</u>: Acute toxicity testing of NTO demonstrated that NTO has low toxicity (LD_{50} >5g/kg) in rats and mice. NTO caused mild skin irritation in the rabbit primary skin irritation study, but was negative in the rabbit eye irritation test. NTO did not induce dermal sensitization in the intradermal guinea pig assay (London and Smith 1985). Subacute and subchronic oral studies in rats demonstrated limited hematological effects (slight anemia) and liver hyperplasia/hypertrophy only in doses at or above 1000 mg/kg-day NTO. The most pronounced effects of NTO exposure were testicular and epididymal toxicity and hypospermia (Crouse et al. 2010). Testes weights and weight ratios were significantly reduced compared to controls in male rats administered 500 mg/kg-day NTO and above in the subacute study. The subchronic study revealed significant reductions in testes and epididymides weights and sperm counts at doses of 315 mg/kg-day and above. The incidence of testicular hypoplasia was significantly increased at doses of 315 mg/kg-day and above in the subchronic study. Less severe, non-significant increases in the incidence of testicular hypoplasia were also noted at doses of 100 mg/kg-day and below (Crouse et al. 2010).

To determine whether the testicular toxicity of NTO is indicative of further reproductive and/or endocrine disrupting effects, a reproductive/developmental screening test and a battery of *in vivo* endocrine disruptor screening tests were conducted by this Institute. Preliminary results from these screening studies suggest that at doses between 31.25 and 500 mg/kg-day administered for 2 weeks pre-mating, NTO did not affect mating or pregnancy rate. However, the power to detect a reduction in pregnancy rate may have been hindered by the reduced pregnancy rate in the control group. Sperm counts were not analyzed at the time of mating; however, two weeks later (total of four weeks of exposure) the sperm count was reduced by 93% in the 500 mg/kg-day group.

The Hershberger and uterotrophic assays did not demonstrate anti-androgenic or estrogenic activity, respectively, for NTO at doses up to 1000 mg/kg-day. NTO had no effect on timing of pubertal development in the male and female pubertal development and thyroid function assays. In females, there was no effect on tissue mass; however, in males, significant reductions in the mass of the testes and epididymides were observed. Testis mass was reduced to 70% and 35% of control in the 250 and 500 mg/kg-day groups ($p<0.001$ and $p<0.001$, respectively), while epididymides were reduced to 76% of control in the 500 mg/kg-day group ($p\leq0.001$). Non-significant reductions in dorsolateral prostate (to 76% of control) and ventral prostate (to 81% of control) mass were also observed in the 500 mg/kg-day group. These preliminary results may indicate antiandrogenic activity or effects on steroidogenesis; however, direct testicular toxicity is likely given the lack of effects on pubertal timing. The limited effects on accessory tissues may be secondary to testicular toxicity and impaired testicular endocrine function (Lent et al. in prep.).

The present study, an extended one-generation reproductive toxicity study, will bridge the gaps between the previously conducted studies by evaluating specific life stages not covered by other types of studies and testing for effects that may occur as a result of combined pre- and postnatal exposure. Additionally, this study will incorporate further measures of developmental and reproductive toxicity, as well as evaluate developmental neurotoxicity, and immunotoxicity.

II.2. <u>Literature Search for Duplication</u>:

II.2.1. Literature Source(s) Searched: BRD, DOAC Technical Reports, DOAC Research in Progress, FEDRIP, PubMed, Web of Science

II.2.2. Date of Search: 23 October 2012

II.2.3. Period of Search: all years covered by databases

II.2.4. Key Words of Search: (3-nitro-1,2,4-triazol-5-one or 3 nitro 1,2,4 triazol 5 one or triazole* or nitro compound*) and (reproduction or development* or pregnan* or fetus or fetal or embryo or sperm or ovum or maternal exposure or paternal exposure) and (toxic*) and (rat or rats)

II.2.5. Results of Search: A total of 208 references resulted from the literature search that was performed using the key words listed above in all the listed databases. However, no reproductive/developmental toxicity studies for NTO were found that would suggest that this study would be a duplicate effort. As such, the present study is not a duplication of the information available in the literature.

III. OBJECTIVE/HYPOTHESIS:

The main objective of the Extended One-Generation Reproductive Toxicity Study is to evaluate specific life stages not covered by other types of toxicity studies (e.g., reproductive toxicity screen and endocrine disruptor screening assays) and test for effects that may occur as a result of pre- and postnatal exposure to NTO. The purpose of this study is to test for effects of NTO on reproductive endpoints that require the interaction of males with females, females with conceptus, and females with offspring and effects occurring in the F1 generation after sexual maturity.

IV. MILITARY RELEVANCE:

As a result of an initiative by the DOD to improve munitions safety, the US Army is developing IM for incorporation into its inventory of conventional military munitions systems. The Army's IM Program is dedicated to developing munitions that reliably perform as they are intended but are less prone to inadvertent initiation from external stimuli such as bullet/fragment impact, heat from fire, and shock from neighboring explosions (Duncan 2002). The production of insensitive munitions requires the use of intrinsically less sensitive explosives. NTO is being investigated as a less sensitive direct replacement for traditional explosives such as TNT and RDX. NTO is a crystalline powder that is one of the components used in the formulation of an insensitive explosive referred to as IMX101. The reduced sensitivity to environmental stimuli and nearly equal performance during testing make NTO-based formulations desirable replacements for currently fielded munitions (Spear et al. 1989; Smith and Cliff 1999). As a potential component of new munitions formulations, NTO must not only meet certain performance criteria, but must also be acceptable from the perspective of human health and the environment. To ensure its safe use by military personnel and production employees handling the material on a daily basis, the toxicity of NTO must be investigated. To support possible fielding of these IM explosives and development of occupational exposure guidelines, toxicity data in a mammalian system need to be generated to assess occupational health hazards associated with the use and production of this material.

V. MATERIALS AND METHODS:

Test Article: This study will be conducted with NTO. A neat sample of the test article will be submitted to LS for purity determination. NTO will be mixed with drinking water taken from the animal's automatic watering system manifold in the animal room and buffered with sodium hydroxide, if necessary, to achieve desired test article concentrations and appropriate pH. A copy of the most recent water quality analysis for the animal facility will be maintained in the study records. Samples of each batch of the resulting dosing solutions will be submitted to LS for concentration verification. NTO was previously determined to be stable in water for at least three weeks (Houpt and Hable 2010); therefore a stability study will not be conducted. Neat test material will be stored at room temperature (20±5 ºC). Neat material may be stored in anti-static bags or sample jars and may be stored in a dessicator to reduce contamination with moisture. Sample analysis will be done IAW SOP DLS 801.1 (USAPHC 2012a).

Test Substance Chemical/Physical Properties

Name	3-nitro-1,2,4-triazol-5-one
Synonym	NTO
CAS#	932-64-9
Physical State	White to pale yellow crystalline powder
Molecular Formula	$C_2H_2N_4O_3$
Molecular Weight	130
Density	1.93 g/cm^3
Solubility	Soluble in water (16 g/L)

V.1. <u>Experimental Design and General Procedures</u>: The reproductive and developmental toxicity of NTO, an insensitive, energetic material used in explosive formulations, will be assessed using a modified extended one-generation reproductive toxicity test (OECD 2011). This study will evaluate the effects of NTO on male and female reproductive systems including: gonadal function, the estrous cycle, epididymal sperm maturation, mating behavior, conception, pregnancy, parturition, and lactation. Pre- and postnatal effects of NTO on development as well as systemic toxicity in pregnant and lactating females and young and adult offspring will also be evaluated. In this study, rats will be given NTO in drinking water at four concentrations (control and three NTO doses) from pre-mating of the P generation through puberty of the offspring.

Diagram of Experimental Design

	Pre-mating Exposure	Mating Exposure	Post-Mating Exposure			
P Males	4 weeks	2 weeks	4 weeks			
P Females	2 weeks	2 weeks	Pregnancy: 3 weeks	Lactation: 3 weeks		
			In-utero	Pre-weaning	F1 Post-weaning Exposure	
					21 days/32 days	Repro/Devel/Immun
					0-1 days	Surplus

A pilot study will be conducted prior to initiation of dosing of the P generation to determine if the toxicity of NTO administered via drinking water differs substantially from the toxicity observed in oral gavage studies. Additionally, animals from the pilot study will be used to verify and calibrate the behavioral and immunotoxicity tests prior to use in the main study.

The P generation will be comprised of four groups of 25 sexually-mature males and four groups of 25 sexually-mature females. The male P generation groups will be the control and three NTO dose groups. Two recovery groups (control and high dose) of 10 males per groups will be dosed concurrently with the main study animals for the appropriate time period and held for a period of 10 weeks following cessation of dosing. The purpose of the recovery group is to evaluate the reversibility or persistence of the testicular toxicity and reduced sperm count associated with NTO exposure. The female P generation groups will be the control and three NTO dose groups.

NTO will be provided via drinking water to the P males for four weeks pre-mating and the P females for two weeks pre-mating and to both males and females for a two-week mating period. Treatment of the P generation males will be continued for a complete spermatogenic cycle (i.e., 10 weeks). Treatment of P generation females will be continued during pregnancy and lactation until euthanasia (as described in section V.4.6) after weaning of the litters (*i.e.,* 10 weeks of treatment).

At weaning, pups (F1) will be selected for use on study and assigned to treatment groups (20 pups/sex/group; one male and one female/litter/group). Treatment groups for the F1 weanlings will be control and three NTO dose groups for males and females. The F1 animals will be given NTO in drinking water from weaning through puberty (PND 42±1 and PND 53±1 for females and males, respectively). Pups not selected for placement in treatment groups will be bled, euthanized and submitted for gross necropsy (minimum 10/sex/group). The remaining pups not selected for placement in treatment groups will be euthanized or may be transferred to another protocol (control animals).

All rats will be monitored throughout the study for body weight changes and clinical signs of toxicity. The number and sex of pups, stillbirths, live births, and the presence of gross anomalies in each litter will be determined on PND 0/1. The AGD of each pup will be measured between PND 0 and PND 4 and male pups will be examined for the presence of nipples on PND 12 or 13 to assess masculinization/feminization. F1 females will be examined daily (starting on PND 22) for VO (as described in section V.4.4.8.). F1 males will be examined daily, starting on PND 30, for PPS (as described in section V.4.4.8.).

Blood samples will be collected (as described in section V.4.4.3.) at termination from at least ten randomly selected males and females per dose group for P and F1 animals and subjected to clinical chemistry and hematology assessments. Blood from F1 animals will be analyzed for thyroid hormones (T4 and TSH). At the time of termination, all P and F1 animals will be necropsied with special emphasis on the reproductive systems. Sperm will be collected (as described in section V.4.4.3.) and sperm parameters will be measured in all P males. Selected tissues will be weighed and processed for histopathology. Although selected tissues are specified by generation, the tissue list(s) may be altered at the discretion of the pathologist/PI based on observations at the time of necropsy.

Group	No. of Male Rats	No. of Female Rats	Pain Category
Pilot Study			
Vehicle Control	5	5	10 D
NTO Dose 3	5	5	10 D
NTO Dose 4	5	5	10 D
	TOTAL = 15	**TOTAL = 15**	**TOTAL = 30 D**
Parental Generation (P)			
Vehicle Control	25	25	20 D / 30 C
NTO Dose 1	25	25	20 D / 30 C
NTO Dose 2	25	25	20 D / 30 C
NTO Dose 3	25	25	20 D / 30 C
Recovery – control	10	NA	10 D / 0C
Recovery – NTO dose 3	10	NA	10 D / 0C
	TOTAL = 120	**TOTAL = 100**	**TOTAL = 100 D / 120 C**
Estimated No. Pups Produced F1*			
Vehicle Control	175	175	
NTO Dose 1	175	175	
NTO Dose 2	175	175	
NTO Dose 3	175	175	
	TOTAL = 700	**TOTAL = 700**	
No. Pups Culled at PND 4			
Vehicle Control	50	50	100 C
NTO Dose 1	50	50	100 C
NTO Dose 2	50	50	100 C
NTO Dose 3	50	50	100 C
	TOTAL = 200	**TOTAL = 200**	**TOTAL = 400 C**
No. Pups Available Post-Cull			
Vehicle Control	125	125	
NTO Dose 1	125	125	
NTO Dose 2	125	125	
NTO Dose 3	125	125	
	TOTAL = 500	**TOTAL = 500**	
F1 Generation			
Vehicle Control	20	20	20 C / 20 D
NTO Dose 1	20	20	20 C / 20 D
NTO Dose 2	20	20	20 C / 20 D
NTO Dose 3	20	20	20 C / 20 D
	TOTAL = 80	**TOTAL = 80**	**TOTAL = 80 C / 80 D**
Pups not placed in Treatment Groups (euthanized at PND 22±1)			
Vehicle Control	105	105	20 D / 190 C
NTO Dose 1	105	105	20 D / 190 C
NTO Dose 2	105	105	20 D / 190 C
NTO Dose 3	105	105	20 D / 190 C
	TOTAL = 420	**TOTAL = 420**	**TOTAL = 80 D / 760 C**

*Pup estimation based on 14 pups per litter and a sex ratio of 1:1.

V.1.1. Pilot Study: A pilot study using a control group and two NTO dose groups will be conducted to determine if the toxicity of NTO administered via drinking water differs substantially from the toxicity observed in oral gavage studies. The results of the pilot study will be used to determine the doses for the main study. Additionally, animals from the pilot study will be used to verify that the behavioral testing equipment is functioning appropriately. Tissues from a sub-set of pilot animals will also be used to set-up and calibrate the immunotoxicity assays prior to use in the main study.

V.1.1.1. Dose Selection: Dose selection is based on the ultimate objective of being able to detect reproductive, developmental, and immunotoxic effects, if present, in the main study. To that end, it is recommended that "the highest dose should be chosen with the aim to induce some systemic toxicity, but not death or severe suffering of the animals" (OECD 2011). In the subacute and subchronic toxicity studies, the limit dose (1000 mg/kg-day) produced minimal systemic toxicity. Testicular toxicity was the primary effect, occurring at doses as low as 315 mg/kg-day in the 90-day study and 500 mg/kg-day in the 14-day study. Reproductive toxicity was not, however, observed at 500 mg/kg-day in the reproductive toxicity and developmental toxicity screening study (see section II.1.). Reduced sperm counts were observed in the reproductive screen after four weeks of dosing at 500 mg/kg-day. As such, this study will be conducted with the same nominal high dose of 500 mg/kg-day, but with the pre-mating dosing period extended to four weeks to induce testicular toxicity prior to mating (as opposed to just affecting sperm in epididymal transit). Subsequent dose groups will be set at five fold intervals. To determine approximately equivalent doses via drinking water, a default water intake of 0.037 L/day and a default body weight of 0.267 kg were used to arrive at a rate of 0.139 L/kg-day in young adult male rats. This results in a drinking water concentration of 3597 mg/L. The doses for the pilot study will therefore be 3600 and 900 mg/L. The doses used in the main study will be based on the toxicity observed in the pilot study, but are expected to be 3600, 720, and 144 mg/L.

V.1.1.2. Administration of Test Substance: NTO will be administered 7-days/week via drinking water at a constant dietary concentration (mg/L) for 14-days.

V.1.1.3. Observations: A thorough physical examination of each rat will be performed by study personnel at a similar time at least once per day. The examination process will consist of each rat being removed from its home cage, individually handled, and carefully observed. Observations will include, but not be limited to, evaluation of skin and fur, eyes and mucous membranes, respiratory and circulatory effects, autonomic effects such as salivation, central nervous system effects, including tremors and convulsions, changes in the level of activity, gait and posture, reactivity to handling or sensory stimuli, altered strength, and stereotypes or abnormal behavior (e.g., self mutilation, walking backwards). All data related to the observation of rats will be detailed and thoroughly documented in the study records by study personnel.

V.1.1.4. Body Weight and Food/Water Consumption: Pilot animals will be weighed at the start of test compound administration, at least weekly thereafter, and at termination. Food and water consumption will be monitored at least weekly for all pilot animals by weighing the food hopper/water bottle or measuring the amount of water remaining.

V.1.1.5. Assessment of Sexual Development: Pilot animals may be evaluated daily for VO or PPS (as described in sections V.4.4.8.2. and V.4.4.8.3.).

V.1.1.6. Behavioral Testing: An auditory startle test will be performed as described in section V.4.4.7.

V.1.1.7. Terminal Observations

V.1.1.7.1. Hormone Assays: Fasted blood samples may be taken from pilot animals and used to validate the thyroid hormone assays (as described in section V.4.4.3.1.).

V.1.1.7.2. Gross Necropsy, Tissue Collection and Preservation: At the time of termination pilot animals will be euthanized as described in section V.4.6. or will be subjected to perfusion fixation (as described in section V.4.4.8.4). Animals will then be necropsied and examined macroscopically for any structural abnormalities or pathological changes. Tissues may be removed, weighed and processed as described in sections V.1.2.7.2 and 1.3.6.2. The thymus and spleen will be collected for thymic subpopulation analysis (CD4+ and CD8+ T lymphocytes) and splenic lymphocyte subpopulation analysis (T lymphocytes, B lymphocytes, and natural killer cells) (as described in section V.4.4.3.4.) from a sub-set of pilot animals. Epididymides may also be collected from a sub-set of males for refinement of the sperm analysis techniques (as described in section V.4.4.3.3.).

V.1.2. P Generation:

V.1.2.1. Administration of Test Substance: NTO will be administered 7-days/week via drinking water at a constant dietary concentration (mg/L). NTO will be administered to males and females during a pre-mating exposure period and a two-week co-housing period. The pre-mating period will be four weeks for males and two weeks for females. Initiation of administration of NTO may be staggered by 2-5 days to facilitate necropsy. An approximately equal number of animals per dose group will be placed in each starting group. Administration of NTO via drinking water will be continued for both males and females during pregnancy and lactation until termination of the P generation of males after 10 weeks of treatment and the P females after weaning of the litters (*i.e.,* total of 10 weeks of treatment). Males in the recovery groups (control and high dose) will be dosed until termination of the P generation, at which time they will stop treatment and begin receiving untreated (control) water for 10 weeks.

V.1.2.2. Co-Housing Procedure: Each P female will be co-housed in a solid bottom cage with a wire bottom insert with a single, randomly selected, unrelated male from the same dose group (1:1 pairing) until evidence of copulation is observed (e.g., sperm plug is observed) or 2 weeks have elapsed, whichever comes first. If there are insufficient males, for example due to male death before pairing, then male(s) which have already mated may be paired (1:1) with a second female(s) such that all females are paired. Female rats and cages will be examined for the presence of a sperm plug each morning during the co-housing period. Animals will be separated as soon as possible after evidence of copulation is observed. If mating has not occurred after 2 weeks, the animals will be separated without further opportunity for mating. Day 0 of pregnancy (aka GD 0) is defined as the day on which mating evidence is confirmed (a sperm plug is found).

V.1.2.3. Observations: A thorough physical examination of each rat will be performed by study personnel at a similar time at least once per week. The examination process will consist of each rat being removed from its home cage, individually handled, and carefully observed. Observations will include, but not be limited to, evaluation of skin and fur, eyes and mucous membranes, respiratory and circulatory effects, autonomic effects such as salivation, central nervous system effects, including tremors and convulsions, changes in the level of activity, gait and posture, reactivity to handling or sensory stimuli, altered strength, and stereotypes or abnormal behavior (e.g., self mutilation, walking backwards). Twice daily during the week, once daily during weekends, an in cage, general clinical observation of each rat will be performed by study personnel and/or animal care staff. All rats will be observed for signs of toxicity, morbidity and mortality. All data related to the observation of rats will be detailed and thoroughly documented in the study records by study personnel.

P females will be carefully examined at the time of expected parturition for signs of dystocia. Abnormalities in nesting behavior, nursing, or failure to care for litters will be recorded. The dates of pairing, the date of insemination and the date of parturition will be recorded and the precoital interval (pairing to insemination) and the duration of pregnancy (insemination to parturition) calculated.

V.1.2.4. Body Weight and Food/Water Consumption: P animals will be weighed on the first day of dosing, weekly thereafter, and at termination (pre-fasted and fasted). During pregnancy, female rats will be weighed on GD 0, every two days thereafter, and on GD 21. During lactation, females will be weighed on the same days as pups in their litters (i.e., PND 0 or 1, 4, 7, 14, and 21). Food and water consumption will be monitored weekly during pre-mating, pregnancy, and lactation. Food and water consumption will not be monitored during the 2-week co-housing period. Food and water consumption will be monitored weekly for all recovery animals.

V.1.2.5. Litter and Offspring Parameters: The duration of gestation will be recorded and is calculated from GD 0 as indicated by the presence of a sperm plug. Each litter will be examined as soon as possible after delivery (PND 0 or 1) to establish the number and sex of pups, stillbirths, live births, runts, and the presence of gross abnormalities (externally visible abnormalities, including cleft palate; subcutaneous hemorrhages; abnormal skin color or texture; presence of umbilical cord; lack of milk in stomach; presence of dried secretions). The first clinical examination of neonates will also include a qualitative assessment of body temperature, state of activity and reaction to handling. Live pups will be counted and weighed individually on PND 0 or 1, and at least on PND 4, 7, 14, and 21. Physical examinations will be repeated when the offspring are weighed, or more often if case-specific findings have been made at birth. The AGD of each pup will be measured on at least one occasion from PND 0 through PND 4. Pup body weight will also be collected on the day the AGD is measured. On PND 4, the size of each litter may be adjusted by euthanizing (as described in section V.4.6.) extra pups by random selection to yield, as nearly as possible, five males and five females per litter. Male pups will be checked for the presence of nipples/areolae on PND 12 or 13.

V.1.2.6. Selection of Pups for Post-weaning Studies: At weaning (PND 21±1) pups from all available litters, up to 20 per dose and control group, will be selected for further examinations. Pups will be selected randomly, with the exception that obvious runts (animals with a body weight more than two standard deviations below the mean pup weight of the respective litter) will not be included, as they are unlikely to be representative of the treatment group. On PND 21±1, one male and one female per litter per group will be selected (20/sex/group) and will be assigned to the same treatment groups as their parents.

V.1.2.7. Terminal Observations

V.1.2.7.1. Clinical Chemistry, Hematology and Hormone Assays: Fasted blood samples will be taken from ten randomly-selected P males and females per dose group at termination and subjected to hematology, clinical chemistry and/or hormone analyses (as described in section V.4.4.3.1.). The following hematology parameters will be evaluated: hematocrit, hemoglobin concentration, erythrocyte count, total and differential leukocyte count, platelet count, and clotting time. Serum will be evaluated for the following chemistries and hormones: BUN, GLU, TP, ALB, ALT, ALK P, AST, CHOL, T4, and TSH. Blood may also be collected from the 10 randomly selected weanlings/sex/group subjected to gross necropsy at termination for T4 and TSH analyses. Details concerning clinical chemistry and hematology analyses are outlined in TOX SOP 011.000 and TOX SOP 013.000, respectively (USAPHC 2011a and b, respectively).

V.1.2.7.2. Gross Necropsy, Organ Weight and Tissue Preservation: At the time of termination or premature death, surplus pups at PND 4, a subset of the weanlings not selected for treatment groups at PND 22 (10 randomly selected/sex/group), and all P animals will be necropsied and examined macroscopically for any structural abnormalities or pathological changes, paying special attention to the organs of the reproductive system, when appropriate. For all P females, uteri will be examined for the presence and number of implantation sites and ovaries will be examined for the number of corpora lutea. Wet weights of the organs listed below from all P animals and from 10 randomly selected weanlings per sex per group will be determined as soon as possible after dissection to avoid drying. If organs cannot be weighed immediately, they may be placed in a weigh-boat and a moist paper towel used to cover the weigh-boat, but the organs should not be allowed to come into contact with water. A single testis and epididymis from each animal (either left or right, but the same side from all animals) will be placed in Davidson's fixative overnight (no longer than 24 hours) or 10% buffered formalin for at least 24 hours; however, fixing in Davidson's solution for less than 24 hours is preferred. All other organs will be placed in 10% buffered formalin for at least 24 hours for fixation.

- Uterus (with oviducts and cervix)
- Ovaries
- Testes
- Epididymides (total and cauda for the samples used for sperm counts)
- Prostate (dorsolateral and ventral parts combined). In the event of a treatment-related effect on total prostate weight, the dorsolateral and ventral segments may be dissected after fixation, and weighed separately.
- Seminal vesicles with coagulating glands and their fluids (as one unit)
- Brain
- Liver
- Kidneys
- Heart
- Spleen
- Thymus
- Pituitary
- Thyroid (trimmed and weighed post-fixation)
- Adrenal glands

In addition to the organs listed above, samples of peripheral nerve, muscle, spinal cord, eye plus optic nerve, gastrointestinal tract, urinary bladder, lung, trachea (with thyroid and parathyroid attached), bone marrow, vas deferens (males), mammary gland (males and females) and vagina will be collected and will be placed in 10% buffered formalin for at least 24 hours for fixation.

Sperm parameters will be measured in all P generation males. After wet weight of the epididymides is determined as described above, at least one epididymis (either left or right, but the same side from all animals) will be reserved for histopathological examination (as described in section V.1.1.7.3.). The remaining epididymis will be used for enumeration of cauda epididymis sperm reserves, sperm motility and morphology (as described in section V.4.4.3.3.).

V.1.2.7.3. Histopathology: Histopathology may be limited or omitted for the P generation animals at the discretion of the PI based on comparison of results (e.g. mating success, organ weights, gross observations) with previous sub-chronic and reproductive screening studies. Full histopathology of the organs listed in section V1.2.7.2. may be performed for all high-dose and control P animals except the recovery group animals. Histopathology of the recovery group animals will be limited to the reproductive tract, but may be expanded to include additional organs demonstrating effects in the main study. Organs demonstrating treatment-related changes may also be examined in all animals in the lower dose groups. Additionally, reproductive organs of all animals suspected of reduced fertility, *e.g.,* those that failed to mate, conceive, sire, or deliver healthy offspring, or for which sperm number, motility, or morphology were affected, and all gross lesions may be subjected to histopathological evaluation.

V. 1.3. Post-weaning Offspring (F1) Generation:

V.1.3.1. Administration of Test Substance: NTO will be administered 7-days/week via drinking water at a constant dietary concentration (mg/L). F1 males and females will be given NTO in drinking water beginning at weaning (PND 22±1). NTO in drinking water provided to the P females will be also be available to nursing/weanling pups during the weaning period, therefore, direct dosing of the F1 generation may begin prior to PND 22±1. F1 weanlings will be given NTO through puberty (PND 42±1 and PND 53±1 for females and males, respectively).

V.1.3.2. Observations: A thorough physical examination of each rat will be performed by study personnel at a similar time at least once per week. The examination process will consist of each rat being removed from its home cage, individually handled, and carefully observed. Observations will include, but not be limited to, evaluation of skin and fur, eyes and mucous membranes, respiratory and circulatory effects, autonomic effects such as salivation, central nervous system effects, including tremors and convulsions, changes in the level of activity, gait and posture, reactivity to handling or sensory stimuli, altered strength, and stereotypes or abnormal behavior (e.g., self mutilation, walking backwards). Twice daily during the week, once daily during weekends, an in cage, general clinical observation of each rat will be performed by study personnel and/or animal care staff. All rats will be observed for signs of toxicity, morbidity and mortality. All data related to the observation of rats will be detailed and thoroughly documented in the study records by study personnel.

V.1.3.3. Body Weight and Food/Water Consumption: F1 animals will be weighed on PND 21±1, at least weekly thereafter, the day puberty is attained (completion of PPS or VO), and at termination (pre-fasted and fasted). Food and water consumption will be monitored weekly for all F1 animals by weighing the food hopper/water bottle or measuring the amount of water remaining.

V.1.3.4. Assessment of Sexual Development: All selected F1 animals will be evaluated daily for VO or PPS (as described in sections V.4.4.8.2. and V.4.4.8.3.) beginning on PND 22 or 30 for females and males, respectively, to detect alterations in timing of sexual maturation. Any abnormalities of genital organs, such as persistent vaginal thread, hypospadia or cleft penis, will be noted. Body weight will be determined on the day VO or PPS is observed. Assessments of sexual development will occur at approximately the same time each day.

V.1.3.6. Terminal Observations

V.1.3.6.1. Clinical Chemistry, Hematology and Hormone Assays: Fasted blood samples will be taken from ten randomly-selected F1 males and females per dose group at termination (as described in section V.4.4.3.1.) and subjected to hematology, clinical chemistry and hormone analyses. The following hematology parameters will be evaluated: hematocrit, hemoglobin concentration, erythrocyte count, total and differential leukocyte count, platelet count, and clotting time. Serum will be evaluated for the following chemistries and hormones: BUN, GLU, TP, ALB, ALT, ALK P, AST, CHOL, T4, and TSH. Details concerning clinical chemistry and hematology analyses are outlined in TOX SOP 011.000 and TOX SOP 013.000, respectively (USAPHC 2011 a and b, respectively).

V.1.3.6.2. Gross Necropsy, Organ Weight and Tissue Preservation: At the time of termination or premature death all selected F1 animals will be necropsied and examined macroscopically for any structural abnormalities or pathological changes, paying special attention to the organs of the reproductive system. Wet weights of the organs listed below (tissue list may be altered at the discretion of the pathologist/PI based on observations at the time of necropsy) from all F1 animals will be determined as soon as possible after dissection to avoid drying. If organs cannot be weighed immediately, they may be placed in a weigh-boat and a moist paper towel used to cover the weigh-boat, but the organs should not be allowed to come into contact with water. For F1 animals, the testes and epididymides from each animal will be placed in Davidson's fixative overnight (no longer than 24 hours) or 10% buffered formalin for at least 24 hours; however, fixing in Davidson's solution for less than 24 hours is preferred. All other organs will be placed in 10% buffered formalin for at least 24 hours for fixation.

- Uterus (with oviducts and cervix)
- Ovaries
- Testes
- Epididymides
- Prostate (dorsolateral and ventral parts combined). In the event of a treatment-related effect on total prostate weight, the dorsolateral and ventral segments may be dissected after fixation, and weighed separately.
- Seminal vesicles with coagulating glands and their fluids (as one unit)
- Brain
- Liver
- Kidneys
- Heart
- Spleen (half of spleen used in immunotox analysis; half preserved for histopathology)
- Thymus (half of thymus used in immunotox analysis; half preserved for histopathology)
- Pituitary
- Thyroid (trimmed and weighed post-fixation)

- Adrenal glands
- Lymph nodes (near point of administration) (10 male and 10 female F1 animals/group; 1 male or 1 female per litter; all litters represented by at least 1 pup; randomly selected)
- Lymph nodes (distant point of administration) (10 male and 10 female F1 animals/group; 1 male or 1 female per litter; all litters represented by at least 1 pup; randomly selected)

In addition to the organs listed above, samples of peripheral nerve, muscle, spinal cord, eye plus optic nerve, gastrointestinal tract, urinary bladder, lung, trachea (with thyroid and parathyroid attached), bone marrow, vas deferens (males), fourth and/or fifth inguinal mammary gland (males and females) and vagina will be collected and will be placed in 10% buffered formalin for at least 24 hours for fixation.

Pre- and postnatally induced immunotoxic effects of NTO will be examined in 10 male and 10 female F1 animals from each treatment group (1 male or 1 female per litter; all litters represented by at least 1 pup; randomly selected). Splenic and thymic lymphocyte subpopulation analysis (CD4+ and CD8+ T lymphocytes, B lymphocytes, and natural killer cells) will be conducted using one half of the spleen and thymus (as described in section V.4.4.3.4.).

V.1.3.6.3. Histopathology: Full histopathology of the organs listed in section V1.3.6.2 will be performed for all high-dose and control F1 animals. Organs demonstrating treatment-related changes may also be examined in animals in the lower dose groups. Additionally, all gross lesions will be subjected to histopathological evaluation. For the evaluation of pre- and postnatally induced effects on lymphoid organs, the histopathology on the collected lymph nodes and bone marrow will be evaluated in 10 male and 10 female F1 animals. The histopathological examination of ovaries from F1 females will include enumeration of primordial and small growing follicles (may be combined), as well as corpora lutea. The ovary may be trimmed until the outer third has been removed and a clear rim of follicles/corpora lutea established around the central stroma. The ovary will be sectioned at 5 µm thickness and 5 sections retained every 20 sections (i.e., 100 µm between collection of 5 sections). Follicular enumeration may first be conducted on control and high-dose animals, and in the event of an adverse effect in the latter, lower doses may be examined. Corpora lutea assessment will be conducted in parallel with estrous cyclicity testing so that the stage of the cycle can be taken into account in the assessment. Oviduct, uterus and vagina will be examined for appropriate organ-typic development. Detailed testicular histopathology examinations will be conducted on the F1 males in order to identify treatment-related effects on testis differentiation and development and on spermatogenesis. When possible, sections of the rete testis will be examined. Caput, corpus, and cauda of the epididymis and the vas deferens will be examined for appropriate organ-typic development. The mammary glands will be cut in horizontal sections cut parallel to the skin or whole mounts of mammary glands may be examined, noting development of the terminal end buds into differentiated structures (Fenton et al. 2002).

V.1.4. Study Time Frame: Estimated initiation date for the study is March 2013. Estimated completion date for the study is March 2014.

V.2. <u>Sample Size Evaluation, Data Analysis Plan, and Archiving of Data</u>: The sample size of 20 litters per dose group is in accordance with that indicated in current reproductive toxicity test guidelines (OECD 2011; OECD 1983; OECD 2001; USEPA 2009a; ICH 2005). These guidelines state that, "for all but the rarest events (such as malformations, abortions, total litter loss), evaluation of between 16 to 20 litters for rodents and rabbits tends to provide a degree of consistency between studies. Below 16 litters per evaluation, between study results become inconsistent, above 20-24 litters per group consistency and precision is not greatly enhanced" (ICH 2005). Examining all pups in each litter in the F1 generation will enhance the ability to detect effects. Examining all of the pups can improve the statistical precision of the analysis, reducing the error mean square used to calculate the F statistic. Developmental toxicity studies using a sample size of 20 litters and evaluating all fetuses reportedly have the power to detect an increased incidence of malformations of 5 to 12 times above control levels, an increase of 3 to 6 times the *in utero* death rate, and a decrease of 0.15 to 0.25 times the fetal weight (OECD 2008). In order to produce the desired 20 litters, 25 pairs will be mated as the expected success rate is approximately 80%.

Data will be reported individually and summarized in tabular form. Where appropriate, for each test group and each generation, the following will be reported:

- Food consumption, water consumption if available, food efficiency (body weight gain per gram of food consumed, except for the period of cohabitation and during lactation), and test material consumption for P and F1 animals;
- Body weight data for P animals and selected F1 animals postweaning;
- Time of death during the study or whether animals survived to termination;
- Nature, severity and duration of clinical observations (whether reversible or not);
- Hematology and clinical chemistry data including TSH and T4;
- Phenotypic analysis of spleen cells (T-, B-, NK-cells);
- Bone marrow cellularity;
- Toxic response data;
- Time to mating (precoital interval, the number of days between pairing and mating);
- Toxic or other effects on reproduction, including numbers and percentages of animals that accomplished mating, pregnancy, parturition and lactation, of males inducing pregnancy, of females with signs of dystocia/prolonged or difficult parturition;
- Duration of pregnancy;
- Numbers of implantations, litter size and percentage of male pups;
- Number and percent of post-implantation loss, live births and stillbirths;
- Litter weight and pup weight data (males, females and combined), the number of runts if determined;
- Number of pups with grossly visible abnormalities;

- Toxic or other effects on offspring, postnatal growth, viability, etc.;
- Data on physical landmarks in pups (i.e., AGD and nipple retention
- Data on sexual maturation of F1 animals (i.e., age and body weight at VO and PPS);
- Body weight at sacrifice and absolute and relative organ weight data for the P and adult F1 animals;
- Necropsy findings;
- Detailed description of all histopathological findings;
- Total cauda epididymal sperm number, percent progressively motile sperm, and percent morphologically normal sperm for P males;
- Numbers and maturational stages of follicles contained in the ovaries of P and F1 females, where applicable;
- Enumeration of corpora lutea in the ovaries of F1 females;

Calculation of reproductive indices

Index	Calculation	Definition
Male Mating Index	No. of males with confirmed mating X 100 Total No. of males cohabited	Measure of male's ability to mate
Female Mating Index	No. of sperm-positive females X 100 Total No. of females cohabited	Measure of female's ability to mate
Male Fertility Index	No. of males impregnating a female X 100 Total No. of males cohabited	Measure of male's ability to produce sperm that can fertilize eggs
Female Fertility Index	No. of pregnant females X 100 No. of sperm-positive females	Measure of female's ability to become pregnant
Gestation Index	No. of females with live born pups X 100 No. of pregnant females	Measure of pregnancy that provides at least one live pup
Survival Index	No. of live pups (at designated time) X 100 No. of pups born	Measure of pup survival which is calculated at several times during lactation
Pre-Implantation Loss	No. of corpora lutea – No. of implantation sites	Measure of effects on gamete function, fertilization, direct effects on preimplantation embryo or indirect effects on uterus or endocrine status of dam
Post-Implantation Loss	No. of implantation sites – (No. of live + No. of dead pups)	Measure of direct effects on postimplantation embryo or indirect effects on uterus or endocrine status of dam

Continuous data will be analyzed using a one-way ANOVA with dose group as the main effect. Age and body weight at VO and PPS will be analyzed by ANCOVA using body weight at PND 21±1 as the covariate.All organ weights will be analyzed by ANCOVA using final body weight as the covariate. Mean pup body weight per litter will be calculated then analyzed with ANOVA. Weekly body weight and food and water consumption data will be analyzed using repeated measures ANOVA to determine dose effect. Paired t-tests will be used in the event of significant main effects (Wilks's lambda, $p \leq 0.05$) to test for week effect. Since the AGD may correlate with the body weight of the pup, AGD will be normalized to the cubed root of body weight or will be analyzed by ANCOVA using body weight or cubed root of body weight at the time of measurement of AGD as the covariate (Gallavan et al 1999). When statistically significant main effects are observed ($p \leq 0.05$), post hoc tests will be used to compare pairs of dose groups and dose groups to the control group; Tukey's multiple, comparison test if the variance of the groups is similar and Dunnett's T3 test if the variances are unequal. Variance equality will be determined by Levene's test. If the data are not normally distributed, the data may be transformed appropriately prior to ANOVA/ANCOVA, or analyzed using a nonparametric Kruskal-Wallis test. Non-parametric analysis will be the method of last resort since it does not allow analysis of co-variation.

Chi-square analysis will be used to determine significant differences between treated and control groups for nominal or count data (e.g., malformation frequency, etc.). When possible, appropriate statistical analysis, such as Chi-square analysis, will be applied to the histology results.

SPSS or SAS will be used to perform all analyses and statistical significance will be defined as $p \leq 0.05$ for all tests.

This study will be conducted in a manner consistent with the principles of 40 CFR Part 792 TSCA GLP Regulation (CFR 1989). The investigators and technicians will adhere to The Guide for Care and Use of Laboratory Animals (NRC 2011).

Records will be kept in standard USAPHC laboratory notebooks and/or three ring binders. Daily records will be kept on survival and clinical signs collected on the animals during the study. Procedures for preparation of any euthanasia solution, drug administration, animal blood collection, observation logs, morbidity/mortality logs, etc., will be stored with the study records. These records will be made available to oversight organizations such as the US EPA, Quality Systems Office, and the IACUC. The protocol, protocol amendments, raw data, statistical analysis, tabular calculations, and graphic analysis of the data will be saved with the study records. Additionally, memoranda to the study file, study logs, signature logs, final reports, and final report amendments will be archived at USAPHC. Some ancillary records such as maintenance and calibration logs, environmental monitoring logs, animal room husbandry and health rounds sheets, all veterinarian staff duties logbooks, training files, etc. may be stored in the archives but not stored with the study files.

V.3. <u>Laboratory Animals Required and Justification</u>:

V.3.1. Non-animal Alternatives Considered: The objectives of this study are to determine the reproductive and developmental toxicity of NTO following combined pre- and postnatal exposure. There are no appropriate animal substitutes (e.g., computer models, tissue/cell cultures) for the data that will be produced in this study. No non-animal alternative would provide the necessary toxicological information provided by this study. Therefore, it is necessary to perform this study in an animal model.

V.3.2. Animal Model and Species Justification: Sprague-Dawley is the strain of rat that has been historically used for oral toxicity studies by USAPHC TOX and is the recommended species due to an historical and extensive database. Rats are preferred due to their high fecundity and low incidence of spontaneous developmental defects.

V.3.3. Laboratory animals:

V.3.3.1. Genus and Species: *Rattus norvegicus*

V.3.3.2. Strain/Stock: Sprague-Dawley (Crl:CD(SD))

V.3.3.3. Source vendor: Charles River Laboratories, Wilmington, MA (USDA 14-R-0144

V.3.3.4. Age (at arrival): Pilot Study: females – approximately 22 days
males – approximately 30 days
P Generation: females – approximately 10 weeks
males – approximately 8 weeks

V.3.3.5. Weight: Age appropriate

V.3.3.6. Sex: Male and female (nulliparous and non-pregnant on arrival)

V.3.3.7. Special Considerations: None

V.3.4. Number of Animals Required (By Species): N=1650
A total of 30 rats will be used for the pilot study.
The P generation will consist of 220 rats ordered from an external vendor. The F1 generation will result from breeding the P animals and is estimated to be 1400 pups (14 per litter, 25 litters/group, 4 groups). The F1 generation will be allocated as follows: 400 pups culled on PND 4; 840 pups not selected for placement in F1 treatment groups; 160 in F1 treatment groups.

V.3.5. Refinement, Reduction, Replacement (3 Rs):

V.3.5.1. Refinement: Standard rat enrichment will be implemented in accordance with TOX SOP 033.000 (USAPHC 2012b). Animals will be socially housed on this study with the exception of P generation females which may be singly housed prior to parturition. All animals on this study will be handled on a frequent basis and provided a form of environmental enrichment (e.g., nylabones, rodent retreats) throughout the study period. Animals will be considered for early removal from this study as described in section V.4.5.

V.3.5.2. Reduction: The extended one-generation study is designed to replace both the one-generation and two-generation reproductive toxicity studies, thereby reducing animal use. Additionally, the extended one-generation study uses approximately 40% fewer animals than the two-generation study. The extended one-generation study incorporates additional measures (AGD, nipple retention, hormone analysis, etc.) not included in previous reproductive toxicity tests, making more efficient use of animals and further reducing the need for future studies.

V.3.5.3. Replacement: No non-animal alternatives are known to exist that will provide the required data. At this time, there are no non-animal alternatives that can fully replicate the complex processes that occur within an intact mammalian organism.

V.4. <u>Technical Methods</u>:

V.4.1. Pain/Distress Assessment:

V.4.1.1. APHIS Form 7023 Information:

V.4.1.1.1. Number of Animals:

V.4.1.1.1.2. Column B: 0

V.4.1.1.1.2. Column C: 1360

V.4.1.1.1.3. Column D: 290

V.4.1.1.1.4. Column E: 0

V.4.1.2. Pain Relief/Prevention:

V.4.1.2.1. Anesthesia/Analgesia/Tranquilization: Animals will be anesthetized with CO2 prior to blood collection. Animals will be brought to the necropsy room in home cage or transport cage. The stainless steel lid will be placed on the cage. If using a cage with a grommet for automatic water, the grommet will be covered with tape or magnet. The CO2 tank will be turned on then the regulator opened to approximately ¼ to ½ turn. The dial on the flowmeter will be adjusted to read 1.8-5.6 L/min when using standard ventilated cages and 2.2-6.5 L/min when using large, conventional cages. Animals will remain in the cage until they are recumbent, but breathing regularly. Once recumbent, a toe or space between the toes will be pinched to assess appropriate depth of anesthesia. If no response to toe pinch, the animal will be removed and blood collected (as described in V.4.4.3.). Upon completion of blood collection the animal will be returned to the cage and euthanized IAW TOX SOP 027.001 (USAPHC 2012c). Pilot animals will be anesthetized prior to perfusion fixation using ketamine (70-80 mg/kg) in combination with xylazine (7-10 mg/kg) given either intramuscularly or intraperitoneally in the same syringe using a 23-25 gauge needle. A dose sufficient to reach a deep surgical plane of anesthesia will be administered. Unconsciousness will be confirmed by lack of response to hard pinch to feet or blink reflex when eye is touched. If, after 10-15 minutes, the rats are not sufficiently anesthetized, additional anesthetics will be given. Ketamine and xylazine will be given at ½ the original volume/dose by the same route of administration.

V.4.1.2.2. Pre- and Post-procedural Provisions: A physical examination will be made at least once each day during all phases of the study. Observations will be detailed and carefully recorded in the study records. Details related to observations and/or physical examination of rats is described in Sections V.1.1.3, V.1.2.3 and V.1.3.2.

V.4.1.2.3. Paralytics: None

V.4.1.3. Literature Search for Alternatives to Painful or Distressful Procedures

V.4.1.3.1. Source(s) Searched: FEDRIP, PubMed, Web of Science

V.4.1.3.2. Date of Search: 3 December 2012

V.4.1.3.3. Period of Search: All years covered by databases

V.4.1.3.4. Key Words of Search: (3-nitro-1,2,4-triazol-5-one or 3 nitro 1,2,4 triazol 5 one or triazole* or nitro compound*) and (reproduction or development* or pregnan* or fetus or fetal or embryo or sperm or ovum or maternal exposure or paternal exposure) and (toxic*) and ((cardiac or heart) and (blood collection) or (perfusion fixation)) and (rat or rats)

V.4.1.3.5. Results of Search: The literature search identified 105 references pertaining to alternatives to painful procedures. However, no acceptable alternatives to the painful or distressful procedures (e.g., perfusion fixation, cardiac bleed) in this protocol were found. Although other methods exist for blood collection (e.g., saphenous vein, dorsal pedal vein, tail vein) from the laboratory rat, none of these alternative methods would allow collection of a sufficient volume of blood to perform clinical chemistry, hematology, and hormone analyses. Alternative fixation methods also exist (e.g., immersion), however, these methods can introduce artifacts in sensitive tissues and are not suitable for the neurotoxicity evaluation. Anesthesia will be provided prior to both painful procedures (as described in section V.4.1.2.1).

V.4.1.4. Unalleviated Painful/Distressful Procedure Justification: N/A

V.4.2. Prolonged Restraint: N/A

V.4.3. Surgery:

V.4.3.1. Pre-Surgical Provisions: N/A

V.4.3.2. Procedure: N/A

V.4.3.3. Post-Surgical Provisions: N/A

V.4.3.4. Location: N/A

V.4.3.5. Surgeon: N/A

V.4.3.6. Multiple Major Survival Operative Procedures:

V.4.3.6.1. Procedures: N/A

V.4.3.6.2. Scientific Justification: N/A

V.4.4. Animal Manipulations:

V.4.4.1. Injections: Anesthesics will be provided to pilot animals prior to perfusion fixation using ketamine (70-80 mg/kg) in combination with xylazine (7-10 mg/kg) given either intramuscularly or intraperitoneally in the same syringe using a 23-25 gauge needle. If, after 10-15 minutes, the rats are not sufficiently anesthetized, additional anesthetics will be given. Ketamine and xylazine will be given at ½ the original volume/dose by the same route of administration

V.4.4.2. Use of Non-pharmaceutical-grade chemicals: The agents being tested are not available in a pharmaceutical-grade composition. They are under investigation as described in the objective section (Section III) of this protocol.

V.4.4.3. Biosamples:

V.4.4.3.1. Blood Collection and Analysis: Blood will be collected from a minimum of ten randomly selected males and females per treatment group from the P generation at termination. Blood will be collected from the Recovery males, if used, at the conclusion of the holding period (10 weeks). Blood will be collected from a minimum of ten randomly selected males and females per treatment group from F1 animals at euthanasia at PND 42±1 or PND 53±1 for females or males, respectively. Blood may also be collected for thyroid hormone analysis from weanlings not placed on study and euthanized at PND 22±1; however, this blood may be pooled for analysis if sample volumes are not sufficient. All blood collection will be conducted under CO2 gas anesthesia (as described in section V.4.1.2.1.) just prior to euthanasia. Once the anesthetic has taken effect (ensured by toe pinch), the rat will be placed in dorsal recumbency. The rat can then be immobilized by either holding the base of the tail or by holding the forelimbs apart and upward with the thumb and index finger. There should be no response by the rat to entry of the needle into its skin. If there is any response, the rat is not at a deep enough level of anesthesia for this method of blood collection and the procedure will stop until the rat is anesthetized to a deeper plane of anesthesia. An appropriate size needle (18-25 gauge, 1-1.5 inch needle, depending on the size of the rat) will be fitted onto a 1-6 ml syringe and inserted anteriorly under the xiphoid region of the rat at an approximately 45º angle and advanced firmly through the diaphragm and into the heart. Slight negative pressure should be placed on the syringe plunger and the required amount of blood withdrawn from the rat. Following collection of the blood sample, the needle should be slowly withdrawn from the rat. To minimize blood hemolysis, the needle should be removed from the syringe before discharging the blood sample into microtubes. For hematology samples, approximately 1-2 ml of blood will be transferred to an EDTA microtube and immediately inverted gently several times. For clinical chemistry and hormone samples, approximately 1-2 ml of blood will be transferred to a serum-gel microtube and allowed to stand at room temperature for at least 20 minutes to allow sufficient clotting prior to centrifugation. The remainder of the blood from each animal (approx. 1-2 ml) will be transferred to a sodium citrate microtube for analysis of prothrombin time. Details concerning clinical chemistry and hematology parameters are outlined in TOX SOP 011.000 and TOX SOP 013.000, respectively (USAPHC 2011 a and b, respectively). For hormone analyses, serum will be removed and assayed immediately or aliquotted into microcentrifuge tubes and stored at -20 °C or colder for subsequent analyses. Hormonal measurements will be conducted using ELISA and/or time-resolved immunofluorescent procedures. Details concerning use of the TOSOH Automated Enzyme Immunoassay System for measurement of thyroid and reproductive hormones are outlined in TOX SOP 020.000 (USAPHC 2011c). Analysis of TSH will be conducted using a rat TSH ELISA kit per the manufacturer’s (ALPCO Immunoassays or similar) instructions (ALPCO 2012). Briefly, 25 µl of standard, blank, or sample will be added to the appropriate wells, 200 µl of enzyme-labeled anti-rat TSH-antibody added to all wells, plate covered with the adhesive strip, and incubated for 18-20 hours at 4±2°C. Liquid will then be aspirated from each well and the plate washed 4 times (Wash: Each well filled with diluted wash solution (300 µl) and let stand for 2 minutes, then liquid removed by flicking the plate over a sink. The remaining drops are removed by patting the plate on a paper towel). The TMB Substrate Solution (200 µl) will be added to each well and the plate incubated in the dark for 10-30 minutes (timing based on color development), keeping the plate away from drafts and other temperature fluctuations. Stop Solution (50 µl) will be added to each well when the first four wells containing the highest concentration of standards develop obvious blue color. The optical density of each well will be determined within 30 minutes, using a microplate reader set to 450 nm. Test samples and QC samples will be run in duplicate, with QC samples dispersed among the test samples. The hormone tests and kit(s) will be validated (i.e., kit standards perform as expected and hormone measures fall within assay performance criteria for controls) using blood and tissues collected from pilot rats prior to use in the full study. Blood collection will be promptly followed by euthanasia as described in Section V.4.6.

V.4.4.3.3. Sperm Collection and Analysis: Cauda epididymal sperm counts will be determined using a computer assisted sperm analyzer (TOX IVOS-CASA). After removal, trimming, and weighing, one epididymis will be further trimmed to select the cauda portion and re-weighed. The cauda will be placed in a well of a petri dish containing 10 ml RPMI-1640 medium at 34-37 °C and the surface minced using a scalpel to release sperm. The cauda will be incubated for 15 minutes at 34-37 °C, gently mixed to uniformly suspend the sperm, and 0.5 ml of the suspension transferred to another well containing 2 ml of RPMI-1640. A chamber of a rat toxicology slide (Leja® or Hamilton Thorne) will be loaded with the sperm suspension and the slide loaded into the sperm analyzer. The number of sperm, number of motile sperm, and number of progressive sperm will be determined in duplicate for each animal. The data will be expressed as millions of sperm per ml of suspension and millions of sperm per gram cauda epididymis. For the assessment of morphology, a small sample will be placed on a slide and can be viewed either as a wet preparation or the slide can be air-dried. Samples may be stained with Eosin Y, but a variety of stains are acceptable as long as they allow appropriate viewing of the sperm. The samples will be viewed with a light microscope at a magnification of 400X and at least 200 spermatozoa per sample classified as either normal (both head and midpiece/tail appear normal) or abnormal (e.g., fusion, isolated heads, and misshapen heads and/or tails) (Linder et al. 1992; OECD 2008).

V.4.4.3.4. Thymic and Splenic Lymphocyte Subpopulation Analysis: Lymphocytes are analyzed using a flow cytometry system (e.g., BD FACSVerse; BD Biosciences, Milpitas CA). The manufacturer's recommended daily start up, performance quality check (P-QC) and maintenance guidelines are followed. The thymus and spleen weights will be measured and recorded after removal from the animal. The thymus will be bisected laterally while the spleen will be cut in cross-section to yield the distal and proximal halves of the spleen. One half (i.e., test half) will be transferred into a suitable tissue culture container with sufficient volume of a physiological buffer (e.g., PBS or RPMI medium) to cover the test half. The other half of the tissues will be reweighed (subtraction yields the weight of the test half) and transferred to formalin for histopathology.

The test half will be processed in a clean Petri plate (35 X 100 mm and 35 X 60 mm have both been used successfully). The procedure for making a single cell suspension from the test pieces is similar for both the thymus and the spleen. For either the thymus or the spleen, the test piece will be minced with a clean scalpel blade and the pieces pushed through sterile wire mesh screen (Sigma 60 mesh #S1020 or similar) using the rubber end of a syringe plunger. Additional buffer/media can be added to facilitate dissociation of the tissue pieces. Repeated (3-5 times) aspiration and expression of the liquid/tissue mixture using a syringe and needle (large bore e.g., 18-20 gauge) also facilitates the generation of single cell suspensions. Care will be taken that the dissociation steps are performed gently with minimal bubble/foam production, as bubbles and/or foam is an indication of cellular fragmentation. Once the tissue has been suitably converted to a single cell suspension (i.e., there are no clumps or cell aggregates) the volume is brought to 30 mLs with PBS/RPMI and the cell suspension(s) will be washed by centrifuging at ~250xg for 5 minutes at $4\pm2^{\circ}$C. The resulting supernatant will be discarded, and the cell pellet resuspended in 5- 10 mL PBS. An optional RBC lysis for the splenic samples is performed at this step. Red blood cells are lysed with an ammonium chloride based reagent (e.g., BD- Pharm Lyse; BD Biosciences, Milpitas CA). The manufacturer's recommended procedures are used. The wash step will be repeated once and then 50-100 microliters of the suspension is removed for counting. The cell suspension will be centrifuged again at 250xg for 5 minutes at $4\pm2^{\circ}$C. The supernatant will be discarded and the pellet resuspended to a concentration of 5 million cells per mL. From this point on, the cells and buffers should be kept on ice as much as possible. The volume for each sample will be calculated based on the number of cells in each of the suspensions. TOX SOP 039.000 (USAPHC, 2011d) outlines two methods for counting cells, one method uses the Coulter Z instrument while the other method is performed manually. Either approach provides satisfactory results and either approach may be used to measure cellularity. The preference for either approach is based on timeliness of processing samples. If there are more than twelve animals necropsied per day the automated approach may be the method of choice. To count the cells manually, 10 microliters of the 50-100 microliter sample will be transferred to a microcentrifuge tube and stained with an equal volume (dilution factor = 2) of 4 percent trypan blue. Trypan blue stains dead cells blue, live cells will be unstained. Approximately 10 microliters of this mixture will be loaded (by capillary action) into one side of a hemocytometer (glass reusable and plastic disposable are acceptable). The numbers of unstained and blue cells will be counted in each of the 4 corners of the hemocytometer grid. These numbers will be recorded and the cellularity of the sample calculated using the following formulas:

live cell count:

(total # live cells/4) X 2 (dilution factor) x 10,000 = live cells / mL

dead cell count:

(total # dead cells/4) X 2 (dilution factor) x 10,000 = dead cells / mL

percent viability:

(total # live cells)/(total # live + total # dead) X 100

If the percent viability is less than 90, the volume used to resuspend the final pellet will be adjusted appropriately. TOX SOP 038.000 (USAPHC 2011e) describes the method for counting cells with the Coulter Z instrument.

For analysis of the thymus, one hundred microliters of the cell samples will be aliquoted to 4 mL tubes (~ 500,000 cells/tube) suitable for flow cytometry and containing a cocktail of fluorescently labeled antibodies specific for the following T cell markers: CD4, CD8 and CD90.1 (Thy-1). For analysis of the spleen, one hundred microliters of the cell samples will be aliquoted to 4 mL tubes (~ 500,000 cells/tube) suitable for flow cytometry and containing a cocktail of fluorescently labeled antibodies specific for T cells (CD3) and B cells (CD45RA) and NK cells (CD161a). The cell/antibody mixtures will be vortexed gently to mix and incubated in the dark on ice for 30 minutes followed by a 5 minute centrifugation at 250xg. The supernatant will be removed and the cell pellet resuspended in 500 microliters of PBS. The centrifugation step will be repeated. Cells will be resuspended in 200 microliters of PBS (~ 250,000 cells/tube). Note, the sample volume, wash volume and cell number may be adjusted if a 96 well plate (or other suitable vessel) is used instead of the 4 mL tubes. The samples will then be analyzed on the FACSVerse flow cytometer. If there are time constraints due to the number of animals processed each day, a fixation step using a buffered paraformaldehyde solution (e.g., BD Cytofix™ Fixation Buffer) can be performed at this point. Fixation of the stained cells preserves the cells for subsequent analysis. Cells that are fixed must be maintained at 4±2°C in the dark until analysis (no longer than 2 weeks). The specific settings for each day's analysis will be determined by performing a P-QC using cytometer setup and tracking (CS&T) beads supplied by the FACSVerse manufacturer (BD Biosciences). For daily experimental controls, additional samples originating from the vehicle only control rats are prepared containing control antibodies (negative control) and single-label antibodies (positive control for each antibody). Data will be recorded as forward scatter, side scatter, and fluorophore intensity. In the typical fluorophore cocktail used by this Institute, fluorophores are PE, FITC, PE-Cy5. However, any fluorphores compatible with the assay endpoints and the laser configuration of the FACSVerse are acceptable.

V.4.4.4. Adjuvants: N/A

V.4.4.5. Monoclonal Antibody (MAbs) Production: N/A

V.4.4.6. Animal Identification: Animals will be identified by cage cards according to TOX SOP 024.000 (USAPHC 2011f). An identification number (e.g., the last 3 digits of the animal number) will also be tattooed (as described in section V.4.4.8.5.) or marked on the tail of each rat with a water-insoluble marker in order to ensure proper identification of rats when removed from their cages or when group-housed. On PND 0/1, pups will be individually identified by tail/toe tattoo or markings on the tail or head with water-insoluble marker (due to the size of the pups coded markings may be used instead of numbers). On or about PND 21, individual animal numbers will be marked on the tails of juvenile rats as described above.

V.4.4.7. Behavioral Studies: The rats will be moved to the behavior lab 30 minutes prior to the acoustic startle testing for acclimation. The rat will be placed into the startle chamber (San Diego Instruments, SR LAB Acoustic Startle Chamber). The test will begin 5 minutes after chamber habituation during which the animal will be exposed to a background noise of 70 dB. During the test session, animals will be exposed to a series of acoustic bursts above the background noise level. Trials will consist of startle stimulus alone (pulse-alone) and pre-pulse followed by startle stimulus (prepulse-pulse). Startle response and prepulse inhibition will be measured. Startle responses will be measured by an accelerometer mounted below the animal and recorded by the system software/computer. Dependent variables include the average voltage over the entire scoring window, the maximal voltage (peak) during the scoring window, and the time at which that peak occurred (latency).

V.4.4.8. Other Procedures:

V.4.4.8.1. Anogenital Distance Measurement: AGD can be measured using calipers or a stereomicroscope with measuring scale. It can be measured from the center of anus to the center of the genital bud or from the anterior rim of the anus to the posterior rim of the genital papilla, but will be measured in the same manner in all animals. In addition, care will be taken to avoid inducing variation in the measure by stretching the region in some animals more than in others.

V.4.4.8.2. Vaginal Opening Assessment: Beginning on PND 22, F1 females will be examined after daily dosing for vaginal opening until vaginal opening is complete. The rat will be restrained by grasping around the thorax with one hand, scruffing, or placing in dorsal recumbency and placing one hand over the thorax and applying gentle pressure. The vaginal opening will be visually examined for the appearance of a small "pin hole," a vaginal thread, or complete vaginal opening. It may be necessary to gently probe the opening with a disposable pipette tip to determine if opening is complete. Each observation will be recorded on the day (PND) it is observed.

V.4.4.8.3. PPS Assessment: Beginning on PND 30, F1 males will be examined daily for PPS until complete PPS is observed. The rat will be restrained by grasping around the thorax with one hand, scruffing, or placing in dorsal recumbency and placing one hand over the thorax and applying gentle pressure. PPS will then be determined by attempting to manually retract the prepuce using gentle pressure (Korenbrot et al. 1977). The appearance of partial and complete PPS, or a persistent thread of tissue between the glans and prepuce, will be recorded on the days they are observed. The PPS observations will be collected at approximately the same time each day.

V.4.4.8.4. Perfusion Fixation: Animals will be anesthetized prior to perfusion fixation (as described in section V.4.1.2.1.). The perfusion pump will be set-up by attaching a perfusion needle to the animal receiving end and a weight to the liquid receiving end. The weighted end will then be submerged into a beaker of saline. The pump valve will be opened and speed adjusted to a slow steady drip (40-50 ml/min), and valve closed when air bubbles are pumped out of the line. Once the animal is under anesthesia, but before the heart stops beating, it will be placed on its back and the ventral region wetted with water, saline, or alcohol. A midline ventral longitudinal incision will be made from the cervical region to the bottom of the thoracic region and the skin will then be separated from the muscle. The thoracic cavity will be opened by cutting the ribs at or near the costochondral junction along both sides of the sternum and reflecting the sternum rostrally. The pericardium will be removed and the needle inserted into the apex portion of the left ventricle of the heart. A cut will be made through the right atrium. Alternate placements are acceptable, but they alter the speed and direction of flow and are therefore not desired. The perfusion pump will then be turned on and saline perfused through the animal until blood is removed and the fluid leaving is relatively clear (approximately 250-700 ml). The weighted tubing will then be moved to the beaker of fixative (machine may be paused while transferring) and fixative perfused until the upper torso of the animal is stiff (approximately 250-700 ml). The body may be stabilized in an appropriate position before fixation stiffens the body. When fixation is complete, the machine may be paused, the tubing removed from the needle and the weighted tubing switched to a cleaning solution (water or saline). The pump will be run to flush the line and prepare the tubing for the next use. The speed, volume of solution and quality of perfusion will be noted. Tissues may then be removed and placed in fixative with a 10:1 fixative volume to tissue volume ratio.

V.4.4.8.5. Animal Tattooing: Animals will be tattooed using an electric tattoo machine or a micro-tattoo/lancet system. The rat will be restrained by placing adults on a table and applying gentle but firm pressure to the dorsal surface, leaving the tail exposed. Adults may also be placed in restraining devices (i.e., decapicones or solid restrainers). Pre-weaned pups may be cupped in the hand, leaving the selected foot or tail exposed or may be placed on the table and gently restrained. The surface to be tattooed may be wiped with alcohol and the tip of the tattooing needle/lancet inserted into the skin surface at an approximately 45 degree angle. After the appropriate identification marking is drawn on the tail or foot pad, the skin may be gently wiped to remove excess ink. The animal can then be returned to the cage. The electric tattoo machine will be used IAW TOX SOP 071.000 (USAPHC 2013a).

V.4.4.9. Tissue Sharing: Tissues from animals euthanized on this study may be made available to other personnel with approved protocols if doing so does not affect the quality and validity of the study or change the euthanasia methods.

V.4.5. Study Endpoint: The study endpoint is euthanasia. All euthanasia will be conducted as described in section V.4.6. The scheduled euthanasia timepoints are as follows:

- P generation female rats will be euthanized after weaning of the F1 generation. For euthanasia/necropsy of the P generation, priority will be given to females which should be necropsied on the same/similar day of lactation (i.e., PND 21±1).
- P generation male rats will be euthanized after 10 weeks of exposure to NTO treated water. Timing of necropsy of P males is not critical and may be spread over several days as facility/personnel demands necessitate (i.e. study day 70-77).
- Pups culled to standardize litters will be euthanized on PND 4.
- Weanlings not placed in cohorts will be euthanized on PND 22±1 or transferred to another approved protocol (control animals) by PND 30.

- F1 animals will be euthanized on PND 42±1 for females and PND 53±1 for males.

Intervention euthanasia will be conducted on moribund animals, but animals are not expected to become ill on this study. Animals will be assessed for moribundity based on a weight of evidence of the following signs: impaired ambulation which prevents animals from reaching food/water; excessive weight loss or emaciation (≥ 20% body weight loss compared to controls); lack of physical or mental alertness; prolonged labored breathing (e.g., lasting longer than 8 hours and accompanied by extreme lethargy); unabated seizure activity (e.g., lasting longer than 1 hour); inability to urinate or defecate for greater than 24 hours; or a prolonged inability to remain upright (e.g., lasting more than 2 hours). Pregnant females in labor will be evaluated for moribundity and early removal if labor has begun, but is not progressing. Removal criteria listed above, with the exception of body weight, will also be used to assess pregnant females. Animals considered to be moribund will be immediately euthanized. The Attending Veterinarian will be consulted to evaluate potentially moribund animals, unless the PI/SD plans to immediately euthanize the animal.

V.4.6. Euthanasia: Euthanasia will be accomplished by asphyxiation from CO2 exposure IAW TOX SOP 027.001 (USAPHC 2012c). Death of all rats euthanized by CO2 will be ensured by thoracotomy, immediate necropsy with perforation of the diaphragm, or by decapitation (pups). Thoracotomy will be accomplished by inserting a sharp blade into the chest cavity behind a rib and moving the blade the length of the rib. Alternatively, for animals being immediately necropsied, the abdomen will be opened and a puncture made through the diaphragm via the abdominal cavity. Decapitation will be performed on young pups to ensure death IAW TOX SOP 035 (USAPHC 2013b). Using sharp scissors, the blades will be positioned to cut caudal to the base of the skull and cranial to the thoracic vertebrae. The blades will be closed using one swift smooth motion.

V.5. <u>Veterinary Care</u>:

V.5.1. Husbandry Considerations: Animal rooms will be maintained IAW TOX SOP 022.000 (USAPHC 2012d). Animals will be provided ad lib rodent chow that is certified free of contaminants (with exception of overnight fasting prior to necropsy). Water will be provided ad lib either by the automated watering system, by reservoirs that feed into the racks, or by water bottles. Light cycle will be 12 hours on and 12 hours off. Room temperature will be set at 68-72º F and humidity at 30-70%. Cage sanitation will be checked at least once daily by animal care staff. The animals will be housed in plastic, solid-bottom shoebox cages (size appropriate to the body weight of the rat). The P generation males will be pair housed within treatment group during the pre-mating phase and after the co-housing period. The P generation females will be singly housed during the pre-mating period and after the co-housing period until parturition when they will be housing with their litters. During the 2-week co-housing period, rats will be pair-housed (1 male to 1 female) in shoebox cages with an elevated wire rack (no bedding) which will allow investigators to check for the presence of a sperm plug in the bottom of the cage. The F1 generation will be socially housed in small groups of the same sex and treatment group. All rats will undergo a 5-day acclimation period. Body weight and observation data may also be collected for rats by study personnel during the acclimation period in an attempt to more accurately monitor the health status of the rats in preparation for their use on study. However, animals will not be weighed or handled by study personnel within the first 24 hours after their arrival to the facility.

V.5.1.1. Study Room: Studies will be conducted at the USAPHC TOX animal facility, Bldg E-2100 or Bldg E-2101, housing room as assigned. All live animal work will occur in the housing room.

V.5.1.2. Special Husbandry Provisions: Water will be provided via the automated watering system, by water bottles, or by carboys/reservoirs that feed into the racks. General husbandry procedures performed by the animal care staff (e.g., cage changes) will need to be performed with consideration of morning observations, and collection of PPS and VO data.

V.5.1.3. Exceptions: P Generation female animals will be singly housed except during the 2-week co-housing period and during the lactation period when females will be co-housed with litters. Females will be singly housed because they will be pregnant and cannot be co-housed with other pregnant females as litters cannot be intermingled. Males may be singly housed if post-mating aggression occurs.

V.5.2. Veterinary Medical Care

V.5.2.1. Routine Veterinary Medical Care: Animals will routinely be observed no less than once daily by assigned veterinary medical personnel for husbandry conditions, humane care, and general health status. In the event an animal becomes ill or injured, veterinary or toxicology personnel will immediately contact the Attending Veterinarian or their designated backup who will determine the appropriate course of action. Animals will be assessed for moribundity based on a weight of evidence of the following signs: impaired ambulation which prevents animals from reaching food/water; excessive weight loss or emaciation (≥ 20% body weight loss compared to controls); lack of physical or mental alertness; prolonged labored breathing (e.g., lasting longer than 8 hours and accompanied by extreme lethargy); unabated seizure activity (e.g., lasting longer than 1 hour); inability to urinate or defecate for greater than 24 hours; or a prolonged inability to remain upright (e.g., lasting more than 2 hours). Animals considered to be moribund will be immediately euthanized as described in section V.4.6. The Attending Veterinarian will be consulted to evaluate potentially moribund animals, unless the PI/SD plans to immediately euthanize the animal.

V.5.2.2. Emergency Veterinary Medical Care: Veterinary care is available 24 hours a day, 7 days a week. In the case of an emergency health problem, if the PI or co-PI is unavailable or if the investigator staff and veterinary staff cannot reach consensus on treatment, the veterinarian has the authority to treat the animal, remove it from the experiment, institute appropriate measures to relieve severe pain or distress, or perform euthanasia if necessary. A veterinarian will conduct a physical exam of the animal if the veterinarian orders treatment or euthanasia and the PI/SD does not concur. To facilitate communication, the vet med staff will maintain an emergency contact roster in the vet tech office. In an emergency, the veterinary staff will phone the numbers (office, home, and mobile) listed for the PI, primary co-PI, or on-call designee. If the PI, primary co-PI, or on-call designee cannot be reached by phone within 15 minutes, then they are considered unavailable.

V.5.3. Environmental Enrichment:

V.5.3.1 Enrichment Strategy: All animals, with the exception of the P generation females, will be socially housed. All animals will have an enrichment device (e.g., nylabone, rodent retreat, nestlets) in their cage. All animals on this study will receive the same type of enrichment throughout the study. There will be an environmental enrichment plan posted on the door of the animal room to communicate the enrichment plan to the animal care technicians. This enrichment plan will be in accordance with TOX SOP 033.000, Rodent and Rabbit Enrichment (USAPHC 2012b) unless otherwise noted in this section.

V.5.3.2. Enrichment Restriction: P generation female rats will be singly housed except during the 2-week co-housing period. Females will be singly housed because they will be pregnant and cannot be co-housed with other pregnant females as litters cannot be intermingled. Males may be singly housed if post-mating aggression occurs. Cylindrical retreats will not be placed in the cages during the co-housing, parturition, and lactation phases.

VI. STUDY PERSONNEL QUALIFICATIONS AND TRAINING: Personnel may not actually perform all activities listed for them in the table. Personnel will only perform activities for which they have received training.

Person	Activity Name	Training	Qualifications and Experience
Emily Lent	Handling/observations	Rat handling (7/19/07)	Ph.D., Natural Resources and Environmental Studies; M.S., Wildlife Biology 13+ Yrs Animal Research Experience
	Animal tattooing	Neonatal rat tattooing (4/24/13)	
	Sexual development assessment	OJT (02/12-04/12); Sexual Development in rats (VO/PPS) (5/5/13)	
	Blood collection	Rat bleeding techniques (7/19/07; 4/30/08)	
	Injections	Rat injection techniques (7/19/07)	
	CO2 euthanasia	Rat euthanasia via CO2 (7/19/07; 11/18/10)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
Lee Crouse	Handling/observations	Rodent handling techniques (11/21/96); Rat handling (7/19/07)	M.S., Environmental Science 16+ Yrs Animal Research
	Animal tattooing	Neonatal rat tattooing (4/24/13); Tail tattoo of rats using AIMS system (5/3/13, 5/10/13)	
	Sexual development assessment	OJT (02/12-04/12) ; Sexual Development in rats (VO/PPS) (5/5/13)	

	CO_2 anesthesia/blood collection	OJT (1996-present); Cardiac blood collection with CO_2 anesthesia & euthanasia (5/2/13, 5/8/13, 5/10/13)	Experience
	Blood collection	Rat bleeding techniques: cardiac under isoflurance (12/17/08); rat blood collection (7/19/07); Terminal cardiac blood draw (5/1/09)	
	Injections	Rat injection techniques (7/19/07); Rat IP and IM injections (2/15/12)	
	CO_2 euthanasia	Rat euthanasia via CO_2 (7/19/07; 5/01/09)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO_2/decapitation (3/16/12)	
Valerie Adams	Handling/observations	Rat techniques: handling and observations (11/3/08); Small animal handling workshop (5/28/09)	Ph.D., Cell and Structural Biology 7+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	Sexual Development in rats (VO/PPS) (5/5/13)	
	Blood collection	Rat techniques: basic bleeding (11/03/08); Small animal handling workshop: IC bleed (5/28/09)	
	Injections	Rat injection techniques (11/03/08); Small animal handling workshop: IM/IP/SQ/IC injections (5/28/09); IV tail vein injections (6/6/13, 6/13/13)	
	Perfusion fixation	Rodent Perfusion Training (2/21/13)	
	CO_2 euthanasia	Small animal handling workshop: euthanasia (5/28/09)	
	Decapitation (scissors)	TBS	
Larry Williams	Handling/observations	Rat techniques: handling and observations (11/3/08); Small animal handling workshop (5/28/09); Rat training: handling/observations (6/24/09)	Ph.D., Anatomy 30+ Yrs Animal Research Experience
	Animal tattooing	Tail tattoo of rats using AIMS system (5/3/13, 5/10/13)	
	Sexual development assessment	Sexual Development in rats (VO/PPS) (5/5/13)	
	Blood collection	Rat techniques: basic bleeding (11/03/08); Small animal handling workshop: IC bleed (5/28/09)	
	Injections	Rat injection techniques (11/03/08); Small animal handling workshop: IM/IP/SQ/IC injections (5/28/09); IV tail vein injections (6/6/13)	
	CO_2 euthanasia	Small animal handling workshop: euthanasia (5/28/09); Rat training: CO_2 euthanasia (6/24/09)	
	Perfusion fixation	Rodent Perfusion Training (2/21/13)	
	Decapitation (scissors)	TBS	
Theresa Hanna	Handling/observations	Animal handling: rat (3/12/92); rat techniques: handling/observations (11/3/08); Rodent small animal handling workshop (2/25/98; 4/2/04; 11/22/05)	ALAT 15+ Yrs Animal Research Experience
	Animal tattooing	Neonatal rat tattooing (4/24/13); Tail tattoo of rats using AIMS system (5/3/13, 5/10/13)	
	Behavioral testing	Acoustic startle (1/22/09); FOB (5/9/07; 8/22/08; 1/12/09)	
	Sexual development assessment	OJT (02/12-04/12)	
	Vaginal lavage	Rat vaginal lavage (2/13/12; 6/19/12; 6/26/12)	
	CO_2 anesthesia/cardiac blood collection	TBS	
	Blood collection	Rat techniques: basic bleeding (11/3/08; Rat terminal cardiac blood draw (5/1/09)	
	Injections	Rat techniques: basic injections (11/3/08); rat SQ	

		injections (6/19/12; 6/26/12); Rats: IP/IM injections (2/15/12); IV tail vein injections (6/6/13, 6/13/13)	
	CO2 euthanasia	Rat euthanasia CO2 (3/27/09); Rat CO2 euthanasia (5/1/09)	
Allison Jackovitz	Handling/observations	Small animal handling workshop (6/4/09); Rat handling (6/12/12)	B.S., Biology 2+ Yrs Animal Research Experience
	Animal tattooing	Neonatal rat tattooing (4/24/13)	
	Sexual development assessment	Sexual Development in rats (VO/PPS) (5/5/13)	
	Injections	Small animal handling workshop: IM/IP/SQ/IC injections (6/4/09); Rat injections:IM/SQ (6/12/12; 6/19/12); IV tail vein injections (6/6/13)	
	CO2 anesthesia/cardiac blood collection	Cardiac blood collection with CO2 anesthesia&euthanasia (5/2/13, 5/8/13, 5/10/13)	
	CO2 euthanasia	Small animal handling workshop: euthanasia (6/4/09); Rat CO2 euthanasia (6/12/12)	
	Decapitation (scissors)	TBS	
Alicia Shiflett	Handling/observations	Rat techniques: handling/observations (11/3/08): rat handling (6/12/12)	Associates Degree, Histology/Science 2+ Yrs Animal Research Experience
	Animal tattooing	Neonatal rat tattooing (4/24/13)	
	Sexual development assessment	Sexual Development in rats (VO/PPS) (5/5/13)	
	Blood collection	Rat techniques: basic bleeding (11/3/08)	
	Injections	Rat techniques: basic injections (11/3/08); rat SQ injections (6/19/12)	
	CO2 euthanasia	Rat CO2 euthanasia (3/27/09)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
Matt Bazar	Handling/observations	Rodent handling workshop (2/17/04); Rodent and small animal handling workshop (12/7/04); Small animal handling workshop (8/28/09)	M.S., Biology 8+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Injections	Small animal handling workshop: injections IM/IP/SQ (8/28/09)	
	CO2 euthanasia	Rat CO2 euthanasia (11/18/10); Small animal handling workshop: euthanasia tech. (8/28/09)	
Wilfred McCain	Handling/observations	TBS	Ph.D., Toxicology 30+ Yrs Animal Research Experience
	CO2 euthanasia	TBS	
Craig McFarland	Handling/observations	Rat handling techniques (7/19/07); Rodent handling techniques (6/30/11)	Ph.D., DVM, Environmental Toxicology 12+ Yrs Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	Sexual Development in rats (VO/PPS) (5/5/13)	
	CO2 anesthesia/cardiac blood collection	Cardiac blood collection with CO2 anesthesia&euthanasia (5/2/13, 5/8/13, 5/10/13)	
	Blood collection	Rat techniques: blood collection (7/19/07)	
	Injections	Rat techniques: injections (7/19/07); Rodent IP injections (6/30/11)	
	CO2 euthanasia	Rat techniques: euthanasia (7/19/07); Rat euthanasia (10/16/07)	
	Decapitation (scissors)	TBS	
Art O'Neill	Handling/observations	Inhalation testing experience (memo from DuPont dated 10/08)	B.S., Biology LATG

	Animal tattooing	TBS	30+ Yrs Animal Research Experience
	Sexual development assessment	TBS	
	CO2 euthanasia	Inhalation testing experience (memo from DuPont dated 10/08)	
Michael Quinn	Handling/observations	Rodent small animal handling workshop (6/21/05); Rodent handling techniques (6/30/11)	Ph.D., Animal Science 13+ Yrs Animal Research Experience
	Sexual development assessment	OJT (02/12-04/12)	
	Injections	Rodent IP injections (6/30/11)Rat IP/IM injections (2/15/12); Rat SQ injections (6/19/12); IV tail vein injections (6/6/13, 6/13/13)	
	CO2 euthanasia	Rodent small animal handling workshop (6/21/05)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
SPC Brandin Versteegh	Handling/observations	OJT as Animal Care Tech.	Academy of Health Sciences Diploma, Animal Care Specialist 1 Yr Animal Research Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Blood collection	TBS	
	Injections	TBS	
	CO2 euthanasia	TBS	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
Mark Way	Handling/observations	Rodent and small animal handling workshop (5/17/07); Rat handling (7/19/07; 7/9/09)	B.S., Biology AALAS-LAT 17+ Yrs Animal Research Experience
	Animal tattooing	Tail tattoo of rats using AIMS system (5/3/13, 5/10/13)	
	Blood collection	Rat techniques: blood collection (7/19/07)	
	Injections	Rat techniques: injections (7/19/07); IV tail vein injections (6/13/13)	
	CO2 euthanasia	Rat techniques: euthanasia (7/19/07); CO2 euthanasia (7/9/09)	
Desmond Bannon	Handling/observations	Rodent small animal handling workshop (1/10/05)	Ph.D., D.A.B.T. 14+ Yrs Animal Research Experience 12+ Yrs Clinical Toxicology Experience
	Animal tattooing	TBS	
	Sexual development assessment	TBS	
	Injections	Rodent small animal handling workshop (1/10/05); Rat IP/IM injections (2/15/12)	
	CO2 euthanasia	Rodent small animal handling workshop (1/10/05)	
	Decapitation (scissors)	Neonatal pup euthanasia: CO2/decapitation (3/16/12)	
William Eck	Handling/observations	Rat handling (7/19/07): Small animal handling workshop (5/28/09)	Ph.D., Biochemistry 8+ Yrs Animal Research Experience
	Sexual development assessment	Sexual Development in rats (VO/PPS) (5/5/13)	
	Blood collection	Rat techniques: blood collection (7/19/07); Small animal handling workshop: IC bleed in rats (5/28/09)	
	Injections	Rat techniques: injections (7/19/07); Small animal handling workshop: IM/IP/SQ/IC injections (5/28/09)	
	CO2 euthanasia	Rat techniques: euthanasia (7/19/07); Small animal handling workshop: CO2 euthanasia (5/28/09)	
Emily Reinke (nee Terry)	Handling/observations	Rat handling (6/12/12)	M.S. Animal Science 4 Yrs Animal
	Animal tattooing	TBS	
	Sexual development assessment	TBS	

	Injections	Rat injections: IM/SQ (6/12/12); SQ injections (6/26/12)	Research Experience
	CO2 euthanasia	Rat CO2 euthanasia (6/12/12)	
	Decapitation (scissors)	TBS	
Wei-Sing Chu	Handling/observations	TBS	M.D., M.S. Immunology
	Sexual development assessment	TBS	
	Injections	TBS	

VII. BIOHAZARD/SAFETY: Risks associated with this protocol include bites/scratches/needle sticks, transmission of zoonotic diseases, and the development of animal allergies. To minimize risk, appropriate handling techniques will be used and appropriate personal protective equipment (PPE) will be worn for all animal handling work. This includes (but may not be limited to) facemask, gloves, and disposable lab coat. Personnel will wash their hands upon completion of animal work. Applicable current TOX SOPs and PHC regulations (TOX SOP 046.000 and USACHPPM 385-5, OHS of Animal Users) (USAPHC 2012e; USACHPPM 2007) will be followed. These documents specify hazardous waste disposal, bite/scratch procedures, and zoonotic disease prevention. A sharps container will be present at all times when using sharps and needles will not be recapped after entering animal tissue. The NTO treated water will be treated as hazardous. NTO treated water will not be disposed of down the floor or sink drains. Waste containers will be provided for collection of liquid and solid waste (e.g., bedding) and will be disposed of by contacting the Hazardous Waste Manager.

VIII. ENCLOSURES:

A. References

IX. <u>ASSURANCES</u>: The law specifically requires several written assurances from the Study Director/ Principal Investigator. Please read and sign the assurances as indicated.

As the Study Director/ Principal Investigator on this protocol, I acknowledge my responsibilities and provide assurances for the following:

A. <u>Animal Use</u>: The animals authorized for use in this protocol will be used only in the activities and in the manner described herein, unless a modification is specifically approved by the IACUC prior to its implementation.

B. <u>Duplication of Effort</u>: I have made every effort to ensure that this protocol is not an unnecessary duplication of previous experiments.

C. <u>Statistical Assurance</u>: I assure that I have consulted with a qualified individual who evaluated the experimental design with respect to the statistical analysis, and that the minimum number of animals needed for scientific validity will be used.

D. <u>Biohazard/Safety</u>: I have taken into consideration, and I have made the proper coordinations regarding all applicable rules and regulations regarding radiation protection, biosafety, recombinant issues, and so forth, in the preparation of this protocol.

E. <u>Training</u>: I verify that the personnel performing the animal procedures/manipulations/ observations described in this protocol are technically competent and have been properly trained to ensure that no unnecessary pain or distress will be caused to the animals as a result of the procedures/manipulations.

F. <u>Responsibility</u>: I acknowledge the inherent moral, ethical and administrative obligations associated with the performance of this animal use protocol, and I assure that all individuals associated with this project will demonstrate a concern for the health, comfort, welfare, and well-being of the research animals. Additionally, I pledge to conduct this study in the spirit of the fourth "R", namely “Responsibility,” which the DOD has embraced for implementing animal use alternatives where feasible and conducting humane and lawful research.

G. <u>Scientific Review</u>: This proposed animal use protocol has received appropriate peer scientific review and is consistent with good scientific research practice.

H. <u>Painful Procedures</u>: (A signature for this assurance is required by the Study Director/Principal Investigator if the research being conducted has the potential to cause more than momentary or slight pain or distress even if an anesthetic or analgesic is used to relieve the pain and/or distress.)

I am conducting biomedical experiments which may potentially cause more than momentary or slight pain or distress to animals. This potential pain and/or distress WILL or WILL NOT (circle one or both, if applicable) be relieved with the use of anesthetics, analgesics and/or tranquilizers. I have considered alternatives to such procedures; however, I have determined that alternative procedures are not available to accomplish the objectives of this proposed experiment.

(PRINT) First Name, MI, Last Name of Study Director/ Principal Investigator

Signature Date (YYYYMMDD)

IX.2 ASSURANCES: As the Primary Co-Investigator on this protocol, I provide the following assurances:

A. Animal Use: The animals authorized for use in this protocol will be used only in the activities and in the manner described herein, unless a modification is specifically approved by the IACUC prior to its implementation.

B. Authority: I understand that, as the Primary Co-Investigator, I am authorized and responsible for performing all procedures and manipulations as assigned to the SD/PI in the SD/PI's absence. This includes euthanasia of distressed animals.

C. Training: I verify that I am technically competent and have been properly trained to ensure that no unnecessary pain or distress will be caused to the animals as a result of the procedures/manipulations.

D. Responsibility: I acknowledge the inherent moral and administrative obligations associated with the performance of this animal use protocol, and I assure that I will demonstrate a concern for the health, comfort, welfare, and well-being of the research animals. Additionally, I pledge to conduct this study in the spirit of the fourth "R", namely "Responsibility," which the DOD has embraced for implementing animal use alternatives where feasible, and conducting humane and lawful research.

E. Painful Procedures: I am conducting biomedical experiments, which may potentially cause more than momentary or slight pain or distress to animals. This potential pain and/or distress WILL or WILL NOT (circle one or both, if applicable) be relieved with the use of anesthetics, analgesics and/or tranquilizers. I have considered alternatives to such procedures; however, I have determined that alternative procedures are not available to accomplish the objectives of this proposed experiment.

____

(PRINT) First name, MI, Last name of Primary Co-Investigator

____ ________________________

(Signature) (Date)

IX.3 ASSURANCES: As a Co-Investigator on this protocol, I provide the following assurances:

A. Animal Use: The animals authorized for use in this protocol will be used only in the activities and in the manner described herein, unless a modification is specifically approved by the IACUC prior to its implementation.

B. Authority: I understand that, as a Co-Investigator, I am authorized, responsible for, and willing to perform all procedures and manipulations as assigned to me by the SD/PI.

C. Training: I verify that I am technically competent and have been or will be properly trained to ensure that no unnecessary pain or distress will be caused to the animals as a result of the assigned procedures/manipulations performed by me.

D. Responsibility: I acknowledge the inherent moral and administrative obligations associated with the performance of this animal use protocol, and I assure that I will demonstrate a concern for the health, comfort, welfare, and well-being of the research animals. Additionally, I pledge to participate in this study in the spirit of the fourth "R", namely "Responsibility," which the DOD has embraced for implementing animal use alternatives where feasible, and conducting humane and lawful research.

E. Painful Procedures: I am participating in biomedical experiments, which may potentially cause more than momentary or slight pain or distress to animals. I will follow the direction of the SD/PI relative to potential pain and/or distress and relief by the use of anesthetics, analgesics and/or tranquilizers.

(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

(PRINT) (Signature) (Date)
First name, MI, Last name of Co-Investigator

APPENDIX A

REFFERENCES

ALPCO Immunoassays. Thyroid Stimulating Hormone (Rat) ELISA Kit Instruction Manual. http://www.alpco.com/pdfs/55/55-TSHRT-E01.pdf (accessed 12 December 2012).

CFR. 1989. Title 40, Code of Federal Regulations (CFR), Part 792, Toxic Substances Control Act (TSCA), Good Laboratory Practice Standards.

Crouse, L.C.B., et al. 2010. Subchronic Oral Toxicity of NTO in Rats. U.S. Army Public Health Command, Aberdeen Proving Ground, MD. Toxicology Study No. 85-XC-0A6W-08.

Duncan, K. 2002. Insensitive Munitions and the Army: Improving Safety and Survivability. Army Logistician PB700-02-1, Volume 34, Issue 1: 16-17.

Fenton, S.E., et al. 2002. Persistent abnormalities in the rat mammary gland following gestational and lactation exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Toxicological Sciences 67: 63-74.

Gallavan, R., et al. 1999. Interpretting the toxicological significance of alterations in anogenital distance: potential for confounding effects of progeny body weights. Reproductive Toxicology 13(5): 383-390.

Houpt, J.T. and Hable, M.A. 2010. Determination of the Water Solubility, Octanol-Water Partition Coefficient and Biodegradation Potential of 3-Nitro-1,2,4-Triazol-5-One (NTO). U.S. Army Public Health Command, Aberdeen Proving Ground, MD. Report No. 85-XC-0A6Wb-08.

International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH). 2005. Detection of Toxicity to Reproduction for Medicinal Products and Toxicity to Male Fertility S5(R2).

Korenbrot, C.C., Huhtaniemi, I.T., Weiner, R.I. 1977. Preputial separation as an external sign of pubertal development in the male rat. Biology of Reproduction 17: 298-303.

Lent, E.M., et al. in prep. Pubertal Development and Thyroid Function in Intact Juvenile Rats Exposed to NTO. U.S. Army Public Health Command, Aberdeen Proving Ground, MD. Toxicology Study No. 85-XC-0FP3-12.

Linder, R.E., et al. 1992. Endpoints of Spermatoxicity in the Rat After Short Duration Exposures to Fourteen Reproductive Toxicants. Reproductive Toxicology 6:491-505.

London, J.E., Smith, D.M. 1985. A Toxicological study of NTO. Los Alamos National Laboratory, Los Alamos, New Mexico. Report No. LA-10533-MS.

Marcondes, F.K., Bianchi, F.J., Tanno, A.P. 2002. Determination of the estrous cycle phases of rats: some helpful considerations. Braz. J. Biol. 62(4A): 609-614.

NRC. 2011. Guide for the Care and Use of Laboratory Animals, National Academies Press, 2011.

Organisation for Economic Co-Operation and Development (OECD). 1983. Test Guideline 415: One-Generation Reproductive Toxicity Study.

Organisation for Economic Co-Operation and Development (OECD). 2001. Test Guideline 416: Two-Generation Reproductive Toxicity Study.

Organisation for Economic Co-Operation and Development (OECD). 2008. Environment, Health and Safety Publications Series on Testing and Assessment No. 43: Guidance Document on Mammalian Reproductive Toxicity Testing and Assessment.

Organisation for Economic Co-Operation and Development (OECD). 2009. Series on Testing and Assessment (Number 106): Guidance Document for Histologic Evaluation of Endocrine and Reproductive Tests in Rodents: Part 5: Preparation, Reading and Reporting of Vaginal Smears.

Organisation for Economic Co-Operation and Development (OECD). 2011. Test Guideline 443: Extended One-Generation Reproductive Toxicity Study.

Smith, M.W. and Cliff, M.D. 1999. NTO-Based Explosive Formulations: A Technology Review. Weapons Systems Division, DSTO Aeronautical and Maritime Research Laboratory, Salisbury South Australia 5108 Australia, DSTO-TR-0796.

Spear, R.J., Louey, C.N., and Wolfson, M.G. 1989. A Preliminary Assessment of NTO as an Insensitive High Explosive. DSTO Materials Research Laboratory, Maribyrnong, Victoria 3032, Australia, MRL-TR-89-18.

U.S. Environmental Protection Agency, Office of Prevention, Pesticides, and Toxic Substances. 2009a. Health Effects Test Guidelines: OPPTS 870.3800 Reproduction and Fertility Effects.

U.S. Environmental Protection Agency, Office of Prevention, Pesticides, and Toxic Substances. 2009b. Endocrine Disruptor Screening Program Guidelines: OPPTS

890.1450, Pubertal Development and Thyroid Function in Intact Juvenile/Peripubertal Female Rats.

USACHPPM. 2007. Regulation 385-5, Occupational Health and Safety of Animal Users.

USAPHC. 2011a. TOX SOP 011.000, Clinical Chemistry Analysis of Blood Specimens. Aberdeen Proving Ground, Maryland.

USAPHC. 2011b. TOX SOP 013.000, Cell-Dyn Hematology Analyzer. Aberdeen Proving Ground, Maryland.

USAPHC. 2011c. TOX SOP 020.000, TOSOH Automated Enzyme Immunoassay System. Aberdeen Proving Ground, Maryland.

USAPHC. 2011d. TOX SOP 039.000, Assessing Immunotoxicity in Rats. Aberdeen Proving Ground, Maryland.

USAPHC. 2011e. TOX SOP 038.000, Coulter Z Series. Aberdeen Proving Ground, Maryland.

USAPHC. 2011f. TOX SOP 024.000, Individual Animal Identification. Aberdeen Proving Ground, Maryland.

USAPHC. 2012a. SOP DLS 801.1, Chromatographic-Spectrophotometric Analysis of Toxicology Samples. Aberdeen Proving Ground, Maryland.

USAPHC. 2012b. TOX SOP 033.000, Rodent and Rabbit Enrichment. Aberdeen Proving Ground, Maryland.

USAPHC. 2012c. TOX SOP 027.001, Animal Euthanasia. Aberdeen Proving Ground, Maryland.

USAPHC. 2012d. TOX SOP 022.000, Animal Health Technician Duties in Animal Holding Rooms. Aberdeen Proving Ground, Maryland.

USAPHC. 2012e. TOX SOP 046.000, Health and Safety of Laboratory Personnel. Aberdeen Proving Ground, Maryland.

USAPHC. 2013a TOX SOP 071.000, Use and Maintenance of the AIMS ATS-3 Animal Tattoo System for Small Animal Identification. Aberdeen Proving Ground, Maryland.

USAPHC. 2013b TOX SOP 035.000, The Use and Maintenance of Decapitation Equipment. Aberdeen Proving Ground, Maryland.